



Oregon

John A. Kitzhaber, M.D., Governor

Department of Land Conservation and Development

635 Capitol Street NE, Suite 150

Salem, Oregon 97301-2540

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www.oregon.gov/LCD



NOTICE OF ADOPTED CHANGE TO A COMPREHENSIVE PLAN OR LAND USE REGULATION

Date: 02/17/2015
Jurisdiction: City of Hillsboro
Local file no.: HCP-004-14
DLCD file no.: 011-14

The Department of Land Conservation and Development (DLCD) received the attached notice of adopted amendment to a comprehensive plan or land use regulation on 02/13/2015. A copy of the adopted amendment is available for review at the DLCD office in Salem and the local government office.

Notice of the proposed amendment was submitted to DLCD 36 days prior to the first evidentiary hearing.

Appeal Procedures

Eligibility to appeal this amendment is governed by ORS 197.612, ORS 197.620, and ORS 197.830. Under ORS 197.830(9), a notice of intent to appeal a land use decision to LUBA must be filed no later than 21 days after the date the decision sought to be reviewed became final. If you have questions about the date the decision became final, please contact the jurisdiction that adopted the amendment.

A notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR chapter 661, division 10).

If the amendment is not appealed, it will be deemed acknowledged as set forth in ORS 197.625(1)(a). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

DLCD Contact

If you have questions about this notice, please contact DLCD's Plan Amendment Specialist at 503-934-0017 or plan.amendments@state.or.us



NOTICE OF ADOPTED CHANGE TO A COMPREHENSIVE PLAN OR LAND USE REGULATION

FOR DLCD USE
File No.: 011-14 {22432}
Received: 2/13/2015

Local governments are required to send notice of an adopted change to a comprehensive plan or land use regulation **no more than 20 days after the adoption.** (See [OAR 660-018-0040](#)). The rules require that the notice include a completed copy of this form. **This notice form is not for submittal of a completed periodic review task or a plan amendment reviewed in the manner of periodic review.** Use [Form 4](#) for an adopted urban growth boundary including over 50 acres by a city with a population greater than 2,500 within the UGB or an urban growth boundary amendment over 100 acres adopted by a metropolitan service district. Use [Form 5](#) for an adopted urban reserve designation, or amendment to add over 50 acres, by a city with a population greater than 2,500 within the UGB. Use [Form 6](#) with submittal of an adopted periodic review task.

Jurisdiction: City of Hillsboro

Local file no.: **HCP-004-14**

Date of adoption: 1/20/15

Date sent: 2/9/2015

Was Notice of a Proposed Change (Form 1) submitted to DLCD?

Yes: Date (use the date of last revision if a revised Form 1 was submitted): 8/19/14

No

Is the adopted change different from what was described in the Notice of Proposed Change? Yes No

If yes, describe how the adoption differs from the proposal:

Through the public hearings process, the Comprehensive Plan Map has been amended per Attachment 3 and the Comprehensive Plan language has been updated.

Local contact (name and title): Jeannine Rustad/Aaron Ray

Phone: 503-681-5321/6476

E-mail: jeannine.rustad@hillsboro-oregon.gov

Street address: 150 E Main Street

City: Hillsboro

Zip: 97123-

PLEASE COMPLETE ALL OF THE FOLLOWING SECTIONS THAT APPLY

For a change to comprehensive plan text:

Identify the sections of the plan that were added or amended and which statewide planning goals those sections implement, if any:

Comp Plan: Sec. 31: update Plan goals, policies and implementation actions for South Hillsboro; Sec 32: update & incorporate as an appendix to Sec 31 and delete existing Sec 32; Sec 2 (Urbanization); and the Comprehensive Plan Map. See Attachment 1. Goals implemented: 1, 2, 5, 6, 8 - 14.

For a change to a comprehensive plan map:

Identify the former and new map designations and the area affected:

Change from See Attachment 2 to _____ acres. A goal exception was required for this change.

Change from See Attachment 3 to _____ acres. A goal exception was required for this change.

Change from _____ to _____ acres. A goal exception was required for this change.

Change from _____ to _____ acres. A goal exception was required for this change.

Location of affected property (T, R, Sec., TL and address): 1S2110001600; 1S2140002600; 1S210DD00100

The subject property is entirely within an urban growth boundary

The subject property is partially within an urban growth boundary

If the comprehensive plan map change is a UGB amendment including less than 50 acres and/or by a city with a population less than 2,500 in the urban area, indicate the number of acres of the former rural plan designation, by type, included in the boundary.

Exclusive Farm Use – Acres:	Non-resource – Acres:
Forest – Acres:	Marginal Lands – Acres:
Rural Residential – Acres:	Natural Resource/Coastal/Open Space – Acres:
Rural Commercial or Industrial – Acres:	Other: – Acres:

If the comprehensive plan map change is an urban reserve amendment including less than 50 acres, or establishment or amendment of an urban reserve by a city with a population less than 2,500 in the urban area, indicate the number of acres, by plan designation, included in the boundary.

Exclusive Farm Use – Acres:	Non-resource – Acres:
Forest – Acres:	Marginal Lands – Acres:
Rural Residential – Acres:	Natural Resource/Coastal/Open Space – Acres:
Rural Commercial or Industrial – Acres:	Other: – Acres:

For a change to the text of an ordinance or code:

Identify the sections of the ordinance or code that were added or amended by title and number:

For a change to a zoning map:

Identify the former and new base zone designations and the area affected:

Change from	to	Acres:
Change from	to	Acres:
Change from	to	Acres:
Change from	to	Acres:

Identify additions to or removal from an overlay zone designation and the area affected:

Overlay zone designation:	Acres added:	Acres removed:
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Location of affected property (T, R, Sec., TL and address):

List affected state or federal agencies, local governments and special districts: ODOT, TriMet, Washington County, Clean Water Services, Metro, Washington County Fire District 2, Tualatin Valley Fire and Rescue, Tualatin Valley Water District.

Identify supplemental information that is included because it may be useful to inform DLCD or members of the public of the effect of the actual change that has been submitted with this Notice of Adopted Change, if any. If the submittal, including supplementary materials, exceeds 100 pages, include a summary of the amendment briefly describing its purpose and requirements.

These amendments to Sec 31 of the Comp Plan set policies for development of South Hillsboro, a 1,400 acre area in the southeast corner of the City. The attached South Hillsboro Community Plan is an appendix to Sec 31 and includes design principles and planning concepts which drove policy development. Development in South Hillsboro

will yield approximately 7,700 dwellings, 286 ac of parks and open space, and a fully multi-modal transportation network with strong bike/ped facilities.

NOTICE OF ADOPTED CHANGE – SUBMITTAL INSTRUCTIONS

1. A Notice of Adopted Change must be received by DLCD no later than 20 days after the ordinance(s) implementing the change has been signed by the public official designated by the jurisdiction to sign the approved ordinance(s) as provided in [ORS 197.615](#) and [OAR 660-018-0040](#).

2. A Notice of Adopted Change must be submitted by a local government (city, county, or metropolitan service district). DLCD will not accept a Notice of Adopted Change submitted by an individual or private firm or organization.

3. **Hard-copy submittal:** When submitting a Notice of Adopted Change on paper, via the US Postal Service or hand-delivery, print a completed copy of this Form 2 on light green paper if available. Submit **one copy** of the proposed change, including this form and other required materials to:

Attention: Plan Amendment Specialist
Dept. of Land Conservation and Development
635 Capitol Street NE, Suite 150
Salem, OR 97301-2540

This form is available here:

<http://www.oregon.gov/LCD/forms.shtml>

4. **Electronic submittals** of up to 20MB may be sent via e-mail. Address e-mails to plan.amendments@state.or.us with the subject line “Notice of Adopted Amendment.”

Submittals may also be uploaded to DLCD’s FTP site at http://www.oregon.gov/LCD/Pages/papa_submittal.aspx.

E-mails with attachments that exceed 20MB will not be received, and therefore FTP must be used for these electronic submittals. **The FTP site must be used for all .zip files** regardless of size. The maximum file size for uploading via FTP is 150MB.

Include this Form 2 as the first pages of a combined file or as a separate file.

5. **File format:** When submitting a Notice of Adopted Change via e-mail or FTP, or on a digital disc, attach all materials in one of the following formats: Adobe .pdf (preferred); Microsoft Office (for example, Word .doc or docx or Excel .xls or.xlsx); or ESRI .mxd, .gdb, or .mpk. For other file formats, please contact the plan amendment specialist at 503-934-0017 or plan.amendments@state.or.us.

6. **Content:** An administrative rule lists required content of a submittal of an adopted change ([OAR 660-018-0040\(3\)](#)). By completing this form and including the materials listed in the checklist below, the notice will include the required contents.

Where the amendments or new land use regulations, including supplementary materials, exceed 100 pages, include a summary of the amendment briefly describing its purpose and requirements.

7. Remember to notify persons who participated in the local proceedings and requested notice of the final decision. ([ORS 197.615](#))

If you have any questions or would like assistance, please contact your DLCD regional representative or the DLCD Salem office at 503-934-0017 or e-mail plan.amendments@state.or.us.

Notice checklist. Include all that apply:

<http://www.oregon.gov/LCD/Pages/forms.aspx>

ORDINANCE NO. 6109

**HILLSBORO COMPREHENSIVE PLAN AMENDMENT 004-14:
SOUTH HILLSBORO COMMUNITY PLAN**

AN ORDINANCE AMENDING THE HILLSBORO COMPREHENSIVE PLAN, ORDINANCE NO. 2793, AS AMENDED. THE PROPOSED AMENDMENTS ARE TO SECTION 31 TO UPDATE COMPREHENSIVE PLAN GOALS, POLICIES AND IMPLEMENTATION ACTIONS FOR THE SOUTH HILLSBORO PLAN AREA; TO UPDATE AND INCORPORATE SECTION 32, THE SOUTH HILLSBORO COMMUNITY PLAN, INTO SECTION 31 AS AN APPENDIX; DELETE THE EXISTING SECTION 32; AMEND SECTION 2 (URBANIZATION); AND AMEND THE COMPREHENSIVE PLAN MAP.

WHEREAS, an area of approximately 1,400 acres of land situated south of the Tualatin Valley Highway, north of Rosedale Road, west of SW 209th Avenue, and east of Witch Hazel Village, the Reserve Vineyards and Golf Club and SW 229th Avenue is identified as the South Hillsboro Community Plan Area, as illustrated on the South Hillsboro Community Plan Map; and

WHEREAS, the South Hillsboro Community Plan Area was included in the urban growth boundary (UGB) by Metro in expansions of the UGB 2002 and 2011; and

WHEREAS, in 2012, the City Council adopted Ordinance No. 6029, adopting a new section 31, South Hillsboro Community Plan, to establish goals, policies and implementation actions for the South Hillsboro Plan area, and a new section 32 to incorporate by reference the South Hillsboro Community Plan; and

WHEREAS, since the adoption of Ordinance No. 6029, the City has undertaken a master planning process with local and regional partners to refine the South Hillsboro Community Plan and to develop zoning and development regulations to implement the vision, goals and policies contained the South Hillsboro Community Plan; and

WHEREAS, Section 1 (III) of the Hillsboro Comprehensive Plan Ordinance, as amended, requires consideration, process, and a public hearing by the Hillsboro Planning Commission with respect to initiating proposed major amendments to the Comprehensive Plan, such as the proposed South Hillsboro Community Plan and Plan Map amendments to the Comprehensive Plan described in the attachments to this Order; and

WHEREAS, the Planning Commission adopted Order No. 8123 initiating the proposed Comprehensive Plan amendments on August 27, 2014; and

WHEREAS, the Planning Commission held five (5) public hearings on September 24th, October 22nd, November 12th, December 10th (limited to issues of annexation and parks, recreation and open space) and December 17th (limited to the issue of parks, recreation and open space); and

WHEREAS, on December 17, 2014, based on the testimony, the Record and Exhibits A and B attached hereto, the Planning Commission recommended City Council approval of the initiated Comprehensive Plan amendments through Adoption of Order No. 8136; and

WHEREAS, the City Council received the Planning Commission's recommendation on this matter on January 6, 2015, and accepts the Planning Commission's recommendation; and

WHEREAS, the City Council further determined that it would adopt the Planning Commission's Findings of Fact (Exhibit B) in support of the proposed Comprehensive Plan text amendments.

NOW, THEREFORE, THE CITY OF HILLSBORO ORDAINS AS FOLLOWS:

Section 1. Comprehensive Plan, Section 31, South Hillsboro Community Plan, will be amended to replace the South Hillsboro goals, policies, and implementation measures and incorporate by reference the *South Hillsboro Community Plan* as an appendix, as set forth in Exhibit A.

Section 2. Comprehensive Plan, Section 32, will be deleted.

Section 3. Comprehensive Plan, Section 2, Urbanization, will be amended include textual edits and update policies regarding annexation in South Hillsboro, as set forth in Exhibit A.

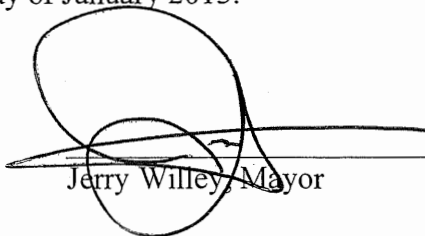
Section 4. The Comprehensive Plan Map will be amended to reflect changes to the South Hillsboro Comprehensive Plan Map (Hillsboro Comprehensive Plan, Figure 31-2), as set forth in Exhibit A.

Section 5. This order shall be effective from and after 30 days following its passage and approval by the Mayor.

First approval of the Council on this 6th day of January 2015.

Second approval and adoption by the Council on this 20th day of January 2015.

Approved by the Mayor this 20th day of January 2015.



Jerry Willey, Mayor

ATTEST:



Amber Ames, City Recorder



February 9, 2015

TO: Plan Amendment Specialist
State of Oregon Department of Land Conservation and Development

FROM: Dawn Duray, Senior Planning Technician

RE: Transmittal of DLCD Form 2 Notice of Adoption
Hillsboro Case File No. Hillsboro Comprehensive Plan Amendment (HCP) 004-14

I, Dawn Duray, submitted on this date, February 9, 2015, the DLCD Form 2 and attached decision and exhibits via the DLCD FTP site for the above referenced Case File No., which was adopted by the Hillsboro City Council on January 20, 2015.

If you have any questions regarding this transmittal, please contact me at 503-681-6154. Should you have any questions in regards to the amendments, please contact Aaron Ray at 503-681-6476.

Sincerely,

CITY OF HILLSBORO PLANNING DEPARTMENT

A handwritten signature in black ink that reads 'Dawn Duray' in a cursive script.

Dawn Duray
Senior Planning Technician



February 5, 2015

TO: Plan Amendment Specialist
State of Oregon Department of Land Conservation and Development

FROM: Aaron Ray, AICP, Urban Planner
Jeannine Rustad, JD, Long Range Planning Manager

RE: DLCDC Form 2 Submittal: Summary of DLCDC Form 2 (Local Case File Hillsboro Comprehensive Plan 004-14)

This memorandum accompanies the enclosed DLCDC Form 2 notifying the Department of a recent Comprehensive Plan amendment adopted by the City of Hillsboro City Council, including all information required pursuant to Oregon Administrative Rule 660-018-0040. This electronic submittal includes the attachments to DLCDC Form 2 listed at the end of this cover letter. As the submittal exceeds 100 pages, the summary narrative required by OAR 660-018-0040(4) is included beginning on Page 2 of DLCDC Form 2.

Although the Comprehensive Plan amendments do not create or alter an Urban Growth Boundary or Reserve area (therefore not requiring submittal of geospatial data), the City has elected to provide the Department with shapefiles including the Plan Area boundary and resulting Comprehensive Plan map designations, sent separately to DLCDC and not included here.

Please let us know if you have questions or require additional information. Thank you.

Respectfully,
CITY OF HILLSBORO PLANNING DEPARTMENT

A handwritten signature in blue ink, appearing to read 'A. Ray'.

Aaron Ray, AICP
Urban Planner

A handwritten signature in blue ink, appearing to read 'Jeannine Rustad'.

Jeannine Rustad, J.D.
Long Range Planning Manager

Attachments and Exhibits:

1. Ordinance No. 6109, including the following Exhibits:
 - A. Comprehensive Plan Text and Map Amendments
 - B. Findings of Fact
2. Comprehensive Plan Map amendments (Reed's Crossing area)
3. Comprehensive Plan Map amendments (Butternut Creek area)

Hillsboro Comprehensive Plan Section 2. Urbanization.

(I) Goal.

To provide for ~~an the~~ orderly and efficient transition of land from rural to urban use ~~by through the identification and establishment identifying and establishing of~~ areas designed to accommodate the full range of urban uses within the Hillsboro Planning Area. ~~Establishment of Establishing~~ land use designations in particular areas will be based upon the need to: (Amended by Ord. No. 3433/12-83.)

- (A) Accommodate long-range population growth within the Hillsboro planning area.
- (B) Control the economic, environmental and energy consequences of urban growth.
- (C) Retain agricultural land outside the urban area.
- (D) Provide for the orderly and efficient extension of public facilities and service.
- (E) Assure efficient development of land consistent and compatible with the community's needs and resources.
- (F) Provide decent housing, employment opportunities and an environment with a high degree of livability for the citizens of Hillsboro and surrounding community.
- (G) Assure consistency with the Regional Urban Growth Boundary. (Added by Ord. No. 3078/1-80.)

(II) Definitions. (Added by Ord. No. 3736/12-87.)

(A) Hillsboro Planning Area (also referenced in the Comprehensive Plan as the planning area and the urban area). The boundaries of this area are described as follows:

- (1) those areas within the Regional Urban Growth Boundary located south of U.S. Highway 26 (Sunset Highway), north of State Highway 8 (Tualatin Valley Highway), east of Dairy Creek, and west of NW Cornelius Pass Road, NW 216th Avenue and SW 219th Avenue;
- (2) those areas within the Regional Urban Growth Boundary located south of State Highway 8 (Tualatin Valley Highway) east of the Tualatin River, and west of SW 209th Avenue; and
- (3) those areas within the Area of Interest which are annexed to the City of Hillsboro.

(B) Area of Interest. Those areas within the Regional Urban Growth Boundary identified in the 1987 Urban Service Study. The boundaries of this area are described as follows:

~~(1) From~~ from the intersection of NW Shute Road and U.S. Highway 26, east and north along NW Jacobson Road and the BPA powerline easement to West Union Road; east on West Union Road to its intersection with NW 158th Avenue; south on NW 158th to Willow Creek; west along Willow Creek to NW 173rd; south on NW 173rd Avenue and SW 170th to Farmington Road; west on Farmington Road to SW 209th Avenue; north on SW 209th Avenue to the Tualatin Valley Highway; west on the Tualatin Valley Highway to its intersection with SW 219th Avenue; north on SW 219th Avenue, SW 216th Avenue and NW Cornelius Pass Road to U.S. Highway 26; west along U.S. Highway 26 to NW Shute Road.

The Area of Interest includes only those properties within the Regional Urban Growth Boundary, and does not include any properties included in or annexed by other cities, ~~and a~~ any such areas ~~so~~ included in or ~~so~~ annexed to another city are not a part of the Area of Interest.

(III) Policies. (Renumbered by Ord. No. 3736/12-87.)

(A) Urbanization within the planning area shall be consistent with the goals and policies of this Plan. Development shall occur according to the availability of urban services and within the context of the Urban Planning Area Agreement. The City and other government agencies shall encourage property owners to maintain the present rural use and character of undeveloped or underdeveloped lands within the Hillsboro Planning Area until such land is required and proposed for urban use and the necessary urban services are available. (Amended by Ord. No. 3433/12-83, and Renumbered by Ord. No. 3736/12-87.)

(B) Land use designations within the Hillsboro Planning Area shall be designed to accommodate projected commercial and industrial growth and population densities through at least the year 2000 2035. (Amended by Ord. Nos. 3081/1-80; 3309/4-82; and 3433/12-83.)

(C) Any land use implementation measure adopted by the City or other government agency shall be consistent with and supportive ~~of~~ the need to expand public facilities and services as outlined in this goal, and shall be designed in a manner which-that accommodates increased public demands for urban services and is responsive to both expected growth in the commercial and industrial sectors and to population growth in the area. (Renumbered by Ord. No. 2970/2-79; and Amended by Ord. No. 3433/12-83.)

(D) The City shall adopt and enforce mutually supporting implementation measures necessary to integrate the type, timing and location of public facilities and services in a manner which-that accommodates both expected growth in the commercial and industrial sectors and the increased population density within the Hillsboro Planning Area. (Renumbered by Ord. No. 2970/2-79; and Amended by Ord. No. 3433/12-83.)

(E) The City shall coordinate its planning activities and implementation measures with government agencies in the planning area and determine respective roles and responsibilities necessary to carry out the policies of this goal. An Urban Planning Area Agreement ~~which that~~ clearly delineates the respective roles of the City and Washington County within the Hillsboro Planning Area shall be adopted and revised, if appropriate, as a part of the major revision process. (Renumbered by Ord. No. 2970/2-79; and Amended by Ord. No. 3433/12-83.)

(F) In the Area of Interest, the City will continue its current annexation policy, under which a property owners interested in annexing to the City ation are welcome is encouraged to contact the City for ~~whatever~~ information and assistance they need about how to initiate and complete the annexation process. (Added by Ord. No. 3736/12-87.)

(G) Upon annexation within the Area of Interest, the City ~~will may~~ initiate amendments to the City Comprehensive Plan Land Use and Transportation Maps ~~changes on recently for the~~ annexed propertyies; to City land use designations and functional street classifications should corresponding as closely as possible to ~~those the~~ designations and classifications already previously adopted by Washington County for ~~those the~~ propertyies. In the South Hillsboro Community Plan Area, the City may adopt City land use designations and functional street classifications that are consistent with the South Hillsboro Community Plan as described in Section 31 of the City Comprehensive Plan. (Added by Ord. No. 3736/12-87.)

(H) The City will negotiate with the service district(s) currently providing urban services to propertyies in the Area of Interest; and will address service provision issues on an individual basis upon receipt of a petitions for annexation. The City will work toward formal long-term service agreements with each affected service district; and ~~shall~~ consider the Area of Interest in all public facility plans. (Added by Ord. No. 3736/12-87.)

(IV) Implementation Measures.

(Amended by Ord. No. 3433/12-83 and 5891/12-08; and Renumbered by Ord. No. 3736/12-87.)

(A) Urban development shall occur only where urban services exist or are available. It is the intent of this Plan to encourage development in those areas where such services are currently available or can be readily provided in a logical manner. (Renumbered by Ord. No. 2970/2-79.)

(1) Urban services necessary for development include adequate water, sewer, and fire protection. The documentation of the availability of these needed services must be current. (Added by Ord. No. 3433/12-83.)

(2) Whenever feasible, the installation of sewage trunk lines shall occur prior to the development of the affected urban area. (Added by Ord. No. 3433/12-83.)

(3) Public streets, new or existing, ~~which that~~ are proposed for access to a particular ~~development~~ site ~~proposed for development~~, shall be ~~designed, located and constructed developed~~ in accordance with the transportation element of the Comprehensive Plan. (Added by Ord. No. 3433/12-83.)

(4) Other essential services, including school districts, Police or Sheriff's Department, water districts, and transit agency, must be ~~proven-shown~~ to be available to a proposed development within five years of a development approval. (Added by Ord. No. 3433/12-83.)

(5) The infill of vacant, bypassed lands, between areas of development, at an urban level, shall be encouraged. Appropriate measures shall be taken to insure that new development in infill areas is compatible with existing developed areas. The City will support a proposed annexation of infill areas and allow subsequent development to occur under the clear and objective standards in its implementing ordinances, including the Zoning and Subdivision ordinances. (Added by Ord. No. 3433/12-83.)

(6) Station Community Planning Areas shall be used as a tool to focus higher densities and transit supportive mixed use developments around light rail transit stations and encourage transit, walking and bicycle use. Key components of Station Community Planning Areas include:

- (a) A pedestrian orientation;
- (b) Increased intensity of certain land uses;
- (c) Public amenities, including pedestrian spaces and community facilities;
- (d) Multi-modal circulation linkages and;
- (e) Convenient access to light rail stations.

(Added by Ord. No. 4456/8-96)

(B) The City will coordinate with Washington County and affected special districts to develop joint capital improvement programs to provide urban services within the Hillsboro Planning Area. (Added by Ord. No. 2876/1-78, Renumbered by Ord. No. 2970/2-79, Renumbered and Amended by Ord. No. 3433/12-83.)

(C) Existing floodplain regulations will be reviewed and amended as necessary to assure compatible provisions and prevention of detrimental effects of activities across jurisdictional boundaries. (Added by Ord. No. 2876/1-78, Renumbered by Ord. Nos. 2970/2-79 and 3433/12-83.)

(D) Any proposed land development within the City of Hillsboro, ~~which that~~ meets the definition of “development” as ~~contained described~~ in Chapter 1 Section 1.02.15 of the Washington County Clean Water Service’s Design and Construction Standards and Regulations Pertaining to the Sanitary Sewerage and Storm and Surface Water Management Systems, including Regulations for Erosion Control and Protection of Water Quality Sensitive Areas, shall be reviewed for compliance with, and shall comply with, the applicable provisions and procedures of Chapter 3, Standard Design Requirements for Storm and Surface Water of the CWS’s Design and Construction Standards and Regulations for Sanitary Sewerage and Storm and Surface Water Management Systems. (Added by Ord. No. 4981/12-00.)

(E) A procedure for processing minor Hillsboro Comprehensive Plan Map changes shall be established in the Urban Planning Area Agreement as approved by Hillsboro and Washington County. (Added by Ord. No. 2876/1-78, Renumbered by Ord. No. 2970/2-79, Amended by Ord. No. 3414/7-83 and Renumbered and Amended by Ord. No. 3433/12-83.)

(F) If a property owner ~~disagrees is in dispute~~ with ~~the City~~ planning staff ~~as to~~ whether a change is major or minor, ~~he/she the owner~~ may request review ~~of the determination~~ by the Planning Commission ~~for the determination~~. (Added by Ord. No. 2876/1-78 and Renumbered by Ord. Nos. 2970/2-79 and 3433/12-83.)

(G) All land in the Hillsboro Planning Area is ~~assumed expected~~ to be ~~annexed and made available for urban development available for annexation and/or development~~, consistent with the Comprehensive Plan, ~~applicable community plans, City zoning, and~~ subdivision regulations, and the Urban Planning Area Agreement. (Added by Ord. No. 2876/1-78 and Renumbered by Ord. No. 2970/2-79, and Renumbered and Amended by Ord. No. 3433/12-83.)

(H) The City and County, through joint capital improvements programming and cooperation with special districts, will place a higher priority on capital expenditures which would assure the provision of full urban services in the Hillsboro Planning Area. (Added by Ord. No. 2876/1-78 and Renumbered by Ord. No. 2970/2-79, and Renumbered and Amended by Ord. No. 3433/12-83.)

(I) ~~Maximum Use~~ of ~~urban~~ services available in the Hillsboro Planning Area will be ~~maximized achieved through the encouragement of by encouraging~~ new development ~~at the~~ maximum density ~~ies~~ prescribed by the applicable Comprehensive Plan/land use ordinance, and through ~~the~~ infilling of partially developed areas. The ~~potential for poorly designed development to have a negative impact on~~ social and aesthetic ~~values impact of poorly designed development~~ increases with density. Consequently, development proposals above the minimum prescribed density of the applicable zone must demonstrate outstanding compliance with any applicable objective development standards and design guidelines adopted by the City Council or the Planning Commission. (Added by Ord. No. 2876/1-78 and Renumbered by Ord. No. 2970/2-79, Amended by Ord. No. 3433/12-83, 5777/8-07 and 5891/12-08.)

(J) Land uses identified by the Comprehensive Plan Land Use Map have been determined to be the most suitable ~~needed by for~~ the City. To meet the burden of proof for a proposed zone change, it is both necessary and sufficient to show that the proposed zone is consistent with and represents the highest use allowed by the Comprehensive Plan Land Use Map. ~~and i~~ In the case of ~~a zone changes in a residential areas~~, the proposed zone shall allow development of housing at a density within the range designated by the Land Use Map. In addition, the City may attach clear and objective conditions to the zone change provided such conditions are consistent with the Comprehensive Plan, the Zoning Ordinance and other rules and policies regulating development in the City.

In developed areas where existing uses and zoning are not consistent with the highest use under the Comprehensive Plan Land Use Map, an "incremental" zone change, which would allow development opportunity at the highest Plan use, shall be required prior to further redevelopment.

In undeveloped or newly annexed areas, if services are found to be inadequate to support the highest Plan use, ~~the City may approve~~ a zone change to a zone ~~which that does not would not~~ allow the opportunity for development at the highest Plan use for that area. Such an "interim" zone shall be conditioned to prohibit development until:

- 1) ~~until~~ adequate urban services are provided to the site; and
- 2) ~~until~~ a subsequent "incremental" zone change has been approved which would allow the opportunity for development at the highest Plan use.

~~An i~~ incremental zone changes ~~shall be is~~ allowed outright if ~~they it~~ conforms to the Plan and ~~conform with the clear and objective~~ standards of the Zoning Ordinance.

In areas designated C Commercial, a request for a zone change to the MU-C Mixed Use Commercial zone may be approved without approval of a minor Comprehensive Plan Land Use Map change to MU Mixed Use. Such a zone change to the MU-C zone (outside the MU Plan designation) shall be conditioned to require that future development be limited to vertical mixed use buildings. For purposes of this section, ~~a "vertical mixed use buildings" is are~~ defined as a buildings that is at least two stories in height; and constructed for a combination of commercial and residential occupancies within ~~each the~~ building. (Added by Ord. No. 3076/1-80, Renumbered by Ord. No. 3433/12-83, Amended by Ord. No. 3450/3-84 and Ord. No. 5464/12-04.)

(K) In order to protect development opportunities for large lot industrial uses until such time as there is no demonstrated demand or need for such large lots; and to provide opportunity for location of compatible small and medium size industrial uses near such large lot industrial uses; the City may place a Special Industrial District (SID) overlay zone on specific areas designated industrial on the Comprehensive Plan Land Use Map. The Special Industrial District shall limit

development in any areas so zoned to primarily larger lot industrial projects. (Added by Ord. No. 3414/7-83, Renumbered by Ord. No. 3433/12-83, and Amended by Ord. Nos. 3450/3-84, 3680-2-87, and 4547.)

(L) Any major retail use (a retail land use or retail business activity occupying a building of 60,000 square feet or more of gross leasable area per building or business) is allowed within the City as permitted by the comprehensive plan and implementing zoning ordinance, except in areas in which such a use is restricted as shown on the Title 4 Major Retail Use Restriction Overlay Map contained within the Zoning Ordinance. (Added by Ord. No. 4901/5-00.)

(M) The land use map shall designate property in the Hillsboro Planning Area as Low, Medium, High, or Mid-Rise Residential, Mixed-Use, Mixed-Use Urban Residential, Mixed-Use Urban Commercial, Mixed-Use Urban Employment, Mixed-Use Institutional, Commercial, Industrial, Open Space, Floodplain, Public Facility or Station Community Planning Area. The land use map may also designate the boundaries of Hillsboro “community plan” areas.

As used in this subsection, “Mixed-Use” means a mix of residential and commercial uses either vertically or horizontally. Appropriate Mixed Use zoning districts shall be applied to implement the Mixed-Use (MU) Plan designation on all properties designated Mixed-Use on the Comprehensive Plan Land Use Map, or on any properties identified for Mixed-Use on a Community Plan Area Map.

In addition to the criteria listed in Section 1.IV. B, applications for Minor Comprehensive Plan Land Use Map changes to the Mixed-Use MU Plan designation shall conform to the following criteria: 1) the overall area of the site proposed for the MU designation must equal five or more acres; and 2) the site proposed for the MU designation must be located adjacent to the intersection of two arterial streets, two collector streets, or an arterial street and a collector street.

Residential land outside Station Community Planning Areas shall be designated Low, Medium, or High density, or Mid-Rise Residential, so as to provide the opportunity for an overall density of 10 units per net acre, and a 50% detached single family / 50% attached single family or multi-family split on new construction.

Station Community Planning Areas shall be designated to promote medium to high density transit-oriented and pedestrian-sensitive mixed use developments in areas within reasonably close proximity of light rail transit stations. Station Community Planning Areas shall be identified with a designation of “SCPA” on the land use map. Boundaries for Station Community Planning Areas shall generally extend a half-mile radius around light rail transit stations, but may extend farther to include 1) contiguous land under common ownership at the time of adoption of the Station Community Planning Area boundary; 2) land owned by individual(s) who participated in the Station Community Planning process and consented to be included within a Station Community Planning Area; or 3) property justified for inclusion in a Station Community Planning Area based on location factors such as proximity to a transit trunk line, major

pedestrian route or feeder bus route, or because of natural or manmade boundaries. Mixed use developments, a broader range of housing types, and more intense residential and non-residential developments shall be permitted within Station Community Planning Areas. Overall residential density targets and overall employment intensity targets shall be established for Station Community Planning Areas and implemented with minimum residential densities and minimum floor area ratios through the adoption of Station Community Planning Area zoning districts. (Added by Ord. No. 2970/2-79, Amended by Ord. Nos. 3075/1-80 and 3309/4-82, and Renumbered and Amended by Ord. Nos. 3433/12-83, 4454/6-96, 4848/12-99, 5464/12-04 and 5933/1-10.)

(N) The City shall work with Washington County during the County's scheduled process to amend the Urban Planning Area Agreement to reflect the definitions and policies regarding the City's Area of Interest. (Added by Ord . No. 3736/12-87.)

1 **Section 31. South Hillsboro Community Plan**

2 **(I) Goals**

3 **(A)** Implement Hillsboro Vision 2020 through development of a comprehensively
4 planned land use and circulation system integrated with natural stream corridors
5 that evokes a sense of small-town living. Express the key themes of Hillsboro's
6 Vision 2020 in a new community that reflects the City's sense of what it means to
7 be "Hillsboro" by:

- 8 (1) Strengthening a Common Sense of Community;
- 9 (2) Enhancing All Neighborhoods and Districts;
- 10 (3) Preserving the Environment;
- 11 (4) Fostering Economic Opportunity;
- 12 (5) Expanding Support for and Access to Arts and Cultural Activities; and
- 13 (6) Promoting Community Health and Safety.¹

14 **(B)** Provide a framework for development of a complete community as enunciated by
15 Hillsboro Vision 2020, the Hillsboro Comprehensive Plan, other relevant City
16 master plans, and that is consistent with regional and state land use,
17 transportation, and growth management strategies.

18 **(C)** Provide for an increasing regional population while helping to balance the city of
19 Hillsboro's and western Washington County's jobs/housing ratio by developing a
20 new community that is Complete, Connected and Green.

21 **(II) General Development Policies**

22 **(A) Land Use**

23 Objective: South Hillsboro functions as a complete community serving all
24 segments of the population when it is fully developed.

25 (1) Land uses and development patterns within the South Hillsboro Plan Area
26 (as illustrated in Figure 31-1) shall reflect principles of a "Complete-
27 Connected-Green" community (discussed in further detail in the Appendix
28 of this section) as follows:

- 29 (a) Complete – The community shall have a full spectrum of facilities
30 and services that address the needs and desires of residents for
31 health, housing, education, shopping and recreation.

¹ Hillsboro 2020 Vision and Action Plan, Revised August 2010, pg. 1 - Focus Area Statements

- 1 (b) Connected – The community shall provide residents and visitors
2 with a transportation system that provides for all modes of travel
3 (walking, bicycling, driving and transit), seamlessly connecting
4 neighborhoods. The community shall provide both new areas and
5 older neighborhoods to the East and North with access to parks,
6 trails, open space, shopping and family services.
- 7 (c) Green – Development of South Hillsboro shall result in a
8 sustainable community that incorporates state-of-the-art green
9 development practices, preserving and improving existing natural
10 resources and wildlife corridors.
- 11 (2) City zones shall be applied in a manner consistent with the general land
12 uses and development prescribed for South Hillsboro by:
- 13 (a) Relevant sections of the Hillsboro Comprehensive Plan (including
14 but not limited to this section, Figure 31-2 and its Appendix); and,
- 15 (b) The zoning concept illustrated in Figure 31-3, which assumes
16 ultimate buildout of 95% of the maximum dwelling units allowed
17 under the depicted zones.
- 18 (3) Development within South Hillsboro should be consistent with
19 development patterns described in Metro’s “Great Community
20 Characteristics.”²
- 21 (4) More intense land uses should be placed along Cornelius Pass Road,
22 such that:
- 23 (a) A “Town Center” is located south of the railway corridor near the
24 intersection of Cornelius Pass Road and Tualatin Valley Highway,
25 to include commercial, employment, residential (including
26 multifamily), mixed-use, civic, and transit center uses with an
27 associated greenspace system;
- 28 (b) A “Village Center” is located along the Cornelius Pass Road
29 extension south of Butternut Creek, to include commercial and
30 residential uses with an associated greenspace system, with
31 connections to nearby residential and institutional uses (e.g.,
32 parks and schools);
- 33 (c) Commercial development is confined to the Town and Village
34 Centers with the exception of small-scale, low-impact commercial
35 uses such as home occupations or small neighborhood-serving
36 retail as consistent with the Community Development Code;
- 37 (d) Strip commercial development is prohibited; and,

² Metro’s Great Communities are achieved through design of complete communities, ecological systems, optimization of public investments, governance, finance, economy, education and workforce development. See also; <http://www.oregonmetro.gov/index.cfm/go/by.web/id=33638>; <http://www.oregonmetro.gov/index.cfm/go/by.web/id=30756>; and http://library.oregonmetro.gov/files/hillsboro_local_aspirations.pdf

- 1 (e) Compact, mixed-use development is encouraged in a way that
2 utilizes as much of the allowable land capacity as possible,
3 consistent with Community Development Code provisions in Town
4 and Village Centers and other higher-density areas.
- 5 (5) Overall development density should be compatible with surrounding
6 planned density. A variety of development densities should be utilized
7 where:
- 8 (a) Higher-density housing is located near the Town and Village
9 Centers, along Cornelius Pass Road and in other areas identified
10 on the City's Zoning and Comprehensive Plan maps and in the
11 Appendix of this section;
- 12 (b) Single-family detached residential units are generally located
13 farther from the centers, except as specified in the Appendix of
14 this Section; and
- 15 (c) The least dense residential areas are located along the golf
16 course and rural edges.
- 17 (6) Provide flexibility, balanced against financing assumptions, to allow
18 response to changing demographics, market conditions, and market
19 demands, through Planned Unit Development review, or via adjustments
20 and variances adjudicated by staff or the Planning Commission.

21 **(B) Urban Design**

22 Objective: Development in South Hillsboro that supports a high-quality built
23 environment, cohesive community interaction, an involved and active population,
24 opportunities for recreation and open space, and thriving village and town
25 centers.

26 (1) Form & massing

- 27 (a) In all areas, development should incorporate design elements that
28 provide for articulation of building facades, incorporate design
29 details that create visual interest and result in an attractive, high
30 quality, human scaled built environment. This objective is
31 achieved through the following design approaches:
- 32 (i) Provide for building façade articulation.
- 33 (ii) Ensure that buildings are oriented and connected to the
34 street by use of windows and entrances facing the street
35 and direct connections between buildings and the street.
- 36 (iii) Provide for ground-level architectural details.
- 37 (iv) Use human-scale proportions for buildings facing the street
38 that promote a safe and compelling pedestrian
39 environment.

- 1 (v) Create appropriate connections and transitions between
- 2 private development and public spaces.
- 3 (vi) Utilize high-quality, durable, and attractive materials.
- 4 (b) The Town Center and Village Center shall be designed to have a
- 5 strong urban character. The Village Center will have less intensive
- 6 land uses in terms of the size and scale of development. Specific
- 7 design elements in the Town and Village Centers should include:
 - 8 (i) Setbacks and building heights that establish a sense of
 - 9 enclosure of the street, create an active street frontage,
 - 10 and support an urban environment.
 - 11 (ii) Buildings with prominent and visible primary entrances that
 - 12 open onto the public street and provide direct access to
 - 13 commercial spaces.
 - 14 (iii) Design and placement of doors and windows to provide for
 - 15 a strong degree of transparency and visual connection that
 - 16 promotes safety and a sense of interaction between
 - 17 activities inside and outside of buildings, particularly along
 - 18 public streets.
 - 19 (iv) Parking designed to support an inviting pedestrian
 - 20 environment, with parking areas placed behind or to the
 - 21 side of buildings. In the Town and Village Centers,
 - 22 structured parking should be encouraged and designed so
 - 23 that it is architecturally compatible with surrounding
 - 24 structures and uses.
 - 25 (v) Corner buildings designed to include interesting sight lines,
 - 26 unique or easily recognizable architectural features, and
 - 27 sufficient building mass or height to anchor and define the
 - 28 adjacent intersection.
 - 29 (vi) Protection from the elements consistent with requirements
 - 30 of the Hillsboro Community Development Code.
 - 31 (vii) Entrances to buildings accessible to all users.
 - 32 (viii) Public spaces that include provisions or opportunities for
 - 33 public art.
 - 34 (ix) Distinctive landscaping, shade trees, water features, and
 - 35 street-level seating as contextually appropriate.
 - 36 (x) Parking areas, mechanical or utility systems, or similar
 - 37 components of development screened from adjacent
 - 38 streets to reduce their environmental and visual impacts.

- 1 (c) Residential development shall be designed to facilitate and
2 encourage connection with the street. Specific design elements for
3 residential development should include:
 - 4 (i) Façade treatments that enhance building character and
5 include porches, balconies, stairs, railings, fascia boards,
6 and/or trim.
 - 7 (ii) Buildings that incorporate front-facing windows, porches,
8 balconies, or stoops.
 - 9 (iii) Windows and doors placed and designed to reflect the
10 interior function of spaces, while considering and
11 respecting privacy of neighboring lots.
 - 12 (iv) Trim treatments used to highlight wall and door openings
13 and other architectural features.
 - 14 (v) Vehicle garages and parking areas oriented behind
15 buildings and houses, and away from the street where
16 possible.
 - 17 (vi) Landscaping used to define property edges without
18 impeding connection to the street or adjacent properties.
- 19 (d) Development along Tualatin Valley Highway and the railroad shall
20 be appropriately compatible, buffered and screened to minimize
21 potential conflicts.
- 22 (2) Transportation & Connectivity
 - 23 (a) Create an integrated and unified street and trail network (as
24 illustrated in Figures 31-4 and 31-5) that:
 - 25 (i) supports communities and places;
 - 26 (ii) connects people to each other and to destinations; and,
 - 27 (iii) attracts and sustains economic activity.
 - 28 (b) Design transportation networks to maximize transportation choice
29 among different modes of travel, with an emphasis on providing
30 effective and robust pedestrian and bicycle connections and
31 amenities.
 - 32 (c) Identify where transportation networks overlap, and design these
33 areas to provide a safe and enjoyable experience for all users
34 regardless of mode.
 - 35 (d) Create a gridded block pattern as a means of ensuring a high
36 degree of connectivity, eliminating out-of-direction travel, and
37 establishing a street network that is easy and intuitive to navigate.

- 1 (e) Design spaces to provide safe, convenient, and comfortable
2 pedestrian movement by effectively connecting building entries,
3 open spaces, streets, transit facilities, and parking areas.
- 4 (f) Design areas and amenities to ensure that all users, including
5 small children, older residents and people with physical or
6 cognitive disabilities can safely and effectively use them and move
7 within and among them.
- 8 (3) Natural resources
- 9 (a) Integrate natural resources, wildlife habitat, and corridors into
10 development plans to preserve and enhance their function.
11 Ensure that urbanization occurs in a way that preserves essential
12 regional natural systems.
- 13 (b) Preserve key view corridors by integrating them into site plans.
- 14 (4) Sense of place
- 15 (a) Provide opportunities to create informal meeting places such as
16 plazas, courtyards, other outdoor seating areas or similar facilities
17 that are encourage social interaction and are welcoming,
18 comfortable, and enticing for both neighborhood residents and
19 visitors.
- 20 (b) Locate and design public spaces between and adjacent to
21 buildings to support recreation, social, and/or cultural activities.
- 22 (c) Design key intersections (shown in Figure 31-6) as gateways,
23 through the use of landscaping, public art, or other treatments to
24 provide a sense of place and entry into South Hillsboro, or where
25 appropriate, to the City as a whole.
- 26 (d) Include wayfinding devices such as directional and street signage,
27 design features, or other public realm elements to facilitate
28 navigation and a sense of place in South Hillsboro, while also
29 integrating the South Hillsboro area into the Citywide wayfinding
30 program.
- 31 (e) Include a range of design characteristics that provide continuity
32 and connection between individual neighborhoods and reinforce a
33 sense of place.
- 34 (f) Design areas near the rural edge to provide for an orderly
35 transition between urban and rural environments.
- 36 (g) Encourage the integration of sustainable or innovative design
37 elements to reinforce the sense of place in South Hillsboro.
- 38 (5) Design attributes
- 39 (a) Design of fences, walls, hedges, and berms should integrate into
40 the urban environment by:

- 1 (i) Balancing the need for privacy with the need to maintain
2 connections between properties and neighborhoods; and,
- 3 (ii) Utilizing sight-obscuring fences and walls only to screen
4 mechanical systems, waste facilities, or other “back-of-
5 house” support services.
- 6 (b) Street and other exterior lighting should provide for security and
7 extended use of properties into nighttime hours, while ensuring an
8 environmentally sensitive and energy efficient nighttime
9 environment that includes the ability to view the stars against a
10 dark sky from residential and other appropriate viewing areas.
- 11 (c) Site design should support Crime Prevention through
12 Environmental Design principles as outlined in the Hillsboro
13 Community Development Code³.
- 14 (d) Encourage housing designs that incorporate innovative,
15 environmentally sustainable approaches such as energy-efficient
16 construction, water-efficient fixtures, photovoltaic panels, recycled
17 and regional materials, water-efficient landscaping, and similar
18 techniques.
- 19 (e) Low-impact design approaches for stormwater management
20 should be encouraged in cases where:
 - 21 (i) The design of the facility is compatible with publicly-
22 maintained infrastructure and is approved by City of
23 Hillsboro Public Works Engineering; and,
 - 24 (ii) The facility is operated and maintained by a commercial
25 business association or similar entity pursuant to a
26 management agreement acceptable to the City of
27 Hillsboro.
- 28 (f) Utilize landscape features for commercial, multifamily, other
29 medium to high density residential and mixed use development to:
 - 30 (i) Visually enhance development projects and provide a
31 buffer between potentially conflicting uses;
 - 32 (ii) Minimize water consumption for landscape management
33 through the use of native or non-invasive drought tolerant
34 species;
 - 35 (iii) Provide opportunities for on-site stormwater management,
36 consistent with the overall approach to stormwater
37 management described in the Appendix of this section;
38 and,

³ Community Development Code Section 12.50.940.

1 (iv) Minimize heat islands and reduce overall energy use by
2 using shade vegetation.

3 (g) Buildings should be placed to optimize solar access and
4 orientation.

5 **(C) Housing**

6 Objective: South Hillsboro shall provide opportunities for a range of housing
7 densities and types intended to reduce land and infrastructure costs, increase
8 transit feasibility and provide opportunities for residents with a range of incomes
9 to live in South Hillsboro. These opportunities include detached and attached
10 single family units, townhomes and row houses, apartment flats, condominiums,
11 co-housing and other alternative housing options.

12 (1) Planned residential densities within the South Hillsboro Community Plan
13 area shall reflect Metro's 2011 UGB expansion decision regarding
14 maximum South Hillsboro residential capacity while being consistent with
15 densities established by:

16 (a) Hillsboro Comprehensive Plan Section 14 Subsection (B)
17 (Comprehensive Plan Maps – Land Use Maps); and,

18 (b) Hillsboro Comprehensive Plan Section 3 Subsections (B), (C) and
19 (V) (Housing Policies).

20 (2) Provide for attached single-family or multi-family housing sufficient to
21 provide for ongoing citywide compliance with the Metropolitan Housing
22 Rule.⁴

23 (3) Achieve or exceed an overall density of 23 dwelling units per acre in the
24 Town Center and 18 dwelling units per acre in the Village Center.

25 (4) Provide a range of housing types and products appropriate to the intent of
26 each zone and that meet the needs of people in a range of household
27 incomes and structures, including:

28 (a) Locating workforce/affordable housing near transit and other
29 services;

30 (b) Encouraging different levels and types of affordable housing
31 throughout the community, rather than concentrating affordable
32 housing in a way that would create a recognizable low-income
33 district; and,

⁴ Metropolitan Housing Rule requirement per OAR 660-007-0000: "The purpose of this rule is to assure opportunity for the provision of adequate numbers of needed housing units and the efficient use of land within the Metropolitan Portland (Metro) urban growth boundary, to provide greater certainty in the development process and so to reduce housing costs. OAR 660-007-0030 through 660-007-0037 are intended to establish by rule regional residential density and mix standards to measure Goal 10 Housing compliance for cities and counties within the Metro urban growth boundary, and to ensure the efficient use of residential land within the regional UGB consistent with Goal 14 Urbanization. **OAR 660-007-0035** implements the Commission's determination in the Metro UGB acknowledgment proceedings that region wide, planned residential densities must be considerably in excess of the residential density assumed in Metro's "UGB Findings". The new construction density and mix standards and the criteria for varying from them in this rule take into consideration and also satisfy the price range and rent level criteria for needed housing as set forth in ORS 197.303."

1 (c) Dispersing housing for the elderly, disabled, developmentally
2 challenged and low income citizens throughout residential
3 neighborhoods in areas that are close to schools, services, parks,
4 shopping and employment centers.

5 (5) Provide for emerging housing product types including cottage housing,
6 secondary dwelling units and live-work units as appropriate to the
7 underlying zone.

8 (6) Higher-density housing developments should provide shared courtyard or
9 other recreational or gathering spaces.

10 (7) Encourage the development of housing products that integrate new
11 designs or that utilize emerging techniques as demonstration projects to
12 showcase or prototype innovative and sustainable approaches to
13 residential development.

14 **(D) Employment**

15 Objective: South Hillsboro offers a range of employment generating uses,
16 especially in mixed-use areas and commercial nodes.

17 (1) Encourage a mix of employment opportunities, including retail and office
18 jobs in the Town and Village Centers.

19 (2) Encourage live-work units in mixed-use and medium to high density
20 residential use areas.

21 **(E) Transportation**

22 Objective: The South Hillsboro Community Plan transportation network provides
23 circulation and greenspace systems that promote walkability and multi-modal
24 transportation options to accommodate pedestrians, bicycles, transit riders,
25 freight, and automobiles.

26 (1) System design

27 (a) Implement the multi-modal⁵ transportation system (described in
28 the Appendix to this section) through strategic public investments
29 in arterial and collector road system improvements (illustrated in
30 Figure 31-4) that safely and efficiently accommodate all modes of
31 travel and mobility.

32 (b) Develop Cornelius Pass Road as a Arterial through the South
33 Hillsboro planning area to create a north-south spine for the
34 community, including:

35 (i) Extension of Cornelius Pass Road across Tualatin Valley
36 Highway and the railroad tracks consistent with the

⁵ Multi-modal facilities are transportation facilities that accommodate people who walk, bike or use mobility devices, as well as cars and transit.

- 1 approved Oregon Department of Transportation Rail Order
2 #51058 (RX1695); and,
- 3 (ii) Closure of the existing at-grade crossing at SW 229th
4 Avenue as required by the rail order.
- 5 (iii) Throughout South Hillsboro, Cornelius Pass Road should
6 be designed to support a 35 mph posted speed limit, with a
7 25 mph limit in the Village Center.
- 8 (c) Prioritize critical transportation improvements that support early-
9 stage development including:
- 10 (i) Extension of Cornelius Pass Road south of Tualatin Valley
11 Highway to the Blanton-Alexander Road extension,
12 including a new rail crossing; and,
- 13 (ii) East-west Blanton-Alexander road extensions.
- 14 (d) With consultation and coordination with TriMet, construct a transit
15 facility in the Town Center to function as a future transit hub for
16 citywide and regional transportation, designed to support potential
17 future development of:
- 18 (i) Local and regional bus service, including frequent service
19 routes;
- 20 (ii) High-capacity transit service, including potential bus rapid
21 transit, streetcar, light rail, or commuter rail routes within or
22 adjacent to the Town Center; and,
- 23 (iii) Transit-supportive resources including park and ride lot
24 capacity, rider and operator amenities, and related
25 facilities.
- 26 (e) Design and develop a grid system that facilitates access,
27 connectivity, and circulation throughout South Hillsboro,
28 integrating:
- 29 (i) Streets of all types including arterials, collectors, local
30 roads, and alleyways;
- 31 (ii) Sidewalks and pedestrian crossings associated with all
32 street types and major intersections;
- 33 (iii) On-street bicycle facilities, including cycle tracks, bicycle
34 lanes and shared roadways, depending on street design
35 and traffic levels and speeds;
- 36 (iv) Off-street pedestrian and/or bicycle trails and paths; and,
- 37 (v) Citywide and regional transportation networks.
- 38 (f) Ensure connectivity in all directions, including:

- 1 (i) North-south connectivity designed to serve regional needs,
2 and;
- 3 (ii) East-west connectivity designed to provide neighborhood
4 access to existing and future amenities.
- 5 (g) Merge Century Boulevard with 229th Avenue.
- 6 (h) Require multi-modal facilities as part of development entitlements
7 throughout the South Hillsboro Plan area.
- 8 (2) System attributes
 - 9 (a) Design streets to incorporate urban design concepts and themes
10 described in the Urban Design policies enunciated in Section
11 31(II)(A), as appropriate to the context.
 - 12 (b) Ensure block sizes enable pedestrian and non-motorized
13 vehicular movement by limiting block size or including mid-block
14 pedestrian access when blocks must exceed the optimum size.
 - 15 (c) Require cycle tracks, bicycle lanes or other similar bicycle facilities
16 on all collector and arterial streets.
 - 17 (d) Construct continuous sidewalks on both sides of roads to
18 maximize walkability.
 - 19 (e) Limit access along 209th Avenue by minimizing intersecting roads
20 and driveways.
 - 21 (f) Utilize design techniques for roadways classified as Active Use
22 Streets as identified in the Appendix of this section that emphasize
23 pedestrian orientation and safety, including but not limited to:
 - 24 (i) Sidewalk widths of 12 feet or higher;
 - 25 (ii) High-visibility crosswalks and crossing aids
 - 26 (iii) Tight curb radii and curb extensions;
 - 27 (iv) Parking restrictions or other provisions at corners to reduce
28 pedestrian conflicts;
 - 29 (v) Enhanced sidewalk or pedestrian lighting; and,
 - 30 (vi) Other design features which support traffic calming and
31 mitigate potential conflicts between road and sidewalk
32 users.
 - 33 (g) Allow low-impact design approaches for stormwater management
34 in public rights-of-way only as they are approved for use and
35 ongoing maintenance by City of Hillsboro Public Works
36 Engineering.

1 **(F) Public Utilities**

2 Objective: Provision of adequate public utilities and facilities is coordinated with
3 orderly, efficient, and timely development.

4 (1) Ensure that public utilities such as water and wastewater (conceptually
5 shown in Figures 31-7 and 31-8) and storm drainage facilities are
6 designed on an area-wide basis and are adequate to meet the needs of
7 development as it occurs.

8 (2) Phase the provision of infrastructure improvements with incremental
9 development activity.

10 (3) Evaluate per unit public utility development costs and ensure adequate
11 financing for needed public service extension (e.g., streets, sewer, water
12 and storm drainage).

13 (4) Establish a financing mechanism acceptable to the City, property owners
14 and developers that will:

15 (a) Generate revenue for infrastructure construction prior to
16 development; and,

17 (b) Produce funding streams associated with construction through the
18 use of System Development Charges, Transportation
19 Development Taxes, and other fees or charges as may be
20 adopted by the City.

21 (5) Encourage the use of City-maintained regional stormwater quality and
22 detention facilities where possible to reduce maintenance and
23 construction costs and provide better protection for the receiving stream.
24 When regional stormwater facilities are not available or practical, on-site
25 privately owned and maintained stormwater facilities that serve multiple
26 parcels will be reviewed by the City on a case-by-case basis.

27 (6) Place utilities underground wherever possible. When utilities cannot be
28 placed underground, they should be designed and placed in a manner
29 that mitigates visual impact while maintaining safety and reliability.

30 (7) Utility installations in natural areas should be designed to minimize visual
31 impact and disturbance to habitat.

32 (8) Encourage the provision of broadband (fiber) network connectivity to all
33 development sites, including single-family homes.

34 **(G) Public Facilities and Services**

35 Objective: Public facilities and services such as police, fire protection, libraries
36 and schools are adequate to serve development as it occurs within the South
37 Hillsboro area.

38 (1) Overall system

39 (a) Provide civic resources throughout South Hillsboro, including:

- 1 (i) Gathering places that support and enhance a sense of
2 community and social interaction;
- 3 (ii) Schools;
- 4 (iii) A Hillsboro Public Library branch;
- 5 (iv) Police and fire substations or offices;
- 6 (v) Indoor community and recreational center space; and,
- 7 (vi) Non-recreational public facilities such as community
8 gardens, public plazas, pocket greens, etc.
- 9 (b) To the extent possible, ensure that public facilities are made
10 available as development occurs.
- 11 (c) Locate civic resources in prominent locations to create
12 neighborhood identity and encourage public use.
- 13 (d) Where complementary facilities are co-located, ensure that they
14 are designed such that access between them is safe and
15 convenient for pedestrians and bicyclists.
- 16 (2) Schools
- 17 (a) Identify adequate land to ensure provision of K-12 educational
18 facilities on sites consistent with the school facility master plans of
19 Hillsboro School District 1-J (minimum of three to four sites in the
20 2011 UGB expansion area) and Beaverton School District 48, as
21 applicable.
- 22 (b) Optimize the ability to walk or bike to school sites using a network
23 of street sidewalks and paths through parks or open space
24 corridors, as shown in Figure 31-5.
- 25 (c) Avoid separation of adjacent schools and parks by streets other
26 than local roads.
- 27 (3) Public Safety
- 28 (a) Create neighborhoods with strong identities that encourage
29 community-based policing and preventive programs for
30 emergency services.
- 31 (b) Design a connected circulation system that will ensure rapid
32 response times for emergency services.
- 33 (c) Identify a preferred location for a fire station to serve the South
34 Hillsboro community.
- 35

1 **(H) Parks, Recreation, and Open Space**

2 Objective: Active and passive recreational areas are provided within the South
3 Hillsboro area in accordance with the Community Plan text and general location
4 of identified park areas as shown on the South Hillsboro Community Plan Land
5 Use Map.

6 (1) Overall system

7 (a) Parks facilities shall include a community park, a system of
8 neighborhood parks, an indoor recreation center, a looped trail
9 system, and other facilities as necessary to meet the need for
10 parks in South Hillsboro, as determined by the City of Hillsboro
11 Parks and Trails Master Plan standards.

12 (b) Parks shall be developed pursuant to the park design and trail
13 design guidelines prescribed in the City of Hillsboro Parks and
14 Trails Master Plan.

15 (c) The number, size and location of parks shall be consistent with
16 Figure 31-5, the policies below and the information and criteria in
17 the Appendix of this section.

18 (d) Provide at least 10 acres of public parks and open space lands
19 per 1,000 residents, in accordance with strategies identified in the
20 City of Hillsboro Parks and Trails Master Plan.

21 (e) Emphasize public ownership of the parks and open space
22 necessary to meet City standards for park acreage,
23 improvements, and location.

24 (2) Locations

25 (a) Locate parks and open space of varying scales and character
26 throughout the plan area to ensure equal access.

27 (b) Encourage the collocation of schools, parks, open space, and
28 civic resources.

29 (c) Locate parks adjacent to a local street or neighborhood route,
30 such that adjacent complementary facilities (including, but not
31 limited to, schools) are not separated by a collector or arterial
32 street.

33 (d) Integrate open space and both on-street and off-street pedestrian
34 and bicycle facilities to create safe and enjoyable connections
35 between surrounding neighborhoods and local schools, parks,
36 open spaces, and civic resources.

37 (e) Locate play areas for children within a ½ mile walking distance
38 from schools and homes.

39 (f) Utilize the BPA transmission corridor as a recreational asset, trail
40 connection and greenspace corridor.

- 1 (g) Neighborhood parks shall be of an adequate size to meet City
2 Park design standards and programming needs and consistent
3 with the City of Hillsboro Park and Recreation Master Plan.
- 4 (h) Expand future greenspaces to improve connectivity with the
5 Tualatin River and other citywide trail resources including but not
6 limited to the Crescent Trail and Surf-To-Turf Trail systems.
- 7 (3) Design attributes
- 8 (a) Parks shall be designed to maximize integration with and
9 accessibility from adjacent neighborhoods. Parks should not be
10 landlocked or have only one access path.
- 11 (b) Capitalize on open space opportunities to provide visual relief as
12 well as environmental benefits within developments as part of the
13 entitlement process.
- 14 (c) Incorporate trails/passive recreational opportunities along the
15 edges of greenspace areas.
- 16 (d) Design trails to encourage ease of use, including:
- 17 (i) Designated trailheads with auto and/or bicycle parking
18 where appropriate;
- 19 (ii) Pedestrian crossings including safety and visibility
20 features;
- 21 (iii) Gateway features;
- 22 (iv) Identification of key attractions including natural resource,
23 view corridors, etc.
- 24 (e) Encourage trail designs that minimize potential conflicts with
25 adjacent land uses and that mitigate potential hazards, including:
- 26 (i) Placement of trails perpendicular to residential building
27 entries (along the sides of residences rather than across
28 their front);
- 29 (ii) Trail crossings at corners rather than mid-block, except
30 where pedestrian crossing protections can be provided.
- 31 (f) Discourage routing of designated pathways over residential
32 sidewalks except where necessary to provide network continuity
33 or to address other routing or design conflicts.
- 34 (g) Design trails and pathways to safely accommodate a variety of
35 users.
- 36 (h) Design planters, landscaping, and other elements to maintain
37 visibility into and out of parks and open space areas.

1 **(I) Natural and Cultural Resources**

2 Objective: Provide, protect and maintain wildlife habitat and corridors (as
3 illustrated in Figure 31-9) throughout the community, connecting east-west
4 stream corridors with north-south wildlife travel corridors. Protect archaeological
5 sites within South Hillsboro.

6 (1) Preservation

7 (a) Encourage preservation of specimen trees and other identifying
8 natural resources.

9 (b) Encourage preservation of riparian/upland forest connecting
10 mature forest patches to creek and river wildlife travel corridors.

11 (c) Identify and preserve cultural resources throughout the
12 development process. Require compliance with applicable State
13 and Federal law governing conservation and management of
14 cultural and archaeological resources.

15 (d) Natural resources determined to be significant and their Impact
16 Areas will be added to the Significant Natural Resource Overlay
17 (SNRO) district.

18 (2) Enhancement

19 (a) Restore wetlands in mapped hydric soil areas around the Gordon
20 Creek, Rosedale Creek and Butternut Creek tributary headwaters.

21 (b) Natural and cultural resource management should consider both
22 resource preservation/enhancement and access via development.

23 (c) Manage the BPA corridor and wetland corridors as an overall
24 greenspace network.

25 (3) Impact mitigation

26 (a) Maintain wetland/stream hydrology in sub-basins through
27 development of a stormwater master plan.

28 (b) Identify and incorporate natural resources including wetland
29 corridors and habitat areas into development plans.

30 (c) Encourage the use of natural features to buffer nearby agricultural
31 uses.

32 (d) Encourage the use of Habitat Friendly Development Practices and
33 Habitat Benefit Areas, potentially including Low Impact
34 Development (LID) techniques, designed to reduce environmental
35 impacts of new development and remove barriers to their use, as
36 deemed acceptable by City of Hillsboro Public Works.

37 (e) To the extent feasible, mitigate impacts on natural resources
38 resulting from infrastructure placement.

1 (f) Landscaping shall be designed to be compatible with (and not
2 invasive to) natural resources.

3 **(III) Implementation**

4 **(A) Transportation Financing Program**

5 Objective: To identify funding sources for key transportation infrastructure prior to
6 development.

7 Except as provided in Section 31(III)(B), the City will not adopt city zoning or
8 approve development in the South Hillsboro Plan Area until a transportation
9 financing program (“Financing Program”) has been approved by the City in
10 coordination⁶ and agreement⁷ with Washington County, and the requirements of
11 Transportation Planning Rule (OAR 660-012-0060)(TPR) have been met for the
12 entire South Hillsboro Community Plan Area. The Financing Program should
13 identify transportation improvements required to address development of the
14 South Hillsboro Plan Area and identify funding sources and the responsible party.
15 If the Financing Program includes new implementing mechanism, the Program
16 should identify a process and timing for adopting any implementing ordinances or
17 administrative mechanism(s).

18 **(B) Infrastructure Improvements**

19 Objective: To allow timely development of key infrastructure improvements.

20 Notwithstanding anything in Section 31(III)(A), the City may approve a zone
21 change and/or development necessary for the construction of infrastructure
22 improvements including:

- 23 (1) Transportation improvements, including arterial, collector and
24 neighborhood routes (consistent with the TSP and depicted on Figure 31-
25 4);
- 26 (2) Water or sewer lines in arterial, collector or local streets consistent with
27 Figures 31-7 and 31-8;
- 28 (3) Other water, sewer (as depicted in Figure 31-8) or storm water
29 infrastructure necessary to serve development and generally consistent
30 with Figures 31-7 and 31-8.

31 Development approval may include land divisions, mass site alterations, mass
32 grading, and building permits necessary for the construction of the listed
33 infrastructure. Development approval may not include habitable structures or
34 buildings⁸.

⁶ “Coordination” shall be undertaken in accordance with the coordination standard in Oregon Statewide Planning Goal 2 and ORS 197.015(5).

⁷ As used in this section, “agreement” shall mean City and County administrative concurrence as to elements of the financing program pertaining to County roads. Actual financial contributions shall be subject to final approval by funding agency. “Agreement” shall not require any review and approval of the financing program by the County Board of Commissioners.

⁸ “Building” is defined as “a structure having a roof supported by columns or walls, which is built for the support shelter or enclosure of persons, animals, or property of any kind.” (.Community Development Code Section 12.01.500).

1 **(C) Annexation and Development Agreements**

2 Objective: To ensure awareness of annexation conditions and requirements, and
3 to provide certainty to the property owner, the City, and the public that when a
4 property annexes into the City, the scope and timing of subsequent development
5 of the property will occur in a manner that facilitates the timely and equitable
6 construction of necessary infrastructure improvements.

7 (1) An annexation agreement between the City and the owner(s) of the
8 property to be annexed should, in most cases, be executed prior to the
9 annexation application. The City may waive the requirement for
10 annexation agreements when the annexation is initiated by the City. An
11 annexation agreement is intended to describe the intended long-term use
12 of the property following annexation, the development review process,
13 and the parties' commitments regarding the infrastructure necessary to
14 support the development.

15 (2) A development agreement is intended to provide reasonable certainty to
16 the property owner, the City, and the public that the scope and timing of
17 development of the property will occur in a manner that facilitates the
18 timely and equitable construction of necessary infrastructure
19 improvements. The development agreement is intended to follow
20 annexation and describe in greater detail the owner's intended use of the
21 property, the parties' commitments regarding subsequent development of
22 the property, the infrastructure determined to be necessary to support
23 development, and the parties' obligations with respect to financing and
24 constructing the infrastructure. To that end, a development agreement
25 should address, at a minimum, the following elements to the City's
26 satisfaction:

- 27 (a) The location and condition of the property, including the current
28 zoning and use;
- 29 (b) The existing infrastructure that serves the property, including the
30 condition and capacity of the infrastructure;
- 31 (c) The owner's intended long-term development and use of the
32 property and the impact of the development on public
33 infrastructure;
- 34 (d) The public infrastructure that will be necessary to support the
35 long-term development of the property, including the City's and
36 the owner's responsibilities for financing and constructing the
37 infrastructure;
- 38 (e) The owner's commitment to seek or forego public subsidies or
39 credits;
- 40 (f) The annexation and development review process, including the
41 timing and sequencing of development approval; and,
- 42 (g) Any projected limits on the scope, sequencing and timing of
43 development.

1 (3) When an annexation agreement is not required, or in the City's discretion,
2 is not appropriate, the City may require a development agreement as a
3 condition of annexation, zone change, or development approval. In this
4 case, in addition to the requirements of Section 31(III)(C)(2), the
5 development agreement should establish the City's and the owner or
6 developer's respective obligations regarding such things as:

- 7 (a) The type and scope of development;
- 8 (b) The timing and sequencing of development;
- 9 (c) The financing and construction of public infrastructure, including
10 compliance with the assumptions set forth in the Transportation
11 Finance Program and Methodology Report; and,
- 12 (d) Specific aspects of the development, including but not limited to:
- 13 (i) Design;
- 14 (ii) Open Space;
- 15 (iii) Amenities; and,
- 16 (iv) Phasing.

17 **(D) Governance and Annexation**

18 Objective: A formal Memorandum of Understanding (MOU) or other appropriate
19 agreement with Washington County should be finalized that acknowledges the
20 City as the ultimate urban service provider and local governance body for the
21 entire South Hillsboro planning area⁹.

- 22 (1) Ensure urban service agreements between the City, County and Special
23 Districts support implementation of the South Hillsboro Community Plan.
- 24 (2) Require annexation of property as a prerequisite for City zoning or
25 extension of city utilities and services. The zoning that will be applied will
26 be determined by the City's Comprehensive Plan Map designation for the
27 property.

28 **(E) Zoning Concept and Implementation Measures**

- 29 (1) The land use designations shown on the South Hillsboro Community Plan
30 Map (Map 31-1) will be implemented through appropriate city zones
31 consistent with the Zoning Concept Map (Figure 31-3) applied by the City
32 following annexation of property in the South Hillsboro Community Plan
33 area. City zones identify permitted uses, minimum densities and floor
34 area ratios as appropriate, and development and design standards
35 applicable to the South Hillsboro planning area. Planned Unit
36 Development Overlay zones may also be used to implement the
37 development and design standards.

⁹ The City managed the South Hillsboro Community Plan effort at the request of Washington County.

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The following table is an example of the types of City zones that may be applied within the South Hillsboro Community Plan area based on the City’s adopted Comprehensive Plan designations for the South Hillsboro Community. Zones should be applied with appropriate flexibility to achieve desired housing and employment capacity, density and diversity, as set forth in the South Hillsboro Community Plan:

		Comprehensive Plan Designations							
		RL Residential Low Density	RM Residential Medium Density	RH Residential High Density	R-MR Residential Mid-Rise Density	MU * Mixed Use *	FP Flood Plain	OS Open Space	PF Public Facility
Zones	SFR-6	X							
	SFR-7	X							
	SFR-8.5	X							
	SFR-10	X							
	SFR-4.5		X						
	MFR-1		X						
	MFR-2			X					
	MFR-3				X				
	MU-VTC **					X			
	OS **							X	
	PF **								X
	RFO						X		

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* “Mixed-Use” Comprehensive Plan designations include MU Mixed Use, MU-UR Mixed Use-Urban Residential, MU-UC Mixed Use-Urban Commercial, MU-UE Mixed Use-Urban Employment, and MU-I Mixed Use Institutional.

10

** New zones to be created and adopted following adoption of CDC.

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(2) To ensure orderly development and the timely construction of infrastructure in South Hillsboro, development shall be consistent with the following implementation measures:

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(a) To ensure that land development occurs within available infrastructure capacity, including infrastructure that is both planned and funded, development in the South Hillsboro Plan area will comply with the land uses, infrastructure financing, phasing and other fundamental components of the South Hillsboro Community Plan (see the appendix to Section 31).

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(b) Land division (partitions and subdivision) within the South Hillsboro Community Plan area will be processed in accordance with HMC 12.80.090-.098, and HMC 12.70.040 (Type II Procedure) or HMC 12.70.050 (Type III Procedure) as appropriate to the application type, or future land division and procedural regulations of the City. If a person submits a subdivision application on property with multiple residential zones, the City may allow the person to blend those residential densities and uses over the project site through a Planned Unit Development process. Blended residential densities and uses may require

1 transitional buffering at the project edges to provide compatibility
2 with dissimilar adjoining uses or plan designations. Non-residential
3 uses should occur only at the location and intensity identified in
4 the South Hillsboro Community Plan.

5 (c) Large scale development such as those exceeding 15 acres in
6 size within the South Hillsboro Community Plan General Land Use
7 Plan Map area shall be developed using the Planned Unit
8 Development (PUD) entitlement process established in HMC
9 12.80.120 and 12.80.122, as amended, or future planned unit
10 regulations of the City. Notwithstanding these requirements, open
11 space provided through individual entitlement actions shall be
12 based on parks and open space parameters established in the
13 South Hillsboro Community Plan.

14 (3) Implementation measures contained in HCP Section 2. Urbanization,
15 Subsections (IV)(A)(1-5), (IV)(B), (IV)(D), (IV)(H), (IV)(I), (IV)(J) and
16 (IV)(M) shall apply to developments within the South Hillsboro Community
17 Plan area.

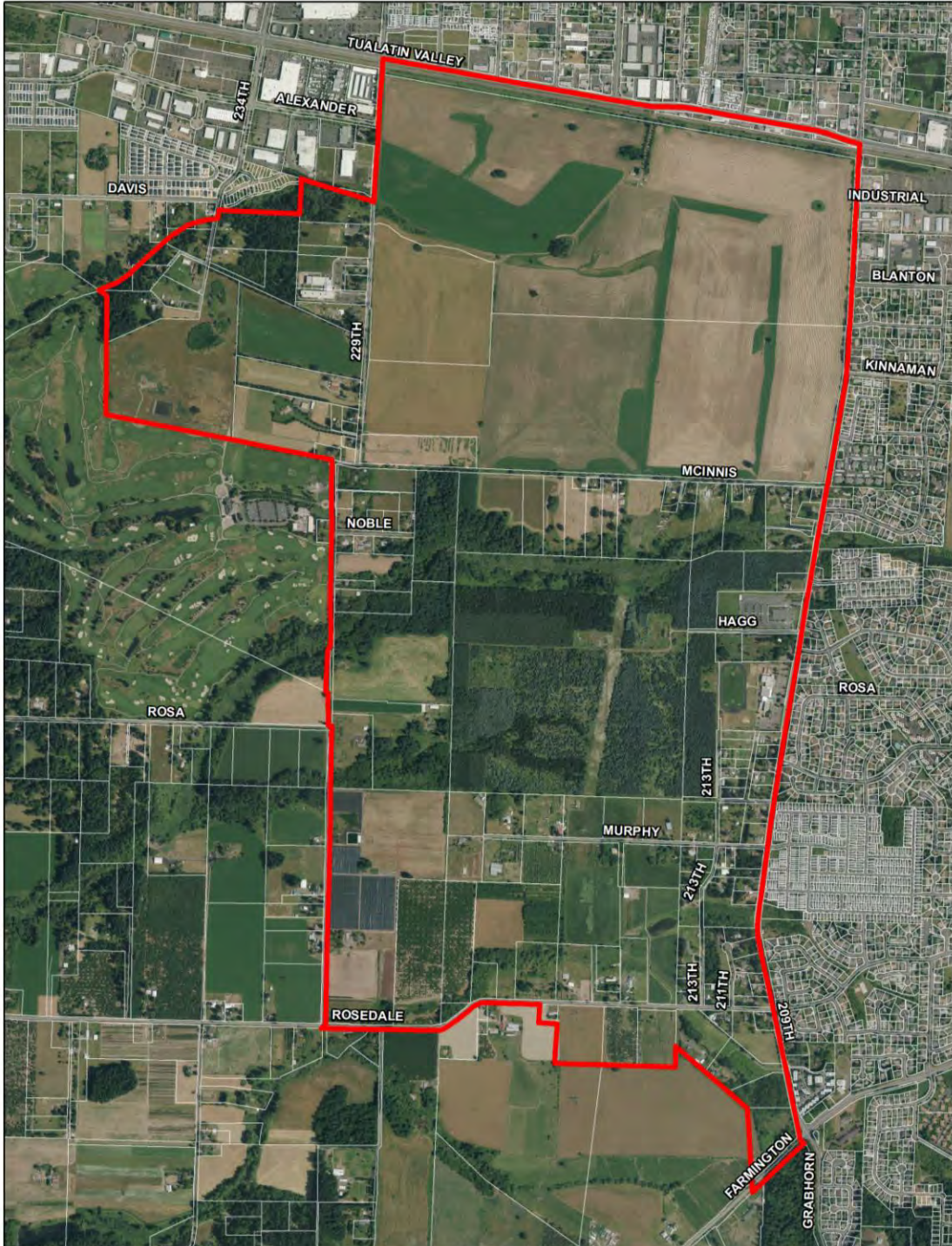
18 (4) Identified infrastructure funding options and phasing to ensure their
19 development concurrent with land development shall form the basis for
20 publicly funded infrastructure provision.

1(IV)

Figures

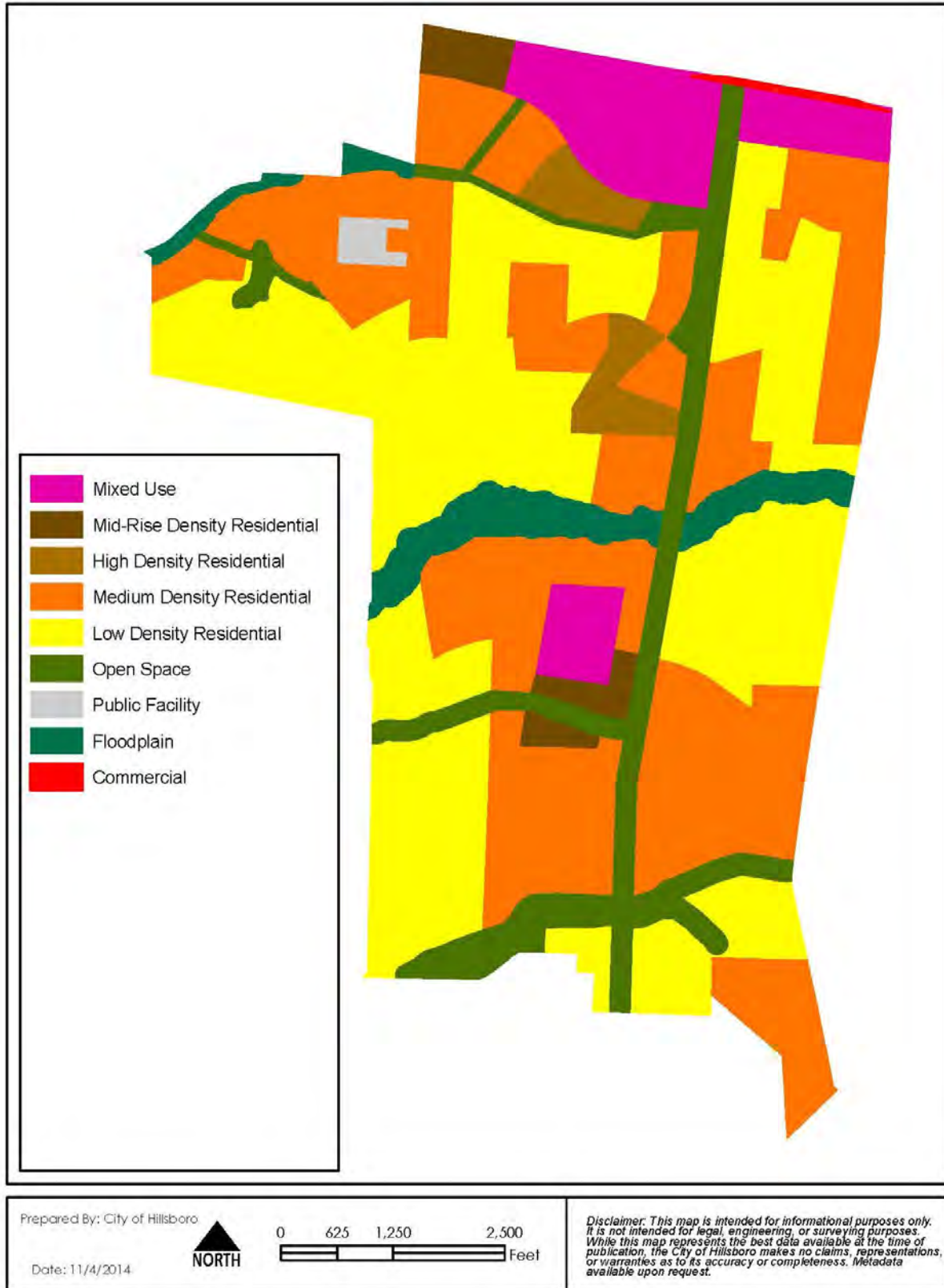
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Figure 31-1: South Hillsboro Plan Area



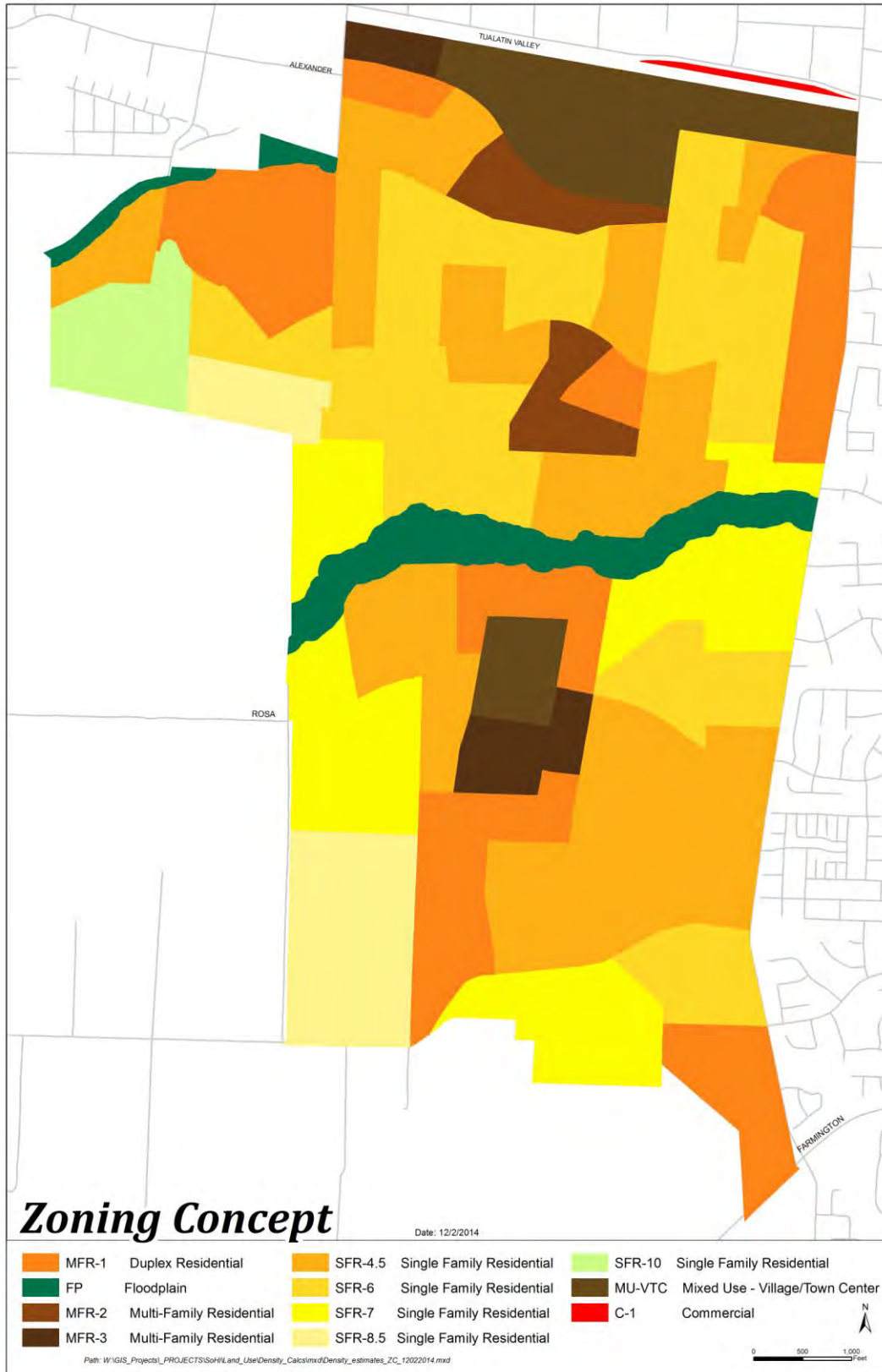
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1 Figure 31-2: Comprehensive Plan



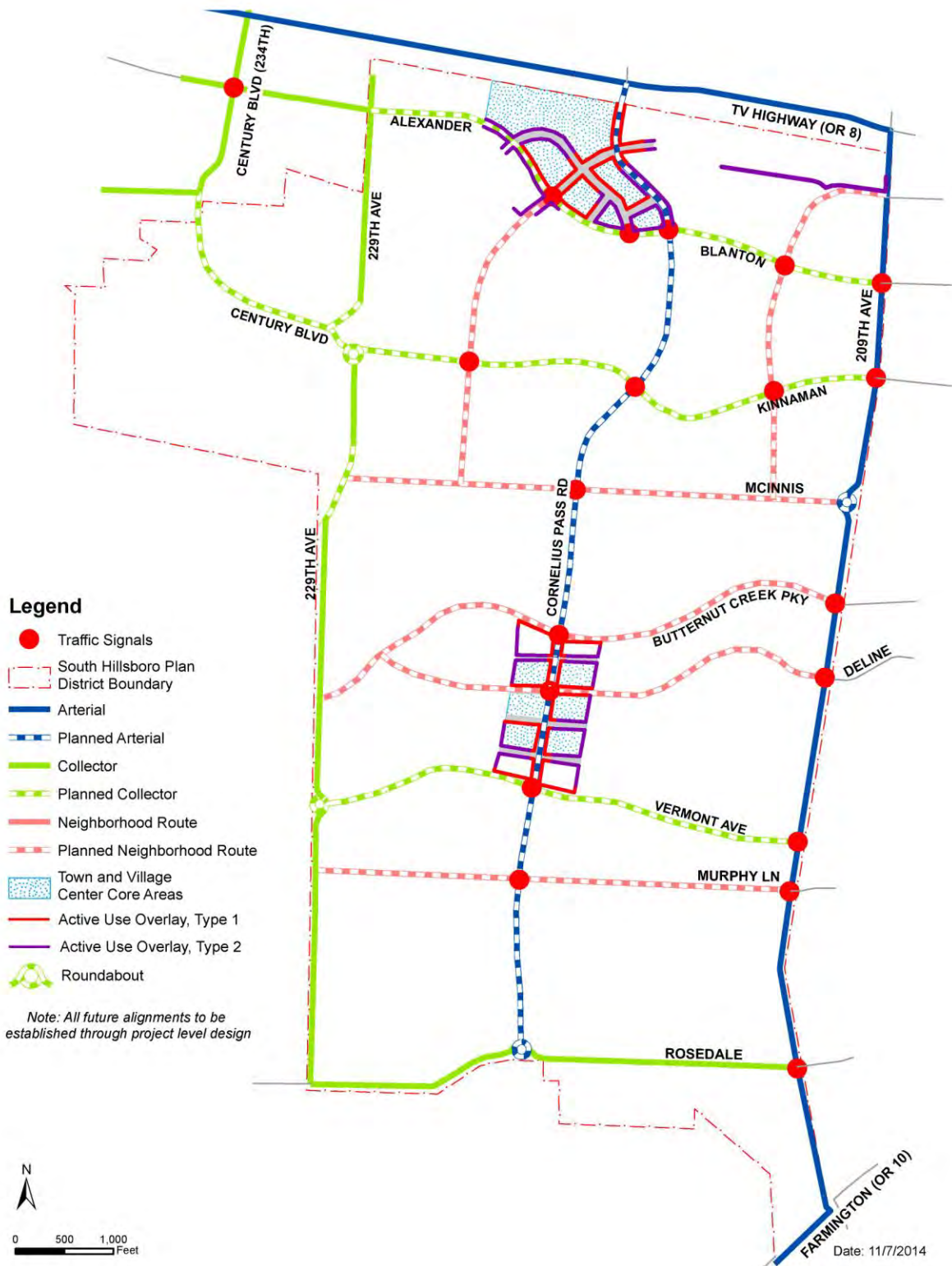
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1 Figure 31-3: Zoning Concept



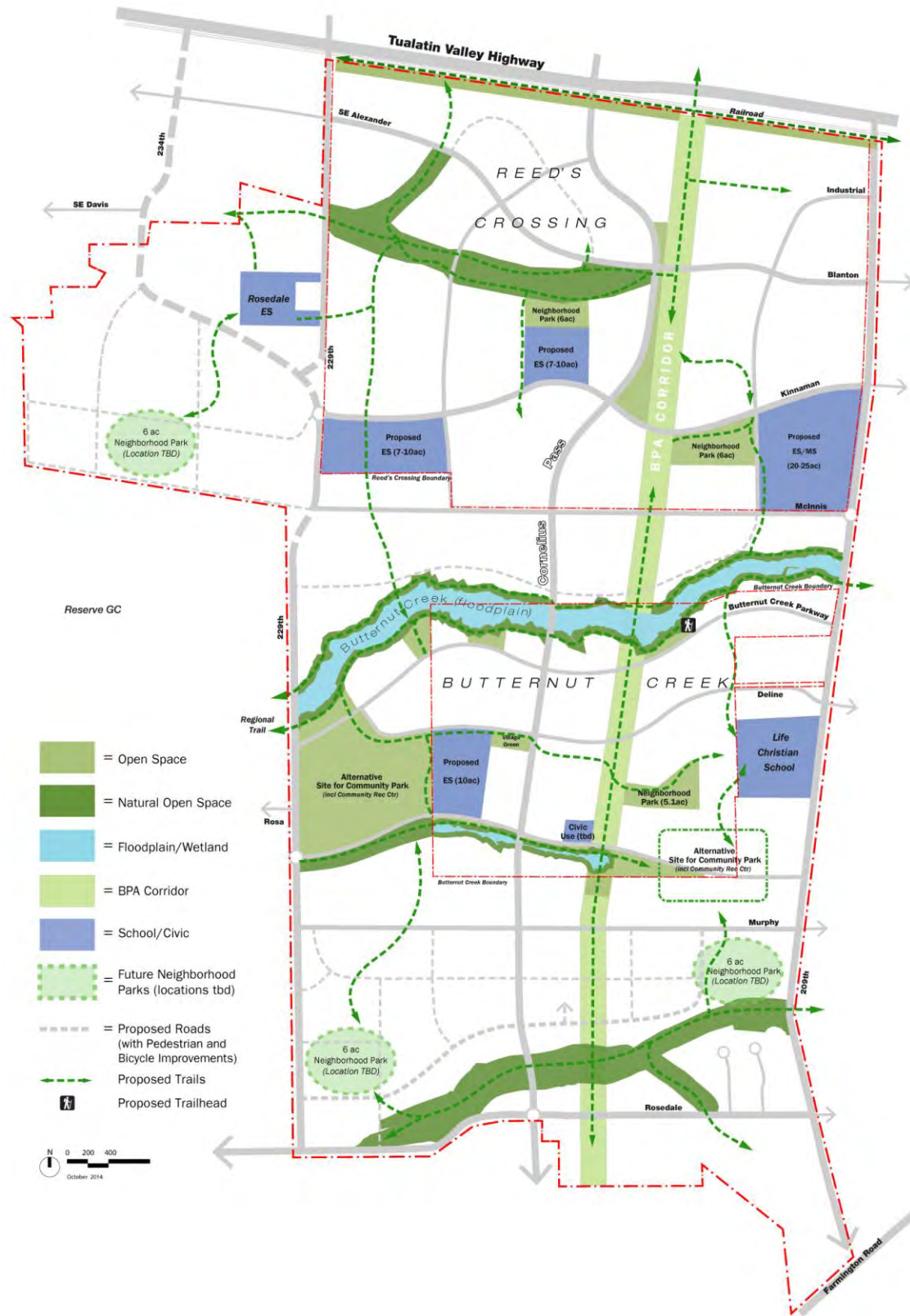
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1 Figure 31-4: Streets

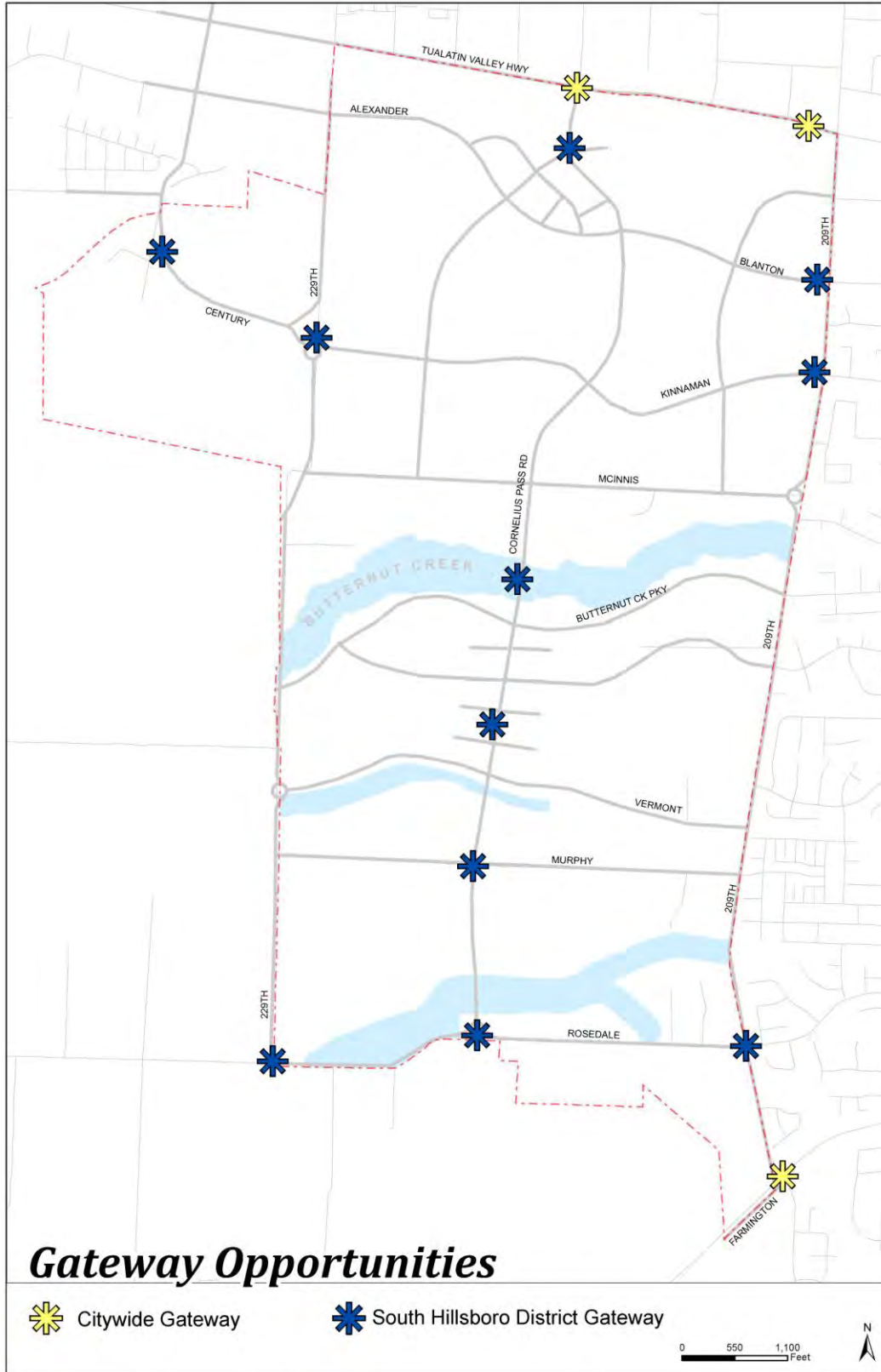


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1 Figure 31-5: Parks, Trails, Schools, and Open Space

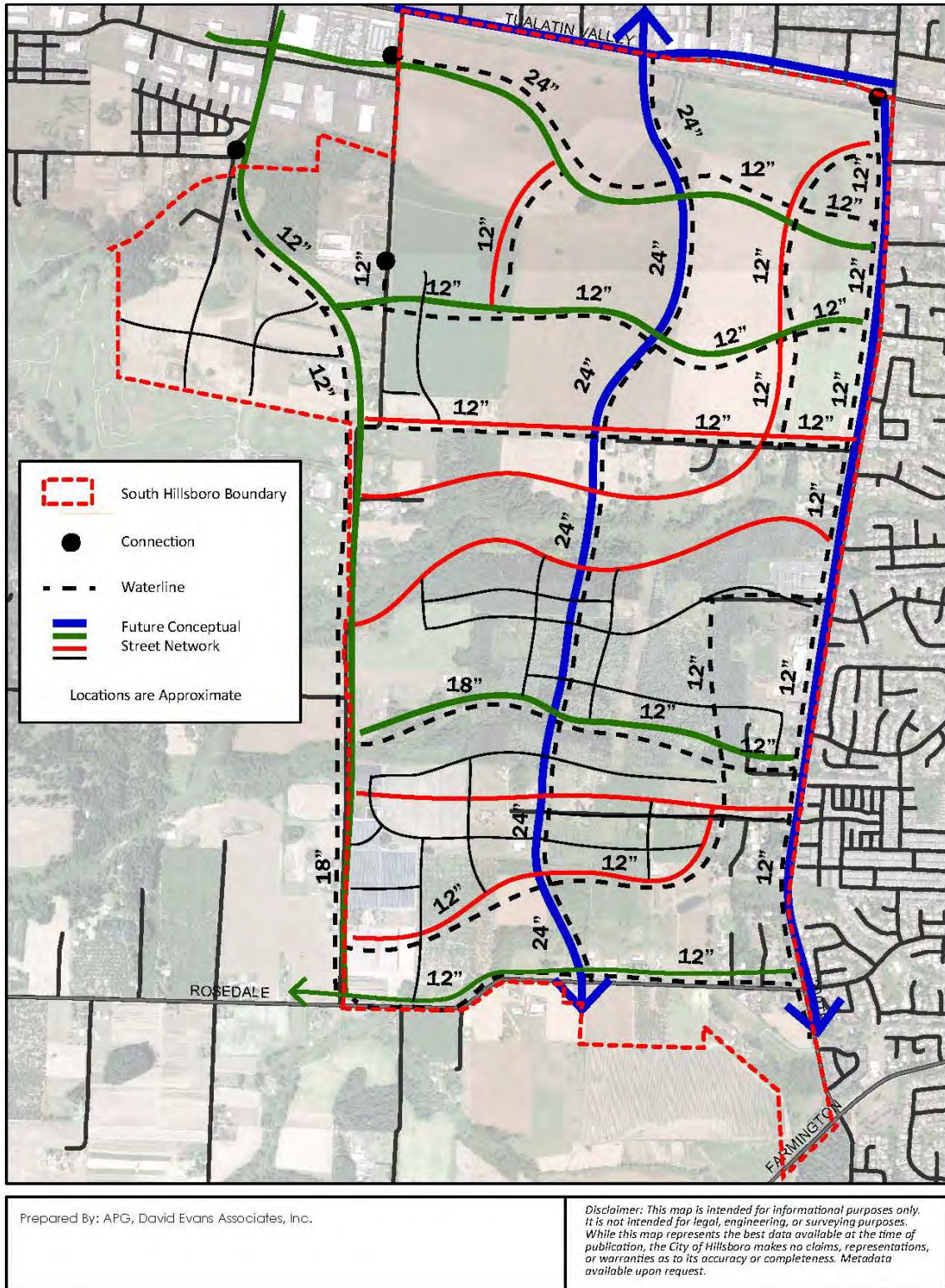


1 Figure 31-6: Gateway Opportunities



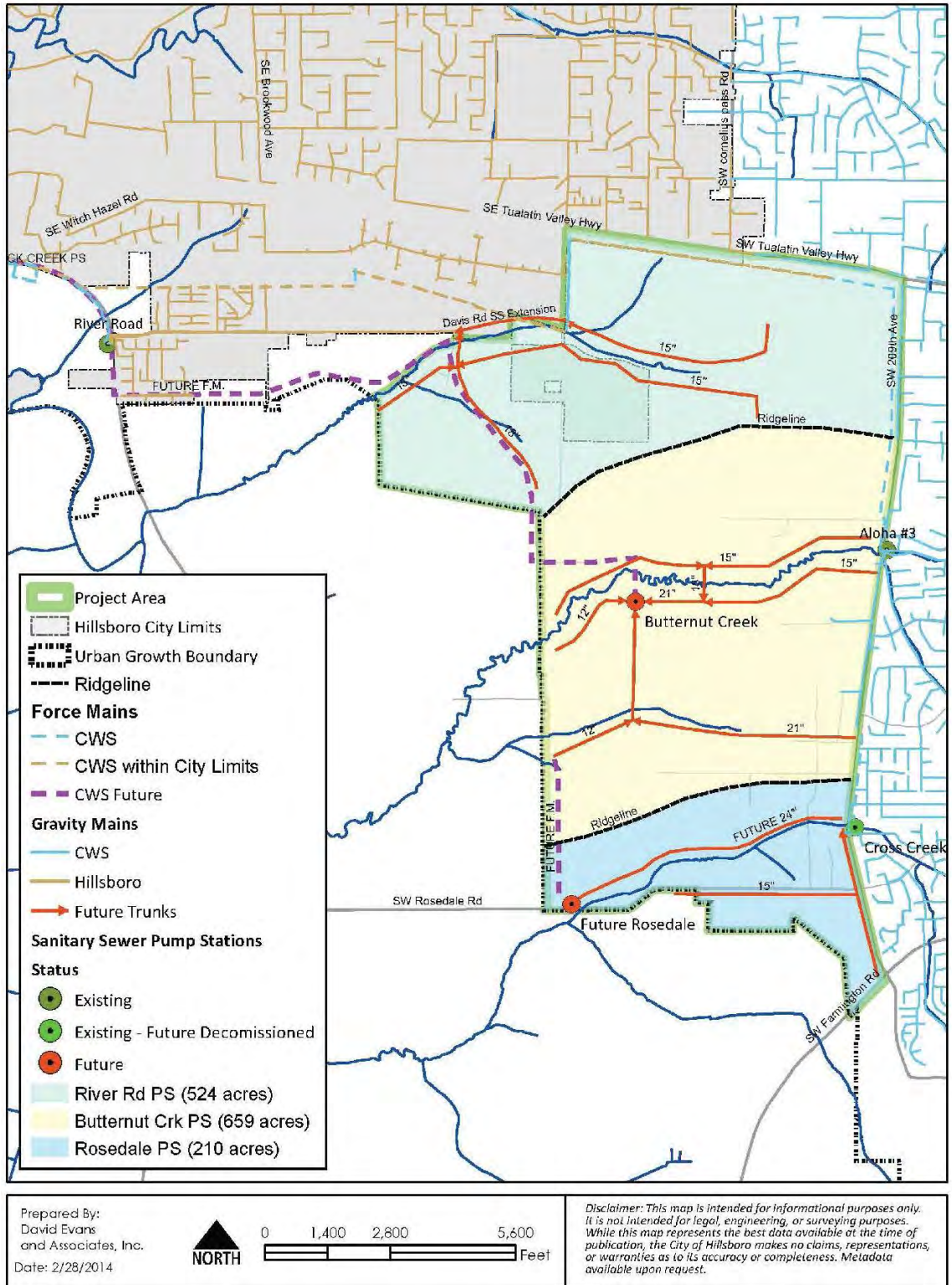
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1 Figure 31-7: Existing and Future Water System



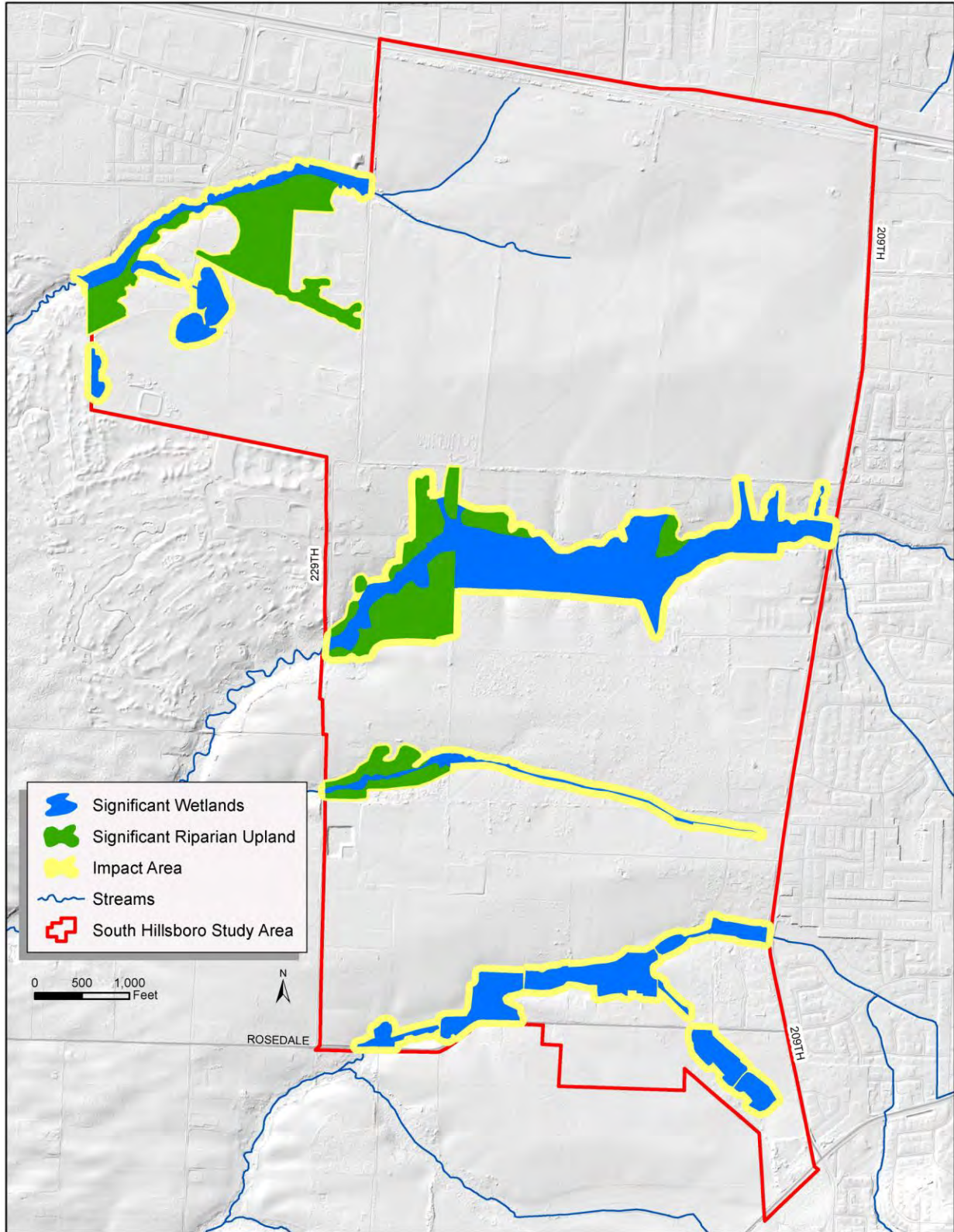
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1 Figure 31-8: Existing and Future Sewer Facilities

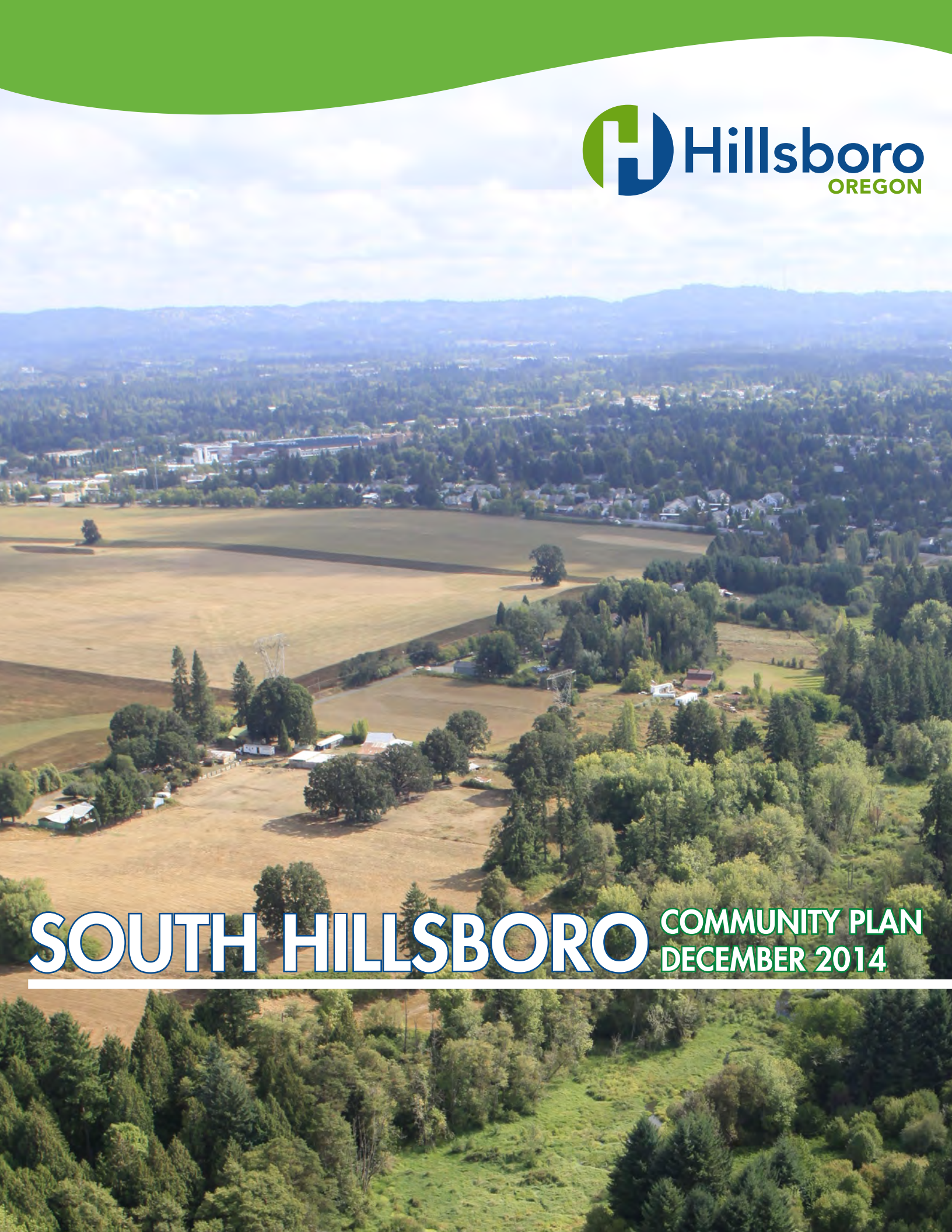


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1 Figure 31-9: Natural Resources Framework



2



SOUTH HILLSBORO COMMUNITY PLAN DECEMBER 2014



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1

Introduction

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1.1 Project Overview

South Hillsboro presents a unique opportunity for the City to create a new and innovative community responding to the needs of the City of Hillsboro, Washington County, Metro Region, and neighboring residents. This document outlines the foundation, principles, approach, and implementation action plan that will realize this vision.

The planning effort for South Hillsboro brings together almost 20 years of conceptual planning to provide a specific framework for future development of this unique Hillsboro community. The project builds upon previous planning efforts led by the City of Hillsboro and two major South Hillsboro property owners to achieve the following:

- Articulate the City’s vision for best-in-class development and design of the South Hillsboro community using Planning and Design Principles and identification of Best Practices.
- Incorporate property owners’ visions into the city’s Master Plan where consistent and compatible with the City’s vision, goals, policies, and principles.
- Establish recommended road alignments, bicycle and pedestrian corridors, parks and open space, school locations and land use designations/zoning.
- Provide regulatory guidance and process clarity to enable property owners to create detailed development plans.
- Provide flexibility to encourage creative approaches to development and design, both public and private.
- Provide cost estimates and identify funding tools and strategies for the infrastructure improvements needed to develop South Hillsboro.
- Identify expected phasing of public improvements.
- Describe a comprehensive implementation strategy that includes detailed design and development standards that will apply to the South Hillsboro planning area.

1.2 Planning Area Description

The South Hillsboro Plan Area (depicted in Figure A-1) has been a candidate for future urban growth for the past decade. Its development is a key component of the City’s effort to provide adequate housing products and types to encourage people working in Hillsboro to live in Hillsboro. South Hillsboro represents the most significant residential and mixed-use expansion of the City planned in the next 20 years, complementing the industrial-oriented urban growth boundary expansion areas to the north.

The South Hillsboro Plan Area is located at the southeastern edge of the City of Hillsboro (see Figure A-2). It lies to the west of SE 209th Avenue and to the south of SW Tualatin Valley Highway. The Plan Area contains approximately 1,400 acres of developed and undeveloped land. Gordon, Butternut, and Rosedale Creeks traverse the area generally from west to east. A Bonneville Power Administration (BPA) powerline corridor crosses the Plan Area from north to south. The Plan Area is adjacent to the Reedville, Aloha, and Witch Hazel Village neighborhoods.

South Hillsboro is also a unique opportunity to create a compelling place that encourages people to live, work, play, stay, and learn in Hillsboro. South Hillsboro will serve as the eastern and southern gateway to the City for many visitors. Moreover, as a new development, South Hillsboro provides an opportunity to showcase and demonstrate new, innovative thinking about neighborhood design, yielding neighborhoods that are sustainable, highly livable, affordable, and future-oriented.

Figure A-1: South Hillsboro Master Plan Area

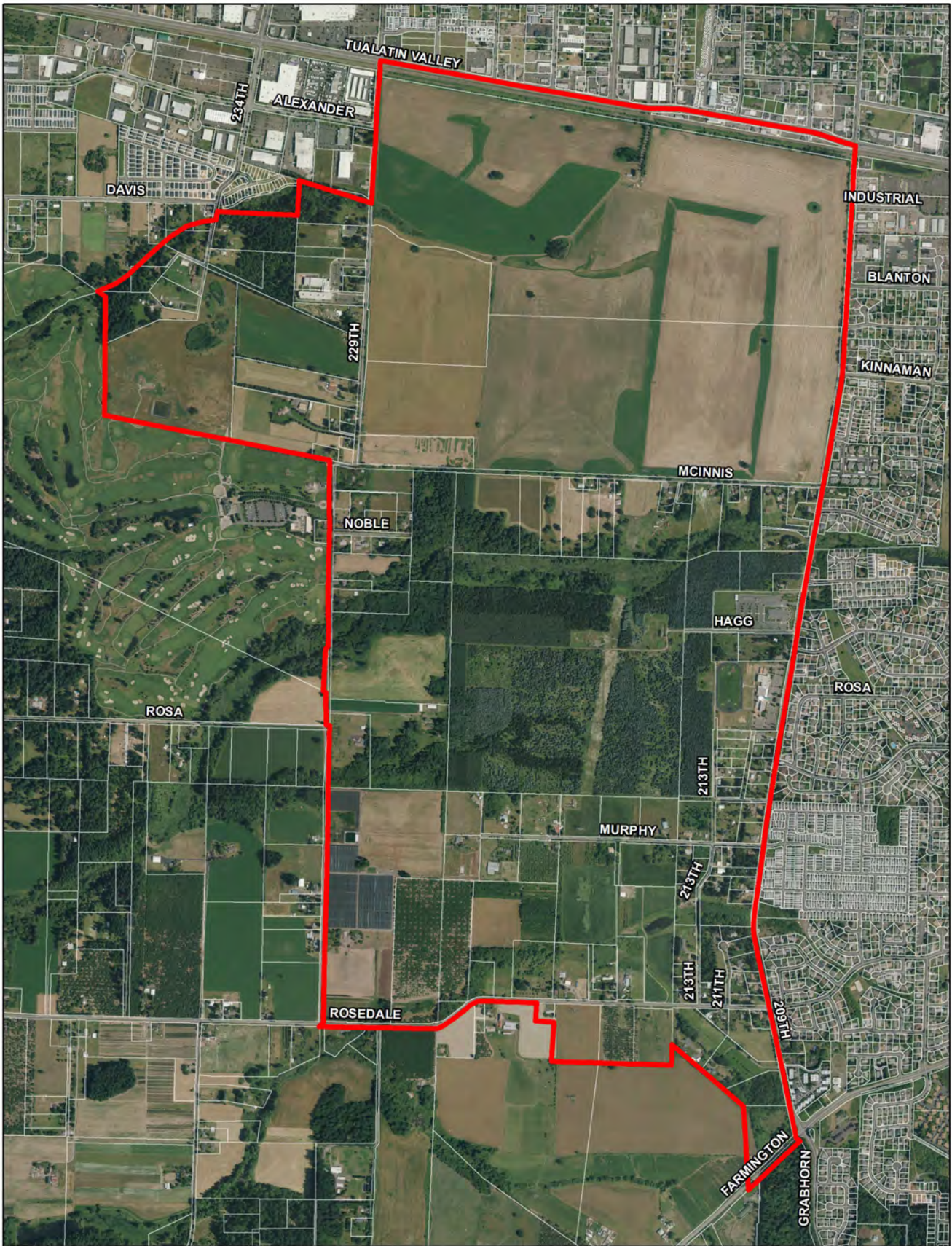
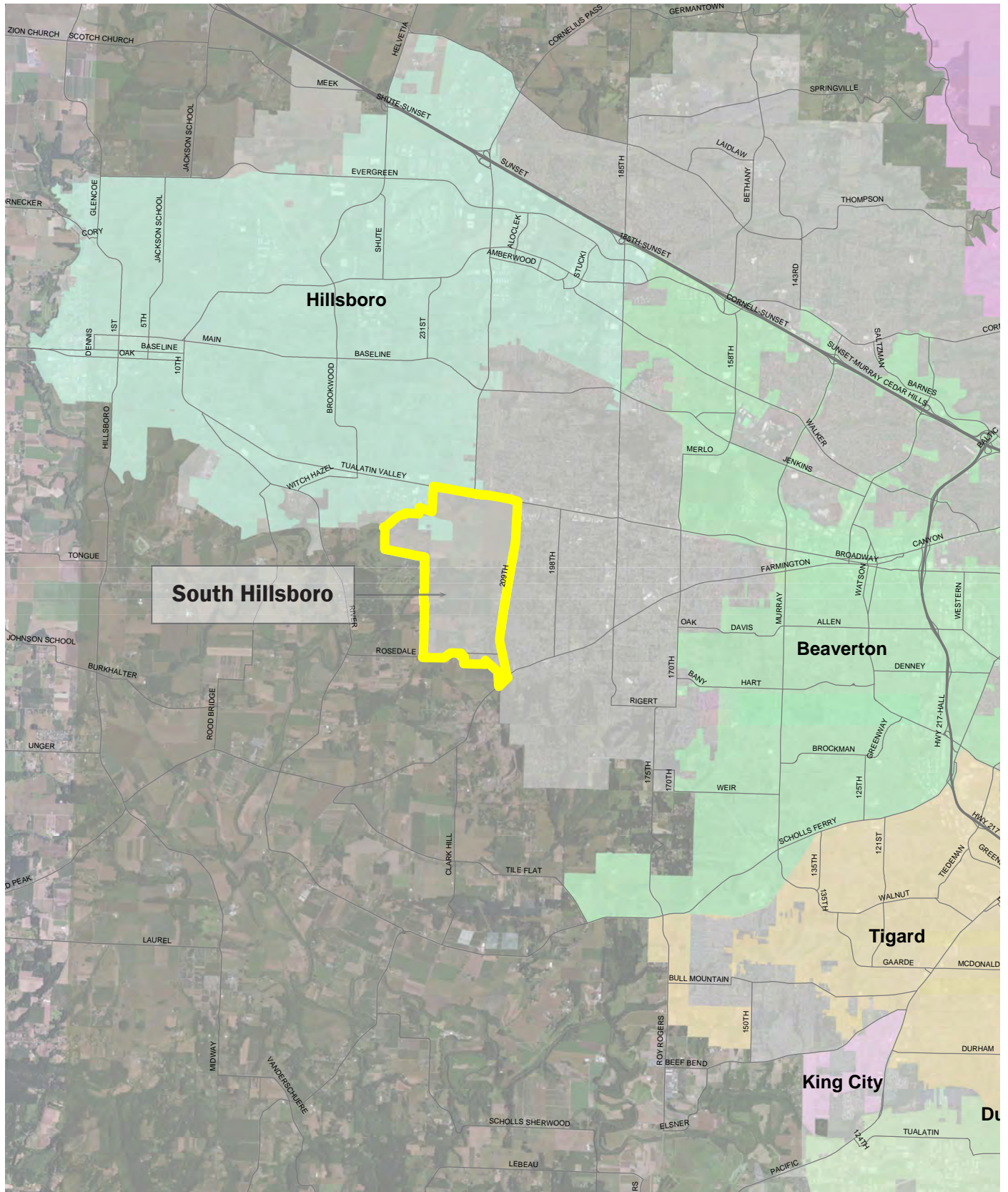


Figure A-2: Plan Area Context



1.3. Plan Area Vision: Complete, Connected, Green

In addition to meeting the demands of local and regional forces and development principles, three overriding, general principles emerged during the concept planning process:

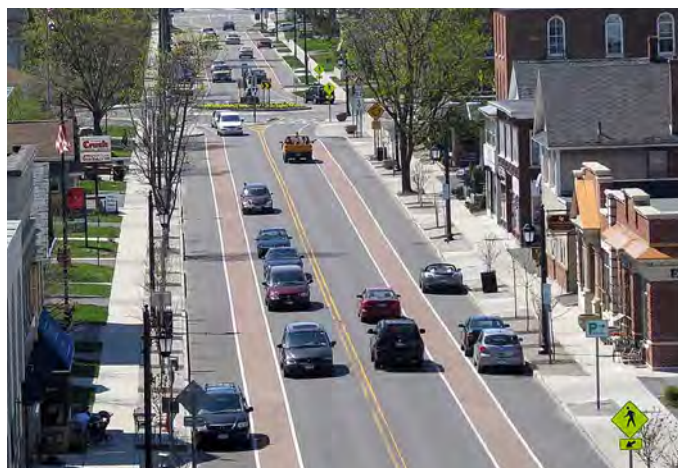
- **Complete:** A community with the full spectrum of facilities and services. A life-cycle community that addresses the needs and desires of all residents for health, housing, education, shopping and recreation.
- **Connected:** A community that provides residents and visitors with full multi-modal access. A community that seamlessly connects neighborhoods and easily transitions from urban to rural lands. A community plan, which in addition to serving future residents, provides older neighborhoods to the East and to the North with access to needed parks, trails, open space, shopping and family services.
- **Green:** A community that integrates open spaces with neighborhoods. A sustainable community that incorporates state-of-the-art green development practices. Preservation and improvement of existing natural resources and wildlife corridors to create a truly distinct natural environment.

The Complete-Connected-Green framework ensures that the evolving Plan Area remains a special and unique place. In addition, the Plan incorporates an array of other local and regional influences with community driven development principles:

- **Hillsboro 2020 Vision:** The Plan implements the Hillsboro 2020 Vision principles. The Hillsboro 2020 Vision statement focus areas include strengthening and sustaining community, enhancing neighborhoods and districts, preserving the environment, creating



Housing fronting the street creates attractive frontage in a neighborhood



Grid system of streets with bike lanes and on-street parking – a “complete street”, integrated with building edges and activities



A connected system of natural areas with a public edge.

economic opportunity, expanding education and cultural horizons, and promoting health and safety.

- **Metro Great Communities Characteristics and Regional Values:** The Metro Great Communities Characteristics and Regional Values directly shape the design and development of South Hillsboro. The six regional values include vibrant communities, economic prosperity, safe & reliable transportation, leadership on climate change, clean air & water, and equity.
- **Natural & Cultural Resource Preservation:** The Vision encourages preservation and enhancement of the significant natural and cultural resources. The Gordon and Butternut Creek corridors are part of a community-wide green space network. Cultural resources have also been identified and preserved throughout the development process.
- **Infrastructure Funding & Phasing:** The provision of necessary utilities, facilities and services are guided by an infrastructure funding and phasing program described in the Implementation Action section. The infrastructure program focuses on the adequate provision of public facilities and services as development occurs.
- **Market Feasibility:** The Plan is responsive to the economic and market conditions shaping growth. This includes providing development flexibility to adjust to changing demographics and other market conditions.

These considerations collectively influenced the creation of the Plan for an innovative, dynamic, and vibrant community.

1.4. Regulatory Framework

There are a number of policy and advisory documents that together create the regulatory context guiding development in South Hillsboro. These components include:

- **Comprehensive Plan Policies** in Section 31 of the Hillsboro Comprehensive Plan. These policies enunciate the City’s vision and direction for development in South Hillsboro and provide the regulatory basis for other implementing policies and standards that are adopted. Although Comprehensive Plan policies are generally not directly applied to evaluating and approving proposed development, they can be utilized in certain subjective land use reviews such as the Conditional Use and the Planned Unit Development processes.
- **Community Plan Narratives** in the appendix to Section 31 of the Hillsboro Comprehensive Plan (this document). The appendix is intended to provide additional context and background on the City’s vision for South Hillsboro, including the planning principles and background information used to develop policies and standards, and examples of desired development patterns and design elements. The appendix is not a regulatory document, but could be useful to developers and decision makers for interpreting and evaluating future design and development proposals.
- **Community Development Code (CDC)** sections, including a specific Plan District for South Hillsboro (CDC 12.65), a new Mixed Use-Village and Town Center zoning district (CDC 12.24), and other zoning district language as necessary to implement the various comprehensive plan designations. These CDC sections set specific development requirements and standards, specific land uses, and the processes used in the design review and permitting processes.

-
- **Various system master plans** administered by City departments and outside service providers, including but not limited to Transportation System Plan, Capital Improvement Plans, Parks and Trails Master Plan, Sanitary Sewer Master Plan and similar documents.
 - **Agreements with developers and property owners** including Memoranda of Understanding, Annexation Agreements, and Development Agreements specifying obligations and conditions for development in South Hillsboro, including allocation of trips, financing of infrastructure or public realm improvements, and obligations for ongoing maintenance, among other topics.



2

Planning
Context

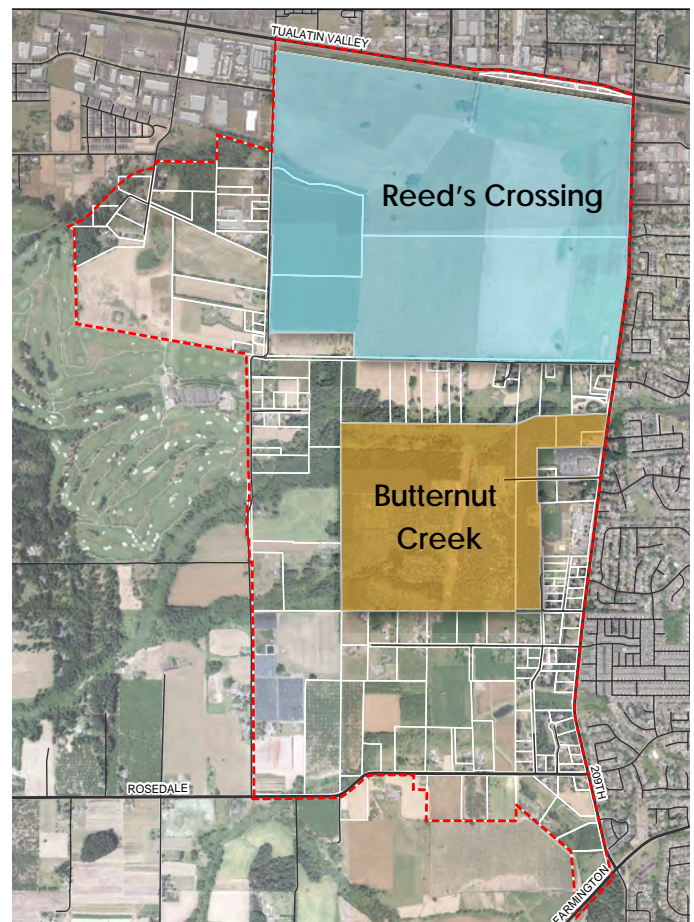
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2.1. Area History

The South Hillsboro planning area has played a locally significant role in the area's agricultural heritage. The area planned for the Reed's Crossing development, near the north of the planning area (see Figure A-3), was historically the Ladd-Reed Farm. This farm was named for William S. Ladd, a former mayor of the City of Portland, and Simeon G. Reed, the namesake of the community of Reedville immediately to the east of South Hillsboro, as well as the founder of Portland's Reed College. Founded in the 1870s, the Ladd-Reed Farm produced a variety of livestock, various crops, and trees, and Reed experimented with a number of agricultural innovations including steam-powered farm equipment and new systems for irrigation. The operation later evolved into the first large dairy farm in Washington County¹.

Following the death of the founders, the farm became the basis for the endowment for Reed College. John Kelly purchased the property from the endowment in 1925, and the property was willed to the Sisters of St. Mary of Portland in 1957². The last dwellings on the farm were demolished in 1963, and all of the main farm buildings were subsequently removed³. The Sisters of St. Mary of Portland sold the property in 2001⁴.

Figure A-3: Primary Property Owners at present



Through the various owners of the Ladd-Reed Farm, the property has remained in agricultural production, most recently through contract arrangements with local farmers. Other areas of South Hillsboro have also supported agricultural production, including a large tree farm in the area planned for the Butternut Creek development and Village Center, and other smaller agricultural operations in the southern portions of the planning area.

Over time, areas surrounding South Hillsboro have urbanized to various degrees, particularly in Aloha and Reedville to the east and northeast, both unincorporated communities immediately adjacent to Hillsboro.

1 Josephson, J. (2013). The Reed Farm. In *Images of America: Aloha-Reedville*. Charleston, SC: Arcadia Publishing.

2 *D. S. Parklane Development, Inc., et al v. Metro*, LUBA 97-048, p. 4410-4419.

3 Washington County, Oregon. (1983). *Washington County Cultural Resource Inventory*, Resource 110/332.

4 Tomich, D. (2010, Winter). Reading Between the Bricks. *Spirit (Sisters of St. Mary of Oregon Ministries Corporation)*, 10-11.

Collectively, the population of Aloha and Reedville totals over 50,000 as of 2010⁵.

- **Reedville**, located near the intersection of Tualatin Valley Highway and SW 209th Avenue, was originally platted in 1889 and served as a commercial center for surrounding residences and farms through the 1950s. Much of the original town was lost to highway expansion, as well as damage from the 1962 Columbus Day Storm¹.
- **Aloha**, located to the east of the planning area, was also originally farmland, but experienced a rapid influx of new residents beginning in the 1960s as residential uses replaced agricultural production. Development in Aloha has followed traditional suburban patterns to a large extent, although development of supporting infrastructure including urban-scale roads, complete sidewalks, and adequate stormwater facilities has been less consistent⁵.

2.2. Planning Foundation

The vision for South Hillsboro blends an array of local and regional influences with community driven development principles. Key underlying principles are described briefly below. Additional planning principles more specific to South Hillsboro are included in Chapter 4 of this appendix.

- The **Hillsboro 2020 Vision** statement focuses on strengthening and sustaining community, enhancing neighborhoods and districts, preserving the environment, creating economic opportunity, expanding education and cultural horizons, and promoting health and safety. The Vision also

encourages preservation and enhancement of significant natural and cultural resources.

- The adequate provision of utilities, facilities and services guided by an infrastructure funding and phasing program as described in the Implementation Action section of the Community Plan.
- The Plan must be responsive to the economic and market conditions shaping growth. This includes providing development flexibility to adjust to changing demographics and other market conditions.
- The **Metro Great Communities** Characteristics and Regional Values directly shape the design and development of South Hillsboro. The six regional values include vibrant communities, economic prosperity, safe & reliable transportation, leadership on climate change, clean air & water, and equity.
- There are also a number of state and regional planning documents that contain guidelines and regulations with which the Community Plan must be consistent. The most important of these are:
 - » The **Statewide Metropolitan Housing Rule** (which implements Statewide Planning Goal 10, Housing). In general, the rule requires that the City “designate sufficient buildable land to provide the opportunity for at least 50 percent of new residential units to be attached single family housing or multiple family housing.” The rule also establishes minimum housing densities that are to be achieved in areas like South Hillsboro located in the Metropolitan region.
 - » The Oregon **Transportation Planning Rule (TPR)**. The TPR guides jurisdictions through meeting the broad objectives of the Statewide Transportation Goal, which are to provide a safe, convenient and economic transportation system, while addressing the needs of the transportation disadvantaged.

5 Washington County, Oregon (2014). *Aloha-Reedville Study and Livable Community Plan Final Report*.

» Metro’s **Urban Growth Management Functional Plan, Title 11** requirements. Title 11 requires that concept or community planning be done for newly urbanized areas. Planning must address residential densities to support local and regional housing needs; a diversity of housing stock and affordable housing; transportation planning; identification and mapping of resource areas to be protected; and conceptual public facilities and service plans and a conceptual school plan identifying land and facilities necessary to serve the area.

A number of individual property owners within the South Hillsboro planning area are also preparing their own plans for future development. In particular, project partners Newland Communities and Hagg Lane, LLC, have worked with their own teams to prepare relatively detailed plans for their properties (Reed’s Crossing and Butternut Creek respectively). Other property owners have engaged in similar but less detailed planning efforts. Specific elements of those plans have been blended into this appendix.

2.3. Previous Planning Efforts

Planning for the South Hillsboro area began in the late 1990s and resulted in preparation of a draft South Hillsboro Community Plan in 2008 and adoption of an updated South Hillsboro Community Plan in 2012. The Community Plan was the first step in establishing a set of goals and objectives for the future growth of the planning area and described a development program that emphasized a “complete-connected-green” approach. The City has also completed an Economic, Social, Environmental and Energy (ESEE) analysis of South Hillsboro that identifies how and where natural resource protection will be applied through the city’s Significant Natural Resource Overlay Zone.

In addition, the City completed an amendment to its Transportation System Plan (TSP) for the South Hillsboro area in September 2013. A Transportation Financing Plan and other public infrastructure analyses and cost estimates have been prepared concurrently with this Community Plan update and will be incorporated in separate documents, with some information from that effort included in the Funding element of this appendix.

2.4. Planning Context

The following additional factors have been considered throughout planning efforts for South Hillsboro.

2.4.1. Natural Resources

The Tualatin River lies roughly one mile to the west of the planning area. Several tributaries to the Tualatin River flow west through the site, including Rosedale Creek, Gordon Creek, and Butternut Creek. South Hillsboro contains upland and riparian wildlife habitat along these stream corridors. Figure A-21 shows the approximate locations of these habitats, as well as significant and potentially significant wetlands. Figure A-4 depicts the topography in the planning area.

Properties that contain natural resources have been or will be inventoried and a significance determination made using the methodologies described in the adopted City of Hillsboro Goal 5 Natural Resource Inventory & Assessment Report. Those findings will be incorporated in an Environmental Energy Social and Economic (ESEE) analysis which will guide how those resources are treated during the development process as part

Figure A-4: Topographic Map

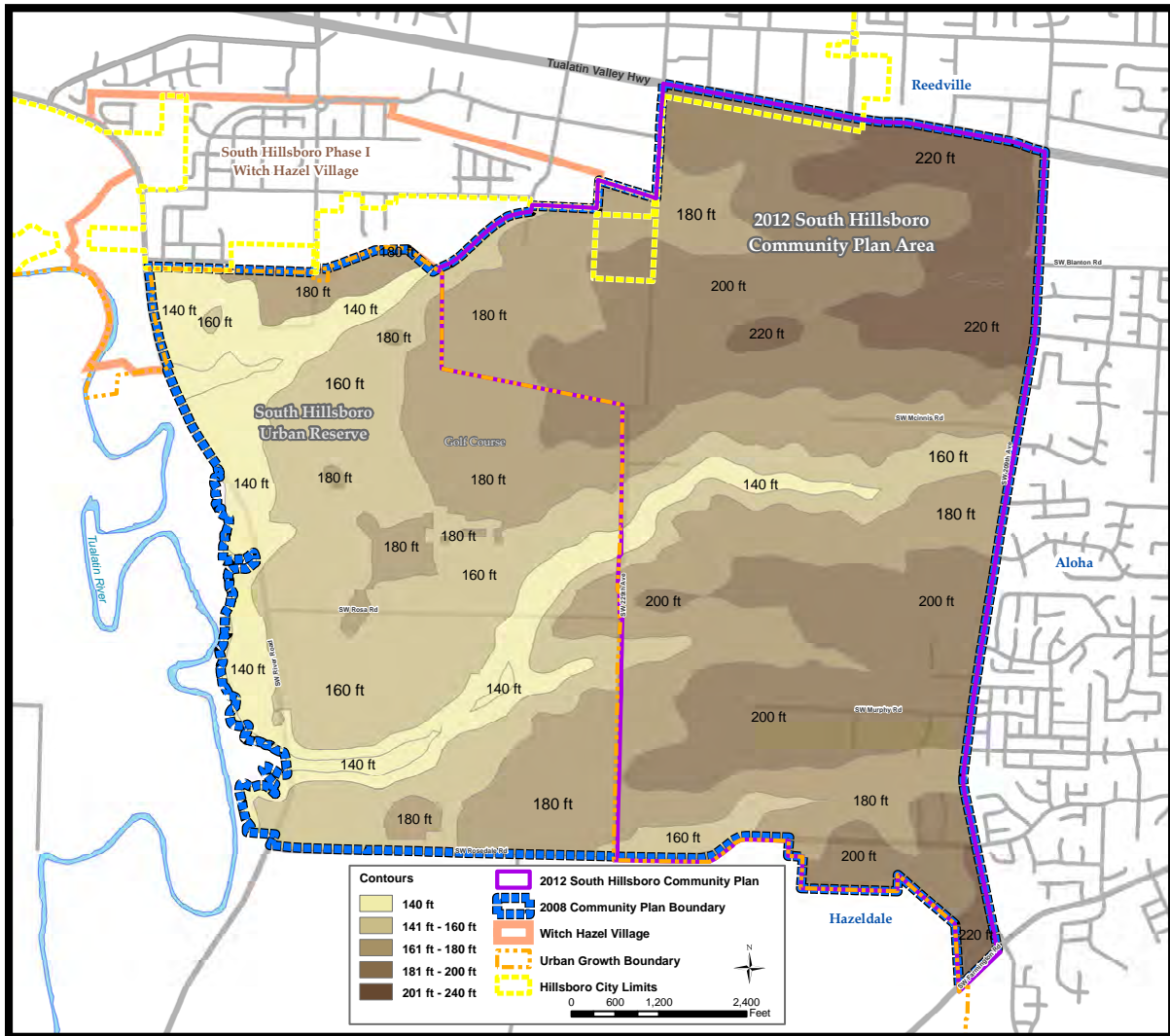
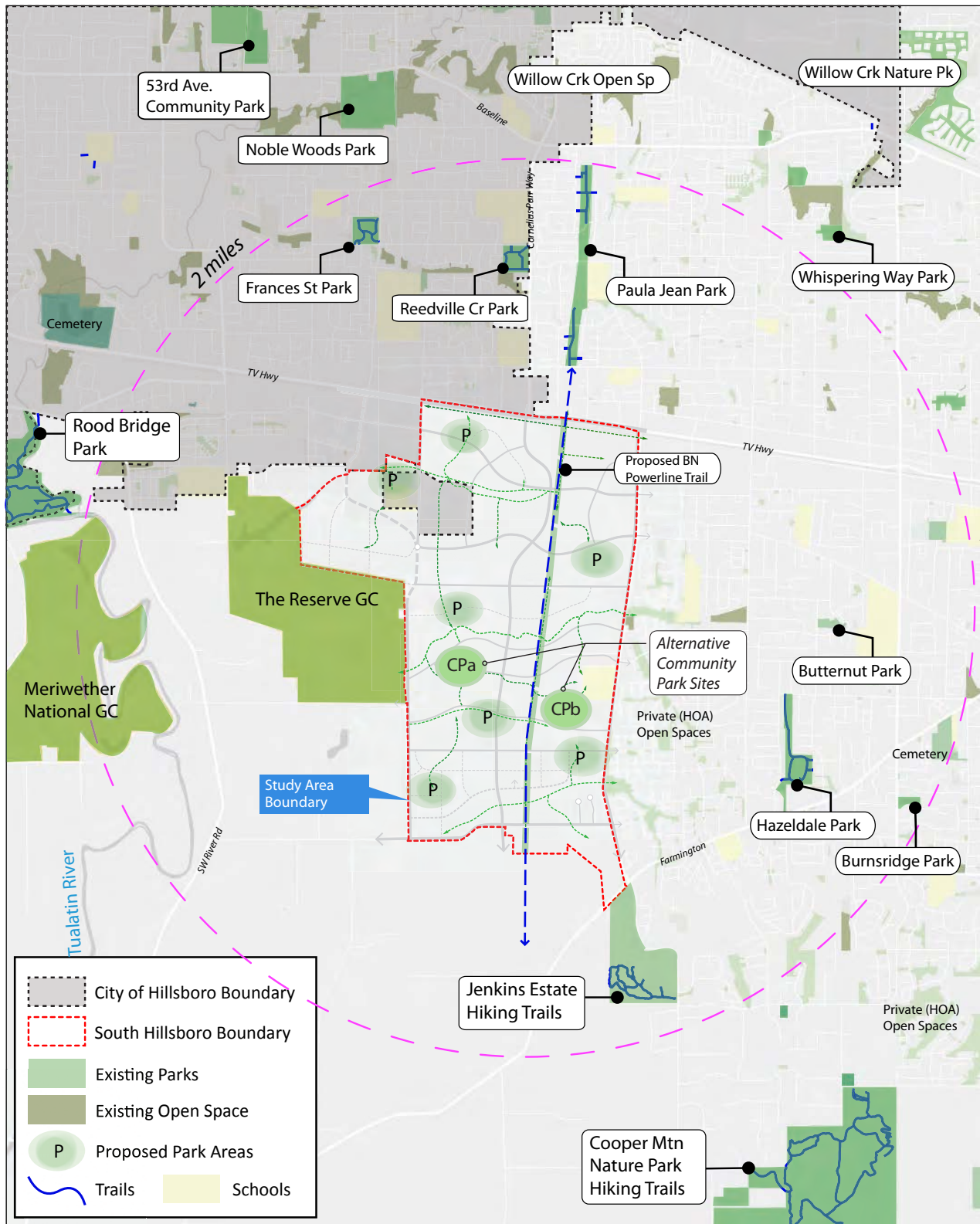


Figure A-5: Regional Parks, Trails, and Open Space



	City of Hillsboro Boundary
	South Hillsboro Boundary
	Existing Parks
	Existing Open Space
	Proposed Park Areas
	Trails
	Schools

Prepared By: Walker Macy
Date: 2/17/2014

North

0 2,000 4,000 Feet

Disclaimer: This map is intended for informational purposes only. It is not intended for legal, engineering, or surveying purposes. While this map represents the best data available at the time of publication, the City of Hillsboro makes no claims, representations, or warranties as to its accuracy or completeness. Metadata available upon request.

of application of the City of Hillsboro’s Significant Natural Resources Overlay (SNRO) zone. In general, natural resources should be woven into the fabric of the development pattern in South Hillsboro and treated as valuable resources and amenities for future residents.

2.4.2. Parks, trails and open space

Figure A-5 shows the locations of parks, trails and public open space in the vicinity of South Hillsboro. Butternut, Hazeldale, and Burnsridge parks lie to the east of the planning area, as well as several private open spaces. To the north lie Francis Street Park, Reedville Creek Park, Paula Jean Park, and Whispering Way Park. A golf course abuts the planning area to the West and the Jenkins Estate hiking trails lie near South Hillsboro’s southeastern boundary. Development of additional community and neighborhood parks, trails and open spaces should be considered within this larger park and recreation facilities context.

2.4.3. Schools

There are two existing schools within South Hillsboro: Rosedale Elementary in the northwest and Life Christian private school in the east. The majority of the planning area is within the Hillsboro School District, with approximately 170 acres of the southeasterly portion within the Beaverton School District. Figure A-6 shows the locations schools in and near the planning area as well as school district boundaries. The Hillsboro School District plans to add four new elementary schools and a new middle school within the planning area.

2.4.4. Cultural resources

The Oregon State Historic Preservation Office (SHPO) database indicates that historic and archaeological sites

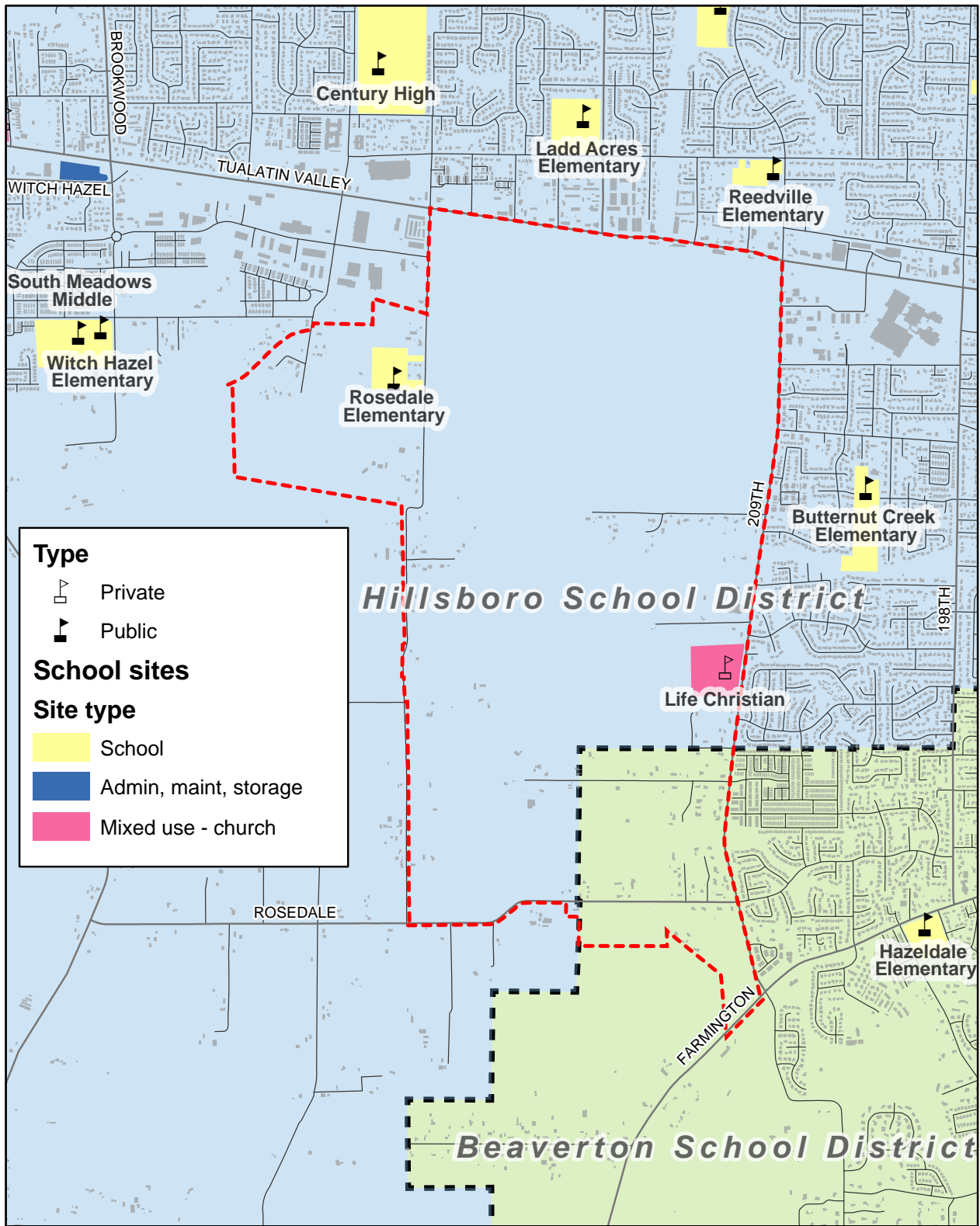
not formally documented do occur in the vicinity of South Hillsboro, including an unmarked cemetery and Native American archaeological sites. The records of the Oregon Commission on Historic Cemeteries indicate that another nameless cemetery is located south of Reedville, on the Ladd-Reed farm. Issues associated with cultural resources will be addressed in more detail and in accordance with applicable law as part of the development process.

2.4.5. Market conditions

A market analysis was prepared as part of the Community Plan process in 2007-2008. This analysis was updated in 2012 and again in 2014 by Johnson Economics. Key findings from this analysis related to current and future housing development in the area include the following:

- There will continue to be a strong future demand for housing in the Hillsboro area. Over the next ten years, South Hillsboro will meet approximately 60% of the total Hillsboro area demand for new housing of all types and just 42% of the demand for single-family detached housing.
- Economic projections indicate rapid absorption of single-family detached units, with lots in the 7,000-9,000 square foot range having the fastest absorption in the market based on demand.
- The scale, density and type of housing proposed in the plan, including housing envisioned in medium-density, high-density and mid-rise residential areas, as well as mixed use residential/commercial areas are generally consistent with market demand in the area in terms of average densities, likely pricing and market depths based on Hillsboro-market area trends.
- The phasing of retail and commercial development in South Hillsboro will be important. While the

Figure A-6: Regional School Locations



Type

- Private (white flag icon)
- Public (black flag icon)

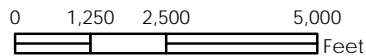
School sites

Site type

- School (yellow square)
- Admin, maint, storage (blue square)
- Mixed use - church (pink square)

Prepared By: APG

Date: 7/8/2013



Disclaimer: This map is intended for informational purposes only. It is not intended for legal, engineering, or surveying purposes. While this map represents the best data available at the time of publication, the City of Hillsboro makes no claims, representations, or warranties as to its accuracy or completeness. Metadata available upon request.

amount of commercial space in the initial phases may be modest compared to later phases, it is important that the initial phases be sited properly; be financially viable on their own; create a very attractive gateway to the Town Center and entire South Hillsboro community; and be built as early as possible to provide this gateway and sense of place.

2.5. Key Planning Elements

As a preliminary step in this Community Plan update process, key planning issues were identified to ensure that those elements considered critical to the success of South Hillsboro were addressed. Those key issues are described below.

2.5.1. Creating a unique community

An overall goal of the City’s planning effort is to create a distinct area in South Hillsboro that emphasizes sustainable, high-quality development that offers a mix of residential, commercial, and employment uses; incorporates environmentally, socially and economically sustainable and resiliency planning practices; and ensures that South Hillsboro is connected to and complements surrounding neighborhoods within the larger community.

These goals are reflected in the Design Principles and Concepts described in Chapter 4 of this appendix, which strive for a “complete-connected-green” community. Those underlying principles have been used throughout this process to shape all elements of the plan and will similarly be codified in proposed development code provisions to be applied in South Hillsboro through a combination of base zones and a South Hillsboro Plan District.

2.5.2. Major road alignments

A major component of the planning effort is the evaluation and determination of appropriate alignments for major roads through South Hillsboro, particularly Cornelius Pass Road and its location relative to the Town Center. Approximate road alignments will be used primarily to ensure appropriate connection points for roads that cross property lines and to estimate costs of public facilities. Within individual properties, road alignments should be considered approximate and subject to potential modification through the development application process.

2.5.3. Land use configurations

Concurrent with development of road alignments, this plan update process evaluated land use and development configurations that complement road alignments and meet other project objectives. This included assessment of size and location for the Town and Village Centers, location of different residential neighborhood types and commercial/retail nodes, and the approximate location and configuration of parks and open space networks within South Hillsboro. The process also included determination of appropriate locations for schools within South Hillsboro. This information will be used to develop an overall zoning concept, discussed in Chapter 5, which guides application of future zoning in a manner that yields desired densities, housing products, and neighborhood configurations over the long term.

2.5.4. Housing opportunities

A key element of the plan update is the identification of specific mixes and types of residential uses that will best achieve the housing objectives and community vision for

South Hillsboro. This includes consideration of how those housing types/mixes will relate to the planned Town and Village Centers, as well as parks and open spaces. Information related to housing is intended to be conceptual. Specific types of allowed housing in different areas of South Hillsboro will be controlled by provisions of the Community Development Code and through the development permitting processes.

2.4.5. Infrastructure & Phasing

Another key aspect to guiding successful development of the South Hillsboro area will be ensuring adequate and appropriate stormwater management. Two new sanitary sewer pump stations will be located within the South Hillsboro planning area - the Butternut Creek and Rosedale Pump Stations. While water service in the planning area will be ultimately provided by the City of Hillsboro, early phases between 209th Avenue and the proposed Cornelius Pass Road alignment will receive water from the Tualatin Valley Water District (TVWD) pursuant to an intergovernmental agreement between the City and TVWD. In addition, a number of different strategies may be implemented to manage stormwater quality treatment and detention (quantity) in South Hillsboro.

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3

Planning Process

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3.1. Project reconnaissance and background research

Drawing on previous work done for the South Hillsboro Community Plan, one of the first steps in the master planning process was to gain a comprehensive understanding of the current regulatory, land use, market, transportation, and infrastructure conditions in the South Hillsboro Plan Area. This information was summarized in South Hillsboro Master Plan Summary Report: Existing Conditions, Opportunities and Constraints, which was completed in August 2013.

Nearly 80% of the plan area is currently improved or unimproved farmland in 161 individual parcels. The average parcel is 8.3 acres in size, although there are four parcels of 50-250 acres that will play key roles in defining the Town and Village Centers that will serve the community. Developed lands are more concentrated near the boundaries of the Plan area, particularly in the southeast, and contain a mix of residential, farm, commercial, and institutional uses.

The summary report found that there is a significant opportunity in South Hillsboro to integrate individual property owner plans with leading design and planning principles in a way that would yield a unique, distinctive community comprised of a variety of housing types and neighborhood styles, closely integrated with compelling mixed-use areas and a strong parks and open space system.

The report also found that significant infrastructure investment would be necessary to support residential development in South Hillsboro. Existing roads, water, and waste treatment systems are most appropriate to a rural, not urban context. Development and phasing of transportation, parks, schools, water, sewer, and civic

infrastructure improvements will be key to delivering the type of community that South Hillsboro can be.

3.2. Community engagement and public participation

Recent public involvement efforts build upon engagement activities from earlier phases of planning work in South Hillsboro. Early in the master planning process, a public involvement plan was developed in order to ensure a broad level of participation by all interested stakeholders and the larger Hillsboro community. The City's Citizen Involvement Advisory Committee (CIAC) approved an initial public outreach plan in February 2012. A refined plan for public involvement activities was developed

The flyer features a green header with the Hillsboro Oregon logo. Below the logo is the title "South Hillsboro: Growing a Great Community" in green. Underneath, it says "Join Your Neighbors at the Next SoHi Community Open House!" followed by the date and time: "Tuesday, June 26 • 5:30 to 7:30 pm". The location is "Rosedale Elementary School Cafeteria • 3901 SW 229th Avenue". It also lists "Come at any time • Refreshments provided • All ages welcome". There are four small images showing community scenes: a street view, an outdoor cafe, a park, and a house. Below the images is the heading "Help Plan the Future of South Hillsboro!" and a paragraph explaining the purpose of the open house. A bulleted list details the topics to be discussed, including land use, parks, roads, housing types, and village centers. At the bottom, it provides contact information for Jeannine Rustad and Omar Carrillo, along with the website and phone numbers.

Informational flyer sent to local residents inviting them to the June 2014 Community Open House.

around a community engagement strategy developed by consultants in July 2013, calling for a variety of tools and approaches to be taken to engage stakeholders and the broader community. The CIAC and the Advisory Committee for Citizen Involvement both approved an updated Public Involvement Plan in August 2013.

During the 2008 planning process, public input was received during citizen-led Task Force meetings, three project open houses, two community forums, one scenario planning workshop, stakeholder interviews, a housing market focus group session, a local business community meeting, several Citizen Participation Organization (CPO) meetings and a Hillsboro Vision 2020 Town Hall event. Public feedback was also obtained through email, letters, surveys, and comment cards. Over 12,000 project newsletters, comment cards and meeting notifications were mailed to property owners in-and-around the plan area.

In 2012, the City began public outreach efforts for the adoption phase of the South Hillsboro planning effort. Outreach efforts on 2012 included:

- Project webpage updates
- A public open house (held March 22, 2012) focusing on two alternatives to meet Metro conditions
- A public open house (held May 8, 2012) focusing jointly on South Hillsboro, the Tualatin Valley Highway Corridor Refinement Plan, and the Aloha-Reedville Livability Study
- Two Planning Commission worksessions on alternatives and to review memoranda of understanding with project partners.

In the latest phase of master planning work beginning in 2013, community engagement efforts have included:

- Individual or group meetings with property owners, service providers, and community members
- Three public open houses (discussed below)
- Media outreach
- A Project Website (<http://www.hillsboro-oregon.gov/SouthHillsboro>) including documents, maps, and project updates
- Worksessions and meetings with the Hillsboro City Council, Planning Commission, Transportation Committee, Finance Committee, and other bodies as appropriate.



Community members and staff discuss display boards at the November 2013 Community Open House.



Community members and staff discuss display boards at the November 2013 Community Open House.

- Stakeholder interviews
- Inter-departmental and inter-agency coordination.

Open houses were held on September 10, 2013, November 12, 2013, and June 26, 2014 at Rosedale Elementary School, which is within the planning area. Each event was designed to provide a forum for discussion and feedback from community members, organized around the focus of the planning team at that point in the plan development process. At each open house, community members had the opportunity to leave informal written or verbal comments, which were then used to refine the project team's work. Each of these events is summarized below.

Open House 1 (September 20, 2013)

Agenda topics: presentation and general question and answer session regarding the project overview and schedule, planning principles, best practices, and next steps. Estimated 75 attendees.

Open House 2 (November 12, 2013)

Agenda topics: conceptual plans for land use, housing types, transportation, parks and open space, schools,

urban design, and neighborhood development patterns. Estimated 35 attendees.

Open House 3 (June 26, 2014)

Agenda topics: presentation and general question and answer session focusing on the draft composite plan, and refined concepts for land use, transportation, parks and open space, schools, and community amenities. Estimated 100 attendees.

3.3. Partner collaboration

The City and its consultant teams worked closely with project partners throughout the plan development process to ensure multiple opportunities for input on project deliverables, and to ensure alignment between the City's vision for South Hillsboro and the economic realities facing developers as they implement these plans. This collaborative effort included:

- Representatives of two major property owners in South Hillsboro (Hagg Lane, LLC, and Newland Communities),

-
- Owners of property in other areas of South Hillsboro, and
 - Related departments, agencies and service providers including the City of Hillsboro Parks, Public Works, and Water Departments; Hillsboro School District; Clean Water Services; Washington County; TriMet; and the Oregon Department of Transportation.

Many of the key project issues (for example, determining the location and design of major roads, parks, and schools) were addressed through a collaborative approach with these project partners.

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4

Design
Principles and
Concepts

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4.1. Implementing the Complete-Connected-Green Vision

This section expands on the Complete-Connected-Green vision described earlier, and identifies key hallmarks of planned development in South Hillsboro that are intended to deliver this vision. These concepts drive the design principles and planning practices explained later, which in turn drive the policies and standards governing development in South Hillsboro.

4.1.1. Complete: A lifestyle system

Complete means the spectrum of activities that define where we live; where we work or attend school; and where we spend our time outside of home and work. The Plan provides a balance of land uses to accommodate each of these. Providing shelter creates space for “inhabitants.” Providing a home creates space for “residents.” But providing a community creates space for “citizens.”

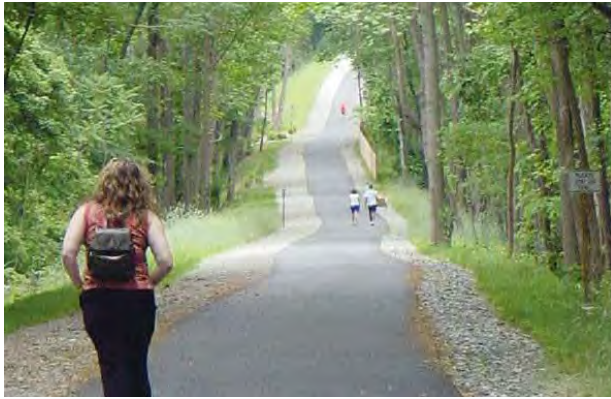
The Plan provides both a sense of place and a sense of community. This “complete community” concept is directly related to the six key focus areas of the Hillsboro 2020 Vision as described in the Hillsboro 2020 Vision section of this report. It also mirrors the Metro Great Communities “Complete Communities” characteristics

and Regional Values. The Plan provides a unique opportunity to create a new, complete community with the full spectrum of land uses and public services. In addition, South Hillsboro will provide affordable housing, parks and recreation and will accommodate age and income diversity. Areas where residents live, work and play will include a Town Center, Village Center, compact single-family and larger-lot single-family neighborhoods. South Hillsboro will be a life-cycle community serving all segments of the population. The physical design:

- Creates a transitional community, with more intense uses close to Tualatin Valley Highway, becoming less intense moving outward toward the urban growth boundary.
- Integrates a Town Center with commercial, residential, mixed-use, civic uses, transit center, and the greenspace system.
- Integrates a Village Center with commercial, residential, mixed-use and the greenspace system.
- Integrates compact neighborhoods with the Town and Village Centers, schools, parks and the greenspace system.
- Integrates single-family neighborhoods with schools, parks and the greenspace system.



COMPLETE: Good streets have a sense of enclosure, an active street frontage, and create a “third place” (apart from homes and public spaces) where people can gather



CONNECTED: Wide shared greenway trails for bike and pedestrian access to and through natural areas, and pathways connect residential development to other areas.

- Creates third places that benefit both the immediate Plan Area and the larger Hillsboro and broader Washington County communities.

4.1.2. Connected: A multimodal transportation system

Connectivity is key to creating a cohesive, complete community. The Plan provides a circulation system and greenspace network that promotes walkability and provides multiple ways to travel within the area. Different neighborhood orientations to streets, greenspace areas and other design features help create a diverse set of corridors, walking/biking trails, and roadways. The physical design includes the following elements:

- Grid pattern circulation system to accommodate streets, bike lanes and sidewalks.
- Greenspace circulation system to accommodate walkways, bicycle and hiking trails.
- Transit center to enable a future bus/commuter rail transit system. The transit center is intended to support potential high capacity transit service and help provide for transit connections between South Hillsboro and other areas in the City and region.
- Implement recommended improvements from the Tualatin Valley Highway Corridor and South

Hillsboro Focus Area Plans to increase regional connectivity.

- North/south extension of Cornelius Pass Road for regional connectivity.
- Transportation planning envisions linkages to Downtown Hillsboro, North Hillsboro employment and Tanasbourne/AmberGlen via the circulation system and expanded transit system.

4.1.3. Green: A comprehensive greenspace system

The Greenspace system includes the natural stream corridors, the Bonneville Power Administration power line corridor, and new parks and trails. Collectively these form a greenspace network that links the community both internally and with adjacent neighborhoods. The greenspace system supports riparian habitat, passive and active recreation, and open space preservation. The power line corridor can help create a unifying feature for orienting the compact neighborhoods. The physical design for this concept includes:

- Connect east-west stream corridors with north-south wildlife travel corridors.
- Use the power line corridor as a north-south greenspace connector for trails. The corridor will be



GREEN: stormwater planters filter runoff and create a pleasant transition from public to private space. Ecoroofs help to filter stormwater runoff and should be incorporated in building design whenever possible



Sustainable design - permeable parking surfaces

designed to ensure public health and safety through regulated design and use.

- Preserve wide forested areas to provide habitat for interior forest species.
- Maintain wetland/stream hydrology in sub-basins.
- Incorporate trails/passive recreational opportunities in outer edges of greenspace areas.
- Expand future greenspace to improve connectivity with the Tualatin River.
- Use natural buffers as part of the urban growth boundary where possible, to aid the transition to agricultural uses.
- Promote habitat friendly development practices.

4.2. Design Principles and Best Planning Practices

This section includes planning and design principles that serve as the foundation for the overall land use, transportation and open space framework developed for South Hillsboro, and the comprehensive plan policies and Community Development Code standards that result. These principles also provide a basis for design standards and other development code provisions that will be applied in South Hillsboro. Sustainable design and

development concepts and other planning best practices have been incorporated into the principles wherever possible.

These design principles are based upon best practices for sustainable development. Staff and community members worked to refine these best practices into more specific principles relevant to the context of South Hillsboro. These principles were reviewed at community workshops and meetings, with property owners, and with the Planning Commission and City Council.

4.2.1. Land Use

- Highlight views to Mt. Hood and other key natural resources such as local and surrounding foothills, forests and creek corridors.
- Design areas on the edge of South Hillsboro (adjacent to rural areas) to incorporate practices that create a transition between urban and rural development.
- Incorporate a sense of entry into the design of key locations and distinct neighborhoods within the South Hillsboro community through the use of signage, gateway structures, street design, landscaping and building form.
- Incorporate wayfinding and contextual elements to provide a sense of location for travelers and establish



Preserving and leveraging key view corridors.



Commercial street with a sense of enclosure



Areas of low density development adjacent to rural land create a transition from urban to rural

distinctions between different neighborhoods and centers in South Hillsboro.

- Site commercial and mixed-use buildings to provide a sense of enclosure along the street frontage.
- Create a plan that is financially feasible to achieve and economically sustainable over the long term.

4.2.2. Housing

- Overall development density should be compatible with surrounding planned density and residential diversity should be promoted.
- All residential areas should allow for opportunities for a variety of housing types and a range of densities appropriate to the intent of each zone and that meet the needs of people in a range of household incomes and structures.
- Individual neighborhoods should allow for a range of architectural styles and design characteristics.
- Environmentally sustainable approaches should be incorporated in the design and construction of



Context-sensitive development (views of surrounding landscape; garages tucked behind residences) with particular attention to the “First 30 Feet,” or area of the building elevation closest to street level

housing, such as building orientation, energy-efficient construction, water-efficient fixtures, photovoltaic panels, recycled and regional materials, water-efficient landscape, minimized site disturbance and/or other similar techniques.

- Residential neighborhoods should be designed for openness. Gated communities and tall, sight-obscuring fences and walls should be avoided except for screening mechanical systems and back of house services such as trash collection areas.

4.2.3. Commercial

- Development along Tualatin Valley Highway and the railroad should help create an attractive and inviting “face” and sense of entry to South Hillsboro by establishing buildings that are visually open and minimize blank walls. Parking and loading areas should be significantly screened from roadways and adjacent pedestrian facilities.
- Retail and commercial buildings should be constructed of high quality materials. Standards for use of materials on the ground floor of retail, commercial and other buildings, including in mixed use areas is particularly important. Special attention should be paid to the first 30 vertical feet of the buildings

to ensure a pleasant and inviting presence for the pedestrian.

- Site buildings so that they provide active street frontages that support walking, with minimal setbacks. Building heights should be sufficient to create a sense of street enclosure, or ‘outdoor room.’
- Parking and loading services should be located so as to allow desired uses and activities to face the street and to support pedestrian-oriented streets. The majority of parking and loading areas should be located on the side or rear of buildings. Direct, safe and convenient pedestrian access through parking areas should be integrated into site design and layout.
- Ground floor retail and commercial buildings and uses should have a high degree of transparency, with glass windows or doors occupying a majority of the ground floor façade and allowing pedestrians to see inside the building.
- Upper stories also should incorporate a large degree of window openings and other features that provide visual interest and are compatible in scale and character with nearby neighborhoods.
- Ensure that large-scale retail does not detract from the character of the Town Center.



Commercial uses provide a sense of enclosure, an active street frontage, and create a “third place” (apart from homes and public spaces) where people can gather

- Signage should be pedestrian-oriented in scale and location, and should not contribute to a sense of visual clutter.
- Civic, retail, residential and other uses should be sited and designed such that they are visually complementary to each other. Larger-scale commercial uses should be located in the Town and Village Centers only. Neighborhood commercial uses should

be of smaller scale, oriented to pedestrian access from nearby homes.

4.2.4. Transportation

- To the greatest extent possible, create a road system that ensures safety and maximizes connectivity within South Hillsboro as a whole and within individual neighborhoods while supporting regional traffic which must pass through South Hillsboro (while diminishing neighborhood cut-through traffic). This road system should generally include a grid of major arterials, collector, and local streets and alleyways designed to respond to a full range of development types and transportation functions. In some areas, the ability to create a grid system may be affected by topography, natural resource constraints or other limiting factors.
- Roadways should include facilities for walking and bicycling as appropriate based on roadway classification and context. A network of inner-connected pedestrian and bicycling routes should be provided that are inviting, safe and that encourage use by a broad spectrum of users.
- Arterials should be designed with a limited number of driveways and intersecting roads to provide adequate capacity for through traffic while providing connections to surrounding streets and neighborhoods. Wherever possible, access to individual businesses and properties should be provided from secondary streets.
- Streets in mixed use and commercial areas should incorporate pedestrian-oriented designs and amenities such as wide sidewalks and highly visible crosswalks, medians or refuges, on-street parking, pedestrian scale lighting, street trees and furniture, opportunities for outdoor seating and/or other features intended to activate and energize streetscapes. On-street parking should be included in street design, where appropriate,



Attractive intersection treatments provide increased safety for all users

to support commercial and retail uses fronting on the street.

- Trails and pathways should be designed and built to safely accommodate a variety of users and provide connections between homes, local and regional destinations, including retail and shopping areas, schools, parks, natural and open spaces and other community facilities.
- Major streets such as Cornelius Pass Road should be connected to adjacent neighborhoods as much as possible. These streets should act as part of the neighborhoods rather than barriers. Sound walls should be avoided.
- Throughout South Hillsboro, Cornelius Pass Road should be designed to support a 35 mph posted speed limit, with a 25 mph limit in the Village Center.

4.2.5. Parks and Open Space

- Natural features and habitat areas should be preserved, enhanced, and incorporated into the design of residential and commercial areas, as well as parks and recreational facilities.
- Parks and open spaces should have public edges (i.e., public streets) adjacent to supportive uses in order to

help make them safe. Avoid placing rear yards and fences as borders to parks and open spaces.

- Where feasible and beneficial, schools, civic uses, parks and open space corridors may be co-located and/or directly connected to make them walkable for children, improve safety, reduce the need to drive between these facilities and use land and other resources efficiently.
- Civic uses and parks should have prominent locations to create neighborhood identity and to encourage public use.
- Parks should meet the city’s size standards and include a variety of active and passive recreational and other neighborhood or community-oriented activities and opportunities and meet the needs of surrounding residential and mixed use neighborhoods.
- The design and siting of parks should help enhance the character of surrounding neighborhood and serve as a tool for creating desirable urban form.
- Higher density residential areas and commercial and mixed use areas should incorporate gathering places for residents, workers, shoppers and other visitors. These spaces should be sized and designed to accommodate gatherings and events as appropriate.
- The BPA Easement Corridor should be considered as an amenity and should be adjacent to a public street or



Design and siting of parks and open spaces complements and gives character to the surrounding development



Bioswales in a residential development treat stormwater runoff from the street and sidewalk

other public space with opportunities for linear open space and trail connections where feasible.

4.2.6. Other Infrastructure

- Clarify public and private responsibilities for building and maintaining public facilities, spaces and other infrastructure.
- Plan for undergrounding of all utilities.
- Low impact development practices should be incorporated in designing and building streets and pathways, including building narrower streets and using sustainable drainage techniques where feasible and financially sustainable over the long term.
- Stormwater treatment facilities should be seamlessly incorporated into the landscape and design of neighborhoods and civic spaces as much as possible.
- Utilize passive building strategies, including building orientation to maximize daylight and natural ventilation, to promote sustainability.

4.3. Design of Community Facilities

4.3.1. Overview

The City of Hillsboro intends for development in South Hillsboro to be clearly integrated with the overall brand of the City of Hillsboro while still providing a unique sense of place within South Hillsboro. In part, this unique identity can be created through the visual clues provided by a mix of improvements within publicly owned spaces and facilities. How strongly the brand is expressed depends upon the extent to which the design of these improvements are pre-determined and required.

The following specific types of strategies are proposed to help establish a unique identity.

- Intersection and crosswalk paving
- Landscaping and street trees
- Street lighting and furnishings
- Utilities
- Parks, trails and plazas
- Wayfinding
- Gateways

Following is a summary of general recommendations for how these elements will be implemented in South Hillsboro. Ultimately most of these strategies will be implemented through additional requirements in the City's Development Code or through separate Engineering standards referenced in the development code. Further work on those requirements will be needed and is expected to involve review and discussion among various City Departments, partnering property owners and developers and other community members prior to finalizing and preparing those standards.

4.3.2. Intersection Paving

One highly visible design feature that will be found throughout South Hillsboro is the treatment of intersections and in particular, pedestrian crossings and other paving elements within and adjacent to those intersections. Consistent and systematic use of paving treatments will incorporate a strong cohesive bicycle and pedestrian system, use of high quality materials and a relatively cohesive design aesthetic:

- Use of unique, highly visible materials will create a consistent look for South Hillsboro and improve safety for pedestrians, bicyclists and drivers. Options include texture or pattern-differentiated concrete or well-designed high-visibility pedestrian crossings (consistent with Public Works standards). Use of brick and dyed concrete would be less preferred given maintenance and other issues.
- Pedestrian crossings should be placed as close to the intersection as possible (not set back from it) to reduce crossing distances, improve visibility and make crossing in two directions as direct as possible.
- Crossings should be as wide as reasonably possible to improve visibility and safety.



Differentiated materials are used within crossings but not repeated on sidewalks in this example.



This example features a raised concrete crossing area to enhance visibility for drivers and pedestrians in a mixed use area.



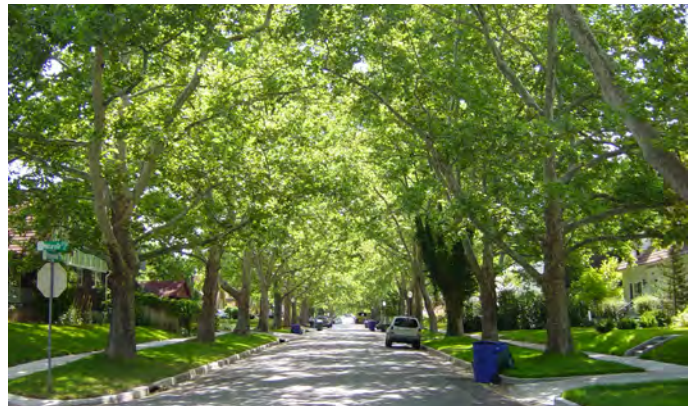
A well-designed "zebra crossing" is another alternative.

- Crossings should be integrated with other intersection design features and aspects of the design of the adjacent streets.
- High-visibility pedestrian crossing treatments are recommended at all intersections of collectors and/or arterial, or as otherwise indicated for use in Public Works standards. They might also be used for intersections of collectors and local streets adjacent to schools, parks or other key public facilities and/or at mid-block crossings in the town or village centers.
- A very specific standard could be used or developers (and the City) could be provided with a limited number of options that could be used in different situations (e.g., crossings in the town and village centers might look somewhat different than in more residential areas). In either case, the number of options should be limited to ensure that they result in a cohesive, unique design aesthetic for South Hillsboro in its entirety while ensuring safety of all road users.

4.3.3. Landscaping and Street Trees

Within South Hillsboro, street trees and other landscaping within the public right-of-way will provide opportunities to reinforce the area's identity. This will include street trees, other landscaping found in planting areas adjacent to the roadway (e.g., grasses, shrubs or other groundcover plants), or in center medians and use of hanging plants, planter boxes and/or other similar features. Landscaping also may be integrated with "hardscape" features such as paving in civic plazas, small courtyards or other gathering places. Landscaping in the right-of-way is expected to be provided throughout South Hillsboro. However, the prevalence and character of different landscaping elements may vary between different types of areas. While a certain degree of consistency may be desirable across all areas, different

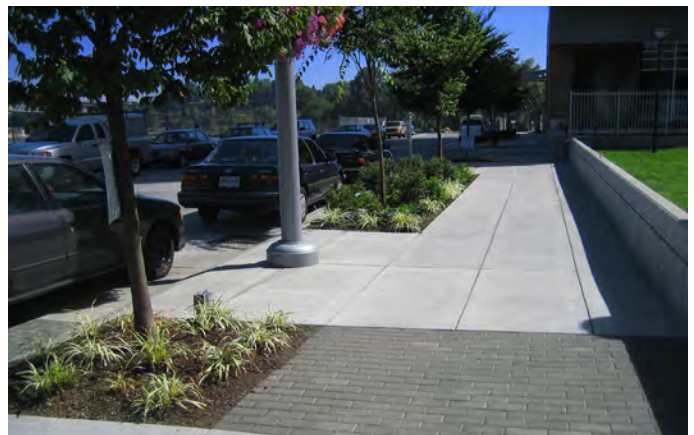
approaches would be taken in residential areas vs. the Town and Village Center Core Areas and other mixed use areas. In addition, landscaping approaches may differ between lower density single family neighborhoods and more urban, medium or higher density residential areas. Other strategies and recommendations related to street trees and landscaping include the following:



Large streets provide a canopy over this local residential street.



Columnar species of street trees are often used in commercial and mixed use areas to maintain visibility of storefronts and signage.



Example of street trees in planting areas in a mixed use area.

- Consistent with the “Complete-Connected-Green” theme for South Hillsboro, provide a higher level of landscaping in South Hillsboro compared to other parts of the City. This may mean a tighter minimum spacing of street trees, a higher percentage of plantings within civic plazas or similar areas, wider landscaped buffers for parking lots, and/or wider planting strips or generally more area devoted to landscaping in the right-of-way. Some of these requirements have already been incorporated in the South Hillsboro Plan District provisions to be adopted as amendments to the City’s Community Development Code.
- Wherever possible, use climate-adapted plant species that require less water and limited maintenance, consistent with an emphasis on environmentally sustainable practices. Street tree species selected should be well-suited to urban environments and must be consistent with the species list as designated by Public Works.
- In commercial and mixed use areas, balance landscaping objectives with visibility for local businesses. This may include using columnar tree species and “limbing up” or pruning trees to a height that ensures that they do not block ground floor business signs or windows.
- Vary the degree of living plantings and hardscape in different areas. In more urban areas such as the Town Center or Village Center Core Areas, a higher degree of hardscaping may be appropriate, with the highest percentages in the Town Center and relatively lower percentages in lower density residential neighborhoods.
- Consider maintenance costs and needs in selecting tree and other plant species and in determining the most appropriate mix of planting and hardscape.
- Implement a maintenance approach that is cost-effective for the City, and efficient and equitable for adjacent property owners.
- Similar to other elements of the public realm, integrate landscaping approaches with other aspects of the streetscape and the character of surrounding private development.
- Integrate landscaping with stormwater management facilities.

4.3.4. Street Lighting and Furnishings

Similar to other public realm elements, street lighting and street furniture provide opportunities to reinforce a unique identity in South Hillsboro. All three zones of the streetscape (vehicular, sidewalk, and parking) must be properly lit. Pedestrian scale street lighting should be provided in all areas of South Hillsboro where street lighting is required. However, given the width of the right of way, special consideration to the scale of the street lights along Cornelius Pass Road will be needed. Within the mixed use areas, additional lighting enhancements should be considered on the light poles such as brackets for hanging baskets, banners or permanent community identifiers, and outlets for holiday lighting.

Pedestrian and bicyclist amenities (e.g., amenities such as benches, trash receptacles, bollards, bicycle racks, drinking fountains and/or other similar features) are expected to be provided primarily in mixed use areas such as the Town and Village Centers and adjacent to institutional uses (e.g., schools and schools) which are allowed in residential zones. In addition, they could be required in higher density residential zones as well.



Contemporary trash and recycling container. Seat walls can be an effective alternative to benches.



These trash containers have been placed in a furnishing zone outside the main pedestrian walking zone.



Street lighting integrated with wayfinding, regulatory signs and art.



Simple, staple bicycle racks, located outside the pedestrian zone, but under awnings.

Following are more specific guidelines for street furniture and lighting in South Hillsboro.

- At a minimum, include street furniture in streetscape design standards areas designated for mixed use. Consider incorporating some elements in high density residential area as well.
- At a minimum, street furnishings in the Town and Village Centers should include benches, trash receptacles and bicycle racks. Drinking fountains also could be included if a water source is readily available and if the City determines that the benefit/cost ratio for providing them is relatively high.
- Bollards may be considered as needed as a safety device (e.g., adjacent to mid-block crossings and possibly in other locations where there is an elevated risk of vehicle/ pedestrian collisions such as curbless

streets. Where bollards are used, they should be designed and placed to address potential maintenance and obstruction issues to minimize the need for manual cleaning around the bollard, and to discourage graffiti.

- The design and scale of street furniture and lighting should be integrated with other urban design features and aspects of the streets in a given area, as well as with the architectural design of buildings and other aspects of private development.
- The design of streets should include a zone for street furnishings, typically the first 4 feet between a street's curb towards the building edge, to reduce clutter and avoid pedestrian obstacles.
- Identify a design aesthetic for street lighting and street furniture for use within South Hillsboro

that reflects the brand and history of the area. A “northwest contemporary” look is recommended for street furnishings in South Hillsboro. This should incorporate a more contemporary look that is timeless (not trendy) rather than tied to a specific time period (e.g., a “historical” look).

- Street furnishings and lighting should be chosen to minimize maintenance costs and should be “weather-appropriate” for conditions in the Pacific Northwest (i.e., significant rainfall).
- Street and other exterior lighting should provide for security and extended use of properties into nighttime hours, while ensuring an environmentally sensitive and energy efficient nighttime environment that includes the ability to view the stars against a dark sky from residential and other appropriate viewing areas.
- Other pedestrian scale street lighting considerations include:
 - » Considering use of solar powered lighting.
 - » Allowing stores to help illuminate sidewalks in the evening.
 - » Using newer LED lighting, not high pressure sodium.
 - » Integrating lighting with signage and/or art.
- The City should not simply select and purchase a low cost, “off the shelf” set of street furniture and pedestrian scale lighting for this area. The design of these elements should be carefully considered in conjunction with other aspects of the design of these areas.
- Ultimately, specific standards may include requirements for which areas shall include street furniture and lighting; approximate spacing of street lighting; the approximate numbers of benches and trash receptacles that should be provided on a given block face or length of street in the town and village

centers; and/or factors that shall be considered in selecting specific furniture and lighting products.

4.3.5. Utilities

Within South Hillsboro the design and regulation of utilities provides an opportunity to reinforce the brand and to ensure a high quality environment. As proposed in the draft South Hillsboro Plan District, utilities are required to be undergrounded either in the public right-of-way or in a public utility easement. However, some aspects will still be visible and standards for the placement and screening of those utilities also is addressed in the proposed Plan District. In addition to applying these proposed standards, the following strategies also will be implemented in South Hillsboro:

- Work closely with public utilities on a comprehensive approach to undergrounding major utilities as construction proceeds, to avoid having to disturb streets later.
- Coordinate with franchise utilities to do the same.
- As currently established in the plan district, on Active Use streets require that vaults be located underground to avoid conflicts. Alternatively, if desired, revisit the



Contemporary version of a unique manhole

plan district standards to allow utility boxes to be above ground where public art will be incorporated.

- Consider requiring landscaping when artificial rocks are used to screen utility vaults.
- Locate utilities within rear alleys where possible. Utility reluctance to do so is typically due to concerns about vehicles striking the vaults. Small curbs can be installed around the vaults to mitigate this.
- If all utilities cannot be undergrounded in residential areas, work closely with providers to ensure that facilities are located away from significant public parks and major gateways.
- Multiple boxes should be arranged in close proximity to reduce visual impact and allow for concentrated landscape screening.
- Incorporate public art on above-ground vaults and work with utilities and property owners to establish a utility vault art program.

4.3.6. Parks, Trails and Plazas

Successfully accommodating existing and special conditions in South Hillsboro is an important part of the design of public park, plaza and trail design.

Public Parks

The City of Hillsboro Parks and Recreation Department's existing standards have resulted in very good parks. However, if appropriate, establishing unique park design requirements within South Hillsboro could be another means of creating a distinct identity. There will be six Neighborhood parks and one community park in South Hillsboro. While these parks may serve somewhat different roles within the community, they are all urban parks that will be meeting the recreational needs of the residents. If the City determines that these parks



Unscreened vaults are rather unsightly and should be discouraged except in an alley or on the rear of the project.



Utility boxes can be a location for public art.

should have aspects unique to the South Hillsboro area, then common design elements within the parks that are unique to this area could be used to help foster a sense of place as well as serving to distinguish it a distinct area within the City of Hillsboro. Distinctive pavers, fencing, plantings, furniture and/or structures could also be used to establish a unique identity. Overall, a high level of quality is desired in the choice of materials, to establish this community as an enduring, well-designed neighborhood. In addition, design standards should ensure parks within South Hillsboro:



Trails should be designed with a hierarchy of widths and materials to meet the needs of a range of future users.

- Focus on context sensitive design;
- Use of climate-adaptive plants which will thrive with in local environment (e.g., use less irrigation, pesticides and fertilizers); and
- Ensure timelessness and durability through high quality materials.

Trails

South Hillsboro will be connected by a series of trails. Similar to parks, to the extent trails within South Hillsboro differ from elsewhere in Hillsboro, they provide another mechanism to reinforce a distinct identity there. The width of the trails, paving materials, fences, signs, and adjacent plantings can all serve to promote a distinct South Hillsboro identity. Design standards should ensure trails within South Hillsboro:

- Are located in ways which create a pleasant and interesting route while minimizing ecological impacts;
- Recognize the needs of user group(s) in terms of design and materials. For example, pathways should be the minimum necessary to accommodate expected future users.



Plazas in Town and Village Centers should include shade trees and places for sidewalk dining to spill out onto the edges of public spaces

Plazas

Plazas will be an integral part of the Village and Town Center Core Areas. These spaces will likely be on private property and managed by the property owner. The Hillsboro Community Development Code currently establishes some minimum criteria for plazas that will be counted toward the open space requirement. These standards are focused primarily on size and amenity requirements. However, similar to parks, common design elements such as distinctive pavers, plantings, furniture and/or structures could also be used to establish a unique



Water features in parks and urban plazas ensure a wide range of ages will activate the park

identity for South Hillsboro. However, the Town Center Core Area and Village Center Core Area will not necessarily have the same design aesthetic; therefore, the design of all plazas does not need to be identical although all should relate to the streetscape elements.

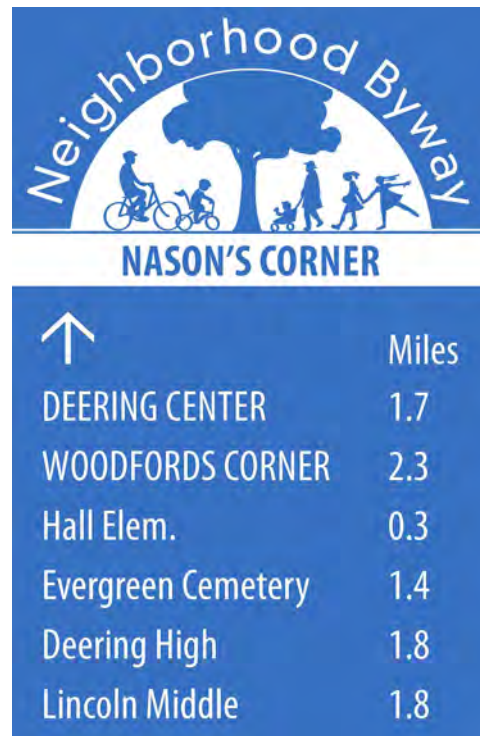
4.3.7. Wayfinding

Within South Hillsboro, wayfinding provide opportunities to reinforce the area’s identity. Wayfinding, in the urban design context, refers to elements which provide orientation and direction within the built environment while helping to establish an identity and sense of place for the community. This can include a range of elements, but for the purposes of this paper the focus is on directional and locational signage. Key principles include:

- Wayfinding in South Hillsboro should contain some unique aspects that reinforce a distinct sense of place both within individual neighborhoods as well as across all areas of South Hillsboro, while integrating with citywide Wayfinding standards and programs.
- South Hillsboro is intended to be a connected community. Within residential areas, the use of individual subdivision entry signs, which tend to create a sense of exclusion, should be limited or prohibited. Signage identifying individual neighborhoods in South Hillsboro should be provided in a consistent manner that unifies the community.
- The wayfinding system for vehicular and pedestrian users should function as an integral part of the built environment and carefully consider the context and scale of signs. Permanent iconic signs, rather than paint, is the preferred method.
- Use materials and colors that reflect and complement the site and context, as well as the area’s unique landscape, culture and history. If possible, carefully



Wayfinding in neighborhoods should provide locational information in a consistent manner



Wayfinding for pedestrians and bicyclists.

tie the visual feel of the wayfinding signs to other elements of Hillsboro identity (such as colors and fonts or City logos).

- Provide information in a clear, concise, and minimal manner, while not adding to visual clutter.
- Lighting should be designed into the landscape or integrated into the sign to provide even illumination and reduce “dark sky” uplighting.



Distinctive wayfinding signage for trails

- Within parks, open space and trails additional wayfinding should be provided that helps the user (especially bicyclists and pedestrians) find their way between connected facilities and other destinations (e.g., the Town Center and Village Center Core Areas). The design of these elements should be unified throughout public open spaces in South Hillsboro.

Subtle, non-signage wayfinding can also be encouraged through the use of specific landscape plantings or trees (as a visual marker that signifies a town center or local park) or streetscape elements like furnishings and surfacing that provide cues to one’s position in an urban environment. Even differentiating the scale of street design can help to communicate that one is entering a residential neighborhood.

Within the Town Center and Village Center Core Areas additional commercial signage will be visible; however, wayfinding signage should be provided. The Town Center Core Area and Village Center Core Area will not necessarily have the same design aesthetic; therefore, the wayfinding signage does not need to be identical. However, both should relate to those streetscape elements they have in common. For example, SW

Cornelius Pass Road will be a primary point of entry for both commercial centers. Streetscape elements on SW Cornelius Pass Road (e.g., street lights and furniture) will be a unifying element to which the wayfinding signage at both centers will need to relate.

4.3.8. Gateways

Gateway elements at important entrances to the community (e.g. key intersections and bridges) can contribute to a sense of identity for a community. Gateways can be thought of as community signatures and their design should somehow reflect elements of local culture, natural landscape, built form or community history, helping to define community boundaries. Within South Hillsboro locating gateway elements at key intersections and bridges provides an opportunity to reinforce the area’s unique identity. Gateways into South Hillsboro should represent the entire area and should not be specific to a particular development. The scale and content should avoid the appearance of an entrance to a business park or similar commercial enterprise or to a separate city.



Landform combined with signage as a gateway. NOTE: Expanses of manicured lawn should be discouraged in South Hillsboro.

Figure A-7 illustrates opportunities for gateway treatments in South Hillsboro, both for smaller-scale neighborhood or district gateways providing transitions between areas in South Hillsboro, as well as larger or more prominent citywide gateways marking key entrances to the City as a whole. These locations were chosen based upon their prominence to land uses and key transportation intersections. It is not anticipated that all of these gateway locations will be utilized -- rather this map is intended to highlight where a gateway treatment may be most appropriate.

Key issues related to the role, scale and location of gateways should be considered prior to identifying gateways for specific areas or locations.

- Gateway should be visually striking such that it can be noticeable to passersby, but should also blend and fit in with the surrounding landscape and built form.
- Use materials and colors that reflect and complement the site and context (e.g., the northwest agricultural heritage of the area). The City should consider how/whether a highly-lit piece of public art, where the play of light is integral to the design, would be appropriate. Brightly lit pieces create night time interest, but tend to feel much more urban.
- Consider designs which complement or echo the major gateway elements at lesser gateways such as bridges or other locations.
- A striking landform or significant planting design (with seasonal variations) can serve as an effective gateway, although in general the use of manicured lawns should be discouraged due to environmental impacts.
- A large public art piece could also serve as an effective major gateway to South Hillsboro, with minor gateways at other entry points. Gateway elements should be coordinated with wayfinding.

- The scale and placement of landscape or art gateways is critical— elements which are located too far from an entry point or are too small will not be legible to people arriving. On a wide roads location is critical. A median or island offers a highly visible location.
- If text is to be incorporated into gateways, consider what message would be appropriate. A reference to “South Hillsboro” would recognize the area’s distinct identity, but could suggest that South Hillsboro is not a part of the City of Hillsboro. Alternatively, less location-specific text (e.g., “complete-connected-green”) could be incorporated into a public art piece.
- As an alternative to a “public art” approach to establishing gateways, encourage developers to locate buildings of a sufficient scale to serve as gateways at key locations. For example, taller (3 – 4 story) buildings can create gateways at key locations.



Public art expressing a non-location-specific message.

Figure A-7: Gateway Opportunities



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5

Development
Program

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5.1. Overall Land Use Framework

The South Hillsboro land use plan is derived from the general land uses and street alignments that were proposed in the 2008 Community Plan. Much of the form of that plan was driven by the alignment of a major new southward extension of the Cornelius Pass Road arterial from its existing terminus at Tualatin Valley Highway. This arterial is expected to become a spine of the community, with highest densities located along its route. New collector roads were generally aligned to extend existing streets west across the plan area, connecting SW 209th and SW 229th Avenues.

Two major landowners have developed more detailed plans for their holdings (Reed's Crossing and Butternut Creek) under the general framework of the Community Plan. Their plans are included in the Composite Map shown later in this chapter. Each developer's consultants have prepared useful analyses of likely development form that are also reproduced in this plan. The plans prepared by Hagg Lane also include properties owned by other individuals to the east and west.

The other properties in the plan area will be rezoned as they are annexed. Some areas may be assembled into larger parcels for development. For the purposes of this Master Plan, Community Plan land use designations are applied to those parcels as a placeholder.

A grid of streets, connecting to the grid seen in conceptual plans for Reed's Crossing and Butternut Creek, has been applied to parcels between these areas. It is assumed that the detailed street system will change according to landowners' individual plans and Planned Unit Development submittals. Thus, this plan seeks to confirm alignments of major collectors but does not specify location of local streets.

Collectors include the SW 229th Avenue realignment to connect to SW 234th Avenue (Century Boulevard north of Tualatin Valley Highway) and routes following the key drainages across the site. Connections to Reed's Crossing and Butternut Creek streets are also key components of ensuring that this becomes an integrated community, rather than a collection of unrelated subdivisions. Connections between different neighborhoods and to natural areas, green spaces (parks and trails), and other parts of the City are also crucial.

There are three other key drivers of the land use plan's form:

- **Bonneville Power Administration Corridor:** A 250-foot wide transmission line easement runs north-south across the site, much of which is currently farmed or vacant. It does not represent a barrier to movement across the plan area, but BPA regulations significantly limit development within the easement. The corridor may see a doubling of transmission capacity in future. The easement effectively creates a swath of open land from Tualatin Valley Highway to SW Farmington Road, intersecting all three major drainages across



Bonneville Power Administration lines through South Hillsboro.

the site. A major regional trail is envisioned for the Corridor. Conceptual plans for the Butternut Creek development identify the Corridor as a potential major recreational asset, and locate neighborhood parks adjacent to the transmission line.

- **Rail Corridor:** A short line freight railroad corridor runs alongside Tualatin Valley Highway, currently in active use by the Portland and Western Railroad. Due to operational and safety restrictions, at-grade access across railroad tracks is increasingly limited. The existing at-grade crossing at SW 229th Avenue will be

closed, leaving just three connections to the Tualatin Valley Highway from the overall South Hillsboro area (including the connection at SW 209th Avenue). This will funnel most traffic to either Cornelius Pass Road, SW 209th Avenue, or to a third access outside the South Hillsboro area, at SW 234th Avenue via SE Alexander Street. This will reduce the potential for a fully connected grid system of streets connecting to the Tualatin Valley Highway, while also resulting in the need for significant intersection improvements at these points.

- **Natural Features:** The natural features of this area are another key influence on urban form. These features are entirely related to three major drainages that flow from east to west across the site, draining the land to the Tualatin River, and include riparian corridors, associated wetlands, and adjacent upland wooded habitat.



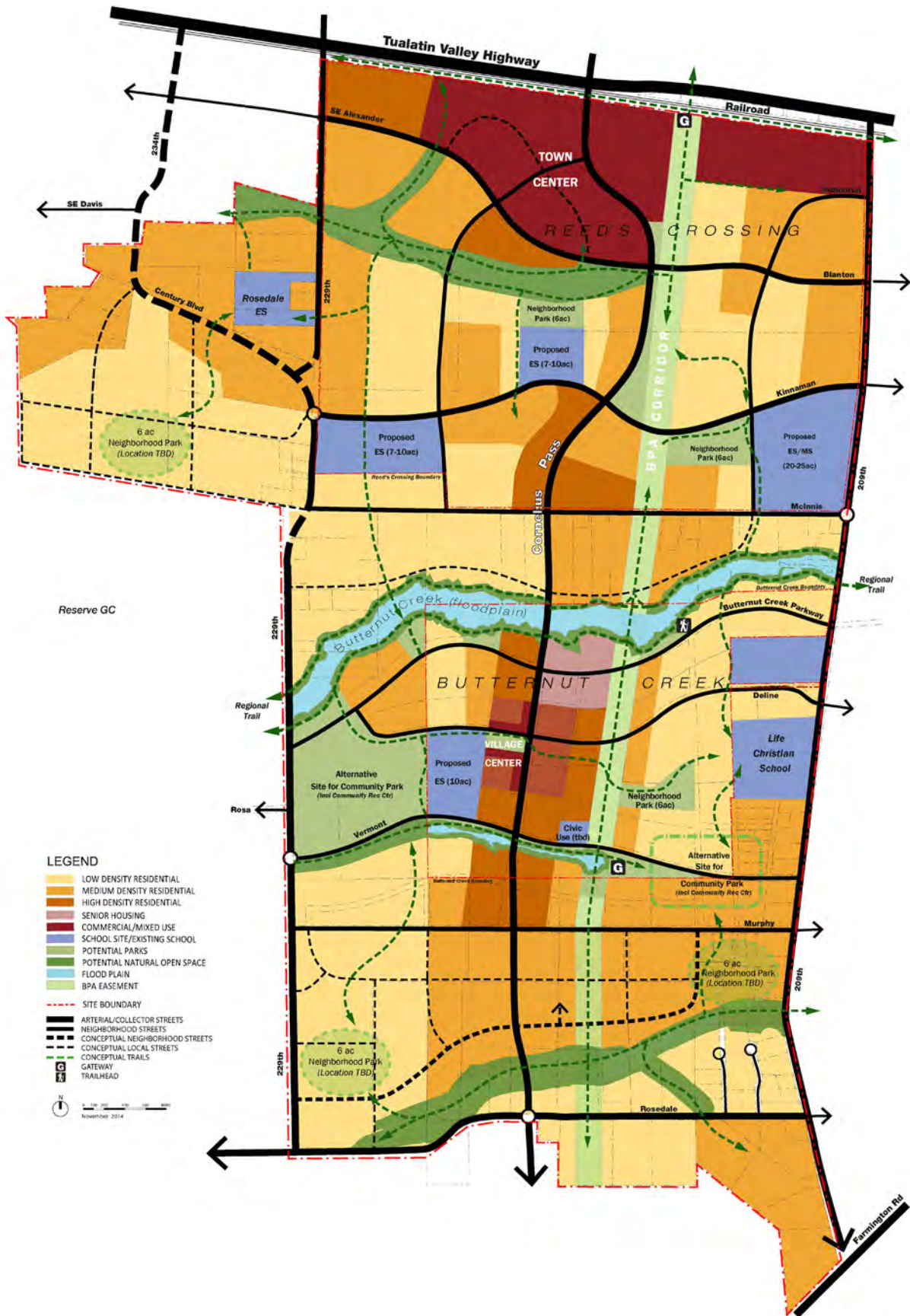
Existing natural areas in South Hillsboro.

5.2. Land Use Plan

5.2.1. Composite Map

The Composite Map shown in Figure A-8 illustrates conceptual development throughout South Hillsboro, including the Town and Village Centers, proposed locations of parks and schools, trail and road systems, and residential and commercial development types. This map enunciates City goals for housing product type mix and location, identifies ways to meet community needs for parks, schools, and open space, and blends the development aspirations of major partners. Although this map is not itself regulatory, it is used as the basis for guiding other decisions about densities, uses, and system design explored elsewhere in this Appendix.

Figure A-8: Land Use Composite Map



5.2.2. Reed's Crossing: Town Center

As shown in the Composite Map, the highest intensity of development is anticipated to occur in the northern portion of the area, in Reed's Crossing. This will include a Town Center slated for retail, office, and multi-family uses. The Town Center is envisioned as a walkable district visible from Cornelius Pass Road. Buildings and streets will have a high quality design, and parking will be placed behind the buildings to ensure direct frontage onto the main street and Active Use Streets, and an orientation to the pedestrian. The design of Cornelius Pass Road and other streets in the Town Center -- including the relationship of buildings to the street and the design and location of pedestrian and bicycle facilities -- is the key to ensuring a vibrant, walkable, attractive, and economically viable Town Center. Other blocks in Reed's Crossing will feature a range of residential densities from low to high density, as noted in the Composite Map shown in Figure A-8.



Example Imagery of Reed's Crossing Town Center features

5.2.3. Butternut Creek: Village Center

Conceptual plans for Butternut Creek include a range of densities similar to Reed's Crossing. This is based on consistent findings in market studies and similar development intentions of providing a mix of retail, commercial and residential uses, along with parks, schools and other community amenities. A Village Center is proposed in Butternut Creek along Cornelius Pass Road. This is a smaller-scale mixed use 'node' with a pocket park perpendicular to Cornelius Pass. Ground-floor retail uses will face the park. A school and Community Park to the west will further activate this Village Center. Residential density is highest in the Center and lessens in a concentric pattern moving away from its core. Development along the east edge of the plan area should generally reflect the character and density of existing development along SW 209th Avenue, particularly newer subdivisions at densities approaching 10 dwelling units per acre.



Example Imagery of Butternut Creek Village Center



5.2.4. Southern and Western portions of South Hillsboro

The properties in the northwestern portion of the plan area present an opportunity to locate executive housing along the adjacent Reserve Golf Course property. To facilitate access to this portion of South Hillsboro, property owners have worked together on a conceptual realignment of 234th Avenue/Century Boulevard to 229th Avenue and a realignment of SW 229th Avenue through these parcels. A simple grid of streets will be imposed over the mainly flat ground due north of the golf course. A forested drainage near Gordon Creek, north and west of the Rosedale Elementary School, may

Figure A-9: Excerpt from Reed's Crossing Draft Plan



make development more constrained in that corner of South Hillsboro.

The southern portion of the South Hillsboro area is currently a mix of agricultural uses and large lot subdivisions along SW 209th Avenue. Land uses in this area will likely be almost entirely residential, although the very southeast corner of the plan area, at the intersection of SW 209th Avenue and SW Farmington Road could attract retail uses due to the number of passing vehicles.

5.2.5. Housing & Commercial Development

South Hillsboro is intended to meet a variety of housing needs for future residents. The scale, density, and type of

housing will include a combination of executive, low-density, medium-density, high-density, and mid-rise residential uses, as well as mixed-use residential/commercial areas, consistent with current and future market demand in the area in terms of average densities, likely pricing and other Hillsboro-area market trends.

The land use plan leverages opportunities to develop a mix of housing types and price ranges for Hillsboro's growing workforce, especially for the forecasted number of employees within professional and business, retail, leisure, hospitality, and health services. Housing densities that reduce land costs and increase transit feasibility will be key to achieving housing affordability within South Hillsboro. These housing forms may include single-family homes on small lots or in cluster housing developments, row houses or townhouses, or multi-family apartments.

Figure A-10: Residential Development Patterns

Low-Density Residential



Medium/High-Density Residential





Low-density housing at the edge of rural land should be compatible with adjacent rural character and provide views of nearby agricultural fields



High-quality construction and materials create a character of place. Higher densities achieved through subtle home design types (image shows a duplex)

The City will implement residential and mixed-use Comprehensive Plan designations in South Hillsboro through a variety of zones that allow for these types of housing. The City also intends to adopt policies and subsequent regulations that encourage innovative housing products and development types, particularly those that enable live/work housing arrangements and those that integrate sustainable and low-impact building approaches or technologies.

Future retail and commercial development in South Hillsboro will serve local demand and regional demand, including residents within South Hillsboro and surrounding areas such as Aloha and Reedville, which are currently underserved by commercial and retail services. Retail and commercial uses are expected to include a mix of general merchandise stores as well as smaller, locally-oriented retail and service businesses. Smaller retail businesses are expected to generate nearly half of the demand for future development. These types of businesses are most compatible with mixed-use and other non-large-format development types.

Commercial and retail development will be concentrated in the Town and Village Centers and adjacent areas.

It is expected that these locations will improve the economic vitality of these businesses and allow for the establishment of shopping options that are highly accessible via walking, biking, or transit. Outside the Town and Village Centers, some very limited low-intensity, neighborhood-friendly commercial or retail uses may exist, such as small corner stores or home occupations, with the bulk of commercial development occurring in the centers.

5.2.6. Schools, Parks, Trails, and Open Space

Schools are often important amenities for new residential development, and this plan provides opportunities for integration of schools with communities, allowing children to walk to school and providing community gathering spaces. A Middle/Elementary School site is reserved in the southeast corner of Reed's Crossing. There are two existing schools in the plan area: Rosedale Elementary School on SW 229th Avenue and the private Life Christian Elementary School on SW 209th Avenue, south of Hagg Lane.

5.3. Comprehensive Plan Land Use

The City utilizes a two-map system of implementing land use. The guiding map is the Comprehensive Plan Land Use Map (see Figure A-11), which assigns specific land use categories (e.g. Commercial, Industrial, Open Space, and Residential of varying densities) to property within the City's planning area. The Comprehensive Plan designations are then implemented by applying corresponding zoning districts on the City's Zoning Map for property annexed into the City limits (discussed later). Each zone addresses the specific uses allowed (outright or conditionally) and the development standards applicable to each district.

5.4. Zoning Concept and Buildout Projections

5.4.1. Zoning Concept

The City has developed an overall concept to guide the application of zoning to implement desired land uses and densities throughout South Hillsboro consistent with Comprehensive Plan policies. The zoning concept covers all properties in South Hillsboro, and considers development of single-family detached housing, single-family attached housing, and multi-family housing, including residential components of mixed-use development in the Town and Village Centers. The strategy also identifies take-outs for designated rights-of-way, projected locations for parks and schools, and environmental takeouts related to significant riparian or upland resources.

The zoning concept is illustrated in Figure A-12. The concept calls for the application of the following zones

(as defined in the Hillsboro Community Development Code) in various locations in South Hillsboro:

- Single-family residential zones: SFR-4.5, SFR-6, SFR-7, SFR-8.5, and SFR-10.
- Multi-family residential zones: MFR-1, MFR-2, and MFR-3.
- Mixed-use zones: MU-VTC.

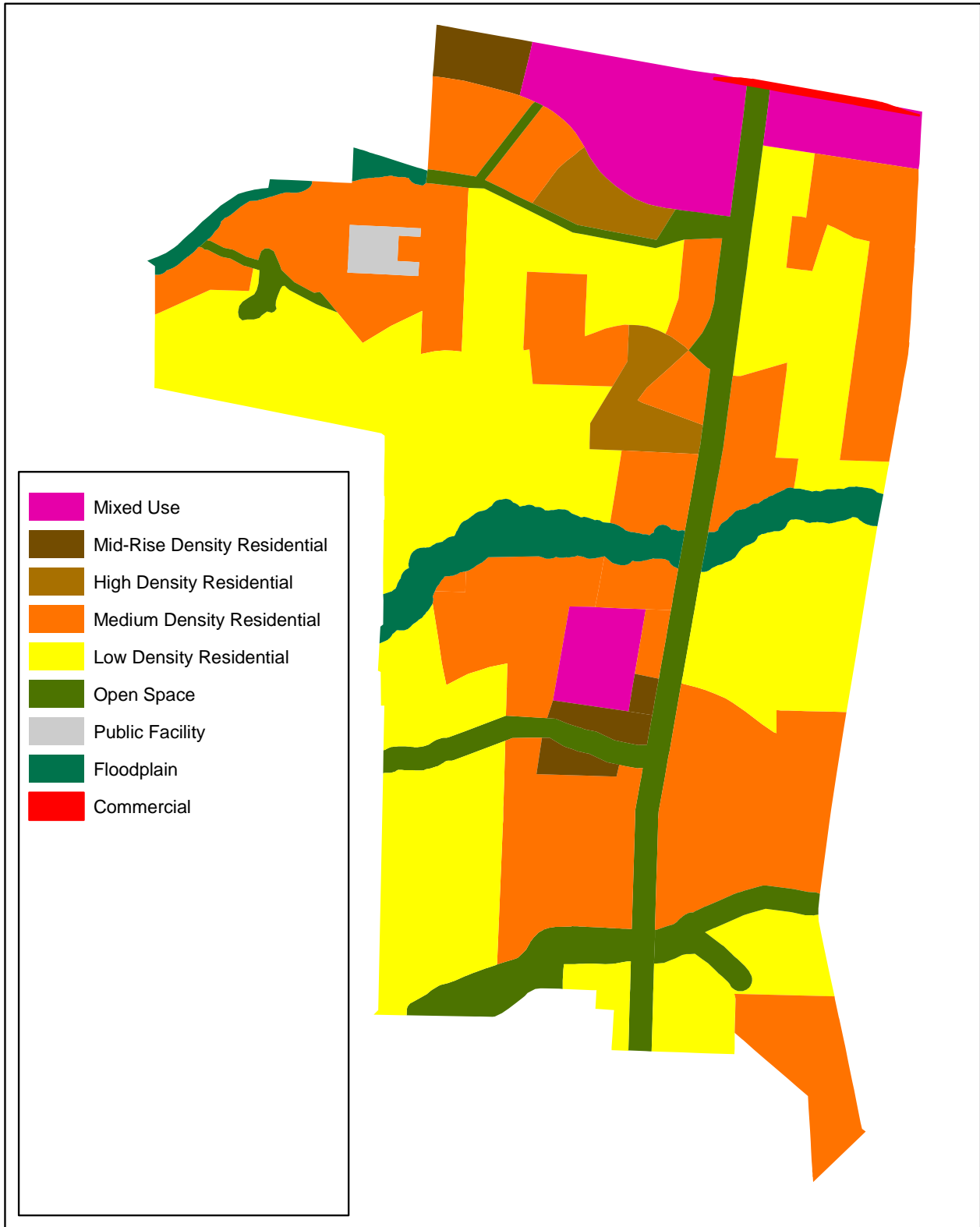
The zoning concept described here is a projection, not a determination of zoning for all properties. Over time, this concept may be refined to reflect changes in the market or new development trends. Zones will be applied to properties once they have been annexed into the City using standard land use decision processes for annexation and zoning.

5.4.2. Buildout & Density Projections

Based upon the zoning concept discussed in Section 5.4.1, development projections can be made for each residential product type. The City is currently projecting a total dwelling unit estimate of 7,712 units throughout South Hillsboro, based upon the current zoning concept. This would yield an average residential density of between 9 and 12 dwelling units per net acre outside of Planned Unit Developments, where the maximum density would be 14 dwelling units per net acre. Residential product mix would be approximately 57% single-family detached, 22% single-family attached, and 21% multi-family.

These estimates represent 95% of the maximum dwelling units allowed assuming implementation of the proposed zoning concept, including take-outs for rights-of-way, parks and schools, and environmental resources. These buildout projections also assume transfer of allowed density from the Bonneville Power Administration corridor to other locations where development is not

Figure A-11: Comprehensive Plan Map



- Mixed Use
- Mid-Rise Density Residential
- High Density Residential
- Medium Density Residential
- Low Density Residential
- Open Space
- Public Facility
- Floodplain
- Commercial

Prepared By: City of Hillsboro

Date: 11/4/2014

NORTH

0 625 1,250 2,500 Feet

Disclaimer: This map is intended for informational purposes only. It is not intended for legal, engineering, or surveying purposes. While this map represents the best data available at the time of publication, the City of Hillsboro makes no claims, representations, or warranties as to its accuracy or completeness. Metadata available upon request.

Figure A-12: Zoning Concept

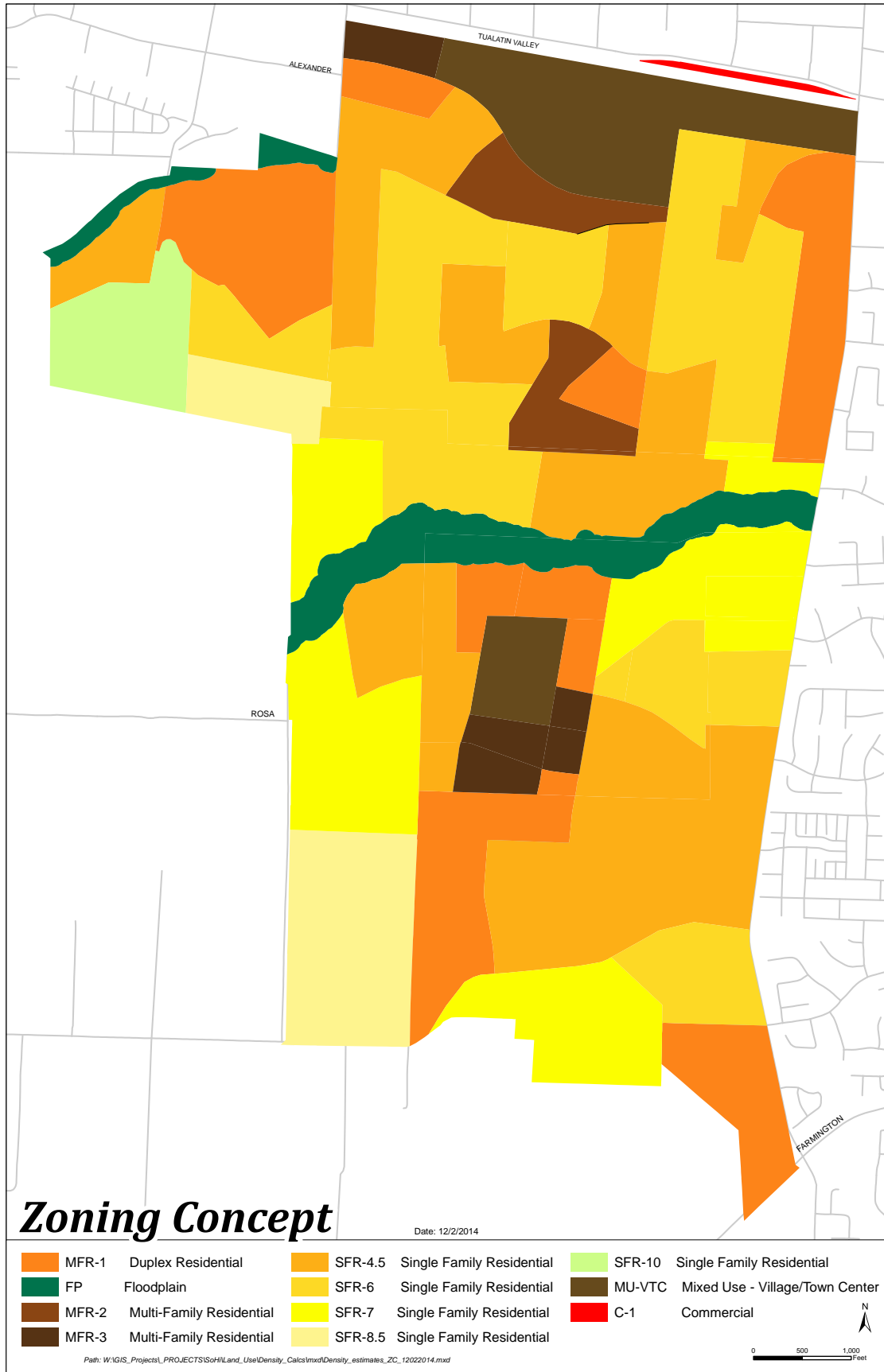


Table A-1: Zoning Concept and Buildout Projections

restricted. Detailed buildout projections for each zone are shown in Table A-1.

These buildout projections are subject to change as the zoning concept is refined over time, particularly regarding environmental takeouts. Some property owners did not allow access to their properties for wetland surveys; therefore, wetland delineations on these properties were made by orthophotography, which is less precise. There is a possibility that takeouts for newly-identified wetlands in these areas are more than might actually be required. There is also a possibility that significant riparian or upland resources may be under-represented in Butternut Creek, as that property owner did not submit results of their inventory to the Department of State Lands.

Financing Strategy (11/04/2014)	Zone					TOTAL
	DU/ac	Reed's Crossing	Butternut Creek	SoHi West	Other Area	
Total Developable Area ^a		385	130	101	351	966
(Less ROW and Res Split) ^b		245	85	73	246	649
MU-VTC (RC Town Center)	Net Acres ^b	33	-	-	-	33
	Min DU	40	1,299	-	-	1,299
	Max DU ^d	48.5	1,575	-	-	1,575
	DU (95% of MAX)	46.1	1,497	-	-	1,497
	- SFD	0%	-	-	-	-
	- SFA	50%	748	-	-	748
	- MF	50%	748	-	-	748
	PUD Max DU ^d	58.2	1,890	-	-	1,890
MU-VTC (RC Village Center)	Net Acres ^b	-	7	-	-	7
	Min DU	18	-	132	-	132
	Max DU ^d	45	-	329	-	329
	DU (95% of MAX)	42.75	-	313	-	313
	- SFD	0%	-	-	-	-
	- SFA	50%	-	156	-	156
	- MF	50%	-	156	-	156
	PUD Max DU ^d	54	-	395	-	395
MFR-3	Net Acres ^b	-	6	11	-	17
	Min DU	23	133	245	-	378
	Max DU	28.75	166	307	-	473
	DU (95% of MAX)	27.313	157	292	-	449
	- SFD	0%	-	-	-	-
	- SFA	30%	47	88	-	135
	- MF	70%	110	204	-	314
	PUD Max DU ^d	34.5	199	380	-	579
MFR-2	Net Acres ^b	-	26	-	-	26
	Min DU	17	443	-	13	456
	Max DU	21.25	554	-	16	570
	DU (95% of MAX)	20.188	525	-	15	540
	- SFD	0%	-	-	-	-
	- SFA	40%	210	-	6	216
	- MF	60%	315	-	9	324
	PUD Max DU ^d	25.5	664	-	19	683
MFR-1	Net Acres ^b	-	31	15	14	60
	Min DU	11	338	166	154	672
	Max DU	16	492	242	224	974
	DU (95% of MAX)	15.2	467	230	213	910
	- SFD	65%	303	150	138	591
	- SFA	30%	140	69	64	273
	- MF	5%	24	11	11	46
	PUD Max DU ^d	19.2	595	288	269	1,151
SFR-4.5	Net Acres ^b	-	63	18	6	87
	Min DU	8	503	143	45	691
	Max DU	10	629	179	56	864
	DU (95% of MAX)	9.5	596	171	54	821
	- SFD	100%	596	171	54	821
	- SFA	0%	-	-	-	-
	- MF	0%	-	-	-	-
	PUD Max DU ^d	12	755	215	67	1,037
SFR-6	Net Acres ^b	-	86	15	15	116
	Min DU	6	517	89	91	697
	Max DU	7.5	645	111	114	870
	DU (95% of MAX)	7.125	613	107	108	828
	- SFD	100%	613	107	108	828
	- SFA	0%	-	-	-	-
	- MF	0%	-	-	-	-
	PUD Max DU ^d	9	775	134	136	1,045
SFR-7	Net Acres ^b	-	-	19	-	19
	Min DU	5	-	96	-	101
	Max DU	6.25	-	120	-	126
	DU (95% of MAX)	5.9375	-	114	-	119
	- SFD	100%	-	114	-	114
	- SFA	0%	-	-	-	-
	- MF	0%	-	-	-	-
	PUD Max DU ^d	7.5	-	145	-	152
SFR-8.5	Net Acres ^b	-	-	-	15	15
	Min DU	4	-	-	61	65
	Max DU	5	-	-	76	81
	DU (95% of MAX)	4.75	-	-	72	76
	- SFD	100%	-	-	72	72
	- SFA	0%	-	-	-	-
	- MF	0%	-	-	-	-
	PUD Max DU ^d	6	-	-	91	97
SFR-10	Net Acres ^b	-	-	-	23	23
	Min DU	3.5	-	-	81	84
	Max DU	4.35	-	-	101	105
	DU (95% of MAX)	4.1325	-	-	95	99
	- SFD	100%	-	-	95	95
	- SFA	0%	-	-	-	-
	- MF	0%	-	-	-	-
	PUD Max DU ^d	5.22	-	-	121	126

Table A-1 Continued: Zoning Concept and Buildout Projections

Housing Breakdown					
Total SFD		1,512	542	467	1,858
Total SFA		1,145	313	64	191
Total MF		1,197	371	11	39
		Reed's Crossing	Butternut Creek	SoHi West	Other Area

TOTALS					
Net Acreage	245	85	73	246	649
Min DU	3,233	871	432	1,684	6,220
Min DU/Net Acre	13	10	6	7	9
Max DU	4,061	1,288	571	2,198	8,118
Max DU/Net Acre	17	15	8	9	12
PUD Max DU	4,878	1,557	684	2,637	9,755
PUD Max DU/Net Acre	20	18	9	11	15

Total Dwelling Units (95% of Max) ^e		
7,712		

DU Count for SDC Calcs

AVG ACROSS SOHI ^f		
Min DU/acre	Max DU/acre	Max PUD/acre
9	12	15

Notes: All areas are reported in Acres; all dwelling unit counts have been rounded down to the nearest whole number

^a Total Area with Env Constaints, Schools, Parks, and Public Facilities (existing and proposed) removed

^b Net acreage was calculated by first taking out right-of-way from all Developable Area calculations (25% for RL designations and 35% for all other residential designations); the Residential Split was then added to all Mixed Use areas to identify area available for residential development. A 35% take-out was applied to MU-VTC.

^c PUD could receive 20% increase in maximum density of base zone with discretionary approval

^d MU-VTC ranges vary between the Town Center (Reed's Crossing) and Village Center (Butternut Creek) development areas. Additional information on the minimum and maximum dwelling units assigned to this zone are available in the CDC, Section 12.24.X00

^e This figure is 95% of the Max DU (see green table)

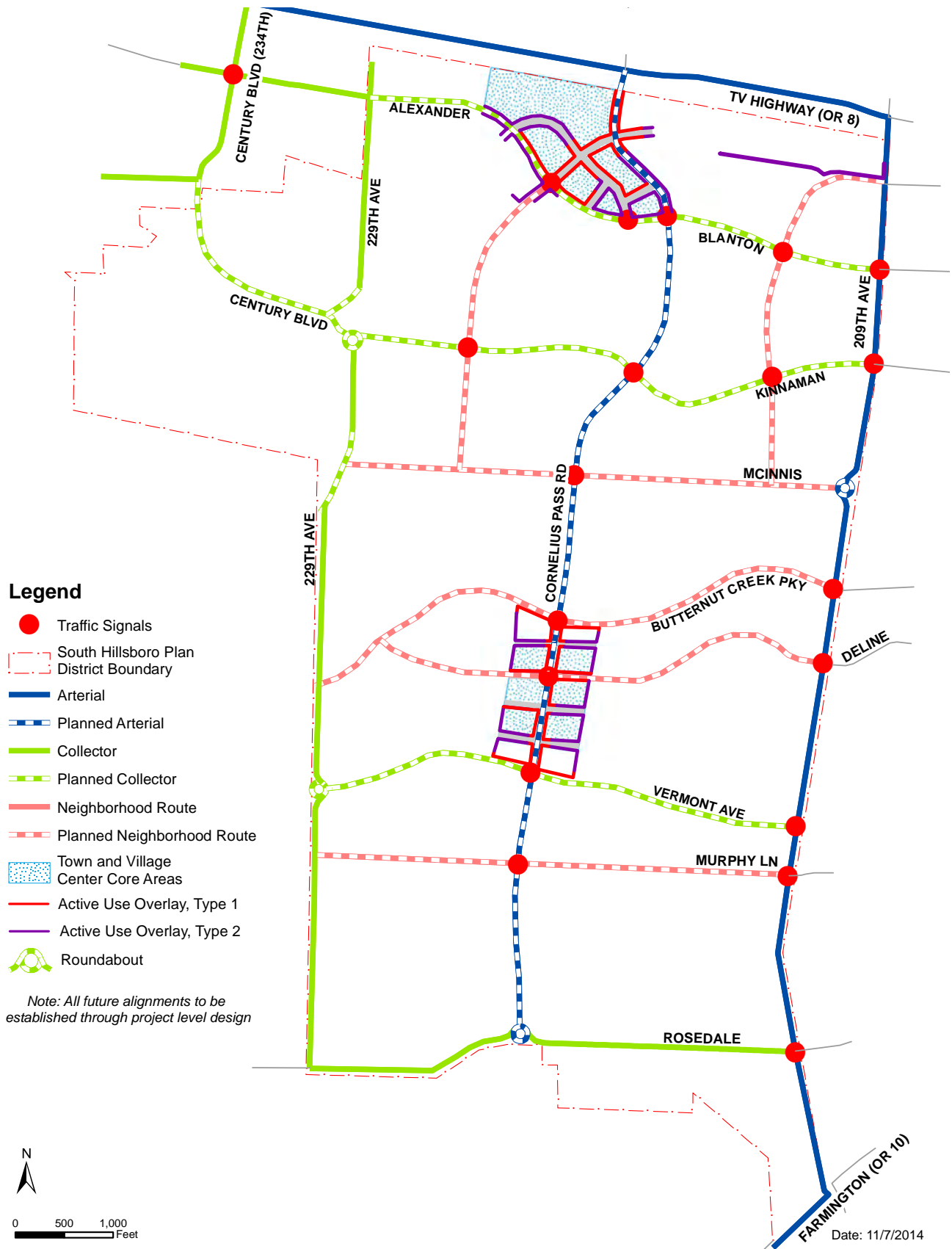
^f Average dwelling units per acre calculated for the minimum and maximum DU density permitted in each zone (averages the totals in the green box)

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Community
Infrastructure
and Services

Figure A-13: Roadway Location and Designation Map



6.1. Transportation

A variety of transportation facilities will ultimately help people travel within South Hillsboro, as well as to and from places outside the Plan Area. This Plan describes the location and conceptual design of major transportation facilities in South Hillsboro – i.e., large “arterial” and “collector” streets, such as Cornelius Pass Road, Alexander/Blanton Street, SW 229th Avenue, Rosedale Road, and others. It addresses a full range of modes of travel -- individual vehicles, bicycling, use of transit, and walking. It also generally describes how the transportation system will serve and connect to key destinations within and surrounding South Hillsboro. Information about the phasing, costs and funding of transportation facilities is found in Section 7 of this document and in a separate South Hillsboro Transportation Financing Program.

6.1.1. Roadway Location and Design

Figure A-13 shows the approximate location of major roads in South Hillsboro. These locations are approximate and will be further refined during future, more detailed design and development processes. The location of connections between major property owners have been located and designed with a higher level of accuracy to identify roadway tie in points for major property owners. Wherever possible, roads will be located and designed to minimize impacts on existing properties and structures, as well as to reduce impacts on streams, creeks and other natural resources.

Major road facilities include the following:

- **Arterial streets.** These roads will carry the most significant amount of traffic within the area, including traffic that starts or ends in South Hillsboro, as well

as traffic destined for other parts of Hillsboro or the region. Cornelius Pass Road and SW 209th Avenue are arterials in South Hillsboro. They will tend to provide less direct access to adjacent properties, since driveways and intersecting roads must be spaced farther apart on arterial streets. When fully built out, these roads will typically include five or seven travel lanes (including turn lanes), with additional turn lanes at intersections in some cases, as well as sidewalks and bicycle facilities.

- **Collector streets.** These streets “collect” traffic from local neighborhood streets, and people will typically use them to travel between neighborhoods in South Hillsboro or to access an arterial street. These will include Alexander/Blanton Street, Kinnaman Road, Vermont Street, Century Boulevard, 229th Avenue, and Rosedale Road, as shown in Figure A-13. When fully built out, these roads will typically include three travel lanes (including turn lanes) as well as sidewalks and bicycle facilities.
- **Neighborhood Routes.** These streets are similar to collectors but are intended to carry less traffic and primarily serve individual neighborhoods. They provide direct access to people’s homes and businesses, as well as routes through neighborhoods to local destinations. They typically include two travel lanes, bicycle lanes on the sides, parking on one or both sides and sidewalks with planting strips on both sides of the street. Several possible neighborhood routes are shown in Figure A-13.
- **Local Streets.** For the most part, the locations of local streets will be defined by developers as part of future specific development proposals. Local streets provide direct access to individual homes and businesses. They typically include enough room for on-street parking, travel in both directions, planting strips, and sidewalks. Bicycles generally share the travel lanes

with cars on these streets. The location of these roads will be governed in large part by street spacing and block size standards included in the South Hillsboro Plan District section of the City’s Community Development Code.

- **Alleys.** Alleys can provide access to residents of neighborhoods, limiting the negative impacts to streetscape from garages dominating front facades. Alleys can be used for commercial deliveries in mixed use or commercial areas. They can also be used to route some utilities, which can help to eliminate unsightly meter boxes and utility pedestals on front lawns. Alleys would typically be allowed and encouraged but not required in these areas.

The design of these roads will be governed by cross-sectional standards included in the South Hillsboro Plan District section of the City of Hillsboro Community Development Code in conjunction with more specific design and construction standards found in the City’s Engineering Design and Construction Manual.

Additional guidelines for the design of streets are found in Section 4 of this document.

6.1.2. Bicycle and Pedestrian System

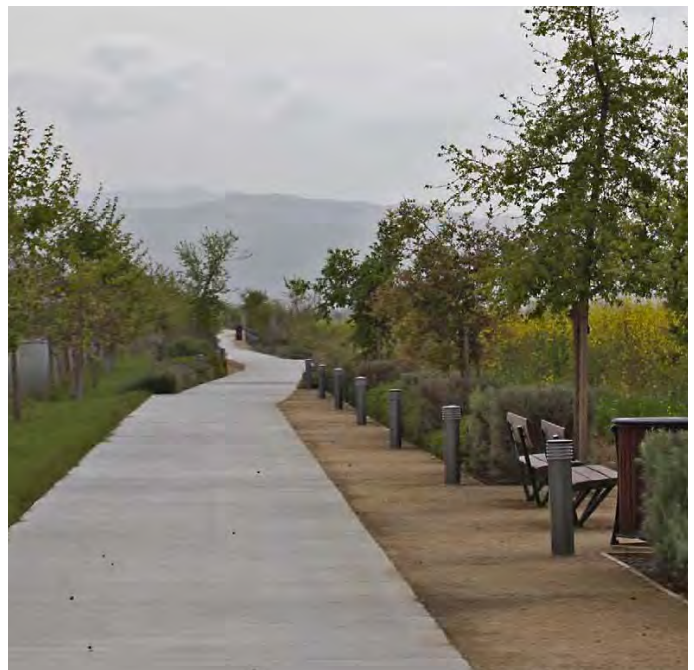
As a “Complete-Connected-Green” community, it is vitally important that South Hillsboro’s transportation system provides a variety of choices for people to walk and bicycle within the area, both for exercise and to travel from their homes or businesses to places to shop, eat, drink, recreate, or learn.

Figure A-14 illustrates proposed bicycle and pedestrian facilities within South Hillsboro which will include:

- **Bicycle lanes.** Federal and state policy and good planning practice dictates that bicycle lanes be

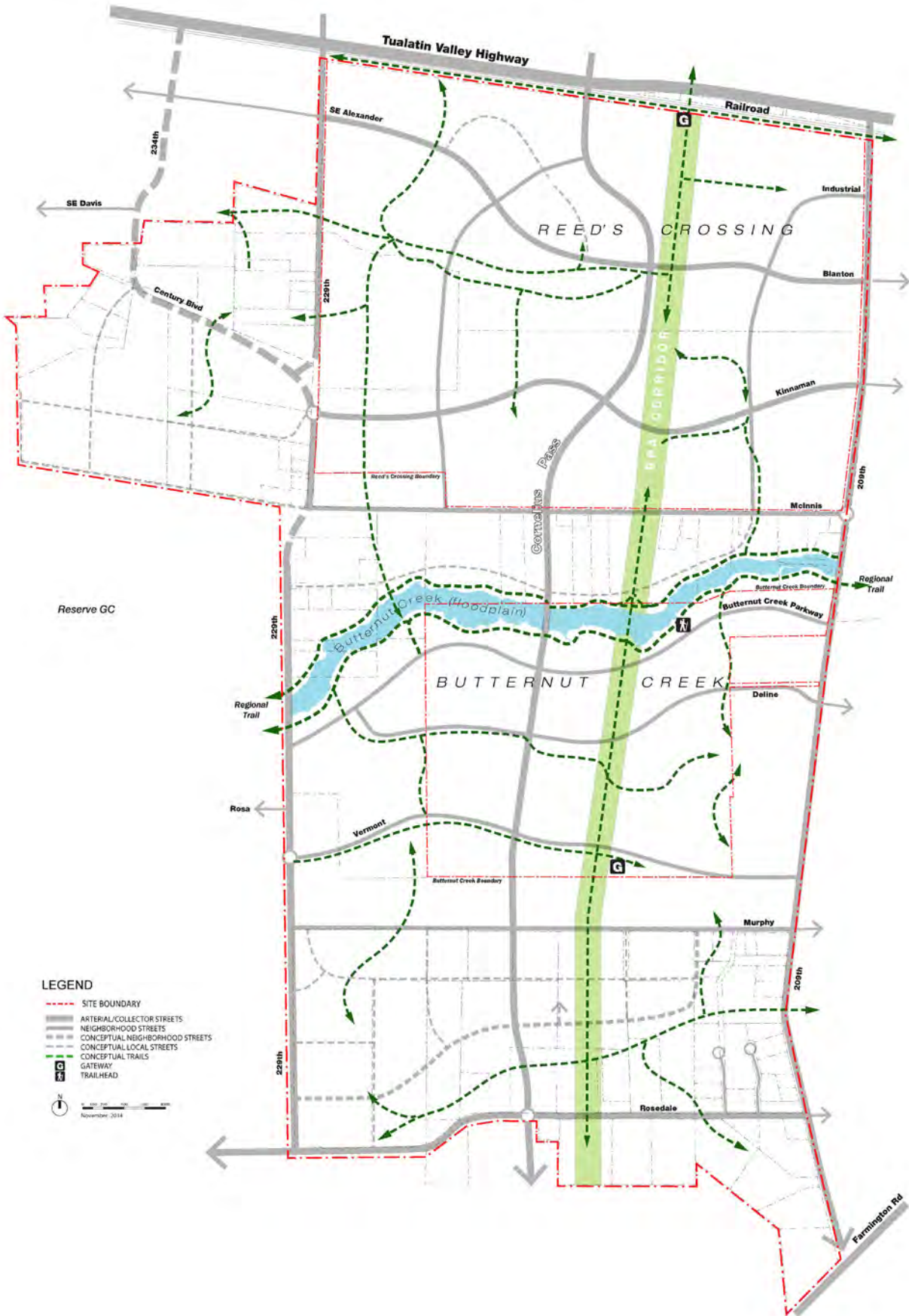
provided on all collector and arterial streets, as shown in Figure A-14. Bicycle lanes will also be required on neighborhood routes in South Hillsboro.

- **Sidewalks.** All new roads should include sidewalks on both sides of the street to ensure that people can walk within and between different neighborhoods and directly access homes and businesses.
- **Additional multi-use paths and trails.** Pathways are planned for several locations to provide additional opportunities for people to bicycle and walk within South Hillsboro. These will include routes along the BPA powerline corridor, along Butternut and Gordon Creeks, parallel to and south of Tualatin Valley Highway, across Butternut Creek (to supplement limited road crossings of the creek) and interspersed within parks and supplemented by the sidewalk system to provide connections between homes, parks, schools, and other activity centers. These pathways, in conjunction with bicycle and pedestrian connections within the local street system will form an integrated looped system.



Multi-use path adjacent to habitat area

Figure A-14: Bicycle and Pedestrian System



Where trails and public streets coincide, design should consider the opportunity to provide joint sidewalk and bicycle facilities through use of multi-use paths within the public street right of way. Additional guidelines for the design of pathways are found in Section 4 of this document.

6.1.3. Transit Facilities and Service

Providing comprehensive transit service to South Hillsboro residents and visitors will be essential to providing people with a full range of transportation choices. Specific transit routes, frequency of service and the location of transit facilities will be formulated by TriMet in coordination with the City, landowners and community members as development occurs. The type and frequency of service will depend on a variety of factors, including:

- Availability of resources to fund transit service
- Projected ridership for specific planned or proposed routes
- Available layover locations at planned stopover points along a given route
- Ability to coordinate service provision with targeted employers or neighborhoods

Future plans for transit service to serve the South Hillsboro area have been identified through TriMet's 2013 Westside Service Enhancement Plan, which represents TriMet's recently adopted plan for future transit service within northern Washington County, including Hillsboro, Beaverton, Cornelius, and Forest Grove.

TriMet planners anticipate that South Hillsboro will provide housing for Silicon Forest workers at high-tech and manufacturing businesses within North Hillsboro, and for the broader Sunset Highway employment corridor with a smaller share working in the Portland Central City. A key objective of the future transit service is to provide connections from South Hillsboro to these employment areas, and to introduce transit service in conjunction with initial housing development within South Hillsboro. New north-south bus service would provide connections to Light Rail, the existing Route 57 Frequent Bus service, and a planned new bus route which would link Beaverton and Hillsboro along Baseline Road and Main Street.

Preliminary service recommendations include the following:

- Modify Route 46 to link the Intel Jones Farm Campus and Hillsboro Airport, the Fairplex Light Rail Transit Station, Brookwood Parkway and Witch Hazel residential areas, and the South Hillsboro Town Center, potentially utilizing Alexander Street.
- Modify Route 47 to link between the South Hillsboro Town Center, Bethany Village, PCC Rock Creek Campus (with a transfer), and the Silicon Forest employment center including Intel Ronler Acres Campus with potential peak commute 15-minute frequency including connections at the Orenco Light Rail Transit Center and with the Route 57 Frequent Service bus line.
- Potential future enhanced Route 57 transit service subject to the results of an anticipated High Capacity Transit study (longer-term transit enhancement).

Both the Route 46 and Route 47 would terminate initially in the South Hillsboro Town Center area, creating the need for a small transit layover facility with

operator amenities. This facility should be planned to ensure adequate size and accessibility, have safe and efficient ingress and egress (for transit vehicles, bicycles, and pedestrians), and assure efficient connectivity to the Route 57 transit corridor. It should also consider accommodation of bicycle parking to facilitate bike-to-bus connectivity. Facility siting should also consider potential future expansion of transit service south through the Butternut Creek Village Center and beyond, including potential bus service extension to South Washington County. The Village Center may need to include a similar transit facility to serve as an interim route terminus and layover.

Additional related infrastructure improvements should be designed to provide efficient and safe transit services in South Hillsboro, including safe pedestrian crossings near transit facilities and bus stops, safe and visible bicycle routes with storage facilities at transit layover locations, street designs that easily accommodate transit vehicles maneuvering and structural impacts to pavement surfaces, bus stop pull-outs, shelters, and landing pads that facilitate boarding and de-boarding.

Funding for service recommended in the Plan remains tied to continued economic recovery and operating revenue increases for TriMet. Longer term extension and expansion of service to portions of South Hillsboro south of the Butternut Creek area will depend on factors such as:

- Extension of Cornelius Pass Road across Butternut Creek;
- Development throughout South Hillsboro along the Cornelius Pass Road corridor at densities consistent with the South Hillsboro Zoning Concept; and

- Development of other areas south of South Hillsboro, including South Cooper Mountain, River Terrace including upgraded roadway connections, coupled with inter-jurisdictional cooperation between TriMet, Hillsboro, Washington County, Beaverton, Tigard, Tualatin, and Sherwood.

6.2. Public Utilities

A variety of public infrastructure facilities will be needed in South Hillsboro to provide homes, businesses and others with water and sanitary sewer services and to manage the flow and filtration of stormwater. As part of the South Hillsboro Community Planning and Master Planning processes, the approximate location, size and cost of these facilities was determined at a planning level. The location of major water and sanitary sewer lines is based primarily on the location of roads, topography, drainage systems and/or needed facilities to pump water or wastewater uphill. The size of facilities was based on buildout development assumptions for the South Hillsboro area, as well as requirements for serving adjacent areas.

Ultimately, the City's Capital Improvements Plans and Master Plans for sewer and water facilities will be updated to reflect assumptions for South Hillsboro and also guide development of these facilities. Information in this document serves primarily as a set of planning level assumptions intended to guide the overall size and location of facilities, recognizing that more detailed future planning, design and engineering will govern the details of design and construction of major facilities. Similarly, water, sanitary sewer and stormwater conveyance facilities associated with local streets or individual neighborhoods

will be designed and built as part of the land development process.

6.2.1. Water

Typically, the following types of facilities are needed to provide water to an area:

- Treatment plants to ensure that water is clean and drinkable
- Reservoirs to store treated water and large transmission mains to manage distribution to local areas
- Pipes, pump stations, and pressure regulators to distribute the treated water to local homes and businesses

In South Hillsboro, the only water facilities expected to be needed are the local distribution system—pipes, pump stations, and pressure regulators to distribute treated drinking water within local streets. Treatment and large storage facilities that serve South Hillsboro will be located outside the area. While development in South Hillsboro will help fund the cost of these facilities (to the extent they serve new homes and businesses), they are not expected to be located within the South Hillsboro plan area. However, a new high pressure water transmission line from a new storage reservoir in the South Cooper Mountain area is likely to be located in the future Cornelius Pass Road extension corridor to deliver water to an existing transmission line north of Tualatin Valley Highway.

As shown in Figure A-15, the South Hillsboro local distribution pipe network will be generally located along existing and new roads. These pipes will be installed to form a connected loop that ensures adequate water pressure and flow to all users. Temporary connections to existing Tualatin Valley Water District (TVWD)

mains will be made in early stages of South Hillsboro development (pursuant to terms of an intergovernmental agreement between TVWD and the City of Hillsboro). These temporary connections will be replaced with permanent connections newly constructed portions of the City’s final loop system as they are developed.

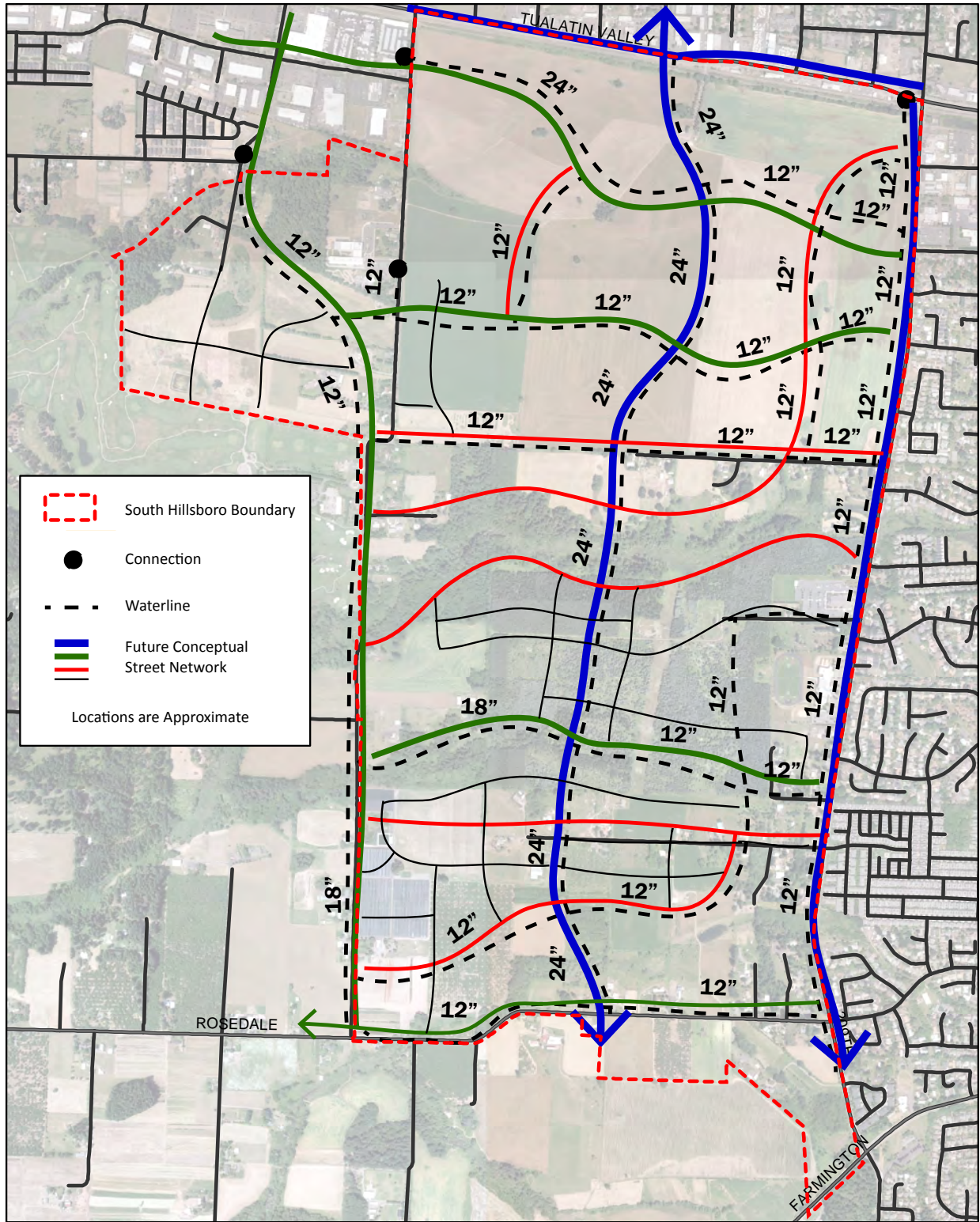
In addition to the new major distribution pipes associated with roadways, Figure A-15 shows the suggested location of additional facilities such as a booster pump station (BPS), pressure reducing valves (PRV), potential temporary connections to existing Tualatin Valley Water District (TVWD) waterlines, and locations of subsurface storage wells called aquifer storage and recovery (ASR) wells that are owned and operated by TVWD and the Joint Water Commission (JWC).

Information about the costs and funding of water facilities is found in the Implementation Actions portion of this document.

6.2.2. Sanitary Sewer

Sanitary sewage system facilities are needed to collect wastewater generated in the South Hillsboro area, and convey the flow to the Clean Water Services (CWS) River Road Pump Station, which will force the flow to CWS’s Rock Creek Advanced Wastewater Treatment Facility (WWTF) located in Hillsboro but outside of the South Hillsboro plan area. CWS owns and operates pump stations and all sanitary sewer lines 24-inches in diameter and larger. The sanitary sewer main lines located on either side of Butternut Creek, south of the next tributary, and north of Cross Creek, will be constructed by the associated land developments. Figure A-16 shows one potential layout for the main lines and pump stations. Sanitary sewer mains will need to be constructed along and adjacent to the riparian corridors

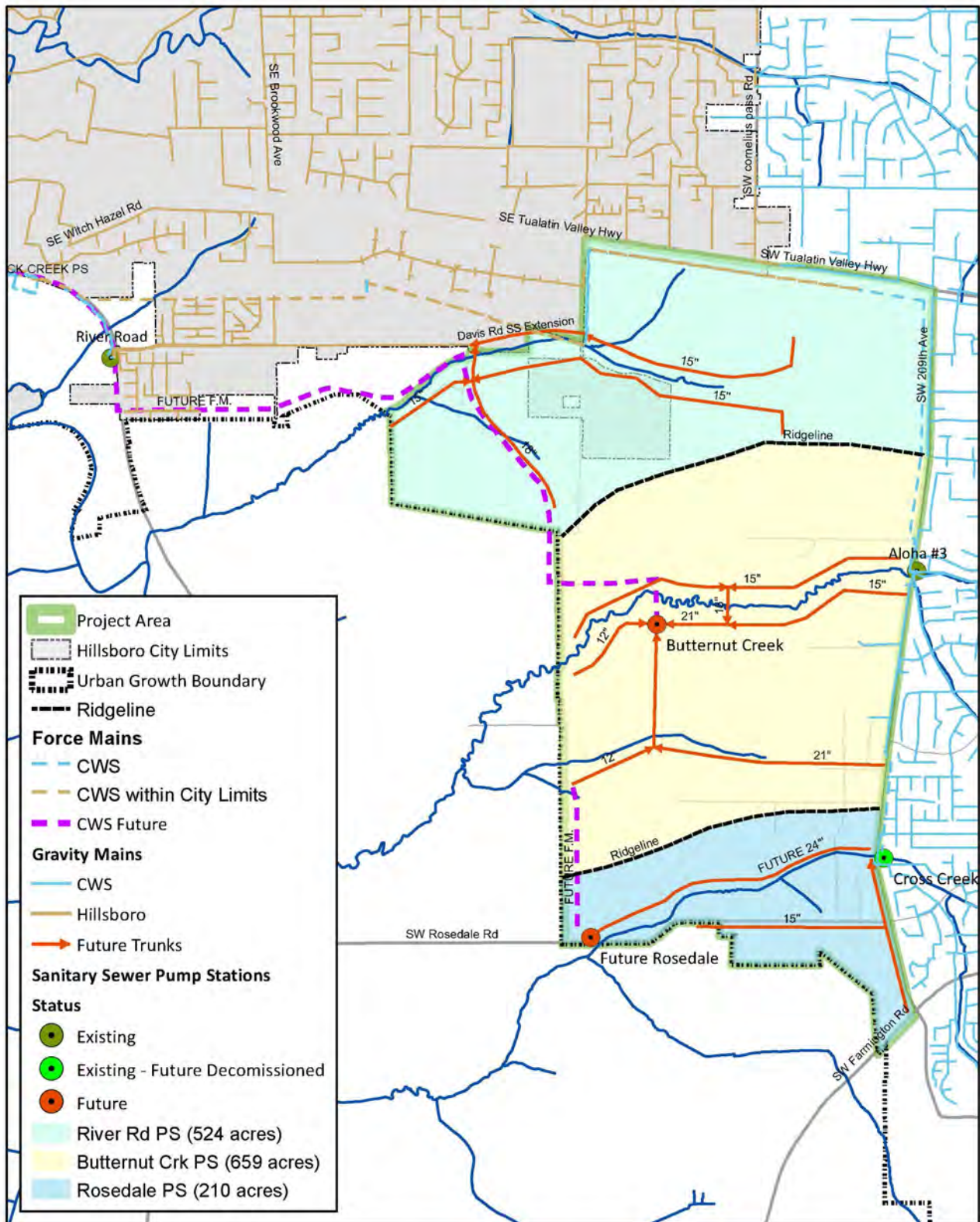
Figure A-15: Water Facilities and Infrastructure




Prepared By: APG, David Evans Associates, Inc.

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Figure A-16: Sanitary Sewer Facilities and Infrastructure



Prepared By:
David Evans
and Associates, Inc.
Date: 2/28/2014


0 1,400 2,800 5,600
Feet

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of existing stream and sensitive areas and convey flows to either the existing sanitary lines or these new pump stations. Smaller sanitary lines will be constructed within streets at the time of development.

Sewer service to the area north of the first ridgeline will be provided by the extension of the Davis Road trunk line, eastward along Gordon Creek. The service area is approximately 524 acres as shown in green in Figure A-16.

Two new pump stations will ultimately be located in South Hillsboro. The Butternut Creek Pump Station (BCPS) is currently in design, with an anticipated location south of Butternut Creek adjacent to the Butternut Creek property. It will collect flow generated from approximately 659 acres as shown in yellow in Figure A-16. The force main will connect to the River Road Pump Station, which CWS plans to have operational by 2016. Prior to “opening day” operation of the Butternut Creek Pump Station, two gravity trunk line extensions will be required from SW 209th Avenue. The first connection will divert flow from the Aloha 3 Pump Station located approximately 300 feet south of the Aloha 3 Pump Station. The second will divert flow from the Cross Creek Pump Station force main discharge (currently discharging to Aloha 3 Pump Station) located approximately at the SW Vermont Street intersection. This will provide minimum operational flows to Butternut Creek PS prior to receiving future development flows.

The Rosedale Pump Station has been identified by CWS and the agency anticipates construction to serve development generally consistent with Hillsboro’s anticipated phasing of annexation and development of the South Hillsboro area. If development demand is slower than anticipated, this pump station could be

initially constructed to CWS standards by developers. The Pump Station is likely to be located near SW Rosedale Road and SW 229th Avenue. At some future time, CWS will retire the Rosedale Pump Station on SW 209th Avenue. Sanitary flows of the contributing area from North Cooper Mountain as well as the area south of SW Murphy within the South Hillsboro boundary will be routed to the Rosedale Pump Station, which will force the flow north along SW 229th Avenue and discharge to a gravity line eventually arriving at the Butternut Creek Pump Station.

Information about the costs and funding of sanitary sewer facilities is found later in this document.

6.2.3. Stormwater Management

Stormwater management within South Hillsboro must meet the City adopted Clean Water Services (CWS) requirements at the time of building plan submittal. The stormwater management requirements may change whenever CWS’s discharge permit is updated by the Department of Environmental Quality or whenever mandated changes in the State and Federal regulations are made.

In general, a site development plan should include water quality treatment and detention (quantity) strategies. Detention strategies shall be designed to minimize impacts from increased stormwater runoff from the road network and all impervious areas on the downstream riparian corridors. Managing stormwater quality and quantity can be achieved by applying a combination of tools and strategies that replicate the natural hydrological conditions of the area. This approach aims to minimize erosion, sedimentation, contaminant discharges, and any other detrimental changes in water flow characteristics. The goal is to prevent impacts to area streams and

riparian corridors. Proposed strategies include the following:

- Piped conveyance to City maintained public regional stormwater quality and detention facilities serving a sub-basin of multiple tenant commercial developments, multi-family, and/or multiple lot single family developments;
- On-site privately owned and maintained stormwater quality and detention facilities where regional stormwater facilities are not feasible due to topography or available land (serving a single tenant commercial lot and/or an individual single family lot);
- Low impact development approach (LIDA) stormwater quality treatment and detention facilities, desired as amenities by private development and maintained by active tenant associations, may be considered to augment the above stormwater management strategies.

The following is a brief description of the main components of the systems noted above.

Regional Stormwater Facilities

Historically, stormwater water quality and detention has been managed within an individual multiple lot development. While this approach may be suitable for in-fill projects within mostly developed areas, it is not the preferred means for handling stormwater from large areas newly added to the urban growth boundary such as South Hillsboro. Regional stormwater facilities serving an entire sub-basin, located on a dedicated parcel at the lower end of the natural drainage or on a linear tract along a creek corridor, and sited optimally to capture the maximum area within the sub-basin, are preferred. Regional facilities are more efficient for the City to maintain and provide the best protection for the receiving stream. Per unit of stormwater volume treated, these larger facilities are generally less expensive to construct and maintain than multiple smaller facilities spread through a basin. The total annual maintenance cost for fewer, larger facilities is significantly less than for numerous, smaller ones.

Anticipated new federal regulations, to be reflected in future CWS permits, will likely require post-construction controls on stormwater such that new development would

Example of a regional stormwater facility



need to be designed to prevent a significant rise in the peak rate and duration of runoff contributed to streams. CWS will be modifying its design and construction standards within the next two years to reflect this requirement. Regional facilities should be constructed with additional space for future capacity expansion as State and Federal regulatory requirements change. Smaller facilities constructed on space constrained parcels may be difficult to expand in the future.

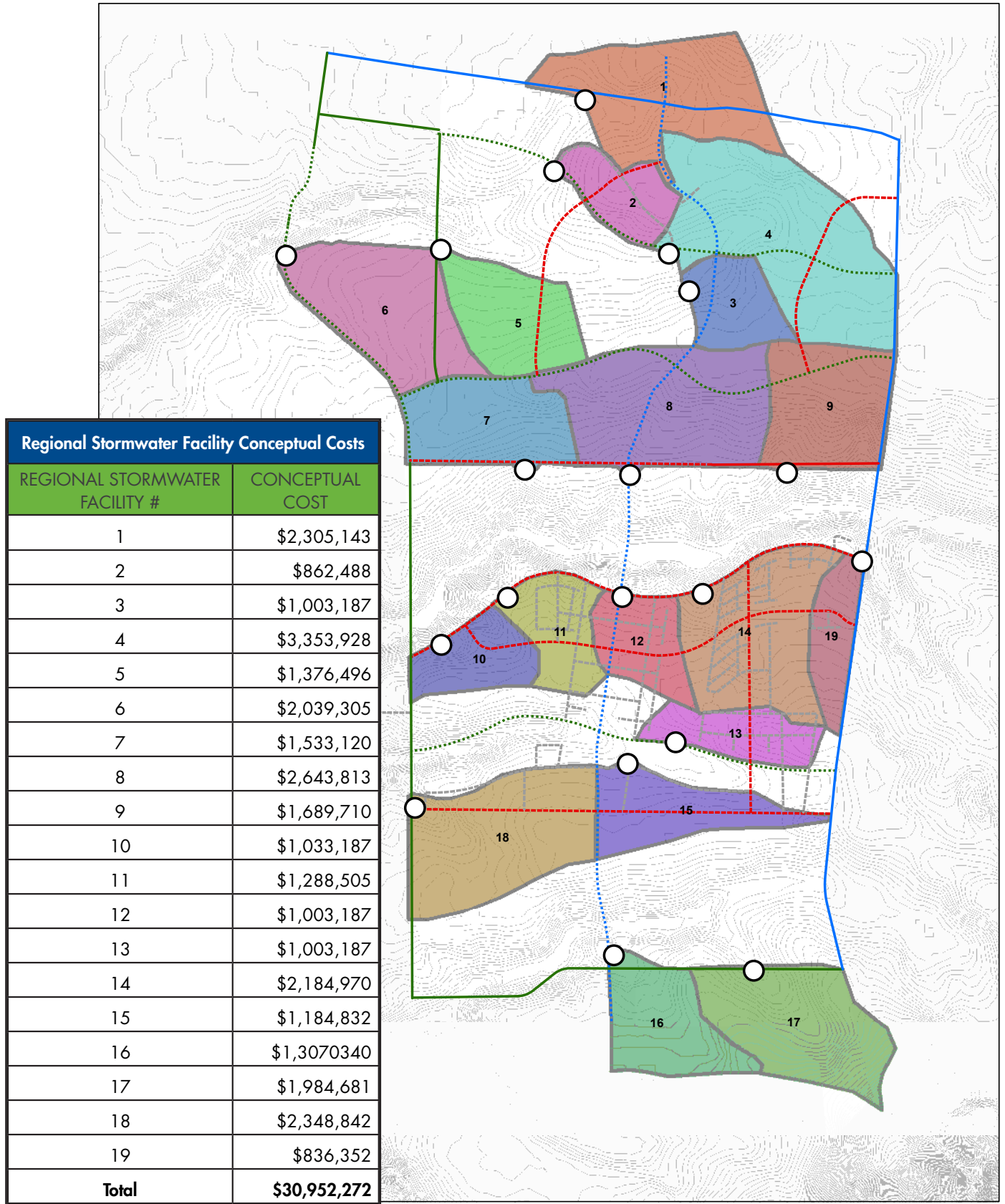
The location and sizing of large regional stormwater facilities involves evaluating drainage conditions, topography, location of roads, projected development levels, and other factors. In addition, land ownership may further influence the location and size of regional

facilities. For example, the number and specific location of facilities may change if a large property owner can direct runoff from multiple catchment areas into a smaller number of larger facilities. Figure A-17 shows the conceptual location and cost of large regional stormwater facilities in South Hillsboro to be refined by area developers' stormwater strategies. Piped conveyance will be needed to convey stormwater from inlets, catch basins and private property development to regional facilities and from those facilities to the stream discharge points. Design of stormwater conveyance systems is a part of the development design review process.

Example of on-site stormwater facility serving Magnolia Park.



Figure A-17: Conceptual Regional Stormwater Facility Map and Conceptual Costs



While the regional stormwater facility approach is recommended wherever possible in South Hillsboro, this tool has challenges that include:

- **Coordination among property owners.** If one property owner is ready to develop, but has to cross through other properties under separate ownership to access a regional stormwater facility and those other property owners are not ready to develop, it may cause costly development delays.
- **Upfront funding.** These shared regional facilities need to be in place for the initial project to develop. That means that someone needs to provide upfront funding, to be reimbursed by subsequent development.
- **Size and location.** While regional facilities may require fewer acres overall, compared to the traditional small site-specific approach, the large-scale facilities will require large, consolidated areas of land accessible to the regional facility by gravity flow. Some initial large area developers may choose to pass the stormwater management facility locations on to the individual site developers to not tie up land for regional stormwater management facilities that could be sold for development. With the smaller sub-basin approach, in some cases the smaller stormwater facilities could be tucked away on otherwise unusable portions of a site.

On-Site Small Stormwater Facilities

As discussed above, the regional stormwater facility approach has some implementation challenges due to topography and access to available land. When large regional solutions aren't feasible, developers should then look to sites within a sub-basin that serve multiple parcels. Stormwater management facilities proposed to be privately maintained, when other solutions aren't available or practical, will be reviewed by the City on a

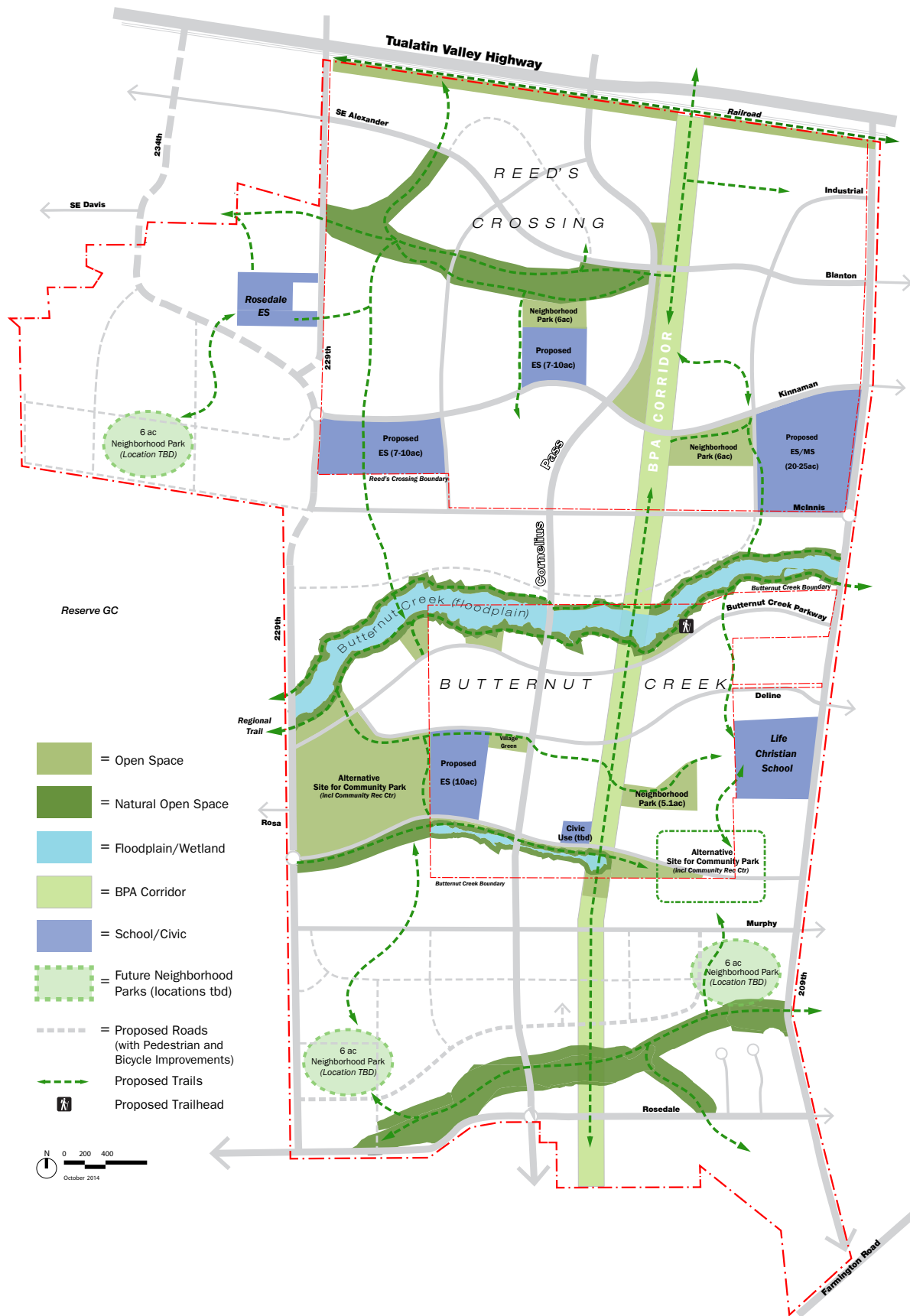
case-by-case basis. Piped conveyance will be needed to convey stormwater from the on-site collection system within a private property development to the on-site small stormwater facilities and from those facilities to the stream discharge points or to the regional facility if that is the destination. Design of the stormwater conveyance system will be part of the development design review process.

Low Impact Development Approach

Privately maintained low impact development approaches (LIDA) may be desired as an amenity in a development to provide a portion of the stormwater quality treatment and detention. Developers many want to use LIDA techniques for Leadership in Energy & Environmental Design (LEED) credits, site shading, safety, tree canopy and landscaping amenities. Examples of LIDA tools include flow-through planters, planter strips/rain gardens, vegetated filter strips, bioretention swales, green roofs and on-site porous pavement, among others. Unless a LIDA facility discharges directly into a stream corridor, the LIDA facility discharge may need to be connected to a conveyance pipe that goes into a regional or on-site water quality or detention facility downstream of the LIDA facilities. Localized LIDA facilities will not replace the need to have publicly maintained stormwater management facilities prior to discharge either on-site or regionally. Construction of localized LIDA facilities will not receive an SDC credit.

Because much of South Hillsboro's soils are not suitable for infiltration, LIDA approaches may be considered as amenities for private development in limited quantity to augment other stormwater facilities. Maintenance will be a key factor in determining where and how LIDA strategies can be used, given limited public resources available for maintenance of such facilities. In general,

Figure A-18: Schools, Parks, Trails, and Open Space Locations



the City will require that an active tenant association exists in the area where LIDA is being considered and a dependable mechanism and agreement are established with the City that the association will maintain the LIDA facilities. Due to maintenance challenges and costs, LIDA facilities will not be used for stormwater management on public roadways constructed as part of the development of a site, and are not desirable in single family residential developments.

6.3. Parks, Recreation and Open Space

As the South Hillsboro area develops into a complete community, it is important to plan for and set aside space for parks, which if properly planned, can become focal points for new neighborhoods. Parks are often presented as key amenities for potential homebuyers and have been proven to increase property values for nearby homes.

6.3.1. Community and Neighborhood Parks and Open Space

The City of Hillsboro’s Parks Department has anticipated growth in the South Hillsboro area and identified the need for seven new parks in South Hillsboro – six neighborhood parks and one community park. Figure A-18 identifies approximate locations for these parks. The locations reflect a logical dispersal of sites that will serve existing and future neighborhoods, providing access to parks for most residents within walking distance. Based on the City’s parks and open space acreage standards, the Hillsboro Parks Department has identified the

need for approximately 214 acres of parks and open space (with public access) to meet the current level of service of 7.4 acres per 1,000 residents. Table A-2 shows how this estimated need will be met through a combination of neighborhood and community parks, natural areas and other open spaces planned throughout the area. The table indicates that these areas will exceed the City’s level of service standards. The table also shows that additional areas which do not count directly towards meeting the City’s LOS standards will provide additional open space and natural areas, supporting community livability and wildlife habitat areas.

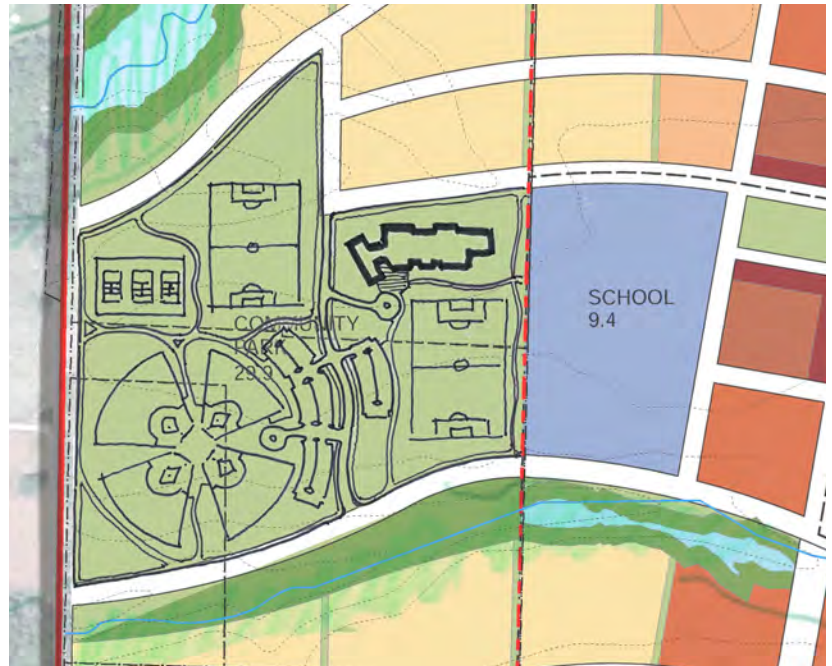
The Parks Department is currently seeking to acquire land for one large (30-40 acre) Community Park, which will feature an indoor recreation facility and sports fields.

Table A-2: Park and Open Space Level of Service Calculations

Park Areas	Acreage	Notes
Neighborhood Parks in South and NW area (location tbd)	18	ac
Community Park x 1	29.8	ac
Newland/Reed's Crossing	38.3	ac
Neighborhood Parks	12	ac
Natural Open Space	26.3	ac
Butternut Creek	34.5	ac
Neighborhood Park	5.1	ac
Village Green	1.5	ac
Open Space	4.3	ac
Natural Area	11.1	ac
Floodplain	12.5	ac
BPA Corridor	52.2	ac
Newland	21.6	ac
Open Space between BPA and Corn. Pass	4.3	ac
Butternut Creek	10	ac
North and South of Butternut	20.6	ac
TV Highway Linear Park	11	ac
Outside of Butternut South of McKinnis	17.9	ac
Open Space	2.9	ac
Natural Open Space	15	ac
"Other" Natural Areas	68	ac
S Natural Area	30.5	ac
TOTAL:	285.7	ac
Additional Acreage not included in LOS	196.2	ac
Schools	61.1	ac
Floodplain/Wetland	81.6	ac
Hanauer	12.5	ac
Outside of Butternut South of McKinnis	15.6	ac
NW Natural Area	37.5	ac
Newland "Private" Parks and Open Space	16	ac

Estimate

This Community Park is anticipated to be located south of Butternut Creek and will ideally be co-located with a school. While this is a preferred location, other options may be considered as shown on Figure A-18. Land will also be needed for at least six Neighborhood Parks, which will serve nearby homes and feature more passive, unprogrammed space. These parks should be six to ten acres each in the Reed's Crossing and Butternut Creek areas where housing and population densities will be higher and more programmed and unprogrammed space will be needed.



Conceptual Village Green design adjacent to the Butternut Creek Village Center.

In addition to formally-identified Community and Neighborhood Parks, there are other types of public spaces that can contribute to the livability and identity of South Hillsboro, such as public plazas in the Town Center, pocket parks or greens within new neighborhoods, and green roofs and courtyards in larger buildings. For example, the Village Center Green identified in the Butternut Creek draft concept plan provides a strong central placemaking feature that can also become a visual amenity for surrounding higher-density land uses.

In addition to parks, there are many opportunities to provide publicly accessible and other open space in the South Hillsboro area, usually on unbuildable and protected land featuring Goal 5 resources such as riparian areas (Butternut Creek is the most visible example), wetlands, upland habitat and steep slopes. These spaces can provide future residents with access to nature, both visually, as backdrops to new development, and recreationally, with trails routed adjacent to sensitive areas. In addition, community garden locations should also be considered where feasible and close to residents,

taking advantage of fertile soils in the South Hillsboro area, while providing a physical link to the area's agricultural heritage.

The 250-foot-wide Bonneville Power Administration (BPA) Pearl-Keeler transmission line easement provides an important opportunity for a significant open space and recreational amenity. The easement includes a 500kV transmission line. The easement effectively creates a swath of open land from Tualatin Valley Highway to SW Farmington Road, intersecting all three major drainages across the site. A major regional trail, the Reedville Trail, is envisioned for the Corridor. Stormwater management facilities and other open space uses also may be desirable within the easement. The Butternut Creek development interest at South Hillsboro has indicated an intention to locate neighborhood parks adjacent to the transmission line in their plans. Development within or adjacent to the transmission line easement will require collaboration with BPA to ensure that planned development meets

Conceptual illustration of Butternut Creek and nearby trail



BPA land use, design, construction, and maintenance standards.

Road and trail connections across the easement are possible but need to be planned to minimize impacts on maintenance and operation of powerlines and supporting towers in the corridor. Certain types of development are not permitted within the easement, particularly those that increase the ground level elevation under the lines, and adjacent landowners may be concerned about potential health effects (perceived or real) and how these impact residential sales. At the same time, the line represents a significant opportunity as a trail and open space corridor and defining amenity for the South Hillsboro area.

The BPA has previously discussed the possibility of doubling the capacity of its Pearl-Keeler line by adding a second set of towers and lines within the existing easement. No date for this expansion has been set. The current lines are designed to a rural standard, which means that the lines are closer to the ground than transmission lines in more urbanized areas. It may be necessary to work with BPA to redesign the existing lines to have adequate clearance for trails or street connections considering line sag.

Implementing any future improvements within the corridor will require continued coordination among all parties – the City, BPA and adjacent property owners –

Figure A-19: Conceptual Looped Trail System



to allow the easement to serve as an amenity for South Hillsboro without compromising its function as an electrical transmission corridor.

6.3.2. Trails

A trail network in South Hillsboro can be created out of a range of different trail types, including roadway sidewalks, natural open space trails, and regional connections such as a trail proposed under the BPA transmission line corridor. Trails are an integral part of the transportation network, providing an alternative to auto travel and partially reducing the demand on roads in the new community.

Ideally, a system of trails will be created, connecting open spaces together, linking to other parks and open spaces outside the community, and providing safe routes for children to travel to schools as well as for the elderly to get to civic destinations. Trails can also connect to an integrated system of bike paths and lanes associated with

arterials and collectors to allow commuters to access workplaces safely. Figure A-19 illustrates a conceptual looped trail system that incorporates a combination of trails adjacent to natural areas, trails in proposed community and neighborhood parks and the BPA easement corridor, and on-street (sidewalk or pathway) connections.

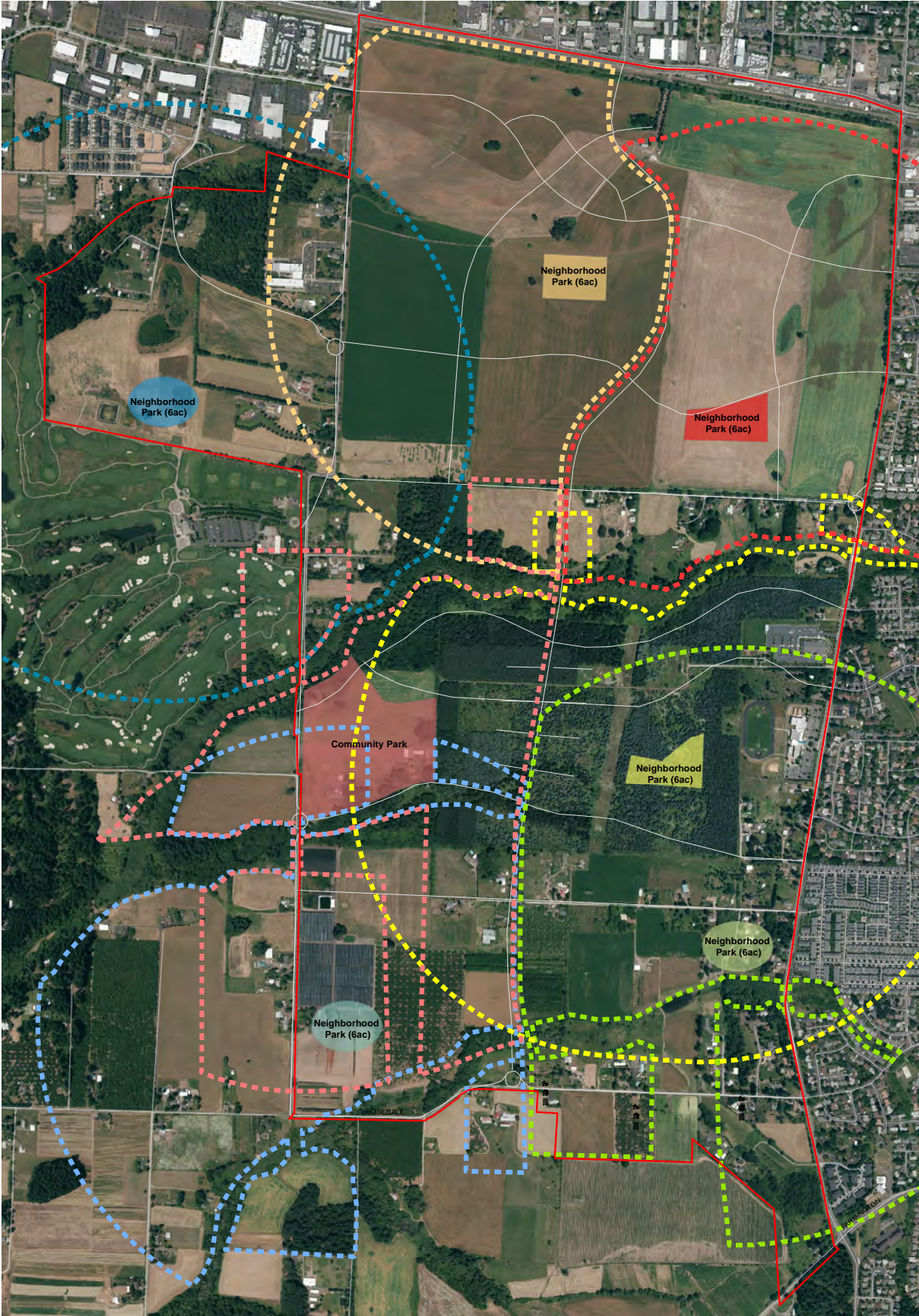
6.3.3. Location of Parks and Schools

Schools and parks play important roles in creating neighborhood identity. Parks should be centrally-located and easy to access, especially on foot, and should be set aside early in the planning process in places that often include natural amenities such as mature trees.

Schools can also serve as important shapers of community identity. Well-designed and sited schools should have a civic presence and an inviting public edge. Both schools and neighborhood parks generally seek out flat sites that are easy to develop. They also require utility provision, so they should be located to take advantage of existing infrastructure.

Figure A-18 shows approximate locations of parks, trails and open spaces based on work conducted during the Master Planning process, including coordination with Reed's Crossing, Butternut Creek and other property owners. The conceptual system of schools, parks, and open space in South Hillsboro is designed such that all residences are within one-half mile of a park or open space facility, as shown in Figure A-20, in accordance with goals set forth in the City of Hillsboro Parks and Recreation Department's Parks and Trails Master Plan.

Figure A-20: Park Catchment Areas



The conceptual system design also features extensive co-location of parks and schools. There are a number of benefits collocating parks and schools, including:

- Efficiencies in land needs and construction cost from sharing facilities such as parking and sports fields that would otherwise need to be exclusively provided.
- Takes advantage of divergent scheduling of each use. Parks are usually busiest nights and weekends, while schools are out of bounds during the day.
- Benefits from sharing operations and maintenance funding and logistics.

In designing co-located park and school facilities, care should be taken to avoid potential issues associated with collocated facilities. For example, facilities should be designed to ensure that large facilities do not hamper connectivity within neighborhoods. In addition, signage and other strategies to clearly delineate where community members can and cannot be at certain times to address security issues associated with schools.

The locations of these facilities may be refined during subsequent development and facility siting processes undertaken by property owners and developers, the City of Hillsboro Parks and Recreation Department and/or the Hillsboro School District. However, ultimate locations will be guided by the planning principles and policies identified in this document and in Chapter 31 of the Hillsboro Comprehensive Plan.

6.4. Other Public Facilities and Services

Other services to be provided in South Hillsboro include library, police, fire and emergency response services.

The City of Hillsboro will provide police services in the area. Most services will be managed through the City's Central police facility, although a community policing office is expected to be located in the South Hillsboro Town Center to provide more direct access to police personnel for South Hillsboro residents and businesses. Hillsboro Fire Department is also evaluating service plans in South Hillsboro, and may site new facilities in the vicinity depending on development timing, adequacy of existing stations, and mutual aid agreements with Tualatin Valley Fire & Rescue.

The City of Hillsboro plans to open a branch library in South Hillsboro in the Reed's Crossing area. The library is expected to be an approximately 8,000 square foot branch, with a possibility of future expansion to continue serving a growing population in the area. Given the distance from this location to existing Library branches and the Aloha Library, this will be adequate to serve the area even with the increases in density.

6.5. Natural Resources

The plan area is located in the Middle Tualatin-Rock Creek Watershed within three sub-water-sheds including Middle Tualatin-Gordon Creek, Butternut Creek, and Middle Tualatin-Rosedale Creek. The Tualatin River flows southerly near the western boundary of the urban reserve area. Several tributaries to the Tualatin River flow west/southwesterly through the site, including Gordon Creek, Butternut Creek, a Butternut Creek tributary, Rosedale Creek (also referred to as Hazeldale Creek), and an unnamed Tualatin River tributary that originates immediately west of the Reserve Vineyards and Golf Club and joins the Tualatin River at approximately river mile 36.5.

Wetlands and other natural resources in portions of the South Hillsboro area were mapped in 2001 for a portion of the South Hillsboro area in the City of Hillsboro Goal 5 Natural Resources Inventory and Assessment. In 2014, wetlands and other natural areas in the remainder of the area were mapped by consultants to the City of Hillsboro and several area property owners. In many cases, wetland and natural resource boundaries mapped in the inventory are approximate and are intended for general planning purposes only. For example, wetland areas are not the result of formal wetlands “delineations” in most cases. Significant riparian corridors and upland wildlife habitat were also mapped along Gordon Creek and Butternut Creek in the City’s Goal 5 inventory. Remaining significant riparian corridors and upland wildlife habitat were mapped during 2014. In addition, a formal wetland delineation has been prepared by the Oregon Department of State Lands (DSL) for the portion of Gordon Creek located east of SW 229th Avenue in Reed’s Crossing.

Natural resources determined to be significant and their Impact Areas have been or will be added to the Significant Natural Resource Overlay (SNRO) District as part of the rezoning process. An Economic, Social, Environmental, and Energy (ESEE) Consequences Analysis has been conducted for the Significant Natural Resource (SNR) sites added to the SNRO District. The SNRO District and associated development code provisions will govern how natural resource areas are protected in this area, including whether development is and its impacts are prohibited, avoided, managed or mitigated. In addition to the City’s SNRO District, the City is a partner in the Tualatin Basin Fish & Wildlife Habitat Program. This is a voluntary program that encourages the use of Habitat Friendly Development Practices, including Low Impact Development (LID) techniques, designed to reduce the environmental impacts

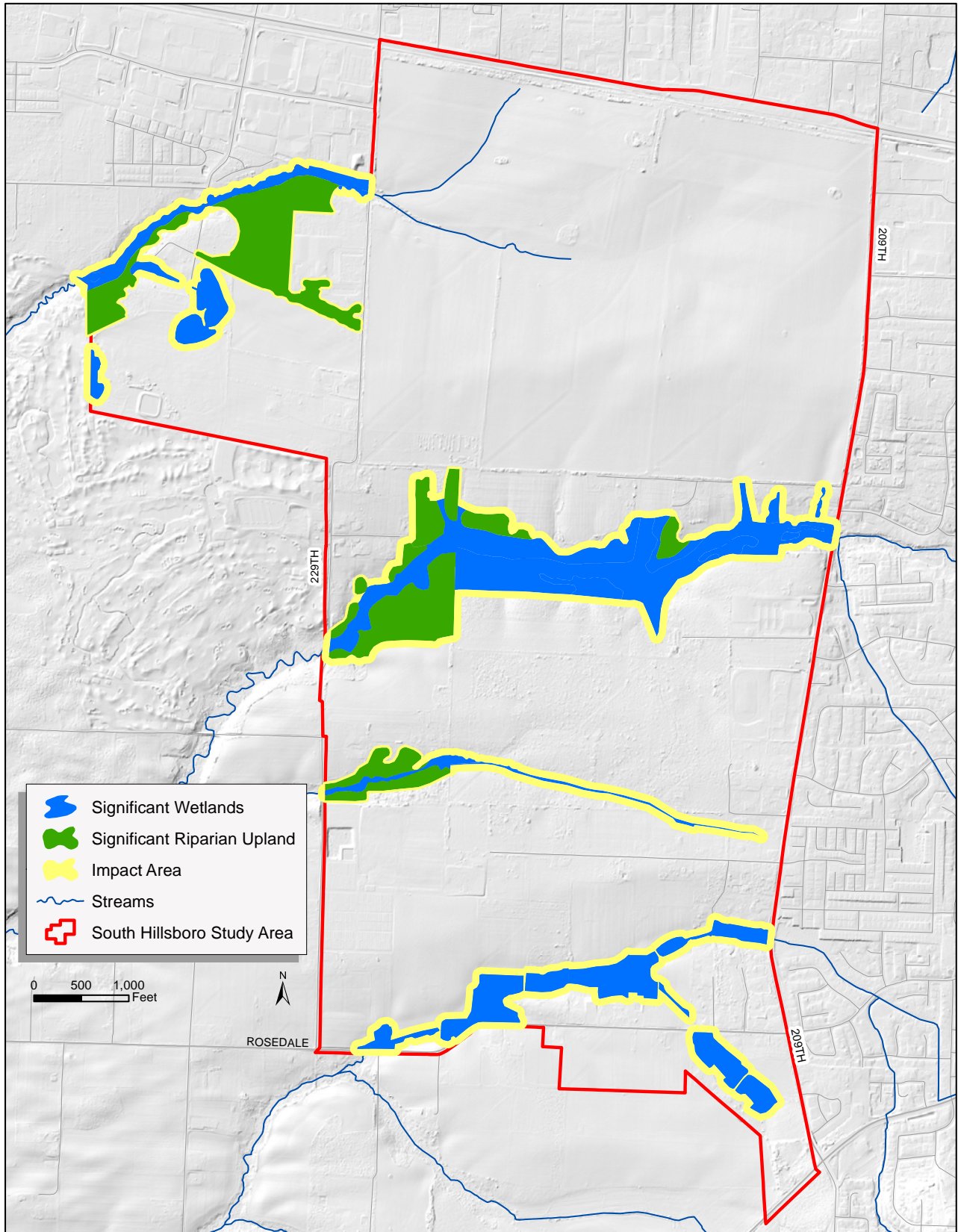
of new development and remove barriers to their utilization. The intent is to provide flexibility in the land development ordinances to encourage the protection of qualified Habitat Benefit Areas.

6.6. Cultural Resources

An archival search at the Oregon State Historic Preservation Office (SHPO) was conducted to determine if known prehistoric or historic archaeological sites or other documented cultural resources are present within or near the plan area. The SHPO database indicates that historic and archaeological sites not formally documented do occur within the plan area, including an unmarked cemetery. The cemetery is referred to as the “Original Reed Farm Cemetery” or the “Ladd-Reed Cemetery.” No survey report or site form is associated with this resource. SHPO records also indicate that Native American archaeological sites exist in the Plan Area.

In addition to the SHPO database, the records of the Oregon Commission on Historic Cemeteries indicate that another nameless cemetery is located in Section 14 of Township 1 South, Range 2 West, Willamette Meridian. The cemetery is documented in the Oregon Burial Site Guide. The cemetery is located south of Reedville, on the Ladd-Reed farm. The guide states that the gravestones were intentionally covered with 2 to 3 feet of soils so that farming could continue in the area. It is estimated that the cemetery consists of 10 to 12 graves. Issues associated with cultural resources will be addressed in more detail as part of the development process and as the City updates its Goal 5 inventory or environmental, cultural and historic resources for the plan area subsequent to annexation.

Figure A-21: Natural Resources



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7

Implementation Actions and Strategies

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7.1. Overview

A variety of different types of actions will be needed to implement the planning strategies and policies incorporated in this document and Chapter 31 of the Comprehensive Plan, including but not limited to the following actions.

Amendments to implementing plans and ordinances

Proposed amendments to the Hillsboro Community Development Code will be submitted to the City's Planning Commission and City Council for concurrent review and adoption.

Infrastructure Financing Plans

The City is preparing a transportation financing program to describe the cost and phasing of major transportation facility improvements and private development and the sources of funds and financing mechanisms that will be used to pay for their design and construction. The City is also preparing a financing plan to describe the cost and financing of parks, recreation, and open space amenities and other infrastructure.

Key, catalytic public and private investments.

A number of key infrastructure and other projects can help the City and property owners reach priority development and community goals. Examples in South Hillsboro include the following, among others:

- Purchase of land for and construction of public facilities, including parks, schools, and designated open space.

- Construction of roads, trails, and other transportation infrastructure.
- Creation of key gateways and wayfinding elements to identify and brand South Hillsboro.
- Creation of initial phases of the Reed's Crossing Town Center, Butternut Creek Village Center, and South Hillsboro West development that will spur additional, future investment and development.
- Initial development of lower-density housing products in the western portion of South Hillsboro, addressing the City's current demand for these types of "executive housing" products.

Annexation and application of zoning

After adoption of the updated Community Plan and associated Community Development Code provisions, proposed development areas will need to be annexed into the City and specific zoning will need to be applied prior to development.

Public Infrastructure Availability.

Annexation of South Hillsboro property requires the assurance that adequate public services and facilities are available, or will be made available, to accommodate the added burdens imparted by development. To assure timely availability of infrastructure, such as multi-modal transportation capacity and downstream sewer capacity, technical evaluations including detailed transportation and municipal utility impact studies will be required of proposed development to advise Annexation Agreements and/or Development Agreements.

Identifying and securing the commitments to assure adequacy of municipal facilities, including public transportation and other utility systems, either in advance of or in conjunction with proposed development,

will assure operational capacity in accordance with adopted performance standards. Funding for needed improvements, including its phased development, will be integrated with Infrastructure Financing Plans to ensure that necessary on-and-off-site transportation improvements, along with other capital improvements, are constructed in time to serve new development.

South Hillsboro transportation studies

Assuring that the cumulative impacts of transportation growth associated with development in South Hillsboro are monitored and managed effectively will be essential to providing timely construction of identified new transportation capacity improvements within the South Hillsboro transportation impact area. Amendments to the Community Development Code will be adopted to assure that the transportation studies required with each development are cumulative in nature, consistent with trip distribution patterns and multi-modal useage assumptions of the comprehensive transportation impact study, and sufficiently expansive as to address monitoring of operational performance throughout the South Hillsboro impact area which extends between Rock Creek and 185th Avenue, from Farmington Road to north of TV Highway.

Annexation and/or development agreements

The City previously signed two memoranda of understanding (MOUs) with each of the major landowners in the area – Hagg Lane LLC (Butternut Creek area) and Newland Communities (Reed’s Crossing area). The City will use these MOUs and subsequent discussions to enter into legally binding agreements with these property owners at the time of annexation that will specify the roles and responsibilities of the City, property

owner, and potentially other properties. These agreements and new agreements with other South Hillsboro property owners will establish allowable levels of development, consistent with limits on development impacts to public transportation and utility infrastructure associated with such development. Agreements will be consistent with the policies outlined in Section 31 of the Hillsboro Comprehensive Plan.

Branding and marketing

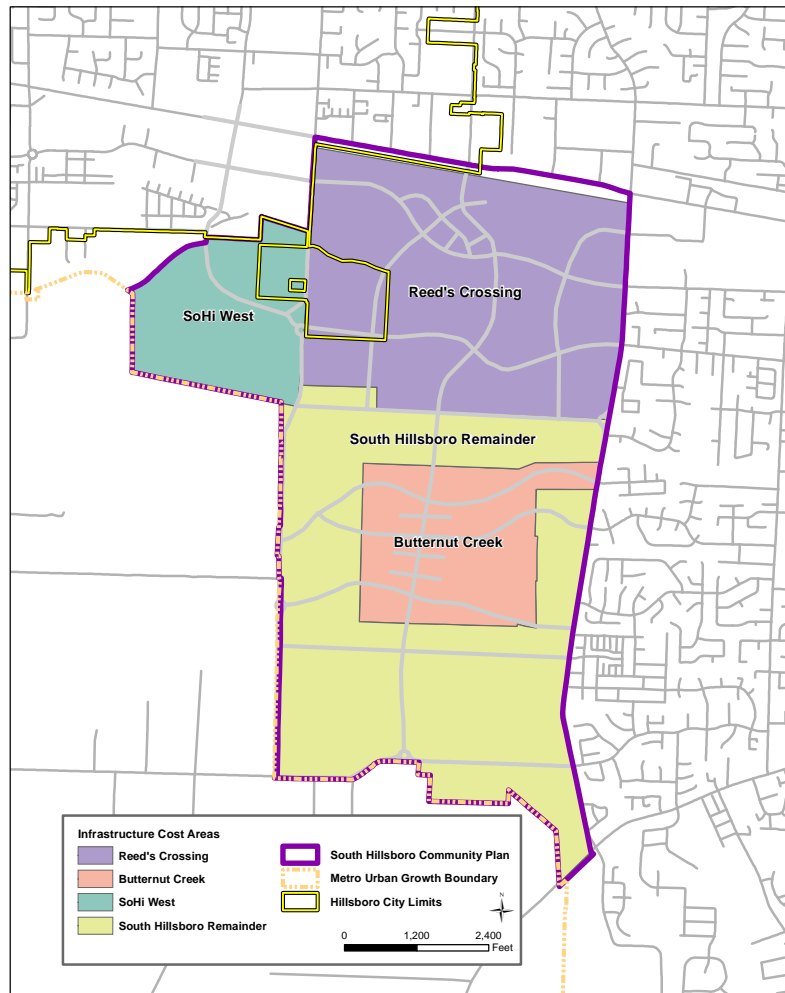
As the City is interested in proactively attracting residents and business owners to locate in South Hillsboro and attracting developers or builders to develop portions of the area, the City will continue to collaborate with major property owners in initiating their own City marketing and branding efforts. For example, the City is exploring the creation of a Citywide wayfinding system that includes gateway elements, which would be extended to the South Hillsboro plan area. Developers have also indicated their desire to separately brand their individual developments, which should align with Citywide visions for the sense of place in South Hillsboro and the overall wayfinding system design.

7.2. Infrastructure Costs

Costs for public facilities have been estimated for water, sanitary sewer, stormwater, parks and recreation and transportation facilities in South Hillsboro. Costs have been broken out by major sub-area (see Figure A-22), including:

- Reed’s Crossing
- Butternut Creek
- South Hillsboro West
- Remaining portions of South Hillsboro

Figure A-22: South Hillsboro Sub-Areas



The following text and tables summarize these cost and the methods and assumptions that were used to estimate them.

Following is a summary of cost methodologies and estimates for transportation, water, sanitary sewer, parks and other facilities.

7.2.1. Cost Estimating Methods and Assumptions

Costs were estimated for specific facilities identified in Chapter 6 of this Plan. Costs are “planning level” estimates based on unit costs, though transportation system costs are considerably more advanced yet not

final. They are not based on detailed design of specific facilities and will need to be refined in the future as part of subsequent detailed design processes. Additional assumptions include the following:

- Costs for water and sanitary sewer pipes only include major distribution and collection pipes located along collector and arterial roads or along drainages associated with sanitary sewer collection. Smaller pipes located on local streets will be constructed and paid for by developers as part of the development process and those costs are not included here.
- Costs for water and sanitary sewer pipes include the cost of materials and construction, including piping,

bedding, backfill and surface preparation. They also include costs associated with overhead and profit, engineering and construction management and contingency. Right-of-way costs are not included for these facilities because they are expected to be located within street rights-of-way which are already included in transportation cost estimates or with utility easements.

- In general, sanitary sewer pipe sizes were developed based on the land use anticipated flows and the existing contours along the roadways.
- Sanitary sewer pump station cost estimates are based on preliminary pump station locations developed by Clean Water Services (CWS). Because the pump station locations have not been finalized, CWS has not developed anticipated construction costs for the pump stations. Therefore, the City’s consultant made an assumption regarding the pump station costs. The complete pump station cost includes wet well, piping, pumps, control building, and backup generator. Once CWS finalizes the locations, these costs can be updated.
- For water and sanitary sewer facilities, the City has calculated projected costs for publicly-funded oversizing to ensure that facilities are large enough to serve the study area, as well as any other nearby areas that contribute water or sewer flows to the system within South Hillsboro. Cost tables show these figures which are also part of the overall cost figures shown.

Transportation system costs have been developed for off-site identified deficiencies, as well as internal and edge Collector and Arterial class roadways based upon unit costs from public bid projects, adjusted to reflect anticipated cost savings for significant elements that are likely to be constructed by private development. In

addition, the costs directly associated with design, right of way, and construction of bicycle lanes on neighborhood routes within South Hillsboro have been included. Local streets that service commercial and residential areas and are funded directly by development, thus are not evaluated, as they do not provide direct benefit to the broader travelling public.

Costs reflect anticipated use of asphaltic concrete paving meeting a 20-year design life on roadways slated for County jurisdiction, and use of a mix of Asphaltic Concrete and Portland Cement Concrete streets meeting a 40-year design life on roadways slated for City jurisdiction. Varying contingencies are included for hard costs and soft costs, reflecting the range of complexity of individual roadway segments. For instance, improvements on SW 209th Avenue will be more complex to design and construct than a similarly sized roadway in the greenfields of new South Hillsboro development.

Roadway costs have been segregated into their “Local Street” costs and their “Added Capacity” costs. “Local Street” component costs specifically assume 34 feet of pavement curb-to-curb with roadside planters, streetlights, street trees, and sidewalks within a 56 foot right of way. Additional roadway travel lane widening, and added costs associated with thicker pavement structural sections, are reflected in the “Added Capacity” cost components. For both, the current value of right of way has been established at \$6 per square foot. Separation of “Local Street” costs from “Added Capacity” costs allows for determination of “Regional Share” cost allocation, which recognizes that regional traffic will utilize a portion of the “Added Capacity” built on the new and improved roadways in South Hillsboro.

Traffic modeling has been utilized to establish for each roadway segment the share of projected 2012 urban growth boundary buildout traffic which does not have a trip origin or destination in South Hillsboro. The resulting “Regional Share”, which varies by roadway segment, has been applied to the “Added Capacity” costs to determine a reasonable estimate of the public road infrastructure costs which may need to be identified from sources outside of new South Hillsboro development. Final establishment of transportation system costs, and the revenue structure to fund those costs, will be adopted through a South Hillsboro Financing Program and potential System Development Charge Methodology Report.

7.2.2. Cost & Revenue Tables

Cost and revenue tables on subsequent pages illustrate improvements necessary to implement planned development in South Hillsboro. Tables A-3 through A-6 summarize costs for each facility type by major sub-area, as illustrated in Figure A-22. Table A-7 summarizes off-site improvement costs, and Table A-8 summarizes projected civic improvements in South Hillsboro. Table A-9 consolidates improvements in each sub-area to show overall costs for necessary improvements across South Hillsboro, based on projected residential units and commercial building square footage.

7.3. Infrastructure Funding Strategies and Responsibilities

In Oregon, jurisdictions can impose System Development Charges (SDCs) for water, wastewater, storm drainage, transportation, and parks and schools. Two types of SDCs are allowed: improvement (new infrastructure

that must be provided to serve new development); and reimbursement (a portion of the existing remaining capacity within existing infrastructure that new development will utilize). SDC fees can be structured to recover ‘other costs’ (planning, compliance reporting) and annual inflation. Beyond SDCs, other funding options may also provide adequate revenue to complete necessary infrastructure improvements. These funding strategies are discussed below for each category of improvement.

7.3.1. Transportation

Funding for transportation system improvements will come primarily from new private development in South Hillsboro, with supplemental funding anticipated from potential “Regional Share” sources which could include in part funding through the County’s Major Streets Transportation Improvement Program (“MSTIP”), as well as other non-South Hillsboro funding sources. The composition of South Hillsboro development funding source(s) should be established prior to annexation of properties within South Hillsboro, and would be adopted through the South Hillsboro Financing Program, a potential supplemental System Development Charge Methodology Report and implementing Ordinance, and other potential adopted funding mechanisms.

As described in Section 7.1, transportation system costs were calculated to differentiate between “Local Street” costs and “Added Capacity” costs. This was done both to create a foundation for evaluating the “Regional Share” costs, as well as to establish a necessary understanding of “Local Street” costs. These costs would need to be collected from South Hillsboro development to fund “Local Street” right of way acquisition, design, and construction cost components of anticipated gaps in the required Collector/Arterial roadway network where it

Table A-3: Reed's Crossing Conceptual Cost Summary

Reed's Crossing Conceptual Cost Summary	
ITEM	2014 TOTAL
OPEN SPACE AMENITIES	
NEIGHBORHOOD/COMMUNITY PARKS	\$7,080,485
NATURE PARKS	\$7,048,371
DEVELOPED GREENWAYS/TRAILS	\$1,760,077
INDOOR FACILITIES/CENTERS/AQUATICS	\$0
SUBTOTAL FOR AMENITIES	\$15,888,933
TRANSPORTATION	
SYSTEM IMPROVEMENTS	\$55,837,000
SUBTOTAL FOR TRANSPORTATION	\$55,837,000
SANITARY SEWER	
15" TRUNK LINE	\$3,874,255
BUTTERNUT CREEK PUMP STATION	\$914,094
SUBTOTAL FOR SANITARY SEWER	\$4,788,349
WATER SYSTEM	
SW CORNELIUS PASS ROAD EXTENSION	\$2,009,280
SW KINNAMAN ROAD	\$1,584,000
SW 209TH AVENUE	\$1,071,360
SW 229TH AVENUE	\$135,360
SW ALEXANDER / BLANTON STREET	\$2,524,560
SW 212 AVENUE / INDUSTRIAL WAY	\$394,560
SW MCINNIS LANE	\$551,520
SUBTOTAL FOR WATER	\$8,270,640

Table A-4: Butternut Creek Conceptual Cost Summary

Butternut Creek Conceptual Cost Summary	
ITEM	2014 TOTAL
OPEN SPACE AMENITIES	
NEIGHBORHOOD/COMMUNITY PARKS	\$3,876,565
NATURE PARKS	\$2,733,589
DEVELOPED GREENWAYS/TRAILS	\$950,442
INDOOR FACILITIES/CENTERS/AQUATICS	\$0
SUBTOTAL FOR AMENITIES	\$7,560,596
TRANSPORTATION	
SYSTEM IMPROVEMENTS	\$21,487,000
SUBTOTAL FOR TRANSPORTATION	\$21,487,000
SANITARY SEWER	
15" TRUNK LINE	\$813,450
21" TRUNK LINE	\$1,974,550
CREEK CROSSING	\$16,300
BUTTERNUT CREEK PUMP STATION	\$1,387,440
SUBTOTAL FOR SANITARY SEWER	\$4,191,740
WATER SYSTEM	
SW CORNELIUS PASS ROAD EXTENSION	\$1,383,360
SW 209TH AVENUE	\$135,360
TO/FROM SW CORNELIUS PASS ROAD EXTENSION	\$995,760
CREEK CROSSING	\$44,000
SUBTOTAL FOR WATER	\$2,558,480

Table A-7: Off-Site Conceptual Cost Summary

South Hillsboro Off-Site Conceptual Cost Summary	
ITEM	2014 TOTAL
TRANSPORTATION	
SYSTEM IMPROVEMENTS	\$99,348,000
SUBTOTAL FOR TRANSPORTATION	\$99,348,000

Table A-5: South Hillsboro West Conceptual Cost Summary

South Hillsboro West Conceptual Cost Summary	
ITEM	2014 TOTAL
OPEN SPACE AMENITIES	
NEIGHBORHOOD/COMMUNITY PARKS	\$3,540,242
NATURE PARKS	\$0
DEVELOPED GREENWAYS/TRAILS	\$0
INDOOR FACILITIES/CENTERS/AQUATICS	\$0
SUBTOTAL FOR AMENITIES	\$3,540,242
TRANSPORTATION	
SYSTEM IMPROVEMENTS	\$10,388,000
SUBTOTAL FOR TRANSPORTATION	\$10,388,000
SANITARY SEWER	
15" TRUNK LINE	\$669,900
18" TRUNK LINE	\$1,083,240
CREEK CROSSING	\$11,000
SUBTOTAL FOR SANITARY SEWER	\$1,764,140
WATER SYSTEM	
SW 234TH AVENUE	\$990,720
SW KINNAMAN ROAD EXTENSION	\$135,360
SW 229TH AVENUE	\$135,360
SW MCINNIS LANE	\$40,320
CREEK CROSSING	\$5,500
SUBTOTAL FOR WATER	\$1,307,260

Table A-8: Civic Amenities Conceptual Cost Summary

Civic Amenities Conceptual Cost Summary	
ITEM	2014 TOTAL
1 SCHOOL SITE, SOUTH HILLSBORO WEST	Constructed
3 SCHOOL SITES, REED'S CROSSING	Land Purchased
1 SCHOOL SITE, BUTTERNUT CREEK	Optioned
1 COMMUNITY POLICING OFFICE	\$4,953,000
1 LIBRARY BRANCH, REED'S CROSSING	\$8,034,000
SUBTOTAL FOR CIVIC AMENITIES, (EXCLUDING SCHOOLS)	\$12,987,000

Table A-6: Remainder of South Hillsboro Conceptual Costs

Remainder of South Hillsboro Conceptual Cost Summary	
ITEM	2014 TOTAL
OPEN SPACE AMENITIES	
NEIGHBORHOOD/COMMUNITY PARKS	\$27,731,899
NATURE PARKS	\$24,347,699
DEVELOPED GREENWAYS/TRAILS	\$800,035
INDOOR FACILITIES/CENTERS/AQUATICS	\$25,502,600
SUBTOTAL FOR AMENITIES	\$78,382,233
TRANSPORTATION	
SYSTEM IMPROVEMENTS	\$67,965,000
SUBTOTAL FOR TRANSPORTATION	\$67,965,000
SANITARY SEWER	
12" TRUNK LINE	\$831,600
15" TRUNK LINE	\$3,250,610
21" TRUNK LINE	\$617,780
24" TRUNK LINE	\$2,044,845
CREEK CROSSING	\$5,400
BUTTERNUT CREEK PUMP STATION	\$2,558,559
ROSDALE PUMP STATION	\$1,918,600
SUBTOTAL FOR SANITARY SEWER	\$11,227,394
WATER SYSTEM	
SW CORNELIUS PASS ROAD EXTENSION	\$1,700,160
SW MCINNIS LANE	\$966,240
SW HAGG LANE	\$276,480
SW MURPHY LANE	\$1,391,040
SW 209TH AVE.	\$1,549,440
SW 229TH AVE.	\$3,200,220
SW ROSDALE ROAD	\$1,452,960
CREEK CROSSING	\$33,100
SUBTOTAL FOR WATER	\$10,559,640

Table A-9: Conceptual Cost & Revenue Comparison

	Units	Square Feet	Water	Sanitary Sewer	Transportation	Open Space Amenities
Reed's Crossing						
Cost Estimate			\$8,270,640	\$4,788,349	\$55,837,000	\$15,888,933
Non-Creditable Local Streets					\$21,228,000	
Oversizing Cost Estimate			\$1,675,080	\$2,722,079	\$34,609,000	
Oversizing Revenue Estimate (Existing SDC)						
Residential	3,856		\$23,837,792	\$18,894,400	\$23,964,782	\$15,701,632
Commercial		300,000	\$831,333	\$755,883	\$3,857,940	\$0
Civic/Parks					\$829,140	
Total	3,856	300,000	\$24,669,625	\$19,650,283	\$28,651,862	\$15,701,632
Surplus (Deficit)			\$22,994,545	\$16,928,204	(\$5,957,138)	(\$187,301)
Butternut Creek						
Cost Estimate			\$2,558,480	\$4,191,740	\$21,487,000	\$7,560,596
Non-Creditable Local Streets					\$7,834,000	
Oversizing Cost Estimate			\$851,680	\$2,996,998	\$13,653,000	
Oversizing Revenue Estimate (Existing SDC)						
Residential	1,221		\$7,548,222	\$5,982,900	\$7,514,203	\$4,971,912
Commercial		50,000	\$98,000	\$78,944	\$915,030	\$0
Civic/Parks					\$762,408	
Total	1,221	50,000	\$7,646,222	\$6,061,844	\$9,191,641	\$4,971,912
Surplus (Deficit)			\$6,794,542	\$3,064,846	(\$4,461,359)	(\$2,588,684)
South Hillsboro West						
Cost Estimate			\$1,307,260	\$1,764,140	\$10,388,000	\$3,540,242
Non-Creditable Local Streets					\$3,430,000	
Oversizing Cost Estimate				\$920,531	\$6,958,000	
Oversizing Revenue Estimate (Existing SDC)						
Residential	541		\$3,344,462	\$2,650,900	\$4,110,187	\$2,202,952
Commercial		0	\$0	\$0	\$0	\$0
Civic/Parks					\$8,274	
Total	541		\$3,344,462	\$2,650,900	\$4,118,461	\$2,202,952
Surplus (Deficit)			\$3,344,462	\$1,730,369	(\$2,839,539)	(\$1,337,290)

	Units	Square Feet	Water	Sanitary Sewer	Transportation	Open Space Amenities
Remainder of South Hillsboro						
Cost Estimate			\$10,569,640	\$11,227,394	\$67,965,000	\$78,382,233
Non-Creditable Local Streets					\$8,799,000	
Oversizing Cost Estimate			\$1,933,370	\$8,020,317	\$59,166,000	
Oversizing Revenue Estimate (Existing SDC)						
Residential	2,087		\$12,901,834	\$10,226,300	\$16,043,042	\$8,498,264
Commercial		0	\$0	\$0	\$0	\$0
Civic/Parks						
Total	2,087		\$12,901,834	\$10,226,300	\$16,060,969	\$8,498,264
Surplus (Deficit)			\$10,968,464	\$2,205,983	(\$43,105,031)	(\$69,883,969)
South Hillsboro Off-Site						
Cost Estimate					\$99,348,000	
Non-Creditable Local Streets						
Oversizing Cost Estimate					\$99,348,000	
Surplus (Deficit)					(\$99,348,000)	
ALL AREAS						
Cost Estimate			\$22,706,020	\$21,971,623	\$255,025,000	\$105,372,004
Non-Creditable Local Streets					\$41,291,000	
Oversizing Cost Estimate			\$4,460,130	\$14,659,925	\$213,734,000	
Oversizing Revenue Estimate (Existing SDC)						
Residential	7,705		\$47,632,310	\$37,754,500	\$51,632,214	\$31,374,760
Commercial		350,000	\$929,833	\$834,827	\$4,772,970	\$0
Civic/Parks					\$1,617,749	
Total	7,705	350,000	\$48,562,143	\$38,589,327	\$58,022,933	\$31,374,760
Surplus (Deficit)			\$44,102,013	\$23,929,402	(\$155,711,067)	(\$73,997,244)
Supplemental Revenue Estimate					\$84,098,067	\$73,997,244
Regional Share					\$71,613,000	

is anticipated that re-development is unlikely to occur in the timeframe necessary to accommodate needed roadway capacity expansion.

Within Washington County, the Transportation Development Tax (“TDT”) functions as the adopted System Development Charge for transportation. Development is typically required to fund “out-of-pocket” the “Local Street” cost elements, including dedication of right of way, for improvements which are contiguous, or within, the development. As such, private development will fund “out-of-pocket” an estimated \$41.3 Million of the identified \$255 Million transportation system expansion costs. “Local Street” costs estimated to be required for roadway segments in gap areas where publicly delivered improvements are anticipated total approximately \$16.4 Million. These funds would need to be secured through assessed TDT fees and other revenue sources. “Added Capacity” costs of approximately \$197.3 Million have been estimated to split as roughly \$71.6 Million attributable to “Regional Share” and \$125.7 Million resulting from cumulative impacts of new South Hillsboro development. Together, the identified funding need estimated to cover “Added Capacity” and “Local Street” gap funding totals an estimated \$213.7 Million.

In addition to the estimated \$41.3 Million of development “out-of-pocket” funding, revenues projected from assessment of existing TDT rates on new South Hillsboro development are estimated to accrue an additional \$58 Million. If “Regional Share” funding is able to be reasonably established to meet the identified \$71.6 Million “Regional Share” cost apportionment, a funding deficit of approximately \$84.1 Million would result, which would need to be funded through new transportation revenue sources collected on South Hillsboro development. It is anticipated that

a supplemental Transportation Systems Development Charge (“TSDC”) would be required, though other potential funding sources could also be considered. Funding options are being evaluated in coordination with Washington County and development interests, with resolution of funding source(s) anticipated prior to annexation of property in South Hillsboro.

7.3.2. Water

The City of Hillsboro is currently served by two water entities. Areas north of US Highway 26 (Sunset Highway) and east of Cornelius Pass Road are served by Tualatin Valley Water District (TVWD); addresses west of Cornelius Pass and south of US Highway 26 are served by the Hillsboro Water Department (HWD). In accordance with the Urban Service Agreement between TVWD and the city, the service area boundary between TVWD and HWD follows TV Highway east from Cornelius Pass Road and then turns south along SW 209th Avenue, such that the proposed South Hillsboro Plan Area is entirely within the HWD service area. Both districts maintain their own distribution systems and reservoirs but utilize a treatment plant maintained by the Joint Water Commission, to which the Cities of Beaverton, Tigard and Forest Grove also belong.

Current Revenue Sources generally include the following:

- Developer contributions. These direct developer incurred costs are negotiated, but generally encompass all on-site and nearby off-site costs. Over-sizing pipes to provide capacity for future off-site development is typically not the developer’s responsibility, but may be reimbursed.
- System Development Charges (SDCs). In Oregon, jurisdictions can impose SDCs for water, wastewater, storm drainage, transportation, and parks and schools.

Two types of SDCs are allowed: improvement (new infrastructure that must be provided to serve new development); and reimbursement (a portion of the existing remaining capacity within existing infrastructure that new development will utilize). In addition, SDC fees can be structured to recover ‘other costs’ (planning, compliance reporting) and annual inflation.

7.3.3. Sanitary Sewer

Hillsboro provides sanitary sewer service through a collaborative service delivery arrangement. By intergovernmental agreement with Clean Water Services (CWS), the City of Hillsboro is responsible for operation and maintenance of the sanitary sewer collection system, which is comprised of gravity sanitary sewer lines and facilities smaller than 24 inches in diameter. The City is also responsible for approving the installation of new collection system components and for approving and inspecting new service connections within City limits. CWS is responsible for all wastewater treatment and for the construction and operation of the conveyance system (public pump stations and force mains and gravity sanitary sewer lines 24 inches in diameter and larger).

Current revenue sources include the following:

- Developer contributions. These are negotiated, but typically include all on-site and off-site improvements as necessary to connect to existing system and through the development to the furthest property line to serve upstream properties. Again, over-sizing to accommodate other future off-site or area-wide development is one cost that would be excluded from this category, but may be reimbursable. SDCs. Sanitary sewer SDCs are dedicated to projects listed

in City of Hillsboro or Clean Water Service’s Master Plans.

7.3.4. Stormwater

Construction of stormwater treatment, detention, and conveyance infrastructure is typically the responsibility of private developers as a condition of the development approval. For this reason the sub-area conceptual cost summaries in Tables A-3 through A-6 and conceptual cost and revenue comparison in Table A-8 do not include numbers associated with stormwater.

If a developer constructs a local water quality facility for the development that serves multiple lots (regional facility) or expands an existing regional facility for the development, the developer receives a credit for a portion of the system development fee for constructing the facility in accordance with the City adopted CWS rate structure. Historically, the City has not been able to easily identify large regional stormwater facilities within mostly developed areas of Hillsboro due to limited availability of land and funding for advance purchase of favorable sites.

North Bethany is the only example in the Portland region of a growth area with a regional stormwater facility fee that allows for advance purchase of large regional stormwater facility sites. Since Clean Water Services collects all stormwater system development charges (SDCs) in North Bethany, CWS provided \$1 million of seed money to jump start this first regional stormwater facility. The City will collect all stormwater SDCs in South Hillsboro; however the City does not have sufficient stormwater SDC reserves to fund the advance purchase of regional stormwater facility sites.

With limited existing development in South Hillsboro, a number of strategies could be used to facilitate the identifying and purchasing of favorable large regional stormwater facility sites, including the following:

- Consider establishing public-private partnerships with property owners to allow for private sector purchase and construction of regional stormwater facilities in exchange for SDC credits on their developments.
- Consider setting up a supplementary systems development charge for South Hillsboro to finance the purchase of land, construction of regional stormwater facilities and for oversizing major trunk conveyance lines that aren't covered under the general CWS SDC charge.
- Work with intervening or connecting property owners to obtain easements for connecting conveyance facilities where needed to support phased development avoiding delays and added costs in constructing multiple facilities where one would serve more area.

7.3.5. Parks

The City of Hillsboro's Parks Department is responsible for the development and maintenance of all parks and open space within its boundaries. Parks situated outside of incorporated areas are the responsibility of the Washington County Facilities and Parks Services Division (except those within the SB 122 planning area which corresponds to the school district boundary).

Currently, the City's Parks SDC collects funding assessments on new development within the City including anticipated new revenue from development within South Hillsboro. Preliminary planning level cost estimates for identified parks facilities including the cost of parks, developed greenways and trails, and

indoor recreation facilities needed in the South Hillsboro Plan area have been identified. A comparison against projected revenue collections from the existing City Parks SDC rate structure anticipates a revenue shortfall. New Parks funding will need to be identified, which may include a supplemental Parks SDC for South Hillsboro and other potential new funding sources.

7.4. Supplemental Funding Options

The Plan Area faces two distinct issues in filling its park and transportation funding gap:

- Locating and likely creating sources of funding to cover costs beyond those covered by existing revenue sources, and
- Establishing a financing mechanism acceptable to both the City and developers that will generate cash flow for infrastructure construction prior to development actually occurring (and receipt of the SDC/TDT funding stream associated with that development).

Each of these issues – the generation of funds and the timing of fund availability – will require attention as South Hillsboro area planning moves forward.

The following list of funding options was generated through conversations with city, county and Metro staff and legal counsel, the Oregon Economic and Community Development Department (OECDD) and the Oregon League of Cities. Documents created for and by other jurisdictions that have faced similar challenges in funding infrastructure have also been reviewed (as for Pleasant Valley, Villebois and North Bethany). The most likely potential funding tools are described in more detail.

Other sources are mentioned briefly, with additional information about them available upon request to the city.

7.4.1. Property Taxes

Both the City of Hillsboro and Washington County have the authority to levy property taxes with double majority voter approval. However, local option levies are limited by several previous ballot measures, and any tax increase must be within those limits. It is unknown at this time whether the city or county has the ability to increase its local option levy due to statutory limitations.

General obligation bonds, in contrast, are not subject to the same limits other than double majority voter approval. These must be used for capital projects, a criterion which infrastructure investment should meet.

While a city or county-wide property tax has the potential to generate significant funds, one disadvantage is the perceived fairness of who pays versus who benefits from growth. A property tax spreads the unmet costs of growth across the entire community. However, this wide base also offers the potential of a relatively lower per property burden. Washington County voters have twice passed property tax measures to fund transportation investments, as described below.

7.4.2. Washington County Major Street Transportation Improvement Program (MSTIP)

This program originated as a voter-approved property tax dedicated to transportation projects geographically distributed throughout the County. As a result of Ballot Measures 47/50, the MSTIP was combined with the general property tax, but the County Board continues to use it as a dedicated transportation funding source. This

funding source has twice been renewed by voters, each time with a list of projects that accompanied the vote. The MSTIP is currently projected to generate an average of \$35 million in annual funding over the next five years, for a total of \$175 million through 2018.

Most MSTIP projects currently in the design and construction stages were funded under the current list of MSTIP projects. Those projects will be substantially complete in 2013. The County is currently going through the process of identifying a recommended list of projects to be funded over the next five years (fiscal years 2013-2014 and 2017-2018). Transportation projects (or portions of them) identified in this Plan could be included in future MSTIP project lists.

7.4.3. Increased SDC/TDT Rates

Metro is moving to encourage this approach, as indicated through its July 2007 document ‘Promoting vibrant communities with System Development Charges.’ Steps being recommended include “unbundling” SDCs to separate cost elements, encouragement of best management practices, green design SDC discounts, and transition to “impact-based” SDCs (such as higher SDCs for greenfield than urban development to better accomplish real cost recovery objectives). Other ideas suggested by Metro include a differential (or location-based) SDC fee schedule that could reduce fees for higher density development with fewer occupants per unit, as well as lowering the level of service (LOS) standards for urban area infrastructure. Area-specific SDCs are likely to be considered for implementation in South Hillsboro.

The Metro analysis also suggests that SDC rates should be set to aim for full cost recovery and that SDCs can be effective in influencing development patterns

and encouraging development that is less taxing to infrastructure – including in-fill development and development that favors smaller units, lots sizes, and locations adjacent to transit systems.

7.4.4. Supplemental System Development Charge

An area-specific SDC was considered for the recent Witch Hazel Village concept planning area. In the South Hillsboro Plan Area, assigning an additional transportation SDC (versus the current TDT tax) has the potential to generate significant revenue. As with a city or countywide increase in TDT rates, public support for an area-specific approach to increase SDC fees is yet unknown. However, this appears to be a potentially promising approach which will be explored further and may be incorporated in development or other funding agreements for the Plan Area.

7.4.5. Local Improvement District (LID)

LIDs are similar to SDCs in that they charge only those who will benefit from the infrastructure investment. A LID is a semi-voluntary charge against property values requiring the support of 51% of landowners within the district; the boundaries of a district are flexible. Property owners can opt to pay over as many as 20 years and funds can be used for capital improvements or maintenance.

Unlike SDC or TDT funding, the LID is not triggered by land development and therefore may be viewed as a penalty against those who do not develop (to increase the value/revenue stream associated with their land). In the same vein, it can be a more reliable funding source than funds which would be realized only when and if development occurs.

In Oregon, LIDs have been used for small-scale projects such as local street improvement and for larger transportation improvements, such as the Portland downtown transit mall light rail extension and streetcar development. A key consideration in South Hillsboro's potential use of a LID is land owners' willingness and ability to contribute and the risk associated with possible future real estate downturns.

7.4.6. Grants/Donations

Of the Plan Area's infrastructure needs, parks and open space likely represents the best potential fit for grants and donations. Possible sources would be determined on a project basis and may generate relatively few funds. The initial comparison of infrastructure costs and revenues indicates that there is in fact a parks surplus, although this may change as figures are revised.

7.4.7. Selective Classification of Arterials and Collectors

Study Area roadways will be classified as arterials, collectors, neighborhood routes and local streets according to their projected Average Daily Traffic. Arterial and collector streets constructed by developers qualify for Traffic Impact Fee credits. To qualify for credits, arterial and collector streets must be listed in the TDT Base Report. The City of Hillsboro has suggested not listing planning area arterial and collector streets on the Base Report, to enable TDT funds to focus on off-site roadway systems impacted by Study Area development.

7.4.8. Other Financing Mechanisms

A variety of other funding sources were discussed during the development of this plan. However, the majority of them could not be implemented without changes in state law or significant legislative actions. These mechanisms include but are not limited to a real estate transfer tax, windfall tax, urban renewal or tax increment financing, formation of a county service district, excise tax, vehicle registration surcharge and/or use of state or federal grant or loan programs. Homeowners Associations also can be a source of help in maintaining certain types of facilities once they are constructed.

Acknowledgements

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Councilor Aron Carleson
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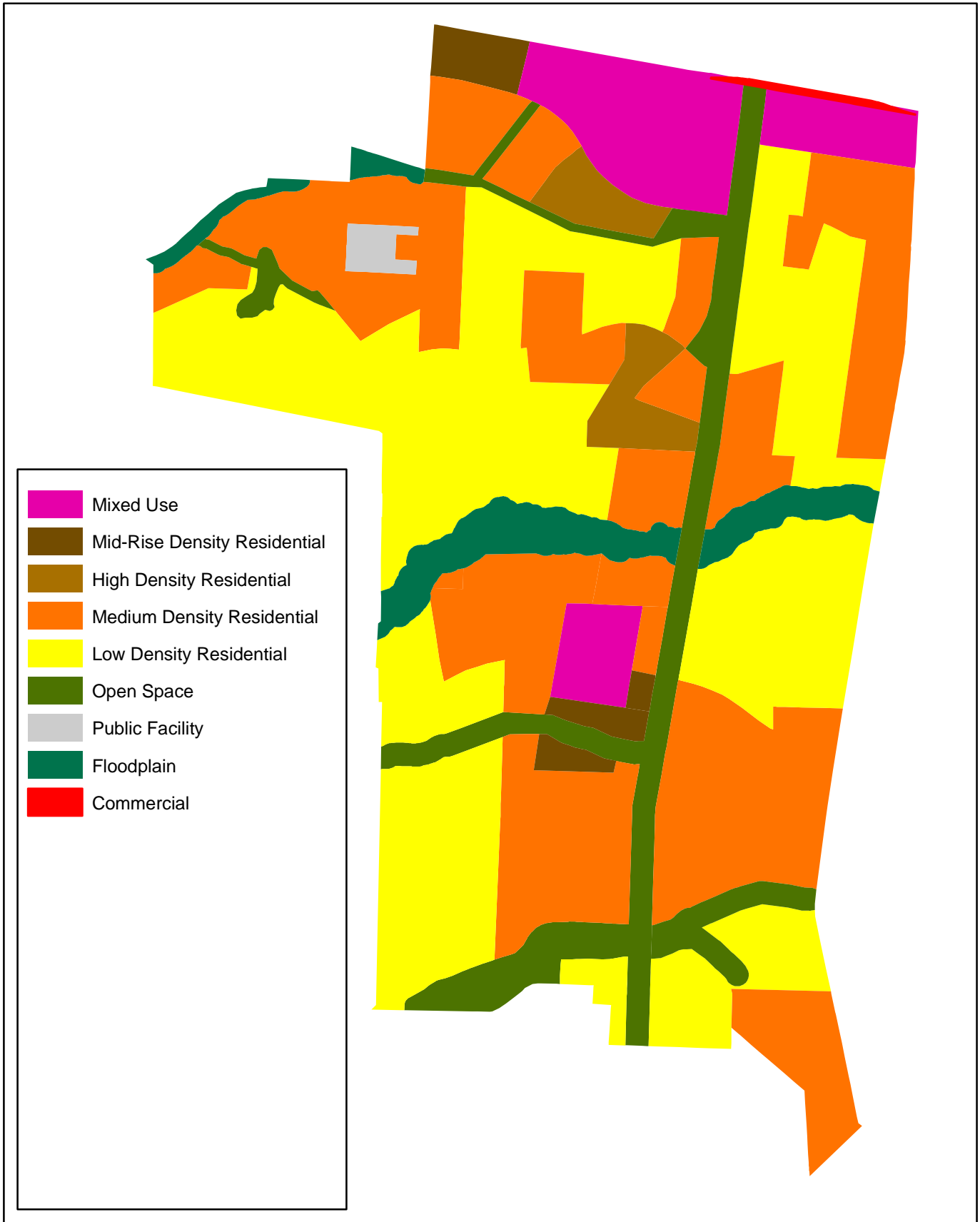
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www.hillsboro-oregon.gov/SouthHillsboro



- Mixed Use
- Mid-Rise Density Residential
- High Density Residential
- Medium Density Residential
- Low Density Residential
- Open Space
- Public Facility
- Floodplain
- Commercial

EXHIBIT "B"

**BEFORE THE PLANNING COMMISSION
OF THE
CITY OF HILLSBORO**

A REQUEST FOR COMPREHENSIVE
PLAN AMENDMENTS TO
REVISE THE SOUTH HILLSBORO
COMMUNITY PLAN

CITY OF HILLSBORO
CASE FILE NO. HCP 004-14
FINDINGS OF FACT

Introduction

The proposed revisions to Hillsboro Comprehensive Plan Sections 31 and 32 (hereafter "revised Plan") addresses approximately 1,400 acres of land in South Hillsboro that was brought within the urban growth boundary (UGB) in 2002 and 2011 in order to meet the rising demand for housing opportunities in the area. Metro's expansion of the UGB to include South Hillsboro included the following actions:

- December 5, 2002 (Metro Ordinance No. 02-969B): 248 acres of land situated south of the Tualatin Valley Highway and west of SW 209th Avenue and generally identified as "Area 69" was added to the UGB;
- December 5, 2002 (Metro Ordinance No. 02-969B): approximately 87 acres of land situated immediately east of the Witch Hazel Village and generally identified as "Area 71" was added to the UGB; and
- October 20, 2011 (Metro Ordinance No. 11-1264B): 1,063 acres of land situated south of the Tualatin Valley Highway, north of Rosedale Road, west of SW 209th Avenue and Area 69 and east of Area 71 and SW 229th Avenue and generally identified as "Area 2" was added to the UGB.¹

The City of Hillsboro's planning and adoption efforts include:

- September 18, 2012: adoption of the South Hillsboro Community Plan into the Hillsboro Comprehensive Plan, including policy language in Section 31 and the complete Community Plan as Section 32 (Hillsboro Comprehensive Plan 1-12; Ordinance No. 6029).
- October 1, 2013: adoption of amendments to the Transportation System Plan to reclassify or create new alignments for the South Hillsboro Community Plan Area and update information for transportation improvements identified in the South Hillsboro Focus Area Plan (Hillsboro Comprehensive Plan 2-13; Ordinance No. 6065).

The revised Plan establishes the framework for a residential mixed-use community organized around new town and village centers that can accommodate concentrations of retail and service uses, employment opportunities, civic facilities, schools, parks and natural areas, and a variety of housing choices. The revised Plan integrates urban areas into the natural landscape while protecting and enhancing natural resources, and creates a walkable community served by a multi-modal transportation network. The revised Plan identifies Comprehensive Plan land use designations that are applied to land within the Plan area. In addition, the revised Plan establishes a conceptual transportation network

¹ HB 4078 (2014) validated Metro's 2011 urban growth boundary expansion, including the South Hillsboro Plan Area.

including streets, bicycle and pedestrian facilities, and a connected open space system. Possible locations of parks, schools and future infrastructure (water and sewer) are also identified.

Since adoption of the 2012 South Hillsboro Community Plan, the City completed a Master Planning process to further articulate the City’s vision for development and design of South Hillsboro. The 2013-2014 South Hillsboro Master Plan process built on earlier efforts and involved a variety of public involvement activities as well as updated studies and cost estimates. The Master Plan maintained consistency with the 2012 Community Plan assumptions about land use, transportation, open space, parks, schools, natural resources and public facility planning. Ultimately, the results of 2013-2014 process are the basis for a set of relatively minor updates laid out in the revised Plan. Those updates include the following:

- Established a set of planning principles and best planning practices to inform proposed revisions to the Hillsboro Comprehensive Plan and Hillsboro Community Development Code necessary to support development in South Hillsboro.
- Refined the locations and conceptual design of proposed roads and other transportation facilities.
- Incorporated more detailed land use planning and development assumptions prepared by the major property owners, particularly in the Reed’s Crossing, Butternut Creek, and South Hillsboro West areas.
- Coordinated planning for schools and parks facilities, open space, and the trail system.
- Crafted a long-term zoning concept to inform the orderly application of zones to newly-annexed land in South Hillsboro.
- Created a new mixed-use zone (MU-VTC) for application in the town and village centers.
- Refined and updated costs estimates and projected revenues associated with transportation and other public infrastructure projects.
- Updated calculations associated with park and open space needs and residential development capacity.
- Established a trip cap mechanism to ensure that transportation needs can be met as annexation and development occurs.
- Identified a variety of implementation actions and strategies needed to ensure that the goals and objectives of the revised Plan will be met.

Changes to the land use designations within South Hillsboro are relatively minor and at the request of underlying property owners. The bulk of the changes occur north of SW Mcinnis Road in the area called Reed’s Crossing. The location of the Town Center has shifted north slightly so that it abuts Tualatin Valley Highway. Changes were also made to shift the location of the Village Center in the Butternut Creek Area. In addition, the locations of high, medium and low density lands have shifted to some extent; however, the amounts of those lands have not changed significantly (see the table below).

South Hillsboro Community Plan Land Use Designations		
Land Use Designation	Adopted (2012) Plan (acres)	Proposed Plan (acres)
Mixed Use - Urban Residential	86	0
Mixed Use - Urban Commercial	17	
Mixed Use	0	112

Mid Rise Density Res.	28	13
High Density Res.	54	54
Medium Density Res.	392	484
Low Density Res.	454	520
Open Space	167	141
Public Facility	133	8
Floodplain	69	64
Commercial	0	4
Total	1,400	1,400

To implement the revised Plan, the City will adopt the following amendments to its Comprehensive Plan:

- Amendments to Section 31, South Hillsboro Community Plan, to include a revised set of goals, policies, and implementation measures;
- A new appendix to Section 31 to incorporate the entire updated South Hillsboro Community Plan (previously Section 32 of the Comprehensive Plan);
- Delete Section 32, City of Hillsboro, South Hillsboro Community Plan, originally adopted in 2012 and now relocated as an appendix to Section 31;
- Updates to Section 2, Urbanization Policies; and,
- Amendments to the Comprehensive Plan Map to update land use designations consistent with the revised Plan.

In order to adopt the proposed amendments, the City must demonstrate that the amendments are consistent with applicable state, regional and local policies, rules and regulations. Applicable policies, rules and regulations include:

- Oregon Statewide Planning Goals
- Oregon Administrative Rule (OAR) 660, Division 007 – Metropolitan Housing Rule
- OAR 660, Division 012 – Transportation Planning Rule
- OAR 660, Division 023 - Procedures and Requirements for Complying with Goal 5
- Metro Regional Functional Plan Requirements
 - Title 1 Housing Capacity
 - Title 3 Water Quality and Flood Management
 - Title 6 Centers, Corridors, Station Communities and Main Streets
 - Title 7 Housing Choice
 - Title 11 Planning for New Urban Areas
 - Title 13 Nature in Neighborhoods
- City of Hillsboro Comprehensive Plan Amendment Requirements, including:
 - Section 1 Citizen Involvement
 - Section 2 Urbanization

- Section 3 Housing
- Section 6 Open Space, Scenic and Historic Sites
- Section 7 Air, Water and Land Resource Quality
- Section 9 Recreation
- Section 10 Economy
- Section 11 Energy
- Section 12 Public Facilities and Services
- Section 13 Transportation

This report provides findings of fact to demonstrate consistency with applicable policies, rules and regulations. Each policy, rule or regulation is cited, followed by findings and a consistency statement. Generally, sections of policies, rules or regulations that do not apply to adoption of the proposed amendments are not included.

Oregon Statewide Planning Goals

Goal 1 Citizen Involvement

To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.

Finding: Citizens from within and beyond the South Hillsboro Community Plan area were engaged throughout the plan update process. A summary of citizen involvement efforts conducted during and prior to 2012 is found in the Findings of Fact that supported amendments to Chapters 31 and 32 in 2012.

In August 2013, the Planning Commission acting as the Citizen Involvement Advisory Committee approved a Public Involvement Plan for the master plan implementation phase of work in South Hillsboro to take place in 2013 and 2014. This Public Involvement Plan was implemented in the following ways:

- Approximately eight (8) stakeholder interviews with major property owners and partner public agencies, as well as other City staff.
- Approximately monthly meetings with primary property owners (Newland Communities and Hagg Lane LLC).
- Several meetings with other property owners, including two meetings with a large group of property owners in the South Hillsboro West area, as well as additional meetings with individual property owners from throughout the South Hillsboro plan area, including along Murphy Lane, 209th Avenue and McInnis Lane.
- Coordination with a technical advisory committee (TAC) that met to review drafts of a Master Plan and supporting materials twice during the planning process. Selected members of the TAC such as the City's Transportation, Public Works, Water and Parks and Recreation staff, as well as Hillsboro School District and Clean Water Services staff also participated in additional meetings to discuss specific aspects of the planning process.
- Project webpage updates and meeting notices.

- Three community open houses held in September and November, 2013 and June, 2014. Attendance at these meetings totaled 75, 36, and over 100 attendees, respectively.
- City staff held seven (7) Planning Commission work sessions, one joint Planning Commission/City Council work session and one City Council work session that included presentations of master planning work, developer concepts and the regulatory package, including Comprehensive Plan and Community Development Code amendments. The Planning Commission approved initiation of Comprehensive Plan and Community Development Code amendments to adopt and implement the Community Plan update at a meeting on August 27, 2014. Planning Commission evidentiary hearings were held on September 24, 2014, October 22, 2014, November 12, 2014, December 10, 2014², and December 17, 2014², to review proposed amendments. Those hearings were open to the public.

Various forms of media, including Twitter and local news media outlets, were used to announce upcoming community engagement opportunities and/or completion of project milestones. In addition, the City created and maintained a project website that was continuously updated with project information, scheduling, reports, maps and other project materials. Through the website, citizens were invited to sign up for a project email list if they wished to receive project updates via email. The project website continues to serve as a resource for providing the public with relevant information about the Community Planning process.

Based on the above findings, the proposed amendments are consistent with Goal 1 Citizen Involvement.

Goal 2 Land Use Planning

To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and actions.

Finding: The City has established a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions. The City of Hillsboro Comprehensive Plan was adopted by the City and acknowledged by the Land Conservation and Development Commission (LCDC) as being in compliance with the statewide goals, state statutes and state administrative rules, in 1984. The planning process for the South Hillsboro Community Plan update establishes a factual base for the revised Plan, including the following elements:

- A Plan area vision and community planning principles
- Environmental context
- Cultural context
- Planning context
- Market conditions
- Regulatory context
- Infrastructure conditions

² The Planning Commission closed the record to most new evidence at the November 12, 2014 hearing, but left the record open for additional evidence related to Parks, Recreation, and Open Space, and Annexation policies. The Planning Commission closed the record to annexation policies at the December 10, 2014 hearing.

Decisions for the revised Plan were made based on the factual base and consistent with existing City policies. Therefore, the proposed amendments are consistent with Goal 2.

Goal 3 Agricultural Lands

To preserve and maintain agricultural lands

Finding: The proposed amendments provide for urban development of land recently added to the urban growth boundary and intended for future urbanization. Therefore, Goal 3 does not apply to this proposal.

Goal 4 Forest Lands

To conserve forest lands

Finding: The proposed amendments provide for urban development of land recently added to the urban growth boundary and which are intended for future urbanization. Therefore, Goal 4 is not applicable to this proposal.

Goal 5 Natural Resources, Scenic and Historic Areas and Open Spaces

To protect natural resources and conserve scenic and historic areas and open spaces.

Several tributaries to the Tualatin River flow west/southwesterly through the Plan area, including Gordon Creek, Butternut Creek, a Butternut Creek tributary and Rosedale Creek. The South Hillsboro park and open space system is designed to protect and take advantage of these creek corridors and their associated floodplains by utilizing them as connected open spaces (in conjunction with the existing Bonneville Power Association (BPA) right-of-way that runs north-south through the Plan area). Figure 31-5 of the revised Plan shows the location of the open space corridors. Hillsboro Community Development Code Section 12.27.100 contains standards and regulations intended to protect floodplains by limiting the types of uses that can be located within floodplain areas.

Some wetlands and natural resources within the vicinity of the Plan area were mapped in 2001 by Fishman Environmental Services for Hillsboro's Goal 5 Natural Resources Inventory and Assessment. The local wetlands inventory was conducted according to the Oregon Department of State Lands (DSL) offsite option. Therefore, most of the wetland and natural resource boundaries mapped in the inventory are approximate and are intended for general planning purposes only. Significant riparian corridors and upland wildlife habitat were also mapped along Gordon Creek and Butternut Creek in the City's Goal 5 inventory.

The remainder of the resources in the South Hillsboro Plan area were inventoried during the 2013-2014 planning process using the methodologies described in the adopted the *City of Hillsboro Goal 5 Natural Resource Inventory & Assessment Report*. Exhibit B-6 contains the Significant Goal 5 natural resource documentation submitted to the Planning Commission with the November 7, 2014 staff report. Significant natural resources and their associated impact areas will be added to the Significant Natural Resource Overlay (SNRO) district as part of the rezoning process subsequent to annexation. The SNRO district provides protection for significant wetlands, riparian corridors and wildlife habitats.

In addition to the City's SNRO district, the City is a partner in the Tualatin Basin Fish & Wildlife Habitat Program. This is a voluntary program that encourages the use of Habitat Friendly Development

Practices, including Low Impact Development (LID) techniques where feasible and approved by Hillsboro Public Works, designed to reduce the environmental impacts of new development and remove barriers to their utilization. The intent is to provide flexibility in the land development ordinances to encourage the protection of qualified Habitat Benefit Areas. Figure 31-9 in the revised Plan identifies locations of Habitat Benefit Areas, which generally correspond with locations of the creek corridors.

Furthermore, amendments to Section 31 include the following policy language under Natural and Cultural Resources:

“Objective: Provide, protect and maintain wildlife habitat and corridors (as illustrated in Figure 31-10) throughout the community, connecting east-west stream corridors with north-south wildlife travel corridors. Protect archaeological sites within South Hillsboro.” [HCP Section 31(II)(I)]

Specific policy language under the above objective calls for preservation and enhancement of natural resources and impact mitigation measures.

Additional policy language under Urban Design includes the following:

“Integrate natural resources, wildlife habitat, and corridors into development plans to preserve and enhance their function. Ensure that urbanization occurs in a way that preserves essential regional natural systems.” [HCP Section 31(II)(B)(3)(a)]

“Preserve key view corridors by integrating them into site plans.” [HCP Section 31(II)(B)(3)(b)]

The Oregon State Historic Preservation Office (SHPO) database indicates that there may be documented and undocumented historic sites and archeological resources within the Plan area. Issues associated with cultural resources will be addressed in more detail as part of the development agreement/entitlement process and as the City updates its Goal 5 inventory or environmental, cultural and historic resources for the Plan area that may occur subsequent to annexation. Proposed policy language under Natural and Cultural Resources in Section 31 of the Comprehensive Plan also includes the following language:

“Identify and preserve cultural resources throughout the development process. Require compliance with applicable State and Federal law governing conservation and management of cultural and archaeological resources.” [HCP Section 31(II)(I)(1)(c)]

The revised Plan also calls for parks and open spaces that are integrated throughout the South Hillsboro community, including the following policy language in Section 31 under Parks, Recreation and Open Space:

“Provide at least 10 acres of parks and open space lands per 1,000 residents, in accordance with strategies identified in the City of Hillsboro Parks and Trails Master Plan.” [HCP Section 31(II)(H)(1)(d)]

“Locate parks and open space of varying scales and character throughout the plan area to ensure equal access.” [HCP Section 31(II)(H)(2)(a)]

Based on the findings above, the proposed amendments are consistent with Goal 5 Natural Resources, Scenic and Historic Areas and Open Spaces.

Goal 6 Air, Water and Land Resources Quality

To maintain and improve the quality of the air, water and land resources of the state.

Finding: As mentioned previously, several tributaries of the Tualatin River flow through the Plan area, including Butternut and Gordon Creeks. Those water resources are protected by existing floodplain and natural resource regulations in Section 12.27.100 (Regulatory Floodplain District) and Section 12.27.200 (Significant Natural Resources Overlay) and through integrating the creek corridors into an interconnected open space network throughout the Plan area. Furthermore, Oregon Department of Environmental Quality (DEQ) regulates air, water and land with CWA Section 401 Water Quality, Water Quality Certificate, State 303(d) listed waters, Hazardous Wastes, Clean Air Act (CAA), and Section 402 NPDES Construction and Stormwater Permits. Department of State Lands and the Army Corps of Engineers regulate jurisdictional wetlands and CWA Section 404 water of the state and the country respectively. Clean Water Services regulates impervious surface and stormwater runoff throughout the City. Future development within the Plan area will need to comply with these state and national regulations and protections for air, water and land resources quality.

In addition, the proposed Comprehensive Plan amendments include a number of Natural and Cultural Resources policies intended to protect air, water and land resources, including the following:

“Encourage preservation of specimen trees and other identifying natural resources.” [HCP Section 31(II)(I)(1)(a)]

“Encourage preservation of riparian/upland forest connecting mature forest patches to creek and river wildlife travel corridors.” [HCP Section 31(II)(I)(1)(b)]

“Restore wetlands in mapped hydric soil areas around the Gordon Creek, Rosedale Creek, and Butternut Creek tributary headwaters.” [HCP Section 31(II)(I)(2)(a)]

“Identify and incorporate natural resources including wetland corridors and habitat areas into development plans.” [HCP Section 31(II)(I)(3)(b)]

Also, Urban Design and Natural and Cultural Resources policies in Section 31 call for management of the urban-rural interface to minimize conflicts with surrounding uses:

“Design areas near the rural edge to provide for an orderly transition between urban and rural environments.” [HCP Section 31(II)(B)(4)(f)]

“Encourage the use of natural features to buffer nearby agricultural uses.” [HCP Section 31(II)(I)(3)(c)]

Based on the findings above, the proposed amendments are consistent with Goal 6 Air, Water and Land Resources Quality.

Goal 7 Areas Subject to Natural Hazards

To protect people and property from natural hazards

Finding: The natural hazard most likely to occur in the Plan area is flooding from one of the Tualatin River tributaries. The City has existing regulations (Section 12.27.100 of the Hillsboro Community Development Code) that are intended to limit development within the floodplain and protect people and property from potential flood damage. The floodplain district (RFD) will be applied to land within the South Hillsboro Plan area where floodplains are identified. Development in the RFD district is limited to a small selection of uses that are appropriate for a floodplain such as some types of agriculture and recreation, public roadways, utilities and temporary structures outside of flood season.

According to the City of Hillsboro Multi-Hazard Mitigation Plan, the City is not subject to an elevated risk of landslides, wildfires, tsunamis, or coastal erosion. The planning area is essentially flat with no

steep slopes or known hazards associated with landslides or erosion. In addition, the proposed amendments do not affect regulations in the building code, including those related to earthquake mitigation.

Based on the findings above, the proposed amendments are consistent with Goal 7 Areas Subject to Natural Hazards.

Goal 8 Recreational Needs

To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.

Finding: No destination resorts are being proposed; therefore, much of Goal 8 does not apply. The revised Plan does include an interconnected system of parks, trails, and open space corridors designed to take advantage of the north-south Bonneville Power Administration right-of-way, and the Gordon, Butternut, and Cross Creek corridors, including their tributaries. The overall system is depicted in Figure 31-5 of the revised Plan. As shown in Table A-2 of the Section 31 Appendix, South Hillsboro include 285.7 acres of neighborhood parks, open space, natural areas, village greens, and other recreational assets. This area has been considered as counting toward meeting the City's parks and recreation level of service (LOS) standards. Another 196.2 acres of land within school sites, designated floodplain, wetlands, or other natural areas will also help satisfy recreational needs in the area, but which are not included in LOS calculations.

The conceptual locations for neighborhood parks and the preferred location for a community park have also been identified in the Community Plan, shown on Figure 31-5. The revised Plan assumes development of six neighborhood parks and one community park that will serve the planning area, as well as residents of surrounding areas. The approximate number, acreage and location of proposed parks is consistent with City guidelines and levels of service, which relate to the number of people served and proximity of parks to residents. Specifically, the Hillsboro Parks and Trails Master Plan calls for 10 acres of park land per 1,000 residents, and placement of facilities such that all residences are no farther than ½ mile from a park. The financing strategy estimates approximately 7,712 dwelling units, for about 20,051 residents at 2.6 people per household. As shown in Table A-2, the parks and open space depicted in Figure 31-5 meets the park standard for 10 acres per 1,000 residents. Per the graphic in Figure A-19, the standard of all residents within ½ mile of a park is met, as well.

The park locations shown on the plan map are generalized and may be modified during plan implementation as detailed development plans are prepared and reviewed and the Parks and Recreation Department considers alternative sites during site acquisition. Specific park needs (for example: park type, size, and amenities) will be identified based on the City of Hillsboro Parks and Trails Master Plan.

Based on the findings above, the proposed amendments are consistent with Goal 8 Recreational Needs.

Goal 9 Economic Development

To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.

Finding: The purpose of the revised Plan is to establish the framework for a mixed-use residential community organized around a new mixed-use town center and smaller neighborhood center, both accommodating concentrations of retail and service uses, employment opportunities, schools and a variety of housing choices for residents.

As part of the 2013-2014 planning process, Leland Consulting Group reviewed the previous market Studies, as well as current plans prepared by development partners Newland Communities and Hagg Lane LLC (see Exhibit B-1). Johnson Economics also evaluated these market studies and findings for consistency with Community Planning goals and objectives (see Exhibit B-2). These analyses concluded:

- There will continue to be a strong future demand for housing in the Hillsboro area. Over the next ten years, South Hillsboro will meet approximately 60% of the total Hillsboro area demand for new housing of all types and just 42% of the demand for single-family detached housing.
- Economic projections indicate rapid absorption of single-family detached units, with lots in the 7,000-9,000 square foot range having the fastest absorption in the market based on demand.
- The scale, density and type of housing proposed in the plan, including housing envisioned in medium-density, high-density and mid-rise residential areas, as well as mixed use residential/commercial areas are generally consistent with market demand in the area in terms of average densities, likely pricing and market depths based on Hillsboro-market area trends.
- The phasing of retail and commercial development in South Hillsboro will be important. While the amount of commercial space in the initial phases may be modest compared to later phases, it is important that the initial phases be sited properly; be financially viable on their own; create a very attractive gateway to the Town Center and entire South Hillsboro community; and be built as early as possible to provide this gateway and sense of place.

Based on the findings above, the proposed amendments are consistent with Goal 9 Economic Development.

Goal 10 Housing

To provide for the housing needs of citizens of the state.

Finding: The intent of the revised Plan is to create a residential, mixed-use community that provides a variety of housing types at a range of prices. A housing market analysis by Johnson Economics in 2014 (Exhibit B-2) indicated that at full build-out, the South Hillsboro area will meet a significant portion of that demand by the year 2035 – approximately 60% of all housing demand and 42% of demand for single-family detached housing. The market analysis also indicated that higher density housing will reduce land costs and increase transit feasibility, which will be vital to achieving housing affordability within the Plan area. The mix of housing types described below will also promote housing affordability by creating opportunities for a variety of smaller units such as apartments and town homes.

The Leland Consulting Group and Johnson Economics market assessments confirmed that the scale, density and type of housing proposed in the plan, including housing envisioned in medium-density, high-density and mid-rise residential areas, as well as mixed use residential/commercial areas, are generally consistent with market demand in the area in terms of average densities, likely pricing and market depths based on Hillsboro-market area trends.

Figure 31-2 of the revised Plan illustrates Comprehensive Plan Land Use Designations for South Hillsboro, including mixed use and residential uses of various density categories. The Hillsboro Community Development Code includes a number of zones which can implement these designations

(see the table in HCP Section 31(III)(E)(1)). Figure 31-3 illustrates the Zoning Concept which will guide the application of specific zones in a way that yields desired land uses and densities throughout South Hillsboro. The Zoning Concept is a projection, not a determination, of zoning for all properties in South Hillsboro. Zones will be applied to individual properties following annexation using standard land use decision processes for annexation and zoning. Over time, the Zoning Concept may be refined to reflect changes in the market or new development trends.

As shown in Figures 31-2 and 31-3, the plan area includes low, medium, and high-density housing generally organized within and around the town and village centers and along the north-south Cornelius Pass Road corridor. The range of residential zones will allow for a wide variety of housing types, including large-lot “executive housing”, single-family detached homes on a range of lot sizes, townhomes and duplexes, and condominiums and apartments. Some of these housing products will be components of future mixed-use development in the town and village centers.

Based upon the Zoning Concept shown in Figure 31-3 and the build out projections shown in Table A-1, the City is estimating a total of 7,712 dwelling units throughout South Hillsboro, consisting of approximately 57% single-family detached housing, 22% single-family attached housing, and 21% multi-family housing. This scenario would yield an average residential density of between 9 and 12 dwelling units per net acre outside of planned unit developments, where the maximum density would be 15 units per net acre, for a total of 9,755 dwelling units. The calculations are based on the reasonably likely build out of South Hillsboro, as determined by input of major property owners and verified by the *Market Analysis for Residential and Commercial Development* (Johnson Economics, April 11, 2014). Based on these inputs, City staff applied the likely zoning to meet market demand.³ These build-out projections assume that development yields 95% of the maximum residential density under the applied implementing zone as identified in the Zoning Concept figure (Figure 31-3). This level of development is estimated based on assumed market demand and the potential for PUDs. Net developable acreage was calculated by removing rights-of-way, parks, schools, and environmental constraints for the total area available for residential development”

These build out projections assume that development yields 95% of the maximum residential density under the applied implementing zones reflected in the Zoning Concept, accounting for take-outs for rights-of-way, parks, and schools, and environmental resources and constraints.

Exhibit B-3 sets forth the methodology for calculating density in South Hillsboro.

Based on the findings above, the proposed amendments are consistent with Goal 10 Housing.

Goal 11 Public Facilities and Services

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.

Finding: As outlined below, the revised Plan includes an assessment of existing and proposed infrastructure within the South Hillsboro community and provides a discussion of how sewer, water and storm drainage will be managed as the area develops. Each of these is discussed individually below, with additional discussion on the timing and funding of new infrastructure.

³ If the area were zoned and developed at the highest zones allowed under the Comprehensive Plan designations, the resulting dwelling unit range would be between 9,279 and 12, 523 (10-14 dwelling units per acres), with up to 15,028 (16 dwelling units per acre) with planned unit developments (see Exhibit B-4). Based on the referenced economic analyses, such densities would not likely be supported by the market.

Sewer. Sanitary sewage system facilities are needed to collect wastewater generated in the South Hillsboro area and convey the flow to the Clean Water Services (CWS) River Road Pump Station, which will force the flow to CWS's Rock Creek Advanced Wastewater Treatment Facility located outside the South Hillsboro Plan area. Proposed sanitary sewer improvements are illustrated in Figure 31-8.

The planned sanitary sewer main lines to be located on either side of Butternut Creek, south of the next tributary, and north of Cross Creek, will be constructed by the associated land developments. Sanitary sewer mains will need to be constructed along and adjacent to the riparian corridors of existing stream and sensitive areas and convey flows to either the existing sanitary lines or these new pump stations. Smaller sanitary lines will be constructed within streets at the time of development. Sewer service to the area north of the first ridgeline will be provided by the extension of the Davis Road trunk line, eastward along Gordon Creek, as shown in Figure 31-8.

Two new pump stations will ultimately be located in South Hillsboro. The Butternut Creek Pump Station is currently in design, with an anticipated location south of Butternut Creek adjacent to the Butternut Creek property. The Rosedale Pump Station has been identified by CWS and the agency anticipates construction to serve development generally consistent with Hillsboro's anticipated phasing of annexation and development of the South Hillsboro area. This Pump Station is likely to be located near SW Rosedale Road and SW 229th Avenue.

Water. In South Hillsboro, the only water facilities expected to be needed are the local distribution system—pipes, pump stations, and pressure regulators to distribute treated drinking water within local streets. Treatment and large storage facilities that serve South Hillsboro will be located outside the area. However, a new high pressure water transmission line from a new storage reservoir in the South Cooper Mountain area is likely to be located in the future Cornelius Pass Road extension corridor to deliver water to an existing transmission line north of Tualatin Valley Highway.

As illustrated in Figure 31-7, the South Hillsboro local distribution pipe network will be located generally along existing and new roads. These pipes will be installed to form a connected loop that ensures adequate water pressure and flow to all users. In addition, Figure 31-7 shows the location of other facilities such as a booster pump station, pressure reducing valves, potential temporary connections to existing Tualatin Valley Water District waterlines, and locations of subsurface storage wells called aquifer storage and recovery wells.

Stormwater. Stormwater management will be accomplished with a combination of multiple strategies, including piped conveyance, on-site small stormwater facilities that are privately owned/maintained, and low-impact development approaches, where these approaches are feasible and approved by the City.

Regional stormwater facilities serving an entire sub-basin are more efficient for the City to maintain and provide the best protection for the receiving stream. A conceptual system of regional stormwater facilities is illustrated in Figure A-17. Creation of regional stormwater facilities depends on coordination among multiple property owners, identification of funding mechanisms to develop and maintain the facility, and the availability of suitable locations based on topography.

On-site stormwater facilities that are privately owned and maintained may also be an option where regional facilities are not feasible. Stormwater management facilities proposed to be privately maintained will be considered on a case-by-case basis. Design of the stormwater conveyance system will be part of the development design review process.

Low Impact Development Approaches (LIDA) may also be considered, although soils in South Hillsboro are generally not suitable for infiltration. LIDA implementation will be considered in limited quantities to augment other stormwater facilities. The City will require agreements with an active tenant association responsible for the LIDA facility covering maintenance and operations.

Policies in the Public Utilities portion of Section 31 specify that City-maintained regional stormwater facilities are the preferred approach in South Hillsboro:

“Encourage the use of City-maintained regional stormwater quality and detention facilities where possible to reduce maintenance and construction costs and provide better protection for the receiving stream. When regional stormwater facilities are not available or practical, on-site privately owned and maintained stormwater facilities that serve multiple parcels will be reviewed by the City on a case-by-case basis.”
[HCP Section 31(II)(F)(5)]

Provision of new infrastructure. Timing and funding of new and expanded infrastructure in the Plan area will be closely coordinated with development. Construction of stormwater treatment, detention, and conveyance infrastructure is typically the responsibility of private developers as conditions of development approval. Furthermore, the revised Plan includes the following policy language pertaining to provision of public utilities:

“Ensure that public utilities such as water and wastewater (conceptually shown in Figures 31-7 and 31-8) and storm drainage facilities are designed on an area-wide basis and are adequate to meet the needs of development as it occurs.” [HCP Section 31(II)(F)(1)]

“Phase the provision of infrastructure improvements with incremental development activity.” [HCP Section 31(II)(F)(2)]

“Evaluate per unit public utility development costs and ensure adequate financing for needed public service extension (e.g., streets, sewer, water and storm drainage).” [HCP Section 31(II)(F)(3)]

“Establish a financing mechanism acceptable to the City, property owners and developers that will:
(a) *Generate revenue for infrastructure construction prior to development; and,*
(b) *Produce funding streams associated with construction through the use of System Development Charges, Transportation Development Taxes, and other fees or charges as may be adopted by the City.”* [HCP Section 31(II)(F)(4)]

Based on the findings above, the proposed amendments are consistent with Goal 11 Public Facilities and Services.

Goal 12 Transportation

To provide and encourage a safe, convenient and economic transportation system.

Finding: The revised Plan identifies a multi-modal transportation network for the South Hillsboro community that incorporates improvements consistent with Transportation System Plan amendments adopted in September 2013 (Ordinance No. 6065, Case File HCP 2-13). These improvements include:

- Grid pattern of streets with bike lanes and sidewalks;
- Open space circulation system with walkways, bicycle and hiking trails;
- Transit center to enable future bus or commuter rail service;
- Implementation of previous and ongoing planning work for the Tualatin Valley Highway corridor to increase regional connectivity and address current and future capacity, safety and other issues;
- A north/south extension of Cornelius Pass Road to increase regional connectivity and provide a primary north/south arterial within the study area;

- A system of north/south and east/west collector streets and neighborhood routes to serve the Plan area and provide connections to roads adjacent to and outside the Plan area; and,
- Linkages to Downtown Hillsboro, North Hillsboro employment areas and Tanasbourne/AmberGlen.

Figure 31-4 of the revised Plan identifies the conceptual alignments of arterial, collector and neighborhood streets. The revised Plan also includes an assessment of transportation improvement costs (see Tables A-3 through A-7 and A-9), and a discussion of funding sources, including developer contributions, the county-wide Transportation Development Tax, and a list of potential funding options not currently used by the City (see Appendix sections 7.2.1 and 7.3.1).

The revised Plan also includes Comprehensive Plan policies intended to provide a transportation network that “provides circulation and green space systems that promote walkability and multi-modal transportation options to accommodate pedestrians, bicycles, transit riders, freight, and automobiles.” Specific policies include:

“Implement the multi-modal transportation system (described in the Appendix to this section) through strategic public investments in arterial and collector road system improvements (illustrated in Figure 31-4) that safely and efficiently accommodate all modes of travel and mobility.” [HCP Section 31(II)(E)(1)(a)]

“(b) Develop Cornelius Pass Road as a Arterial through the South Hillsboro planning area to create a north-south spine for the community...” [HCP Section 31(II)(E)(1)(b), subsections omitted]

“Design and develop a grid system that facilitates access, connectivity, and circulation throughout South Hillsboro, integrating:

- (i) Streets of all types including arterials, collectors, local roads, and alleyways;*
- (ii) Sidewalks and pedestrian crossings associated with all street types and major intersections;*
- (iii) On-street bicycle facilities, including cycle tracks, bicycle lanes and shared roadways, depending on street design and traffic levels and speeds;*
- (iv) Off-street pedestrian and/or bicycle trails and paths; and,*
- (v) Citywide and regional transportation networks.” [HCP Section 31(II)(E)(1)(e)]*

“Require multi-modal facilities as part of development entitlements throughout the South Hillsboro Plan area.” [HCP Section 31(II)(E)(1)(h)]

“Design streets to incorporate urban design concepts and themes described in the Urban Design policies enunciated in Section 31(II)(A), as appropriate to the context.” [HCP Section 31(II)(E)(2)(a)]

“(b) Ensure block sizes enable pedestrian and non-motorized vehicular movement by limiting block size or including mid-block pedestrian access when blocks must exceed the optimum size.” [HCP Section 31(II)(E)(2)(b)]

Based on the findings above, the proposed amendments are consistent with Goal 12 Transportation.

Goal 13 Energy Conservation

To conserve energy.

Finding: The revised Plan identifies the South Hillsboro community as a “complete, connected and green” community that provides the full spectrum of facilities and services needed to serve its residents. The revised Plan maximizes connectivity for biking and walking and integrates open spaces and green development practices, an emphasis on use of walking, bicycling and transit, particularly for trips to

meet daily shopping and other needs at commercial and retail establishments within the Plan area. All of these features help conserve energy by reducing dependence on automobiles and vehicle miles traveled.

Development within the Plan area will be encouraged to use green building practices where such facilities can be adequately maintained in order to reduce energy usage and associated costs (heating and cooling, solar orientation and on-site stormwater management for example). The “complete, connected and green” concept is also supported by policy language in the Land Use, Urban Design, and Housing, portions of Section 31, including:

“Development of South Hillsboro shall result in a sustainable community that incorporates state-of-the-art green development practices, preserving and improving existing natural resources and wildlife corridors.” [HCP Section 31(II)(A)(1)(c)]

“Compact, mixed-use development is encouraged in a way that utilizes as much of the allowable land capacity as possible, consistent with Community Development Code provisions in Town and Village Centers and other higher-density areas.” [HCP Section 31(II)(A)(4)(c)]

“Create a gridded block pattern as a means of ensuring a high degree of connectivity, eliminating out-of-direction travel, and establishing a street network that is easy and intuitive to navigate.” [HCP Section 31(II)(B)(2)(d)]

“Street and other exterior lighting should provide for security and extended use of properties into nighttime hours, while ensuring an environmentally sensitive and energy efficient nighttime environment that includes the ability to view the stars against a dark sky from residential and other appropriate viewing areas.” [HCP Section 31(II)(B)(5)(b)]

“Encourage housing designs that incorporate innovative, environmentally sustainable approaches such as energy-efficient construction, water-efficient fixtures, photovoltaic panels, recycled and regional materials, water-efficient landscaping, and similar techniques.” [HCP Section 31(II)(B)(5)(d)]

“Encourage the development of housing products that integrate new designs or that utilize emerging techniques as demonstration projects to showcase or prototype innovative and sustainable approaches to residential development.” [HCP Section 31(II)(C)(7)]

Based on the findings above, the proposed amendments are consistent with Goal 13 Energy Conservation.

Goal 14 Urbanization

To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.

Finding: The Plan area was included in amendments to the urban growth boundary approved by Metro in 2011 intended to meet local and regional needs for housing. There is substantial evidence in the Metro record associated with the UGB amendment related to consistency and compliance with Goal 14.

The purpose of the revised Plan is to establish the framework for a residential mixed-use community inside the UGB that will provide needed housing for the greater Hillsboro area. The revised Plan envisions a community organized around a town center, and complemented by a village center, that can accommodate a variety of housing options, employment opportunities, commercial and institutional

uses, parks and natural areas and a well-connected, multi-modal transportation system. The revised Plan emphasizes a “complete” community that balances protection of natural resources with efficient use of land and increased overall residential density. The revised Plan also identifies public facility improvements needed to efficiently and effectively serve the Plan area and surrounding neighborhoods. Ongoing transportation planning efforts associated with the Tualatin Valley Highway corridor will address operational and capacity issues for that road.

The Plan area is located between developed urban areas of Hillsboro to the north and east and rural agricultural areas to the south and west. The revised Plan responds to this variation in land character by clustering the higher intensity development (town center and higher density residential uses) near the northern end of the Plan area while lower intensity residential uses are designated for the southern Plan area. This will provide a gradual transition between the urban and rural areas. Managing the urban-rural interface is articulated as an urban design policy in Section 31:

“Design areas near the rural edge to provide for an orderly transition between urban and rural environments.” [HCP Section 31(II)(B)(4)(f)]

Based on the findings above, the proposed amendments are consistent with Goal 14 Urbanization.

- Goal 15 Willamette River Greenway**
- Goal 16 Estuarine Resources**
- Goal 17 Coastal Shorelands**
- Goal 18 Beaches and Dunes**
- Goal 19 Ocean Resources**

Finding: The proposed amendments do not involve land or resources that have been designated as part of the Willamette Greenway nor as coastal resources associated with Goals 15 through 19. The proposed amendments do not affect policies that may be associated with Goals 15 through 19. As such, Statewide Planning Goals 15 through 19 do not apply.

Oregon Administrative Rules

OAR 660, Division 007 – Metropolitan Housing Rule

660-007-0015

Clear and Objective Approval Standards Required

- (1) Except as provided in section (2) of this rule, a local government may adopt and apply only clear and objective standards, conditions and procedures regulating the development of needed housing on buildable land. The standards, conditions and procedures may not have the effect, either in themselves or cumulatively, of discouraging needed housing through unreasonable cost or delay.*

Finding: The revised Plan identifies appropriate Comprehensive Plan designations for land within the South Hillsboro Plan area, but does not apply zoning. Specific zoning will be applied to individual properties as they annex into the City; zoning will be applied consistent with the Comprehensive Plan designations shown in Figure 31-2 and the Zoning Concept shown in Figure 31-3. (See findings for Goal 10 earlier in this document for additional discussion of the development and application of the Zoning Concept).

Residential zoning designations recommended in the revised Plan include:

- Single family residential designations R-4.5, R-6, R-7, R-8.5 and R-10
- Multi-family residential designations MFR-1, MFR-2 and MFR-3
- Mixed use designation MU-VTC

All of these zones allow residential uses and provide clear and objective development standards, conditions and procedures that facilitate development of new housing. Metropolitan Housing Rule standards for density and mix of housing are not directly applicable since they apply to the entire supply of residential land within a jurisdiction, rather than land within a specific area. The Community Plan provides for consistency with the Metropolitan Housing Rule by incorporating a wide range of housing types and densities that will be offered across price ranges (*see also*, Findings to Ordinance No. 6029). In addition, regional standards related to density and housing mix and that help implement the Metropolitan Housing Rule apply and are addressed elsewhere in these findings.

Based on the findings above, the proposed amendments are consistent with OAR 660-007-0015.

660-007-0018

Specific Plan Designations Required

(1) Plan designations that allow or require residential uses shall be assigned to all buildable land. Such designations may allow nonresidential uses as well as residential uses. Such designations may be considered to be "residential plan designations" for the purposes of this division. The plan designations assigned to buildable land shall be specific so as to accommodate the varying housing types and densities identified in OAR 660-007-0030 through 660-007-0037.

Finding: The Community Plan identifies Comprehensive Plan designations that will be applied to land within the South Hillsboro Plan area. Those Comprehensive Plan designations include:

- Low Density Residential
- Medium Density Residential
- High Density Residential
- Mid-Rise Density Residential
- Mixed Use
- Commercial
- Public Facility
- Open Space
- Floodplain

At the time of annexation, implementing zones will be applied that are consistent with the above Comprehensive Plan designations as outlined in the Zoning Concept shown in Figure 31-3. The Public Facility, Open Space, and Floodplain Comprehensive Plan designations do not have corresponding implementing zones. Typically, those lands are zoned to be consistent with the adjoining land uses. Except within the Commercial Comprehensive Plan designation, all zones recommended in the revised Plan allow residential uses of varying types and densities.

Findings to demonstrate consistency with the specific housing types and densities identified in OAR 660-007-0030 through 660-007-0037 are provided under those OAR sections below.

Based on the findings above, the proposed amendments are consistent with OAR 660-007-0018.

(2) A local government may defer the assignment of specific residential plan designations only when the following conditions have been met:

Finding: As demonstrated in the findings above, the revised Plan does not defer the assignment of residential Comprehensive Plan designations. Therefore, this sub-section of the rule does not apply.

660-007-0020

The Rezoning Process

A local government may defer rezoning of land within the urban growth boundary to maximum planned residential density provided that the process for future rezoning is reasonably justified:

(1) The plan must contain a justification for the rezoning process and policies which explain how this process will be used to provide for needed housing.

(2) Standards and procedures governing the process for future rezoning shall be based on the rezoning justification and policy statement, and must be clear and objective.

Finding: The revised Plan does not defer the rezoning of land within the urban growth boundary to maximum planned residential density. Therefore, this rule does not apply.

660-007-0022

Restrictions on Housing Tenure

Any local government that restricts the construction of either rental or owner occupied housing on or after its first periodic review shall either justify such restriction by an analysis of housing need according to tenure or otherwise demonstrate that such restrictions comply with ORS 197.303(1)(a) and 197.307(3).

Finding: The revised Plan does not call for any tenure or ownership restrictions on construction of rental or owner-occupied housing. Therefore, this rule does not apply.

660-007-0030

New Construction Mix

(1) Jurisdictions other than small developed cities must either designate sufficient buildable land to provide the opportunity for at least 50 percent of new residential units to be attached single family housing or multiple family housing or justify an alternative percentage based on changing circumstances. Factors to be considered in justifying an alternate percentage shall include, but need not be limited to:

Finding: Per HCP Section 31(III)(E)(1), Residential Medium Density (RM), Residential High Density (RH), Residential Mid-Rise Density (R-MR) and Mixed Use (MU) Comprehensive Plan designations will be implemented by the SFR-4.5, MFR-1, MFR-2, MFR-3, and MU-VTC zones. The Zoning Concept (see earlier discussion in Goal 10 findings) and associated build out analysis (shown in Table A-1) project that these zones will provide for 5,804 (or approximately 75 percent) of the new dwelling units anticipated in the planning area to be attached single-family or multiple family housing. Therefore, the Community Plan complies with the new construction mix required by OAR 660-007-0030.

660-007-0035

Minimum Residential Density Allocation for New Construction

The following standards shall apply to those jurisdictions which provide the opportunity for at least 50 percent of new residential units to be attached single family housing or multiple family housing:

(3) Multnomah County and the cities of Portland, Gresham, Beaverton, Hillsboro, Lake Oswego and Tigard must provide for an overall density of ten or more dwelling units per net buildable acre. These are larger urbanized jurisdictions with regionally coordinated population projections of 50,000 or more for their active planning areas, which encompass or are near major employment centers, and which are situated along regional transportation corridors.

Finding: This requirement applies to the entire supply of land zoned for residential use within a jurisdiction and to lands added to a City's urban growth boundary, including the South Hillsboro Plan area. Per Table A-1 in the revised Plan and as discussed in findings for Statewide Planning Goal 10, the Zoning Concept assumes 7,712 dwelling units on 649 net residential acres, yielding an overall density of approximately 11.9 dwelling units per net buildable acre designated for residential use. Therefore, the proposed amendments meet the minimum residential density allocation for new construction called for by this rule.

660-007-0037

Alternate Minimum Residential Density Allocation for New Construction

The density standards in OAR 660-007-0035 shall not apply to a jurisdiction which justifies an alternative new construction mix under the provisions of OAR 660-007-0030. The following standards shall apply to these jurisdictions:

Finding: The revised Plan does not call for an alternative new construction mix under 660-007-0030. Therefore, this rule does not apply.

OAR 660, Division 023 – OREGON TRANSPORTATION PLANNING RULE

If an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation (including a zoning map) would significantly affect an existing or planned transportation facility, then the local government must put in place measures as provided in section (2) of this rule, unless the amendment is allowed under section (3), (9) or (10) of this rule. A plan or land use regulation amendment significantly affects a transportation facility if it would:

- (a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);*
- (b) Change standards implementing a functional classification system; or*
- (c) Result in any of the effects listed in paragraphs (A) through (C) of this subsection based on projected conditions measured at the end of the planning period identified in the adopted TSP. As part of evaluating projected conditions, the amount of traffic projected to be generated within the area of the amendment may be reduced if the amendment includes an enforceable, ongoing requirement that would demonstrably limit traffic generation, including, but not limited to,*

transportation demand management. This reduction may diminish or completely eliminate the significant effect of the amendment.

- (A) Types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;*
- (B) Degrade the performance of an existing or planned transportation facility such that it would not meet the performance standards identified in the TSP or comprehensive plan; or*
- (C) Degrade the performance of an existing or planned transportation facility that is otherwise projected to not meet the performance standards identified in the TSP or comprehensive plan.*

Finding: Amendments to the Hillsboro Comprehensive Plan to accommodate development in South Hillsboro were adopted through Ordinance No. 6029 (Case No. HCP 1-12). Subsequent amendments to the Transportation System Plan by Ordinance No. 6065 (Case No. HCP 2-13) addressed the requirements of the Transportation Planning Rule. Those findings were based on an assumption of approximately 11,251 dwelling units in the South Hillsboro Plan area at full build out. The proposed amendments to the Comprehensive Plan under consideration have refined the maximum dwelling units under the likely market-supported zone designations to 9,755, with a reasonable build out per the Zoning Concept (Figure 31-3) of 7,712, thus reducing the assumed number of dwelling units⁴.

Furthermore, since the adoption of Ordinance No. 6065, all transportation projects for South Hillsboro, as itemized in Ordinance 6065, were adopted in the 2014 Federal financially constrained Regional Transportation Plan (“RTP”) by Metro Ordinance No. 14-1340. The RTP revenue assumptions conservatively did not rely upon implementation of new revenue through the South Hillsboro Transportation Finance Program. Thus, improvements for South Hillsboro are planned transportation facilities in accordance with OAR 660-012-0060(4) and may be relied upon in determining whether the proposed amendments have a significant affect.

The proposed amendments to the Comprehensive Plan do not result in a “*significant affect*” as defined in this section. Therefore, the requirements of OAR 660-012-0060 do not apply.

In the event that the proposed amendments would result in a significant affect, the findings from Ordinance No. 6065 addressing the Transportation Planning Rule (Exhibit B-5) are incorporated by reference with the following updates:

- Proposed amendments to the “transportation overlay” (adopted as Comprehensive Plan Sec. 31(I)) will allow adoption of zoning and development of infrastructure prior to approval of the Transportation Financing Program. Vertical or habitable development will be prohibited until approval of the Financing Program (proposed Sec. 31(III)(B)). The financing program goes beyond the financing assumptions required under the Transportation Planning rule by identifying specific funding sources within the 20-year planning period, rather than assuming funding will be available. Thus, even though the proposed transportation facilities for South Hillsboro are “planned” facilities, as described above, the overlay provides further assurances that urban development will not occur prior to the establishment of funding mechanisms.
- Findings for Ordinance No. 6065 relied upon a “Trip Cap” mechanism to be developed and approved in accordance with an Intergovernmental Agreement between the City of Hillsboro

⁴ If the area were zoned and developed at the highest zones allowed under the Comprehensive Plan designations, the resulting dwelling unit range would be between 9,279 and 12, 523 (10-14 dwelling units per acres), with up to 15,028 (16 dwelling units per acre) with planned unit developments (see Exhibit B-4). Based on the referenced economic analyses, such densities would not likely be supported by the market.

and ODOT. This Trip Cap was intended to assure implementation of specific transportation improvements prior to allowing urban development to commence in expanded areas of South Hillsboro by requiring specific improvements prior to allowing additional development. The proposed Comprehensive Plan amendment, along with the corresponding Community Development Code Amendments (Case No. CDCA 002-14) require annexation agreements to ensure the timely delivery of infrastructure, including transportation infrastructure, prior to development (*see* Section 31(III)(C) and proposed CDC Section 12.65.040). Specifically, owner commitments under annexation agreements will require the owner “*to limit development of the property such that it will not exceed the capacity of affected transportation facilities, as determined by the Transportation Study, including any improvements proposed and constructed as part of the development.*” (CDC 12.65.040(E)(a)). If the requirements of the annexation agreements are waived, the owner will be required to enter into a development agreement prior to submitting a land use application (CDC Section 12.65.050).

⁵OAR 660, Division 023 – PROCEDURES AND REQUIREMENTS FOR COMPLYING WITH GOAL 5

Purpose and Intent

This division establishes procedures and criteria for inventorying and evaluating Goal 5 resources and for developing land use programs to conserve and protect significant Goal 5 resources. This division explains how local governments apply Goal 5 when conducting periodic review and when amending acknowledged comprehensive plans and land use regulations.

Finding: Section 12.27.200 of the Hillsboro Community Development Code contains the Significant Natural Resources Overlay (SNRO) District. This district was adopted by the City to provide protection for Significant Natural Resources under Statewide Planning Goal 5 and to comply with the provisions of OAR 660, Division 23. The Purpose language for the SNRO District states that, “For the purpose of this ordinance, Significant Natural Resources are designated as Significant Wetlands, Riparian Corridors and Wildlife Habitat. These resources have been inventoried within the City of Hillsboro according to procedures, standards and definitions established under Goal 5 and are identified in the adopted *List of Significant Goal 5 Natural Resource Sites in Hillsboro* and the *City of Hillsboro Goal 5 Natural Resource Inventory and Assessment Report.*”

As part of the 2013/2014 Community Plan update process, natural areas in South Hillsboro were inventoried by the City for Goal 5 natural resources and a determination of significance has been made using the methodologies described in the adopted *City of Hillsboro Goal 5 Natural Resource Inventory & Assessment Report*. Natural resources identified as significant and their associated impact areas will be added to the SNRO District as part of the rezoning process when properties annex into the City. An Economic, Social, Environmental and Energy (ESEE) analysis is being conducted by the City for all natural resource sites added to the SNRO District. The results of the ESEE analysis will guide applications of development standards within the Plan area.

Based on the above findings, the proposed amendments are consistent with OAR 660, Division 23.

⁵ Findings for Ordinance 6065 are attached as Exhibit B-5 and incorporated by reference.

Metro Urban Growth Management Functional Plan

Regional Functional Plan Requirements

Title 1: Housing Capacity

3.07.120 Housing Capacity

A. A city or county may reduce the minimum zoned capacity of the Central City or a Regional Center, Town Center, Corridor, Station Community or Main Street under subsection D or E. A city or county may reduce its minimum zoned capacity in other locations under subsections C, D or E.

Finding: The proposed amendments do not reduce the minimum zoned capacity of any Central City, Regional Center, Town Center, Corridor, Station Community, Main Street or other location. Therefore, this requirement does not apply.

B. Each city and county shall adopt a minimum dwelling unit density for each zone in which dwelling units are authorized except for zones that authorize mixed-use as defined in section 3.07.1010(hh). If a city or county has not adopted a minimum density for such a zone prior to March 16, 2011, the city or county shall adopt a minimum density that is at least 80 percent of the maximum density.

Finding: All Hillsboro zoning designations in which dwelling units are authorized have minimum density standards. The revised Plan recommends several existing residential zoning designations that may be applied to properties within the Plan area as they annex into the City. A new zoning designation (MU-VTC) also is being established for future application in the Mixed-Use Village and Town Center portions of the Plan area. This designation also includes minimum density standards. Therefore, the proposed amendments comply with this requirement.

C. A city or county may reduce its minimum zoned capacity by one of the following actions if it increases minimum zoned capacity by an equal or greater amount in other places where the increase is reasonably likely to be realized within the 20-year planning period of Metro's last capacity analysis under ORS 197.299:

Finding: The revised Plan does not reduce the minimum zoned capacity of any Central City, Regional Center, Town Center, Corridor, Station Community, Main Street or other location. Therefore, this requirement does not apply.

Title 3: Water Quality and Flood Management

3.07.310 Intent

To protect the beneficial water uses and functions and values of resources within the Water Quality and Flood Management Areas by limiting or mitigating the impact on these areas from development activities and protecting life and property from dangers associated with flooding.

Finding: Section 12.27.100 of the Hillsboro Community Development Code contains provisions for the City's Regulatory Floodplain District (RFD), which complies with Title 3 by reducing the potential for flood damage and limiting development in areas subject to flooding. The provisions in Section 12.27.100 limit the types of uses that can be established in the RFD and include standards to ensure development does not negatively impact the floodplain. The standards also require coordination and

consistency with state and federal agencies and regulations. Approximately 81.6 acres of the Plan area will be designated RFD (floodplains associated with Gordon, Butternut and Rosedale Creeks) as shown in Table A-2. The revised Plan incorporates those RFD areas into the green/open space system, which includes stream corridors, a power line corridor and new parks and trails.

In addition, as discussed in the findings for OAR 660, Division 23, water quality resources will be protected by applying the Significant Natural Resources Overlay District to the significant riparian corridors along the creeks within the Plan area. Again, those creek corridors are identified as part of the open space network in the Plan and will be protected from development.

Based on the findings above, the proposed amendments are consistent with Title 3.

Title 6: Centers, Corridors, Station Communities and Main Streets

3.07.610 Purpose

The Regional Framework Plan identifies Centers, Corridors, Main Streets and Station Communities throughout the region and recognizes them as the principal centers of urban life in the region. Title 6 calls for actions and investments by cities and counties, complemented by regional investments, to enhance this role. A regional investment is an investment in a new high capacity transit line or designated a regional investment in a grant or funding program administered by Metro or subject to Metro's approval.

3.07.620 Actions and Investments in Centers, Corridors, Station Communities and Main Streets

A. In order to be eligible for a regional investment in a Center, Corridor, Station Community or Main Street, or a portion thereof, a city or county shall take the following actions:

- 1. Establish a boundary for the Center, Corridor, Station Community or Main Street, or portion thereof, pursuant to subsection B;*
- 2. Perform an assessment of the Center, Corridor, Station Community or Main Street, or portion thereof, pursuant to subsection C; and*
- 3. Adopt a plan of actions and investments to enhance the Center, Corridor, Station Community or Main Street, or portion thereof, pursuant to subsection D.*

Finding: The conditions of approval for the South Hillsboro urban growth boundary expansion required that Hillsboro apply Metro's Town Center and Neighborhood designations within the Plan area consistent with the Regional Framework Plan 2040 Growth Concept (RFP). As such, Title 6 applies.

The revised Plan establishes boundaries for a Town Center and Village Center in both the Comprehensive Plan map (Figure 31-2) and the Zoning Concept map (Figure 31-3), includes an assessment of the Plan area, and provides actions and investments to enhance the Centers. Findings for each of these elements are provided in subsections (B) through (D) below.

B. The boundary of a Center, Corridor, Station Community or Main Street, or portion thereof, shall:

- 1. Be consistent with the general location shown in the RFP except, for a proposed new Station Community, be consistent with Metro's land use final order for a light rail transit project;*
- 2. For a Corridor with existing high-capacity transit service, include at least those segments of the Corridor that pass through a Regional Center or Town Center;*

- 3. For a Corridor designated for future high-capacity transit in the RTP, include the area identified during the system expansion planning process in the RTP; and*
- 4. Be adopted and may be revised by the city council or county board following notice of the proposed boundary action to the Oregon Department of Transportation and to Metro in the manner set forth in subsection A of section 3.07.820 of this chapter.*

Finding: The 2040 Growth Concept Map⁶ (updated March 2012) does not identify a Town Center within the Plan area. However, as mentioned previously, the conditions of approval for the 2011 South Hillsboro UGB expansion stated that “The City shall apply the Town Center and Neighborhood designations to Area 2...as described in the regional framework plan, Summary of the 2040 Growth Concept.” It is assumed that the next update of the 2040 Growth Concept Map will include a Town Center in South Hillsboro as shown in Figure A-8 of the revised Plan. The boundary for the Town Center and Village Center in the revised Plan will be adopted by the City of Hillsboro as part of the City’s Comprehensive Plan and may be revised by the City Council based on input from ODOT and Metro.

The revised Plan does not identify a Corridor and therefore subsections (2) and (3) above do not apply.

C. An assessment of a Center, Corridor, Station Community or Main Street, or portion thereof, shall analyze the following:

- 1. Physical and market conditions in the area;*
- 2. Physical and regulatory barriers to mixed-use, pedestrian-friendly and transit-supportive development in the area;*
- 3. The city or county development code that applies to the area to determine how the code might be revised to encourage mixed-use, pedestrian-friendly and transit supportive development;*
- 4. Existing and potential incentives to encourage mixed use pedestrian-friendly and transit-supportive development in the area; and*
- 5. For Corridors and Station Communities in areas shown as Industrial Area or Regionally Significant Industrial Area under Title 4 of this chapter, barriers to a mix and intensity of uses sufficient to support public transportation at the level prescribed in the RTP.*

Finding: The revised Plan provides an analysis of physical and market conditions (see Exhibits C-1 and C-2), an assessment of physical and regulatory barriers to development, and a discussion of City zoning designations that will be applied to land within the Plan area as it annexes into the City. The new Mixed Use Village and Town Center (MU-VTC) zoning designation and other existing code provisions include a variety of standards and incentives to encourage and provide for mixed-use, pedestrian friendly and transit supportive development.

D. A plan of actions and investments to enhance the Center, Corridor, Station Community or Main Street shall consider the assessment completed under subsection C and include at least the following elements:

- 1. Actions to eliminate, overcome or reduce regulatory and other barriers to mixed-use, pedestrian-friendly and transit-supportive development;*

⁶ http://library.oregonmetro.gov/files//concept_021312.pdf

2. *Revisions to its comprehensive plan and land use regulations, if necessary, to allow:*
 - a. *In Regional Centers, Town Centers, Station Communities and Main Streets, the mix and intensity of uses specified in section 3.07.640; and*
 - b. *In Corridors and those Station Communities in areas shown as Industrial Area or Regionally Significant Industrial Area in Title 4 of this chapter, a mix and intensity of uses sufficient to support public transportation at the level prescribed in the RTP;*
3. *Public investments and incentives to support mixed-use pedestrian-friendly and transit-supportive development; and*
4. *A plan to achieve the non-SOV mode share targets, adopted by the city or county pursuant to subsections 3.08.230A and B of the RTFP, that includes:*
 - a. *The transportation system designs for streets, transit, bicycles and pedestrians consistent with Title 1 of the RTFP;*
 - b. *A transportation system or demand management plan consistent with section 3.08.160 of the RTFP; and*
 - c. *A parking management program for the Center, Corridor, Station Community or Main Street, or portion thereof, consistent with section 3.08.410 of the RTFP.*

Finding: The Implementation Actions and Strategies section of the revised Plan contains the elements described in subsections (1) and (3) above. Revisions to the City's Comprehensive Plan to adopt and implement the South Hillsboro Community Plan and associated Town and Village Center designations have been proposed. Existing zoning designations in the City already allow the mix and intensity of uses associated with the land use designations specified in the revised Plan.

The revised Plan does not identify specific mode share targets for the South Hillsboro area at this time. The Tualatin Valley Highway Corridor and Focus Area Refinement Plans identified and prioritized transportation system solutions and potential funding for transportation issues within the Tualatin Valley Highway Corridor, including the South Hillsboro Plan area.

In addition, the revised Plan includes policies and design principles for increasing the share of bicycle and walking trips, including:

- Developing a circulation system and greenway network that provides multiple ways to travel within the area, including by bicycling and walking;
- Incorporating street designs that accommodate bike lanes, sidewalks and multi-way pathways
- Calling for development of a transit center or hub to enable future frequent bus or other high capacity transit service that provides connections to other parts of the City and region, and coordinating these efforts with transit planning currently underway by TriMet as part of their 2013 Westside Service Enhancement Plan⁷.
- Incorporating a land use pattern with a mix of residential, commercial and retail uses that will allow a larger percentage of residents to meet daily shopping and other personal service needs by walking or bicycling.
- Focusing a significant amount of development, including medium and high density residential and mixed use development in or near the Town Center area that is planned to be served by transit as the area develops.

⁷ http://trimet.org/pdfs/wse/wse_report.pdf

3.07.630 Eligibility Actions for Lower Mobility Standards and Trip Generation Rates

Finding: The revised Plan does not include actions to lower mobility standards or trip generation rates within the Plan area at this time. Therefore, these provisions do not apply.

3.07.640 Activity Levels for Centers, Corridors, Station Communities and Main Streets

A. A Centers, Corridors, Station Communities and Main Streets need a critical number of residents and workers to be vibrant and successful. The following average number of residents and workers per acre is recommended for each:

1. *Central City - 250 persons*
2. *Regional Centers - 60 persons*
3. *Station Communities - 45 persons*
4. *Corridors - 45 persons*
5. *Town Centers - 40 persons*
6. *Main Streets - 39 persons*

Finding: Per the buildout projections shown in Table A-1, the Town Center area is anticipated to achieve an overall density of between 46.1 and 58.2 dwelling units per acre, which exceeds the recommendation for a Town Center shown above.

B. Centers, Corridors, Station Communities and Main Streets need a mix of uses to be vibrant and walkable. The following mix of uses is recommended for each:

1. *The land uses listed in State of the Centers:
Investing in Our Communities, January, 2009, such as grocery stores and restaurants;*
2. *Institutional uses, including schools, colleges, universities, hospitals, medical offices and facilities;*
3. *Civic uses, including government offices open to and serving the general public, libraries, city halls and public spaces.*

Finding: The revised Plan identifies land use designations and policies that will facilitate a mix of uses including commercial, retail, institutional and civic, consistent with (B) above.

C. Centers, Corridors, Station Communities and Main Streets need a mix of housings types to be vibrant and successful. The following mix of housing types is recommended for each:

1. *The types of housing listed in the “needed housing” statute, ORS 197.303(1);*
2. *The types of housing identified in the city’s or county’s housing need analysis done pursuant to ORS 197.296 or statewide planning Goal 10 (Housing); and*
3. *Accessory dwellings pursuant to section 3.07.120 of this chapter.*

Finding: The revised Plan identifies a mix of housing types at a range of prices, including larger-lot “executive housing,” single-family detached homes; townhomes and duplexes; and condominiums and apartments, including those that are part of future mixed-use developments.

In conclusion, the revised Plan is consistent with the requirements and recommendations in Title 6.

Title 7: Housing Choice

3.07.730 Requirements for Comprehensive Plan and Implementing Ordinance Changes

Cities and counties within the Metro region shall ensure that their comprehensive plans and implementing ordinances:

- A. Include strategies to ensure a diverse range of housing types within their jurisdictional boundaries.*
- B. Include in their plans actions and implementation measures designed to maintain the existing supply of affordable housing as well as increase the opportunities for new dispersed affordable housing within their boundaries.*
- C. Include plan policies, actions, and implementation measures aimed at increasing opportunities for households of all income levels to live within their individual jurisdictions in affordable housing.*

Finding: The revised Plan identifies a range of housing types for the Plan area, including single-family detached and attached, duplexes, multi-family, and mixed-use developments. The proposed implementing policies for the Comprehensive Plan [HCP Section 31(II)(C)] contain the following language related to housing:

“(C) Housing

Objective: South Hillsboro shall provide opportunities for a range of housing densities and types intended to reduce land and infrastructure costs, increase transit feasibility and provide opportunities for residents with a range of incomes to live in South Hillsboro. These opportunities include detached and attached single family units, townhomes and row houses, apartment flats, condominiums, co-housing and other alternative housing options.

- (1) Planned residential densities within the South Hillsboro Community Plan area shall reflect Metro’s 2011 UGB expansion decision regarding maximum South Hillsboro residential capacity while being consistent with densities established by:
 - (a) Hillsboro Comprehensive Plan Section 14 Subsection (B) (Comprehensive Plan Maps – Land Use Maps); and,*
 - (b) Hillsboro Comprehensive Plan Section 3 Subsections (B), (C) and (V) (Housing Policies).**
- (2) Provide for attached single-family or multi-family housing sufficient to provide for ongoing citywide compliance with the Metropolitan Housing Rule.*
- (3) Achieve or exceed an overall density of 23 dwelling units per acre in the Town Center and 18 dwelling units per acre in the Village Center.*
- (4) Provide a range of housing types and products appropriate to the intent of each zone and that meet the needs of people in a range of household incomes and structures, including:*

- (a) *Locating workforce/affordable housing near transit and other services;*
 - (b) *Encouraging different levels and types of affordable housing throughout the community, rather than concentrating affordable housing in a way that would create a recognizable low-income district; and,*
 - (c) *Dispersing housing for the elderly, disabled, developmentally challenged and low income citizens throughout residential neighborhoods in areas that are close to schools, services, parks, shopping and employment centers.*
- (5) *Provide for emerging housing product types including cottage housing, secondary dwelling units and live-work units as appropriate to the underlying zone.*
- (6) *Higher-density housing developments should provide shared courtyard or other recreational or gathering spaces.*
- (7) *Encourage the development of housing products that integrate new designs or that utilize emerging techniques as demonstration projects to showcase or prototype innovative and sustainable approaches to residential development.” [HCP Section 31(II)(C)]*

In addition, the Comprehensive Plan also contains adopted policy language (Section 3 Housing) that encourages a variety of housing options for households of all incomes, ages and living patterns, sited in a dispersed manner that ensures access to services, community amenities, and employment centers. A mix of housing types combined with the higher densities will support development of smaller units with lower land costs and increased opportunities for transit, all of which can facilitate more affordable housing.

The above policy language and consistency with the City’s existing Comprehensive Plan provisions associated with new housing will ensure that the proposed amendments are consistent with Title 7 Housing Choice.

Title 11: Planning for New Urban Areas

3.07.1105 Purpose and Intent

The Regional Framework Plan calls for long-range planning to ensure that areas brought into the UGB are urbanized efficiently and become or contribute to mixed-use, walkable, transit friendly communities. It is the purpose of Title 11 to guide such long-range planning for urban reserves and areas added to the UGB. It is also the purpose of Title 11 to provide interim protection for areas added to the UGB until city or county amendments to land use regulations to allow urbanization become applicable to the areas.

Finding: The revised Plan addresses approximately 1,400 acres of land in South Hillsboro that was brought within the urban growth boundary (UGB) in 2002 and 2011 in order to meet the rising demand for urban housing opportunities in the area. As a new urban area, it is subject to the planning provisions in Title 11.

3.07.1105 Planning for Areas Designated Urban Reserve

A. The county responsible for land use planning for an urban reserve and any city likely to provide governance or an urban service for the area, shall, in conjunction with Metro and appropriate service districts, develop a concept plan for the urban reserve prior to its

addition to the UGB pursuant to sections 3.07.1420, 3.07.1430 or 3.07.1435 of this chapter. The date for completion of a concept plan and the area of urban reserves to be planned will be jointly determined by Metro and the county and city or cities.

Finding: Pursuant to Title 11, Section 3.07.1140, Section 3.07.1110 became applicable on December 31, 2011, after the UGB was expanded to include the South Hillsboro Plan area. Therefore, this section is not applicable.

3.07.1120 Planning for Areas Added to the UGB

A. The county or city responsible for comprehensive planning of an area, as specified by the intergovernmental agreement adopted pursuant to section 3.07.1110C(7) or the ordinance that added the area to the UGB, shall adopt comprehensive plan provisions and land use regulations for the area to address the requirements of subsection C by the date specified by the ordinance or by section 3.07.1455B(4) of this chapter.

Finding: Based on Metro's *Conditions on Land Added to the UGB* contained in Ordinance No. 11-1264-B, Exhibit B ("Conditions of Approval"), Hillsboro is the City responsible for comprehensive planning of the South Hillsboro Community Plan area. The City is adopting comprehensive plan provisions and land use regulations as required to comply with subsection (C) below.

B. If the concept plan developed for the area pursuant to section 3.07.1110 assigns planning responsibility to more than one city or county, the responsible local governments shall provide for concurrent consideration and adoption of proposed comprehensive plan provisions unless the ordinance adding the area to the UGB provides otherwise.

Finding: Metro's Conditions of Approval assigned planning responsibility for South Hillsboro to the City of Hillsboro.

C. Comprehensive plan provisions for the area shall include:

1. Specific plan designation boundaries derived from and generally consistent with the boundaries of design type designations assigned by the Metro Council in the ordinance adding the area to the UGB;

Finding: The revised Plan identifies plan Comprehensive Plan designations (see Figure 31-2) that were derived from, and are generally consistent with, the design types assigned by Metro when the area was added to the UGB. The designations include Mixed Use Urban Residential (Town Center), Mixed use Urban Commercial (Village Center), Mid-Rise Density Residential, High Density Residential, Medium Density Residential, Low Density Residential, Open Space, Public Facility and Floodplain. Therefore, the revised Plan is consistent with subsection (C1).

2. Provision for annexation to a city and to any necessary service districts prior to, or simultaneously with, application of city land use regulations intended to comply with this subsection;

Finding: The revised Plan states that the City will require annexation of properties into the City before zoning is applied. The City's annexation process will also require annexation into any applicable service district. Comprehensive Plan policies [HCP Section 31(III)(D)] contain the following provisions regarding annexation:

“(D) Governance and Annexation

Objective: A formal Memorandum of Understanding (MOU) or other appropriate agreement with Washington County should be finalized that acknowledges the City as the ultimate urban service provider and local governance body for the entire South Hillsboro planning area.

- (1) Ensure urban service agreements between the City, County and Special Districts support implementation of the South Hillsboro Community Plan.
- (2) Require annexation of property as a prerequisite for City zoning or extension of city utilities and services. The zoning that will be applied will be determined by the City’s Comprehensive Plan Map designation for the property.” [HCP Section 31(III)(D)]

Based on the above findings, the proposed amendments are consistent with subsection (C2).

3. Provisions that ensure zoned capacity for the number and types of housing units, if any, specified by the Metro Council pursuant to section 3.07.1455B(2) of this chapter;

Finding: Metro’s Conditions of Approval when the UGB was expanded in 2011 established a target capacity of up to approximately 10,766 in the area added, for an approximate total of 12,066 dwelling units for the entire Plan area (Ordinances 10-1244B, 11-1252A and 11-1264B). Specifically, the condition states that:

*The city of Hillsboro shall demonstrate that land use regulations adopted pursuant to Metro Code section 3.07.1120 will provide, during the 20-year planning period, capacity to **achieve a target of approximately 10,766 dwelling units in Area 2 and adjoining South Hillsboro Community Plan lands currently in the UGB. No current dwelling unit capacity in the adjoining South Hillsboro Community Plan lands may be counted toward the 10,766 dwelling unit target.** (Metro Ordinance No. 11-1264B, Exhibit B, Conditions on Land Added to UGB).*

Areas 69 and 71 had a potential capacity of 1,300 dwelling units based upon the 2002 requirement of ten dwelling units per acre, for a combined target of 12,066. The amendments and findings for Ordinance No. 6029 established the capacity for 11,251 new dwelling units for the South Hillsboro Plan area, or 93 percent of the target established by Metro. As explained in the findings for Goal 10, the proposed plan amendments provide for a market-supported capacity of 9,755 dwelling units⁸. As set forth in the methodology for calculating density (Exhibit B-3), differences in take outs between the 2012 density calculations and the current proposal include:

	2012 Assumptions	2014 Assumptions
Right-of-way	10% take out	25% take out for RL designation; 35% for all other residential
Parks & Open Space	164 acres	353.6
Floodplain	43	81.6
Public Facilities	91	

⁸ If the area were zoned and developed at the highest zones allowed under the Comprehensive Plan designations, the resulting dwelling unit range would be between 9,279 and 12, 523 (10-14 dwelling units per acres), with up to 15,028 (16 dwelling units per acre) with planned unit developments (see Exhibit B-4). Based on the referenced economic analyses, such densities would not likely be supported by the market.

The revised Plan also allows for flexibility to increase densities and/or provide additional opportunities and capacity for residential development if market conditions warrant it. Planned unit developments could result in up to 20% additional density, or a total of 9,755 dwelling units.

The condition is specifically worded to “*achieve a target of approximately...*” As such, the Plan substantially complies with this requirement.

4. Provision for affordable housing consistent with Title 7 of this chapter if the comprehensive plan authorizes housing in any part of the area.

Finding: As demonstrated in the previous findings for Title 7, the revised Plan identifies a range of housing types for the Plan area, including single-family detached and attached, duplexes, multi-family, and mixed-use developments. The Comprehensive Plan also contains adopted policy language (Section 3 Housing) that encourages a variety of housing options for households of all incomes, ages and living patterns, sited in a dispersed manner that ensures access to services, community amenities, and employment centers. A mix of housing types combined with the higher densities will support development of smaller units with lower land costs and increased opportunities for transit, all of which can facilitate more affordable housing.

5. Provision for the amount of land and improvements needed, if any, for public school facilities sufficient to serve the area added to the UGB in coordination with affected school districts. This requirement includes consideration of any school facility plan prepared in accordance with ORS 195.110;

Finding: The revised Plan envisions several school sites combined with parks where possible. The Hillsboro and Beaverton School Districts were participants in the South Hillsboro community planning effort and assisted in estimating future school needs within the Plan area, ensuring an appropriate number of school sites. The Hillsboro School District has purchased 40 acres in Reed’s Crossing and has reached an agreement to acquire an additional 10 acres in the Butternut Creek area. These sites are anticipated for a combined elementary/middle school (20 acres) and three additional elementary schools (10 acres each). Proposed conceptual sites for these schools were identified during the 2013-2014 planning process. The exact configuration and location of sites and timing of construction will be determined as the area develops.

Based on the above findings, the proposed amendments are consistent with the requirements in subsection (C5).

6. Provision for the amount of land and improvements needed, if any, for public park facilities sufficient to serve the area added to the UGB in coordination with affected park providers.

Finding: The recommended location for new parks is shown in Figure 31-5 of the revised Plan. The revised Plan assumes development of six neighborhood parks and one community park, which will serve the Plan area as well as residents to the north and east of it. The approximate number, acreage and location of proposed parks is consistent with City guidelines and levels of service relating to the number of people served and proximity of parks to residents. In addition, the proposed Comprehensive Plan policies contain the following language pertaining to parks:

“Objective: Active and passive recreational areas are provided within the South Hillsboro area in accordance with the Community Plan text and general location of identified park areas as shown on the South Hillsboro Community Plan Land Use Map.” [HCP Section 31(II)(H)]

Policy language under this objective specifies plans for the overall parks system as well as location of parks and their design attributes. Additional findings related to this requirement are found under the section of this document associated with Statewide Planning Goal 8.

Based on the above findings, the proposed amendments are consistent with the requirements in subsection (C6).

7. A conceptual street plan that identifies internal street connections and connections to adjacent urban areas to improve local access and improve the integrity of the regional street system. For areas that allow residential or mixed-use development, the plan shall meet the standards for street connections in the Regional Transportation Functional Plan;

Finding: Figure 31-4 of the revised Plan shows the conceptual street plan for the South Hillsboro Plan area, including arterials, collectors, neighborhood routes and connections to adjacent areas. These improvements, as well as necessary off-site improvements, were adopted into the City Transportation Service Plan by Ordinance 6065 and into the Regional Transportation System Plan by Metro Ordinance 14-1340. The revised Plan identifies a multi-modal transportation network for the South Hillsboro community that incorporates the following elements:

- Grid pattern of streets with bike lanes and sidewalks
- Open space system that includes a looped system of walkways, hiking trails and multi-use pathways
- Transit center to enable future bus or commuter rail service
- Implementation of previous and ongoing planning work for the Tualatin Valley Highway corridor to increase regional connectivity and address current and future capacity, safety and other issues
- A north/south extension of Cornelius Pass Road to increase regional connectivity and provide a primary north/south arterial within the study area
- A system of north/south and east/west collector streets to serve the Plan area and provide connections to roads adjacent to and outside the Plan area
- Linkages to Downtown Hillsboro, North Hillsboro employment areas and Tanasbourne/Amber Glen

The Comprehensive Plan policy language proposed for the Plan area includes provisions related to streets, including projects to improve local and regional access, including the following:

- Strategic public investments in arterial and collector road improvements that accommodate all modes of travel
- A grid pattern that includes bike lanes and sidewalks for maximum connectivity
- Cornelius Pass Road extension through the Plan area
- Limited access along SW 209th Avenue
- Merge Century Boulevard with SW 229th Avenue

- Ensure block sizes enable pedestrian and non-motorized vehicle movement, including mid-block pedestrian access when needed
- Require multi-modal facilities as part of development
- Enable future high-capacity transit options, including a transit facility in the Town Center

Those portions of the Plan area that allow residential or mixed-use development will meet the street connections standards established in the RTFP.

The findings above demonstrate that the proposed amendments are consistent with subsection (C7).

8. Provision for the financing of local and state public facilities and services; and

Finding: The revised Plan contains an assessment of public facility costs and a discussion of potential funding sources, some of which are not currently used by the City. In addition, the proposed Comprehensive Plan policies related to Public Utilities [HCP Section 31(II)(F)] require evaluation of per unit public utility development costs to ensure adequate financing is available for needed public service extensions. The public utility provisions also require establishment of a financing mechanism acceptable to the City, property owners and developers that will generate revenue for infrastructure construction prior to development, and produce SDC/TIF funding streams associated with construction.

A finance plan is currently being developed by the City of Hillsboro to determine financing and funding mechanisms for the identified transportation and parks deficits. As identified in the Community Plan, financing mechanisms may include, *inter alia*, special districts, supplemental development taxes or local improvement districts.

The Implementation section of the proposed Comprehensive Plan policies [HCP Section 31(III)] also includes provisions for developer agreements that address public and private share of future development costs for major infrastructure facilities.

The findings above demonstrate that the proposed amendments are consistent with subsection (C8).

9. A strategy for protection of the capacity and function of state highway interchanges, including existing and planned interchanges and planned improvements to interchanges.

Finding: There are no existing or planned state highway interchanges in proximity to the Plan area.

D. The county or city responsible for comprehensive planning of an area shall submit to Metro a determination of the residential capacity of any area zoned to allow dwelling units, using the method in section 3.07.120, within 30 days after adoption of new land use regulations for the area.

Finding: Metro's Conditions of Approval assigned planning responsibility for South Hillsboro to the City of Hillsboro. The City will submit a determination of residential capacity to Metro consistent with this rule.

3.07.1130 Interim Protection of Areas Added to the UGB

Until land use regulations that comply with section 3.07.1120 become applicable to the area, the city or county responsible for planning the area added to the UGB shall not adopt or approve:

- A. A land use regulation or zoning map amendment that allows higher residential density in the area than allowed by regulations in effect at the time of addition of the area to the UGB;*
- B. A land use regulation or zoning map amendment that allows commercial or industrial uses not allowed under regulations in effect at the time of addition of the area to the UGB;*
- C. A land division or partition that would result in creation of a lot or parcel less than 20 acres in size, except for public facilities and services as defined in section 3.07.1010 of this chapter, or for a new public school;*

Finding: The City of Hillsboro will not adopt or approve any of the above land use actions until land use regulations that comply with section 3.07.1120 become applicable to the area following annexation.

Overall Finding: Based on the findings above, the proposed amendments are consistent with Title 11.

Title 13: Nature in Neighborhoods

3.07.1310 Intent

The purposes of this program are to (1) conserve, protect, and restore a continuous ecologically viable streamside corridor system, from the streams' headwaters to their confluence with other streams and rivers, and with their floodplains in a manner that is integrated with upland wildlife habitat and with the surrounding urban landscape; and (2) to control and prevent water pollution for the protection of the public health and safety, and to maintain and improve water quality throughout the region.

Finding: In response to Metro's Title 13 provisions, a consortium of eight cities, Washington County, Clean Water Services and the Tualatin Hills Parks and Recreation District, in coordination with Metro, developed its own fish and wildlife habitat protection program for the Tualatin Basin. Hillsboro is one of the eight cities participating in this program. To implement the program, the City adopted ordinances intended to remove regulatory barriers, and further encourage and facilitate the use of Habitat Friendly Development and Sustainable Development practices and techniques. Those provisions are found in Section 12.50.930 of the Hillsboro Community Development Code.

Figure 31-9 of the revised Plan identifies Habitat Benefit Areas in the South Hillsboro community, and the provisions of Section 12.50.930 will be available to development in those identified areas. The provisions are intended to provide flexibility for development to occur in conjunction with protection of qualified Habitat Benefit Areas.

Based on the findings above, the proposed amendments are consistent with Title 13.

City of Hillsboro Comprehensive Plan

Section 1 Planning and Citizen Involvement

Plan Revision and Major Plan Amendments. (Amended by Ord. No. 5987/10-11)

Plan revisions and major plan amendments shall be processed as legislative procedures. The following process shall be used when conducting any plan revision or major plan amendment of the Comprehensive Plan:

(A) For each proposed plan revision or major plan amendment to the Comprehensive Plan, the City Planning Department will:

(1) With the advice and assistance of the CIAC, establish and conduct a citizen involvement program which provides for public involvement and input into the proposed revision or

amendment which complies with Statewide Planning Goal 1 requirements. At a minimum, such a public involvement program shall provide for adequate notice on citizen involvement activities; advanced information on matters under consideration; and opportunities for public involvement in all phases of the planning process applicable to the proposed plan revision or major plan amendment as determined by the CIAC.

Finding: As demonstrated in the findings for Statewide Planning Goal 1 Citizen Participation, the Plan update process invited citizen participation through a wide range of methods throughout Plan development. As such, the proposed amendments are consistent with this policy.

(2) Identify issues to be addressed and related information and data to be collected, reviewed and made available for public review. Inform citizens of these issues; and provide opportunity for citizen access to the related information and data; and for citizen input on these issues.

(3) Notify affected government agencies of planning activities; invite review and comment.

(4) Collect relevant information and data.

(5) Analyze each issue and identify proposed actions which address the issue sufficiently. As part of the public involvement program for the plan revision or major plan amendment:

(a) Compile and combine the issue, relevant data and information and actions into text format and make copies of such text available for review and comments by citizens and affected government agencies.

(b) Compile comments received from citizens and affected government agencies for consideration by the Planning Commission. The Planning Department shall prepare written responses to comments and make the responses available for public review and to the Planning Commission during its consideration of the proposed plan revision or major plan amendment.

Finding: Development of the revised Plan included the following steps related to the above requirements:

- Collection and analysis of available data and background information, including environmental conditions, cultural conditions, planning context, market conditions, infrastructure conditions and deficiencies, transportation conditions and regulatory context. Background information is summarized in the Plan and was reviewed by members of the project advisory committees, other government agency staff and community members throughout the planning process.
- Background information was made available to the public and was used to develop alternative land use and transportation scenarios for the Plan area. Scenarios were developed using input from the citizen Task Force, stakeholder interviews and a design workshop (during the 2008 planning process). Scenarios were evaluated and issues were identified so that a preferred scenario could be chosen. All of this information was summarized and made available at public open houses and on the project website.
- The planning process to update the Community Plan in 2011 and 2012 included seven meetings with affected public agencies, including Hillsboro Public Works Department; Clean Water Services; Hillsboro Transportation and Facilities/Fleet Departments; parks, library and schools representatives; and fire and police representatives. The first six meetings were held in 2011 to review the prior (2008) planning work and identify issues and opportunities related to infrastructure and provision of public facilities. The same group met again in March 2012 to review revisions to the Plan. Again, all information was summarized and made available through

the project website. Additionally, two open houses and three Planning Commission work sessions were held in 2012.

- The 2013/2014 South Hillsboro Master Planning process built on the earlier efforts described above. It involved a variety of public, property and agency involvement activities as described under findings associated with Statewide Goal 1 (Citizen Involvement). It maintained consistency with the overall assumptions associated with land use, transportation, open space, parks, schools, natural resources and public facility planning while making the following refinements which have been incorporated in the updated South Hillsboro Community Plan:
 - Established a set of planning principles and best planning practices to guide preparation of development code provisions and Comprehensive Plan policies.
 - Refined the locations and conceptual design of proposed roads and other transportation facilities.
 - Incorporated more detailed land use planning and development assumptions prepared by the two major property owners in the area for the Reed's Crossing and Butternut Creek areas.
 - Refined locations for proposed schools and parks.
 - Identified and established existing and new zoning designations for future application as annexation occurs.
 - Refined and updated costs estimates and projected revenues associated with transportation and other public infrastructure projects.
 - Updated calculations associated with park and open space needs and residential development capacity.
 - Established a trip cap mechanism to ensure that transportation needs can be met as annexation and development occurs.
 - Identified a variety of implementation actions and strategies needed to ensure that the goals and objectives of the South Hillsboro Community Plan will be met.
- Comments received from citizens and affected agencies were compiled by the Planning Department and have been forwarded to the Planning Commission for consideration, along with Planning Department responses. Comments and responses will be part of the public record and will be available for public review.

(6) A Planning Commission public hearing on a plan revision or major plan amendment shall be conducted after completion of the tasks set forth in Section (III)(A)(1 through 5) above and the citizen involvement program for the plan revision or major plan amendment established by the CIAC. Notice of any public hearing by the Planning Commission or City Council on a plan revision or major plan amendment to the Comprehensive Plan shall be published in a newspaper of general circulation in the City a minimum of 20 days prior to the date of the initial public hearing. Any such notice shall contain:

(7) The Planning Commission may recess the hearing in order to obtain further information or provide additional notification. Upon recessing for these purposes, the Commission shall announce the time and date when the hearing will be resumed.

(8) After hearing the plan revision or major plan amendment, the Planning Commission shall forward a recommendation of denial, approval, or approval with modifications of the plan revision or major plan amendment to the City Council.

(9) The City Council shall hold a hearing during its consideration of a plan revision and may hold a public hearing on any major plan amendment. Notice of the hearing shall be provided in the manner prescribed in subsection (III)(A)(6). After consideration of the plan revision or major plan amendment, the City Council may adopt or deny the plan revision or major plan amendment.

Finding: The City Staff held seven (7) Planning Commission sessions, one joint Planning Commission/City Council work session and one City Council work session during the 2013/2014 planning process, to review and discuss the South Hillsboro Master Plan and revised Plan update; all work sessions were open to the public. The City has also held Planning Commission public hearings on September 24, 2014, October 22, 2014, November 12, 2014 and December 10, 2014 (this hearing was limited to the issues of annexation and parks and open space). Public notice regarding the hearings was completed in accordance with the requirements above. At the close of the hearings, the Planning Commission will forward a recommendation to the City Council for approval, denial, or approval with modifications of the amendments. The City Council may deny, approve or approve with modifications adoption of the Plan or may elect to hold a public hearing before taking action on this major plan amendment.

Based on the above, the proposed amendments will be processed consistent with Section 1.

(V) Community Plans, Public Facility Plans and Functional Plans.

A Community Plan, a Public Facility Plan or a Functional Plan may be initiated by the City Council or Planning Commission at any time in response to community need. Community Plans shall be adopted by the City Council as major plan amendments to the City's Comprehensive Plan Text or Land Use Map as applicable.

Finding: The South Hillsboro Community Plan update will be adopted by the City Council as a major plan amendment to Section 31 of the Comprehensive Plan and includes both text and map amendments.

Section 2 Urbanization

(I) Goal. To provide for an orderly and efficient transition of land from rural to urban use through the identification and establishment of areas designed to accommodate the full range of urban uses within the Hillsboro Planning Area.

Finding: As demonstrated in the findings for Statewide Planning Goal 14 Urbanization, the revised Plan provides for orderly and efficient transition of land from rural to urban uses and establishes areas designed to accommodate the full range of urban uses within the South Hillsboro Community. Therefore, the proposed amendments are consistent with Section 2.

Section 3 Housing

(I) Goal. To provide for the housing needs of the citizens of Hillsboro and surrounding community by encouraging the construction, maintenance, development and availability of a variety of housing types, in sufficient number and at price ranges and rent levels which are commensurate with the financial capabilities of the community's residents.

Finding: As demonstrated in the findings for Statewide Planning Goal 10 Housing, revised Plan provides for a variety of housing options intended to accommodate a range of incomes, ages and family sizes. As such, the proposed amendments are consistent with Section 3 policies.

Section 6 Natural Resources, Open Space, Scenic and Historical Sites.

(I) Goals.

(A) Preserve, protect and maintain for present and future residents of Hillsboro and surrounding community open space, historic sites and structures.

(B) Provide a livable and attractive environment.

(C) Promote and encourage development in character with the natural features of the land.

(D) Identify and provide appropriate protection for “significant” Goal 5 natural resource sites including wetlands, riparian corridors and wildlife habitat areas, including Habitat Benefit Areas not within the Significant Natural Resource Overlay District throughout the City.

Finding: As demonstrated in the findings for Statewide Planning Goal 5, the revised Plan provides for protection and enhancement of natural and archeological resources. At the time of rezoning the City will apply the SNRO District to identified significant natural resources. Therefore, the proposed amendments are consistent with Section 6.

Section 7. Air, Water and Land Resource Quality.

(I) Goal. To maintain and improve the quality of the air, water and land resources, the total waste and process discharges from all developments and activities in the planning area shall not degrade resources or threaten resource availability.

Finding: As demonstrated in the findings for Statewide Planning Goal 6, the revised Plan provides for protection of the air, water and land resources in the Plan area. Issues associated with total waste and process discharges from the development and activities within the South Hillsboro Plan area will be addressed in more detail as part of the development agreement/entitlement process. Therefore, the proposed amendments are consistent with Section 7.

Section 9 Recreation.

(I) Goal. To design a parks and recreation facilities plan and provide a recreation program that:

(A) Provides a variety of open spaces, parks, recreation facilities and recreation programs.

(B) Links open spaces, parks, recreation facilities, and school, via a pedestrian and bicycle trail system.

(C) Promotes and encourages a physically fit and healthy community.

Finding: As demonstrated in the findings for Statewide Planning Goal 8, the revised Plan establishes the framework for a connected network of open spaces, parks and other recreational opportunities. As such, the proposed amendments are consistent with Section 9.

Section 10. Economy.

(I) Goals.

(A) Expand, improve and diversify the economy of the planning area.

(B) Provide local employment opportunities for area residents.

(C) Conserve energy by lowering commuting distance.

(D) Increase and expand the economic base, tax base and economic independence of the area.

(E) Provide choice in the purchase of goods and services available to the public.

Finding: As demonstrated in the findings for Statewide Planning Goal 9 Economic Development, the revised Plan establishes a new community organized around a Town Center that will accommodate concentrations of retail and service uses, employment opportunities, schools and a variety of housing choices for residents. South Hillsboro will expand and diversify the economic base for the greater Hillsboro area and will provide nearby employment, shopping and service opportunities to its residents. In addition, planning for new housing in this area is part of a larger strategy by the City to improve the balance between housing and employment in Hillsboro, providing more housing opportunities for people who currently work in the City or may work there in the future. Therefore, the proposed amendments are consistent with Section 10.

Section 11. Energy.

(I) Goal. To conserve energy by using energy conservation as a determinant in:

(A) The location of various land use activities (residential, commercial, industrial).

(B) The design of developments.

(C) The design and development of a transportation system.

(D) The design and construction of housing and other structures.

Finding: The revised Plan identifies the South Hillsboro community as a “complete, connected and green” community that provides the full spectrum of facilities and services needed to serve its residents. The revised Plan maximizes connectivity for biking and walking and integrates open spaces and green development practices, an emphasis on the use of walking, bicycling and transit, particularly for trips to meet daily shopping and other needs at commercial and retail establishments within the Plan area. All of these features help conserve energy by reducing dependence on automobiles and vehicle miles traveled. Development within the Plan area will be encouraged to use green building practices in order to reduce energy usage and associated costs (heating and cooling, solar orientation and on-site stormwater management for example). For these reasons, the proposed amendments are consistent with Section 11.

Section 12 Public Facilities and Services

(I) Goals.

(A) Provide public facilities and services in an orderly and efficient manner consistent with the expansion of urbanization into rural areas.

(B) Utilize the availability of public facilities and services as a tool for guiding urbanization with the Hillsboro Planning Area.

(C) Provide a safe and healthy living environment.

(D) Provide that existing land uses are and will continue to be supported by needed public facilities and services.

(E) Provide that future development is appropriately guided and supported by the provision of public facilities and services in a timely, orderly, and efficient manner.

Finding: As demonstrated in the findings for Statewide Planning Goal 11 Public Facilities and Services, the revised Plan provides for public facilities and services in an orderly and efficient manner to ensure a safe environment and appropriate future development. Therefore, the proposed amendments are consistent with Section 12.

Section 13. Transportation.

(I) Goals:

(A) Safety. Develop and maintain a safe City transportation system.

(B) Multi-modal Travel. Provide a balanced City transportation system.

(C) Trip Reduction. Develop a transportation system that helps to reduce the number of motor vehicle trips and contributes to regional goals to reduce per capita vehicle miles of travel.

(D) Performance. Provide an efficient transportation system that manages congestion.

(E) Goods Movement. Provide for efficient movement of goods and services.

(F) Livability. Transportation facilities within the City shall be designed and constructed in a manner that enhances livability of Hillsboro.

(G) Accessibility. Develop transportation facilities that are accessible to all members of the community and minimize out-of-direction travel.

Finding: As demonstrated in the findings for Statewide Planning Goal 12 Transportation, the revised Plan provides for a multi-modal transportation system within, and connecting to, the South Hillsboro Community Plan area. The revised Plan emphasizes connectivity, walkability and an efficient grid pattern of streets to help reduce vehicle miles and improve livability. The transportation improvements for South Hillsboro, including necessary off-site improvements, were adopted into the City Transportation Service Plan by Ordinance 6065 and into the Regional Transportation System Plan by Metro Ordinance 14-1340. Therefore, the proposed amendments are consistent with Section 13.

Attached Exhibits

These findings reference the following attached exhibits:

Exhibit	Description
B-1	Leland Consulting Group Market Study Analysis
B-2	<i>Market Analysis for Residential and Commercial Development</i> (Johnson Economics, April 11, 2014)
B-3	Methodology for calculating residential density in South Hillsboro
B-4	Theoretical maximum residential build out calculations [See footnote on page 11]
B-5	Transportation Planning Rule findings (previously adopted in Ordinance No. 6065)
B-6	Significant Goal 5 Natural Resource Documentation

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Memorandum

Date 30 August 2013

To Matt Hastie, Angelo Planning Group

From Brian Vanneman, Leland Consulting Group
Matt Brown, Loci

Subject South Hillsboro: Preliminary Market Analysis and Funding Evaluation
CONFIDENTIAL

Project 5377

INTRODUCTION

South Hillsboro is envisioned to be a “complete, connected, and green” community that will combine a variety of housing options with open spaces, civic and commercial centers, schools, and multi-modal transportation facilities along the City of Hillsboro’s southern border. The City hopes that South Hillsboro will be a leading example of many best practices for complete, mixed-use communities.

This memorandum summarizes the preliminary findings and recommendations of Leland Consulting Group and Loci regarding key infrastructure funding, real estate market, and strategic development issues related to South Hillsboro. The intent of this memorandum is to highlight these issues in order to inform and advance conversations between the public and private partners now working together to plan South Hillsboro. Some issues covered here will require more investigation, analysis, and discussion in order to resolve and to arrive at approaches amenable to all parties. This is typical in large-scale community development, where a number of public and private project partners must come together to fund and build the established vision.

SUMMARY OF FINDINGS

This preliminary evaluation is based on a review of past plans and documents, meetings with City staff, interviews with the two main South Hillsboro property owners/developers (Newland Communities and the “Butternut Creek group” (Hagg Lake LLC)), review of documents provided by the property owners, and the review of other public- and private-sector information. Newland Communities owns Reed’s Crossing, the north part of South Hillsboro, while the Butternut Creek group owns the southern part of the area. A narrow band of properties owned by others separates the two, and there are additional smaller properties owned by others to the south and west.

In general, the vision and expectations of the primary project partners – the City of Hillsboro, Newland Communities, and the Butternut Creek group – is consistent and aligned. For example, the partners share the vision of a “complete, connected, and green” community; the basic parameters of the transportation and open space networks outlined in the 2012 Community Plan; and the land use types, scales, and densities called for in the

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Plan. Further, the project partners have a positive working relationship. For example, one of the property owners' repeatedly referred to his experience working with particular City departments as "fantastic."

Leland Consulting Group and Loci identified several key issues that will need to be addressed in order for South Hillsboro to move forward assertively and be built as envisioned.

- Transportation infrastructure funding;
- Sanitary Sewer and water infrastructure funding, particularly for Butternut Creek;
- School and Park Location and Design within Butternut Creek; and,
- Town and Village Center: Regulatory and Market issues.

TRANSPORTATION INFRASTRUCTURE FUNDING

A range of on- and off-site transportation improvements will be needed both to serve new development in South Hillsboro, and to meet current and future needs of residents and workers in other parts of Washington County traveling around and through South Hillsboro.

Currently, two Memoranda of Understanding (MOUs) between the City of Hillsboro and each of the two primary landowners describe expectations about what transportation improvements will be built, and what parties will pay for transportation infrastructure. The MOUs call for the landowners to pay for internal streets, collectors, and arterials, except where otherwise noted. The MOUs also call for the landowners to pay for major transportation infrastructure; for example, the Newland MOU calls for the landowner to pay for the "Phase 1" infrastructure improvements (described below), and then receive credits for these costs over time against the Washington County Transportation Development Tax (TDT) payments, which are due at the time of residential and commercial development. The Phase 1 transportation improvements include the Cornelius Pass Road Extension across TV Highway and the railroad to Blanton/Alexander Streets; and the extension of Blanton and Alexander Streets between 209th and 229th Avenues. This preliminary road network is a prerequisite to developing the northern area of Newland's property, and will also provide transportation capacity for current County residents.

The MOUs call for the County, through its Major Streets Transportation Improvement Program (MSTIP), to consider directly paying for only one major improvement: the Butternut Creek Bridge portion of Cornelius Pass Road.

An Area-Specific (City) Transportation Systems Development Charge (SDC) has been discussed by the project partners, but is not mentioned in the MOU; such an SDC is a fee that would be in addition to the TDT and would fund transportation improvements related to South Hillsboro. Newland's rough estimate for these Phase 1 improvements (not cited in the MOU) is in the range of \$15 to \$20 million.

Based on our interviews with the major property owners, and consistent with our experience, it will be difficult or impossible for Newland to pay for the Phase 1 transportation costs up front taking into account the financing/carrying costs of the full scope of Phase 1 improvements. The TDT crediting mechanism is indeed a useful means of cost reimbursement; however, because development and TDT credits will take place over many years, it is unlikely to fully offset the financing costs associated with up front infrastructure costs. Therefore, a transportation "funding gap" remains at South Hillsboro, driven primarily

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by the lengthy period between the time infrastructure investment is needed and the time at which all costs (including carry costs) can be recovered.

A second issue is the section of Cornelius Pass Road extending from Alexander/Blanton to the southern edge of Butternut Creek, which is South Hillsboro's defining transportation feature. In our estimation, it may take many years before this section of the road is built out, since Newland will naturally be focused on transportation investments and development on the north side of its property, and because project partners expect that the County may need to invest directly in the Butternut Creek Bridge through the MSTIP. However, without a complete Cornelius Pass connection, it will be difficult for South Hillsboro to achieve its goal of being truly "connected" and "complete." For example, residents of Reed's Crossing will have no direct access to the school or parks in the Butternut Creek area. It also will be important to understand how much development can be accommodated in Butternut Creek prior to construction of the Butternut Creek bridge (on the Cornelius Pass road extension).

TRANSPORTATION – RECOMMENDED NEXT STEPS

Given the above considerations, Leland Consulting Group and Loci recommend the following efforts. We will address some of these issues in subsequent tasks per our existing scope of work.

Area Specific SDC. The details of the area-specific SDC need to be further investigated and documented, particularly the size of the charge, likely revenue generation over time, and the projects that the fee would be used to fund. This SDC is expected to be one of the key gap-closing funding mechanisms, assuming that the City would be willing to bond future revenues in order to advance early infrastructure projects. It should be noted that while the City may be a party to collecting and distributing these SDC funds, this is essentially a development-generated funding source. The exception is that the City is responsible for debt service payments, and is at risk in the event that homebuilding and SDCs do not proceed at the expected rate.

Sources and Uses. Add to the existing transportation documents so that all "sources and uses" are clearly conveyed. These tables should show all private and public funding sources (developer funded, developer funded with TDT credit, MSTIP, SDC, and others to be determined), and uses (projects), as well as which uses are needed for which parts of South Hillsboro. Funding source assumptions should be confirmed as viable and realistic, especially when identifying potential outside/third party sources of funding.

Phasing. Where possible, transportation and other infrastructure projects should be shown by phase to make clear that not all transportation improvements are needed in order for the early residential and commercial phases of South Hillsboro to be built. In addition, some individual improvements may need to be phased (for example, certain road expansions from three to five lanes). To the extent that certain projects may be eligible for direct public investment, care should be taken to create discrete, independent project phases in order to allow private infrastructure investment to proceed unencumbered by public purchasing rules.

The County's Role. The County's role in infrastructure investment should be documented, and where possible, amplified, in the preparation of a financing program. Currently, the MOUs call for County actions (TDT credits or direct payments) on certain improvements. However, the County is not a signatory to these MOUs, and the improvements are not yet included in the County's Transportation System Plan (TSP). In addition, it is possible that,

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through the MSTIP, the County could directly fund (rather than fund through credits) certain major improvements such as the Cornelius Pass Road railroad crossing, since a significant amount of transportation demand for these facilities is reportedly being generated by users outside of South Hillsboro. Direct County funding for the rail crossing would significantly improve the funding gap described above.

Additional gap funding sources. Additional funding sources—including regional, State (e.g. ODOT Rail), Federal, City, and others—should be sought and can help to advance this project. The City has expressed a desire to seek such sources in the MOU and other documents. We recognize that directly applying City funds towards South Hillsboro infrastructure represents a significant policy choice for the City; some Cities choose to make direct investments in order to accelerate top-priority projects.

Cornelius Pass Road. For the connectivity reasons outlined above and to meet the goal of a complete, connected community, the City and County may want to assign a higher priority or set of incentives to the construction of Cornelius Pass Road between Blanton and Butternut Creek. This could mean a higher TDT reimbursement rate, SDC investment, or direct investment via MSTIP or other sources for specific improvements.

SANITARY SEWER AND WATER INFRASTRUCTURE FUNDING

While transportation funding issues appear to most immediately affect the Reed's Crossing and Butternut Creek areas, the capital cost of sewer and water infrastructure primarily affect the Butternut Creek area.

In order to provide future residents, businesses, and public facilities with sewer and water service, the Butternut Creek group will need to extend sewer (from the Urban Reserve area to the west) and water (from 209th Avenue). These facilities will likely need to be oversized in order to meet both the needs of future Butternut Creek users and off-site users in other parts of the County. The new sewer line will travel through both Clean Water Services (CWS) and City of Hillsboro sewer service areas.

The primary concern raised by the Butternut Creek group is that, while CWS has an established infrastructure oversizing reimbursement policy, the City of Hillsboro does not. CWS' policy (Ordinances 35 and 36, and Oversizing Reimbursement Resolution) allows developers to choose from a number of different reimbursement methodologies which may appeal to various developers based on how rapidly they expect their project to build out, and other variables. In the absence of a reimbursement policy, the Butternut Creek group cannot forecast how up front sanitary sewer capital costs will be recouped over time. Therefore, we recommend that the City consider adopting a policy comparable to the CWS policies, or site specific reimbursement agreements with the Butternut Creek Group and/or Newland Communities.

A second issue appears to be a lack of certainty regarding the sewer and water line alignment and sizing east of 209th. This lack of direction is driven by a desire to establish the best possible regional solution for sewer and water in the area, and is not directly related to simply accommodating Butternut Creek development. Moving forward, coordination and resolution of a preferred approach should be addressed by the City, developers, and consultant team.

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SCHOOL AND PARK LOCATION AND DESIGN

The Butternut Creek group made clear during our interview that a very important issue for them is the location, size, and design of the school and parks within their property, which will be determined by the Hillsboro School District and City of Hillsboro in consultation with the Butternut Creek group. In fact, resolving these siting and programmatic issues was identified as a barrier to moving forward with the project at this time. The Butternut Creek group, however, acknowledged that everyone is working in good faith to resolve these issues and they are confident this will be resolved.

The location and design of these facilities are important because they are key components of the Butternut Creek mixed-use “village center” and community character, and their location will influence the location of other related elements such as retail/commercial, housing, and roads. In effect, these other land uses cannot be sited without first knowing the location of the school and parks.

The City, School District, and consultant team are well aware of this issue and are working to resolve the location of these facilities, which will be determined as part of the Master Planning process.

Based on interviews with the two major property owners, it is clear that their assumption is that the City and School District will purchase the necessary land for park or school purposes from the property owners at fair market value. In fact, the Hillsboro School District already has purchased 40 acres of land from Newland for a combination of three elementary schools and one middle school. The Hillsboro Parks Department also is currently investigating potential sites for a community park and expects to determine and purchase a site in the near term.

Neighborhood and community parks in South Hillsboro will be publicly owned and maintained. Both property owners are considering forming homeowners associations (HOAs) within various South Hillsboro districts, which could provide for park maintenance of any privately owned parks (e.g., pocket parks) that do not meet City standards for neighborhood or community parks. This is an issue that should be discussed further by the City and property owners, as the City has apparently had challenges coordinating maintenance of public facilities with HOAs. With proper controls in place, these HOA's could be a tremendous benefit to the City in the future maintenance and operations of community infrastructure.

TOWN AND VILLAGE CENTERS

REGULATORY ISSUES

Based on Leland Consulting Group and Loci's professional experience, there are several common types of regulation often placed on emerging “town centers” or emerging higher density mixed-use zones that can significantly hinder the development of these areas. These are:

- Requiring residential densities that entail structured parking, since structured parking adds significantly to construction cost compared to surface parking, but the extra cost cannot be recouped via parking revenue except in truly urban settings. The additional cost of structured parking typically makes building such projects economically infeasible for developers. This density threshold varies depending on the housing type (unit size,

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household demographics), site characteristics (slope, setbacks), and other variables. Densities of 30 dwelling units (du) per net acre or above can trigger structured parking, while densities of 40 du/acre or more almost certainly entail structured parking. The “Mixed Use Commercial” and “Mixed Use Urban Residential” zones identified in the 2012 Community Plan assume 35 and 42 du/acre, respectively. This density dynamic was also summarized in Johnson Reid’s 2012 *Market Review Memorandum* prepared for the City. The Beaverton Round is an example of a project that struggled due to the additional costs imposed by high density housing and structured parking. Densities at Orenco Station did not exceed 40 du/acre for over a decade after the first phases of development, despite a stronger location.

- Requiring more retail or commercial area (square feet) than the market can support, especially in the early years of community build out. The 2012 Community Plan, for example, assumes 450,000 square feet of commercial space (including retail, office, and general commercial) within Reed’s Crossing, whereas previous market analyses have recommended about 150,000 square feet of retail space for Reed’s Crossing. This Master Plan should therefore seek to allow developers flexibility—at least in terms of the overall amount of commercial development—particularly within the Town Center, and possibly also within the Village Center. Flexibility can be achieved by allowing numerous land uses rather than requiring one land use (e.g. retail). Villebois is one community that has had difficulty attracting the planned amount of retail space, despite the popularity of its mixed use center.
- Requiring ground floor retail throughout the mixed use center. For the reasons summarized above, requirements for ground floor retail can result in financially infeasible projects or ground-floor vacancies. One alternative is to require that buildings be designed for “active” ground floor uses, which can include retail as well residential windows and stoops, and attractive landscaping. Extensive ground floor retail has struggled within numerous town centers; one example is the Fairview Village main street in Fairview, Oregon.

TOWN AND VILLAGE CENTERS - POTENTIAL REGULATORY APPROACHES

Considering the potential challenges summarized above, there are a number of potential regulatory and non-regulatory approaches that the City could consider to encourage development of the town and village centers, such as:

Allow and encourage flexibility through phased zoning and other measures. Demand for mid-rise housing that includes structured parking (for example, the four and five story apartment projects now being built at the Platform District at Orenco Station) will take time to emerge and mature. This type of housing will become more desirable, and more economically viable, when a full range of town center amenities are in place, including retail, restaurants, parks and open spaces, etc. Until that time, real estate economics will work against it. Therefore, opportunities to apply flexible regulation should be sought. One example might be regulation that allows medium densities (for example, 25 to 30 du/acre) in the near and medium term, but requires higher densities (for example, above 40 du/acre) over the long term. The more intense requirement might be triggered by completed public investments (e.g. completed transportation or park networks), a full set of amenities (presence of retail or restaurants), or a price point threshold in the market (for example, apartment rents of \$2.00 per square foot or more). Another example of flexibility might be a

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simple base zone that would allow early development, but not overly prescribe internal street patterns or development standards. Angelo Planning Group (APG) will be researching potential approaches to providing flexibility while also delivering a level of certainty that the Centers will deliver the densities and development quality that is envisioned over time.

Allow horizontal mixed use. A mix of uses within centers can be achieved when residential and commercial uses are side by side (horizontal mixed use) or stacked within a single building (vertical mixed use). For example, the Tanasbourne Regional Center is a mixed use center that features a horizontal mix of uses, whereas Orenco Station features some vertically mixed use buildings. A horizontal mix of uses is far more feasible in the early stages of center development since vertical mixed use buildings usually require structured parking, more costly structural elements such as concrete and steel, more fire resistive materials and separations, and other costly construction elements.

Careful implementation of public-sector incentives in situations in which a significant public goal is being achieved. When a particular project meets a high priority public goal or exceeds expectations, the City and other public sector partners may use financial or non-financial incentives to encourage it. For example, at federal CMAQ (Congestion Mitigation and Air Quality) dollars were used to build higher-quality streetscapes within the Orenco Station town center, and various incentives have been used to encourage pioneering projects in downtown Hillsboro. Public incentives can include SDC abatement or deferral, tax abatement, direct investment of local, state or federal funds, land value write downs (when the public sector owns land), among others.

MARKET ISSUES

Real estate market issues within the Town Center are closely tied to the regulatory issues summarized above. Specifically, higher density housing types that require structured parking are likely to be infeasible; and second, the capacity of the market to support retail and commercial space is limited (to approximately 150,000 square feet or less as described above), especially in the early phases of development, when the residential population (and primary customer base) will only be a fraction of the total population at full build out.

Given this context, several questions arise based on current conceptual plans for the South Hillsboro Town Center. First, there appears to be a large amount of retail and commercial space, though we cannot be sure of the amount since neither specific building areas (square footages) nor proposed anchor tenant types are shown. It would be helpful to understand the approximate amount of planned retail and commercial space, its character, potential anchor tenant types (e.g. grocery, fashion, etc.), and other features, because this will drive the character, hours of activity, and other aspects of the entire town center. Commercial centers generally fall into one of several types which are shaped around their anchor tenants (neighborhood by grocery, lifestyle center by fashion and home furnishings, etc.). The landowners should also convey confidence that the amount of commercial space represented in concept plans can be supported over the long term. We do, however, recognize that the landowners may not have definitively resolved some of these details yet.

Second, the phasing of this retail and commercial space will be important, since it will be built in phases. While the *amount* of commercial space in the initial phases may be modest compared to later phases, it is important that the initial phases be sited properly, for example, to be highly visible from major arterials; be financially viable on their own; create a

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very attractive gateway to the Town Center and entire South Hillsboro community; and be built as early as possible to provide this gateway and sense of place. Therefore, the City should seek to understand not only how the Town Center will look at full build out, but what the first and immediately following phases are likely to include (building areas, tenants) and look like (building types, site layout).

MARKET ANALYSIS
FOR RESIDENTIAL AND COMMERCIAL DEVELOPMENT
IN THE SOUTH HILLSBORO PLANNING AREA



PREPARED FOR THE CITY OF HILLSBORO
APRIL 11, 2014



**JOHNSON
ECONOMICS**

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I. INTRODUCTION

JOHNSON ECONOMICS was retained by the CITY OF HILLSBORO to conduct a market analysis for residential and commercial development in the South Hillsboro Planning Area in Hillsboro, Oregon. The objective of the analysis is to provide estimates of market depth and likely absorption across a range of residential and commercial product types. These estimates will inform the City's discussions on infrastructure financing.

Our approach is to estimate absorption in light of the anticipated future supply-demand balance. This entails the following analytical process:

1. Projecting residential and commercial demand in Hillsboro in light of economic and demographic trends and conditions, by price point as well as by product type.
2. Evaluating the current inventory and anticipated future supply of residential and commercial products in Hillsboro, by price level and product type.
3. Reconciling anticipated supply and demand, and estimating absorption across the different residential and commercial product types in Hillsboro and the South Hillsboro Planning Area.
4. In light of our findings, provide commentary and feedback on the programs and phasing proposed by developers.

The analysis is performed for residential products first. Outputs from this analysis are utilized in the assessment of commercial demand in the planning area.

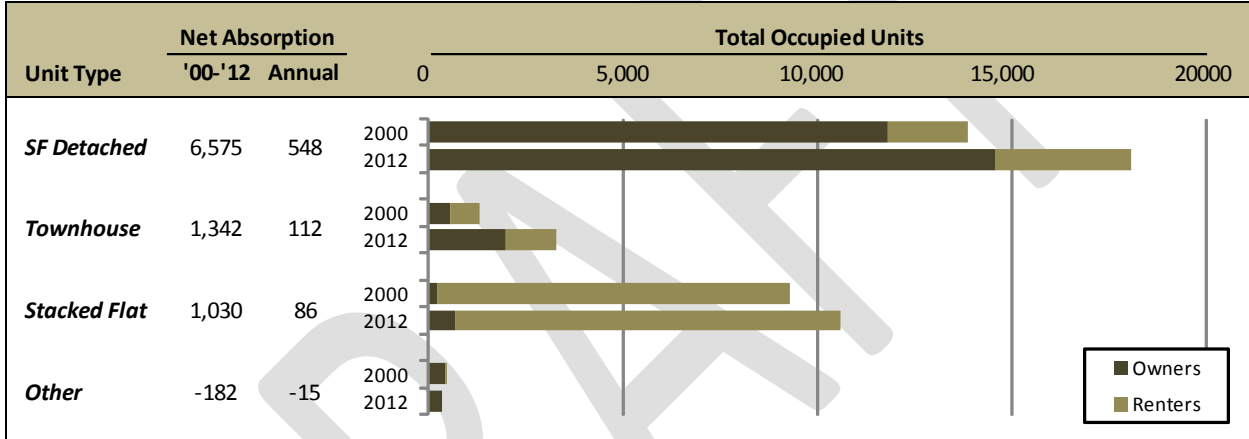
II. EXECUTIVE SUMMARY

HILLSBORO HOUSEHOLD AND HOUSING TRENDS

Hillsboro has added around 10,000 households since the turn of the millennium. This growth, which represents a 2.3% annual rate, is higher than in most parts of the Portland Metro Area. The growth has been strongest among mid-to-upper-income households of family age and older. The growth is more impressive in light of the area’s significant constraints in terms of developable land, which has constrained new construction during this period.

Reflecting Hillsboro’s demographic growth profile, the majority of the household growth has flowed into single-family detached units. However, on a relative basis, townhouses have seen the largest increase, expanding by 38% between 2000 and 2012. The overall ownership rate increased from 52.3% to 54.7% over the same period. The shift towards attached for-sale product is at least partially attributable to constrained land supply, which has made traditional single family product more difficult to deliver to the market.

FIGURE 2.1: OCCUPANCY BY UNIT TYPE, HILLSBORO, 2000 AND 2012



SOURCE: U.S. Census Bureau, JOHNSON ECONOMICS

Hillsboro has an exceptionally low inventory of homes and lots for sale. This is true for both existing and new homes. The four main types of ownership housing have a current inventory that represents 1.0 to 2.2 months of sales (six months is generally considered a balanced market), and the median market time ranges from 20 to 40 days. The lack of inventory is suppressing the overall sales volume and new-home absorption. As a result, demand flows to neighboring markets with more supply.

The rental apartment market experienced a similar shortage until recently, but construction has boomed, and the new supply is easing pressures in this market. At present, there are around 1,700 units in the pipeline, representing an inventory expansion of 15%. Demographic data indicates that pent-up demand might absorb nearly half of this pipeline, but only if rents come down from current levels.

RESIDENTIAL DEMAND AND ABSORPTION PROJECTIONS

According to JOHNSON ECONOMICS’ baseline estimate, there is underlying demand for around 11,500 new housing units in Hillsboro over the next ten years. This represents annual household growth of 2.8%. The following table shows the model baseline outputs with respect to tenure and unit type.

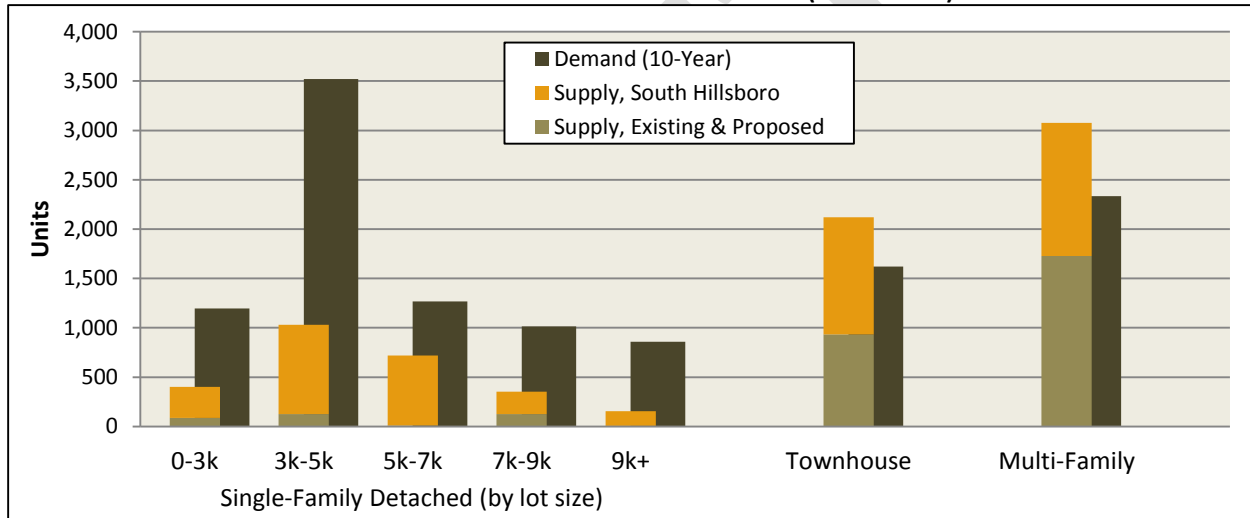
FIGURE 2.2: NET NEW DEMAND IN HILLSBORO (2014 – 2024), BASELINE MODEL

	Detached	Townhouse/Duplex	Multi-family	Total
Ownership	7,860	471	204	8,535
Rentals	918	230	1,823	2,972
Total	8,778	702	2,027	11,507

SOURCE: JOHNSON ECONOMICS

Reconciling demand estimates with short- and long-term supply in Hillsboro (including preliminary plans for South Hillsboro), indicates three to four years of detached-lot supply. In isolation, the Planning Area’s mix of unit types appears to be a good reflection of market demand. However, supply in other developments upsets this balance. Our projections indicate that phasing schedules for South Hillsboro residential developments are conservative with respect to detached homes, and somewhat optimistic regarding attached homes. We would expect some of the unmet demand for single family homes to transition to multi-family product as a result.

FIGURE 2.3: ANTICIPATED SUPPLY-DEMAND BALANCE (2014 – 2024)



SOURCE: JOHNSON ECONOMICS

The following table summarizes absorption estimates for the Planning Area under different scenarios. One scenario assumes that developers will be unable to release supply at a more rapid pace than indicated in their phasing schedules, and another assumes that all demand will be met by supply.

FIGURE 2.4: SUMMARY OF ABSORPTION ESTIMATES (2016 – 2025)

Scenario	Household Growth	Unconstrained Demand	Absorption limited by Phasing Schedules		Full Potential Absorption	
	Hillsboro	Hillsboro	Hillsboro	Planning Area	Hillsboro	Planning Area
Low Growth	2.30%	9,137	5,633	3,993	9,330	7,690
Baseline Growth	2.84%	11,549	6,465	4,488	11,549	9,691
High Growth	3.50%	14,694	6,959	4,839	14,694	12,574

Source: JOHNSON ECONOMICS

COMMERCIAL DEMAND AND ABSORPTION PROJECTIONS

JOHNSON ECONOMICS has a baseline demand estimate of around 400,000 square feet of commercial space in the Planning Area over the 2016 to 2026 period. This estimate assumes that the Planning Area will be able to capture 20% of the surrounding market area’s current spending leakage within retail categories consistent with community and neighborhood center formats. The estimate also assumes that 13% of total consumer spending by Planning Area residents will take place within the Planning Area. The following table summarizes our projections:

FIGURE 2.5: RETAIL SPACE DEMAND AND ESTIMATED ABSORPTION IN THE PLANNING AREA (2016 – 2026)

TOTAL RETAIL DEMAND	Based on Developer Phasing Schedules				Full Potential Absorption			
	2016	2021	2026	Est. Annual Abs.	2016	2021	2026	Est. Annual Abs.
Planning Area Household Growth	0	28,357	56,715	5,671	0	72,656	145,311	14,531
Current Leakage Capture, w/HH Growth	225,263	255,242	285,222	28,522	225,263	255,242	285,222	28,522
Total	237,941	285,621	357,463	34,194	227,279	329,919	432,559	43,053

SOURCE: JOHNSON ECONOMICS

Reconciling our demand estimates with phasing plans from the developers indicate a healthy supply-demand balance, and an overall absorption period of around ten years. In this light, the phasing schedules appear realistic. However, absorption of retail space is difficult to project with any level of certainty, as the market is tenant driven and absorption rates are highly dependent on key anchor tenants being secured early in the development phase.

III. PORTLAND METRO REAL ESTATE TRENDS

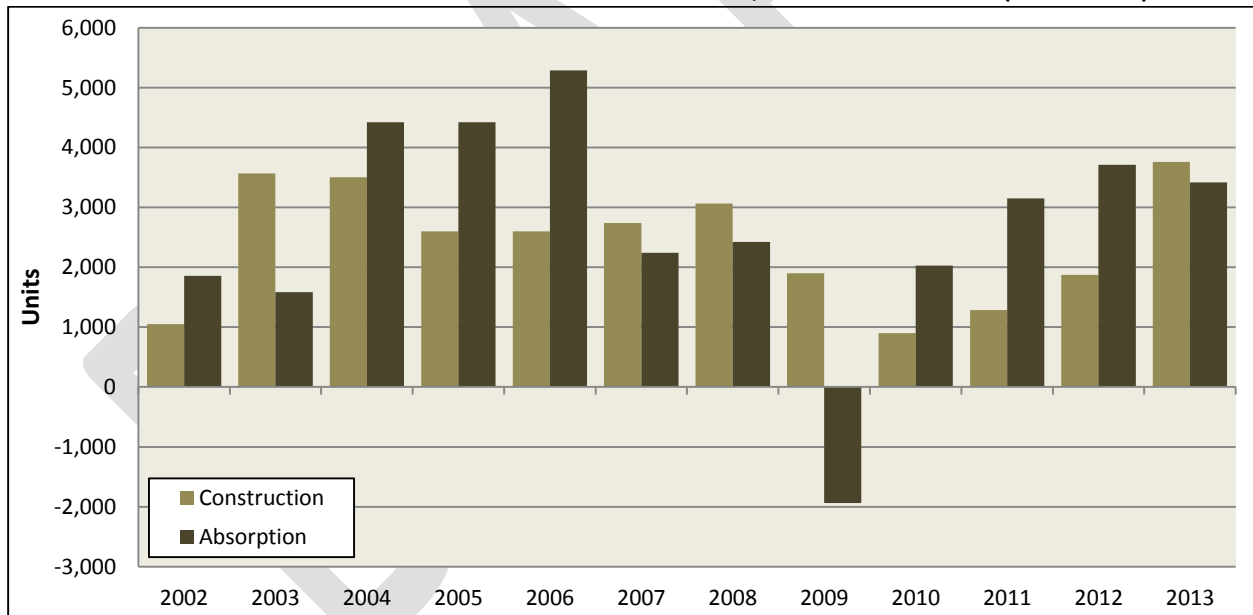
The Portland Metro Area has recovered from the “Great Recession,” and is currently experiencing healthy economic growth. Because of its reliance on cyclical industries like manufacturing, the region saw steeper job losses than the rest of the nation. However, its cyclical exposure has also led to a more rapid recovery following the recession. Employment growth has been particularly strong in high-tech sectors, such as semiconductor manufacturing, IT services, and software development. The region’s competence in these fields has attracted new firms and workers, especially from the San Francisco Bay area. These help drive demand for housing, offices and retail space.

RESIDENTIAL MARKETS

Rental

The foreclosure crisis and ensuing tightening of credit requirements forced a nationwide shift from ownership to rental housing. In the Portland Metro Area, this has led to a building boom in the apartment market. In late 2013, nearly 20,000 apartments were under construction or in the planning stages within the Metro Area across projects tracked by JOHNSON ECONOMICS.¹ The pipeline has narrowed somewhat recently, as many new buildings have been completed.

FIGURE 3.1: MULTIFAMILY RENTAL CONSTRUCTION AND ABSORPTION, PORTLAND METRO AREA (2002 – 2013)



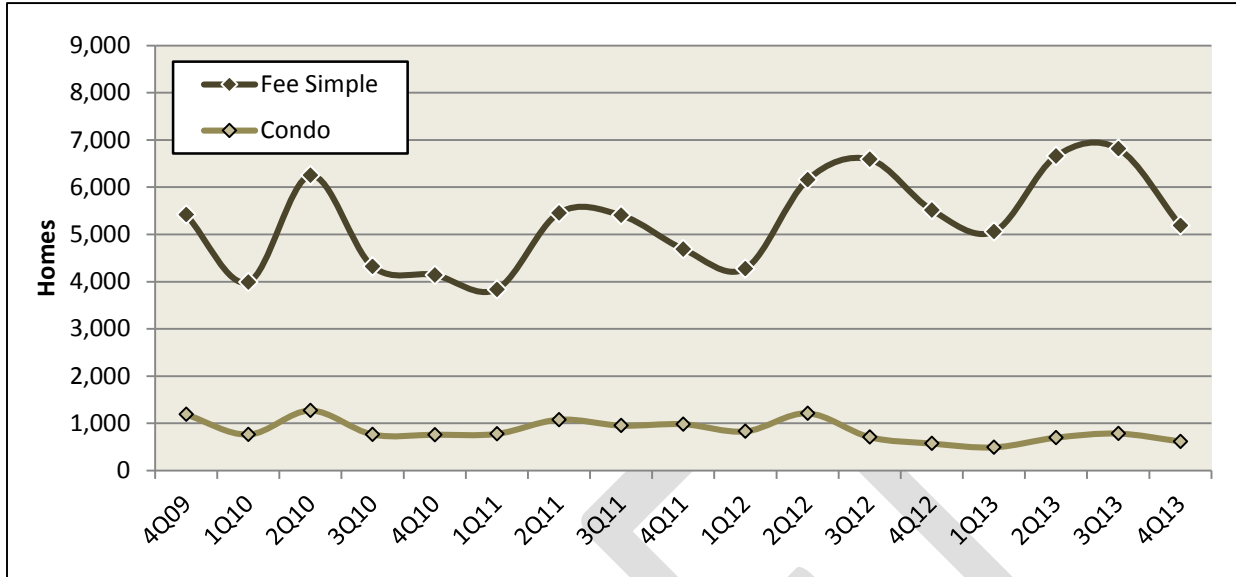
SOURCE: JOHNSON ECONOMICS

Ownership

The ownership market has seen less development activity than the rental market, due to excess supply in the wake of the downturn. However, the market has been on a stable upward trend since mid-2011. On average, the region has seen an annual sales increase of about 600 homes per year since the turnaround. The gains have come primarily in the detached-home segment, while the condominium market continues to be weak.

¹ JOHNSON ECONOMICS tracks regional apartment construction through regular collection of public and private data as well as through conversations with developers.

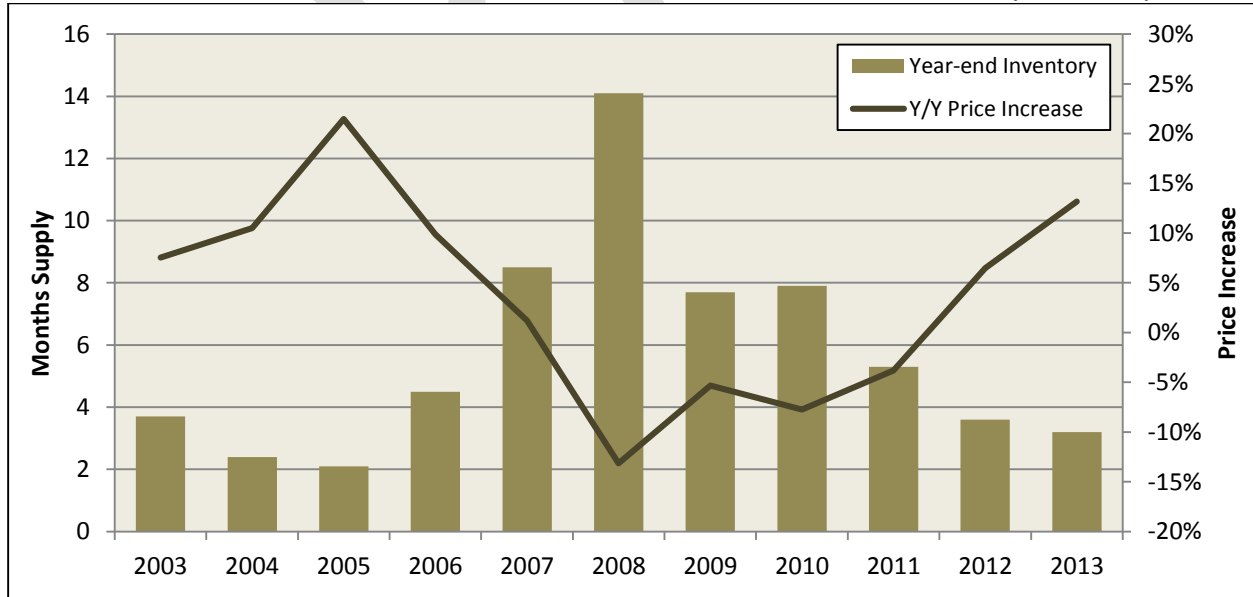
FIGURE 3.2: QUARTERLY HOME SALES, PORTLAND METRO AREA



SOURCE: RMLS and JOHNSON ECONOMICS

As the excess inventory of homes has been absorbed, priced has begun to climb. Based on the Case Shiller Home Price Index, Portland’s year-over-year price increase was 13% at the end of 2013. Rising prices have made local homeowners more willing to list their homes for sale, and this has helped ease the pressure in this market recently. In terms of inventory, the bottom was reached in May 2013, when the supply represented only 2.5 months of sales. At the present, the region has a 3.9-month supply. Prices are expected to continue to climb until we cross the six-month supply level.

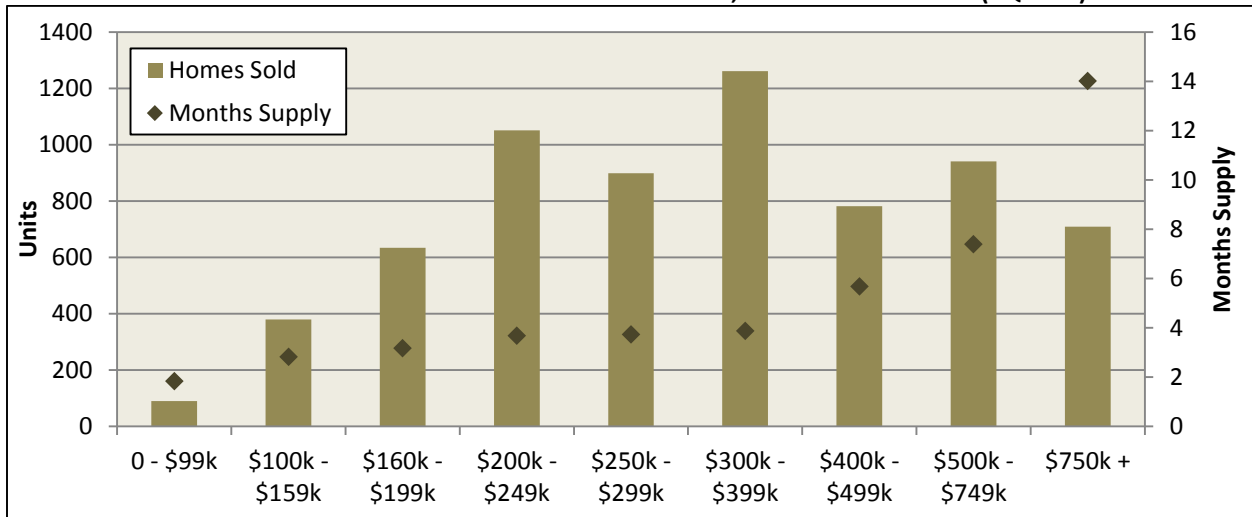
FIGURE 3.3: YEAR-END SUPPLY AND YEAR-OVER-YEAR PRICE INCREASE, PORTLAND METRO AREA (2003 - 2013)



SOURCE: RMLS, S&P Case Shiller, and JOHNSON ECONOMICS

The most pressured segments of Portland’s housing market are found in the lower price ranges, where the inventory at the end of 4Q 2013 represented less than three months of sales. For mid-range homes, the supply represents roughly four months, while the high-end segments have significantly more inventory available.

FIGURE 3.4: HOME SALES AND INVENTORY BY PRICE RANGE, PORTLAND METRO AREA (4Q 2013)

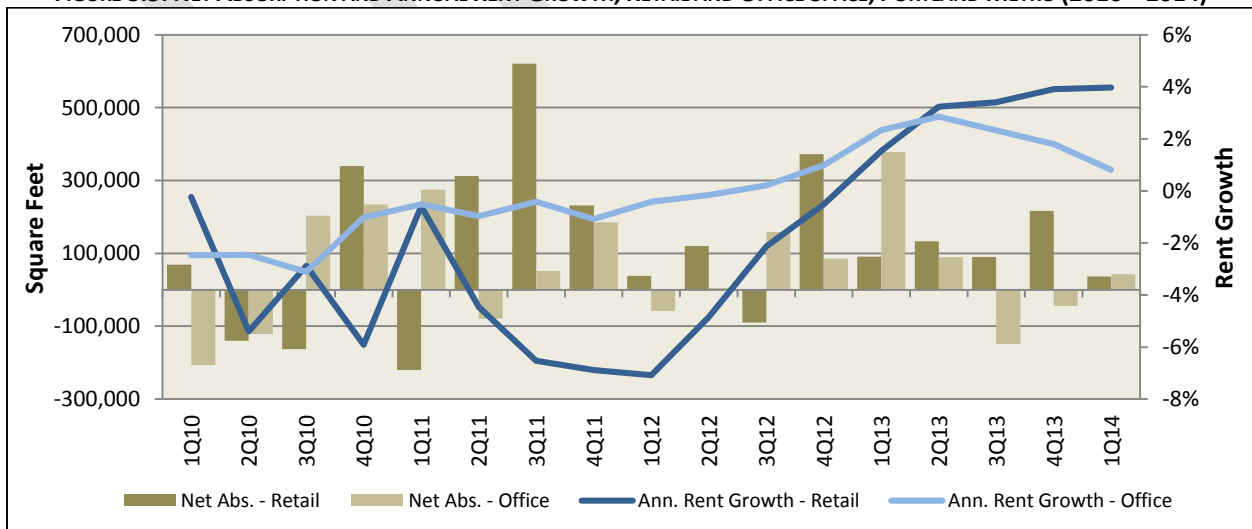


SOURCE: RMLS and JOHNSON ECONOMICS

COMMERCIAL MARKETS

Portland’s commercial markets have not recovered to the same degree as the residential markets, despite recent employment growth. The industrial market is the strongest of these, as the lack of available land prevented excessive overbuilding prior to the recession. This is now boosting occupancies and rents at existing properties. The office and retail markets have struggled to absorb vacant space, particularly in the suburbs. The weakness in the office market is largely due to a shift to more flexible work arrangements, where employees telecommute or work in more open and efficient offices. The retail market is suffering from the shift toward online retailing. This is in particular hurting suburban power centers and regional centers, which often require long drives and offer merchandise that can be more conveniently ordered online.

FIGURE 3.5: NET ABSORPTION AND ANNUAL RENT GROWTH, RETAIL AND OFFICE SPACE, PORTLAND METRO (2010 – 2014)



SOURCE: Kidder Mathews/CoStar

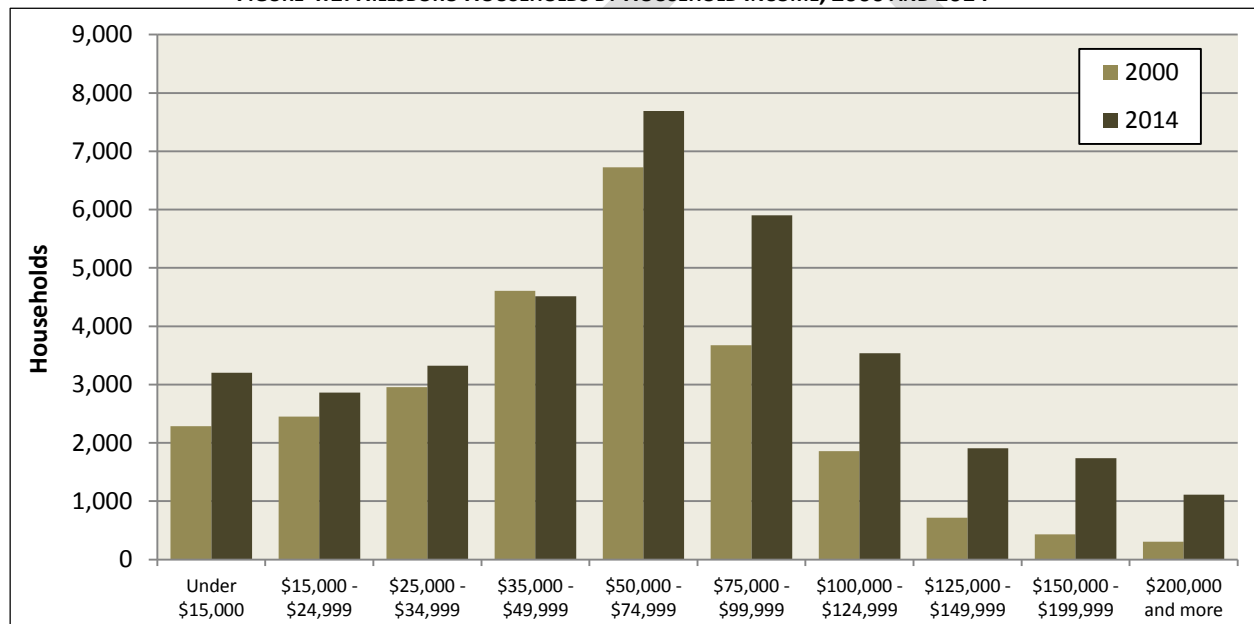
IV. HILLSBORO DEMOGRAPHIC TRENDS

According to the Census Bureau’s American Community Survey, there were 26,000 households within the City of Hillsboro in the year 2000. This year, the number will reach 35,800, according to estimates from Nielsen Claritas.² The growth translates to an average annual rate of 2.3%, which is relatively rapid, both in a national and regional context. Expansion among Hillsboro’s basic industries has contributed to this household growth. The Portland Metro Area has an equivalent growth rate of around 1.3% over the same period.

Income Distribution

The income level in Hillsboro is substantially higher than in the rest of the Portland Metro Area, and around 61% of the city’s households have incomes above \$50,000. It is also among upper-income households that most of the household growth has taken place in recent years. The following chart displays the household distribution across different income brackets in 2000 and 2014. The strongest growth has come among mid-to-upper-income households, while there has been only modest change among the lower income brackets.

FIGURE 4.1: HILLSBORO HOUSEHOLDS BY HOUSEHOLD INCOME, 2000 AND 2014



SOURCE: Nielsen Claritas

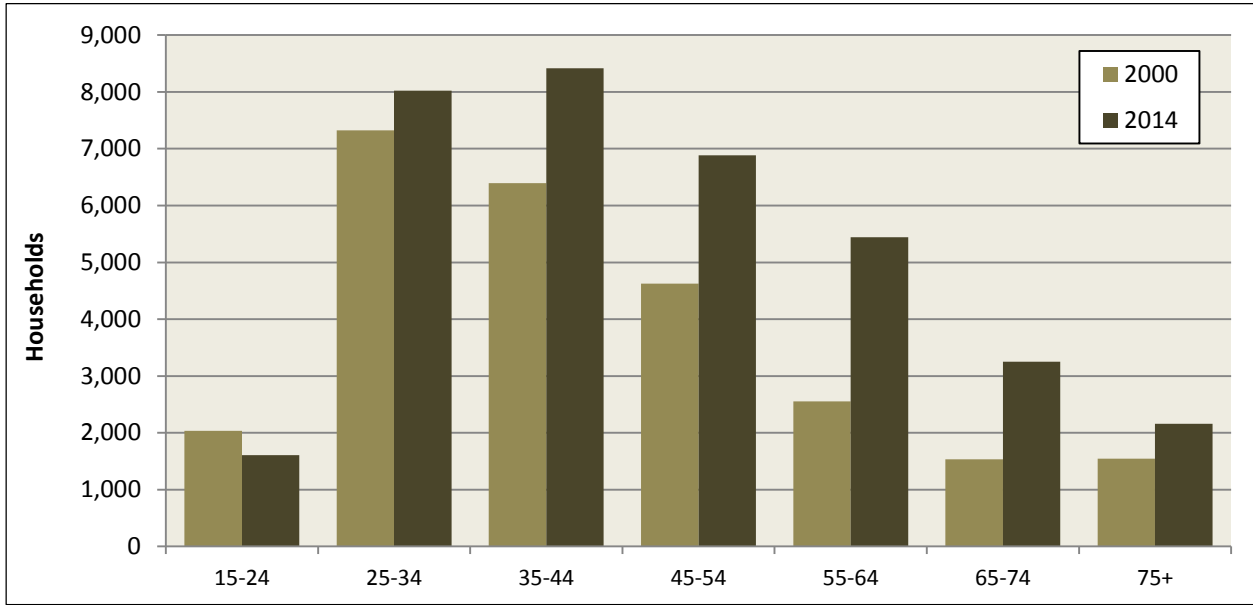
Age Distribution

Hillsboro’s household base is relatively young, although the aging effect from the Baby Boomer cohort is changing this picture – as in most other places. This year, roughly half of the household base will have householders³ who are younger than 45. In 2000, this share was 61%. Growth over the past 14 years has been distributed widely across segments in the family-stage and up, though with a concentration in the pre-retirement segment. At the same time, there has been a decline in the youngest segment. This is a common trend, particularly in suburban areas.

² The most recent census data are from 2012. Claritas’ current-year estimates extrapolate trends observed in census data.

³ Based on the individuals designated as householders in the American Community Survey.

FIGURE 4.2: HILLSBORO HOUSEHOLDS BY AGE, 2000 AND 2014



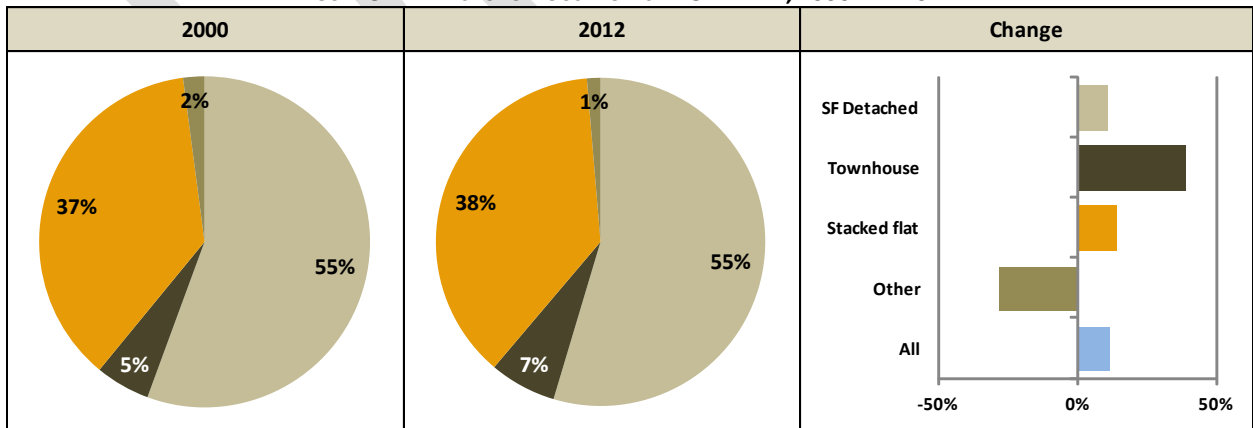
SOURCE: Nielsen Claritas

V. HILLSBORO HOUSING TRENDS

SHIFTS IN HOUSING COMPOSITION

Since the turn of the millennium, there have been only small changes in the relative composition of housing occupancy in Hillsboro. Townhouses have seen the greatest expansion over this period, expanding the share in the household base from 5% to 7%. This represents a 38% expansion. Growth among young families, empty-nesters, and retirees likely accounts for the increase for this unit type. The share of households in the detached-home segment has remained stable at 55%.

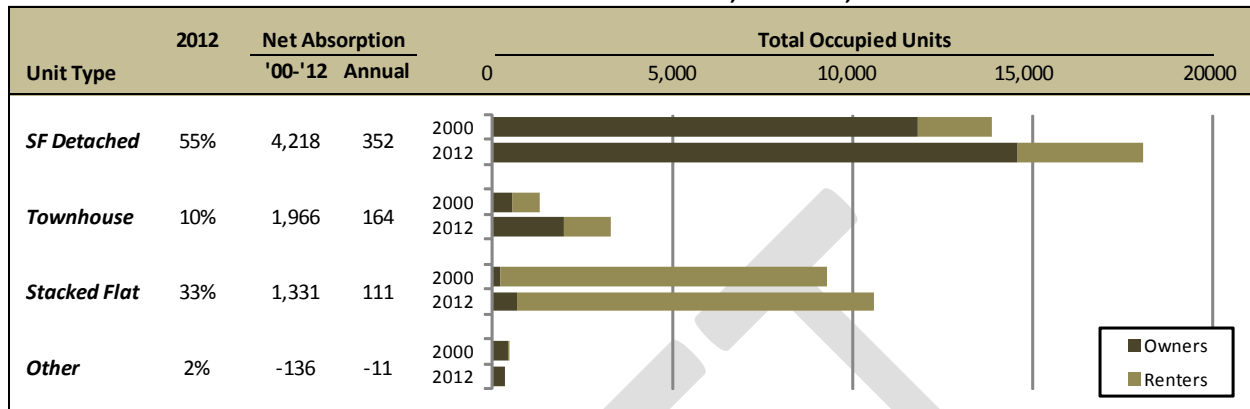
FIGURE 5.1: HILLSBORO HOUSEHOLDS BY UNIT TYPE, 2000 AND 2012



SOURCE: U.S. Census Bureau

On an absolute basis, single-family detached homes have seen the greatest increase since 2000. On a net basis, around 4,000 such homes have been absorbed over the 12-year period. In comparison, townhouses have seen net absorption of nearly 2,000 units, and multi-family occupancy has increased by around 1,300.

FIGURE 5.2: OCCUPANCY BY UNIT TYPE AND TENURE, HILLSBORO, 2000 AND 2012



SOURCE: U.S. Census Bureau, JOHNSON ECONOMICS

The tenure composition has also changed somewhat since the turn of the millennium. In 2000, the ownership rate was 52.3% according to the Census Bureau. By 2008, it had climbed to 61.4%, before dropping to 54.7% in 2012.⁴ The detached-home segment has seen the largest increase in the share of renter households, from 15% in 2000 to 19% in 2012. This reflects that a large number of units became rentals (and owners became renters) in the wake of the foreclosure crisis.

The opposite is true of townhouses. Its ownership rate climbed from 43% to 61%, over this period. Whereas metro-wide absorption of new ownership townhouses has slowed considerably since the housing bust, this segment continues its strong performance in Hillsboro (particularly in the Autumn Creek development). The lack of detached-home inventory (see below) has likely contributed to this trend.

Ownership condominium flats have also seen an increase since 2000, from 3% to 9%. However, this trend did revert in the wake of the recession, and no new homes of this type have been sold since 2009. This segment remains a renter-dominated segment.

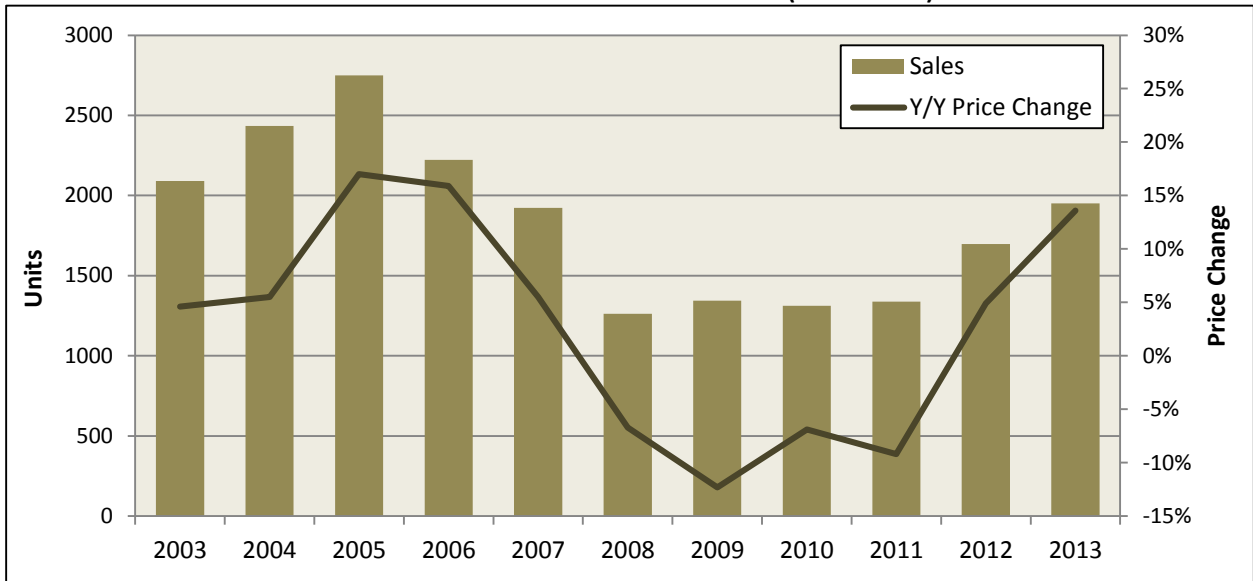
OWNERSHIP MARKET TRENDS

Market-wide Trends

Since the bottom in 2008, the housing market in Hillsboro has seen stronger gains than the remainder of the region. In terms of sales velocity, the Hillsboro market gained 54% over this period, compared to 41% in the Portland Metro Area. The increase has come primarily over the past two years. With little new inventory, the increased sales volume has led to price increases – 14% in 2013.

⁴ These ACS 1-year estimates have a relatively high margin of error, and the year-to-year changes before and after 2008 indicate that the ownership estimate exaggerates the ownership rate that year.

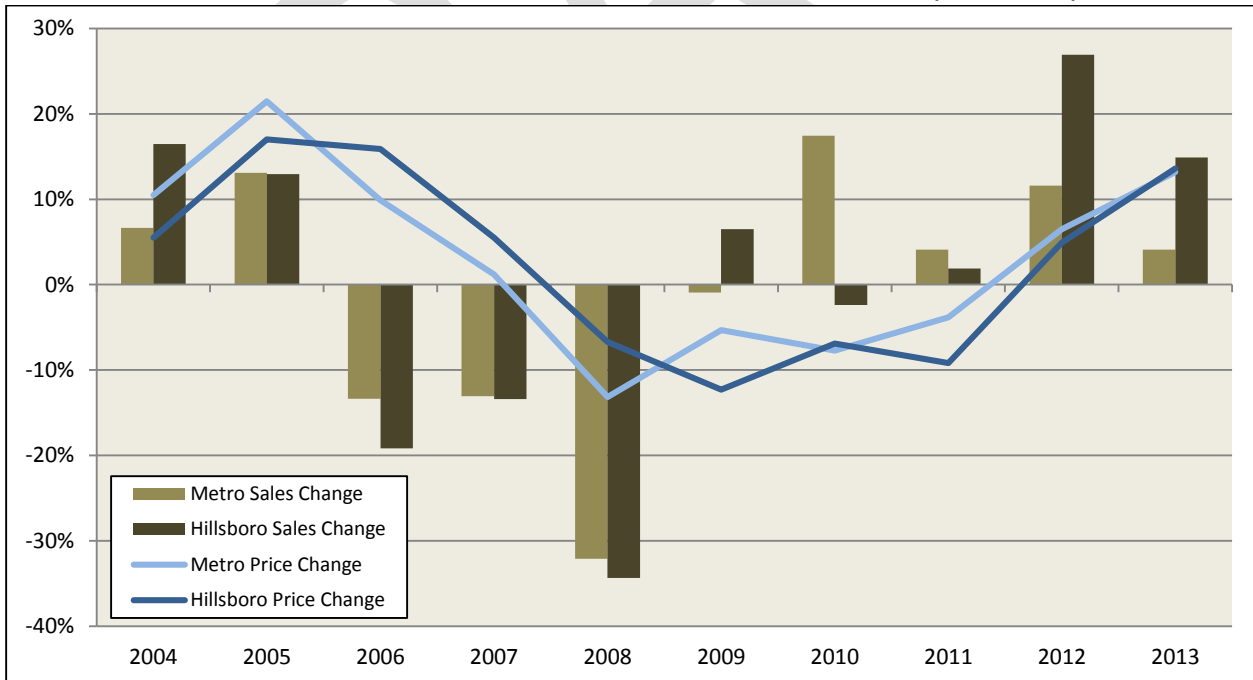
FIGURE 5.3: HILLSBORO SALES AND PRICE TRENDS (2004 – 2013)



SOURCE: RMLS, JOHNSON ECONOMICS

The following chart compares sales and price trends in Hillsboro to those in the Portland Metro Area. As the chart indicates, Hillsboro has seen a particularly strong development in 2012 and 2013. Pricing in Hillsboro has largely tracked wider trends lately, after outperforming the region before the downturn.

FIGURE 5.4: CHANGE IN SALES AND PRICING*, HILLSBORO VS. PORTLAND METRO (2004 – 2013)

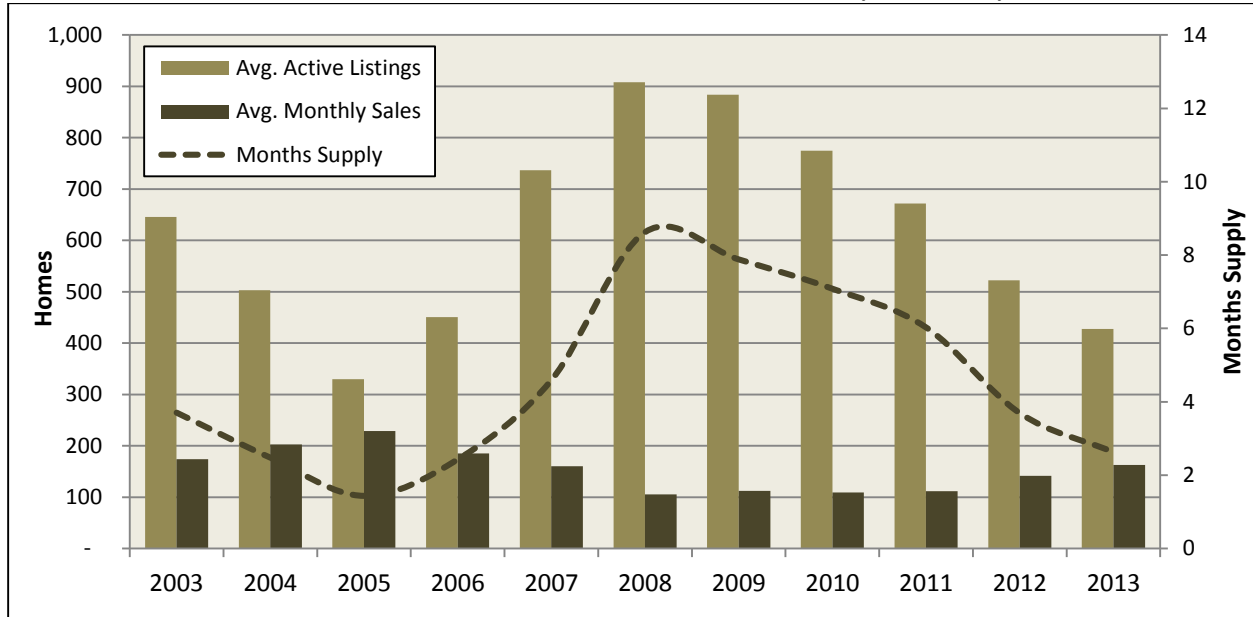


* Portland price change calculated from the S&P Case Shiller Index, which is based on same-property sales. Hillsboro price change calculated from median prices.

SOURCE: RMLS, S&P Case Shiller, and JOHNSON ECONOMICS

The downturn led to an accumulation of unsold inventory in Hillsboro, as in the rest of the region. This excess inventory has now been absorbed. Combined with an increase in the sales pace, the decrease in listed inventory has led to an undersupply of homes. For 2013, the listed inventory represented 2.6 months supply, at the average monthly sales pace. Six months of supply is generally considered a balanced market.

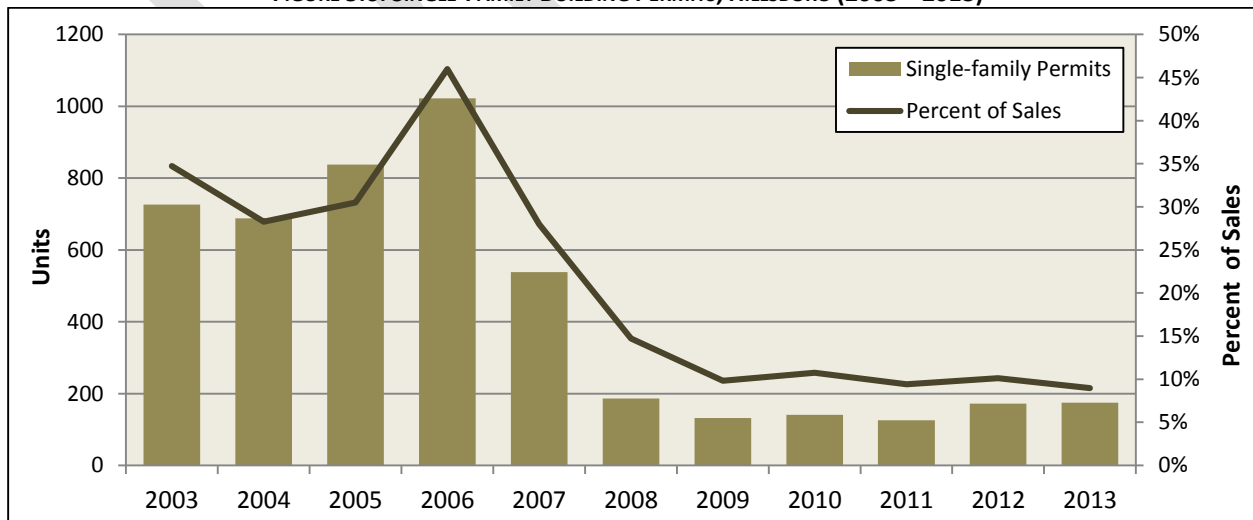
FIGURE 5.5: INVENTORY OF HOMES LISTED FOR SALE, HILLSBORO (2003 – 2013)



SOURCE: RMLS and JOHNSON ECONOMICS

Building permit data from Hillsboro reveals that the city is suffering from a lack of available land. In times of tight market conditions, the ratio of permitted units to units sold tends to increase, as developers and builders seek to capitalize on rapid absorption and high prices. However, single-family permits have increased only marginally on an absolute basis since the recession. Relative to sales, there has been a decline. This indicates continued tight market conditions in the future, with further price increases at a rate higher than the broader market and an increasing diversion of demand to other markets.

FIGURE 5.6: SINGLE-FAMILY BUILDING PERMITS, HILLSBORO (2003 – 2013)

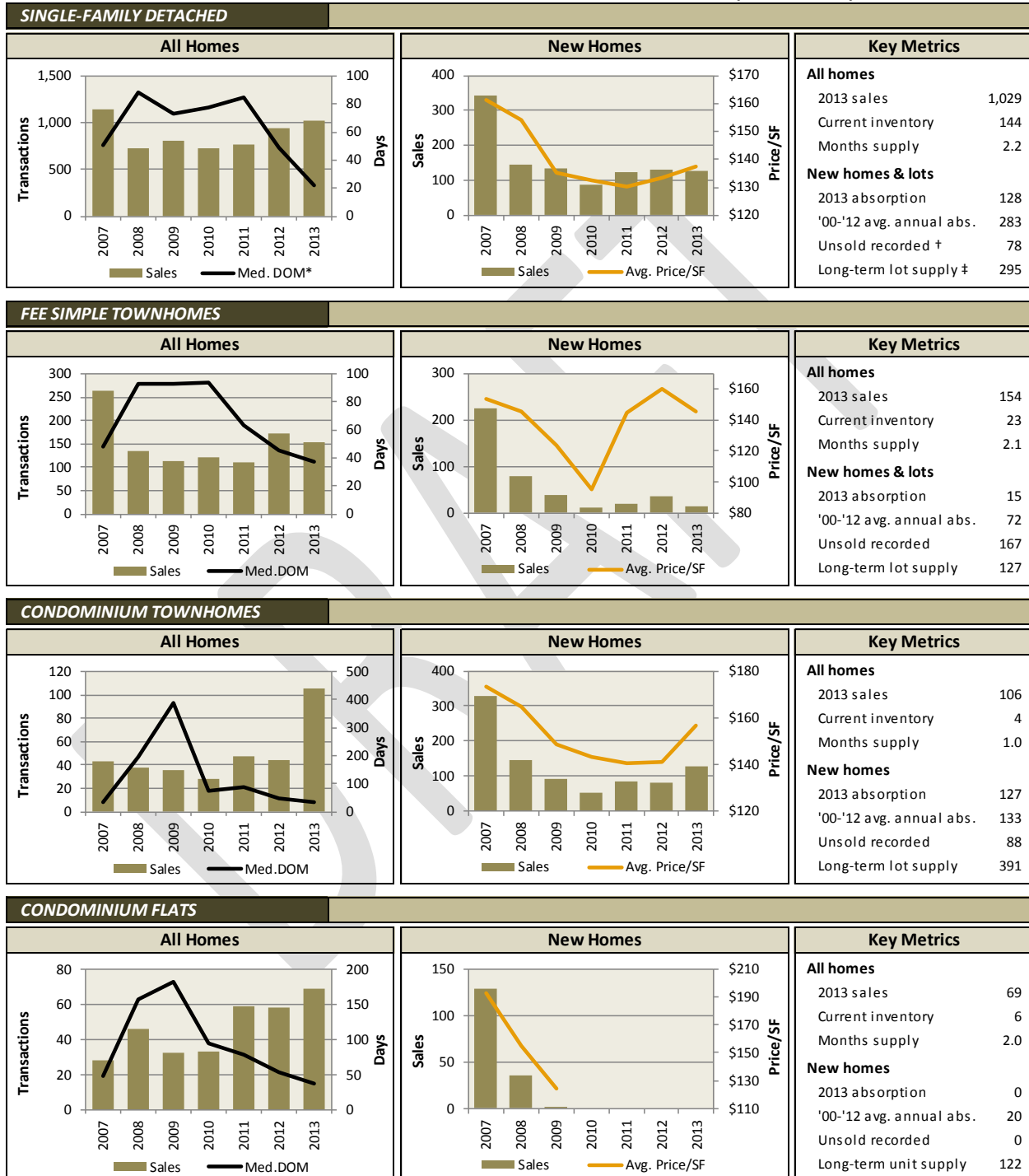


SOURCE: U.S. Census Bureau, RMLS, JOHNSON ECONOMICS

New-Home Absorption Trends

The following sheet summarizes market data with relevance for gauging future absorption in Hillsboro. Four types of ownership housing are covered. Data from the existing-home market, such as median days on the market (Med. DOM) and months of supply, are included as these provide an interpretive context for new-home absorption data.

FIGURE 5.7: OWNERSHIP MARKET ABSORPTION SUMMARY, HILLSBORO (2007 – 2013)



* Median days on the market. † Recorded lots/units in approved subdivisions. ‡ Proposed subdivisions incl. expired/off-market.

SOURCE: *New Home Trends*, RMLS, JOHNSON ECONOMICS

The preceding summary sheet reveals that sales have recovered for all four broad housing types, with the market time for listed homes down in the 20-to-40-day range. This is exceptionally low, with market equilibrium typically assumed to be in the 60-to 90 day range. The current months supply metric, ranging from 1.0 to 2.2 months (also exceptionally low) confirms the lack of inventory and indicates that the sales volume is currently held down by a lack of supply.

Absorption of new homes has picked up for all home types except condominium flats, which has no available new-home inventory. Among the other three, condominium townhomes appear to have the narrowest supply pipeline. Its 88 unsold recorded units represent eight months of 2013 sales, but none of the units are currently on the market. Two-thirds are not yet completed and one-third are off-market (likely converted to rentals). Units in proposed developments represent a three-year pipeline. (Developments with current and future supply are identified in the Appendix).

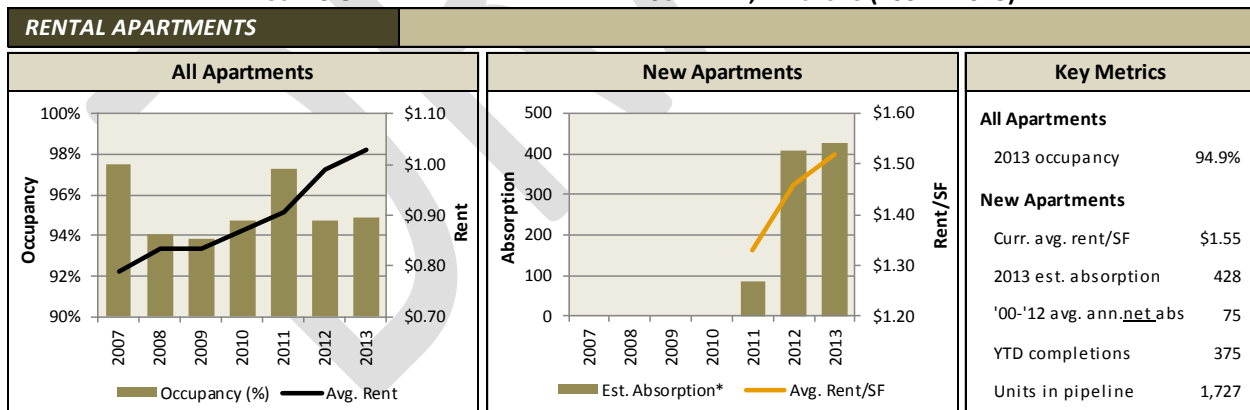
Fee simple townhomes appear to have sufficient lot supply when looking at 2013 sales, but this sales volume likely reflects a lack of completed supply. When compared to the long-term average sales volume, this home type has around two years of supply in recorded, unsold lots and another two years worth in proposed developments.

In the detached-home segment, the inventory of unsold, recorded lots represent only seven months of 2013 sales. When lots in proposed developments are included, the total inventory represents three years of sales.

APARTMENT MARKET TRENDS

Hillsboro’s apartment market saw a notable increase in demand following the downturn. The new demand pushed overall occupancy from 93.8% in 2009 to 97.3% in 2011, at the same time as rents increased by 4% per year. The occupancy level fell slightly in 2012 as new apartment projects were introduced. An estimated 800 units were absorbed in 2012 and 2013. Rents continued to climb through this period, 9% in 2012 and 4% in 2013, indicating that the market is not yet saturated. So far this year, nearly 400 new units have been delivered, and another 1,700 are in the pipeline.

FIGURE 5.8: RENTAL APARTMENT MARKET SUMMARY, HILLSBORO (2007 – 2013)

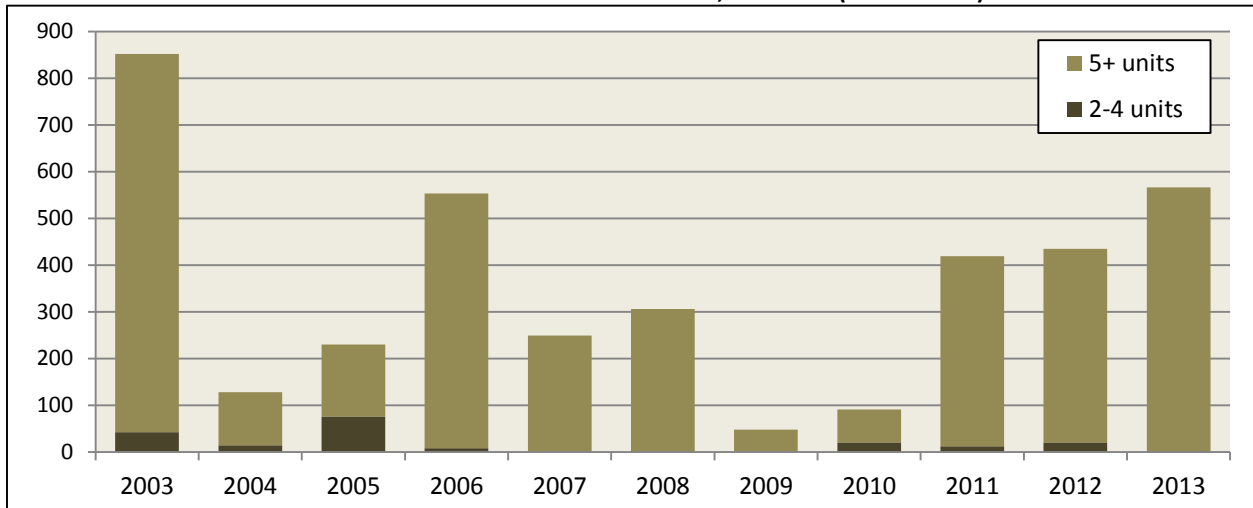


*Includes only large-scale projects. Estimates based on proprietary apartment database and permit data.

SOURCE: New Home Trends, RMLS, JOHNSON ECONOMICS

The uptick in apartment construction is reflected in building permit data. Whereas most of the multi-family permits issued prior to the downturn were for ownership condominiums, the vast majority since have been for rental apartments. The following chart displays Hillsboro multi-family building permits by year since 2003.

FIGURE 5.9: MULTI-FAMILY BUILDING PERMITS, HILLSBORO (2000 – 2013)



SOURCE: U.S. Census Bureau, JOHNSON ECONOMICS

More than 560 multi-family units were permitted in 2013 – presumably all rental apartments – and there are currently 1,700 additional units at some stage in the approval process. Together, these represent around five years of supply at the 2013 absorption level. Some of the projects are multi-phase projects, and the planned supply might take as much as five years to realize. On this basis, the apartment market seems to have a good supply-demand balance.

One might question whether past absorption data is representative for future absorption of rental apartments. A long-term average⁵ would likely understate future absorption, as lasting changes to credit requirements and demographic shifts are likely to keep ownership rates below pre-recession levels. On the other hand, one might suspect that the 2013 level is inflated by pent-up demand from the wave of households forced into rental units by economic necessity in the downturn. At least a portion of these can be expected to return to the ownership market when wages, savings, and creditworthiness have recovered.

The ACS data from the Census Bureau does not indicate that the share of *apartment* renters in Hillsboro have changed measurably over the past years. Consequently, one should not expect an outflow of demand from this market as the economy improves. However, the ACS data indicates continued pent-up demand among renters in general. The average household size among Hillsboro renters went from around 2.7 before the recession to around 2.9 in 2012. This is consistent with a “double-up” trend JOHNSON ECONOMICS has identified elsewhere in Washington County and Multnomah County. Faced with a lack of vacancies and sharply climbing rents, many renters choose to live with roommates.

According to our estimates, Hillsboro has 1,850 “double-up renters.” At an average household size of 2.7, these represent around 700 renter households. To the extent that new apartments are made affordable, these households could help absorb future supply. However, we are hesitant to make the assumption that the new units will be adequately affordable. As a result, we do not think Hillsboro will continue to absorb rental apartments at a rate of 400+ units over the mid- to long-term.

⁵ We do not have absorption data for Hillsboro prior to 2011, but net absorption – net of abandonment and conversions to ownership – is 75 units per year on average for the 2000 – 2012 period, based on ACS estimates. We view this to be reflective of a lack of new supply, as few new units were introduced during this period and the market was very tight.

VI. RESIDENTIAL MARKET DEPTH

JOHNSON ECONOMICS projects future housing demand by segmenting the existing household base by age and income – the two most important determinants of housing preferences – and modeling growth in each segment based on economic and demographic conditions and trends. A long-term housing needs analysis that followed this approach was conducted for the City of Hillsboro in 2009 (JOHNSON REID). Most of the assumptions regarding Hillsboro’s potential employment growth were carried over to this analysis. However, this analysis represents a new projection, based on updated economic and demographic data. In addition, the time horizon is different. This analysis projects demand over a ten-year period (2014 – 2024).

Our segmented household growth estimates are based on projections by Nielsen Claritas, a third-party data provider that models such growth within specific geographies down to a census block group level. This modeling is based on aging of the existing population and trends with respect to births, deaths, and migration. We make adjustments to these estimates based on knowledge of local conditions. The goal is for the projections to reflect underlying demand (preferences) rather than expected realized household growth, which is constrained by supply.

After developing a segmented projection of overall housing demand by age-income segment for the market area, we use ACS Microdata from the U.S. Census Bureau to establish local, segment-specific rates of housing tenure (owners/renters), housing type (detached/townhouse/multi-family), and housing expenditures (rents and purchase price) to derive assumptions of future housing preferences and ability/willingness to pay. These assumptions are used to estimate demand across housing types and price/rent levels.

For our estimates of single-family detached home demand, we perform a final step that converts demand by price into demand by lot size. This conversion is made using new-home transaction data from Hillsboro (2000 to present), provided by New Home Trends. For each defined price range, we apply the observed distribution across different lot size ranges, after adjusting transaction prices to current price levels.

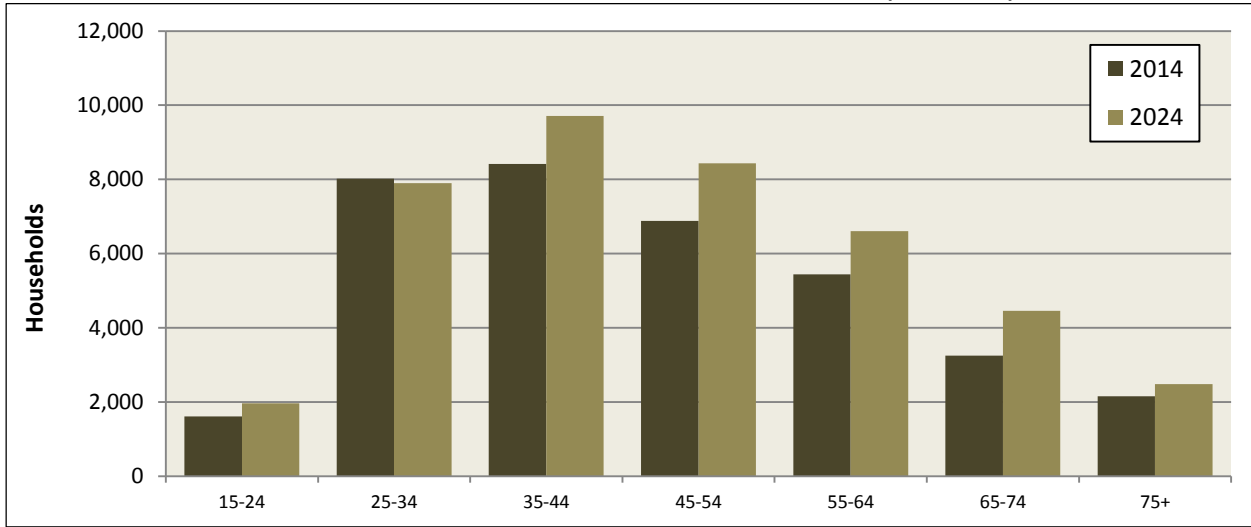
Our absorption projections take into account turnover in the existing household base as well as the net growth in demand (structural demand). Though turnover demand represents demand for which there already is supply, existing households participate in the market for new units. Conversely, new households participate in the market for existing units. Our absorption projection applies the profile of total transaction demand (structural and turnover) to the demand magnitude indicated by our net growth estimates.

OVERALL HOUSING DEMAND, 2014 - 2024

Based on the outlined approach, our baseline demand estimate is for 11,500 housing units over the next ten years. (This is an estimate of underlying demand, and not of realistic absorption.) The estimate represents annual household growth of 2.8%. This is somewhat higher than the 2.3% annual average growth observed in Hillsboro since 2000, which was a period impacted by a severe downturn and supply constraints. The 2.3% level, which represents our low-growth scenario, indicates new demand of around 9,000 units, while our high-growth scenario (3.5% growth) indicates demand for more than 15,000 units.

With respect to age, the growth is expected to be fairly evenly distributed across households in family segments and up. This reflects a combination of employment-related in-migration and the aging of the Baby Boomer generation.

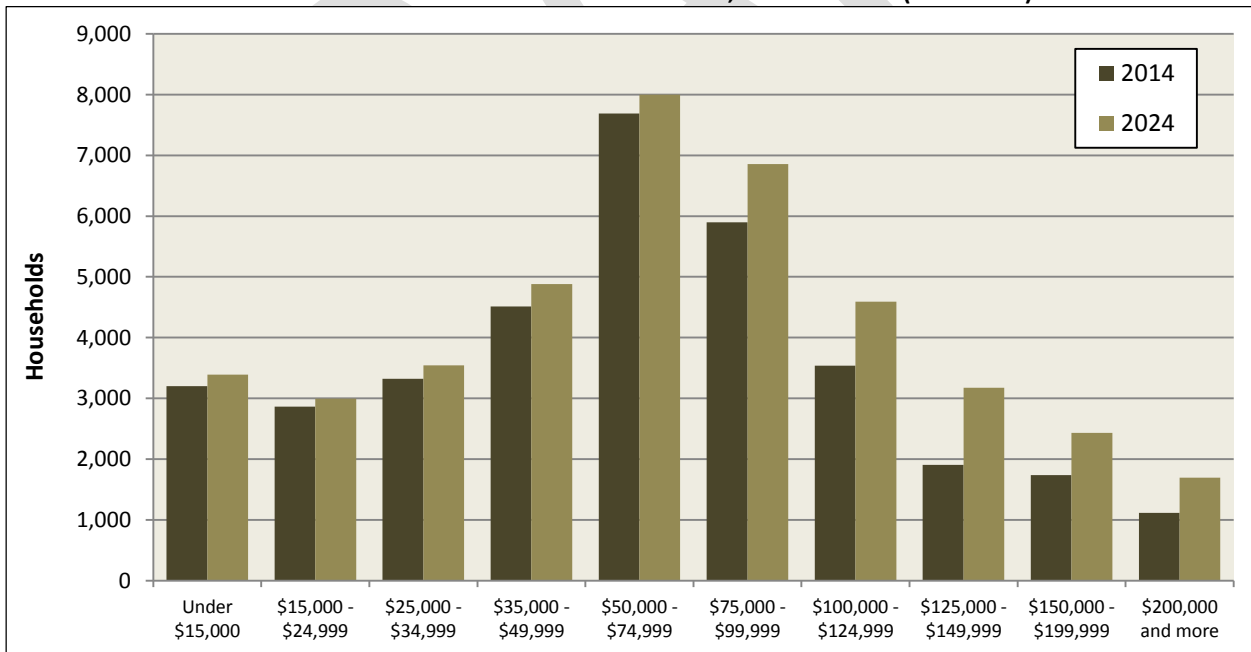
FIGURE 6.1: AGE PROFILE OF HILLSBORO HOUSEHOLDS, 2014 AND 2024 (PROJECTION)



Source: Nielsen Claritas, JOHNSON ECONOMICS

In terms of income, most of the new demand is expected to come from mid-to-upper-income households, reflecting the employment profile of Hillsboro. More than 60% of the new households are anticipated to have incomes above \$100,000. Only very modest growth is expected among low-income households, which in a scenario without supply constraints will see a release of some pent-up housing demand.

FIGURE 6.2: INCOME PROFILE OF HILLSBORO HOUSEHOLDS, 2014 AND 2024 (PROJECTION)



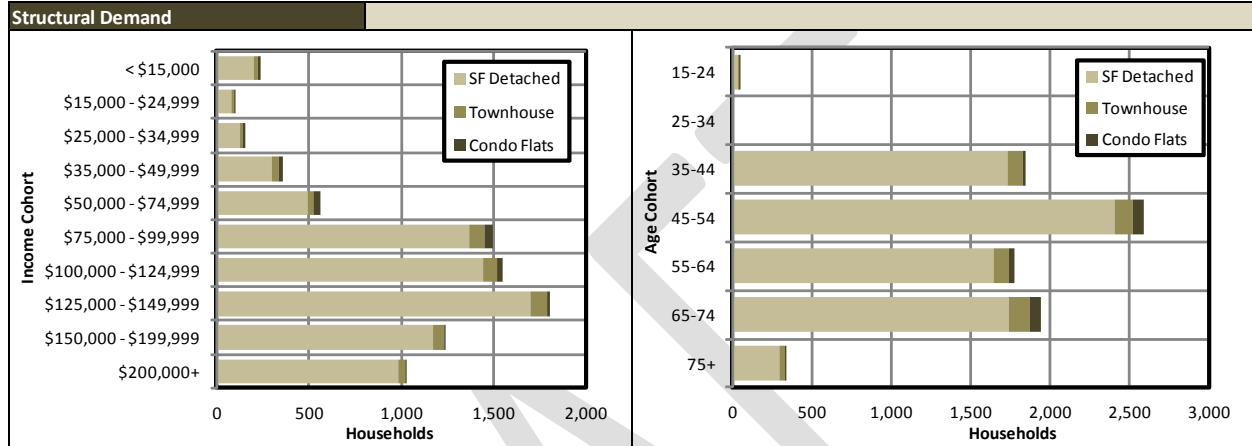
Source: Nielsen Claritas, JOHNSON ECONOMICS

DEMAND FOR OWNERSHIP HOUSING

Net-New Demand

JOHNSON ECONOMICS projects net-new (structural) demand for ownership homes in the order of 8,500 units (baseline scenario) over the next ten years, or around 850 units annually. The vast majority of this demand will be for single-family detached homes. In the baseline scenario, our model indicates that nearly 7,900 (92%) of these households will have a propensity for this product type, while nearly 500 (6%) will have a propensity for townhouses, and around 200 (2%) will have a propensity for condominium flats.

FIGURE 6.3: NET-NEW SINGLE-FAMILY OWNERSHIP DEMAND, HILLSBORO (2014-2024)

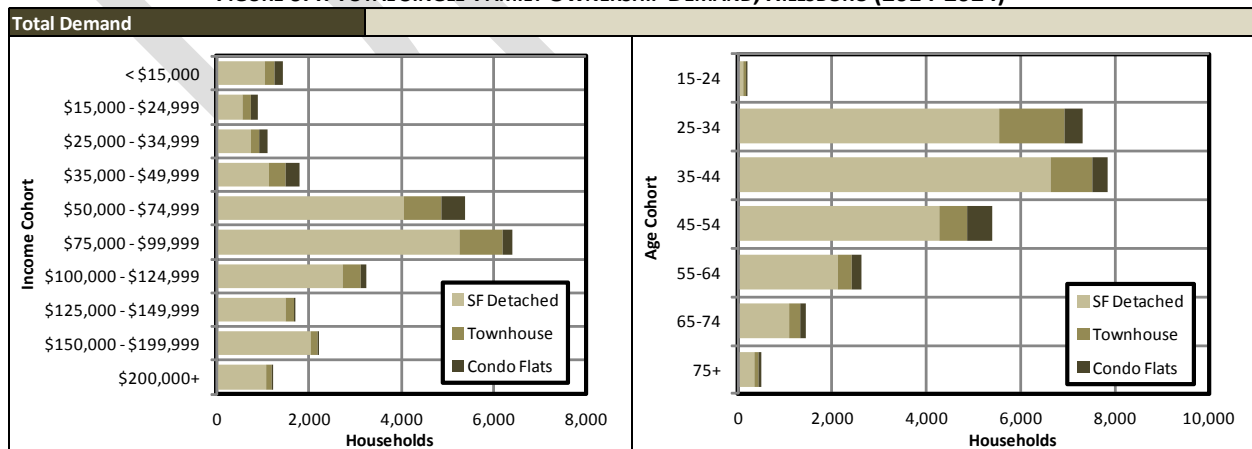


Source: JOHNSON ECONOMICS

Total Demand

Based on segment-specific turnover rates for the three different ownership product types (calculated from the ACS Microdata), we estimate around 2,500 rental transactions annually in Hillsboro over the coming ten years. This total demand is anticipated to be weighted toward family-stage, middle-income households. These segments have higher turnover than older segments and are therefore expected to dominate the market.

FIGURE 6.4: TOTAL SINGLE-FAMILY OWNERSHIP DEMAND, HILLSBORO (2014-2024)



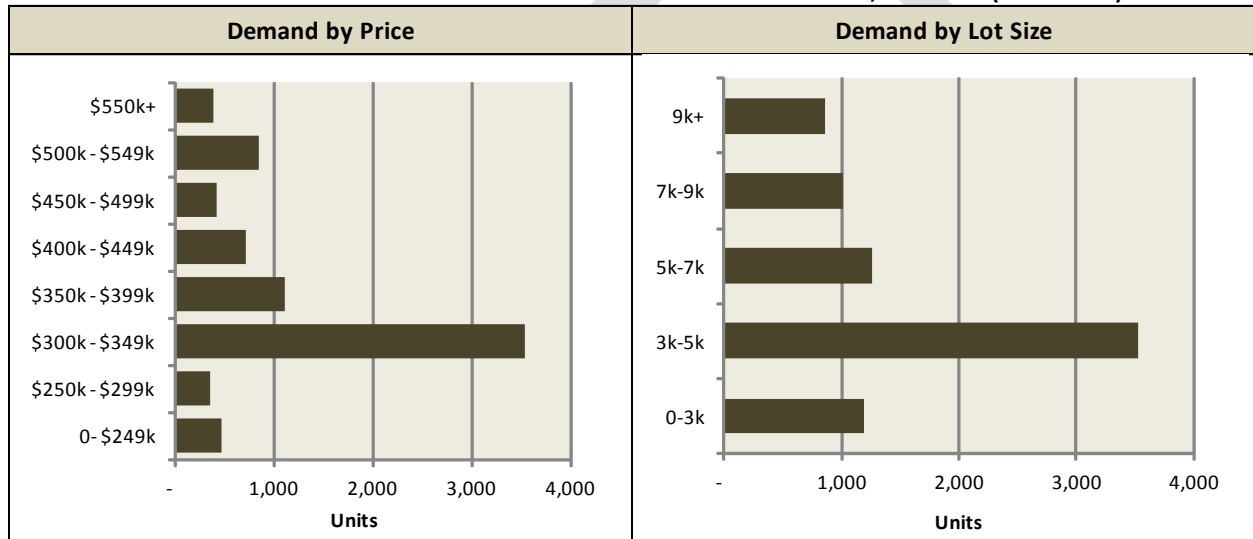
Source: JOHNSON ECONOMICS

Demand for Single-Family Detached Homes by Lot Size

As indicated in the discussion on methodology, JOHNSON ECONOMICS segments anticipated demand for single-family homes by price level, which in turn is converted to demand estimates by lot size. The first step of this process utilizes ACS Microdata from Washington County, which allows us to calculate average purchase prices (adjusted to 2014 dollars) within each age-income segment. The second step draws on lot size distributions within each price segment, as reflected in new-home transactions in Hillsboro since 2000. These transactions were adjusted to current price levels based on the trend of the annual median purchase price in Hillsboro.

The following chart displays the results of this analysis. Our estimates indicate a concentration of demand for new homes priced between \$300,000 and \$350,000. This converts to demand for around 3,500 lots (45%) in the 3,000-5,000-square-foot range (baseline scenario). Slightly more than 3,000 lots (40%) of larger sizes are expected to be demanded, while our estimates indicate demand for around 1,200 small lots (15%).

FIGURE 6.5: DEMAND FOR NEW SINGLE-FAMILY HOMES BY PRICE AND LOT SIZE, HILLSBORO (2014-2024)



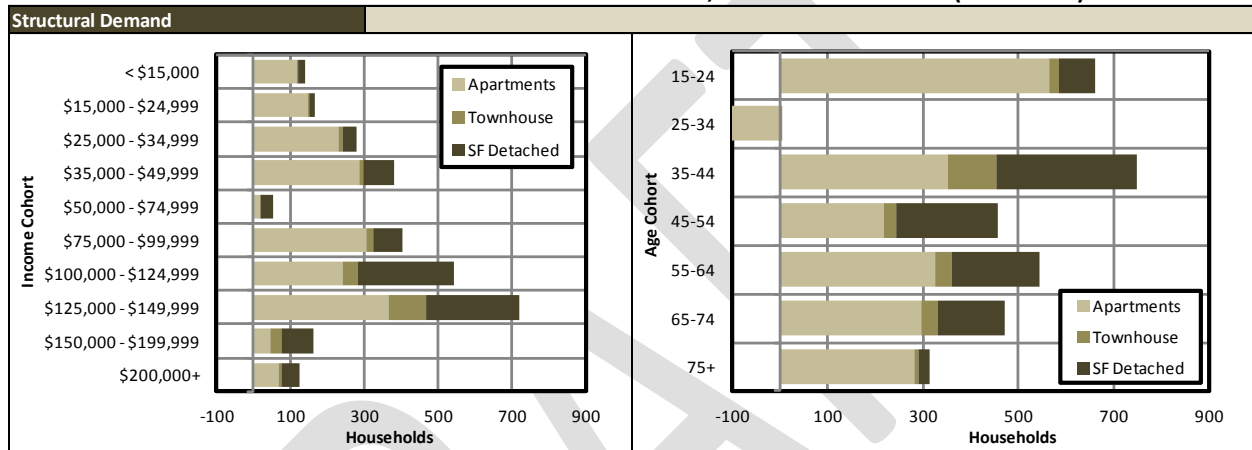
Source: JOHNSON ECONOMICS

DEMAND FOR RENTAL HOUSING

Net-New Demand

JOHNSON ECONOMICS projects net-new (structural) demand for rental homes in the order of 3,000 units over the forecast horizon, or around 300 units annually. The baseline scenario indicates that around 1,800 of these households will have a propensity for apartments, while 900 will have a propensity for single-family detached homes, and around 200 will have a propensity for townhouses. Apartment demand is normally the least flexible of these types of demand, given the greater constraints on income in this segment. Demand for the other two product types is more flexible. Only to a limited degree will it translate into direct absorption of detached homes (in rental developments or through investor purchases). In our absorption projections, we let this demand flow to the product types with the greatest relative supply (townhouses and apartments).

FIGURE 6.6: NET-NEW SINGLE-FAMILY OWNERSHIP DEMAND, PRIMARY MARKET AREA (2014-2024)

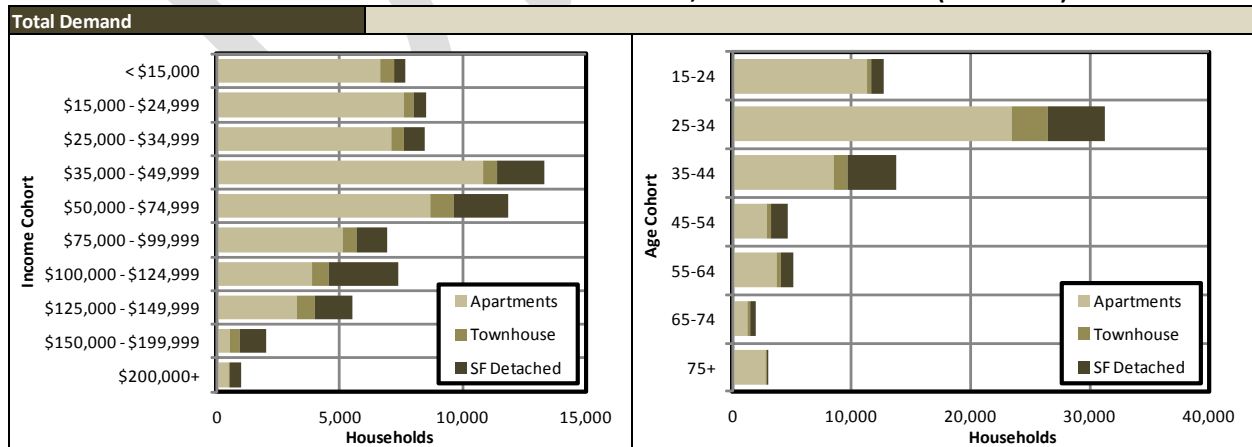


Source: JOHNSON ECONOMICS

Total Demand

We estimate around 7,000 rental transactions annually in Hillsboro over the coming ten years. This total demand is anticipated to be weighted toward young, low-to-middle-income households.

FIGURE 6.7: TOTAL SINGLE-FAMILY OWNERSHIP DEMAND, PRIMARY MARKET AREA (2014-2024)

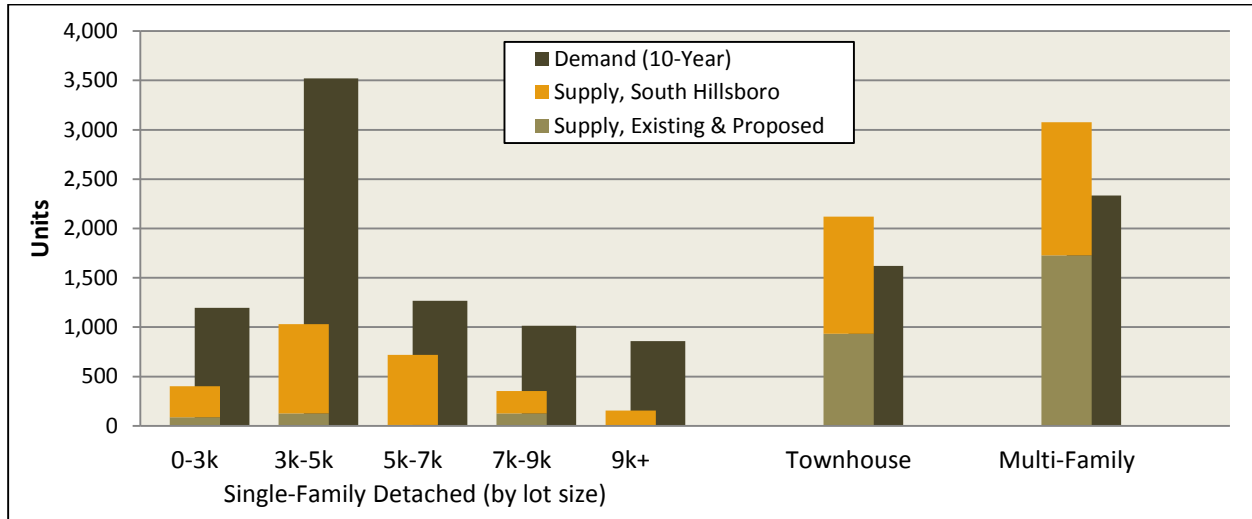


Source: JOHNSON ECONOMICS

RECONCILIATION OF SUPPLY AND DEMAND

Hillsboro has a total long-term supply of around 7,900 housing units. In comparison, our ten-year demand estimate is for between 10,000 and 15,000 new units, with a baseline projection of 11,500 units. The supply represents around eight years of demand in our low-growth scenario and five years in our high-growth scenario. However, the distribution of supply across unit types does not perfectly match the distribution of demand, as the following bar chart reveals. As a result, shortages can be expected before the five-to-eight year period has passed.

FIGURE 6.8: IDENTIFIED SUPPLY AND PROJECTED 10-YEAR DEMAND, NEW HOMES, HILLSBORO

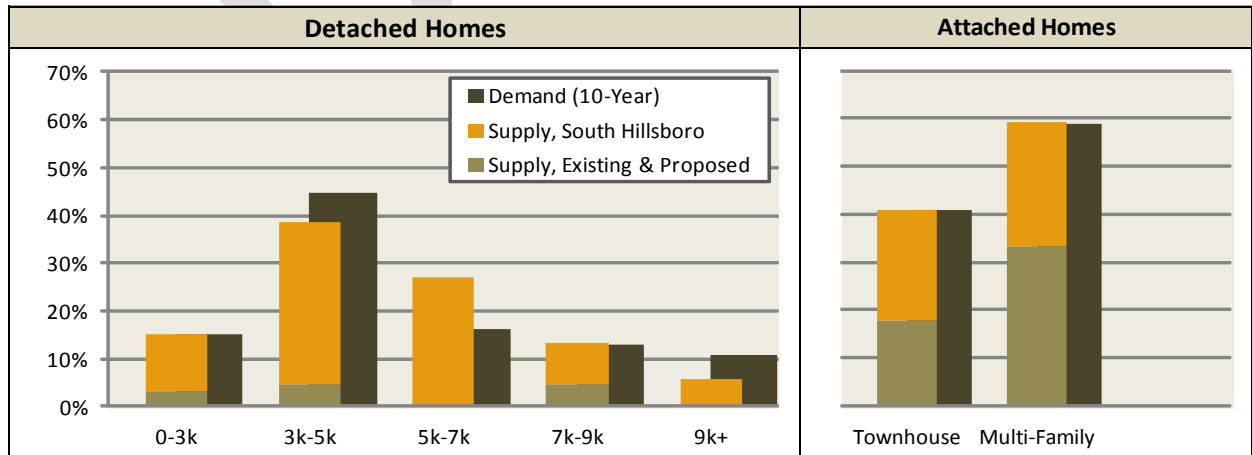


Source: JOHNSON ECONOMICS

Our estimates indicate that Hillsboro will face a shortage of detached homes over the coming ten years, while the supply of townhouses and multi-family units is expected to last around thirteen years. For all single-family homes, the total supply represents three to four years of anticipated demand. Our model indicates that overall annual household growth will have to be as low as 1.0% to bring the detached-home absorption period to ten years. Assuming that the Planning Area is able to absorb all unmet demand for detached homes, and a proportionate share of attached demand, our baseline estimate indicates that it will absorb 8,800 units over the forecast period.

Disregarding the overall imbalance between detached and attached units, the supply has a distribution that matches anticipated demand surprisingly well within the detached- and attached-home segments.

FIGURE 6.9: DISTRIBUTIONS OF SUPPLY AND DEMAND IN DETACHED AND ATTACHED SEGMENTS



Source: JOHNSON ECONOMICS

SOUTH HILLSBORO ABSORPTION

The following table reconciles anticipated demand with phasing schedules provided by South Hillsboro developers. The analysis is based on several assumptions, which are listed on the next page. In short, the analysis indicates that the absorption assumed by the developers is conservative for detached units and optimistic for attached units.

FIGURE 6.10: RECONCILIATION OF ANTICIPATED SUPPLY AND DEMAND BY YEAR, HILLSBORO (2014 – 2025)

PHASING ANALYSIS	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	10-Year Total	Years of Supply
Single-Family Detached, 9,000+ SF														
Projected Demand	86	86	86	86	86	86	86	86	86	86	86	86	860	3.5
Competing supply	2	1	1	1	1								3	
Butternut Creek Executive/Large			20	20	20	20	20	10	10	10	10	10	150	
Jin/Pahlish site Executive (SFR-10)			30	30	30	30	30						150	
<i>Undersupply (Oversupply)</i>	84	85	35	35	35	36	36	76	76	76	76	76	557	
Single-Family Detached, 7,000 - 8,999 SF														
Projected Demand	101	101	101	101	101	101	101	101	101	101	101	101	1014	1.5
Competing supply	25	25	25	25	25								75	
Lennar site SFR-7			15	15	15	15	15						75	
<i>Undersupply (Oversupply)</i>	76	76	61	61	61	86	86	101	101	101	101	101	864	
Single-Family Detached, 5,000 - 6,999 SF														
Projected Demand	127	127	127	127	127	127	127	127	127	127	127	127	1267	5.7
Competing supply	2	2	2	2	1								5	
Reed's Crossing Classic, 6000 sf			59	66	66	66	66	66	66	66	66	14	601	
Butternut Creek Standard/Medium			15	14	14	12	12	12	10	9	6	6	110	
<i>Undersupply (Oversupply)</i>	125	125	51	45	46	49	49	49	51	52	55	107	551	
Single-Family Detached, 3,000 - 4,999 SF														
Projected Demand	352	352	352	352	352	352	352	352	352	352	352	352	3522	2.6
Competing supply	25	25	25	25	25								75	
Lennar site SFR-4.5			6	7	7	7	6						33	
Reed's Crossing Traditional, 4000 sf			81	91	91	91	91	91	91	91	91	7	816	
<i>Undersupply (Oversupply)</i>	327	327	240	229	229	254	255	261	261	261	261	345	2598	
Single-Family Detached, 0 - 2,999 SF														
Projected Demand	120	120	120	120	120	120	120	120	120	120	120	120	1197	3.5
Competing supply	18	18	18	18	16								52	
Butternut Creek Cottage/Small			15	14	14	12	12	12	10	7	7	7	110	
Reed's Crossing Small-lot Detached			25	28	28	28	28	28	28	28	28	8	257	
<i>Undersupply (Oversupply)</i>	102	102	62	60	62	80	80	80	82	85	85	105	778	
Townhouse														
Projected Demand	162	162	162	162	162	162	162	162	162	162	162	162	1620	12.1
Competing supply	78	78	78	78	78	78	78	78	78	78	78	75	777	
Reed's Crossing Townhomes			28	28	56	68	78	88	100	113	128	145	832	
Butternut Creek Town/Cluster			40	40	40	40	36	36	33	30	30	30	355	
<i>Undersupply (Oversupply)</i>	84	84	16	16	(12)	(24)	(30)	(40)	(49)	(59)	(74)	(88)	(344)	
Multi-Family														
Projected Demand	233	233	233	233	233	233	233	233	233	233	233	233	2333	11.2
Competing supply	233	233	126	126	126	126	126	126	126	126	126	126	1260	
Reed's Crossing Apartments			100	100	100	100	100	100	100	50			750	
Butternut Creek Multi/Mixed-use			60	60	60	60	60	60	60	80	80	80	600	
<i>Undersupply (Oversupply)</i>	0	0	7	(53)	(53)	(53)	(53)	(53)	(53)	(53)	(23)	27	(277)	

Source: New Home Trends, Developers/the City of Hillsboro, JOHNSON ECONOMICS

The phasing analysis makes the following assumptions:

- Demand is based on our baseline scenario, and assumed to be even from year to year and lasting beyond the forecast horizon.
- Competing detached-home supply will be released and absorbed evenly over the coming five years. Though this appears unrealistic for some of the lot sizes, given the demand, an evaluation of where individual developments are in the development cycle is beyond the scope of this assignment.
- Competing townhouse supply will be released evenly over the 2014 – 2025 period. Again, we do not know whether developers are ready to capitalize on current demand, but in light of future oversupply once South Hillsboro supply is introduced, we assume that the phasing will stretch out.
- Competing multi-family supply will be released to match demand in 2014 and 2015, with remaining units released evenly through 2025. For this product type, we know there are sufficient units in the pipeline to meet anticipated demand in 2014 and 2015.
- South Hillsboro developments: Where the developers only provided overall totals or five-year schedules, we filled in the remaining years (blue font) based on the data provided and the assumption of completed phasing within 10 years.
- Years of supply is calculated by dividing supply assumed to be released over the 2016 – 2025 period by annual demand. This is slightly different than the calculation performed on the basis of total identified supply and demand, which included supply released in 2014 and 2015.

The phasing analysis indicates rapid absorption of single-family detached units in South Hillsboro – generally in the range of three to four years. The model indicates that lots in the 7,000-9,000-square-foot range will see the most rapid absorption (1.5 years), and that lots in the 5,000-7,000-square-foot range will see the slowest absorption (5.7) years. In reality, demand will be somewhat flexible with respect to lot size, to some extent evening out the absorption of these segments.

For attached homes, absorption of planned units is expected to take more than twice as long as for detached homes. According to the model, townhouses are anticipated to be fully absorbed in 12 years, whereas multi-family units are expected to be absorbed in 11 years.

With absorption according to the phasing analysis, a total of around 6,500 dwelling units will be absorbed in Hillsboro over the 2016 – 2025 period – 5,000 units short of the city’s potential according to our baseline demand projection. Absorption at this rate represents a 1.7% annual growth rate, considerably lower than the 2.3% average observed since 2000 and the 2.8% rate assumed for unconstrained demand in our projections. The following table provides a summary of the absorption estimates under the three different scenarios.

FIGURE 6.11: SUMMARY OF ABSORPTION ESTIMATES (2016 – 2025)

Scenario	Household Growth	Unconstrained Demand	Absorption limited by Phasing Schedules		Full Potential Absorption*	
	Hillsboro	Hillsboro	Hillsboro	Planning Area	Hillsboro	Planning Area
Low Growth	2.30%	9,137	5,633	3,993	9,330	7,690
Baseline Growth	2.84%	11,549	6,465	4,488	11,549	9,691
High Growth	3.50%	14,694	6,959	4,839	14,694	12,574

*Assumes that the Planning Area will be able to release supply in pace with demand. The Planning Area is still assumed to capture only a share of demand proportionate to its share of total Hillsboro supply for unit types with oversupply.

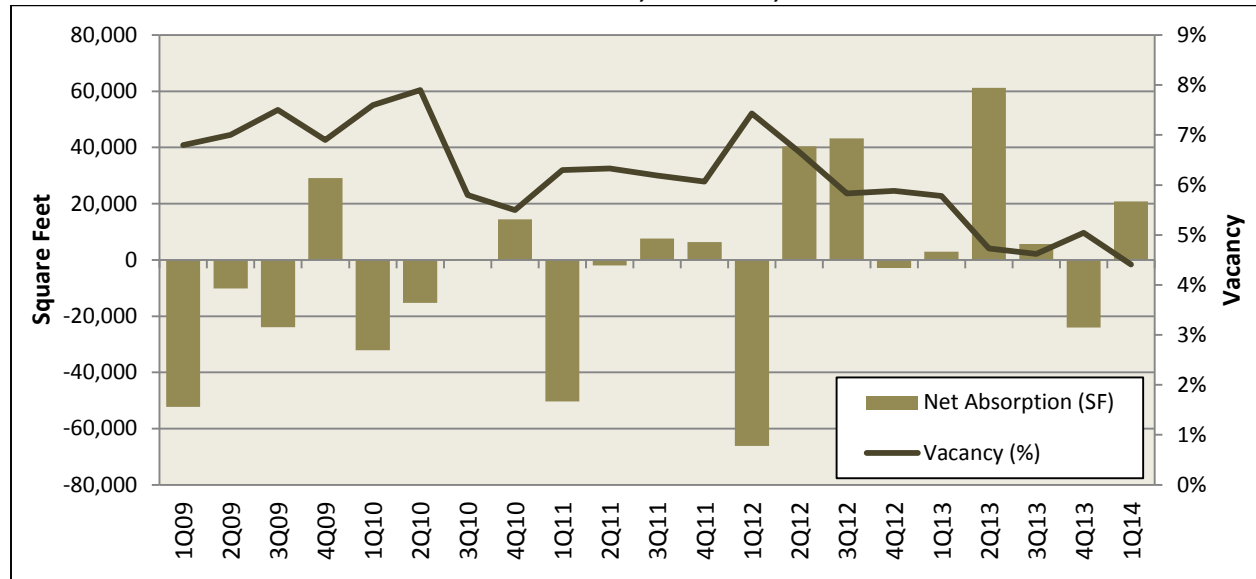
Source: JOHNSON ECONOMICS

VII. COMMERCIAL MARKET DEPTH

LOCAL RETAIL MARKET TRENDS

The retail market in Hillsboro has fared better than in the rest of the Portland Metro Area, with a stronger absorption trend and lower vacancy. The city’s demographics have contributed to this strength. Another factor is the city’s relative lack of dated centers with a regional or power center format. With a current vacancy rate of 4.4%, Hillsboro appears ripe for more retail development.

FIGURE 7.1: IDENTIFIED SUPPLY AND PROJECTED 10-YEAR DEMAND, NEW HOMES, HILLSBORO



Source: Kidder Mathews/CoStar

SOUTH HILLSBORO RETAIL DEMAND

In order to assess the nature and depth of demand and the likely pace of absorption of commercial space in the South Hillsboro Planning Area, JOHNSON ECONOMICS combines the result of two separate analyses. The first analysis models future demand for retail space based on anticipated household growth. In this analysis, local average per-household retail expenditures are applied to our household growth estimates for the Planning Area. The total expenditures are in turn converted to retail space demand utilizing typical per-square-foot sales figures.

The second analysis is a “spending leakage” analysis, which compares the current supply and demand for commercial space around the Planning Area. Underserved retail categories cause spending to “leak” to surrounding markets, and these categories thus represent a potential for new retail developments within the market area to capture consumer spending among the existing household base.

This second analysis utilizes data from the Consumer Expenditure Survey conducted by the Bureau of Labor Statistics, which reveals retail spending by local households (demand) as well as retail sales at local stores (supply). The data can be analyzed on a detailed geographic level (census block groups), and across a wide range of retail categories. This allows us to identify retail categories that are currently over- or underserved in an area, as well as the amounts of spending that might potentially be captured by new developments. We will also model the increase in this spending over the forecast period due to household growth in the market area.

A caveat is in order here. Retail markets are competitive and efficient, and wide opportunity gaps are rare. At the same time, a new development that secures a key anchor tenants can quickly achieve the critical mass required to become a retail destination. Without that key contract, however, the same development may never gain traction.

The Planning Area appears to be in a good position in this respect, as it is located on the TV Highway, near a Fred Meyer store, and will accommodate a large number of new households that retailers will want to be near. Still, absorption estimates based on identified spending leakage are highly uncertain, and a conservative approach is in order when estimating the amounts of leakage spending that will be captured by a new development.

Retail Space Supported by Planning Area Household Growth

We have estimated underlying housing demand in Hillsboro over the coming ten years in the order of 11,500 units, with a potential of nearly 10,000 units absorbed in the Planning Area. Development and housing production may not keep up with this pace. Based on our absorption projections limited by the developers' phasing schedules, only around 4,500 units will be absorbed. We will provide estimates of retail space demand on the basis of both these household growth figures.

FIGURE 7.2: PLANNING AREA HOUSEHOLD GROWTH ASSUMPTIONS (2016 – 2026)

GROWTH ASSUMPTIONS Scenario	JANUARY HOUSEHOLD FORECAST			'16-'26 Δ
	2016	2021	2026	Households
Scheduled Phasing (baseline growth)	0	2,244	4,488	4,488
Potential Absorption (baseline growth)	0	4,846	9,691	9,691

Source: JOHNSON ECONOMICS

Based on 2014 estimates of per-household consumer expenditures in Hillsboro, households in the Planning Area will have total expenditures of around \$100 million in 2026 (2014 dollars) with absorption following developer schedules, and around \$225 million with full potential absorption.

FIGURE 7.3: PLANNING AREA CONSUMER EXPENDITURES (2016 – 2026)

SCHEDULED PHASING (BASELINE GROWTH)		Per Household Expenditures	Household Retail Spending (In Millions)			
NAICS	Category		2016	2021	2026	'16-'26 Δ
441	Motor Vehicle and Parts Dealers	\$7,134	\$0.0	\$16.0	\$32.0	\$32.0
442	Furniture and Home Furnishings Stores	\$747	\$0.0	\$1.7	\$3.4	\$3.4
443	Electronics and Appliance Stores	\$731	\$0.0	\$1.6	\$3.3	\$3.3
444	Building Materials and Garden Equipment	\$3,762	\$0.0	\$8.4	\$16.9	\$16.9
445	Food and Beverage Stores	\$4,694	\$0.0	\$10.5	\$21.1	\$21.1
446	Health and Personal Care Stores	\$1,687	\$0.0	\$3.8	\$7.6	\$7.6
448	Clothing and Clothing Accessories Stores	\$1,734	\$0.0	\$3.9	\$7.8	\$7.8
451	Sporting Goods, Hobby, Book and Music Stores	\$781	\$0.0	\$1.8	\$3.5	\$3.5
452	General Merchandise Stores	\$4,391	\$0.0	\$9.9	\$19.7	\$19.7
453	Miscellaneous Store Retailers	\$970	\$0.0	\$2.2	\$4.4	\$4.4
722	Foodservices and Drinking Places	\$3,803	\$0.0	\$8.5	\$17.1	\$17.1
Totals/Weighted Averages		\$30,436	\$0.0	\$52.3	\$104.6	\$104.6

POTENTIAL ABSORPTION (BASELINE GROWTH)		Per Household Expenditures	Household Retail Spending (In Millions)			
NAICS	Category		2016	2021	2026	'16-'26 Δ
441	Motor Vehicle and Parts Dealers	\$7,134	\$0.0	\$34.6	\$69.1	\$69.1
442	Furniture and Home Furnishings Stores	\$747	\$0.0	\$3.6	\$7.2	\$7.2
443	Electronics and Appliance Stores	\$731	\$0.0	\$3.5	\$7.1	\$7.1
444	Building Materials and Garden Equipment	\$3,762	\$0.0	\$18.2	\$36.5	\$36.5
445	Food and Beverage Stores	\$4,694	\$0.0	\$22.7	\$45.5	\$45.5
446	Health and Personal Care Stores	\$1,687	\$0.0	\$8.2	\$16.3	\$16.3
448	Clothing and Clothing Accessories Stores	\$1,734	\$0.0	\$8.4	\$16.8	\$16.8
451	Sporting Goods, Hobby, Book and Music Stores	\$781	\$0.0	\$3.8	\$7.6	\$7.6
452	General Merchandise Stores	\$4,391	\$0.0	\$21.3	\$42.6	\$42.6
453	Miscellaneous Store Retailers	\$970	\$0.0	\$4.7	\$9.4	\$9.4
722	Foodservices and Drinking Places	\$3,803	\$0.0	\$18.4	\$36.9	\$36.9
Totals/Weighted Averages		\$30,436	\$0.0	\$112.9	\$225.8	\$225.8

Source: Nielsen Claritas, JOHNSON ECONOMICS

By applying typical sales-per-square-foot figures for each retail category, we convert estimates of future spending by Planning Area households into estimates of retail space demand. These totals include retail categories that are unlikely to be represented in the Planning Area. Also for categories that will be represented, a large share of the spending will likely leak to other retail centers. We have therefore applied assumed captures rates to each retail category, which yields an overall assumption of 13% capture.

With these assumptions, Planning Area households are expected to support around 50,000 square feet of retail space by 2026 following developer absorption schedules, and around 110,000 square feet assuming full potential absorption. This is under the baseline growth scenario. The low- and high-growth scenarios indicate that the demand will be in the range of 47,000 to 57,000 square feet assuming phasing constraints and 90,000 to 145,000 square feet assuming full potential absorption.

FIGURE 7.4: RETAIL SPACE DEMAND SUPPORTED BY PLANNING AREA HOUSEHOLDS (2016 – 2026)

SCHEDULED PHASING (BASELINE GROWTH)			Sales Support		Spending Supported Retail Demand (SF)			Planning Area
NAICS	Category	Factor ¹	2021	2026	'16-'26 Δ	Capture	Demand (SF)	
441	Motor Vehicle and Parts Dealers	\$422	37,934	75,869	75,869	0%	0	
442	Furniture and Home Furnishings Stores	\$228	7,356	14,712	14,712	15%	2,207	
443	Electronics and Appliance Stores	\$329	4,981	9,963	9,963	0%	0	
444	Building Materials and Garden Equipment	\$424	19,903	39,805	39,805	0%	0	
445	Food and Beverage Stores	\$469	22,465	44,930	44,930	15%	6,740	
446	Health and Personal Care Stores	\$304	12,439	24,878	24,878	35%	8,707	
448	Clothing and Clothing Accessories Stores	\$170	22,877	45,754	45,754	15%	6,863	
451	Sporting Goods, Hobby, Book and Music	\$217	8,080	16,160	16,160	15%	2,424	
452	General Merchandise Stores	\$179	55,098	110,196	110,196	0%	0	
453	Miscellaneous Store Retailers	\$138	15,722	31,444	31,444	35%	11,005	
722	Foodservices and Drinking Places	\$291	29,310	58,619	58,619	25%	14,655	
Totals/Weighted Averages			198,231	396,463	396,463	13%	52,601	

POTENTIAL ABSORPTION (BASELINE GROWTH)			Sales Support		Spending Supported Retail Demand (SF)			Planning Area
NAICS	Category	Factor ¹	2021	2026	'16-'26 Δ	Capture	Demand (SF)	
441	Motor Vehicle and Parts Dealers	\$422	81,912	163,824	163,824	0%	0	
442	Furniture and Home Furnishings Stores	\$228	15,884	31,768	31,768	10%	3,177	
443	Electronics and Appliance Stores	\$329	10,756	21,513	21,513	0%	0	
444	Building Materials and Garden Equipment	\$424	42,976	85,952	85,952	0%	0	
445	Food and Beverage Stores	\$469	48,509	97,019	97,019	15%	14,553	
446	Health and Personal Care Stores	\$304	26,860	53,720	53,720	35%	18,802	
448	Clothing and Clothing Accessories Stores	\$170	49,399	98,798	98,798	15%	14,820	
451	Sporting Goods, Hobby, Book and Music	\$217	17,448	34,895	34,895	15%	5,234	
452	General Merchandise Stores	\$179	118,974	237,949	237,949	0%	0	
453	Miscellaneous Store Retailers	\$138	33,949	67,897	67,897	35%	23,764	
722	Foodservices and Drinking Places	\$291	63,289	126,578	126,578	25%	31,644	
Totals/Weighted Averages			428,044	856,087	856,087	13%	111,994	

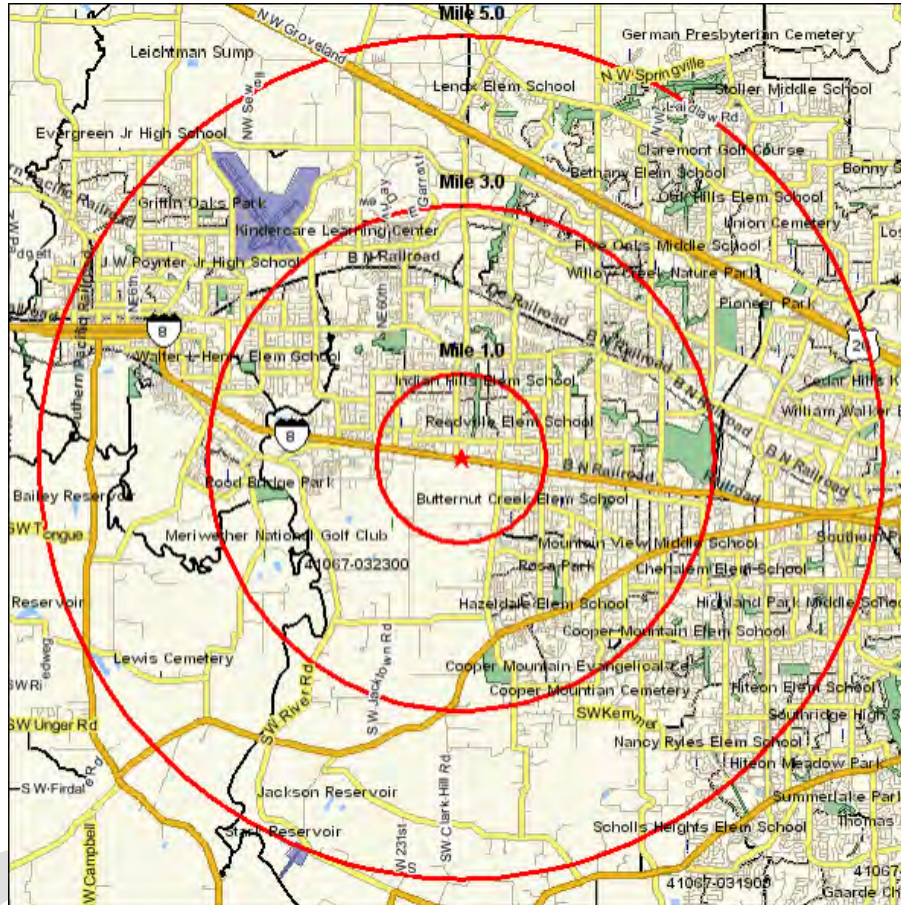
¹ National averages for neighborhood centers, from "Dollars & Cents of Shopping Centers," Urban Land Institute, 2008. 2014 dollars.
Source: Nielsen Claritas, Urban Land Institute, JOHNSON ECONOMICS

Retail Space Supported by Current Spending Leakage

In order to assess the potential for capturing spending that currently leaks out of the market, a five-mile market area radius was used to assess the market depth for commercial space of a community center format, and a three-mile radius was used for retail categories consistent with a neighborhood center format. The five- and three-mile radii are the typical service areas for these types of retail centers. The market potential for a regional center was

not analyzed, as we regard such a development infeasible for the Planning Area.⁶ The two market areas are shown in the following map (the two outer circles).

FIGURE 7.5: PRIMARY AND COMPETITIVE RETAIL MARKET AREAS



Source: Nielsen Claritas

Within the five-mile radius, there is an overall “spending leakage” of \$200 million per year, or 4% of total consumer spending. Four underserved retail categories can be regarded as consistent with planning objectives for South Hillsboro and belonging to a community center format that can draw support from the entire market area. The Planning Area thus has a potential to capture spending in these categories. There are subcategories within these four that may not be consistent with South Hillsboro plans or qualify as community retail, just as there are subcategories within the other categories that may be both. We will assume that these offset each other.

The four most promising retail categories (highlighted below) have a total spending leakage of \$346 million per year. We will assume that the Planning Area will capture 20% of this leakage – around \$70 million. This assumption is based on a consideration of the locational strength of the Planning Area.

⁶ Current population concentrations around the Planning Area, and current traffic along the Tualatin Valley (TV) Highway, are likely insufficient to support a retail concentration of this format. Further, the lack of freeway access makes it difficult to attract support from a wider region. In the current environment, another suburban regional center also appears infeasible from a market standpoint.

FIGURE 7.6: RETAIL SPENDING LEAKAGE, FIVE-MILE RADIUS

5-Mile Radius	2014 Demand	2014 Supply	Opportunity	Opportunity
Retail Category (NAICS)	(Consumer Spending)	(Retail Sales)	Gap/Surplus	Gap (%)
Gasoline Stations-447	\$426,926,776	\$194,972,660	\$231,954,116	54%
Furniture and Home Furnishings Stores-442	\$92,811,511	\$44,331,652	\$48,479,859	52%
Miscellaneous Store Retailers-453	\$118,321,888	\$73,910,168	\$44,411,720	38%
Food and Beverage Stores-445	\$572,125,667	\$359,303,247	\$212,822,420	37%
Building Material, Garden Equip Stores -444	\$459,581,242	\$313,936,148	\$145,645,094	32%
Health and Personal Care Stores-446	\$208,355,612	\$159,194,163	\$49,161,449	24%
Non-Store Retailers-454	\$358,768,791	\$313,467,388	\$45,301,403	13%
Foodservice and Drinking Places-722	\$464,343,369	\$424,488,325	\$39,855,044	9%
Clothing and Clothing Accessories Stores-448	\$213,586,918	\$254,514,294	(\$40,927,376)	-19%
Motor Vehicle and Parts Dealers-441	\$864,161,074	\$1,091,597,478	(\$227,436,404)	-26%
Sporting Goods, Hobby, Book, Music Stores-451	\$95,601,772	\$122,442,439	(\$26,840,667)	-28%
General Merchandise Stores-452	\$534,708,530	\$788,104,363	(\$253,395,833)	-47%
Electronics and Appliance Stores-443	\$89,697,510	\$161,002,566	(\$71,305,056)	-79%
Total/Average	\$4,498,990,660	\$4,301,264,891	\$197,725,769	4%

Source: Nielsen Claritas

Within the three-mile radius, the same four categories appear as potential neighborhood center retail forms. We will not count these again. A fourth category (sporting goods, etc.) includes at least some promising subcategories, and we therefore apply 20% of the leakage in this category, although it has only marginal impact on the overall estimate. Together the leakage capture is expected to support retail in the order of \$70 million per year.

FIGURE 7.8: RETAIL SPENDING LEAKAGE, THREE-MILE RADIUS

3-Mile Radius	2014 Demand	2014 Supply	Opportunity	Opportunity
Retail Category (NAICS)	(Consumer Spending)	(Retail Sales)	Gap/Surplus	Gap (%)
Furniture and Home Furnishings Stores-442	\$41,091,244	\$11,113,454	\$29,977,790	73%
Gasoline Stations-447	\$194,338,510	\$55,843,554	\$138,494,956	71%
Non-Store Retailers-454	\$160,452,988	\$53,638,440	\$106,814,548	67%
Miscellaneous Store Retailers-453	\$53,367,440	\$19,700,220	\$33,667,220	63%
Food and Beverage Stores-445	\$258,192,323	\$144,994,947	\$113,197,376	44%
Motor Vehicle and Parts Dealers-441	\$392,381,263	\$255,127,594	\$137,253,669	35%
Health and Personal Care Stores-446	\$92,759,222	\$61,153,404	\$31,605,818	34%
Sporting Goods, Hobby, Book, Music Stores-451	\$42,977,222	\$31,408,269	\$11,568,953	27%
Foodservice and Drinking Places-722	\$209,164,440	\$154,774,821	\$54,389,619	26%
Clothing and Clothing Accessories Stores-448	\$95,387,308	\$76,158,175	\$19,229,133	20%
Building Material, Garden Equip Stores -444	\$206,931,515	\$186,857,743	\$20,073,772	10%
Electronics and Appliance Stores-443	\$40,208,780	\$56,990,227	(\$16,781,447)	-42%
General Merchandise Stores-452	\$241,516,636	\$486,563,335	(\$245,046,699)	-101%
Total/Average	\$2,028,768,891	\$1,594,324,183	\$434,444,708	21%

Source: Nielsen Claritas

Assuming that these trade areas will see household growth through 2025 at the pace of current Washington County growth (1.7%), this spending will have increased to \$87 million (in 2014 dollars) by the beginning of 2026. Using the same conversion method as in the first analysis, this translates to \$285,000 square feet of retail space:

FIGURE 7.9: RETAIL SPACE DEMAND FROM LEAKAGE CAPTURE (2016 – 2021)

SCHEDULED PHASING (BASELINE GROWTH)		Sales Support Factor ¹	Spending Supported Retail Demand (SF)		
NAICS	Category		2016	2021	2026
441	Motor Vehicle and Parts Dealers	\$422	0	0	0
442	Furniture and Home Furnishings Stores	\$228	0	0	0
443	Electronics and Appliance Stores	\$329	0	0	0
444	Building Materials and Garden Equipment	\$424	0	0	0
445	Food and Beverage Stores	\$469	90,772	57,467	114,933
446	Health and Personal Care Stores	\$304	32,317	20,459	40,918
448	Clothing and Clothing Accessories Stores	\$170	0	0	0
451	Sporting Goods, Hobby, Book and Music	\$217	10,662	6,750	13,500
452	General Merchandise Stores	\$179	0	0	0
453	Miscellaneous Store Retailers	\$138	64,135	40,603	81,207
722	Foodservices and Drinking Places	\$291	27,376	17,332	34,663
Totals/Weighted Averages			225,263	142,611	285,222

Source: Urban Land Institute, JOHNSON ECONOMICS

Total Retail Space Demand in the Planning Area

Combining the results from the two analyses indicates total demand for around 350,000 square feet of space assuming phasing constraints, and 430,000 square feet under the assumption of full potential residential absorption in the Planning Area (baseline estimates). Though the current spending leakage represents immediate demand, we will assume that absorption will take place at an even pace through the forecast period. This indicates annual absorption of around 35,000 and 45,000 under the two residential phasing scenarios.

FIGURE 7.10: RETAIL SPACE DEMAND AND ESTIMATED ABSORPTION IN THE PLANNING AREA (2016 – 2026)

TOTAL RETAIL DEMAND	Based on Developer Phasing Schedules				Full Potential Absorption			
	2016	2021	2026	Est. Annual Abs.	2016	2021	2026	Est. Annual Abs.
Planning Area Household Growth	0	28,357	56,715	5,671	0	72,656	145,311	14,531
Current Leakage Capture, w/HH Growth	225,263	255,242	285,222	28,522	225,263	255,242	285,222	28,522
Total	237,941	285,621	357,463	34,194	227,279	329,919	432,559	43,053

Source: JOHNSON ECONOMICS

Reconciling our demand estimates with phasing plans from the developers indicate a relatively good supply-demand balance, and an overall absorption period of around ten years. Based on our assumption of linear demand, Reed’s Crossing has phasing plans that represent a modest oversupply, but given the potential for capturing current spending leakage and strategic positioning by tenants, we consider this phasing schedule realistic.

FIGURE 7.11: RETAIL SPACE DEMAND AND ESTIMATED ABSORPTION IN THE PLANNING AREA (2016 – 2026)

PHASING ANALYSIS	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	10-Year Total	Years of Supply
Based on Developer Schedules												
Projected Demand	35,746	35,746	35,746	35,746	35,746	35,746	35,746	35,746	35,746	35,746	357,463	11.5
Reed's Crossing	30,000	50,000	70,000	90,000	110,000						350,000	
Butternut Creek								20,000	20,000	20,000	60,000	
Undersupply (Oversupply)	5,746	(14,254)	(34,254)	(54,254)	(74,254)	35,746	35,746	15,746	15,746	15,746	(52,537)	
Full Absorption Potential												
Projected Demand	43,256	43,256	43,256	43,256	43,256	43,256	43,256	43,256	43,256	43,256	432,559	9.5
Reed's Crossing	30,000	50,000	70,000	90,000	110,000						350,000	
Butternut Creek								20,000	20,000	20,000	60,000	
Undersupply (Oversupply)	13,256	(6,744)	(26,744)	(46,744)	(66,744)	43,256	43,256	23,256	23,256	23,256	22,559	

Source: Developers/City of Hillsboro, JOHNSON ECONOMICS

APPENDIX A: EXISTING AND PROPOSED SUPPLY

FIGURE A.1: EXISTING DETACHED-LOT SUPPLY, RECORDED PLATS

Development	Address	Status	Start of Sales	Typical Lot Size	Typical Home Price	Typical Home Size	Total Lots	Unsold Lots
Sunrise Place	1239 NE Sunrise Ln	Selling Homes	Jul-10	3,004	249900	1,607	12	9
Heritage Station	NE 62nd Ave at NE Sherborne St	Selling Homes	41548	3,032	347995	2123	26	11
Way Estates	270 and 310 SE Brookwood Ave	Selling Homes	May-13	3,200	\$219,900	1,552	5	2
Enchantment Glen	3450 SW 234th Ave	Not Yet Selling		5,000			31	31
Orenco Landing	6091 NE Cornell Rd	Selling Homes	Jan-14	5,200	\$610,750	2,472	25	19
Aaron Acres	6522 SE Drake St & 6498 SE Drake	Off Market	Sep-12	7,000		2,286	6	2
Timberland Woods	SW Brookwood Ave at SW Ozark L	Selling Homes	Apr-13	13,000	\$455,900	2,756	7	4
Total Unsold								78

Source: New Home Trends

FIGURE A.2: PROPOSED SUPPLY, UNRECORDED PLATS

Development	Address	Status	Application Date	Preliminary Approval	Typical Lot Size	Planned Lots
535 SE 8th Ave	535 SE 8th Ave	Review	Dec-13		2025	5
Alder Commons	845 & 855 SE 13th Ave	Inactive/Expired	May-08		2200	9
Baseline Five	1134 SE Baseline St	Inactive/Expired	Nov-07	Mar-08	2800	5
Bellmore	22855 W Baseline Rd	Inactive/Expired	Aug-04	May-07	3076	21
Abbingtion	24200 W Baseline Rd	Inactive/Expired	Feb-06		3197	14
Laurel Oaks	24175 SW Davis Rd	Prelim. Approval	Jan-07	Apr-07	4278	65
Fir Grove 2	SE Duke Dr & SE Fir Grove	Inactive/Expired	Sep-05	May-06	4754	20
Lafollette Estates	6899 SE Borwick St	Inactive/Expired	Aug-07		5900	7
Stone Rose	23785 SW Johnson St	Inactive/Expired	Nov-03	Jan-04	7097	6
Westridge Place	700 SW Cornelius Pass Rd	Review	Dec-13		7300	28
Dreamhouse Terrace	23880 W Baseline Rd	Inactive/Expired	Jan-06	Apr-06	7331	6
Jackson Hollow	782 SE Hollow St	Inactive/Expired	Oct-04	Apr-05	7361	31
Abbingtion 2	24200 W Baseline Rd	Inactive/Expired	Dec-06	Apr-07	7405	9
Grayson	6985 SE Johnson St	Inactive/Expired	Apr-07		8188	7
Ring's Hill	W Baseline Rd at NW 231st Ave (N	Prelim. Approval		Oct-10	8770	14
Sunrise Estates	770 NE Rogahn St	Inactive/Expired	Jul-07	Oct-07	8938	24
Hall Estates	NE Dunbar Ct & NE 8th Ave	Withdrawn	Sep-08	Oct-08	10320	6
Kaufman's Place	W Baseline Rd at NW 242nd Ave	Withdrawn	Jan-01			18
Total Lots						295

Source: New Home Trends

FIGURE A.3: EXISTING, ATTACHED-UNIT SUPPLY

Development	Address	Status	Start of Sales	Ownership	Structure	Total Units	Unsold Units
Autumn Creek: The Carriages	NW 185th Ave at NW Holly St	Selling Homes	Sep-10	Condominium	Townhomes	110	14
Way Estates	270 and 310 SE Brookwood Ave	Selling Homes	41456	Fee Simple	Townhomes	12	2
Parks at Laurel Oaks	5200 SE Alexander St	Selling Homes	Apr-13	Fee Simple	Townhomes	9	6
Witch Hazel Townhomes	24900 SE Witch Hazel Rd	Selling Homes	Jun-08	Fee Simple	Townhomes	11	2
Carlyle Gardens	355 NW Cornelius Pass Rd	Not Yet Selling		Condominium	Townhomes	12	12
Johnson Townhomes	2685 SE 73rd Ave	Not Yet Selling	May-09	Fee Simple	Townhomes	6	6
The Parks at Tanasbourne	NW Cornell Rd & 188th Ave NW	Off Market	Jul-08	Fee Simple	Townhomes	102	84
Quatama Park Townhomes	21075 NW Quatama	Off Market	Feb-07	Fee Simple	Townhomes	84	51
Travertine Condos	4845 NE Airport Rd (4801 NE Airpc	Off Market	Aug-06	Condominium	Townhomes	69	36
Total Unsold Units						213	

Source: New Home Trends

FIGURE A.4: PROPOSED ATTACHED-UNIT SUPPLY

Development	Address	Status	Application Date	Structure	Ownership Form	Units
<u>Ownership Units</u>						
Arbor Pass Condominium 2	NW Cornelius Pass Rd & NW Wilk	Permitted	Oct-06	Townhomes	Condominium	138
Arbor Pass North & West	NW Cornelius Pass Rd & NW Wilk	Permitted	Jul-07	Townhomes	Condominium	162
Brooks Crossing	20935 NW Quatama Rd	Inactive/Expired	Nov-06	Townhomes	Condominium	16
Gateway (remaining phases)	NW 185th Ave at NW Holly St	Permitted		Townhomes	Condominium	122
Gordon Creek	SE Westcott Ln at SW 226th Ave (S)	Inactive/Expired		Townhomes	Condominium	20
Pitman Place	NE Cherry Dr & Nw 228th Ave	Prelim. Approval	Jun-07	Townhomes	Condominium	55
5th Ave Townhomes	640 & 652 SE 5th Ave	Inactive/Expired	Nov-07	Townhomes	Fee Simple	10
Benson Gardens	SE Walnut Ct at SE 42nd Pl (East of	Inactive/Expired		Townhomes	Fee Simple	9
Fisher's Court	445 NW Freeman Ave	Inactive/Expired	Mar-07	Townhomes	Fee Simple	10
Oakhurst East (Attached)	5200 SE Alexander St	Permitted	Nov-06	Townhomes	Fee Simple	27
Orenco Woods Crossing	22200 NW Birch St	Prelim. Approval	Jan-06	Townhomes	Fee Simple	71
Total Ownership Units						640
<u>Rental Units</u>						
206 (The)	NW Amberwood Dr at NW 206th A	Prelim. Approval	Jun-11	Mid Rise	Rental	203
4th & Main	350 E Main St	Prelim. Approval	Jul-11	Mid Rise	Rental	71
Amber Glen Apartments	NW 206th Ave & NW Wiklins St	In for Permit	Aug-13	Mid Rise	Rental	352
Arbor Pass Creekside	1050 NW Cornelius Pass Rd	Prelim. Approval	Feb-08	Low Rise	Rental	193
Beaver Creek Manor	265 NW Cornelius Pass Rd	Inactive/Expired		Low Rise	Rental	63
231st Avenue Wrap	NW Cherry Dr at NW 231st Ave	In for Permit	May-12	Mid Rise	Rental	304
Meriweather Apartments 2	1548 SE Walnut St	Prelim. Approval		Low Rise	Rental	24
Orenco Station: Alma Gardens	NE Orenco Station Pkwy at NE Carr	In for Permit	Jun-12	Mid Rise	Rental	45
Orenco Station: Living Green	NE Cornell Rd & NE Orenco Station	In for Permit	Jun-11	Mid Rise	Rental	173
Orenco: Orchards	NE Cherry Dr & NW 231st Ave	In for Permit	Jul-12	Low Rise	Rental	57
Sequoia Village	SW Cornelius Pass Rd and W Base	In for Permit		Low Rise	Rental	242
Total Rental Units						1727

Source: New Home Trends

APPENDIX B: SOUTH HILLSBORO PHASING SCHEDULES

The following table summarizes information received by Johnson Economics and used as basis for evaluating planned development in the South Hillsboro Planning Area. The blue shaded area represents assumptions made by Johnson Economics regarding phasing based on the information received.

RESIDENTIAL				2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Development	Product	Lot Size	Units										
Reed's Crossing	Classic, 6000 sf	6,000	601	59	66	66	66	66	66	66	66	66	14
Reed's Crossing	Traditional, 4000 sf	4,000	816	81	91	91	91	91	91	91	91	91	7
Reed's Crossing	Small-lot Detached	1,800	257	25	28	28	28	28	28	28	28	28	8
Reed's Crossing	Townhomes		832	28	28	56	68	78	88	100	113	128	145
Reed's Crossing	Apartments		750	100	100	100	100	100	100	100	50		
Butternut Creek	Executive/Large		150	20	20	20	20	20	10	10	10	10	10
Butternut Creek	Standard/Medium		110	15	14	14	12	12	12	10	9	6	6
Butternut Creek	Cottage/Small		110	15	14	14	12	12	12	10	7	7	7
Butternut Creek	Town/Cluster (exp.)		355	40	40	40	40	36	36	33	30	30	30
Butternut Creek	Multi/Mixed-use (exp.)		600		60	60	60	60	60	60	80	80	80
Lennar site	SFR-4.5	4,500	33	6	7	7	7	6					
Lennar site	SFR-7	7,000	75	15	15	15	15	15					
Jin/Pahlsh site	Executive (SFR-10)	10,000	150	30	30	30	30	30					
TOTAL DUs			4839	434	513	541	549	554	503	508	484	446	307
COMMERCIAL				2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Development	Product		SF										
Reed's Crossing	Town Ctr. Office		120,000	10,286	17,143	24,000	30,857	37,714					
Reed's Crossing	Town Ctr. Commercial		230,000	19,714	32,857	46,000	59,143	72,286					
Butternut Creek	Commercial		60,000								20,000	20,000	20,000
TOTAL SF			410,000	30,000	50,000	70,000	90,000	110,000	0	0	20,000	20,000	20,000

DENSITY CALCULATION METHODOLOGY FOR SOUTH HILLSBORO

Dwelling unit densities inform the South Hillsboro trip cap analysis. Trips associated with public facilities will be calculated separately from the dwelling units.

This document explains the methodology used for calculating trip cap and residential capacity for South Hillsboro. This is a living document and will be updated as refinements are made to the methodology.

Legend

GIS TOOL/FUNCTION

Dataset Name

Field Name

I. Inputs

- **Locations of schools, parks, and road alignments (Public Facilities)** were determined as part of SoHi Master Planning. The location, size, and configuration of these public facilities may change as the design of SoHi progresses; changes to public facilities would necessitate recalculations of trip cap and residential capacity by subdistrict or by development zone
- **Subdistrict Boundaries (Subdistrict)** are the labels associated with various subareas within SoHi. These labels help to determine the sequence and timing of implementation
- **Development Zones (Development Zone)** identify the subareas by development name or location. These are Reed's Crossing, Butternut Creek, SoHi West, and Other. The purpose of this field is to determine capacity in each development area
- **Comprehensive Plan designations (Comp Plan)** are based on the City's latest comprehensive plan
- **Environmentally-Sensitive Areas** include **Significant Wetlands, Significant Riparian and Upland Areas, Waterways, 100-year Floodplains, and Steep Slopes**. These constraints informed the size and location of the Clean Water Services buffer (**CWS Buffer¹**). Environmentally-sensitive features, which include significant resources (wetlands, riparian and upland areas), floodplains, steep slopes, and the CWS buffer, were removed from the developable area prior to running density calculations.

¹ Calculated according to Chapter 3 of the Design and Construction Standards (CWS, 2007).

II. Methodology

A. Identify developable areas

1. CLIP **Public Facilities** (existing and proposed schools, parks, and roads²) from the **Comp Plan** layer.
2. CLIP all environmentally-sensitive areas, including **Significant Wetlands, Significant Riparian and Upland Areas, Waterways, 100-year Floodplains, Steep Slopes**, and the **CWS Buffer** from the resulting map.
3. Run IDENTITY tool on **Comp Plan** layer to combine with **Development Zone**. This will assign a Development Zone to each Comp Plan area. [Run IDENTITY tool on **Comp Plan** layer to combine with **Subdistrict** to get comp plan areas by subdistrict.]

B. Calculate the Number of Dwelling Units

4. CALCULATE GEOMETRY of new **Comp Plan** shapefile to determine Gross Acres for each Comp Plan designation in each Development Zone (*Reed's Crossing, Butternut Creek, SoHi West, or Other*) or Subdistrict
5. Calculate Net Acres (**LessROW**) by removing right-of-way (25% for RL designations; 35% for all other residential). See Calc 1 below.
6. Calculate Residential Net Acres (**LessResSplit**) by multiplying the net above (Step 4) by the Residential Split (35% take-out applied to MU-VTC). See Calc 2.
7. Calculate minimum and maximum number of dwelling units (**Min DU** and **Max DU**) by multiplying the residential net acres by residential density (as defined, by base zones, in the SoHi Density Ranges; *Table 1*). See Calc 3. Round dwelling units to the nearest whole number.
8. Identify the number of dwelling units for Part C by calculating 95% of the maximum number of dwelling units (identified in Step 6 above). See Calc 4. Round dwelling units to the nearest whole number.

C. Determine the number of dwelling units associated with each housing type

To perform the transportation analysis, it is important to differentiate the type of housing products. These were determined using past precedent of housing types observed in different zones elsewhere in Hillsboro. The proportion of DUs associated with each housing type vary by the lot's zoning designation (see *Table 2*).

To get the final dwelling unit count for the transportation analysis, the result from Part B above was portioned out according to the housing breakdown identified in *Table 1*. These counts were used to create high and low end estimates as well as the 'Zoning Strategy' calculation; these inform the range of development possibilities in South Hillsboro. Housing figures were divided by Subdistrict to account for the sequence and timing of implementation.

² Only arterial roads (estimated at 65' width) and half-street widths on collectors are clipped; see attached memo on *Net developable area assumptions (Attachment 1)*

III. Calculations

Full data definitions and calculations are provided under **Metadata (Table 3)**

Net acres following removal of ROW area

Calc 1.
$$\text{LessROW} = \text{Acres} - (\text{Acres} * \text{ROW})$$

Net acres following removal of non-residential uses

Calc 2.
$$\text{LessResSplit} = \text{LessROW} - (\text{LessROW} * \text{Res_Split})$$

Maximum and minimum number of dwelling units using the net acres resulting from the previous calculations

Calc 3.
$$\begin{aligned} \text{Max DU} &= \text{LessResSplit} * \text{Max Residential Density} \\ \text{Min DU} &= \text{LessResSplit} * \text{Min Residential Density} \\ \text{PUD} &= \text{LessResSplit} * \text{PUD} \end{aligned}$$

Number of dwelling units for SDC calculations

Calc 4.
$$95\% \text{ of Max} = 0.95 * \text{Max DU}$$

Table 1. Residential density ranges and transportation category for trip cap analysis

South Hillsboro Density Ranges

OLD PLAN DESIGNATION	NEW PLAN DESIGNATION	TRANSPO CATEGORY*	RL		RM		RH		R-MR		MU-UC		MU-UR	
ZONE:			Min DU	Max DU	Min DU	Max DU	Min DU	Max DU	Min DU	Max DU	Min DU	Max DU	Min DU	Max DU
R-6	SFR-6	1	X	6	7.5									
R-7	SFR-7	1	X	5	6.25									
R-8.5	SFR-8.5	1	X	4	5									
R-10	SFR-10	1	X	3.5	4.35									
R-4.5	SFR-4.5	1				X	8	10						
A-1	MFR-1	1, 2, 3				X	11	16						
A-4	MFR-2	2, 3							X	17	21.25			
A-3	MFR-3	2, 3									X	23	28.75	
SCR-V	MU-VTC	2, 3										X	-	-
				3.5	7.5		8	16		17	23		23	30
												X	8	24
														12
														43

Notes:

- * Transportation Categories:
- (1) SF Detached
- (2) SF Attached, Townhome, Duplex
- (3) Apartment/Multifamily

Table 2. Housing breakdown by zoning

Zone Designation	Breakdown by Housing Type		
	SF Detached	SF Attached, Townhome, Duplex	Apartment/Multifamily
SFR-6	100%	0%	0%
SFR-7	100%	0%	0%
SFR-8.5	100%	0%	0%
SFR-10	100%	0%	0%
SFR-4.5	100%	0%	0%
MFR-1	60%	35%	5%
MFR-2	0%	40%	60%
MFR-3	0%	30%	70%
MU-VTC	0%	50%	50%

Table 3. Metadata – data definitions

Name	Description
Acres	Gross acres as calculated through GIS (existing and proposed schools, parks, environmentally-sensitive areas, arterial and half-street-width collectors have already been removed)
ROW	Right-of-Way, determined by evaluating past precedent across Hillsboro (see <i>Attachment 1</i>). 25% for RL designations; 35% for all other residential designations
LessROW	Net Acres with ROW removed
Res_Split	Residential Split (proportion of mixed use that is residential). 35% take-out applied to MU-VTC
LesResSplit	Net Acres after accounting for ROW and the Residential Split
Max Residential Density	Maximum number of dwelling units per acre, as identified by the Master Plannign and Zoning Ordinance and as determined by the Comp Plan designation
Min Residential Density	Minimum number of dwelling units per acre, as identified by the Master Plannign and Zoning Ordinance and as determined by the Comp Plan designation
Max DU	Maximum total dwelling units across SoHi (Max_DU * LesResSplit)
Min DU	Minimum total dwelling units across SoHi (Max_DU * LesResSplit)
95% of Max	Build-out assumption, which makes consideration for potential PUDs



MEMORANDUM

To: Jeannine Rustad, Long Range Planning Supervisor
From: John Boren, Urban Planner II
Date: January 24, 2014
Subject: Net developable area assumptions to guide zoning in South Hillsboro

Background:

The planning efforts for South Hillsboro are at the same where a determination of the appropriate zones and locations for those zones are being considered for the area. Metro requires that the residential density in South Hillsboro ultimately be 15 dwelling units/net acre. To ensure compliance with this, Planning staff have examined several previous developments to determine how much of a site's gross acreage will be removed to determine the net developable acreage for a given project type.

Approach:

The Planning staff analysis began by examining projects within several of the residential Comprehensive Plan designation density ranges. The gross acreage used for calculations in these the projects included all lots, internal Local and Neighborhood Route streets, and half-street widths on adjacent Collector or above classified streets. Not included were parks, private open space, and natural features ultimately placed in tracts and/or otherwise designated FP Flood Plain or OS Open Space on the Comprehensive Plan map. The net acreage used for calculations subtracted out all public and private streets and tracts.

Analysis of Selected Developments:

Name	Zone	Units	DU/ acre	Gross Area	Net Area	% Net out
Hawthorn Glen	R-10	31	4.3	9.13	7.18	21.4%
Lexington Village Phase IV	R-6	214	6.7	43.58	32.12	26.3%
Orenco Landing	R-6/R-7	25	6.7	4.86	3.75	22.8%
Meadow Oaks	PUD: A-1	128	11.6	17.38	11.07	36.3%
Dolores Park	SCR-LD	47	13.2	5.52	3.56	35.5%
Parkside Estates	PUD: A-1	98	13.4	11.10	7.34	33.9%
Stonewater	SCR-MD	356	20.4	28.54	17.46	38.8%
Deer Run Estates	SCR-MD	59	22.8	4.08	2.585	36.6%
The 206	MU-C	203	49.8	5.93	4.08	31.2%

Current Planning staff commonly use a figure of 20% as a rule of thumb to estimate approximately how much of a subject site's gross acreage will be needed for streets or be otherwise undevelopable when consulting with developers on prospective residential projects. Upon review of the 9 selected developments for this analysis, it became clear that a more refined assumption should be used for different density ranges of development. Developments in the RL Comprehensive Plan designation netted out 21-26% of the gross site area, whereas the higher density designations exhibited a range of 31-39% of the gross site area that was ultimately netted out.

Recommendation:

Planning staff recommend that new assumptions are used with respect to how much land area is anticipated to be netted out of the gross area in order to zone most appropriately to hit a target of 15 dwelling units/net acre. Based upon the analysis of the selected residential developments, Planning staff recommend that we assume 25% of gross area in RL Comprehensive Plan designations will be netted out, and that 35% of gross area in all other residential Comprehensive Plan designations will be netted out.

Respectfully submitted,

CITY OF HILLSBORO PLANNING DEPARTMENT

A handwritten signature in blue ink, appearing to read 'John Boren', with a long horizontal flourish extending to the right.

John Boren
Urban Planner II

TUALATIN VALLEY









ALEXANDER

ROSA

FARMINGTON

Zoning Concept - Maximum Density

Date: 10/17/2014

 MFR-1 Duplex Residential	 SFR-4.5 Single Family Residential	 SFR-10 Single Family Residential
 FP Floodplain	 SFR-6 Single Family Residential	 MU-VTC Mixed Use - Village/Town Center
 MFR-2 Multi-Family Residential	 SFR-7 Single Family Residential	 C-1 Commercial
 MFR-3 Multi-Family Residential	 SFR-8.5 Single Family Residential	

Zoning Strategy -MAX (10/17/2014)		Zone					TOTAL	Total Area ^b (net of existing/proposed facilities and constraints)
		DU/ac	Reed's Crossing	Butternut Creek	SoHi West	Other Area		
Total Developable Area ^a			465	190	160	558	1,373	884 → 644
(Less ROW and Res Split) ^c			300	112	105	367	884	
MU-VTC (RC Town Center)	Net Acres ^c		34	-	-	-	34	
	Min DU	40	1,370	-	-	-	1,370	
	Max DU ^e	48.5	1,661	-	-	-	1,661	
	DU (95% of MAX)	46.1	1,578	-	-	-	1,578	
	- SFD	0%	-	-	-	-	-	
	- SFA	50%	789	-	-	-	789	
	- MF	50%	789	-	-	-	789	
	PUD Max DU ^d	58.2	1,994	-	-	-	1,994	
MU-VTC (BC Village Center)	Net Acres ^c		-	9	-	-	9	
	Min DU	18	-	154	-	-	154	
	Max DU ^e	45	-	384	-	-	384	
	DU (95% of MAX)	42.75	-	365	-	-	365	
	- SFD	0%	-	-	-	-	-	
	- SFA	50%	-	182	-	-	182	
	- MF	50%	-	182	-	-	182	
	PUD Max DU ^d	54	-	461	-	-	461	
MFR-3	Net Acres ^c		6	5	-	-	11	
	Min DU	23	133	105	-	-	238	
	Max DU	28.75	166	131	-	-	297	
	DU (95% of MAX)	27.313	158	125	-	-	283	
	- SFD	0%	-	-	-	-	-	
	- SFA	30%	47	37	-	-	84	
	- MF	70%	110	87	-	-	197	
	PUD Max DU ^d	34.5	199	158	-	-	357	
MFR-2	Net Acres ^c		28	21	-	1	50	
	Min DU	17	470	360	-	13	843	
	Max DU	21.25	589	450	-	17	1,056	
	DU (95% of MAX)	20.188	559	427	-	16	1,002	
	- SFD	0%	-	-	-	-	-	
	- SFA	40%	224	171	-	6	401	
	- MF	60%	335	256	-	9	600	
	PUD Max DU ^d	25.5	706	539	-	20	1,265	
MFR-1	Net Acres ^c		113	39	44	151	347	
	Min DU	11	1,245	431	488	1,656	3,820	
	Max DU	16	1,811	626	710	2,409	5,556	
	DU (95% of MAX)	15.2	1,720	595	675	2,288	5,278	
	- SFD	65%	1,119	387	439	1,487	3,432	
	- SFA	30%	516	179	202	686	1,583	
	- MF	5%	86	30	34	114	264	
	PUD Max DU ^d	19.2	2,174	751	853	2,890	6,668	
SFR-4.5	Net Acres ^c		-	31	-	-	31	
	Min DU	8	-	248	-	-	248	
	Max DU	10	-	311	-	-	311	
	DU (95% of MAX)	9.5	-	295	-	-	295	
	- SFD	100%	-	295	-	-	295	
	- SFA	0%	-	-	-	-	-	
	- MF	0%	-	-	-	-	-	
	PUD Max DU ^d	12	-	373	-	-	373	
SFR-6	Net Acres ^c		119	39	61	216	435	
	Min DU	6	713	233	363	1,297	2,606	
	Max DU	7.5	891	292	454	1,621	3,258	
	DU (95% of MAX)	7.125	846	277	432	1,540	3,095	
	- SFD	100%	846	277	432	1,540	3,095	
	- SFA	0%	-	-	-	-	-	
	- MF	0%	-	-	-	-	-	
	PUD Max DU ^d	9	1,069	350	545	1,946	3,910	
SFR-7	Net Acres ^c		-	-	-	-	-	
	Min DU	5	-	-	-	-	-	
	Max DU	6.25	-	-	-	-	-	
	DU (95% of MAX)	5.9375	-	-	-	-	-	
	- SFD	100%	-	-	-	-	-	
	- SFA	0%	-	-	-	-	-	
	- MF	0%	-	-	-	-	-	
	PUD Max DU ^d	7.5	-	-	-	-	-	
SFR-8.5	Net Acres ^c		-	-	-	-	-	
	Min DU	4	-	-	-	-	-	
	Max DU	5	-	-	-	-	-	
	DU (95% of MAX)	4.75	-	-	-	-	-	
	- SFD	100%	-	-	-	-	-	
	- SFA	0%	-	-	-	-	-	
	- MF	0%	-	-	-	-	-	
	PUD Max DU ^d	6	-	-	-	-	-	
SFR-10	Net Acres ^c		-	-	-	-	-	
	Min DU	3.5	-	-	-	-	-	
	Max DU	4.35	-	-	-	-	-	
	DU (95% of MAX)	4.1325	-	-	-	-	-	
	- SFD	100%	-	-	-	-	-	
	- SFA	0%	-	-	-	-	-	
	- MF	0%	-	-	-	-	-	
	PUD Max DU ^d	5.22	-	-	-	-	-	

Housing Breakdown

Total SFD		1,965	959	871	3,027
Total SFA		1,576	569	202	692
Total MF		1,320	555	34	123
		Reed's Crossing	Butternut Creek	SoHi West	Other Area

Total Dwelling Units (95% of Max) ^f	8,318
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DU Count for SDC Calcs

TOTALS	Net Acreage	300	144	105	368	917
	Min DU	3,931	1,531	851	2,966	9,279
	Min DU/Net Acre	13	11	8	8	10
	Max DU	5,118	2,194	1,164	4,047	12,523
	Max DU/Net Acre	17	15	11	11	14
	PUD Max DU	6,142	2,632	1,398	4,856	15,028
PUD Max DU/Net Acre	20	18	13	13	16	

AVG ACROSS SOHI ^g		
Min DU/acre	Max DU/acre	Max PUD/acre
10	14	16

TOTAL DWELLING UNITS ^h	6,424 - 8,755
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Notes: All areas are reported in Acres; all dwelling unit counts have been rounded down to the nearest whole number

^a Total Area with Floodplains (as identified in the Comp Plan map) removed

^b Net Area after Env Constraints, Schools, Parks, and Public Facilities (existing and proposed) are removed from the total area.

^c Net acreage was calculated by first taking out right-of-way from all Developable Area calculations (25% for RL designations and 35% for all other residential designations); the Residential Split was then added to all Mixed Use areas to identify area available for residential development. A 35% take-out was applied to MU-VTC.

^d PUD could receive 20% increase in maximum density of base zone with discretionary approval

^e MU-VTC ranges vary between the Town Center (Reed's Crossing) and Village Center (Butternut Creek) development areas. Additional information on the minimum and maximum dwelling units assigned to this zone are available in the CDC, Section 12.24.X00

^f This figure is 95% of the maximum DU range (as presented in the golden box). This number no longer corresponds to the sum of the housing breakdown (lt blue box)

^g Average dwelling units per acre calculated for the minimum and maximum DU density permitted in each zone (averages the totals in the green box)

^h Range of dwelling units permitted by the zoning strategy proposed on the front of this document (see map). This range represents 80% (minimum) - 100% (maximum) of the maximum DUs allowed under this zoning strategy. PUDs are not included this range. [Multiply the average density by the total area (net of existing/proposed facilities) (orange

EXHIBIT B

BEFORE THE CITY COUNCIL
OF THE
CITY OF HILLSBORO

A REQUEST FOR COMPREHENSIVE
PLAN AMENDMENTS TO IMPLEMENT
TRANSPORTATION IMPROVEMENTS FOR
THE SOUTH HILLSBORO COMMUNITY PLAN

CITY OF HILLSBORO
CASE FILE NO. HCP 2-13
FINDINGS OF FACT

NATURE OF AMENDMENTS

The proposed amendments to the Hillsboro Comprehensive Plan (HCP) Ordinance No. 2793, as amended and the City of Hillsboro Transportation System Plan (TSP) Update, January 2004, to amend text and maps to implement transportation improvements for the South Hillsboro Community Plan are legislative major plan amendments. The amendments were initiated by the Planning Commission through adoption of Order No. 8087. The proposed amendments would reclassify or create new alignments for eight roadways and make revisions to the TSP's project lists for motor vehicles, bicycles and pedestrians to add the transportation improvements.

BACKGROUND ON PROPOSED AMENDMENTS

In 2009, the City of Hillsboro (City) applied for a Transportation Growth Management (TGM) grant to determine improvements necessitated by the anticipated development of the South Hillsboro Community Plan Area. After much negotiation between ODOT, the City and Washington County, it was determined that the project should consist of the Tualatin Valley Highway Corridor Plan ("Corridor Plan"), followed by a South Hillsboro Focus Area Plan ("Focus Area Plan") addressing issues specific to the South Hillsboro Community Plan Area.

The Tualatin Valley Highway Corridor is defined by SE 10th Avenue/Maple Street (The Hillsboro Regional Center) on the west, Baseline Road/Jenkins Road on the north, Cedar Hills Boulevard (Beaverton Regional Center) on the east, and Farmington Road/Oat Street/Davis Street/Allen Boulevard on the south. To make travel within and through the Tualatin Valley Highway Corridor more safe and convenient for people who use different transportation modes, the Corridor Plan identifies critical near term (within the next 15 years) transportation improvement actions and provides for the application of an adaptive and shared (through partnerships between stakeholder jurisdictions) corridor management approach to prioritize and develop future transportation solutions for the Tualatin Valley Highway Corridor between Beaverton and Hillsboro.

The Focus Area Plan study area is defined by 185th Avenue to the east, Brookwood Avenue/River Road on the west, Baseline Road on the north, and Farmington Road on the south. The Focus Area Plan identifies a package of transportation system solutions to address any additional local street network improvements needed to accommodate future transportation system deficiencies needed as a result of the build out of the South Hillsboro Community Plan area.

MAJOR PLAN AMENDMENT PROCEDURES

Pursuant to HCP Section 1 (II)(G), a “Major Plan Amendment” includes any significant change to the Comprehensive Plan text or map initiated by the City Council or Planning Commission. A “significant change” is one that amends or refines both the Plan text and map, has operative effect over a large geographic area and is likely to have significant environmental, energy, economic and social consequences. Major plan amendments include but are not limited to Plan amendments that incorporate community plans as part of the Comprehensive Plan or incorporate portions of public facility plans as part of the Comprehensive Plan in accordance with State statute and regulations implementing Statewide Planning Goal 11. All major plan amendments shall be processed in accordance with the provisions specified in Part (III) of this Section.

The proposed amendments to the Hillsboro Comprehensive Plan (HCP) Ordinance No. 2793, as amended and the City of Hillsboro Transportation System Plan (TSP) Update, January 2004, to amend text and maps to implement transportation improvements for the South Hillsboro Community Plan meet the definition of a “Major Plan Amendment” and shall be processed in accordance with the procedures specified in HCP Section 1 (III) Plan Revision and Major Plan Amendments. The findings for compliance with Section 1 (III) are as follows:

(III) Plan Revision and Major Plan Amendments

Plan revisions and major plan amendments shall be processed as legislative procedures. The following process shall be used when conducting any plan revision or major plan amendment of the Comprehensive Plan:

- (A) For each proposed plan revision or major plan amendment to the Comprehensive Plan, the City Planning Department will:
 - (1) With the advice and assistance of the CIAC, establish and conduct a citizen involvement program which provides for public involvement and input into the proposed revision or amendment which complies with Statewide Planning Goal 1 requirements. At a minimum, such a public involvement program shall provide for adequate notice on citizen involvement activities; advanced information on matters under consideration; and opportunities for public involvement in all phases of the planning process applicable to the proposed plan revision or major plan amendment as determined by the CIAC.

Finding: Planning for South Hillsboro has been an on-going effort since 2007, with stakeholders from within and beyond the South Hillsboro Community Plan area engaged throughout the process. During the 2007-2008 planning process, citizen involvement occurred in the following ways:

- A citizen-led Task Force, which met six times with the project team
- Three project open houses
- Two community forums One scenario planning workshop
- Stakeholder interviews
- A housing market focus group session

- A local business community meeting
- Several Citizen Participation Organization (CPO) meetings
- One Hillsboro Vision 2020 Town Hall event

Public feedback was also obtained through email, letters, surveys, and comment cards. Over twelve-thousand (12,000) project newsletters, comment cards and meeting notifications were mailed to property owners in-and-around the study area. An interactive project website and local newspaper articles publicized upcoming project events.

In 2011, with the anticipation of the inclusion of the entire Plan Area in the UGB, city staff undertook a series of six meetings with department heads and service providers including water, sanitary sewer, transportation, storm water, public and private parks, open spaces, libraries, police, fire and schools, for the purpose of (1) updating infrastructure plans and costs and (2) developing an understanding (to be memorialized in Memoranda of Understanding) of individual responsibilities for provision and timing of infrastructure.

In preparation for the implementation phase of the planning efforts, which includes adoption of the Community Plan, Comprehensive Plan amendments and the transportation planning, Planning staff met with the CIAC on February 8, 2012 to establish the citizen involvement program that provides for public involvement and input into the proposed major plan amendments. In accordance with the approved public involvement plan, public participation from 2012 to date included:

- Property owner meetings.
- Service provider meetings held March 7, 2012, with: the Hillsboro Public Works Department; Clean Water Services; Hillsboro Transportation and Facilities/Fleet Departments; parks, library and schools representatives; and fire and police representatives.
- Planning Commission and City Council work sessions.
- Media outreach.
- Two public open houses held on March 22, 2012 and May 8, 2012. The second open house was held in conjunction with an open house on the Tualatin Valley Highway Corridor Refinement Plan and the Aloha/Reedville Study and Livability Community Plan.
- Notice was sent to the Department of Land Conservation and Development (LCDC) on June 19, 2012, 35 days in advance of the first evidentiary hearing as required by ORS 197.610.
- Notice of the Planning Commission hearing was mailed to property owners within the South Hillsboro Plan Area, property owners within 500 feet of the South Hillsboro Plan Area and interested parties on

July 03, 2012, and published in the Hillsboro Argus on July 3, 10, and 17 2012.

The project website continues to serve as an important resource for providing the public with relevant documents, reports, and images.

Through the Tualatin Valley Highway Corridor and Focus Area Plans, the following additional outreach was conducted:

- Public open houses on June 16, 2011, November 2 and 8, 2011, May 8, 2012, February 12, 2013 and April 3, 2013.
- Table at a community event on January 28, 2012.
- Citizen Advisory Committee meetings on October 25, 2011, November 29, 2011, April 10, 2012 and November 28, 2012.
- Technical Advisory Committee meetings on July 18, 2011, August 10, 2011, November 28, 2011, April 4, 2012, November 8, 2012.
- Policy Group meetings on August 5, 2011, January 13, 2012, June 18, 2012 and February 4, 2013.
- Focus Area Plan Project Advisory Committee meetings on January 30, 2013 and February 21, 2013.
- City Council work sessions January 3, 2013 and June 5, 2012, Join City Planning Commission/City Council work session on February 19, 2013.

- (2) Identify issues to be addressed and related information and data to be collected, reviewed and made available for public review. Inform citizens of these issues; and provide opportunity for citizen access to the related information and data; and for citizen input on these issues.

Finding: Staff finds that the public involvement process detailed above in Findings to HCP Section I (III)(A)(4) identified a number of public citizen and agency concerns regarding the transportation impacts associated with development of the South Hillsboro Community Plan Area. These concerns focused significantly on the potential impacts of traffic traversing surrounding neighborhoods, particularly east of 209th Avenue, and in particular in response to the policy decision made through the TV Highway Corridor Plan to reclassify TV Highway as an Arterial instead of its current Regional Arterial designation. Through the reclassification, the through capacity of traffic on TV Highway will be restricted by limiting it to two through lanes in each direction. Under its prior Washington County classification as a Regional Arterial, the roadway was designated for future widening to three through lanes in each direction.

The limitation of traffic capacity on TV Highway will force more travel demand on neighborhood streets, particular those paralleling TV Highway as the limited

capacity on TV Highway becomes effectively reserved for inter-city through traffic traversing between Hillsboro, unincorporated Aloha, and west Beaverton.

Other concerns voiced from residents of the area relate to north-south congestion already in existence, and raised questions on what could, and would, be done to restore mobility to below-capacity conditions.

Finally, a significant amount of input was received identifying the need to improve pedestrian and bicycle accessibility to businesses, residences, and transit within the TV Highway Corridor. Prominent in the discussion is well documented safety deficiencies and accident histories, many involving pedestrians and cyclists, on and accessing transit services along TV Highway.

In response to concerns heard through the public involvement process, technical data was obtained in the form of traffic counts, speed data, accident data, and land use data. Data was utilized to prepare future traffic volume estimates for roadways in the Study Area for determination of effects on travel demand and capacity, and to establish recommendations on future capacity improvement needs throughout the corridor. The data was utilized to determine whether existing roadway classifications, such as Collectors or Arterials, would need to be revised to accommodate projected traffic increases. Staff finds that the results of this analysis concluded that no roadway was identified which would need to be elevated to a higher classification in order to accommodate growing traffic demand. While demand is projected to escalate, Staff finds that the resulting traffic volumes remain within the range of volumes consistent with the existing roadway's current classifications.

Within the entire Study Area, two roadways were identified for reclassification. The most significant, TV Highway, was recommended through the TV Highway Corridor Plan process to be down-classed from a Regional Arterial to an Arterial. The second roadway identified for a recommended reclassification is a short segment of SW Johnson Street between SW Century Blvd and SW 67th Avenue, located immediately north of the Fred Meyers complex on the north side of TV Highway. In this case, the recommendation to revise its street classification from Local Street to Collector is being made to allow for the construction of future bike lanes on the roadway which are currently not allowable under its Local Street designation. Traffic demand forecasts do not project an appreciable increase in traffic on this roadway; the reclassification is solely due to the Plan's recommendation to provide a continuous bicycle facility on SW Johnson Street between SW Century Blvd and SW 185th Avenue, and to bring its classification into conformance with its Collector designation in the Metro 2010 Regional Transportation Plan.

Technical data was utilized to identify needed intersection improvements, including realignments of offset intersections along SW 198th Avenue and SW 185th Avenue, as well as identifying the need for future traffic signal installations

and turn lane improvements. SW 209th Avenue was identified for widening to 5-lane between TV Highway and Farmington Road as a direct result of feedback received from the neighboring community. The technical analysis had identified that a 3-lane facility would be adequate, though near capacity, between Kinnaman Road and Rosedale Road. Residents specifically requested that the full segment of 209th Avenue be designated for a future 5-lane improvement. Both the City and County agreed with the community's request, and the proposed TSP amendment reflects this direction.

Technical analysis results were shared in multiple Open Houses over the past four months to convey the methodology and assumptions utilized, as well as the findings which came out of the technical analysis. Feedback from the Open Houses provided guidance to the TSP Amendments, such as described above with regard to 209th Avenue.

Staff finds that the feedback from the public involvement process has been incorporated into the technical analysis and recommendations for Transportation System Plan amendments and projects proposed for adoption.

- (3) Notify affected government agencies of planning activities; invite review and comment.

Finding: Government agencies of the planning activities (e.g. the development of the South Hillsboro Community Plan) were members of the Technical Advisory Committee (TAC) for both the Tualatin Valley Highway Corridor Plan and the South Hillsboro Focus Area Plan. The TAC was heavily engaged in the planning process, attending regular meetings and providing staff with technical guidance.

The city provided public notice to the Department of Land Conservation and Development (DLCD) of the proposed major plan amendments on May 22, 2013.

- (4) Collect relevant information and data.

Finding: Relevant information and data for the proposed transportation improvements was collected and refined as part of the Tualatin Valley Highway Corridor Plan and the South Hillsboro Focus Area Plan process. This data included compilation of existing traffic count volumes at over 50 intersections extending throughout the study area of the Tualatin Valley Highway Corridor Plan and the South Hillsboro Focus Area Plan. Further, the studies which form the technical foundation of this Transportation System Plan amendment have utilized anticipated reasonable buildout of the land contained within the Urban Growth Boundary which existed prior to its expansion in October 2011, and assessed the impacts of reasonable buildout capacity of land contained within the expanded Urban Growth Boundary reflecting the 2011 UGB land use decision.

While OAR 0660 and common regional practice is to evaluate the transportation infrastructure needs of a 20-year forecast of population and employment growth, Hillsboro's experience has been that it has consistently outpaced the Region's assumptions for growth in its travel impact area. This has raised local concerns that the City's transportation studies look beyond a 20-year partial buildout capacity to clearly understand what level of transportation system resources would likely be necessary to accommodate reasonable full development of the geographic boundaries contained within the Urban Growth Boundary. As such, this analysis evaluates reasonable development capacity impacts, regardless of whether those occur in 20 years, 15 years, or 30 years. The City deems this approach critical in right-sizing its public rights of way, while recognizing that future lane expansion can occur when needed in a more economically sustainable way if buildings have not been placed in critical future rights of way during the interim development period.

Land use and transportation system assumptions, including limited aspirational transit service enhancements accepted by TriMet and partner agencies, were reviewed with Metro, Washington County, ODOT, and staff from all of the cities within Washington County prior to commissioning 4-step travel demand model runs by Metro. These model runs yielded metrics on mode choice and trip generating characteristics for all areas within the Study Area, and generated trip tables establishing the projected travel demand between the Transportation Analysis Zones throughout the 4-count region. Trips generated through the 4-step modeling process were then "post-processed" at the intersection level utilizing standard methods accepted in the transportation engineering industry to derive peak morning and afternoon service demand volumes.

The peak hour demand volumes within the South Hillsboro Focus Area Plan boundaries were evaluated utilizing Synchro software, including simulation analysis for areas extending north to Baseline Road, and east to 185th Avenue. The technical analysis provided critical insight on the necessary lane capacity to accommodate both reasonable buildout capacity of the prior Urban Growth Boundary and the expanded 2011 Urban Growth Boundary. This insight has been used to guide the Transportation System Plan amendments proposed, as reflected in Table, text, and Figure amendments.

- (5) Analyze each issue and identify proposed actions which address the issue sufficiently. As part of the public involvement program for the plan revision or major plan amendment:
 - (a) Compile and combine the issue, relevant data and information and actions into text format and make copies of such text available for review and comments by citizens and affected government agencies.
 - (b) Compile comments received from citizens and affected government agencies for consideration by the Planning Commission. The Planning Department shall prepare written

responses to comments and make the responses available for public review and to the Planning Commission during its consideration of the proposed plan revision or major plan amendment.

Finding: The analysis for each issue and proposed actions for the proposed major plan amendments occurred during the Tualatin Valley Highway Corridor Plan and the South Hillsboro Focus Area Plan process as previously described in the finding for HCP Section 1(III)(A)(2).

- (6) A Planning Commission public hearing on a plan revision or major plan amendment shall be conducted after completion of the tasks set forth in Section (III)(A)(1 through 5) above and the citizen involvement program for the plan revision or major plan amendment established by the CIAC. Notice of any public hearing by the Planning Commission or City Council on a plan revision or major plan amendment to the Comprehensive Plan shall be published in a newspaper of general circulation in the City a minimum of 20 days prior to the date of the initial public hearing. Any such notice shall contain:
 - (a) A summary of the plan revision or major plan amendment.
 - (b) The time, date and place of the hearing.
 - (c) The location(s) at which copies of the plan revision or major plan amendment summary may be obtained.
 - (d) A statement that all interested persons may appear and provide testimony and that only those persons making an appearance of record may appeal the determination of the Planning Commission or City Council.
 - (e) A general explanation of the requirements for submission of testimony and the procedure for conduct of the hearing.

Finding: The Planning Commission is scheduled to hold a first public hearing on the proposed major plan amendments on August 14, 2013 and a second public hearing on August 28, 2013. Public notice was published in the Hillsboro Tribune on August 24, 2013, which was 22 days prior to the date of the initial public hearing. The public notice contained all of the items listed in Section 1(III)(A)(6)(a) through (e).

- (7) The Planning Commission may recess the hearing in order to obtain further information or provide additional notification. Upon recessing for these purposes, the Commission shall announce the time and date when the hearing will be resumed.

Finding: Staff finds that, at this time, the Planning Commission has the ability to recess the hearings process to obtain or consider additional information. This Finding will be revised at the close of the hearings process to reflect any recesses required by the Planning Commission.

- (8) After hearing the plan revision or major plan amendment, the Planning Commission shall forward a recommendation of denial, approval, or approval with modifications of the plan revision or major plan amendment to the City Council.

Finding: Order No. 8091 to which these findings are attached as Exhibit B forwards a recommendation for approval of the proposed major plan amendments to implement transportation improvements for the South Hillsboro Community Plan.

- (9) The City Council shall hold a hearing during its consideration of a plan revision and may hold a public hearing on any major plan amendment. Notice of the hearing shall be provided in the manner prescribed in subsection (III)(A)(6). After consideration of the plan revision or major plan amendment, the City Council may adopt or deny the plan revision or major plan amendment.

Finding: Order No. 8091 would be forwarded to City Council for its consideration on August 14, 2013. The City understands that the Council may hold a public hearing on the proposed major plan amendments and would give notice of the hearing in the manner prescribed in subsection (III)(A)(6) if the Council determines that it would hold a public hearing.

- (10) The Planning Department shall keep copies of adopted text of the plan revision or major plan amendment on file at the City Hall and City Library for inspection by the public and shall notify citizens and government agencies that copies of the adopted text are available for inspection.

Finding: The Planning Department will keep copies of adopted text of the major plan amendments on file at City Hall for inspection by the public and will notify citizens and government agencies that copies of the adopted text are available for inspection.

- (11) The final City Council decision on a plan revision or major plan amendment may be appealed in accordance with applicable State statutory provisions, relating to appeals of decisions amending an acknowledged comprehensive plan.

Finding: The City understands that the final City Council decision on the proposed major plan amendments may be appealed in accordance with applicable State statutory provision relating to appeals of decisions amending an acknowledged comprehensive plan.

- (12) The Planning Commission shall also establish and publicize a procedure whereby interested individuals, community organizations and public

agencies may request to be included on a regular mailing list of parties to be notified of the initiation of proposed plan revisions or major plan amendments.

Finding: A procedure whereby interested individuals, community organizations and public agencies may request to be included on a regular mailing list of parties to be notified of the initiation of proposed plan revisions or major plan amendments has been established by the Planning Commission.

CONCLUSION

For the reasons set forth above, the Planning Commission finds that the Comprehensive Plan and Transportation System Plan text and map amendments proposed to implement transportation improvements for the South Hillsboro Community Plan are consistent with comprehensive plan goals, policies and implementation measures and meet the approval criteria for a major plan amendment. The Planning Commission hereby recommends approval of HCP 2-13 as supported by these Findings of Fact.

TRANSPORTATION PLANNING RULE (TPR) FINDINGS

These findings are intended to fully address the Oregon Transportation Planning Rule – Oregon Administrative Rule (OAR) 660-012-0060. OAR 660-012-0060 requires the following:

- (1) If an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation (including a zoning map) would significantly affect an existing or planned transportation facility, then the local government must put in place measures as provided in section (2) of this rule, unless the amendment is allowed under section (3), (9) or (10) of this rule. A plan or land use regulation amendment significantly affects a transportation facility if it would:
 - (a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);

Finding: Staff finds the development of the South Hillsboro Community Plan will create a significant effect on the transportation system, as defined in OAR 660-012-0060(1)(a), by resulting in a change of functional classification for three existing roadways within the study area and through creating the necessity to develop an extensive network of new public roadways within the South Hillsboro Community Plan area to serve development and to create complete, connected, multi-modal transportation facilities linking across the Plan area.

The three facilities are TV Highway, which has been identified through the adopted TV Highway Corridor Plan and South Hillsboro Focus Area Plan for down-classification from a Regional Arterial to an Arterial; up-classification for SW Johnson Street between SW 67th Avenue and SW Century Blvd. from a Local Street to a Collector; and down-classification of SW 229th Avenue between TV Highway and SW Alexander Street and between the SW Kinnaman Road Extension and the SW McInnis Lane Extension from a Collector to a Local Street.

The reclassification of TV Highway brings its classification into compliance with the Metro Regional Transportation Plan and the Oregon Highway Plan. It will limit its capacity to serve east-west travel demand. The technical analysis has identified that mobility along the TV Highway Corridor can be preserved through the addition of intersection lane improvements and the addition of capacity (lanes or potential future grade separation) on north-south roadways. The analysis has found that the decision to reclassify TV Highway has shifted some measure of travel demand onto parallel roadways, but has identified that the roadways have adequate capacity to absorb the increased demand without requiring reclassification or increasing the number of travel lanes on parallel roadways.

The reclassification of SW Johnson Street is proposed to bring its designation into compliance with the Metro 2010 Regional Transportation Plan (RTP #10830), and is simply to allow for the completion of bike lane facilities necessary to complete a connected bike lane system on SW Johnson Street between SW Century Blvd and SW 185th Avenue. Local Street designations do not provide for on-street bike lanes.

The reclassification of SW 229th Avenue between TV Highway and SW Alexander Street is recommended as a result of the planned closure of the SW 229th Avenue railroad crossing closure (in exchange for the at-grade SW Cornelius Pass Road crossing). SW 229th Avenue will be converted to a cul-de-sac north of SW Alexander Street and both vehicular and non-vehicular

access across the freight corridor will be severed including fencing along the railroad right of way.

The reclassification of SW 229th Avenue between the SW Kinnaman Road Extension and the SW McInnis Lane Extension is a result of the proposed new Collector roadway system considered in these TSP amendments which would establish the primary Collector system for north-south travel along the western boundary of the South Hillsboro Town Center as SW 229th Avenue-SW Kinnaman Rd Extension-SW Century Blvd-SW 229th to SW Rosedale Road.

Staff finds that the proposed Transportation System Plan amendments to alter existing roadway classifications is consistent with the results of the TV Highway Corridor Plan and would enhance multi-modal connectivity and accessibility within and adjacent to the South Hillsboro Concept Plan Area.

Staff finds that four categories of transportation system elements are requested for consideration in the proposed Comprehensive Plan and Transportation System Plan amendments. These four include:

- Type A: Repair of scrivener's errors relating to inconsistencies between existing City TSP maps with regard to facilities being depicted in the areas north of TV Highway, extending east to SW 185th Avenue, and south of TV Highway within the areas west of the SB 122 boundary (nominally west of SW 196th Avenue and south to approximately SW Rosa Road);
- Type B: Extension of the Hillsboro TSP Study Area Boundary and transportation infrastructure maps and tables to incorporate existing Washington County roadway, bicycle, and pedestrian classifications extending east to SW 185th Avenue and south to SW Farmington Road;
- Type C: Amendments to existing transportation system roadways, intersections, sidewalk, and bicycle facilities and projects to accommodate projected travel demand growth to support anticipated development maturity within both the Urban Growth Boundary which existed prior to October 2011, and within the Urban Growth Boundary as adopted in October 2011; and,
- Type D: Amendments to add new transportation facilities within the South Hillsboro Community Plan Area.

Staff finds that Type A TSP amendments are required to repair inconsistencies in the previously adopted City TSP. These scrivener's errors have been corrected to bring the Maps depicting pedestrian, bicycle, number of lanes, etc. into consistency with the Functional Classification Map (Figure 1-9) in the previously adopted City TSP.

Staff finds that the Type B TSP amendments should be included to be consistent with the commitments made by the City to Washington County to fund transportation capacity improvements identified through the technical analysis resulting from development of the South Hillsboro Community Plan. These commitments will be specified and funding obligations established through the Financing Plan, which will be require for adoption prior to release of the overlay in place currently restricting urban development within the South Hillsboro Community Plan area. Improvement commitments extend east to include intersections on the SW 185th

Avenue corridor, and south to include intersections and roadway segments on SW Farmington Road. Funding obligations of the South Hillsboro Community Plan area include those added capacity improvements found to be required through the technical analysis which would not otherwise be required except for the reasonable buildout development of the South Hillsboro Community Plan. It should be noted that some additional capacity improvements were identified through the technical analysis of the South Hillsboro Focus Area Plan which entail additional intersection and lane capacity, and which are anticipated as a result of the additional travel demand projected to occur between 2020 (the County's current forecast year) and 2035 (the Region's and new County forecast year).

Staff finds that Type C amendments will be required to accommodate development of the South Hillsboro Community Plan and to implement the TV Highway Corridor Plan and South Hillsboro Focus Area Plan. TSP amendments to existing facilities include the proposed classification revisions described previously for TV Highway, SW Johnson Street, and SW 229th Avenue, as well as revisions to roadway widths and alignments on the following roadways:

- Farmington Road: Revise designation from 3-lane to 5-lane from 185th to 198th Ave.*
- Farmington Road: Revise designation from 3-lane to 5-lane from 198th to 209th Ave.
- SW 209th Ave: Revise designation from 3-lane to 5-lane from TV Hwy to Farmington Rd.
- TV Highway: Revise designation from Brookwood to 185th Avenue from 7-lane to 5-lane (per TV Highway Corridor Plan)
- SW Rosedale Rd: Revise designation from County 2-lane to City 3-lane
- SW 229th Ave.: Revise designation from County 2-lane to City 3-lane
- SW Johnson St.: Revise designation from 2-lane to 3-lane
- SW Blanton St.: Realign west approach to match east approach at SW 198th Ave.*
- SW Blanton St.: Realign west approach to match east approach at SW 185th Ave.*
- SW Kinnaman Rd: Realign west approach to match east approach at SW 198th Ave.

Staff finds that Type D amendments will be required within the South Hillsboro Community Plan to establish a network of new Local Streets, Neighborhood Routes, Collectors, and Arterials to support development traffic and to provide complete, connected multi-modal transportation facilities linking to the surrounding transportation system. Inclusion of these new facilities will be reliant upon the adoption of the Financing Plan which will be required prior to removal of the overlay currently prohibiting urban development within the South Hillsboro Community Plan area. The following improvements have been previously included in the Metro 2010 Financially Constrained project list:

- RTP #10553 209th Ave (TV Hwy to Farmington) 3-lane (proposed for 5-lane)
- RTP #10844 Cornelius Pass Rd (TV Hwy to Rosa Rd) 5-lane
- RTP #11274 Century Blvd (Davis Rd to South UGB) 3-lane

- (b) Change standards implementing a functional classification system; or

Finding: No changes to adopted standards implementing a functional classification system are proposed or required for these major comprehensive plan amendments.

- (c) Result in any of the effects listed in paragraphs (A) through (C) of this subsection based on projected conditions measured at the end of the planning period identified in the adopted TSP. As part of evaluating projected conditions, the amount of traffic projected to be generated within the area of the amendment may be reduced if the amendment includes an enforceable, ongoing requirement that would demonstrably limit traffic generation, including, but not limited to, transportation demand management. This reduction may diminish or completely eliminate the significant effect of the amendment.

- (A) Types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;

Finding: Staff finds that the amendments would not promote types or levels of travel or access inconsistent with the functional classification of existing or planned transportation facilities. Staff finds that the recommended reclassification of SW Johnson St from a Local Street to a Collector Street is not necessitated by a projected significant increase in traffic volume, but by a recommendation to reclassify to allow the development of bike lane facilities between SW 67th Avenue and Century Blvd in order to eliminate the current gap in planned bike lanes on SW Johnson Street between Century Blvd and SW 185th Avenue. The reclassification also brings this segment of SW Johnson Street into compliance with the 2010 Metro Financially Constrained RTP.

- (B) Degrade the performance of an existing or planned transportation facility such that it would not meet the performance standards identified in the TSP or comprehensive plan; or

Finding: Staff finds that the amendments, including various intersection capacity and roadway widening improvements which would be required, would ensure the existing and planned transportation facilities would operate in a manner which would meet the currently adopted performance standards identified in the TSP and Comprehensive Plan, as well as adopted performance standards of Washington County and ODOT where those agencies facilities are impacted by traffic demand growth resulting from the South Hillsboro Concept Plan.

Roadway and intersection capacity improvements have been identified for the following to ensure compliance with adopted performance standards to address the impacts of traffic growth within the pre-2011 UGB (South Hillsboro No Build mitigation) and the impacts of development of the South Hillsboro Concept Plan:

- TV Highway/SW 185th Avenue (add turn lanes)
- SW 185th Avenue / SW Blanton Street (realign SW Blanton St. and signalize)
- SW 185th Avenue / SW Kinnaman Road (modify signal phasing)
- SW 185th Avenue / SW Farmington Road (extend 5-lane widening on SW 185th to 500' south of SW Farmington Rd)
- TV Highway / SW 198th Avenue (widen SW 198th to 5-lane from SW Alexander St. to SW Shaw St., add turn lanes)

- SW 198th Avenue / SW Blanton Street (realign SW Blanton St. and signalize)
- SW 198th Avenue / SW Kinnaman Street (realign SW Kinnaman St. and signalize)
- SW 198th Avenue / SW Farmington Road (5-lane widening of SW Farmington Rd)
- TV Highway / SW 209th Avenue (widen SW 209th Ave., modify railroad crossing, and add turn lanes on TV Hwy, add north-south protected-permissive left turn phasing)
- SW 209th Avenue (widen to 5-lanes between TV Highway and SW Farmington Road)
- SW 209th Avenue / SW Blanton Street (widen SW 209th Ave, widen SW Blanton to 3-lane at intersection, and signalize)
- SW 209th Avenue / SW Kinnaman Road (widen SW 209th Ave, widen SW Kinnaman Rd to 3-lane at intersection, and signalize)
- SW 209th Avenue / SW Rosedale Road (widen SW 209th Ave., add eastbound right turn lane on SW Rosedale Rd, and signalize)
- SW 209th Avenue / SW Farmington Road (widen SW 209th Ave to 5-lane, widen SW Farmington Rd to 5-lane, modify signal)
- TV Highway / SW Cornelius Pass Road (widen SW Cornelius Pass Rd to 5-lanes, add turn lanes on SW Cornelius Pass Rd and TV Highway, extend SW Cornelius Pass Rd south of TV Highway at-grade)
- SW Cornelius Pass Road Extension / SW Rosedale Road (extend 5-lane SW Cornelius Pass Rd, widen SW Rosedale Rd to 3-lanes, construct roundabout or traffic signal)
- TV Highway / SW 229th Avenue (remove existing railroad crossing)
- SW 229th Avenue / SW Rosa Road (construct roundabout or signalize)
- SW 229th Avenue / SW Rosedale Road (widen SW 229th Ave. and SW Rosedale Rd. to 3-lane, construct roundabout or signalize)
- SW Century Drive / SW Johnson Street (widen SW Century Drive to 5-lane from SW Johnson St. to TV Highway and signalize intersection)
- TV Highway / SW Century Drive-SW 234th Avenue (widen SW 234th Avenue to 5-lanes, add turn lanes, modify signal, add north-south protected-permissive left turn phasing)
- SW 234th Avenue (SW Century Drive) (widen to 5-lanes from TV Highway to SW Alexander St.)
- SW 234th Avenue (SW Century Drive) / SW Alexander Street (transition SW 234th Ave. from 5-lanes north to 3-lanes south, widen SW Alexander St. to 3-lanes at intersection, signalize)
- SW 234th Avenue (SW Century Drive) (extend as 3-lane roadway southeast to connect to SW 229th Ave. at SW McInnis Ln Extension)
- SW 247th Avenue (SW Brookwood Ave.) / TV Highway (southbound left turn lane modifications on SW Brookwood Ave.)
- SW 247th Avenue (SW Brookwood Ave.) / SW Witch Hazel Road (restrict SW Witch Hazel Road left turn movements to SW Brookwood Ave.)
- SW 247th Avenue (SW Brookwood Ave.) (widen to 3-lanes from SW Alexander Street to south UGB)

- TV Highway / SW River Road (add eastbound right turn lane on SW TV Hwy, widen SW River Rd for double left turn lanes northbound to westbound)
 - SW River Road / SW Rosedale Road (add roundabout or traffic signal)
 - SW Farmington Road (SW 209th Ave to SW 185th Ave) (widen to 5-lanes)
 - SW Rosedale Road (SW River Rd to SW 229th Ave) – (widen road shoulders)
 - SW Rosedale Road (SW 229th Ave to SW 209th Ave) – (widen to 3-lanes)
- (C) Degrade the performance of an existing or planned transportation facility that is otherwise projected to not meet the performance standards identified in the TSP or comprehensive plan.

Finding: Staff finds that, with roadway and intersection mitigation improvements, locations currently operating below performance standards will be improved to under-capacity conditions.

- (2) If a local government determines that there would be a significant effect, then the local government must ensure that allowed land uses are consistent with the identified function, capacity, and performance standards of the facility measured at the end of the planning period identified in the adopted TSP through one or a combination of the remedies listed in (a) through (e) below, unless the amendment meets the balancing test in subsection (2)(e) of this section or qualifies for partial mitigation in section (11) of this rule. A local government using subsection (2)(e), section (3), section (10) or section (11) to approve an amendment recognizes that additional motor vehicle traffic congestion may result and that other facility providers would not be expected to provide additional capacity for motor vehicles in response to this congestion.
- (a) Adopting measures that demonstrate allowed land uses are consistent with the planned function, capacity, and performance standards of the transportation facility.

Finding: Staff finds Section 660-012-0060(2)(a) is met for the majority of transportation facilities located within the affected area of the South Hillsboro Community Plan. Specific exceptions have been identified in these Findings, particularly on existing Collector and Arterial roadways. Staff finds that a number of existing local streets, Neighborhood Routes, and Collector roadways within the affected area will carry additional traffic, varying by specific roadway, do the development of the South Hillsboro Community Plan but the resulting traffic volumes and types of travel will continue to be consistent with the existing roadways' classification and capacity.

- (b) Amending the TSP or comprehensive plan to provide transportation facilities, improvements or services adequate to support the proposed land uses consistent with the requirements of this division; such amendments shall include a funding plan or mechanism consistent with section (4) or include an amendment to the transportation finance plan so that the facility, improvement, or service will be provided by the end of the planning period.

Finding: Staff finds Section 660-012-0060(2)(b) is met through the proposed modifications to existing roadway classifications and capacity, and the provision of new transportation facilities and improvements within the South Hillsboro Community Plan area, and within the affected area serving the South Hillsboro Community Plan area. The proposed modifications to existing

facilities and provision of new facilities are described in Section 660-012-0060(1)(a) and Section 660-012-0060(1)(c)(B). Staff finds that a South Hillsboro Financing Plan shall be developed and implemented to assure full-funding of the transportation improvements identified as required to maintain traffic operations in accordance with adopted performance standards, and further that said Financing Plan shall be adopted prior to allowing any urban development to proceed within the South Hillsboro Community Plan area. Staff finds that a Trip Cap mechanism shall be developed and approved in accordance with an Intergovernmental Agreement between the City of Hillsboro and ODOT which shall assure for implementation of specific transportation improvements prior to allowing urban development to commence in expanded areas of the South Hillsboro Community Plan area. The specific intent of the Trip Cap mechanism shall be to assure the required additional transportation capacity is in place prior to allowing additional development which will consume all or a portion of the additional capacity.

- (c) Amending the TSP to modify the planned function, capacity or performance standards of the transportation facility.

Finding: Staff finds Section 660-012-0060(2)(c) is met through proposed modifications to existing roadway classifications and capacity as described in Section 660-012-0060(1)(a).

- (d) Providing other measures as a condition of development or through a development agreement or similar funding method, including, but not limited to, transportation system management measures or minor transportation improvements. Local governments shall, as part of the amendment, specify when measures or improvements provided pursuant to this subsection will be provided.

Finding: Staff finds Section 660-012-0060(2)(d) is met through the requirement that developments within the South Hillsboro Community Plan area will pay, in addition to the standard Washington County Transportation Development Tax, a supplemental South Hillsboro Transportation Systems Development Charge to be established and implemented prior to allowing any urban development within the South Hillsboro Community Plan area. Further, Staff finds that development within the South Hillsboro Community Plan area shall utilize best practices in land use and development to foster transit, walk, and bicycle friendly mixed use development to minimize reliance on automobile traffic. Staff finds that specific public streets within the South Hillsboro Community Plan area shall be structurally designed to accommodate public bus traffic as necessary to provide quality and effective public transit to, and through, the South Hillsboro Community Plan area.

- (e) Providing improvements that would benefit modes other than the significantly affected mode, improvements to facilities other than the significantly affected facility, or improvements at other locations, if the provider of the significantly affected facility provides a written statement that the system-wide benefits are sufficient to balance the significant effect, even though the improvements would not result in consistency for all performance standards.

Finding: Staff finds Section 660-012-0060(2)(e) to not apply to this application.

- (3) Notwithstanding sections (1) and (2) of this rule, a local government may approve an amendment that would significantly affect an existing transportation facility without assuring that the allowed land uses are consistent with the function, capacity and performance standards of the facility where:
- (a) In the absence of the amendment, planned transportation facilities, improvements and services as set forth in section (4) of this rule would not be adequate to achieve consistency with the identified function, capacity or performance standard for that facility by the end of the planning period identified in the adopted TSP;

Finding: Staff finds in accordance with OAR 660-012-0060(3)(a) that the majority of the transportation system as set forth in section (4) is adequate to serve the land uses proposed within the South Hillsboro Community Plan area, except for specific roadway segments and intersection improvements identified in OAR 660-012-0060(1)(a) and OAR 660-012-0060(1)(c)(B). Additional capacity improvements to those defined in section (4) shall be assured through the adoption and implementation of the South Hillsboro Finance Plan, and shall be implemented in accordance with the Trip Cap methodology to be established prior to allowing urban development to occur within the South Hillsboro Community Plan area.

- (b) Development resulting from the amendment will, at a minimum, mitigate the impacts of the amendment in a manner that avoids further degradation to the performance of the facility by the time of the development through one or a combination of transportation improvements or measures;

Finding: Staff finds that OAR 660-012-0060(3)(b) will be met through the requirement that transportation capacity deficiencies will be remedied through mitigation and excess capacity established prior to allowing new urban development within the South Hillsboro Community Plan to occur.

- (c) The amendment does not involve property located in an interchange area as defined in paragraph (4)(d)(C); and

Finding: Staff finds that the South Hillsboro Community Plan area does not affect an interchange area.

- (d) For affected state highways, ODOT provides a written statement that the proposed funding and timing for the identified mitigation improvements or measures are, at a minimum, sufficient to avoid further degradation to the performance of the affected state highway. However, if a local government provides the appropriate ODOT regional office with written notice of a proposed amendment in a manner that provides ODOT reasonable opportunity to submit a written statement into the record of the local government proceeding, and ODOT does not provide a written statement, then

the local government may proceed with applying subsections (a) through (c) of this section.

Finding: Staff finds that OAR 660-012-0060(3)(d) applies to TV Highway (OR-8) and SW Farmington Road (OR-10). The City finds that a written statement from ODOT has been entered into the record of HCP 2-13 stating that ODOT concurs that the Transportation Planning Rule will be met through the adoption of a local financing plan prior to allowing urban development within the South Hillsboro Community Plan area. Further, ODOT will allow construction of TV Highway and Farmington Road improvements identified in these TSP Amendments to mitigate the effects of South Hillsboro traffic demand increases at identified State highway facilities.

- (4) Determinations under sections (1)–(3) of this rule shall be coordinated with affected transportation facility and service providers and other affected local governments.
 - (a) In determining whether an amendment has a significant effect on an existing or planned transportation facility under subsection (1)(c) of this rule, local governments shall rely on existing transportation facilities and services and on the planned transportation facilities, improvements and services set forth in subsections (b) and (c) below.

Finding: Staff finds that a significant effect will be created on various transportation system elements through the development of the South Hillsboro Community Plan. Staff finds that additional improvements to those defined currently in Section (4) as existing and planned facilities will be required, and that coordination with affected transportation facility and service providers to assure funding will be made available to implement identified roadway capacity improvements prior to allowing urban development within the South Hillsboro Community Plan area which would exceed the capacity of the existing and planned facilities. Staff finds that the restriction on urban development within the South Hillsboro Community Plan until such time as a South Hillsboro Financing Plan and Trip Cap methodology are implemented will protect the public and road agencies' interests in preserving capacity. Upon adoption of the Financing Plan and Trip Cap methodology, the transportation facilities not already designated under section (4) will become financially assured ("planned") facilities in compliance with OAR 660-012-0060(4)(a).

- (b) Outside of interstate interchange areas, the following are considered planned facilities, improvements and services:
 - (A) Transportation facilities, improvements or services that are funded for construction or implementation in the Statewide Transportation Improvement Program or a locally or regionally adopted transportation improvement program or capital improvement plan or program of a transportation service provider.
 - (B) Transportation facilities, improvements or services that are authorized in a local transportation system plan and for which a funding plan or mechanism is in place or approved. These include, but are not limited to, transportation facilities, improvements or services for which: transportation systems development charge revenues are being collected; a local improvement district or reimbursement district has been established or will be established prior to development; a

development agreement has been adopted; or conditions of approval to fund the improvement have been adopted.

- (C) Transportation facilities, improvements or services in a metropolitan planning organization (MPO) area that are part of the area's federally-approved, financially constrained regional transportation system plan.
- (D) Improvements to state highways that are included as planned improvements in a regional or local transportation system plan or comprehensive plan when ODOT provides a written statement that the improvements are reasonably likely to be provided by the end of the planning period.
- (E) Improvements to regional and local roads, streets or other transportation facilities or services that are included as planned improvements in a regional or local transportation system plan or comprehensive plan when the local government(s) or transportation service provider(s) responsible for the facility, improvement or service provides a written statement that the facility, improvement or service is reasonably likely to be provided by the end of the planning period.

Finding: Staff finds that transportation capacity improvements will be required beyond those defined in Section (4) as existing and planned facilities. Staff further finds that the requirement that no urban development shall occur within the South Hillsboro Community Plan area until such time as a South Hillsboro Financing Plan and Trip Cap methodology are implemented will provide assurance to the public and to effected road authorities that no degradation of existing and planned capacity on affected roadways will occur unless and until required capacity improvements are both funded and implemented in advance of urban development which would otherwise cause roadways to exceed available capacity. Staff finds that, upon adoption of a South Hillsboro Financing Plan and Trip Cap methodology assuring for the funding of improvements above and beyond those designated in the 2035 RTP Financially Constrained list, the improvements will become “planned” facilities which may be relied upon for demonstrating compliance with OAR 660-012-0060(4)(b).

- (c) Within interstate interchange areas, the improvements included in (b)(A)–(C) are considered planned facilities, improvements and services, except where:
 - (A) ODOT provides a written statement that the proposed funding and timing of mitigation measures are sufficient to avoid a significant adverse impact on the Interstate Highway system, then local governments may also rely on the improvements identified in paragraphs (b)(D) and (E) of this section; or
 - (B) There is an adopted interchange area management plan, then local governments may also rely on the improvements identified in that plan and which are also identified in paragraphs (b)(D) and (E) of this section.

Finding: The subject area does not lie within an interstate interchange area.

- (d) As used in this section and section (3):

- (A) Planned interchange means new interchanges and relocation of existing interchanges that are authorized in an adopted transportation system plan or comprehensive plan;
- (B) Interstate highway means Interstates 5, 82, 84, 105, 205 and 405; and
- (C) Interstate interchange area means:
 - (i) Property within one-quarter mile of the ramp terminal intersection of an existing or planned interchange on an Interstate Highway; or
 - (ii) The interchange area as defined in the Interchange Area Management Plan adopted as an amendment to the Oregon Highway Plan.

Finding: Not applicable to the proposed Amendments.

- (e) For purposes of this section, a written statement provided pursuant to paragraphs (b)(D), (b)(E) or (c)(A) provided by ODOT, a local government or transportation facility provider, as appropriate, shall be conclusive in determining whether a transportation facility, improvement or service is a planned transportation facility, improvement or service. In the absence of a written statement, a local government can only rely upon planned transportation facilities, improvements and services identified in paragraphs (b)(A)-(C) to determine whether there is a significant effect that requires application of the remedies in section (2).

Finding: Staff finds that transportation capacity improvements will be required beyond those defined in Section (4) as existing and planned facilities. Staff further finds that the requirement that no urban development shall occur within the South Hillsboro Community Plan area until such time as a South Hillsboro Financing Plan and Trip Cap methodology are implemented will provide assurance to the public and to effected road authorities that no degradation of existing and planned capacity on affected roadways will occur unless and until required capacity improvements are both funded and implemented in advance of urban development which would otherwise cause roadways to exceed available capacity.

Staff finds that written statements from both ODOT and Washington County have been entered into the record of HCP 2-13 indicating that the agencies agree that urban development within the South Hillsboro Community Plan may occur only upon adoption of a South Hillsboro Finance Plan deemed by their respective agencies as adequate to assure for full funding and timely construction of required mitigation improvements to the affected transportation system facilities.

- (5) The presence of a transportation facility or improvement shall not be a basis for an exception to allow residential, commercial, institutional or industrial development on rural lands under this division or OAR 660-004-0022 and 660-004-0028.

Finding: The proposed Comprehensive Plan and Transportation System Plan amendments necessary in advancing the South Hillsboro Community Plan are not applicable to rural lands under this division or OAR 660-004-0022 and 660-004-0028.

- (6) In determining whether proposed land uses would affect or be consistent with planned transportation facilities as provided in sections (1) and (2), local governments shall give full credit for potential reduction in vehicle trips for uses located in mixed-use, pedestrian-friendly centers, and neighborhoods as provided in subsections (a)–(d) below:
- (a) Absent adopted local standards or detailed information about the vehicle trip reduction benefits of mixed-use, pedestrian-friendly development, local governments shall assume that uses located within a mixed-use, pedestrian-friendly center, or neighborhood, will generate 10% fewer daily and peak hour trips than are specified in available published estimates, such as those provided by the Institute of Transportation Engineers (ITE) Trip Generation Manual that do not specifically account for the effects of mixed-use, pedestrian-friendly development. The 10% reduction allowed for by this section shall be available only if uses which rely solely on auto trips, such as gas stations, car washes, storage facilities, and motels are prohibited;
 - (b) Local governments shall use detailed or local information about the trip reduction benefits of mixed-use, pedestrian-friendly development where such information is available and presented to the local government. Local governments may, based on such information, allow reductions greater than the 10% reduction required in subsection (a) above;
 - (c) Where a local government assumes or estimates lower vehicle trip generation as provided in subsection (a) or (b) above, it shall assure through conditions of approval, site plans, or approval standards that subsequent development approvals support the development of a mixed-use, pedestrian-friendly center or neighborhood and provide for on-site bike and pedestrian connectivity and access to transit as provided for in OAR 660-012-0045(3) and (4). The provision of on-site bike and pedestrian connectivity and access to transit may be accomplished through application of acknowledged ordinance provisions which comply with 660-012-0045(3) and (4) or through conditions of approval or findings adopted with the plan amendment that assure compliance with these rule requirements at the time of development approval; and
 - (d) The purpose of this section is to provide an incentive for the designation and implementation of pedestrian-friendly, mixed-use centers and neighborhoods by lowering the regulatory barriers to plan amendments which accomplish this type of development. The actual trip reduction benefits of mixed-use, pedestrian-friendly development will vary from case to case and may be somewhat higher or lower than presumed pursuant to subsection (a) above. The Commission concludes that this assumption is warranted given general information about the expected effects of mixed-use, pedestrian-friendly development and its intent to encourage changes to plans and development patterns. Nothing in this section is intended to affect the application of provisions in local plans or ordinances which provide for the calculation or assessment of systems development charges or in preparing conformity determinations required under the federal Clean Air Act.

Finding: Staff finds that the analysis methodology utilized to evaluate transportation system impacts relied upon use of the Metro Regional Travel Demand Model, which includes financially constrained multi-modal transportation infrastructure, coupled with mixed-use land development

assumptions to establish trip generation rates effectively integrating the factors described in OAR 660-012-0060(6). Staff further finds that the methods prescribed in OAR 660-012-0060(6) (a)-(d) are inadequate to address transportation impacts for an area of the size of South Hillsboro, a land area which will accommodate approximately 25,000 in population when fully matured. The methods described are appropriate for evaluation of compliance when land use changes are contemplated for comparatively small land areas comprising limited acreage and few individual tax lots.

Staff further finds that the zoning code which will be subsequently adopted by the City of Hillsboro for the South Hillsboro Community Plan area will comply with the multi-modal and transit-friendly design elements and criteria adopted through the South Hillsboro Comprehensive Plan Amendment in order to minimize reliance on automobile traffic, and to assure for the provision of complete and connected alternative mode infrastructure, supporting walking, biking, and access to transit throughout the Community Plan area.

In consideration of the above, Staff finds that the proposed Transportation System Plan amendment complies with OAR 660-012-0060(6).

- (7) Amendments to acknowledged comprehensive plans and land use regulations which meet all of the criteria listed in subsections (a)–(c) below shall include an amendment to the comprehensive plan, transportation system plan, the adoption of a local street plan, access management plan, future street plan or other binding local transportation plan to provide for on-site alignment of streets or accessways with existing and planned arterial, collector, and local streets surrounding the site as necessary to implement the requirements in OAR 660-012-0020(2)(b) and 660-012-0045(3):
- (a) The plan or land use regulation amendment results in designation of two or more acres of land for commercial use;
 - (b) The local government has not adopted a TSP or local street plan which complies with OAR 660-012-0020(2)(b) or, in the Portland Metropolitan Area, has not complied with Metro's requirement for street connectivity as contained in Title 6, Section 3 of the Urban Growth Management Functional Plan; and
 - (c) The proposed amendment would significantly affect a transportation facility as provided in section (1).

Finding: Staff finds OAR 660-012-0060(7) is met through the proposed amendment to the Comprehensive Plan and Transportation System Plan which establishes a transportation system of Neighborhood Routes, Collectors, and Arterials which coordinate with and compliment the existing surrounding transportation system, address connectivity to surrounding existing uses, and establishes the framework within which the development of the Local Street network will develop to assure connectivity in compliance with Title 6, Section 3 of the Urban Growth Management Functional Plan.

- (8) A “mixed-use, pedestrian-friendly center or neighborhood” for the purpose of this rule, means:
- (a) Any one of the following:

- (A) An existing central business district or downtown;
 - (B) An area designated as a central city, regional center, town center or main street in the Portland Metro 2040 Regional Growth Concept;
 - (C) An area designated in an acknowledged comprehensive plan as a transit oriented development or a pedestrian district; or
 - (D) An area designated as a special transportation area as provided for in the Oregon Highway Plan.
- (b) An area other than those listed in subsection (a) above which includes or is planned to include the following characteristics:
- (A) A concentration of a variety of land uses in a well-defined area, including the following:
 - (i) Medium to high density residential development (12 or more units per acre);
 - (ii) Offices or office buildings;
 - (iii) Retail stores and services;
 - (iv) Restaurants; and
 - (v) Public open space or private open space which is available for public use, such as a park or plaza.
 - (B) Generally include civic or cultural uses;
 - (C) A core commercial area where multi-story buildings are permitted;
 - (D) Buildings and building entrances oriented to streets;
 - (E) Street connections and crossings that make the center safe and conveniently accessible from adjacent areas; uses;
 - (F) A network of streets and, where appropriate, accessways and major driveways that make it attractive and highly convenient for people to walk between uses within the center or neighborhood, including streets and major driveways within the center with wide sidewalks and other features, including pedestrian-oriented street crossings, street trees, pedestrian-scale lighting and on-street parking;
 - (G) One or more transit stops (in urban areas with fixed route transit service); and
 - (H) Limit or do not allow low-intensity or land extensive uses, such as most industrial uses, automobile sales and services, and drive-through services.

Finding: Staff finds that the proposed Transportation System Plan will establish the necessary infrastructure to support a mixed-use, transit-accessible, pedestrian-friendly Town Center within the South Hillsboro Community Plan area between TV Highway and Butternut Creek, generally situated west of and adjacent to the extension of Cornelius Pass Road. or neighborhood. Further, the Transportation System Plan will establish the necessary infrastructure to support a mixed-use, transit-accessible, pedestrian-friendly Neighborhood Center adjacent to the intersection of the Cornelius Pass Road Extension and the Rosa Road Extension. In consideration of the above, Staff finds that OAR 660-012-0060(7) is met through the proposed amendment to the

Comprehensive Plan and Transportation System Plan which establishes a transportation system of Neighborhood Routes, Collectors, and Arterials to ensure multi-modal connectivity and Transit Oriented design.

- (9) Notwithstanding section (1) of this rule, a local government may find that an amendment to a zoning map does not significantly affect an existing or planned transportation facility if all of the following requirements are met.
- (a) The proposed zoning is consistent with the existing comprehensive plan map designation and the amendment does not change the comprehensive plan map;
 - (b) The local government has an acknowledged TSP and the proposed zoning is consistent with the TSP; and
 - (c) The area subject to the zoning map amendment was not exempted from this rule at the time of an urban growth boundary amendment as permitted in OAR 660-024-0020(1)(d), or the area was exempted from this rule but the local government has a subsequently acknowledged TSP amendment that accounted for urbanization of the area.

Finding: Staff finds that the City of Hillsboro adopted the South Hillsboro Community Plan into its Hillsboro Comprehensive Plan in September 18, 2012 (Casefile #01-12) and complied with OAR 660-012-0060 through implementation of an overlay which prohibited urban development until such time as compliance with TPR is achieved, the Transportation System Plan amendments are adopted, and a Financing Plan is implemented to assure sufficient financial resources to fund the improvements identified in the TSP amendments as necessary to assure “no significant effect” as defined in OAR 660-012-006. OAR 660-012-0060(9) does not apply to the proposed Transportation System Plan amendment at this time as establishment of proposed zoning will be a subsequent step which must demonstrate compliance with the assumptions inherent to this TSP amendment, or alternatively must separately demonstrate through additional analysis that altered land use assumptions can be found in compliance with OAR 660-012-0060. Staff finds that, subsequent to adoption of this proposed Comprehensive Plan and TSP amendment, the previously established overlay prohibiting urban development shall remain in effect until the Financing Plan is implemented and a new Trip Cap mechanism is adopted to assure for the timely completion of essential transportation system improvements in advance of approving urban development on expanding areas of the South Hillsboro Community Plan. The approval of an Intergovernmental Agreement between the City and ODOT establishing a Trip Cap mechanism has been required through the Proposed Final Order regulating authorization for the at-grade Cornelius Pass Road railroad crossing of the Union Pacific Railroad adjacent TV Highway. The Proposed Final Order stipulates that construction of the new at-grade crossing may not commence until an Intergovernmental Agreement is executed by all parties establishing a Trip Cap mechanism.

- (10) Notwithstanding sections (1) and (2) of this rule, a local government may amend a functional plan, a comprehensive plan or a land use regulation without applying performance standards related to motor vehicle traffic congestion (e.g. volume to capacity ratio or V/C), delay or travel time if the amendment meets the requirements of subsection (a) of this section. This section does not exempt a proposed amendment from other

transportation performance standards or policies that may apply including, but not limited to, safety for all modes, network connectivity for all modes (e.g. sidewalks, bicycle lanes) and accessibility for freight vehicles of a size and frequency required by the development.

- (a) A proposed amendment qualifies for this section if it:
 - (A) Is a map or text amendment affecting only land entirely within a multimodal mixed-use area (MMA); and
 - (B) Is consistent with the definition of an MMA and consistent with the function of the MMA as described in the findings designating the MMA.

Finding: Staff finds that designation of an MMA is not required for the areas considered in these Amendments.

- (b) For the purpose of this rule, “multimodal mixed-use area” or “MMA” means an area:
 - (A) With a boundary adopted by a local government as provided in subsection (d) or (e) of this section and that has been acknowledged;
 - (B) Entirely within an urban growth boundary;
 - (C) With adopted plans and development regulations that allow the uses listed in paragraphs (8)(b)(A) through (C) of this rule and that require new development to be consistent with the characteristics listed in paragraphs (8)(b)(D) through (H) of this rule;
 - (D) With land use regulations that do not require the provision of off-street parking, or regulations that require lower levels of off-street parking than required in other areas and allow flexibility to meet the parking requirements (e.g. count on-street parking, allow long-term leases, allow shared parking); and
 - (E) Located in one or more of the categories below:
 - (i) At least one-quarter mile from any ramp terminal intersection of existing or planned interchanges;
 - (ii) Within the area of an adopted Interchange Area Management Plan (IAMP) and consistent with the IAMP; or
 - (iii) Within one-quarter mile of a ramp terminal intersection of an existing or planned interchange if the mainline facility provider has provided written concurrence with the MMA designation as provided in subsection (c) of this section.

Finding: Staff finds that designation of an MMA is not required for the areas considered in these Amendments.

- (c) When a mainline facility provider reviews an MMA designation as provided in subparagraph (b)(E)(iii) of this section, the provider must consider the factors listed in paragraph (A) of this subsection.

- (A) The potential for operational or safety effects to the interchange area and the mainline highway, specifically considering:
 - (i) Whether the interchange area has a crash rate that is higher than the statewide crash rate for similar facilities;
 - (ii) Whether the interchange area is in the top ten percent of locations identified by the safety priority index system (SPIS) developed by ODOT; and
 - (iii) Whether existing or potential future traffic queues on the interchange exit ramps extend onto the mainline highway or the portion of the ramp needed to safely accommodate deceleration.

Finding: Staff finds that designation of an MMA is not required for the areas considered in these Amendments.

- (B) If there are operational or safety effects as described in paragraph (A) of this subsection, the effects may be addressed by an agreement between the local government and the facility provider regarding traffic management plans favoring traffic movements away from the interchange, particularly those facilitating clearing traffic queues on the interchange exit ramps.

Finding: The subject area does not lie within an interstate interchange area.

- (d) A local government may designate an MMA by adopting an amendment to the comprehensive plan or land use regulations to delineate the boundary following an existing zone, multiple existing zones, an urban renewal area, other existing boundary, or establishing a new boundary. The designation must be accompanied by findings showing how the area meets the definition of an MMA. Designation of an MMA is not subject to the requirements in sections (1) and (2) of this rule.

Finding: Designation of an MMA is not being requested with these Amendments.

- (e) A local government may designate an MMA on an area where comprehensive plan map designations or land use regulations do not meet the definition, if all of the other elements meet the definition, by concurrently adopting comprehensive plan or land use regulation amendments necessary to meet the definition. Such amendments are not subject to performance standards related to motor vehicle traffic congestion, delay or travel time.

Finding: Designation of an MMA is not being requested with these Amendments.

- (11) A local government may approve an amendment with partial mitigation as provided in section (2) of this rule if the amendment complies with subsection (a) of this section, the amendment meets the balancing test in subsection (b) of this section, and the local government coordinates as provided in subsection (c) of this section.

- (a) The amendment must meet paragraphs (A) and (B) of this subsection or meet paragraph (D) of this subsection.

- (A) Create direct benefits in terms of industrial or traded-sector jobs created or retained by limiting uses to industrial or traded-sector industries.
 - (B) Not allow retail uses, except limited retail incidental to industrial or traded sector development, not to exceed five percent of the net developable area.
 - (C) For the purpose of this section:
 - (i) “Industrial” means employment activities generating income from the production, handling or distribution of goods including, but not limited to, manufacturing, assembly, fabrication, processing, storage, logistics, warehousing, importation, distribution and transshipment and research and development.
 - (ii) “Traded-sector” means industries in which member firms sell their goods or services into markets for which national or international competition exists.
 - (D) Notwithstanding paragraphs (A) and (B) of this subsection, an amendment complies with subsection (a) if all of the following conditions are met:
 - (i) The amendment is within a city with a population less than 10,000 and outside of a Metropolitan Planning Organization.
 - (ii) The amendment would provide land for “Other Employment Use” or “Prime Industrial Land” as those terms are defined in OAR 660-009-0005.
 - (iii) The amendment is located outside of the Willamette Valley as defined in ORS 215.010.
 - (E) The provisions of paragraph (D) of this subsection are repealed on January 1, 2017.
- (b) A local government may accept partial mitigation only if the local government determines that the benefits outweigh the negative effects on local transportation facilities and the local government receives from the provider of any transportation facility that would be significantly affected written concurrence that the benefits outweigh the negative effects on their transportation facilities. If the amendment significantly affects a state highway, then ODOT must coordinate with the Oregon Business Development Department regarding the economic and job creation benefits of the proposed amendment as defined in subsection (a) of this section. The requirement to obtain concurrence from a provider is satisfied if the local government provides notice as required by subsection (c) of this section and the provider does not respond in writing (either concurring or non-concurring) within forty-five days.
 - (c) A local government that proposes to use this section must coordinate with Oregon Business Development Department, Department of Land Conservation and Development, area commission on transportation, metropolitan planning organization, and transportation providers and local governments directly impacted by the proposal to allow opportunities for comments on whether the proposed amendment meets the definition of economic development, how it would affect transportation facilities and the adequacy of proposed mitigation. Informal consultation is encouraged throughout the process starting with pre-application meetings. Coordination has the meaning

given in ORS 197.015 and Goal 2 and must include notice at least 45 days before the first evidentiary hearing. Notice must include the following:

- (A) Proposed amendment.
- (B) Proposed mitigating actions from section (2) of this rule.
- (C) Analysis and projections of the extent to which the proposed amendment in combination with proposed mitigating actions would fall short of being consistent with the function, capacity, and performance standards of transportation facilities.
- (D) Findings showing how the proposed amendment meets the requirements of subsection (a) of this section.
- (E) Findings showing that the benefits of the proposed amendment outweigh the negative effects on transportation facilities.

Finding: Staff finds OAR 660-012-0060(11) does not apply to the proposed Amendments.

CONCLUSION

For the reasons set forth above, the Planning Commission finds that the Comprehensive Plan and Transportation System Plan text and map amendments proposed to implement transportation improvements for the South Hillsboro Community Plan are consistent with comprehensive plan goals, policies and implementation measures and meet the approval criteria for a major plan amendment. Further, the Planning Commission finds that the Comprehensive Plan and Transportation System Plan amendment complies with OAR 660-012-0060 (the Transportation Planning Rule) and that its compliance is reliant upon specific requirements including adoption of a South Hillsboro Financing Plan, a Trip Cap mechanism linking timely completion of transportation system improvements as prerequisites to expansions of development authority in South Hillsboro, and an overlay which prohibits any urban development within the South Hillsboro Community Plan area until the adoption of a Financing Plan and a Trip Cap mechanism. The Planning Commission finds that the Financing Plan, the Trip Cap mechanism, and the development restricting overlay are required components in establishing the reasonable likelihood that transportation system infrastructure will be available to mitigate effects of development to assure “no significant effect” is achieved in accordance with OAR 0660-012-0060. The Planning Commission hereby recommends approval of HCP 2-13 as supported by these Findings of Fact.

**CITY OF HILLSBORO
GOAL 5 ASSESSMENT REPORT
T1S, R2W, SECTIONS 10, 15, 21, 22, 23
MULTIPLE TAX LOTS
HILLSBORO, WASHINGTON COUNTY, OREGON**

Prepared for

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SWCA Project No. 23184.01

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1 INTRODUCTION

Under contract to the city of Hillsboro, SWCA Environmental Consultants (SWCA) conducted a Goal 5 Natural Resources Inventory and Assessment (NRI) on multiple tax lots in the South Hillsboro Community Plan Area. The Plan Area is approximately 1,400 acres in size, and the area inventoried as part of this project is approximately 490 acres, located west and south of the original inventory conducted in 2001 (Fishman Environmental Services, LLC [Fishman] 2001). Existing conditions in the eastern portion of the Plan Area were assessed in 2007 (SWCA 2007). The current study area boundary includes parcels located south of SW Tualatin Valley Highway between SW 209th and SW 229th Avenues and generally north of SW Farmington Road, including SW Rosedale Road (Figure 1 in Appendix A). This study used methods consistent with the methodology developed for the City of Hillsboro Goal 5 Natural Resources Inventory and Assessment (Fishman 2001).

Wetlands were mapped along Butternut Creek, Tributary 1 to Butternut Creek, Rosedale Creek, Tributary 1 to Rosedale Creek, and Tributary 1 to Gordon Creek, with one isolated wetland occurring in the northwest corner of the study area. One wetland mitigation site is present in the study area (GC2-W1). Results are shown in Table 1 and Appendices A and B. All wetlands were assessed using the Oregon Freshwater Wetland Assessment Method (OFWAM; Roth et al. 1996). All wetlands were determined to be locally significant due to providing diverse wildlife habitat, intact fish habitat, intact water quality and/or intact hydrologic control functions. All streams in the study area flow west to the Tualatin River.

Riparian forested upland wildlife habitat was mapped within the study area. No isolated forested upland wildlife habitat occurs in the study area. All riparian forests were assessed using the methodology developed in the City's adopted 2001 Goal 5 Natural Resources Inventory and Assessment. All assessed forests were determined to be locally significant except for the very narrow riparian corridors along Reach 1 and Reach 3 of Rosedale Creek.

Table 1. Goal 5 Inventory Natural Resources

Wetland Unit	Description	Acres	Locally Significant?
BuC2	Butternut Creek Reach 2 wetland	7.73	Yes
BuCTrib1	Butternut Creek Tributary 1 wetland	1.78	Yes
RsC1	Rosedale Creek Reach 1 wetland	1.97	Yes
RsC2	Rosedale Creek Reach 2 wetland	7.74	Yes
RsC3	Rosedale Creek Reach 3 wetland	8.27	Yes
RsC4	Rosedale Creek Reach 4 wetland	1.78	Yes
RsCTrib1	Rosedale Creek Tributary 1 wetland	6.09	Yes
GC2-W1	Gordon Creek Reach 2 - Mitigation Site wetland (DSL 10429-FP)	5.11	Yes
W1	West Union isolated wetland	1.03	Yes
GCTrib1	Off-site wetland riparian corridor and stream	0.88	Yes
Total		42.38	
Riparian/Upland Unit			
BuC2-R/U	Butternut Creek Reach 2 Riparian/Upland	21.96	Yes
BuCTrib1-R/U	Butternut Creek Tributary 1 Riparian/Upland	7.24	Yes
RsC1-R/U	Rosedale Creek Reach 1 Riparian/Upland	1.05	No
RsC3-R/U	Rosedale Creek Reach 3 Riparian/Upland	0.75	No
Total		31.00	

Forested riparian corridor is absent along Reach 2 and Reach 4 of Rosedale Creek. Reach 1 of Butternut Creek, the Butternut Creek Tributary, and Gordon Creek are east of the current study area within the larger South Hillsboro Community Plan Area, and were previously assessed (Fishman 2001).

1.1 Study Area Boundary

The study area consists of multiple tax lots located in T1S, R2W, Sections 10, 15, 21, 22, and 23, W.M., Washington County, Oregon (Figure 2, Appendix A; Tables in Appendix B).

1.2 National Wetlands Inventory

Gordon Creek, Butternut Creek and its tributary, and the unnamed Rosedale Creek and its tributary are mapped on the Scholls, Oregon National Wetlands Inventory (NWI) map (Figure 3, Appendix A). No isolated wetlands are mapped within the study area.

1.3 Soil Survey

Soils within the study area were mapped by the Natural Resources Conservation Service (NRCS 2009, 2014) and shown in Figure 4, Appendix A. Table 2 lists the soils within the area.

Table 2. Mapped Soil Units within the Study Area

Map Unit	Map Unit Name	Hydric/Inclusions
1	Aloha silt loam	Hydric Huberly inclusions
22	Huberly silt loam	Hydric
37A, B, C	Quatama silt loam, 0-3, 3-7, and 7-12% slopes	Hydric Huberly inclusions
42	Verboort silty clay loam	Hydric
43	Wapato silty clay loam	Hydric
45A, B, C	Woodburn silt loam, slopes 0-3, 3-7, and 7-12%	Hydric Dayton inclusions

1.4 Site Elevation and Topography

The subject area gently to steeply slopes to the southwest, with elevations ranging from approximately 205 feet above sea level in the northeast to 173 feet above sea level in the southwest (USGS 1961, photo-revised 1985).

1.5 Floodplain

Butternut Creek and Gordon Creeks are mapped as being within the 100-year floodplain according to the best available information for the city of Hillsboro and Washington County which is the hydraulic and hydrologic modeling data created as part of the Watersheds 2000 study and shown in the Healthy Streams Plan, June 2005. This model was submitted to FEMA on March 3, 2006, as part of the Clean Water Services FEMA Floodplain Remapping Project/Modeling which will lead to a new Flood Insurance Study and Flood Insurance Rate Maps (FIRM). For the City, the location of the regulatory floodplain (Base Flood Elevation (BFE)) for any development on property including floodplain areas, even if no activity or use is proposed in the floodplain is as established by the most current FIRM, Flood Insurance and Floodway Maps, or the best available information per Section 12.27.140.A of the Community Development Code. The March 3, 2006 modeling data represents the best available information so it is being used for the South Hillsboro Community Plan Area.

1.6 Watershed

The study area is included in the Davis Creek-Tualatin River watershed (Hydrologic Unit Code [HUC] 170900100404) (Oregon Explorer 2014).

2 METHODOLOGY

2.1 Wetlands and Waters

The methodology for determining the presence of wetlands followed the U.S. *Army Corps of Engineers* [USACE] *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers' Wetland Delineation Manual for the Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010), used by both the USACE and the Oregon Department of State Lands (DSL). Fieldwork for determining wetland boundaries and stream locations was conducted on February 13 and 26, April 2 and June 20, 2014, by C. Mirth Walker and Stacy Benjamin. Soils, vegetation, and indicators of hydrology were recorded at 18 sample plot locations to document various site conditions (Appendix C).

Aerials used in the Goal 5 NRI included digital March 2012 leaf-off color aerial photographs provided by the city of Hillsboro, as well as Google Earth (2014) aerials and Oregon Map (2014) aerials. Resource boundaries were drawn on the field aerial maps and digitized by Stacy Benjamin and SWCA geographic information system (GIS) specialist Melissa Katz-Moye. All maps were reviewed and edits approved by the author. Sample plots were surveyed with a Trimble GeoExplorer XT global positioning system (GPS) unit (+/- 3 feet accuracy). Maps were prepared according to DSL digital map standards and conform to city of Hillsboro requirements.

Appendix B includes four tables:

- Table A. Natural Resources Inventory summary table (name, description, size and significance);
- Table B. Tax lot table by resource unit;
- Table C. Permission to access table; and
- Table D. Wetland/upland determination plots table.

Wetland Summary Sheets and Riparian Forested Upland Summary Sheets are included in Appendix D, and a list of vegetation with common and scientific names and wetland indicator status is included in Appendix E.

The OFWAM questions and answer assessment sheets are included in Appendix F. The determination of locally significant wetlands is defined by Oregon Administrative Rules (OARs) for conducting Local Wetland Inventories, which is included in Appendix G. Technical staff qualifications are included in Appendix H.

2.2 Isolated Upland Forested Wildlife Habitat

Isolated forests are not adjacent to a stream or wetland, and exclude commercial orchards, small clumps of trees, and areas with only a few scattered trees. Also excluded are forested areas with a mowed grass understory (such as parks) and residential areas with an open forest canopy above and an understory consisting of mostly landscaped areas or yards. Minimum isolated forest size mapped is at least one acre. Upland forests containing a narrow residential access road with a closed overhead canopy would be mapped as one unit and not divided by the access road. There were no isolated upland forests in the current study area.

2.3 Riparian Forested Upland Wildlife Habitat

Riparian forested upland areas were assessed as wildlife habitat resource areas, as defined in the City's adopted Goal 5 Natural Resources Inventory and Assessment (Fishman 2001). Riparian forests are adjacent to a stream or connected to a stream via a wetland(s). Riparian forested upland assessment criteria were developed in the 2001 NRI and include the following:

Wildlife Habitat: Evaluates habitat diversity. Areas with permanent or seasonal water, diverse vegetation and structure (canopy, understory, groundcover), and interspersed plant communities rate high compared to areas without water, with low structural diversity and/or a single plant community. Wildlife habitat value also increases with the size of the site and linkage to other open space habitat. Snags and large woody debris increase the value of the habitat.

Water Quality Protection: Evaluates the potential of the resource to protect contiguous streams and wetlands. Uplands adjacent to streams maximize water quality protection from surface water runoff if the upland area is greater than 50 feet wide, well vegetated, and has a well-established duff layer. Well-vegetated slopes also minimize erosion. Water quality protection rates high on moderate and steep slopes adjacent to a stream if well-vegetated, medium if duff is patchy, low if hill-slopes are eroding or not well-vegetated.

Ecological Integrity: Evaluates the conditions of native site vegetation. If vegetation is dominated by a mixture of native species with limited invasive species influence, it rates high. Sites with mostly native species and with invasive species that could be removed rate medium. Sites strongly impacted by invasive species (Himalayan blackberry, English ivy, bittersweet nightshade) rate low.

Connectivity: Evaluates the importance of linkage or continuity of a resource site to allow wildlife passage between larger habitat units or genetic flow between plant populations. Connectivity rates high if sites are large and connected to Goal 5 resource corridors and low if isolated.

Uniqueness: Evaluates the uniqueness of the resource. Uniqueness rates high if the site contains a federal or state categorized species or critical habitat, unique plant community (age, species composition, etc.), or geologic feature; medium for high quality common habitat; low for none of the above.

Significance of the upland forest is determined similarly to the locally significant wetland determination, i.e., any unit that scores High in one of the above functions is determined to be a locally significant upland. Riparian upland summary sheets are included in Appendix D.

3 RESULTS

A total of 42.38 acres of wetland were mapped along Butternut Creek, Tributary 1 to Butternut Creek, Rosedale Creek, Tributary 1 to Rosedale Creek, Tributary 1 to Gordon Creek, with a 1.03 acre isolated wetland occurring in the northwest corner of the study area and one wetland mitigation site is present in the northwest corner of the study area (GC2-W1). The wetlands, stream and riparian corridors are shown on Figure 5: Goal 5 Natural Resources Inventory in the South Hillsboro Community Plan Area, Appendix A. Two excavated ponds are present within the study area and are non-jurisdictional. Two potential wetlands (less than 0.5 acre) are also present. The excavated ponds and potential wetlands are also shown on Figure 5.

NRI summary tables are presented in Appendix B. Wetland summary sheets are included in Appendix D, which describe the following:

- Wetland unit code;
- Location description;
- Township, Range, and Section and tax lots that contain the mapped wetlands;
- Field verification dates;
- Approximate size in acres;
- Cowardin classification(s);
- Soil type(s);
- Hydrogeomorphic method (HGM) classification;
- Sample plot numbers;
- Common name of dominant plant species;
- Primary hydrology source, including hydrology source and use of artificially created wetlands (none within the study area);
- Summary of OFWAM assessment results;
- Locally significant wetland determination;
- Comments which describe the wetland, including topographic position, land uses, alterations (including agricultural); and the basis for the wetland boundary determination.

3.1 OFWAM Results

Wetland units were assessed using OFWAM; assessment sheets are included in Appendix F. All wetlands were determined to be locally significant due to providing diverse wildlife habitat, intact fish habitat, intact water quality and/or intact hydrologic control functions, as shown in Table 3. The city of Hillsboro's Significant Natural Resources Overlay (SNRO) zone (Section 12.27.200 of the Community Development Code) will be applied to locally significant wetlands and riparian corridors by the City with application of local zoning after annexation of properties containing these significant natural resources to the city. The level of resource protection for the SNRO zone will be determined in the Economic, Social, Environmental and Energy (ESEE) Analyses of the significant natural resources located in the South Hillsboro Plan Area.

Table 3. OFWAM Assessment Results and Significance Determination

Wetland Unit	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Locally Significant?
BuC2	High	High	High	High	Yes
BuCTrib1	High	High	High	Medium	Yes
RsC1	High	Medium	Medium	High	Yes
RsC2	High	Medium	Medium	High	Yes
RsC3	High	High	High	High	Yes
RsC4	High	Medium	High	High	Yes
RsCTrib1	Medium	Medium or NA	High	Medium	Yes
GC2-W1	High	NA	Medium	Medium	Yes
W1	Medium	NA	High	High	Yes
GCTrib1	High	NA	High	High	Yes

High = Provides Diverse Wildlife Habitat or Intact function; Medium = Provides Some Wildlife Habitat or Impacted/Degraded function; Low = Lost or Not Present; NA = Not Applicable.

Many of the references used to conduct the OFWAM assessment are included in the reference section even though they are not directly cited in this report.

3.2 Forested Upland Wildlife Habitat

A total of 31 acres of riparian forested upland wildlife habitat was mapped within the study area. No isolated forested upland wildlife habitat occurs in the study area. All riparian forests were assessed using the methodology developed in the City's adopted 2001 Goal 5 Natural Resources Inventory and Assessment. All assessed forests were determined to be locally significant, except for the very narrow riparian corridors along Reach 1 and Reach 3 of Rosedale Creek. There is no riparian corridor along Reach 2 and Reach 4 of Rosedale Creek. Assessment results are shown in Table 4.

Table 4. Forested Upland Wildlife Habitat Assessment Results and Significance Determination

Riparian/Upland Unit	Wildlife Habitat	Water Quality Protection	Ecological Integrity	Connectivity	Uniqueness	Locally Significant?
BuC2-R/U	High	High	High	High	Medium	Yes
BuCTrib1-R/U	High	Medium	High	Medium	Medium	Yes
RsC1-R/U	Medium	Medium	Medium	Low	Low	No
RsC3-R/U	Medium	Medium	Medium	Medium	Low	No

Upland summary sheets are included in Appendix D, which describe the following:

- Upland unit's code, and whether it is riparian or isolated;
- Street address or equivalent location description;
- Township, Range, Section and tax lots that contain the mapped upland units;
- Field verification dates;
- Approximate size in acres;
- General description of the upland forest;
- Soil type(s);
- Sample plot numbers;
- Common name of dominant plant species;
- Adjacent stream information;

- Upland habitat assessment results; and
- Significance determination.

4 CONCLUSION

Wetlands, streams, and forested upland riparian corridors were mapped in this Goal 5 Natural Resources Inventory and Assessment according to the adopted city of Hillsboro methodology. Wetland and waters mapping followed the DSL OAR guidelines.

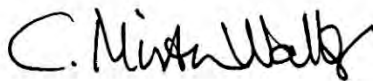
Wetlands were mapped along Butternut Creek, Tributary 1 to Butternut Creek, Rosedale Creek, Tributary 1 to Rosedale Creek, and Tributary 1 to Gordon Creek, with one isolated wetland occurring in the northwest corner of the study area. One wetland mitigation site is present in the study area (GC2-W1). Results are shown in Table 1 and Appendices A and B. All wetlands were assessed using the Oregon Freshwater Wetland Assessment Method (OFWAM; Roth et al. 1996). All wetlands were determined to be locally significant due to providing diverse wildlife habitat, intact fish habitat, intact water quality and/or intact hydrologic control functions. All streams in the study area flow west to the Tualatin River.

Riparian forested upland wildlife habitat was mapped within the study area. No isolated forested upland wildlife habitat occurs in the study area. All riparian forests were assessed using the methodology developed in the City's adopted 2001 Goal 5 Natural Resources Inventory and Assessment. All assessed forests were determined to be locally significant except for the very narrow riparian corridors along Reach 1 and Reach 3 of Rosedale Creek.

5 DISCLAIMER

There may be unmapped wetlands subject to regulation within the study area and all wetland boundary mapping is approximate. In all cases, actual field conditions determine wetland boundaries. Wetlands and waters within the study area are regulated by the Oregon Department of State Lands and the U.S. Army Corps of Engineers. Contact the city of Hillsboro with any regulatory or land use questions.

6 LIST OF PREPARERS



C. Mirth Walker, PWS
Senior Wetland Scientist

7 REFERENCES

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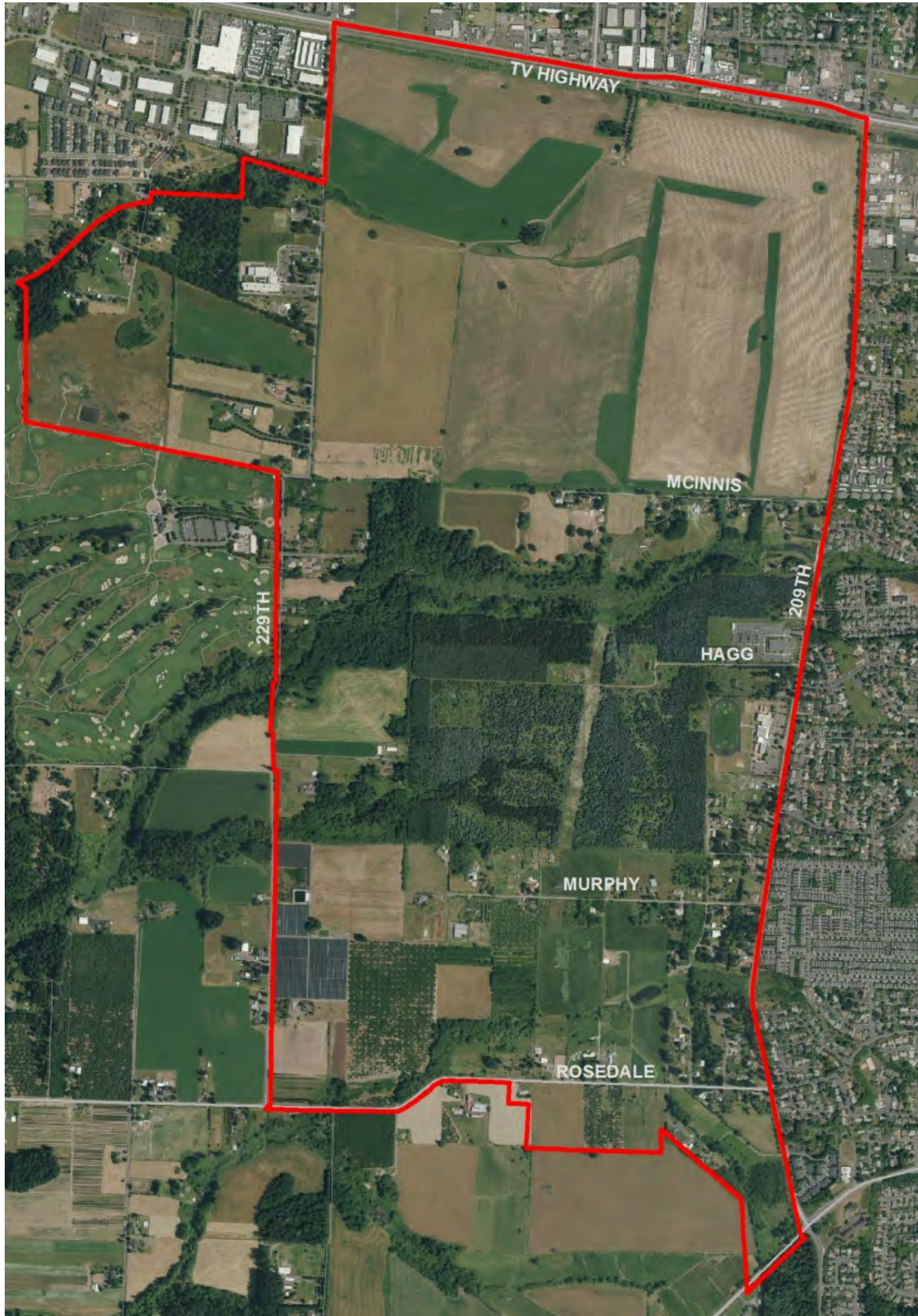
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APPENDIX A

Figures 1 - 5

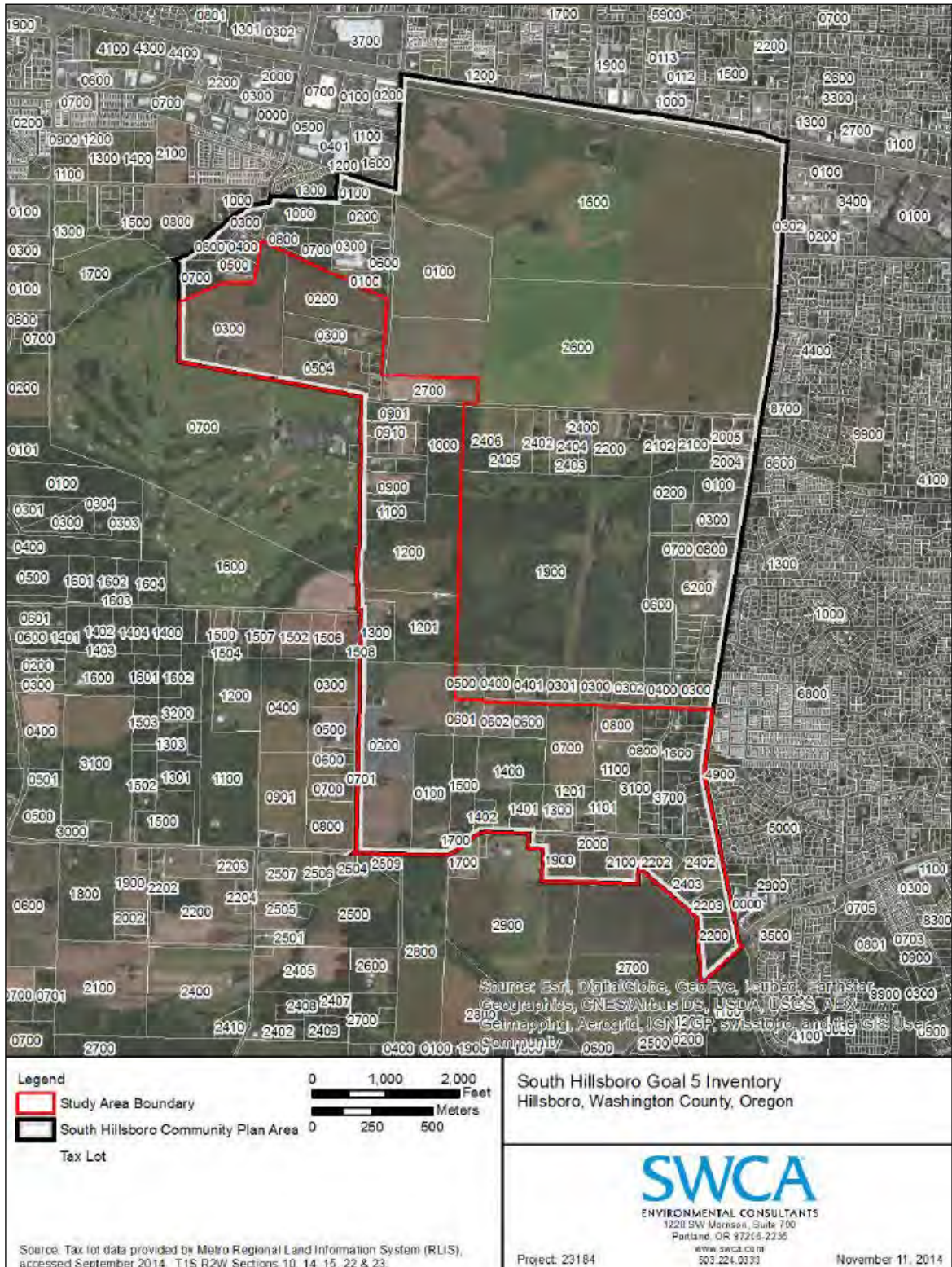
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Figure 1. Plan Area Boundary map



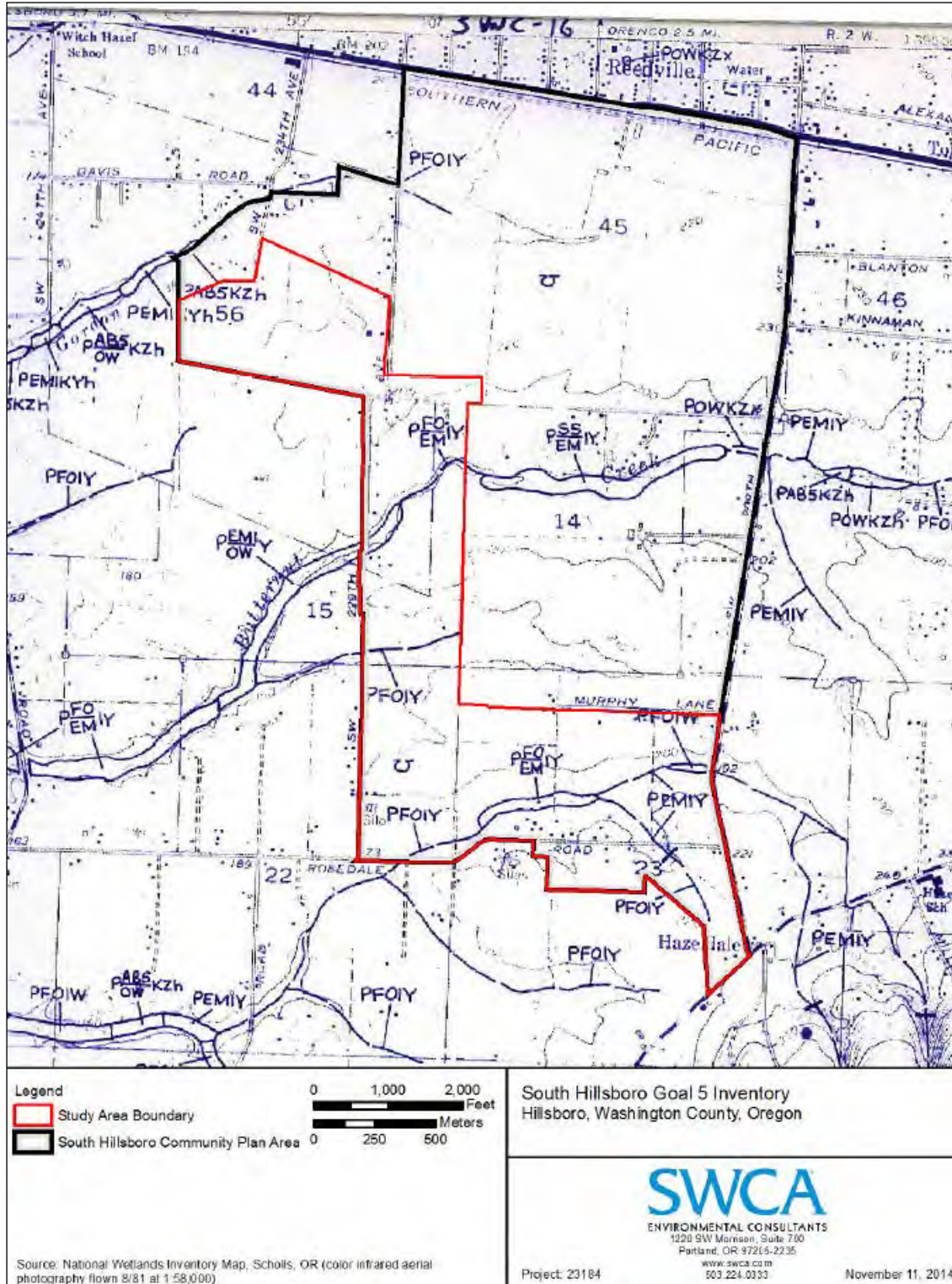
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Figure 2. Tax lot map



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Figure 3. National Wetland Inventory map



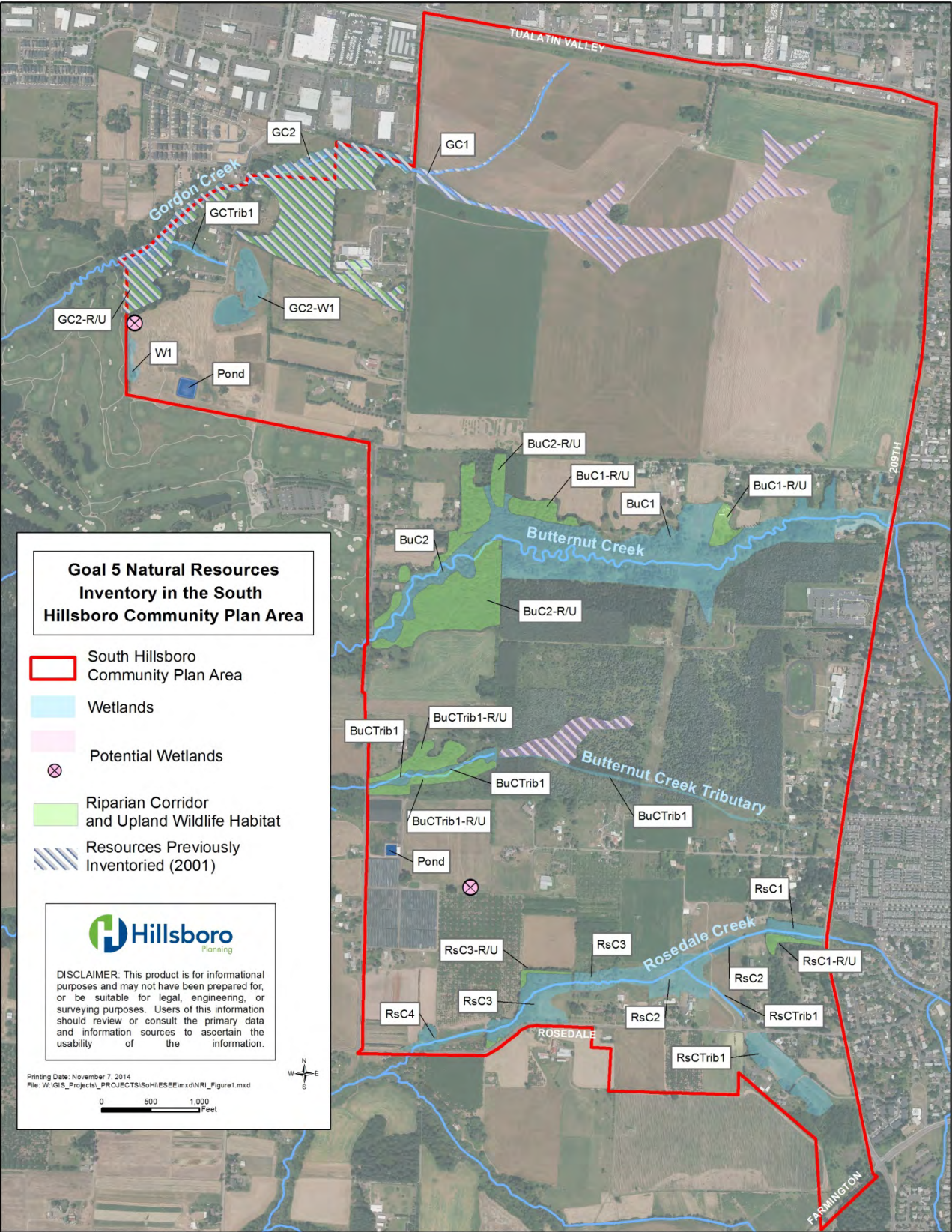
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Figure 4. Soils map



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Figure 5. Goal 5 Natural Resources Inventory in the South Hillsboro Community Plan Area



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APPENDIX B:

Table A. Natural Resources Inventory Summary Table

Table B. Tax Lot Table

Table C. Permission to Access Table

Table D. Wetland Determination Plot Table

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Table A. Natural Resource Inventory Summary Table

Resource	Description and Cowardin Classification	Acres	Significance
Wetland Unit			
BuC2	Butternut Creek Reach 2 wetland; PFO, PEM (Reach 1 is to east)	7.73	Yes
BuCtrib1	Butternut Creek Tributary 1 wetland; PFO	1.78	Yes
RsC1	Rosedale Creek Reach 1 wetland; PFO	1.97	Yes
RsC2	Rosedale Creek Reach 2 wetland; PEM, POW	7.74	Yes
RsC3	Rosedale Creek Reach 3 wetland; PFO	8.27	Yes
RsC4	Rosedale Creek Reach 4 wetland; PFO, PSS, PEM	1.78	Yes
RsCTrib1	Rosedale Creek Tributary 1 wetland; PFO, PEM	6.09	Yes
GC2-W1	West Union mitigation site wetland (DSL 10429-FP); acreage digitized from aerial photograph. PEM	5.11	Yes
W1	West Union isolated wetland digitized from aerial photograph. PEM	1.03	Yes
GCTrib1	Off-site wetland riparian corridor and stream. PFO	0.88	Yes
	TOTAL	42.38	
Waterways - Streams			
BuC2	Butternut Creek, Reach 2 (Reach 1 is upslope to east)	-	Included in Wetland and/or Riparian/Upland unit
BuCtrib1	Butternut Creek Tributary 1, Reach 2 (Reach 1 is upslope to east)	-	Included in Wetland and/or Riparian/Upland unit
RsC1	Rosedale Creek Reach 1	-	Included in Wetland and/or Riparian/Upland unit
RSC2	Rosedale Creek Reach 2	-	Included in Wetland and/or Riparian/Upland unit
RsC3	Rosedale Creek Reach 3	-	Included in Wetland and/or Riparian/Upland unit
RsC4	Rosedale Creek Reach 4	-	Included in Wetland and/or Riparian/Upland unit
RsCTrib1	Rosedale Creek Tributary 1	-	Included in Wetland and/or Riparian/Upland unit
GCTrib1	Gordon Creek Tributary 1 (flows into GC2)	-	Included in Wetland and/or Riparian/Upland unit
Riparian/Upland Unit			
BuC2-R/U	Butternut Creek Riparian/Upland (BuC1-R/U is upslope to east)	21.96	Yes
BuCtrib1-R/U	Butternut Creek Tributary 1 Riparian/Upland	7.24	Yes
RsC1-R/U	Rosedale Creek Reach 1 Riparian/Upland	1.05	No
RsC3-R/U	Rosedale Creek Reach 3 Riparian/Upland	0.75	No
	TOTAL	31.00	
Potential Wetland Points			
PW1 - WEST (Union)	Map from Ryan O'Brien showed this as ~0.08 acre	-	
PW2 - ROSED	In hydric soil unit, no access received	-	
Non-Jurisdictional Ponds			
Pond North	Excavated pond	0.89	NA
Pond South	Excavated lined pond	0.29	NA

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Table B. Tax Lot Table

Resource	Tax Lots						
Wetland Unit							
BuC2	1S2150000900	1S2150000912	1S2150001000	1S2150001100	1S2150001200		
BuC Trib1	1S2150001201	1S2150001300					
RsC1	1S223AB01600						
RsC2	1S2230000700	1S2230001100	1S2230001101	1S2230001200	1S2230001201	1S2230001300	1S223AB00800
RsC3	1S2230001300	1S2230001400	1S2230001401	1S2230001402	1S2230001500	1S2230001700	
RsC4	1S2220000100	1S2220000200					
RsC Trib1	1S2230001100	1S2230002202	1S2230002203	1S2230002300	1S2230002403	1S223AC02800	1S223AC02900
GC2-W1	1S2150000300						
W1	1S2150000300						
GCTrib1	1S210CD00400	1S210CD00500	1S210CD00600				
Riparian/Upland Unit							
BuC-R/U	1S2150000900	1S2150000905	1S2150000912	1S2150001000	1S2150001100	1S2150001200	
BuC-Trib1-R/U	1S2150001201	1S2150001300					
RsC1-R/U	1S223AB01600	1S223AC03600	1S223AC03700				
RsC3-R/U	1S2220000100	1S2230001400	1S2230001401	1S2230001402	1S2230001700		
Potential Wetland Points							
PW1 - WEST (Union)	1S2150000300						
PW2 - ROSED	1S2220000200						
Non-Jurisdictional Ponds							
Pond North	1S2150000300						
Pond South	1S2220000200						

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Table C. Permission to Access Table

Map/Tax Lot(s)	Site Address	Owner Name	Auth_Rec'd	5-Letter Code and Notes (2014)
1S2150000300&505	Unassigned & 4675 SW 229th Ave	Park, Jin and West Union Development, LLC	1/31	PARK, WEST (West Union) - Access rescinded 2/3/2014 (not the PARK south of Rosedale Road)
1S2150000900&912	Unassigned (E of 229th)	Schlesser, Eileen	1/13	SCHLE: Owner requests call ahead to arrange time; no appt. needed, visited 2/26
1S2150000901&913	4640 SW 229th Ave	Patton, Sheryl	1/23	PATTO
1S2150000903	4994 SW 229th Ave	Bezodis, Alan & Florence	1/14	BEZOD
1S2150001000	4622 SW 229th Ave	Raab, Phillip	1/16	RAAB,
1S2150001100	5218 SW 229th Ave	Selberg, Robert & Shirley	1/14	SELBE: Owner requests call ahead to arrange time: 2/26 at 1pm
1S2150001200	5496 SW 229th Ave	Carich, Lucille	1/21	CARIC
1S2150001201	5678 SW 229th Ave	Foote, Holly	1/28	FOOTE
1S2150001300	5924 SW 229th Ave	Weaver, Daymon	1/17	WEAVE
1S215AB00200	4149 SW 229th Ave	Dunn, John Thomas, Jr. for Greater Dunn Enterprises	2/3	GREAT (Dunn, Greater Dunn Enterprises)
1S215AB00300	4345 SW 229th Ave	Horton, Willard and Dixie	unk	HORTO
1S2220000100& 1S2230001500	Unassigned (N of Rosedale Rd)	Bernhardt, Leonard	1/30	BERNH
1S2230000600	22030 SW Murphy Ln	Lambert, Lawrence & Marilyn	1/11	LAMBE
1S2230000602	22250 SW Murphy Ln	Drew, Antonene	1/17	DREW,
1S2230001400	22115 SW Rosedale Rd	Burpee, Roger	1/21	ROGER (Roger Burpee Family LLC, next to CAMER)
1S2230001401	22015 SW Rosedale Rd	Cameron, Duncan Dale	1/17	CAMER
1S2230001700	22500 SW Rosedale Rd	Santoro, Eleanor	1/16	SANTO (west)
1S2230001800&1900	22050 SW Rosedale Rd	Santoro, Joe	1/22	SANTO (east)
1S2230002100	21560 SW Rosedale Rd	Cooper Mtn Congregation of Jehovah's witnesses	1/17	COOPE Contact name: Darrell Fincher
1S2230002200	Unassigned (W of 209th N of Farmington)	Pyon, Muho	1/13	PYON,
1S2230002402	21000 SW Rosedale Rd	Rogers, Paul	1/17	ROGER (east of Roger Burpee Family LLC)
1S223AB01200	20990 SW Murphy Ln	Dudley, Gregory	1/14	DUDLE
1S223AC02700	3800SW 213th Ave	Magathan, John & Kathy	1/31	MAGAT
1S223AC03100	6615 SW 213th Ave	Fischer, Tom	1/14	FISCH
1S223AC03400	6700 SW 211th Ave	Lundberg, Leo	1/10	LUNDB
1S223AC03600	6550 SW 211th Ave	Tolbert, Matt	1/10	TOLBE

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Table D. Wetland Determination Plot Table

Plot #	Type	Tax Lot	Soil Unit	Comment
1	Upland	GREAT (DUNN)	22	Ryan O'Brien reports that Martin Schott conducted a preliminary site visit and found a narrow wetland that extends about one third of the way into the site (email dated 1/29/2014).
2	Upland	GREAT (DUNN)	22	
3	Upland	GREAT (DUNN)	22	
4	Upland	GREAT (DUNN)	22	
5	Upland	PYON	1	Trib. to north, trib. to west (outside SAB)
6	Wetland	SCHLE	37C	Butternut Creek, north side
7	Upland	SCHLE	37C	Butternut Creek, north side
8	Wetland	CARIC	37C	Butternut Creek, south side
9	Upland	CARIC	37C	Butternut Creek, south side
10	Wetland	WEAVE	43	Butternut Creek-Trib1, north side
11	Upland	WEAVE	43	Butternut Creek-Trib1, north side
12	Wetland	ROGER (BURPE)	43	Rosedale Creek, north side
13	Upland	ROGER (BURPE)	45B	Rosedale Creek, north side
14	Upland	SANTO (east)	22	Upland
15	Wetland	ROGER (BURPE)	43	Wet pasture associated with Rosedale Creek, south side
16	Upland	ROGER (BURPE)	45A	Upland adjacent to Rosedale Creek, south side
17	Wetland	FOOTE	43	Butternut Creek-Trib1, north side
18	Upland	FOOTE	43	Butternut Creek-Trib1, north side

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APPENDIX C:
Wetland Determination Data Sheets

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 2/26/2014
 Applicant/Owner: City of Hillsboro / Greater Dunn Enterprises Property State: OR Sampling Point: P1
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 22 - Huberly silt loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>None today of and 4.07 inches two weeks prior (0.82 inch above normal for month)</u>			
Remarks: <u>Vegetation disturbed from plowing and planting (use Chapter 5 methodology).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)	
1. _____	_____	_____	_____		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>15</u> (A) <u>50</u> (B) Prevalence Index = B/A = <u>3.33</u>
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
0% = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
0% = Total Cover					
Herb Stratum (Plot size: <u>5' r</u>)					
1. <u>Lolium perenne</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>		
2. <u>Hypochaeris radicata</u>	<u>5%</u>	<u>Yes</u>	<u>FACU</u>		
3. <u>Trifolium species</u>	<u>3%</u>	<u>No</u>	<u>OBL to UPL</u>		
4. <u>Allium species</u>	<u>2%</u>	<u>No</u>	<u>OBL to NOL</u>		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
20% = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Yes _____ No <u>X</u> Present?	
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>80%</u>					
Remarks: _____				Entered by: <u>SNB</u> QC by: <u>CMW</u>	

SOIL

Sampling Point: **P1**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/2	100					sicl	
12-19	10YR 3/2	100					sic	
19-21+	10YR 3/2	100					c	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>21</u>	
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>21</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Moist in surface 12 inches. Entered by: SNB QC by: CMW

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 2/26/2014
 Applicant/Owner: City of Hillsboro / Greater Dunn Enterprises Property State: OR Sampling Point: P2
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 22 - Huberly silt loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: <u>None today and 4.07 inches two weeks prior (0.82 inch above normal for month)</u>			
Remarks: <u>Vegetation disturbed from plowing and planting (use Chapter 5 methodology).</u>			

VEGETATION

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	
(Plot size: <u>30' r</u>)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>2</u> x 3 = <u>6</u> FACU species <u>1</u> x 4 = <u>4</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>3</u> (A) <u>10</u> (B) Prevalence Index = B/A = <u>3.33</u>
0% = Total Cover				
0% = Total Cover				
8% = Total Cover				
0% = Total Cover				
92%				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
92%				
92%				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
Remarks: <u>Onion and clover likely FAC.</u>				Entered by: <u>SNB</u> QC by: <u>CMW</u>

SOIL

Sampling Point: **P2**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/2	100					sicl	
12-15	10YR 3/2	100					sic	
15-18	10YR 3/2	100					c	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <u>X</u>	Depth (inches): _____	Wetland Hydrology Present? Yes <u>X</u> No _____
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>>18</u>	
Saturation Present? (includes capillary fringe)	Yes <u>X</u> No _____	Depth (inches): <u>7 - 12</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			

Remarks: _____ Entered by: SNB QC by: CMW

Seeps present 7-12 inches.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 2/26/2014
 Applicant/Owner: City of Hillsboro / Greater Dunn Enterprises Property State: OR Sampling Point: P3
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 22 - Huberly silt loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: <u>None today and 4.07 inches two weeks prior (0.82 inch above normal for month)</u>			
Remarks: <u>Vegetation disturbed from plowing and planting (use Chapter 5 methodology).</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)	
1. _____	_____	_____	_____		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>25</u> x 3 = <u>75</u> FACU species <u>11</u> x 4 = <u>44</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>36</u> (A) <u>119</u> (B) Prevalence Index = B/A = <u>3.31</u>
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
0% = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
0% = Total Cover					
Herb Stratum (Plot size: <u>5' r</u>)					
1. <u>Lolium perenne</u>	<u>25%</u>	<u>Yes</u>	<u>FAC</u>		
2. <u>Hypochaeris radicata</u>	<u>10%</u>	<u>Yes</u>	<u>FACU</u>		
3. <u>Trifolium species</u>	<u>5%</u>	<u>No</u>	<u>OBL to UPL</u>		
4. <u>Cirsium vulgare</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
41% = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>59%</u>					
Remarks: _____				Entered by: <u>SNB</u> QC by: <u>CMW</u>	

SOIL

Sampling Point: **P3**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	100					sicl	
8-15	10YR 3/2	100					sic	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes <u>X</u> No _____	Depth (inches): <u>0.5 - 1.5</u>	Wetland Hydrology Present? Yes <u>X</u> No _____
Water Table Present?	Yes <u>X</u> No _____	Depth (inches): <u>surface</u>	
Saturation Present?	Yes <u>X</u> No _____	Depth (inches): <u>surface</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: SNB QC by: CMW

Approximately 25 foot diameter circular ponded area surrounding plot.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 2/26/2014
 Applicant/Owner: City of Hillsboro / Greater Dunn Enterprises Property State: OR Sampling Point: P4
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 22 - Huberly silt loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: <u>None today and 4.07 inches two weeks prior (0.82 inch above normal for month)</u>			
Remarks: <u>Vegetation disturbed from plowing and planting (use Chapter 5 methodology).</u>			

VEGETATION

<u>Tree Stratum</u> (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>10' r</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>41</u> x 4 = <u>164</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>61</u> (A) <u>224</u> (B) Prevalence Index = B/A = <u>3.67</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5' r</u>)				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Hypochaeris radicata</u>	<u>40%</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Lolium perenne</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Trifolium species</u>	<u>5%</u>	<u>No</u>	<u>OBL to UPL</u>	
4. <u>Cirsium vulgare</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
66% = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>10' r</u>)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>34%</u>				
Remarks: _____ Entered by: <u>SNB</u> QC by: <u>CMW</u>				

SOIL

Sampling Point: **P4**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-15	10YR 3/2	100					sicl	
15-22	10YR 3/2	100					sic	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>22</u>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>7 - 15</u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Seeps present 7-15 inches. Entered by: SNB QC by: CMW

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 2/26/2014
 Applicant/Owner: City of Hillsboro / Pyon property (21005 SW Farmington Road) State: OR Sampling Point: P5
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 23, T1S, R2W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 1 - Aloha silt loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>None today of and 4.07 inches two weeks prior (0.82 inch above normal for month)</u>			
Remarks: _____			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				
1. <u>Rubus armeniacus</u>	5%	Yes	FACU	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>87</u> x 3 = <u>261</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>3</u> x 5 = <u>15</u> Column Totals: <u>105</u> (A) <u>326</u> (B) Prevalence Index = B/A = <u>3.10</u>
2. <u>Populus balsamifera</u>	1%	No	FAC	
3. <u>Salix scouleriana</u>	1%	No	FAC	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
7% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)				
1. <u>Holcus lanatus</u>	40%	Yes	FAC	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
2. <u>Agrostis capillaris</u>	20%	Yes	FAC	
3. <u>Juncus tenuis</u>	20%	Yes	FAC	
4. <u>Phalaris arundinacea</u>	5%	No	FACW	
5. <u>Dipsacus fullonum</u>	5%	No	FAC	
6. <u>Daucus carota</u>	5%	No	FACU	
7. <u>Geranium molle</u>	3%	No	NOL	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
98% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>2%</u>				
Remarks: _____				Entered by: <u>SNB</u> QC by: <u>CMW</u>

SOIL

Sampling Point: **P5**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	100					sil+	
8-16	10YR 3/2	60					very fine sl	mixed matrix w/
	10YR 4/2	30					very fine sl	angular gravels
	10YR 4/3	10					sil	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Indicators for Problematic Hydric Soils³:

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel

Depth (inches): 16

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Mixed matrix with angular gravels up to 1 inch diameter = fill soils; 10% gravels 0-8, 20% gravels 8-15.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u> </u>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>16</u>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0-2</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			

Remarks: Entered by: SNB QC by: CMW
Surface saturation due to recent rain falling on compacted fill soils; slightly moist 8-15 inches bgs.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 4/2/2014
 Applicant/Owner: City of Hillsboro / Schlesser Property State: OR Sampling Point: P6
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): stream terrace Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 37C Quatama loam, 7-12% slopes, just north of 43 Wapato silty clay loam NWI classification: None mapped
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: <u>Trace day of site visit and 2.51 inches two weeks prior (Hillsboro NWS station).</u>			
Remarks: <u>North side of Butternut Creek, ~30 feet north of stream.</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Fraxinus latifolia</u>	<u>55%</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Alnus rubra</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>65%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>30</u> x 1 = <u>30</u> FACW species <u>60</u> x 2 = <u>120</u> FAC species <u>35</u> x 3 = <u>105</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>125</u> (A) <u>255</u> (B) Prevalence Index = B/A = <u>2.04</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Scirpus microcarpus</u>	<u>20%</u>	<u>Yes</u>	<u>OBL</u>	
2. <u>Equisetum arvense</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Phalaris arundinacea</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>	
4. <u>Veronica americana</u>	<u>5%</u>	<u>No</u>	<u>OBL</u>	
5. <u>Ranunculus repens</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
6. <u>Lysichiton americanus</u>	<u>5%</u>	<u>No</u>	<u>OBL</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>50%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. <u>Solanum dulcamara</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
<u>10%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>50%</u>				
Remarks: _____ Entered by: <u>cmw</u> QC by: <u>snb</u>				

SOIL

Sampling Point: **P6**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	100					SiCL	
3-7	10YR 3/2	90	7.5YR 4/6	10	C	M	SiCL	
7-16+	10G 4/1	90	7.5YR 4/6	10	C	M + PL	SiC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Indicators for Problematic Hydric Soils³:

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

Gley 2 page

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Water Table Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>12</u>	
Saturation Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>surface</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: cmw QC by: snb

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 4/2/2014
 Applicant/Owner: City of Hillsboro / Schlessor Property State: OR Sampling Point: P7
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): toeslope above terrace Local relief (concave, convex, none): convex Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 37C Quatama loam NWI classification: None mapped
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Precipitation prior to fieldwork: <u>Trace day of site visit and 2.51 inches two weeks prior (Hillsboro NWS station).</u>					
Remarks: <u>5 feet east of Plot 6.</u>					

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Fraxinus latifolia</u>	<u>40%</u>	<u>Yes</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67%</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
<u>40%</u> = Total Cover				Total % Cover of: _____ Multiply by: _____	
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				OBL species <u>0</u> x 1 = <u>0</u>	
1. <u>Rubus armeniacus</u>	<u>80%</u>	<u>Yes</u>	<u>FACU</u>	FACW species <u>40</u> x 2 = <u>80</u>	
2. _____	_____	_____	_____	FAC species <u>5</u> x 3 = <u>15</u>	
3. _____	_____	_____	_____	FACU species <u>80</u> x 4 = <u>320</u>	
4. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
5. _____	_____	_____	_____	Column Totals: <u>125</u> (A) <u>415</u> (B)	
<u>80%</u> = Total Cover				Prevalence Index = B/A = <u>3.32</u>	
Herb Stratum (Plot size: <u>5' r</u>)				Hydrophytic Vegetation Indicators:	
1. <u>Equisetum arvense</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	1 - Rapid Test for Hydrophytic Vegetation	
2. _____	_____	_____	_____	<u>X</u> 2 - Dominance Test is >50%	
3. _____	_____	_____	_____	3 - Prevalence Index is ≤3.0 ¹	
4. _____	_____	_____	_____	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants ¹	
6. _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)	
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.	
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>5%</u> = Total Cover				Hydrophytic Vegetation Present?	
Woody Vine Stratum (Plot size: <u>10' r</u>)				Yes <u>X</u> No _____	
1. _____	_____	_____	_____	Present?	
2. _____	_____	_____	_____		
<u>0%</u> = Total Cover					
% Bare Ground in Herb Stratum <u>95%</u>					
Remarks:				Entered by: <u>cmw</u> QC by: <u>snb</u>	

SOIL

Sampling Point: **P7**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 3/2	100					SiCL	
7-12	10YR 3/2	98	7.5YR 4/4	2	C	M	SiC	
12-14+	10YR 5/1	95	7.5YR 4/4	5	C	M	CL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				
Restrictive Layer (if present):					
Type: _____		Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Depth (inches): _____					

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:				Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____		
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>14</u>		
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>>14</u>		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Moist throughout, saturated 0-1 inches below ground surface from recent rain. Entered by: cmw QC by: snb

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 4/2/2014
 Applicant/Owner: City of Hillsboro / Carich Property State: OR Sampling Point: P8
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): toeslope drainage Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 37C Quatama loam, 7-12% slopes (Wapato to north) NWI classification: None mapped
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Precipitation prior to fieldwork: <u>Trace day of site visit and 2.51 inches two weeks prior (Hillsboro NWS station).</u>					
Remarks: <u>South side of Butternut Creek</u>					

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Alnus rubra</u>	<u>50%</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>86%</u> (A/B)
2. <u>Thuja plicata</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Fraxinus latifolia</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
<u>75%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Euonymus occidentalis</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>128</u> x 3 = <u>384</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>153</u> (A) <u>444</u> (B) Prevalence Index = B/A = <u>2.90</u>
2. <u>Sambucus racemosa</u>	<u>10%</u>	<u>Yes</u>	<u>FACU</u>	
3. <u>Thuja plicata</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>25%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Hydrophyllum tenuipes</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
2. <u>Carex obnupta</u>	<u>10%</u>	<u>Yes</u>	<u>OBL</u>	
3. <u>Athyrium cyclosorum</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>53%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>47%</u>				
Remarks: _____				Entered by: <u>cmw</u> QC by: <u>snb</u>

SOIL

Sampling Point: **P8**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 2/1	100					muck	
5-12	10YR 2/1	80	10YR 3/1	20	C	M	muck	w/ 10% fibers

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input checked="" type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Water Table Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>10</u>	
Saturation Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>surface</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Seeps throughout. Entered by: cmw QC by: snb

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 4/2/2014
 Applicant/Owner: City of Hillsboro / Carich Property State: OR Sampling Point: P9
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 37C Quatama Loam, 7-12% slopes (Wapato to north) NWI classification: None mapped
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>Trace day of site visit and 2.51 inches two weeks prior (Hillsboro NWS station).</u>			
Remarks: <u>30 feet southwest of Plot 8.</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Thuja plicata</u>	<u>90%</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
2. <u>Alnus rubra</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>95%</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				
1. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>95</u> x 3 = <u>285</u> FACU species <u>3</u> x 4 = <u>12</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>98</u> (A) <u>297</u> (B) Prevalence Index = B/A = <u>3.03</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)				
1. <u>Polystichum munitum</u>	<u>3%</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants ¹ _____ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>3%</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>97%</u>				
Remarks: _____				Entered by: <u>cmw</u> QC by: <u>snb</u>

SOIL

Sampling Point: **P9**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 3/2	100					SiL+	
12-16	10YR 5/1	98	7.5YR 4/4	2	C	M	CL	
16-21	10YR 5/1	80	7.5YR 4/6	20	C	M	CL	
21-24+	10G 4/1	80	7.5YR 4/6	20	C	M	SiC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____	
Depth (inches): _____	

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Very rooty 0-6 inches bgs.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>24</u>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>>24</u> (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: cmw QC by: snb

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 4/2/2014
 Applicant/Owner: City of Hillsboro / Weaver Property State: OR Sampling Point: P10
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 43 Wapato silty clay loam NWI classification: None mapped
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Precipitation prior to fieldwork: <u>Trace day of site visit and 2.51 inches two weeks prior (Hillsboro NWS station).</u>					
Remarks: <u>North side Butternut Creek Tributary 1.</u>					

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Acer macrophyllum</u>	<u>40%</u>	<u>Yes</u>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A)	
2. <u>Alnus rubra</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>8</u> (B)	
3. <u>Fraxinus latifolia</u>	<u>20%</u>	<u>Yes</u>	<u>FACW</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>88%</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
<u>90%</u> = Total Cover				Total % Cover of: _____ Multiply by: _____	
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				OBL species <u>85</u> x 1 = <u>85</u>	
1. <u>Euonymus occidentalis</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	FACW species <u>20</u> x 2 = <u>40</u>	
2. <u>Acer circinatum</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	FAC species <u>90</u> x 3 = <u>270</u>	
3. <u>Ribes divaricatum</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	FACU species <u>3</u> x 4 = <u>12</u>	
4. <u>Thuja plicata</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	UPL species <u>0</u> x 5 = <u>0</u>	
5. <u>Sambucus racemosa</u>	<u>3%</u>	<u>No</u>	<u>FACU</u>	Column Totals: <u>198</u> (A) <u>407</u> (B)	
<u>63%</u> = Total Cover				Prevalence Index = B/A = <u>2.06</u>	
Herb Stratum (Plot size: <u>5' r</u>)				Hydrophytic Vegetation Indicators:	
1. <u>Carex obnupta</u>	<u>80%</u>	<u>Yes</u>	<u>OBL</u>	1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Lysichiton americanus</u>	<u>5%</u>	<u>No</u>	<u>OBL</u>	<u>X</u> 2 - Dominance Test is >50%	
3. _____	_____	_____	_____	3 - Prevalence Index is ≤3.0 ¹	
4. _____	_____	_____	_____	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants ¹	
6. _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)	
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.	
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>85%</u> = Total Cover				Hydrophytic Vegetation Present?	
Woody Vine Stratum (Plot size: <u>10' r</u>)				Yes <u>X</u> No _____	
1. _____	_____	_____	_____	Present?	
2. _____	_____	_____	_____		
<u>0%</u> = Total Cover					
% Bare Ground in Herb Stratum <u>15%</u>					
Remarks: _____				Entered by: <u>cmw</u> QC by: <u>snb</u>	

SOIL

Sampling Point: **P10**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 3/2	100					SiCL	
6-10	10YR 3/2	95	10YR 3/4	5	C	M	SiCL	
10-17	10Y 4/1	90	7.5YR 4/4	10	C	M	SiC	Gley page 1
17-19	10Y 4/1	80	7.5YR 4/4	20	C	M	SiC	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Type: _____	
Depth (inches): _____	

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
No sulphur smell.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 14 and rising	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): surface (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: cmw QC by: snb

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 4/2/2014
 Applicant/Owner: City of Hillsboro / Weaver Property State: OR Sampling Point: P11
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): <5
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 43 Wapato silty clay loam NWI classification: None mapped
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>Trace day of site visit and 2.51 inches two weeks prior (Hillsboro NWS station).</u>			
Remarks: <u>~20 feet east of Plot 10.</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Acer macrophyllum</u>	<u>60%</u>	<u>Yes</u>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40%</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
60% = Total Cover				Total % Cover of: _____ Multiply by: _____	
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				OBL species <u>0</u> x 1 = <u>0</u>	
1. <u>Acer circinatum</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	FACW species <u>3</u> x 2 = <u>6</u>	
2. <u>Corylus cornuta</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>	FAC species <u>65</u> x 3 = <u>195</u>	
3. <u>Gaultheria shallon</u>	<u>15%</u>	<u>Yes</u>	<u>FACU</u>	FACU species <u>40</u> x 4 = <u>160</u>	
4. <u>Euonymus occidentalis</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	UPL species <u>0</u> x 5 = <u>0</u>	
5. _____	_____	_____	_____	Column Totals: <u>108</u> (A) <u>361</u> (B)	
60% = Total Cover				Prevalence Index = B/A = <u>3.34</u>	
Herb Stratum (Plot size: <u>5' r</u>)				Hydrophytic Vegetation Indicators:	
1. <u>Hydrophyllum tenuipes</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>	1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Polystichum munitum</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	2 - Dominance Test is >50%	
3. <u>Viola glabella</u>	<u>3%</u>	<u>No</u>	<u>FACW</u>	3 - Prevalence Index is ≤3.0 ¹	
4. _____	_____	_____	_____	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants ¹	
6. _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)	
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.	
8. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
48% = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>52%</u>					
Remarks: _____				Entered by: <u>cmw</u> QC by: <u>snb</u>	

SOIL

Sampling Point: **P11**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2	100					SiL+	v. rooty 0-5
16-22	10YR 3/3	95	10YR 4/4	5	C	M	SiL+	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.			² Location: PL=Pore Lining, M=Matrix.					
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)					Indicators for Problematic Hydric Soils³:			
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> 2 cm Muck (A10)					
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Red Parent Material (TF2)					
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)					
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		<input type="checkbox"/> Other (Explain in Remarks)					
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.					
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)							
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)							
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)							
Restrictive Layer (if present):								
Type: _____								
Depth (inches): _____						Hydric Soil Present? Yes _____ No X _____		
Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)								

HYDROLOGY

Wetland Hydrology Indicators:					
Primary Indicators (minimum of one required; check all that apply)			Secondary Indicators (2 or more required)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)		<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)		
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)		<input type="checkbox"/> Drainage Patterns (B10)		
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)		<input type="checkbox"/> Dry-Season Water Table (C2)		
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)		<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)		
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)		<input type="checkbox"/> Geomorphic Position (D2)		
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)		<input type="checkbox"/> Shallow Aquitard (D3)		
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)		<input type="checkbox"/> FAC-Neutral Test (D5)		
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)		<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)		
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Frost-Heave Hummocks (D7)		
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)					
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)					
Field Observations:					
Surface Water Present?	Yes _____ No X _____	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No X _____		
Water Table Present?	Yes _____ No X _____	Depth (inches): <u>>22</u>			
Saturation Present? (includes capillary fringe)	Yes _____ No X _____	Depth (inches): <u>>22</u>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks: Moist throughout					
Entered by: <u>cmw</u> QC by: <u>snb</u>					

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 4/2/2014
 Applicant/Owner: City of Hillsboro / Roger Property (access from Cameron) State: OR Sampling Point: P12
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 43 Wapato silty clay loam NWI classification: None mapped
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Precipitation prior to fieldwork: <u>Trace day of site visit and 2.51 inches two weeks prior (Hillsboro NWS station).</u>					
Remarks: _____					

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Fraxinus latifolia</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
<u>10%</u> = Total Cover				Total % Cover of: _____ Multiply by: _____	
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				OBL species <u>0</u> x 1 = <u>0</u>	
1. <u>Symphoricarpos albus</u>	<u>30%</u>	<u>Yes</u>	<u>FACU</u>	FACW species <u>100</u> x 2 = <u>200</u>	
2. <u>Physocarpus capitatus</u>	<u>10%</u>	<u>Yes</u>	<u>FACW</u>	FAC species <u>0</u> x 3 = <u>0</u>	
3. <u>Rubus armeniacus</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	FACU species <u>35</u> x 4 = <u>140</u>	
4. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
5. _____	_____	_____	_____	Column Totals: <u>135</u> (A) <u>340</u> (B)	
<u>45%</u> = Total Cover				Prevalence Index = B/A = <u>2.52</u>	
Herb Stratum (Plot size: <u>5' r</u>)				Hydrophytic Vegetation Indicators:	
1. <u>Equisetum telmateia</u>	<u>80%</u>	<u>Yes</u>	<u>FACW</u>	1 - Rapid Test for Hydrophytic Vegetation	
2. _____	_____	_____	_____	<u>X</u> 2 - Dominance Test is >50%	
3. _____	_____	_____	_____	3 - Prevalence Index is ≤3.0 ¹	
4. _____	_____	_____	_____	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants ¹	
6. _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)	
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.	
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>80%</u> = Total Cover				Hydrophytic Vegetation Present?	
Woody Vine Stratum (Plot size: <u>10' r</u>)				Yes <u>X</u> No _____	
1. _____	_____	_____	_____	Present?	
2. _____	_____	_____	_____		
<u>0%</u> = Total Cover					
% Bare Ground in Herb Stratum <u>20%</u>					

Remarks: _____ Entered by: cmw QC by: _____

SOIL

Sampling Point: **P12**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	100					SiCL	
8-16	10YR 3/2	90	10YR 3/3	10	C	M	SiCL	
16-20	10YR 3/2	90	10YR 3/4	10	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Water Table Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>4</u>	
Saturation Present?	Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>4</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: cmw QC by: _____

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 4/2/2014
 Applicant/Owner: City of Hillsboro / Roger Property (access from Cameron) State: OR Sampling Point: P13
 Investigator(s): C. Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 45B Woodburn silt loam, 3-7% slopes NWI classification: None mapped
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>Trace day of site visit and 2.51 inches two weeks prior (Hillsboro NWS station).</u>			
Remarks: _____			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)	
1. <u>Fraxinus latifolia</u>	<u>95%</u>	<u>Yes</u>	<u>FACW</u>		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>95</u> x 2 = <u>190</u> FAC species <u>3</u> x 3 = <u>9</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>118</u> (A) <u>279</u> (B) Prevalence Index = B/A = <u>2.36</u>
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
<u>95%</u> = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)					
1. <u>Rubus armeniacus</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants ¹ _____ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
2. <u>Crataegus monogyna</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
<u>23%</u> = Total Cover					
Herb Stratum (Plot size: <u>5' r</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>0%</u> = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
<u>0%</u> = Total Cover					
% Bare Ground in Herb Stratum <u>100%</u>					
Remarks: _____				Entered by: <u>cmw</u> QC by: _____	

SOIL

Sampling Point: **P13**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-19	10YR 3/2	100					SiL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): >19 _____	
Saturation Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): >19 _____	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: cmw QC by: _____

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 6/20/2014
 Applicant/Owner: City of Hillsboro / SANTO east State: OR Sampling Point: P14
 Investigator(s): C.Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Sl. concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 22 - Huberly silt loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation X, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>0.04 inch day of and 0.34 inch two weeks prior (below normal).</u>			
Remarks: <u>Map 7</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>40</u> x 5 = <u>200</u> Column Totals: <u>60</u> (A) <u>260</u> (B) Prevalence Index = B/A = <u>4.33</u>
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0% = Total Cover				
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants ¹ _____ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Trifolium incarnatum</u>	<u>40%</u>	<u>Yes</u>	<u>NOL</u>	
2. <u>Lolium perenne</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
60% = Total Cover				
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>40%</u>				
Remarks: _____ Entered by: <u>cmw</u> QC by: <u>snb</u>				
Crimson clover has been cut for hay.				

SOIL

Sampling Point: **P14**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/2	100					SiL	v. dry
5-12	10YR 3/2	98	10YR 4/4	2	C	M	SiL+	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

Restrictive Layer (if present):	Hydric Soil Present? Yes _____ No <u>X</u>
Type: _____	
Depth (inches): _____	

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:	Wetland Hydrology Present? Yes _____ No <u>X</u>
Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____	
Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>>12</u>	
Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>>12</u> (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Drain tile very effective in this field - four outfalls to roadside ditch. Entered by: cmw QC by: snb

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 6/20/2014
 Applicant/Owner: City of Hillsboro / Roger Burpee from CAMER State: OR Sampling Point: P15
 Investigator(s): C.Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 43 - Wapato silty clay loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Precipitation prior to fieldwork: <u>0.04 inch day of and 0.34 inch two weeks prior (below normal).</u>			
Remarks: _____			

VEGETATION

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	
(Plot size: <u>30' r</u>)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
	0% = Total Cover			Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	0% = Total Cover			Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>
Herb Stratum (Plot size: <u>5' r</u>)				
1. <u>Alopecurus pratensis</u>	90%	Yes	FAC	
2. <u>Holcus lanatus</u>	10%	No	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	100% = Total Cover			Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
Woody Vine Stratum (Plot size: <u>10' r</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	0% = Total Cover			Hydrophytic Vegetation Present? Yes <u>X</u> No _____
% Bare Ground in Herb Stratum <u>0%</u>				
Remarks: _____ Entered by: <u>cmw</u> QC by: <u>snb</u>				

SOIL

Sampling Point: **P15**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10+	10YR 3/1	95	7.5YR 3/3	5	C	M	SiL+	ORC 0-4

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)		
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)			

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): <u>>10</u> Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): <u>>10</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: cmw QC by: snb

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 6/20/2014
 Applicant/Owner: City of Hillsboro / Roger Burpee from CAMER State: OR Sampling Point: P16
 Investigator(s): C.Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 45A - Woodburn silt loam, 0-3% slope NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>0.04 inch day of and 0.34 inch two weeks prior (below normal).</u>			
Remarks: <u>North of Plot 15, Map 7</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species	
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>2</u> (A)	
3. _____	_____	_____	_____	Total Number of Dominant	
4. _____	_____	_____	_____	Species Across All Strata: <u>3</u> (B)	
0% = Total Cover				Percent of Dominant Species	
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				That Are OBL, FACW, or FAC: <u>67%</u> (A/B)	
1. _____	_____	_____	_____	Prevalence Index worksheet:	
2. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____	
3. _____	_____	_____	_____	OBL species	<u>0</u> x 1 = <u>0</u>
4. _____	_____	_____	_____	FACW species	<u>0</u> x 2 = <u>0</u>
5. _____	_____	_____	_____	FAC species	<u>60</u> x 3 = <u>180</u>
0% = Total Cover				FACU species	<u>30</u> x 4 = <u>120</u>
Herb Stratum (Plot size: <u>5' r</u>)				UPL species	<u>0</u> x 5 = <u>0</u>
1. <u>Holcus lanatus</u>	<u>25%</u>	<u>Yes</u>	<u>FAC</u>	Column Totals:	<u>90</u> (A) <u>300</u> (B)
2. <u>Hypochaeris radicata</u>	<u>25%</u>	<u>Yes</u>	<u>FACU</u>	Prevalence Index = B/A = <u>3.33</u>	
3. <u>Alopecurus pratensis</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:	
4. <u>Agrostis stolonifera</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	1 - Rapid Test for Hydrophytic Vegetation	
5. <u>Daucus carota</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	<u>X</u> 2 - Dominance Test is >50%	
6. <u>Vicia americana</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	3 - Prevalence Index is ≤3.0 ¹	
7. _____	_____	_____	_____	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
8. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants ¹	
9. _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)	
10. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.	
11. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
90% = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>10%</u>					
Remarks: _____				Entered by: <u>cmw</u> QC by: <u>snb</u>	

SOIL

Sampling Point: **P16**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 3/2	99	7.5YR 3/4	1	C	M	SiL+	No ORC

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)				

Restrictive Layer (if present):	Hydric Soil Present? Yes _____ No X _____
Type: _____ Depth (inches): _____	

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:	Wetland Hydrology Present? Yes _____ No X _____
Surface Water Present? Yes _____ No X _____ Depth (inches): _____	
Water Table Present? Yes _____ No X _____ Depth (inches): >10 _____	
Saturation Present? Yes _____ No X _____ Depth (inches): >10 _____ (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: cmw QC by: snb

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 6/20/2014
 Applicant/Owner: City of Hillsboro / FOOTE State: OR Sampling Point: P17
 Investigator(s): C.Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 43 - Wapato silty clay loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Precipitation prior to fieldwork: <u>0.04 inch day of and 0.34 inch two weeks prior (below normal).</u>					
Remarks: <u>North side of Butternut Creek Tributary 1</u>					

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Alnus rubra</u>	<u>50%</u>	<u>Yes</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)	
2. <u>Thuja plicata</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
<u>60%</u> = Total Cover				Total % Cover of: _____ Multiply by: _____	
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)				OBL species <u>0</u> x 1 = <u>0</u>	
1. _____	_____	_____	_____	FACW species <u>40</u> x 2 = <u>80</u>	
2. _____	_____	_____	_____	FAC species <u>105</u> x 3 = <u>315</u>	
3. _____	_____	_____	_____	FACU species <u>5</u> x 4 = <u>20</u>	
4. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
5. _____	_____	_____	_____	Column Totals: <u>150</u> (A) <u>415</u> (B)	
<u>0%</u> = Total Cover				Prevalence Index = B/A = <u>2.77</u>	
Herb Stratum (Plot size: <u>5' r</u>)				Hydrophytic Vegetation Indicators:	
1. <u>Stachys chamissonis</u>	<u>40%</u>	<u>Yes</u>	<u>FACW</u>	1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Equisetum arvense</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	<u>X</u> 2 - Dominance Test is >50%	
3. <u>Athyrium cyclosorum</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	3 - Prevalence Index is ≤3.0 ¹	
4. <u>Urtica dioica</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5. <u>Galium aparine</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	5 - Wetland Non-Vascular Plants ¹	
6. _____	_____	_____	_____	Problematic Hydrophytic Vegetation ¹ (Explain)	
7. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.	
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>90%</u> = Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
Woody Vine Stratum (Plot size: <u>10' r</u>)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
<u>0%</u> = Total Cover					
% Bare Ground in Herb Stratum <u>10%</u>					
Remarks: _____ Entered by: <u>cmw</u> QC by: <u>snb</u>					

SOIL

Sampling Point: **P17**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/1	100					SiCL	wood debris
1-8	10YR 2/1	98	10YR 3/2	2	C	M	SiCL	
8-15	10YR 4/1	85	10YR 3/2	10	C	M	SiC	v. moist
			10YR 4/4	5	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>15</u>	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): <u>>15</u>	
(includes capillary fringe)			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: cmw QC by: snb

Very moist throughout. Stream 5-10 feet wide.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: South Hillsboro Goal 5 Inventory City/County: Hillsboro / Washington Sampling Date: 6/20/2014
 Applicant/Owner: City of Hillsboro / FOOTE State: OR Sampling Point: P18
 Investigator(s): C.Mirth Walker and Stacy Benjamin Section, Township, Range: Sec. 15, T1S, R2W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3
 Subregion (LRR): A, Northwest Forests and Coast Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: 43 - Wapato silty clay loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	
Precipitation prior to fieldwork: <u>0.04 inch day of and 0.34 inch two weeks prior (below normal).</u>			
Remarks: <u>North of Plot 17.</u>			

VEGETATION

Tree Stratum (Plot size: <u>30' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)	
1. _____	_____	_____	_____		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>80</u> x 4 = <u>320</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>90</u> (A) <u>350</u> (B) Prevalence Index = B/A = <u>3.89</u>
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
<u>0%</u> = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Rubus armeniacus</u>	<u>80%</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ 5 - Wetland Non-Vascular Plants ¹ _____ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.	
2. <u>Frangula purshiana</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
<u>85%</u> = Total Cover					
Herb Stratum (Plot size: <u>5' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Equisetum arvense</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>		Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>5%</u> = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
<u>0%</u> = Total Cover					
% Bare Ground in Herb Stratum <u>95%</u>					
Remarks: _____ Entered by: <u>cmw</u> QC by: <u>snb</u>					

SOIL

Sampling Point: **P18**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1								wood duff
1-17	10YR 3/1	100					SiCL	moist
17-20	10YR 5/2	95	10YR 4/4	5	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present):	Hydric Soil Present? Yes _____ No X _____
Type: _____ Depth (inches): _____	

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:	
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:	Wetland Hydrology Present? Yes _____ No X _____
Surface Water Present? Yes _____ No X _____ Depth (inches): _____	
Water Table Present? Yes _____ No X _____ Depth (inches): <u>>20</u>	
Saturation Present? Yes _____ No X _____ Depth (inches): <u>>20</u> (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____ Entered by: cmw QC by: snb

APPENDIX D:

Wetland Summary Sheets and Riparian Forested Upland Summary Sheets

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**WETLAND SUMMARY SHEETS
TABLE OF CONTENTS**

Site Code

Isolated Wetlands

W1 West Union Wetland

Stream-Associated Wetland Units (Alphabetical)

Butternut Creek

BuC1 SW 209th Avenue to East of SW 229th Avenue (2001 LWI)

BuC2 East of SW 229th Avenue (2014 LWI)

Butternut Creek Tributary 1

BuCTrib1 West of SW Vermont Street to East of SW 229th Avenue (2001 LWI)

BuCTrib1 East of SW 229th Avenue (2014 LWI)

Gordon Creek

GC1 East of SW 229th Avenue; forked (originally in 2001 LWI, updated in 2014 LWI)

GC2-W1 West of SW 229th Avenue to SW 234th Avenue (2014 LWI)

Gordon Creek Tributary 1

GCTrib1 West of SW 234th Avenue (2014 LWI)

Rosedale Creek

RsC1 North of SW Rosedale Road, east of Reach 2, west of SW 209th Avenue (2014 LWI)

RsC2 North of SW Rosedale Road, west of Reach 1, east of Reach 3 (2014 LWI)

RsC3 North of SW Rosedale Road, west of Reach 2, east of Reach 4 (2014 LWI)

RsC4 North of SW Rosedale Road, west of Reach 3 (2014 LWI)

Rosedale Creek Tributary 1

RsCTrib1 North and south of SW Rosedale Road, west of SW 209th Avenue (2014 LWI)

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

West Union Wetland	Site Code: W1
Location: West of SW 229th Avenue	
Field Dates: 2/26/2014 and 6/20/2014 (off-site)	
Drainage Basin: Tualatin River	
Adjacent Land Use: Rural residential, golf course to west and south.	
Wetland Determination Plots: None	
T1N, R2W Section 15, Tax Lot 300	Acreeage: 1.03 (as digitized from aerial photograph)

General Description: Emergent wetland with clusters of trees located on western site boundary immediately east of the Reserve Vineyard and Golf Course (12th hole). Access was not granted to parcel and this area was viewed from the Golf Course. No evidence of ponding was observed in June; the boundary was mapped primarily from the March 2012 aerial photograph signature.

Adjacent Stream Information: Isolated.

NWI Cowardin Classification: Palustrine Forested (PFO) and Palustrine Emergent (PEM)

HGM Classification: Slope/Flats

Hydrology source: Groundwater, precipitation

Mapped Soils: 1 – Aloha silt loam

Dominant Vegetation: (* = major dominant)

Trees

black cottonwood
Scouler's willow

Shrubs

Scouler's willow
black hawthorn
wild clustered rose

Herbs

reed canary grass
curly dock
sweet vernal grass
tall ryegrass
Fuller's teasel

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	Medium	Isolated, moderate interspersion of emergent vegetation with scattered trees, some ponding
Fish Habitat	NA	
Water Quality	High	Surface runoff and groundwater fed, medium size
Hydrologic Control	High	No outlet, ponding

Locally Significant Wetland? Yes, based on off-site assessment.

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Butternut Creek, Reach 1	Site Code: BuC1
Location: SW 209 th Avenue west to Reach 2	
Field Date(s): none	
Drainage Basin: Tualatin River	
Adjacent Land Use: tree farm, agricultural, rural residential	
T1S, R2W Section 14, Tax Lots 1900, 2001, 2002, 2004, 2005	Acreage: 44.62
2100, 2101, 2102, 2200, 2400, 2402, 2403, 2404, 2405, 2406	
T1S, R2W Section 14DB, Tax Lots 100, 200	

General Description: Large areas along Butternut Creek which were likely cleared in the past for grazing have been colonized by dense stands of reed canarygrass; however, portions of the stream corridor are still shaded by forested and shrub-scrub wetlands. There are numerous beaver dams along Butternut Creek which have created deep backwater areas that slow the stream flow. Aside from at the beaver dams, woody debris is uncommon in the stream channel. The stream meanders through a broad flat floodplain and a small amount of riparian/upland forest dominated by Douglas fir, grand fir, and western red cedar is present adjacent to the floodplain. A heron rookery was observed in 1998 in the riparian forest along Butternut Creek (P. Quarterman).

Adjacent Stream Information: Butternut Creek

NWI Classification: 1% POW, 63% PSS/PEM, 2% PSS, 34% PFO

Hydrology Source: Butternut Creek is a perennial stream with steep banks and seeps emanating from the side slopes along the stream corridor

Mapped Soils: Huberly, Quatama, Wapato, Woodburn

Dominant Vegetation: (* = major dominant)

<u>Trees</u>	<u>Shrubs</u>	<u>Herbs/Emergents</u>
Oregon ash*	willow	reed canarygrass*
western red cedar	red-osier dogwood	bentgrass*
red alder	Douglas spirea	soft rush
	Pacific ninebark	pointed rush
	rose	tapered rush
	Himalayan blackberry	sawbeak sedge
		slough sedge
		water parsley

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	
Fish Habitat	High	
Water Quality	High	
Hydrologic Control	High	

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Butternut Creek, Reach 2	Site Code: BuC2
Location: East of SW 229th Avenue to Reach 1	
Field Dates: 2/26/2014 and 4/2/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Rural residential, agricultural	
Wetland Determination Plots: 6, 8	
T1N, R2W Section 15, Tax Lots 900, 912, 1000, 1100, 1200	Acreage: 7.73

General Description: Emergent and forested wetlands are present along Butternut Creek upstream of SW 229th Avenue. The stream channel is unmodified, is approximately 10 to 15 feet wide, and meanders through an intact floodplain. Emergent wetlands dominated by reed canary grass are present along portions of the stream channel. Evidence of beaver was observed including one beaver dam and several large fallen trees. Emergent wetlands are bordered by a narrow fringe of forested wetland which transitions to a wide and steeply sloped riparian/upland forest. Forested wetlands are dominated by a diverse, native, multi-layered tree and shrub community. A few narrow seep-fed drainages flow through the forested wetland to the main stem of Butternut Creek.

Adjacent Stream Information: Butternut Creek

NWI Cowardin Classification: Palustrine Forested (PFO) and Palustrine Emergent (PEM)

HGM Classification: Riverine Flow-through

Hydrology Source: Butternut Creek, groundwater seeps, precipitation

Mapped Soils: 43 – Wapato silty clay loam, 37C – Quatama loam

Dominant Vegetation: (* = major dominant)

Trees

red alder*
Oregon ash*
western red cedar

Shrubs

red osier dogwood*
western wahoo*
rose species
currant species

Herbs

reed canary grass*
slough sedge*
skunk cabbage
small-fruited bulrush
creeping buttercup

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	Diverse vegetation species and structure, forested
Fish Habitat	High	Unmodified channel, well-shaded
Water Quality	High	Has floodplain, large size
Hydrologic Control	High	Densely vegetated, large size

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Butternut Creek Tributary	Site Code: BuCTrib1
Location: West of SW Vermont Street toward SW 229 th Avenue	
Drainage Basin: Tualatin River	
Field Date(s): none	
Adjacent Land Use: tree farm, agricultural	
T1S, R2W Section 14, Tax Lots 1900	Acreage: 1.59
T1S, R2W Section 23, Tax Lots 302	
T1S, R2W Section 23AB, Tax Lots 300, 400	

General Description: The portion of this intermittent tributary located within the study area was tiled in the past and the tile is currently failing in many areas, creating seeps and wet depression areas. The majority of this unit has been severely degraded due to a large tree farm/plantation located both north and south of the stream channel. The easternmost portion of this unit consists of emergent wetland planted in pasture grasses. A potential wetland (5.53 acres) is present north of the emergent wetland, where hydric soils are mapped in the agricultural field. West of the study area the stream channel is intact and is bordered by forested wetland.

Adjacent Stream Information: Butternut Creek tributary

NWI Classification: 100% PEM

Hydrology Source: Small intermittent drainage seeping out from historically tiled tributary

Mapped Soils: Huberly

Dominant Vegetation: (* = major dominant)

Trees

Oregon ash

Shrubs

Himalayan blackberry

Herbs/Emergents

common velvetgrass
meadow foxtail
tall fescue
soft rush

Wetland Function

Wildlife Habitat

Fish Habitat

Water Quality

Hydrologic Control

Rating

Medium

Medium

Medium

Medium

Comments

low interspersions, <0.5 acre open water

low streamside shading & instream structure

< 5 acres, not water quality limited

< 5 acres, outside floodplain, dom. veg. is emergent

Locally Significant Wetland? Yes, based on level 2 OFWAM evaluation

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Butternut Creek Tributary	Site Code: BuCTrib1
Location: East of SW 229th Avenue to BuCTrib1 for 2001 LWI	
Field Dates: 2/26/2014, 4/2/2014 and 6/20/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Rural residential, agricultural	
Wetland Determination Plot: 10 and 17	
T1N, R2W Section 15, Tax Lots 1201, 1300	Acreeage: 1.78

General Description: This section of the Butternut Creek tributary is in a natural unmodified channel condition, in contrast to the extensively modified channel present immediately upstream of this unit. The stream channel flows through a narrow forested wetland fringe fed by seeps at the toe of slope adjacent to the stream. The stream and wetland fringe are bordered by a steeply sloped native riparian forest community ranging up to several hundred feet wide, except in the east corner where the stream is located within forested wetland with no adjacent riparian corridor on the north side.

Adjacent Stream Information: Butternut Creek tributary

NWI Cowardin Classification: Palustrine Forested (PFO)

HGM Classification: Riverine Flow-through

Hydrology source: Butternut Creek tributary, groundwater seeps, precipitation

Mapped Soils: 1 – Aloha silt loam, 22 – Huberly silt loam, 43 – Wapato silty clay loam, 45C – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Oregon ash*
red alder*
western red cedar
Pacific willow

Shrubs

western wahoo*
red osier dogwood
red elderberry
currant species

Herbs

slough sedge*
skunk cabbage*

Wetland Function

Wildlife Habitat
Fish Habitat
Water Quality
Hydrologic Control

Rating

High
High
High
Medium

Comments

Forested, intact riparian buffer
Unmodified channel, shaded
Densely vegetated
Wetland can store water

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Gordon Creek, Reach 1	Site Code: GC1
Location: East of SW 229 th Avenue	
Field Date(s): 11/1/00	
Drainage Basin: Tualatin River	
Adjacent Land Use: agricultural	
T1S, R2W Section 11	Acreage: 2.29

General Description: The historic headwaters of this intermittent tributary have been tiled. The stream corridor originates in an agricultural field owned by the Sisters of St. Mary. The upper reach of Gordon Creek is forked and contains both emergent and shrub-scrub wetlands. A large potential wetland (23.44 acres) is present east of the southern fork, where hydric soils are mapped in the agricultural field.

Adjacent Stream Information: Gordon Creek
NWI Classification: 33% PEM, 67% PSS
Hydrology Source: Narrow intermittent drainage
Mapped Soils: Verboort

Dominant Vegetation: (* = major dominant)

Trees

Shrubs

Herbs/Emergents

Douglas spirea
Himalayan blackberry
willow

reed canarygrass

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	Medium	low habitat interspersion
Fish Habitat	Medium	low instream structure and shading
Water Quality	Medium	adj land use not developed, not WQ limited stream
Hydrologic Control	Medium	outside floodplain, downstream land use not devel.

Locally Significant Wetland? No

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Gordon Creek, Reach 2 – Mitigation Site (DSL 10429-FP)	Site Code: GC2-W1
Location: West of SW 229th Avenue to SW 234 th Avenue	
Field Date: 2/26/2014 (off-site)	
Drainage Basin: Tualatin River	
Adjacent Land Use: Rural residential, golf course to west.	
Wetland Determination Plots: None	
T1N, R2W Section 15, Tax Lot 300	Acreage: 5.11 (as digitized from aerial photograph)

General Description: Mitigation site for the Reserve Vineyards and Golf Club. Access was not granted to parcel. According to the fifth year wetland mitigation monitoring report prepared by Schott and Associates in 2008, the mitigation site is 6.35 acres consisting of 5.02 acres PFO/PEM, and 0.51 acre PFO/PSS wetlands, with 0.82 acre of open water.

Adjacent Stream Information: Drains to Gordon Creek through a tributary riparian corridor

NWI Cowardin Classification: Palustrine Forested (PFO), Palustrine Scrub/Shrub (PSS), Palustrine Emergent (PEM)

HGM Classification: Slope/Flats

Hydrology source: Groundwater, precipitation

Mapped Soils: 1 – Aloha silt loam, 22 – Huberly silt loam

Dominant Vegetation: (* = major dominant)

Trees

black cottonwood*
Pacific willow
Oregon ash

Shrubs

Douglas spirea*
willow species*
Douglas hawthorn
clustered wild rose
Red-osier dogwood

Herbs

reed canary grass*
broad-leaf cattail*
slough sedge
soft rush
spike rush
western manna grass
slough grass
tufted hairgrass
softstem bulrush

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	Diverse structure and interspersed
Fish Habitat	NA	Downstream is piped; excavated pond
Water Quality	Medium	Groundwater fed
Hydrologic Control	Medium	Probably does not flood, minor restriction on outflow

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Gordon Creek Tributary	Site Code: GCTrib1
Location: West of SW 234th Avenue	
Field Dates: 2/26/2014 and 6/20/2014 (off-site)	
Drainage Basin: Tualatin River	
Adjacent Land Use: Rural residential.	
Wetland Determination Plots: None	
T1N, R2W Section 10, Tax Lots 400, 500, 600	Acreage: 0.88 –joins Gordon Creek, Reach 2 (see 2001 inventory data)

General Description: Forested wetland riparian corridor dominated by Oregon ash, with a tributary to Gordon Creek that flows west from the wetland mitigation site (GC2-W1) for the Reserve Vineyards and Golf Club. The site is grazed. The tributary is culverted under the extension of SW 234th Avenue, south of the site gate. Access was not granted.

Adjacent Stream Information: Tributary to Gordon Creek.

NWI Cowardin Classification: Palustrine Forested (PFO)

HGM Classification: Slope/Flats

Hydrology source: Tributary to Gordon Creek streamflow, groundwater, precipitation

Mapped Soils: 22 – Huberly silt loam, 43 – Wapato silty clay loam

Dominant Vegetation: (* = major dominant)

Trees

Oregon ash

Shrubs

Herbs

Wetland Function

Rating

Comments

Wildlife Habitat	High	Forested, connected to Gordon Creek riparian corridor
Fish Habitat	NA	Unable to assess from off-site
Water Quality	High	Surface stream flow, vegetated
Hydrologic Control	High	Ponding toward downstream confluence with Gordon Creek

Locally Significant Wetland? Yes, based on off-site assessment.

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Rosedale Creek, Reach 1	Site Code: RsC1
Location: North of SW Rosedale Road, east of Reach 2, west of SW 209th Avenue	
Field Date: 2/13/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Rural residential	
Wetland Determination Plots: None	
T1N, R2W Section 23AB, Tax Lot 1600	Acreeage: 1.97

General Description: The upstreammost reach of Rosedale Creek is bordered by rural residential land use. The stream channel has not been modified in this reach. The stream is bordered by an approximately 200-foot wide band of young forested wetland. Oregon ash trees range from 3 to 10 inches in diameter. A chain link fence is present along the upstream edge of this site along the edge of SW 209th Avenue. Upland/riparian forest extends south of this unit (see unit RsC1-R/U).

Adjacent Stream Information: Rosedale Creek

NWI Cowardin Classification: Palustrine Forested (PFO)

HGM Classification: Slope/flats

Hydrology source: Rosedale Creek, precipitation

Mapped Soils: 42 – Verboort silty clay loam, 45B – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Oregon ash*

Shrubs

Himalayan blackberry
hawthorn species
wild clustered rose
Douglas spirea

Herbs

slough sedge*
reed canary grass*
cattail

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	Forested with riparian corridor on south side
Fish Habitat	Medium	Surrounded by residential development, little instream structure
Water Quality	Medium	Surface flow, no evidence of flooding, smaller size
Hydrologic Control	High	Not in floodplain but downstream ponds and culverts restrict flow

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Rosedale Creek, Reach 2	Site Code: RsC2
Location: North of SW Rosedale Road, west of Reach 1, east of Reach 3	
Field Date: 2/13/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Agriculture, rural residential	
Wetland Determination Plots: None	
T1N, R2W Section 23, Tax Lots 700, 1100, 1101, 1200, 1201, 1300	
T1N, R2W Section 23AB, Tax Lot 800	Acreage: 7.74

General Description: The stream channel in Reach 2 of Rosedale Creek has been extensively modified by ditching, straightening, and excavating two in-line ponds. The stream flows through agriculturally managed lands including a llama pasture where vegetation is grazed up to the edge of the channel. The stream and ponds may be used for irrigation purposes. Vegetation is predominantly emergent, although a few scattered shrubs are present along the stream channel. A wide band of hydric soil is mapped along the stream channel, and emergent wetlands were mapped from off-site based on the hydric soils mapping and wetland vegetation signatures on the aerial photograph.

Adjacent Stream Information: Rosedale Creek

NWI Cowardin Classification: Palustrine Emergent (PEM), palustrine open water (POW)

HGM Classification: Slope/flats

Hydrology source: Rosedale Creek, precipitation

Mapped Soils: 42 – Verboort silty clay loam, 43 – Wapato silty clay loam; 45A,B – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Shrubs

Herbs

Douglas' spirea
bittersweet nightshade
willow species

reed canary grass*
cattail
teasel

Wetland Function

Rating

Comments

Wildlife Habitat	High	Emergent with ponds
Fish Habitat	Medium	Channel modified, unshaded, no instream structure
Water Quality	Medium	No evidence of flooding
Hydrologic Control	High	In mapped floodplain, culverts and ponds restrict flow

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Rosedale Creek, Reach 3	Site Code: RsC3
Location: North of SW Rosedale Road, west of Reach 2, east of Reach 4	
Field Dates: 2/13/2014, 4/2/2014 and 6/20/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Agriculture, rural residential	
Wetland Determination Plots: 12 and 15	
T1N, R2W Section 23, Tax Lots 1300, 1400, 1401, 1402, 1500, 1700	Acreeage: 8.27

General Description: Reach 3 of Rosedale Creek is bordered by similar agricultural uses as reach 4, including pasture and a hazelnut orchard; however, the stream channel has not been modified or ditched in this reach. The stream meanders through a wide band of forested wetland dominated by Oregon ash trees ranging from 6 to 24 inches in diameter. Upland/riparian forest extends north and south of this unit (see unit RsC3-R/U). A wet pasture dominated by meadow foxtail is present along the south side. This reach receives drain tile flow from the agricultural properties south of SW Rosedale Road.

Adjacent Stream Information: Rosedale Creek

NWI Cowardin Classification: Palustrine Forested (PFO) and Palustrine Emergent (PEM)

HGM Classification: Slope/flats

Hydrology source: Rosedale Creek, precipitation

Mapped Soils: 22 – Huberly silt loam, 43 – Wapato silty clay loam; 45A,B – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Oregon ash*
Douglas fir
cherry species

Shrubs

Himalayan blackberry*
red osier dogwood*
Pacific ninebark
snowberry

Herbs

slough sedge*
giant horsetail
reed canary grass
meadowfoxtail

Wetland Function

Wildlife Habitat
Fish Habitat
Water Quality
Hydrologic Control

Rating

High
High
High
High

Comments

Forested, some riparian corridor with interspersion
Intact canopy and instream structure
Well-vegetated, large size, woody vegetation
Evidence of flooding, restrictions in outlet

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Rosedale Creek, Reach 4	Site Code: RsC4
Location: North of SW Rosedale Road, west of Reach 3	
Field Dates: 2/13/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Agriculture	
Wetland Determination Plots: None	
T1N, R2W Section 22, Tax Lots 100, 200	Acreage: 1.78

General Description: The downstreammost reach (Reach 4) of Rosedale Creek flows through agriculturally managed lands including pasture and a hazelnut orchard. The stream channel has been modified by ditching, straightening, and excavating a small pond immediately north of SW Rosedale Road. Two drain tile outfalls were observed discharging into the upstream portion of the reach.

Adjacent Stream Information: Rosedale Creek

NWI Cowardin Classification: Palustrine Forested (PFO), Palustrine Scrub/Shrub (PSS), and Palustrine Emergent (PEM)

HGM Classification: Slope/flats

Hydrology source: Rosedale Creek, precipitation

Mapped Soils: 1 – Aloha silt loam, 37B – Quatama loam, 43 – Wapato silty clay loam; 45B – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Oregon ash
black cottonwood
cherry species

Shrubs

Himalayan blackberry
red osier dogwood
Sitka willow
wild clustered rose

Herbs

reed canary grass

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	Forested wetland with pond
Fish Habitat	Medium	Channelized stream with no instream structure
Water Quality	High	Surface flow, well-vegetated, evidence of flooding
Hydrologic Control	High	Minor restricted outlet, forested, smaller size

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Rosedale Creek Tributary 1	Site Code: RsCTrib1
Location: North and south of SW Rosedale Road, west of SW 209th Avenue	
Field Dates: 2/13/2014 and 2/26/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Agriculture, rural residential	
Wetland Determination Plots: None	
T1N, R2W Section 23, Tax Lots 1100, 2202, 2203, 2403	
T1N, R2W Section 23AB, Tax Lots 2800, 2900	Acreage: 6.09

General Description: This narrow tributary swale joins Reach 2 of Rosedale Creek from the south. The channel has been modified by ditching and straightening. The channel is approximately 2 feet wide and flows through pasture and large rural residential tax lots. Vegetation along the swale is mostly emergent, although a few scattered Oregon ash shrubs/small diameter trees are present.

The forest to the south of this tributary is a mix of shrubs and small trees ranging from 6 to 12 inches diameter at breast height (dbh) and appears to be upland based on our off-site observation, with dominants consisting of dense English hawthorn, English birch, Scouler's willow, madrone, Douglas fir (4-6 inches dbh), Oregon white oak (4-6 inches dbh), and Himalayan blackberry.

Adjacent Stream Information: Rosedale Creek

NWI Cowardin Classification: Palustrine Emergent (PEM) and Palustrine Forested (PFO)

HGM Classification: Slope/flats

Hydrology source: Precipitation

Mapped Soils: 1 – Aloha silt loam, 43 – Wapato silty clay loam, 45B – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

<u>Trees</u>	<u>Shrubs</u>	<u>Herbs</u>
Oregon ash	Oregon ash	reed canary grass soft rush

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	Medium	Moderate interspersion, not buffered
Fish Habitat	Medium or NA	Ditched wetland channel, no instream structure
Water Quality	High	Large size, well-vegetated
Hydrologic Control	Medium	Minor restriction on outlet, mostly emergent vegetation

Locally Significant Wetland? Yes

**RIPARIAN/UPLAND SUMMARY SHEETS
TABLE OF CONTENTS**

Site Code

Riparian/Upland Resources (Alphabetical):

Butternut Creek

BuC1-R/U Butternut Creek, Reach 1 (2001 NRI)

BuC2-R/U Butternut Creek, Reach 2 (2014 NRI)

BuCTrib1-R/U Butternut Creek Tributary (2001 NRI)

BuCTrib1-R/U Butternut Creek Tributary (2014 NRI)

Rosedale Creek

RsC1-R/U Rosedale Creek, Reach 1 (2014 NRI)

RsC3-R/U Rosedale Creek, Reach 3(2014 NRI)

**CITY OF HILLSBORO RIPARIAN CORRIDOR AND WILDLIFE HABITAT
INVENTORY AND ASSESSMENT
RIPARIAN/UPLAND SUMMARY SHEET**

SITE: Butternut Creek	Site Code: BuC1-R/U
Location: SW 209 th Avenue west to Reach 2 and BuC2-R/U	
Field Date: 11/1/00	
Adjacent Land Use: tree farm, agricultural, rural residential	
T1S, R2W Section 14, Tax Lots 2200, 2405, 2406	Acreage: 4.30

General Description: Riparian/upland forest is present on the north side of the portion of Butternut Creek located within the study area and consists of Douglas fir, grand fir and western red cedar. Himalayan blackberry has invaded the stream corridor and the BPA power line easement is highly disturbed. Agricultural and rural residential land uses border this unit to the north. No riparian/uplands are mapped to the south of Butternut Creek since it has been historically altered from its natural state due to removal of tree and shrub vegetation and land use change. The area south of the creek currently consists of a large tree farm which has a closed canopy, dense vegetation in most areas, and monospecific stands of trees, which limit its wildlife value. The Butternut Creek corridor is especially important for storm water protection since its headwater area upstream of the study area has been fully urbanized. The stream corridor is intact downstream of the study area. Butternut Creek is a perennial stream with very steep banks, meanders through a broad flat floodplain. DEQ water quality limited stream. A heron rookery was observed in 1998 near the western study area boundary.

Adjacent Stream Information: Butternut Creek
Mapped Soils: Aloha, Quatama

Dominant Vegetation: (* = major dominant)

<u>Trees</u>	<u>Shrubs</u>	<u>Herbs</u>
Douglas fir*	Himalayan blackberry*	
grand fir*	serviceberry	
western red cedar*	choke cherry	
	ornamental hawthorn	

<u>Riparian Habitat Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	Medium	
Water Quality Protection	High	
Ecological Integrity	Low	Extensive blackberry, altered by adjacent land use
Connectivity	Medium	
Uniqueness	Low	

Locally Significant Goal 5 Resource? Yes, due to the importance of riparian areas for water quality protection and as wildlife travel corridors.

Comments/Recommendations: Restore riparian corridor along south side of stream.

**CITY OF HILLSBORO RIPARIAN CORRIDOR AND WILDLIFE HABITAT
INVENTORY AND ASSESSMENT
RIPARIAN/UPLAND SUMMARY SHEET**

SITE: Butternut Creek	Site Code: BuC2-R/U
Location: East of SW 229th Avenue to Reach 1 and BuC1-R/U	
Field Dates: 2/26/2014 and 4/2/2014	
Adjacent Land Use: Rural residential, agricultural	
Upland Determination Plots: 7, 9	
T1N, R2W Section 15, Tax Lots 900, 905, 912, 1000, 1100, 1200	Acreage: 21.96

General Description: A large area of riparian/upland forest borders both sides of Butternut Creek upstream of SW 229th Avenue. The riparian/upland forest is several hundred feet wide and is located on steep slopes above the Butternut Creek floodplain. The riparian/upland forest consists of a mature, multi-layered, mixed deciduous/coniferous forest with a diverse shrub understory. Red alder and Oregon ash trees range from 10 to 16 inches in diameter, and Douglas fir and western red cedar trees range from 12 to 30+ inches diameter. Very few invasive species are present. Wildlife sign included beaver, deer, and owl.

Adjacent Stream Information: Butternut Creek

Mapped Soils: 1 – Aloha silt loam, 37B,C – Quatama loam, 43 – Wapato silty clay loam, 45A – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Douglas fir*
western red cedar*
red alder*
Oregon ash

Shrubs

vine maple*
Indian plum*
beaked hazelnut
snowberry
salal
dwarf Oregon grape
tall Oregon grape
Himalayan blackberry
English holly

Herbs

sword fern*
trailing blackberry*
pacific waterleaf
fringecup
stinging nettle

<u>Riparian Habitat Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	Perennial water, high structural and species diversity
Water Quality Protection	High	
Ecological Integrity	High	Wide corridor, well-vegetated slopes
Connectivity	High	Minimal invasive species present
Uniqueness	Medium	Wide corridor, common vegetation community and habitat

Locally Significant Goal 5 Resource? Yes

**CITY OF HILLSBORO RIPARIAN CORRIDOR AND WILDLIFE HABITAT
INVENTORY AND ASSESSMENT
RIPARIAN/UPLAND SUMMARY SHEET**

SITE: Butternut Creek Tributary 1	Site Code: BuCTrib1-R/U
Location: West of SW Vermont Street toward SW 229 th Avenue	
Field Date: none	
Adjacent Land Use: tree farm, agricultural	
T 1S, R 2W Section 15, Tax Lots 1201, 1300	Acreage: N/A

General Description: No riparian/uplands are mapped adjacent to this tributary since the riparian/upland corridor along the portion of the Butternut Creek tributary located in the study area has been historically altered from its natural state due to removal of tree and shrub vegetation and land use change. The tributary is bordered on the north and south by a large tree farm which has a closed canopy, dense vegetation in most areas, and mono-specific stands of trees, which limit its wildlife value. The headwaters of this tributary are located in a field planted in pasture grasses, with no tree or shrub cover adjacent to the stream channel. The stream corridor is intact downstream of the study area. Small intermittent drainage seeping out from historically tiled tributary.

Adjacent Stream Information: Butternut Creek Tributary
Mapped Soils: Aloha

Dominant Vegetation: (* = major dominant)
 Could not determine from off-site assessment

<u>Trees</u>	<u>Shrubs</u>	<u>Herbs</u>
<u>Riparian Habitat Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	Low	
Water Quality Protection	High	
Ecological Integrity	Low	Altered by adjacent land use
Connectivity	Medium	
Uniqueness	Low	

Locally Significant Goal 5 Resource? Yes, although the riparian/upland corridor has been altered due to adjacent land use, it is still important for water quality protection.

Comments/Recommendations: Restore riparian corridor. This unit cannot be viewed from off-site.

**CITY OF HILLSBORO RIPARIAN CORRIDOR AND WILDLIFE HABITAT
INVENTORY AND ASSESSMENT
RIPARIAN/UPLAND SUMMARY SHEET**

SITE: Butternut Creek Tributary 1	Site Code: BuCTrib1-R/U
Location: East of SW 229 th Avenue	
Field Date: 2/13/2014, 4/2/2014 and 6/20/2014	
Adjacent Land Use: Rural residential, commercial nursery	
Upland Determination Plots: 11 and 17	
T1N, R2W Section 15, Tax Lots 1201, 1300	Acreage: 7.24

General Description: A steeply sloped riparian/upland forest borders both sides of the Butternut Creek tributary, except in the outer northeast corner. The riparian/upland forest is similar in species composition and condition to the riparian/upland forest along the main stem of Butternut Creek and consists of a multi-layered, mixed deciduous/coniferous forest with a diverse shrub understory.

Adjacent Stream Information: Butternut Creek Tributary

Mapped Soils: 1 – Aloha silt loam, 22 – Huberly silt loam, 37C – Quatama loam, 43 – Wapato silty clay loam, 45A,C – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Douglas fir*
big-leaf maple
western red cedar

Shrubs

Himalayan blackberry
dwarf Oregon grape
tall Oregon grape
western wahoo
vine maple
beaked hazelnut
salal
oceanspray (creambush)

Herbs

trailing blackberry
sword fern
Pacific waterleaf
violet
Henderson’s sedge
vanillaleaf

Upland Habitat Function

Wildlife Habitat

Water Quality Protection

Ecological Integrity

Connectivity

Uniqueness

Rating

High

Medium

High

Medium

Medium

Comments

Seasonal water, high structural and species diversity

Well vegetated, moderately wide corridor

Minimal invasive species present

Moderately wide corridor

Common vegetation community and habitat

Locally Significant Goal 5 Resource? Yes

**CITY OF HILLSBORO RIPARIAN CORRIDOR AND WILDLIFE HABITAT
INVENTORY AND ASSESSMENT
RIPARIAN/UPLAND SUMMARY SHEET**

SITE: Rosedale Creek, Reach 1	Site Code: RsC1-R/U
Location: North of Rosedale Road, west of SW 209th Ave., east of reach 2	
Field Dates: 2/13/2014 and 2/26/2014	
Adjacent Land Use: Rural residential	
Upland Determination Plots: None	
T1N, R2W Section 23, Tax Lots 1600, 3600, 3700	Acreage: 1.05

General Description: Riparian upland forest is present to the south of the forested wetlands along Rosedale Creek. The forest consists of a mature, open canopy dominated by Douglas fir and black cottonwood. Douglas fir range up to 30 inches in diameter, and black cottonwood range from 8 to 24 inches in diameter. English ivy is present as a groundcover and is also growing up several tree trunks in the southern portion of the forest (recommend removing invasive species). A chain link fence is present along the upstream edge of this site along the edge of SW 209th Avenue.

Adjacent Stream Information: Rosedale Creek

Mapped Soils: 1 – Aloha silt loam, 42 – Verboort silty clay loam, 45A – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Douglas fir*
black cottonwood*
cherry species

Shrubs

Himalayan blackberry
cherry species

Herbs

trailing blackberry
English ivy

<u>Upland Habitat Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	Medium	Seasonal water, low structural and species diversity
Water Quality Protection	Medium	Narrow corridor, moderately vegetated
Ecological Integrity	Medium	Invasive species present
Connectivity	Low	Narrow corridor, partially fenced
Uniqueness	Low	Common vegetation community and habitat

Locally Significant Goal 5 Resource? No

**CITY OF HILLSBORO RIPARIAN CORRIDOR AND WILDLIFE HABITAT
INVENTORY AND ASSESSMENT
RIPARIAN/UPLAND SUMMARY SHEET**

SITE: Rosedale Creek, Reach 3	Site Code: RsC3-R/U
Location: North of Rosedale Road, west of reach 2, east of reach 4	
Field Dates: 2/13/2014 and 4/2/2014	
Adjacent Land Use: Agriculture, rural residential	
Upland Determination Plots: 13 and 16	
T1N, R2W Section 22, Tax Lot 100	
T1N, R2W Section 23, Tax Lots 1400, 1401, 1402, 1700	
	Acreage: 0.75

General Description: A narrow band of native riparian forest is present along a portion of the upslope edge of the forested wetlands along Rosedale Creek. The tree canopy is dominated by Douglas fir, and the understory is dominated by invasive and non-native species (recommend removing invasive species).

Adjacent Stream Information: Rosedale Creek
Mapped Soils: 43 – Wapato silty clay loam, 45B – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Douglas fir*
 cherry species

Shrubs

Himalayan blackberry*
 ornamental hawthorn

Herbs

trailing blackberry

Upland Habitat Function

Rating

Comments

Wildlife Habitat	Medium	Seasonal water, low structural and species diversity
Water Quality Protection	Medium	Narrow corridor, moderately vegetated
Ecological Integrity	Medium	Invasive species present
Connectivity	Medium	Narrow corridor
Uniqueness	Low	Common vegetation community and habitat

Locally Significant Goal 5 Resource? No

APPENDIX E:
Vegetation Table

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South Hillsboro Goal 5 Inventory
Table of Vegetation
February 13 and 26, April 2, and June 20, 2014

Common Name	Scientific Name	Wetland Indicator Status	Native and Invasive, Noxious
grand fir	<i>Abies grandis</i>	FACU	native
vine maple	<i>Acer circinatum</i>	FAC	native
big-leaf maple	<i>Acer macrophyllum</i>	FACU	native
vanillaleaf	<i>Achlys triphylla</i>	NOL	native
colonial bent	<i>Agrostis capillaris</i>	FAC	non-native
spreading bent	<i>Agrostis stolonifera</i>	FAC	native
wild onion or wild garlic	<i>Allium species</i>	OBL to NOL	-
red alder	<i>Alnus rubra</i>	FAC	native
field meadow-foxtail	<i>Alopecurus pratensis</i>	FAC	non-native
large sweet vernal grass	<i>Anthoxanthum odoratum</i>	FACU	non-native
madrone	<i>Arbutus menziesii</i>	NOL	native
western lady fern	<i>Athyrium cyclosorum</i>	FAC	native
American slough grass	<i>Beckmannia syzigachne</i>	OBL	native
European weeping birch	<i>Betula pendula</i>	FACU	non-native
Henderson's sedge	<i>Carex hendersonii</i>	FAC	native
slough sedge	<i>Carex obnupta</i>	OBL	native
small enchanter's-nightshade	<i>Circaea alpina</i>	FAC	native
bull thistle	<i>Cirsium vulgare</i>	FACU	invasive, noxious
red osier	<i>Cornus alba</i>	FACW	native
beaked hazelnut	<i>Corylus cornuta</i>	FACU	native
black hawthorn	<i>Crataegus douglasii</i>	FAC	native
English hawthorn	<i>Crataegus monogyna</i>	FAC	non-native
hawthorn	<i>Crataegus species</i>	FACW to FAC	-
Queen Anne's-lace	<i>Daucus carota</i>	FACU	non-native
tufted hair grass	<i>Deschampsia caespitosa</i>	FACW	native
Fuller's teasel	<i>Dipsacus fullonum</i>	FAC	invasive
spikerush	<i>Eleocharis species</i>	OBL/FACW	-
field horsetail	<i>Equisetum arvense</i>	FAC	native
giant horsetail	<i>Equisetum telmateia</i>	FACW	native, noxious
western wahoo	<i>Euonymus occidentalis</i>	FAC	native
casacara false buckthorn	<i>Frangula purshiana</i>	FAC	native
Oregon ash	<i>Fraxinus latifolia</i>	FACW	native
sticky-willy	<i>Galium aparine</i>	FACU	native
salal	<i>Gaultheria shallon</i>	FACU	native
dovefoot geranium	<i>Geranium molle</i>	NOL	non-native
western manna grass	<i>Glyceria X occidentalis</i>	OBL	native
English ivy	<i>Hedera helix</i>	FACU	invasive, noxious
common velvet grass	<i>Holcus lanatus</i>	FAC	non-native
creambush	<i>Holodiscus discolor</i>	FACU	native
Pacific waterleaf	<i>Hydrophyllum tenuipes</i>	FAC	native
hairy cat's-ear	<i>Hypochaeris radicata</i>	FACU	non-native
English holly	<i>Ilex aquifolium</i>	FACU	non-native
lamp rush	<i>Juncus effusus</i>	FACW	native
lesser poverty rush	<i>Juncus tenuis</i>	FAC	native
perennial rye grass	<i>Lolium perenne</i>	FAC	non-native
yellow-skunk-cabbage	<i>Lysichiton americanus</i>	OBL	native
holly-leaf Oregon-grape	<i>Mahonia aquifolium</i>	FACU	native
dull Oregon grape, Cascade Oregon-grape	<i>Mahonia nervosa</i>	FACU	native
false lily of the valley	<i>Maianthemum species</i>	FAC to FACU	native
oso-berry	<i>Oemleria cerasiformis</i>	FACU	native
reed canary grass	<i>Phalaris arundinacea</i>	FACW	invasive
Pacific ninebark	<i>Physocarpus capitatus</i>	FACW	native
pineland sword fern	<i>Polystichum munitum</i>	FACU	native
balsam poplar	<i>Populus balsamifera</i>	FAC	native
cherry	<i>Prunus species</i>	FACU/NOL	-
Douglas-fir	<i>Pseudotsuga menziesii</i>	FACU	native

Common Name	Scientific Name	Wetland Indicator Status	Native and Invasive, Noxious
Oregon white oak	<i>Quercus garryana</i>	FACU	native
creeping buttercup	<i>Ranunculus repens</i>	FAC	non-native
coastal black gooseberry	<i>Ribes divaricatum</i>	FAC	native
currant or gooseberry	<i>Ribes species</i>	FACW to NOL	-
clustered rose	<i>Rosa pisocarpa</i>	FAC	native
rose	<i>Rosa species</i>	FAC to UPL	-
Himalayan blackberry	<i>Rubus armeniacus</i>	FACU	invasive, noxious
California dewberry	<i>Rubus ursinus</i>	FACU	native
curly dock	<i>Rumex crispus</i>	FAC	non-native
Scouler's willow	<i>Salix scouleriana</i>	FAC	native
Sitka willow	<i>Salix sitchensis</i>	FACW	native
willow	<i>Salix species</i>	OBL to FAC	-
red elder	<i>Sambucus racemosa</i>	FACU	native
tall false rye grass	<i>Schedonorus arundinaceus</i>	FAC	non-native
soft-stem club-rush	<i>Schoenoplectus tabernaemontani</i>	OBL	native
red-tinge bulrush	<i>Scirpus microcarpus</i>	OBL	native
climbing nightshade	<i>Solanum dulcamara</i>	FAC	invasive
Douglas' meadowsweet	<i>Spiraea douglasii</i>	FACW	native
coastal hedge-nettle	<i>Stachys chamissonis</i>	FACW	native
common snowberry	<i>Symphoricarpos albus</i>	FACU	native
common dandelion	<i>Taraxacum officinale</i>	FACU	non-native
fragrant fringe-cup	<i>Tellima grandiflora</i>	FACU	native
western arborvitae (western red cedar)	<i>Thuja plicata</i>	FAC	native
Pacific poison-oak	<i>Toxicodendron diversilobum</i>	FAC	native
crimson clover	<i>Trifolium incarnatum</i>	NOL	non-native
clover	<i>Trifolium species</i>	OBL to UPL	-
western trillium	<i>Trillium ovatum</i>	FACU	native
broad-leaf cat-tail	<i>Typha latifolia</i>	OBL	native
cattail	<i>Typha species</i>	OBL	native
stinging nettle	<i>Urtica dioica</i>	FAC	-
American-brooklime	<i>Veronica americana</i>	OBL	native
American purple vetch	<i>Vicia americana</i>	FAC	native
pioneer violet	<i>Viola glabella</i>	FACW	native
violet	<i>Viola species</i>	OBL to UPL	-

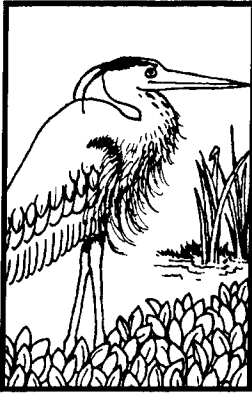
Wetland Indicator Status and taxonomy for the Western Mountains, Valleys, and Coast Region per the National Wetland Plant List 2014v1.
 Accessed April 25, 2014. <http://rsgisias.crrel.usace.army.mil/NWPL/>

Native per Hitchcock & Cronquist 1973 and <http://plants.usda.gov/>
 Invasive per Clean Water Services 2008: <http://www.cleanwaterservices.org/PermitCenter/DesignAndConstruction/default.aspx>
 Noxious per ODA 2014: <http://www.oregon.gov/ODA/PLANT/WEEDS/lists.shtml>

WETLAND INDICATOR STATUS - Western Mountains, Valleys, and Coast Region	
OBL	Obligate Wetland Plant - Almost always occurs in wetlands (hydrophyte), rarely in uplands
FACW	Facultative Wetland Plant - Usually occur in wetlands (hydrophyte), but may occur found in non-wetlands
FAC	Facultative Plant - Occurs in wetlands (hydrophyte) and uplands (nonhydrophyte)
FACU	Facultative Upland Plant - Usually occur in non-wetlands (non-hydrophyte), but may occur in wetlands
UPL	Upland Plant - Almost always occurs in uplands (non-hydrophyte), almost never occurs in wetlands
NOL	Not Listed - Plants that are not on the list are assumed to be UPL

APPENDIX F:
OFWAM Questions and Answer Assessment Sheets

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Wildlife habitat

Wetlands provide habitat for many wildlife species. A single wetland often cannot satisfy all requirements for wildlife use, so its proximity to other bodies of water or upland areas is important. Buffers and corridors are also essential for this reason, and they reduce human disturbance as well. Many species also have special habitat requirements: Good water quality is necessary for amphibians and mammals; structural diversity is important for birds; and a combination of open water and grazing areas is important for waterfowl.

For this assessment, **urban wetlands are those within urban growth boundaries or urban or rural service areas.** Because of the impacts of human activities, urban wetlands may not satisfy as many habitat requirements as wetlands in undeveloped areas. This should not be interpreted to mean that urban wetlands have limited value for all wildlife. The importance of an urban wetland may be increased because of its location and surroundings.

Assessment questions

Question 1

How many Cowardin wetland classes are present?

Directions

See question 21 in the Wetland Characterization. Count only those Cowardin classes for which you answered “a,” “b” or “c.” For urban areas, also consider the mix of species (Question 22 in the Wetland Characterization.)

Rural areas:

- Three or four.
- Two.
- One.

Urban areas:

- Two or more.
- One class with more than five plant species.
- One class with five or fewer plant species.

Rationale

In Northwest wetlands, vegetation is the most important component of wildlife habitat. It is widely recognized that plant community diversity increases animal community diversity. The existence of two Cowardin classes adjacent to each other may also improve wildlife habitat value because some wetland wildlife species use the edge between plant communities. (“Edge” describes the border between vegetation types or between a vegetation type and open water.)

Structural diversity is also important. If several layers of vegetation are present, more diverse habitat types are provided. (Different birds nest in different layers.) In addition, the number of layers affects the amount of natural debris, which is necessary for amphibians and other wildlife.

Notes

Question 2

What is the dominant wetland vegetation cover type?

- a. Woody vegetation.
- b. Emergent vegetation and ponding, or open water only.
- c. Emergent vegetation or wet meadow.

Directions

See question 23 in the Wetland Characterization.

Rationale

Wooded and shrub wetlands provide habitat for the largest overall species assemblages. Emergent wetlands associated with open water are also an essential habitat for a large number of wetland species, particularly waterfowl, amphibians and wading birds. Emergent wetlands without open water provide habitat for wetland species to a lesser degree.

Question 3

What is the degree of Cowardin class interspersion for the wetland being observed?

- a. High.
- b. Moderate.
- c. Low.

Directions

See question 24 in the Wetland Characterization.

Rationale

Interspersion occurs when two or more wetland types or upland inclusions create a mosaic or pattern. In a wetland composed of approximately concentric bands of vegetation, such as cattails ringed by shrubs, interspersion is low. At the opposite extreme, small patches of shrubs scattered throughout an emergent marsh represent a high degree of interspersion.

When two or more vegetation types are highly interspersed, a great deal of edge is created. Edge is important because many wildlife species are edge dwellers. Generally, the greater the edge, the greater the diversity of wildlife.

Notes

Question 4

If the wetland contains unvegetated open water, how many acres of unvegetated open water are present?

Directions

See question 28 in the Wetland Characterization.

Rural areas:

- a. More than 3 acres .
- b. Between 0.5 and 3 acres.
- c. Less than 0.5 acres.

Urban areas:

- a. More than 1 acre.
- b. Between 0.5 and 1 acre.
- c. Less than 0.5 acres.

Notes

Rationale

Open water is essential to a number of wetland wildlife species, including waterfowl, wading birds, amphibians and some reptiles.

Question 5

How is the wetland connected to another body of water, such as a stream, lake or pond?

Directions

See question 18 in the Wetland Characterization.

- a. The wetland is connected by surface water to another body of water.
- b. No surface water connection exists to another body of water, but other bodies of water lie within 1 mile of the wetland.
- c. No surface-water connection exists to another body of water, and no other bodies of water lie within 1 mile of the wetland.

Rationale

Wetland wildlife species will often use surface water to travel between a wetland and deep water. Also, water must be available during critical phases for the wildlife that use it. Water available during the nesting season is more valuable to wildlife than water available only during the winter.

Question 6 (for Western OR only)

How is the wetland connected to other wetlands?

Directions

See question 27 in the Wetland Characterization.

- a. Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake.
- b. Not connected by surface waters, but other unconnected wetlands lie within a 3-mile radius.
- c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius.

Rationale

Proximity to other wetlands increases a wetland's utility as habitat. Nearby wetlands sometimes contain features absent from the assessment wetland. For example, birds such as the great blue heron may roost near one wetland but travel to another to fish if the wetland where they roost doesn't have an ample supply of fish.

This criterion applies only in western Oregon. Because of the dry climate in eastern Oregon, isolated wetlands provide important habitat to both local and migratory species.

Notes

Question 7

What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland?

Directions

See questions 7 and 8 in the Wetland Characterization. If both "a" and "b" apply, choose "a."

- a. No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants.
- b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants.
- c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants.

Rationale

Poor water quality can harm many terrestrial and aquatic species. The character of a wetland ecosystem can change when exposed to nutrients and other chemicals beyond tolerable limits. Excess nutrients, for example, can cause oxygen deficiencies, which in turn can cause a change in the species composition of both plant and animal communities. Studies in Washington and elsewhere have indicated that amphibians are especially sensitive to water quality.

Question 8

What is the dominant existing land use within 500 feet of the wetland's edge?

- a. Exclusive Forest Use or Open Space.
- b. Agriculture.
- c. Developed uses.

Directions

See question 15 in the Wetland Characterization. If the responses you gave to question 15 in the Characterization indicate that two or more land-use categories are equally dominant, pick the one that will yield the lowest letter response for this question. (Example: In question 15 of the Wetland Characterization, you responded "b. Between 20% and 50%" to both *Exclusive Forest Use lands* and *developed uses*, and the remainder of your responses to question 15 were "a. Less than 20%." For this Wildlife Habitat question, you would respond "a. Exclusive Forest Use or Open Space.")

Rationale

Wildlife habitat generally deteriorates as land use changes from forested land to agricultural land to urban land. Certain game species, such as deer and some waterfowl, may benefit from land clearing. However, the majority of wildlife species are affected adversely when the land is developed because of fencing, lighting and loss of habitat.

Notes

Question 9a

For **rural areas**: What percentage of the wetland's edge is bordered by upland wildlife habitat that is at least 150 feet wide?

- a. Greater than 40%.
- b. Between 10% and 40%.
- c. Less than 10%.

Question 9b

For **urban areas**: What percent of the wetland's edge is bordered by a vegetative buffer at least 25 feet wide?

- a. Greater than 40%.
- b. Between 10 and 40%.
- c. Less than 10%.

Directions

For rural areas, see question 25 in the Wetland Characterization. For urban areas, see question 26 in the Wetland Characterization.

Rationale

A buffer zone, an uncut or undisturbed area of vegetation providing wildlife cover, increases a wetland's wildlife habitat potential. It provides habitat for both upland animals and wetland dependent species that require upland habitat for parts of their life cycle. A buffer zone also decreases the impacts of disturbance on the wetland. This is particularly important for nesting birds, which may be disturbed by people and household pets.

Well-vegetated buffer areas and corridors are particularly significant in urban areas because of their beneficial effect on water quality as well as their value for wildlife.

Notes

Wildlife habitat: assessment criteria	
The wetland provides diverse wildlife habitat if:	At least four questions are answered "a," and no more than one is answered "c."
The wetland provides habitat for some wildlife species if:	Answers do not satisfy the above- or below-listed criteria.
The wetland's wildlife habitat function is lost or not present if:	All questions are answered "c."



Fish habitat

This index assesses the contribution of wetlands connected to streams, rivers, lakes or ponds to fish habitat. **or this index, “connected to” implies a surface-water connection.** The assessment should be done on the reach of the stream or on a section of lake that actually borders the wetland or is contained within the wetland.

A stream is defined as a waterbody with a distinct channel and flow. Examples include sloughs, perennial streams and intermittent streams. If dikes or berms have been built on the stream banks between the stream and wetland that do not allow continual exchange of surface water, do not complete this index. If both a stream and lake are present, choose the one with the longest wetland surface connection.

Wetlands that contribute to habitat for fish include areas with dense, overhanging vegetation. This vegetation provides shade, cover and food sources to related waterways and lakes. Wetlands also provide spawning, rearing and resting opportunities for fish. However, a wetland need not actually contain fish to contribute to fish habitat because wetlands may perform important functions for fish-bearing waters downstream.

The assessment of fish habitat is divided into two parts. Part A evaluates the wetland habitat connected to rivers and streams. If there is no stream or river associated with the wetland, then leave Part A out of the assessment. Part B evaluates the wetland habitat connected to ponds (water greater than 6 feet deep) and lakes. If there is no lake or pond connected to the wetland, then leave Part B out of the assessment. If no stream, river, pond or lake is connected to the wetland, then leave this index out of the assessment altogether.

Notes

Assessment questions: Part A—streams

Question 1

What percentage of the stream is shaded by stream-side (riparian) vegetation?

- Western Oregon:*
- a. More than 75%.
 - b. Between 50% and 75%.
 - c. Less than 50%.

Directions

See question 31 in the Wetland Characterization.

- Eastern Oregon:*
- a. 50% or more.
 - b. 25% or more, but less than 50%.
 - c. Less than 25%.

Rationale

Many Oregon streams are unsuitable for anadromous and resident fish because riparian vegetation has been cleared. High water temperatures that result from removal of stream-side vegetation can make a stream unsuitable for some fish species. Salmonids and some resident fish are particularly susceptible to elevated water temperatures. The amount and type of stream-bank cover also affects the amount of large woody debris in the stream or river system. In addition, stream-bank vegetation provides habitat for insects, an important food source for salmonids.

Question 2

What is the physical character of the stream channel?

- a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel.
- b. Only portions of the stream channel are modified.
- c. The stream is extensively modified or confined in a non-vegetated channel or pipe.

Directions

See question 30 in the Wetland Characterization.

Rationale

Although the species or age composition of low- and high-gradient streams is different, both can provide habitat for fish. Artificially channelized or extensively modified streams, however, usually do not provide fish habitat as well as natural stream channels.

Question 3

What percentage of the entire stream contains instream structures such as large woody debris, floating submerged vegetation, large rocks or boulders?

- a. More than 25%.
- b. Between 10% and 25%.
- c. Less than 10%.

Directions

See question 32 in the Wetland Characterization.

Rationale

Cover is essential for good fish habitat. It provides refuge from predators and serves as substrate for insect larva, which are a good food source for some fish species. The presence of large pieces of woody material in pools is essential for providing adequate winter habitat for salmonid species. In addition, large pieces of woody material contribute to bank stability, dissipate energy, generate pool formation and encourage meandering. The breakdown of this material is also important in the nutrient cycle of the stream or river.

Question 4

What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland?

- a. No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants.
- b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants.
- c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants.

Directions

See questions 7 and 8 in the Wetland Characterization. If both "a" and "b" apply, choose "a."

Rationale

Poor water quality can harm many aquatic species. The whole character of a wetland ecosystem can change when it is exposed to nutrients and other chemicals beyond tolerable limits. Excess nutrients, for example, can cause oxygen deficiencies, which in turn can cause a species composition change in both plant and animal communities.

Notes

Question 5

What is the dominant existing land use within 500 feet of the wetland's edge?

- a. Exclusive Forest Use or Open Space.
- b. Agriculture.
- c. Developed uses.

Directions

Refer to the directions for question 8 of the wildlife habitat assessment questions.

Rationale

Fish habitat generally deteriorates as land use becomes more intensive, e.g., changes from forested land to agricultural land (including rangeland) to urban land. The change in intensity often changes the structure of the habitat and increases runoff, pollutant loading and sedimentation.

Question 6

Are fish present in a stream, lake or pond associated with the wetland?

- a. Salmon, trout or sensitive species are present at some time during the year.
- b. Species not covered in "a" are present at some time during the year.
- c. No species are present at any time during the year.

Directions

See question 29 in the Wetland Characterization.

Rationale

The potential for a wetland to benefit fish is directly related to the presence of fish in the stream or river reach within or adjacent to the wetland.

Part B—lakes and ponds

Question 1

Does the lake or pond contain areas of both deep and shallow water?

- a. Yes.
- b. Cannot be determined.
- c. No.

Directions

See question 33 in the Wetland Characterization.

Rationale

The depth of the pond or lake is important for spawning and may be important for rearing. A mixture of shallow, medium and deeper water is optimum to provide different habitat types.

Notes

Question 2

What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders?

- a. More than 25%.
- b. Between 10% and 25%.
- c. Less than 10%.

Directions

See question 35 in the Wetland Characterization.

Rationale

Cover is essential for good fish habitat. It provides refuge from predators and serves as substrate for insect larva, which are a food source for some fish species. The presence of large pieces of woody material in wetlands is essential for providing adequate winter habitat for salmonid species. In addition, large pieces of woody material contribute to bank stability and dissipate energy. The breakdown of this material is also important in the nutrient cycle of the pond or lake.

Question 3

What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation?

- a. 60% or more.
- b. 20% or more, but less than 60%.
- c. Less than 20%.

Directions

See question 34 in the Wetland Characterization.

Rationale

Shoreline cover provides shading, which moderates water temperature in lakes and ponds. High water temperatures that result from removal of lake-side vegetation can make a lake unsuitable for some fish species. Shoreline vegetation also provides food, large pieces of woody debris and cover from predators. Woodland and scrubland vegetation provides more shading than herbaceous vegetation.

Notes

Question 4

What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland?

Directions

See questions 7 and 8 in the Wetland Characterization. If both “a” and “b” apply, choose “a.”

- a. No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants.
- b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants.
- c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants.

Rationale

See Part A question 4.

Question 5

What is the dominant existing land use within 500 feet of the wetland’s edge?

Directions

Refer to the directions for question 8 of the wildlife habitat assessment questions.

- a. Exclusive Forest Use or Open Space.
- b. Agriculture.
- c. Developed uses.

Rationale

See Part A question 5.

Question 6

Are fish in a stream, lake or pond associated with the wetland?

Directions

See question 29 in the Wetland Characterization.

- a. Salmon, trout or sensitive species are present at some time during the year.
- b. Species not covered in “a” are present at some time during the year.
- c. No species are present at any time during the year.

Rationale

The potential for a wetland to benefit fish is directly related to the presence of fish in the pond or lake.

Fish habitat: assessment criteria

The wetland's fish habitat function is intact if:

Any three questions are answered "a," and no more than one is answered "c."

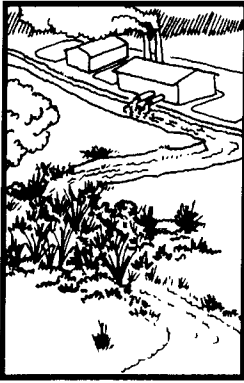
The wetland's fish habitat function is impacted or degraded if:

Answers do not satisfy the above- or below-listed criteria.

The wetland's fish habitat function is lost or not present if:

All questions are answered "c."

Notes



Water quality (pollutant removal)

Sediment trapping

During periods of heavy rainfall, water runoff may cause erosion and increase solids suspended in receiving surface waters. The excess sediment entering water systems can damage aquatic ecosystems. For example, sediment accumulation in stream bottoms can smother spawning areas and kill aquatic insect larvae. It can also reduce the storage capacity of downstream water supply reservoirs.

Wetlands perform an important function by trapping sediment from waters that pass through them. As water flows through wetlands, it is slowed by vegetation, and sediment settles to the bottom before the water moves farther downstream. As much as 90% of the solids suspended in the water may be removed as the water moves through wetlands, resulting in cleaner water entering streams, rivers, lakes and estuaries.

Nutrient attenuation

Nitrogen and phosphorus are the two nutrients most often associated with water pollution. They are also main ingredients of fertilizers used on agricultural fields and lawns, and both are found in high concentrations in discharges from sewage treatment plants and livestock operations. Excessive amounts of nitrogen and phosphorus in lakes and slow-moving streams can cause algal blooms and subsequent oxygen deficiencies, which may kill fish and reduce water quality. The processes that occur as a result of excess nutrients are lumped together under the term "eutrophication." Within limits, wetlands can reduce nutrient levels so that the effects of eutrophication on downstream areas are prevented or reduced. This index considers only point and non-point pollutant sources that are due to land uses in the watershed.

Assessment questions

Question 1

What is the wetland's primary source of water?

- a. Surface flow, including streams and ditches.
- b. Precipitation or sheet flow.
- c. Groundwater, including seeps and springs.

Directions

See question 36 in the Wetland Characterization.

Rationale

Wetlands bordering a perennial or intermittent stream or lake are areas into which floodwaters spread during periods of high runoff, enabling the wetlands to remove pollutants.

Notes

Question 2

- Is there evidence of flooding or ponding during a portion of the growing season?
- a. Yes.
 - b. Unable to determine or not applicable.
 - c. No.

Directions

See question 37 in the Wetland Characterization.

Rationale

Water level fluctuation in the wetland indicates the ability to retain water. Impounded or standing water acts as a sediment trap because it greatly slows the flow of the incoming water, allowing suspended solids to settle out. Additionally, the slower velocity increases the contact time of the water with vegetation, resulting in uptake of nutrients by the vegetation. These actions function to reduce pollutant loads.

Question 3

- What is the degree of wetland vegetation cover?
- a. High (greater than 60%).
 - b. Moderate (approximately 60%).
 - c. Low (less than 60%).

Directions

See question 21 in the Wetland Characterization. Add the lower end of the ranges for forest, scrub-shrub and emergent vegetation to get the result. If the result is 60% or more, answer "high." If the result is 60%, answer "moderate." Answer "low" for other results.

Rationale

The more dense the vegetation, the greater the wetland's ability to take up nutrients. A dense stand of persistent emergent plants (such as cattail and rush) along with floating and submerged aquatics would tend to provide maximum nutrient uptake during the growing season. Wooded and scrub-shrub wetlands remove nutrients mainly through settling of suspended solids in runoff and flood waters.

Notes

Question 4

What is the wetland's area in acres?

Directions

See questions 17 and 27 in the Wetland Characterization.

- a. More than 5 acres.
- b. Between 0.5 acres and 5 acres; or wetland area is less than 0.5 acres, and the wetland is connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake.
- c. Less than 0.5 acres, and the wetland is not connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake.

Notes

Rationale

The larger the wetland, the greater its capacity and ability to filter pollutants. Small wetlands connected by surface water act as a series of filters and thus function similarly to a larger wetland.

Question 5

What is the dominant, existing land use within 500 feet of the wetland's edge?

Directions

Refer to the directions for question 8 of the wildlife habitat assessment questions.

- a. Developed uses.
- b. Agriculture.
- c. Exclusive Forest Use or Open Space.

Rationale

Urbanized areas have more impervious surface areas and concentrate pollution sources. Wetlands in urban areas are important for filtering the runoff water before it enters a stream.

Question 6

What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland?

Directions

See questions 7 and 8 in the Wetland Characterization. If both “a” and “b” apply, choose “a.”

- a. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants.
- b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants.
- c. No upstream or adjacent reaches are listed as *water quality limited*, and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants.

Notes

Rationale

A watershed with upstream pollutant loading sources needs wetlands to reduce pollutant levels in water before it is delivered downstream.

Water quality: assessment criteria

A wetland’s water-quality function is intact if:

Question 1 is answered “a” or “b,” questions 2 and 3 are answered “a,” and any other question is answered “a” or “b.”

A wetland’s water-quality function is impacted or degraded if:

Answers do not satisfy the above- or below-listed criteria.

A wetland’s water-quality function is lost or not present if:

Four out of six questions are answered “c.”



Hydrologic control (flood control & water supply)

Wetlands function as natural water-storage areas during periods of high runoff and stream flooding.

At times they act as flood regulators by holding floodwater then slowly releasing it downstream. This temporary storage reduces the amount of water downstream during floods, thereby reducing peak flows. Through this flood storage mechanism, wetlands associated with tributaries of streams or rivers can prevent water from all tributaries reaching the stream or river at the same time (this is called desynchronization). Wetlands can also act as floodwater “brakes.” For example, water flowing through riverine wetlands during floods is slowed by trees, shrubs, reeds, rushes and other wetland vegetation. Wetlands acting as brakes can reduce flood peaks and thereby reduce flood damage, bank and bed erosion, and other adverse effects caused by fast moving water.

Wetlands also have long-term water holding abilities. Wetlands may store water for longer periods, sometimes for months. The slow draining of these wetlands to surface water or ground water as the water level in the wetland recedes may contribute to maintenance of baseflows in streams hydrologically connected to the wetland. The ability of this long-term water storage to maintain stream flows is called “flow conservation.”

Assessment questions

Question 1

Is all or part of the wetland located within the 100-year floodplain or within an enclosed basin?

a. Yes.
b. No.

Directions

See question 19 in the Wetland Characterization.

Rationale

Wetlands located within a floodplain or enclosed basin have a greater opportunity to receive and store water from surface flows and to release it slowly downstream or into the groundwater.

Notes

Question 2

Is there evidence of flooding or ponding during a portion of the growing season?

- a. Yes.
- b. Unable to determine or not applicable.
- c. No.

Directions

See question 37 in the Wetland Characterization.

Rationale

Water marks are valid indicators of seasonal and episodic stage fluctuations in wetlands and, as such, are strong indicators of storage function.

Question 3

What is the wetland's area in acres?

- a. More than 5 acres.
- b. Between .5 acres and 5 acres.
- c. Less than .5 acres.

Directions

See question 17 in the Wetland Characterization.

Rationale

Generally, the larger the wetland, the greater its ability to store and attenuate flood flows.

Question 4

Is waterflow out of the wetland restricted (e.g., beaver dam, concrete structure, undersized culvert)?

- a. Yes, the outlet is restricted or the wetland has no outlet.
- b. Minor restrictions slow down the water (i.e., undersized culvert.)
- c. No, the outlet has unrestricted flow.

Directions

See question 38 in the Wetland Characterization.

Rationale

Wetlands with no outlets or with restricted or controlled outlets generally will store greater amounts of water than wetlands with unrestricted flow outlets. Also, the wetland can store water for slower release into the water system.

Notes

Question 5

What is the dominant wetland vegetation cover type?

- a. Woody vegetation.
- b. Emergent vegetation and ponding, or open water only.
- c. Emergent vegetation or wet meadow.

Directions

See question 23 in the Wetland Characterization.

Rationale

Densely vegetated wetlands with vegetation greater than 6 feet tall are better able to control flood flows than wetlands dominated by open water or low growing vegetation, which generally offers little resistance.

Question 6

What is the dominant existing land use, within 500 feet of the wetland on the downstream or down-slope edge of the wetland?

- a. Developed uses.
- b. Agriculture.
- c. Exclusive Forest Use and Open Space.

Directions

See question 16 in the Wetland Characterization.

Rationale

If the wetland is upstream from developed areas, its ability to control floods becomes more important.

Question 7

What is the dominant land use in the watershed upstream from the assessment area?

- a. Urban or urbanizing.
- b. Agriculture.
- c. Forested or natural area.

Directions

See question 6 in the Wetland Characterization.

Rationale

Runoff volume is directly related to the level of development in the watershed: The more development, the more runoff. The opportunity for the wetland to provide flood control and flow conservation to a community is greater where runoff is greater.

Notes

Hydrologic control: assessment criteria

A wetland's hydrologic control function is intact if:	Four or more questions are answered "a."
A wetland's hydrologic control function is impacted or degraded if:	Answers do not satisfy the above- or below-listed criteria.
A wetland's hydrologic control function is lost or not present if:	Four or more questions are answered "c."

Notes

Oregon Freshwater Wetland Assessment Function Questions Answer Sheet

WETLAND BuC2 (7.73 ac)

Wildlife Habitat		
1	a	
2	a	
3	b	
4	b	
5	a	
6	a	
7	c	
8	b	
9b	a	
provides diverse		

WETLAND BuCTrib1 (1.78 ac)

Wildlife Habitat		
1	b	
2	a	
3	c	
4	c	
5	a	
6	a	
7	c	
8	b	
9b	a	
provides diverse		

Fish Habitat		
Streams and Rivers or Lakes and Ponds		
1	a	
2	a	
3	b	
4	c	=WH7
5	b	=WH8
6	a	
intact		

Fish Habitat		
Streams and Rivers or Lakes and Ponds		
1	a	
2	a	
3	b	
4	c	=WH7
5	b	=WH8
6	a	
intact		

Water Quality (pollutant removal)		
1	a + c	
2	a	
3	a	
4	a	
5	b	
6	a	
intact		

Water Quality (pollutant removal)		
1	a + c	
2	a	
3	a	
4	b	
5	b	
6	a	
intact		

Hydrologic Control (flood control & water supply)		
1	a	
2	a	
3	a	
4	b	
5	a	
6	b + c	
7	b	
intact		

Hydrologic Control (flood control & water supply)		
1	b	
2	a	
3	b	
4	c or b	
5	a	
6	b	
7	b	
impacted or degraded		

Oregon Freshwater Wetland Assessment Function Questions Answer Sheet

WETLAND RsC1 (1.97 ac)

Wildlife Habitat		
1	b	PFO w/ >5 spp
2	a	
3	b	
4	c	
5	a	
6	a	
7	a	
8	b + c	
9b	b	
provides diverse		

Fish Habitat		
Streams and Rivers or Lakes and Ponds		
1	a	
2	a	
3	c	
4	a	=WH7
5	b + c	=WH8
6	c	
impacted or degraded		

Water Quality (pollutant removal)		
1	a	
2	b	unable to determine
3	a	
4	b	
5	a + b	
6	c	
impacted or degraded		

Hydrologic Control (flood control & water supply)		
1	a	
2	b	
3	b	
4	b	
5	a	
6	a + b	
7	a	
intact		

WETLAND RsC2 (7.74 ac)

Wildlife Habitat		
1	a	PEM + POW
2	b	
3	b	
4	b	0.96 acre
5	a	
6	a	
7	a	
8	b	
9b	c	
provides diverse		

Fish Habitat		
Streams and Rivers or Lakes and Ponds		
1	c	
2	c	
3	c	
4	a	=WH7
5	b	=WH8
6	c	
impacted or degraded		

Water Quality (pollutant removal)		
1	a	
2	b	unable to determine
3	a	~12% open water, 0.96 ac
4	a	
5	b	
6	c	
impacted or degraded		

Hydrologic Control (flood control & water supply)		
1	a	
2	a	
3	a	
4	b	culverts
5	b	
6	a + b	
7	a	
intact		

Oregon Freshwater Wetland Assessment Function Questions Answer Sheet

WETLAND RsC3 (8.27 ac)

Wildlife Habitat		
1	a	PFO + PEM
2	a	
3	b	
4	c	
5	a	
6	a	
7	a	
8	b	
9b	a	
provides diverse		

WETLAND RsC4 (1.78 ac)

Wildlife Habitat		
1	a	
2	a	
3	b	
4	c	
5	a	
6	a	
7	a	
8	b	
9b	c	
provides diverse		

Fish Habitat		
Streams and Rivers or Lakes and Ponds		
1	a	
2	a	
3	a	
4	a	=WH7
5	b	=WH8
6	c	
intact		

Fish Habitat		
Streams and Rivers or Lakes and Ponds		
1	b	
2	b	
3	c	
4	a	=WH7
5	b	=WH8
6	c	
impacted or degraded		

Water Quality (pollutant removal)		
1	a	
2	a	
3	a	
4	a	
5	b	
6	c	
intact		

Water Quality (pollutant removal)		
1	b	
2	a	
3	a	
4	a	
5	b	
6	c	
intact		

Hydrologic Control (flood control & water supply)		
1	a	
2	a	
3	a	
4	b	
5	a	
6	b	
7	a	
intact		

Hydrologic Control (flood control & water supply)		
1	a	
2	a	
3	b	
4	b	
5	a	
6	b	
7	a	
intact		

Oregon Freshwater Wetland Assessment Function Questions Answer Sheet

WETLAND RsCTrib1 (6.09 ac)

Wildlife Habitat		
1	a	
2	c	
3	b	
4	c	
5	a	
6	a	
7	a	
8	b + c	
9b	c	
provides some		

Fish Habitat		
Streams and Rivers or Lakes and Ponds		
1	b	
2	c	
3	c	
4	a	=WH7
5	b + c	=WH8
6	c	
impacted or degraded		

Water Quality (pollutant removal)		
1	a + c	
2	a	
3	a	
4	a	
5	a + b	
6	c	
intact		

Hydrologic Control (flood control & water supply)		
1	b	
2	a	
3	a	
4	b	
5	c	
6	b	
7	a	
impacted or degraded		

Oregon Freshwater Wetland Assessment Function Questions Answer Sheet

Mitigation Site

WETLAND GC2-W1 (5.11 ac)

WETLAND W1 (1.03 ac)

Wildlife Habitat		
1	a	
2	a	? woody
3	a	
4	b	? open water
5	a	trib. to Gordon Creek
6	a	
7	a	
8	b + c	ag + developed uses
9b	c	should have a buffer
provides diverse		

Wildlife Habitat		
1	a	forested + emergent
2	b	some ponding
3	b	moderate
4	c	
5	b	
6	b	
7	a	
8	c	(golf course)
9b	c	
provides some		

Fish Habitat		
Streams and Rivers or Lakes and Ponds		
1		unlikely to have fish
2		because stream is piped
3		across road
4		and was excavated
5		mitigation site
6		
NA		

Fish Habitat		
Streams and Rivers or Lakes and Ponds		
1		
2		
3		
4		
5		
6		
NA		

Water Quality (pollutant removal)		
1	c	
2	b	
3	a	
4	a	
5	b + a	
6	c	
impacted or degraded		

Water Quality (pollutant removal)		
1	b + c	
2	a	ponding
3	a	>60% vegetation cover
4	b	
5	a	(golf course)
6	c	
intact		

Hydrologic Control (flood control & water supply)		
1	b	
2	b	
3	a	
4	b	
5	a	? woody
6	b + a	
7	a	
impacted or degraded		

Hydrologic Control (flood control & water supply)		
1	b	
2	a	ponding
3	b	
4	a	
5	b	
6	a	(golf course)
7	a	
intact		

Oregon Freshwater Wetland Assessment Function Questions Answer Sheet

WETLAND GCTrib1 (0.88 ac)

Wildlife Habitat		
1	b	
2	a	
3	b	
4	c	
5	a	trib. to Gordon Creek
6	a	
7	a	
8	b + c	ag + developed uses
9b	c	
provides diverse		

Fish Habitat		
Streams and Rivers or Lakes and Ponds		
1		
2		
3		
4		
5		
6		
not able to assess		

Water Quality (pollutant removal)		
1	a	
2	a	
3	a	
4	b	
5	a + b	developed uses + ag
6	c	
intact		

Hydrologic Control (flood control & water supply)		
1	b	
2	a	
3	b	
4	b	
5	a	
6	a + b	developed uses + ag
7	a	
intact		

APPENDIX G:

Oregon Administrative Rules for Local Wetland Inventories

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**DEPARTMENT OF STATE LANDS
DIVISION 86
WETLAND CONSERVATION PLAN**

Local Wetlands Inventory (LWI) Standards and Guidelines

141-086-0180

Purpose

Pursuant to ORS 196.674 pertaining to the Statewide Wetlands Inventory (SWI), these rules establish a system for uniform wetland identification and comprehensive mapping. These rules also establish wetlands inventory standards for cities or counties developing a wetland conservation plan (WCP) pursuant to ORS 196.678. A Local Wetlands Inventory (LWI) is developed for all or a portion of a city or county according to the standards and guidelines contained in these rules (OAR 141-086-0180 through 141-086-0240).

Stat. Auth.: ORS 196.674 – 196.681 & 196.692

Stats. Implemented: ORS 196.668 – 196.692

Hist.: LB 11-1991, f. & cert. ef. 11-15-91; LB 9-1994, f. & cert. ef. 12-15-94; DSL 2-2001, f. & cert. ef. 2-26-01

141-086-0185

Applicability

- (1) Once approved by the Department of State Lands (Department), the LWI must be used in place of the National Wetlands Inventory (NWI) and is incorporated into the SWI.
- (2) The approved LWI must be used by cities and counties in lieu of the NWI for notifying the Department of land use applications affecting mapped wetlands and other waters (ORS 215.418 and 227.350).
- (3) An LWI fulfills the wetlands inventory requirements for Goal 5 and Goal 17 (OAR 660-015 and 660-023). An LWI that meets the additional WCP requirements specified in these rules must be used as the wetlands inventory basis for a WCP.
- (4) A wetland function and condition assessment of mapped wetlands must be conducted as part of the LWI using the *Oregon Freshwater Wetland Assessment Methodology (OFWAM)* published by the Department in 1996. An equivalent functional assessment methodology may be used or adjustments may be made to OFWAM upon written approval by the Director. The assessment results are used to determine the relative quality (functions, values, and condition) of the mapped wetlands and to designate significant wetlands (OAR 141-086-0300 through 141-086-0350) as required for Goal 5, or to assess wetland functions and values for a WCP.
- (5) An LWI is used by the Department, other agencies and the public to help determine if wetlands or other waters are present on particular land parcels.
- (6) An LWI provides information for planning purposes on the location of potentially regulated wetlands and other waters such as lakes and streams, but is not of sufficient detail for permitting purposes under the state Removal-Fill Law (ORS 196.800 through 196.990). Smaller wetlands may not be mapped, and wetlands may be missed due to lack of onsite access, tree canopy cover and other constraints. A wetland delineation or determination report may be needed for parcels without LWI-mapped wetlands. A Department-approved wetland delineation report for wetlands identified in an LWI is usually needed prior to site development.

(7) All wetlands inventory procedures and products are subject to review and approval by the Department before the products:

- (a) Are incorporated into the SWI;
- (b) Can be used in lieu of the NWI for Wetland Land Use Notification purposes; or
- (c) Can be used by a city or county for Goal 5, Goal 17 or WCP purposes.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 196.674 - 196.681 & 196.692

Stats. Implemented: ORS 196.668 - 196.692

Hist.: LB 11-1991, f. & cert. ef. 11-15-91; LB 9-1994, f. & cert. ef. 12-15-94, Renumbered from 141-086-0190(1) & (4); DSL 2-2001, f. & cert. ef. 2-26-01; DSL 11-2008, f. 12-12-08, cert. ef. 1-1-09

141-086-0200

Definitions

- (1) "Cowardin class or subclass" means the wetland classification according to the U.S. Fish and Wildlife Service's *Classification of Wetlands and Deepwater Habitats of the United States*, Cowardin et al., 1979.
- (2) "Director" means the Director of the Oregon Department of State Lands or designee.
- (3) "Department" means the Oregon Department of State Lands.
- (4) "Georeferenced" means linking geographic data to known coordinates on the surface of the earth.
- (5) "GIS" or "Geographic Information System" means a system of hardware, software and data storage that allows for the analysis and display of information that has been geographically referenced.
- (6) "HGM class and subclass" means the hydrogeomorphic classification of the wetland based upon its landscape position and hydrology characteristics, according to the HGM classification developed by the Department.
- (7) "Indicator" means the soil, vegetation, and hydrology characteristics or other field evidence that indicate that wetlands are present.
- (8) "Inventory" means a systematic survey of an area to identify, classify and map the approximate boundaries of wetlands, and includes the supporting documentation required by these rules.
- (9) "Mapping" means representing the identified wetlands and their approximate boundaries on a map.
- (10) "Offsite Determination" means a wetland determination conducted without field verification using NWI maps, soils maps, and aerial photographs.
- (11) "Other Waters" means waters of the state other than wetlands, such as streams and non-vegetated ponds.
- (12) "Probable Wetland" or "PW" means an area noted during the course of LWI development that appears to meet wetland criteria but is less than one half of an acre in size or is small and of undetermined size, and is mapped as a point rather than a polygon on the LWI maps.

(13) "Sample Plot" means a specific area on the ground where soils, vegetation and hydrology data are recorded on a field data form per OAR 141-90-0035(14) in order to make a wetland determination.

(14) "Statewide Wetlands Inventory" or "SWI" means an inventory that contains at minimum the location, type (e.g. classification) and approximate extent of wetlands in the State of Oregon. This inventory is continually revised as additional information is received or obtained by the Department.

(15) "Stream" means a watercourse created by natural processes, or one that would be in a natural state if it were not for human-caused alterations. Stream includes a channelized or relocated stream.

(16) "Visually confirm" or "visual confirmation" means to walk over and/or visually check an area to make a wetland determination and map wetlands and other waters.

(17) "Wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (ORS 196.800(16)).

(18) "Wetland Delineation Report" means a written document that contains the methods, data, conclusions and maps used to determine if wetlands and/or other waters of the state are present on a land parcel and, if so, describes and maps their location and geographic extent. A wetland determination report documenting wetland presence or absence is included within this definition (OAR 141-090 et seq.).

(19) "Wetland Determination" means a decision that a site may, does, is unlikely to, or does not contain wetlands. A determination does not include the precise location or boundaries of any wetlands determined to be present (OAR 141-090 et seq.).

(20) "Wetland Mosaic" means a complex of several wetlands that are interspersed between areas of non-wetland each less than one half of an acre in size, or less than one tenth of an acre in size for a WCP, making them difficult to map.

Stat. Auth.: ORS 196.674 - 196.681 & 196.692

Stats. Implemented: ORS 196.668 - 196.692

Hist.: LB 11-1991, f. & cert. ef. 11-15-91; LB 9-1994, f. & cert. ef. 12-15-94; DSL 2-2001, f. & cert. ef. 2-26-01; DSL 11-2008, f. 12-12-08, cert. ef. 1-1-09

141-086-0210

Inventory Development Process and Standards

(1) Wetland determinations conducted for the purpose of developing the LWI must be conducted according to the criteria, methodologies and guidance currently accepted by the Department (OAR 141-090 et seq.).

(2) Sources of inventory information must include:

(a) U.S.D.A. Natural Resources Conservation Service county soil survey and county list of hydric soils and soils with hydric inclusions, or other available soil surveys;

(b) NWI maps;

(c) USGS topographic maps;

(d) Federal Emergency Management Act floodplain maps, where available;

- (e) Other available local wetlands inventories or wildlife habitat inventories that include wetlands;
 - (f) Department wetland determination/delineation files; and
 - (g) High resolution (1 meter or finer) color and color infrared (where available) aerial photos taken within five years of inventory initiation. The minimum photo scale must be 1 inch = 200 feet unless another scale is approved by the Department.
- (3) Sources of inventory information may include but are not limited to:
- (a) LIDAR (Light Detection and Ranging) topographic data;
 - (b) Irrigation drainage district maps;
 - (c) Local knowledge of area (e.g., residents);
 - (d) Oregon State University Institute for Natural Resources Oregon Explorer data;
 - (e) Department permit files; and
 - (f) Resource agencies, including the Oregon Department of Fish and Wildlife and U.S. Fish and Wildlife Service.
- (4) Before beginning fieldwork, prepare a field map using an aerial photograph and include the approximate location of:
- (a) Any wetlands, deepwater habitats, and streams from the NWI;
 - (b) Any wetlands from the Department's wetland determination/delineation files or from other inventories;
 - (c) Hydric soils and soils with hydric inclusions (each coded separately);
 - (d) Wetlands or potential wetlands identified on aerial photos;
 - (e) Sites to visually confirm based on other leads; and
 - (f) Properties where access was granted.
- (5) Aerial photo interpretation must be tested early in the inventory process by interpreting several wetland types, ground truthing the interpretations, and then completing the aerial photo interpretations.
- (6) The local government must be responsible for requesting property access permission from landowners in the study area for parcels identified by inventory staff and/or the Department as possibly containing wetlands.
- (7) All potential wetlands that are not assessed with a sample plot and other waters identified through the process described in OAR 141-086-0210(1) through (4) must be visually confirmed to the extent practicable.
- (8) Where property access is granted, sample plot data must be provided according to the following minimum standards:

- (a) Verify each wetland with at least one sample plot that best characterizes the wetland;
 - (b) Verify with at least one sample plot each potential wetland where land use activities such as ditching, water diversion, or agricultural practices are likely to have significantly altered site conditions, making observations from a distance or a site walk-over unreliable; and
 - (c) Verify with at least one-sample plot potential wetlands with unreliable indicators (e.g., one dominant plant that grows in both wetlands and non-wetlands, such as *Phalaris arundinacea*).
- (9) If the LWI will be used for a WCP, in addition to the requirements in OAR 141-086-0210(7) and (8), a minimum of one sample plot must be provided that best characterizes each dominant wetland plant community.
- (10) If the landowner denies access permission and if visual confirmation from an adjacent property or road is not possible, employ off-site wetland determination methods.
- (11) All wetlands greater than or equal to one half of an acre and all wetlands identified in a Department-approved wetland delineation report must be identified and mapped as polygons. Wetlands that are less than one half of an acre may be mapped as polygons or as probable wetlands. Probable wetlands must be represented as points on the appropriate parcel(s) and should be labeled as "PW" on the maps. No further characterization or assessment is required for probable wetlands in the LWI. Probable wetlands will trigger cities and counties to notify the Department of proposed land use activities affecting mapped wetlands and other waters (ORS 215.418 and 227.350). For a WCP, all wetlands one-tenth acre and larger shall be identified and mapped as polygons.
- (12) The aim of the LWI is to map the location of wetlands at an accuracy of approximately 5 meters (16.4 feet). However, the actual accuracy may be less for some wetlands such as seasonal or forested wetlands that could not be visually confirmed.
- (13) Each wetland must be assigned a unique identification code.
- (14) All previously delineated wetlands from the Department's files must be field-verified, if possible, to determine if wetlands are still present and are approximately the same size and configuration as when delineated.
- (15) All identified wetlands must be classified:
- (a) To the class level of Cowardin (and to subclass for scrub-shrub and forested classes) and must include water regime and special modifiers (e.g., "farmed" or "diked/impounded"); and
 - (b) By dominant HGM class and subclass.
- (16) When a wetland contains more than one adjoining Cowardin classification, different classes or subclasses greater than 0.25 acres in size must be mapped and labeled as separate polygons.
- (17) Artificially created wetlands or other waters (such as irrigation canals and drains, industrial ponds, log ponds, golf course features, and storm water detention ponds that are greater than one half of an acre in size) must be included in the inventory regardless of their jurisdictional status, and their original purpose must be labeled on the inventory maps.
- (18) Where a wetland mosaic occurs, the site must be labeled as a wetland/upland mosaic on all inventory maps and so described on the wetland summary sheet.

(19) Streams and other waters must be mapped, but no further documentation such as wetland summary sheets or OFWAM assessment is required. If an existing stream geospatial dataset is used, it may be necessary to adjust the layer to align with riparian or other linear wetlands.

(20) Using OFWAM, each wetland in its entirety must be assessed for all four ecological functions: water quality, hydrologic control, wildlife habitat and fish habitat. Any wetlands that may qualify as a Locally Significant Wetland due to education or recreation use must also be evaluated for those social functions (values) in OFWAM. The remaining functions and conditions in OFWAM do not need to be applied to any of the wetland assessment units. Contiguous wetlands or those in close proximity and assigned different codes may be grouped into a single OFWAM assessment unit based upon the guidance in OFWAM and/or in consultation with the Department.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 196.674 - 196.681 & 196.692

Stats. Implemented: ORS 196.668 - 196.692

Hist.: LB 11-1991, f. & cert. ef. 11-15-91; LB 9-1994, f. & cert. ef. 12-15-94; DSL 2-2001, f. & cert. ef. 2-26-01; DSL 11-2008, f. 12-12-08, cert. ef. 1-1-09

141-086-0220

LWI Reports

(1) A report that meets the requirements in OAR 141-086-0220 (2) and (3) must be developed and submitted to the Department for approval. A minimum of two sets of the final Department-approved LWI report in both paper and electronic format (.pdf file format) must be prepared; one set must be provided to the Department for inclusion in the SWI and the other must be provided to the local government.

(2) The report must document the inventory and mapping processes and results, and include the following information:

(a) A general description of the study area including a description of the landscape setting;

(b) A description of the wetland inventory process including the public involvement process; the inventory methods including the date(s) and scale(s) of source maps and aerial photos used; the offsite and onsite wetland determination procedures including procedures used for visual confirmation and probable wetland identification; and all mapping and map transfer procedures used;

(c) A summary of the inventory results including the total acreage of the study area and the total number and acreage of wetlands identified within the study area, excluding the acreage of deepwater habitat and artificially created wetlands such as detention ponds or aggregate extraction ponds;

(d) A discussion of the OFWAM assessment process (e.g. how assessment units were defined) and the results;

(e) A summary of Locally Significant Wetlands, if identified (may be in table format); and

(f) All figures, with the study area clearly outlined.

(3) Appendices must include:

(a) Sample plot data on standard field data forms per OAR 141-090 et seq.

(b) A summary sheet for each wetland that must at a minimum include:

- (A) The unique wetland code;
 - (B) Street address or equivalent location description;
 - (C) Township, Range, Section, Quarter Quarter Section and tax lot(s) that contain the mapped wetland;
 - (D) Approximate wetland size (in acres);
 - (E) Cowardin classification(s);
 - (F) HGM classification(s);
 - (G) Mapped soil unit(s);
 - (H) Watershed boundaries at the 6th field Hydrologic Unit Code scale as defined by the US Geological Survey or finer;
 - (I) Sample plot numbers, if any;
 - (J) Department wetland determination or delineation file numbers, where applicable;
 - (K) Scientific and common names of dominant plant species;
 - (L) Primary hydrology sources;
 - (M) Sampling or visual confirmation date(s) and method;
 - (N) Locally Significant Wetland determination, if made; and
 - (O) Comments that describe the wetland, including topographic position, land uses and significant alterations (including agricultural).
- (c) OFWAM assessment results for each wetland assessment unit that must include:
- (A) Wetlands of Special Interest for Protection (OFWAM, Chapter Five);
 - (B) Wetland Characterization results (OFWAM, Appendix B);
 - (C) Assessment results represented in table format;
 - (D) Answer sheets for all wetland assessment questions (OFWAM, Appendix C);
 - (E) Function and condition summary sheets for fish habitat, wildlife habitat, water quality, hydrologic control and, if applicable, education and recreation (OFWAM, Appendix C); and
 - (F) Watershed summary sheet (OFWAM, Appendix C).
- (d) Technical staff members and qualifications.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 196.674 - 196.681 & 196.692

Stats. Implemented: ORS 196.668 - 196.692

Hist.: LB 11-1991, f. & cert. ef. 11-15-91; LB 9-1994, f. & cert. ef. 12-15-94; DSL 2-2001, f. & cert. ef. 2-26-01; DSL 11-2008, f. 12-12-08, cert. ef. 1-1-09

141-086-0222

Paper Map Standards

(1) Maps that meet the requirements in OAR 141-086-0222(2) through (5) must be developed and submitted to the Department for approval. A minimum of two sets of the final Department-approved LWI maps in both paper and electronic format (.pdf file) must be prepared; one set must be provided to the Department for inclusion in the SWI and the other must be provided to the local government.

(2) If the study area is covered by more than one wetland map, a single, smaller scale reference map of the complete study area is required. The reference map shall be indexed to the individual, large-scale maps and show, at a minimum, the Public Land Survey System grid, the location and code of all identified wetlands, streams, the study area boundary, and major, named streets.

(3) Wetland maps must include:

(a) Map name;

(b) Scale bar;

(c) Geographic reference to the Public Land Survey System;

(d) Roads, with major roads named, and railroads;

(e) Streams and stream names;

(f) Artificially created wetlands and other waters labeled with their purpose (e.g. storm water pond);

(g) Tax lot lines;

(h) Watershed boundaries at the 6th field Hydrologic Unit Code scale as defined by the US Geological Survey or finer;

(i) Legend that explains all map symbols, line work, and patterns;

(j) Map date (month and year final map prepared);

(k) All wetlands, clearly and accurately drawn and clearly identified by a unique wetland code that relates each wetland to field data forms, tables, databases, wetland summary sheets, and OFWAM summary forms;

(l) Cowardin classification(s) of each wetland per 141-086-0210(15a & 16);

(m) Disclaimer that reads: "Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters is approximate. There may be unmapped wetlands and other waters present that are subject to regulation. A current Oregon Department of State Lands-approved wetland delineation is required for state removal-fill permits. You are advised to contact the Department of State Lands and the U.S. Army Corps of Engineers with any regulatory questions."

- (n) Numbered sample plots; and
 - (o) Study area boundary as defined by the local government.
- (4) Minimum map scale must be 1 inch = 200 feet (1:2,400).

Stat. Auth.: ORS 196.674 - 196.681 & 196.692
 Stats. Implemented: ORS 196.668 - 196.692
 Hist.: DSL 11-2008, f. 12-12-08, cert. ef. 1-1-09

141-086-0225
Digital Data Standards

(1) A minimum of two sets of the final Department-approved LWI geospatial datasets must be prepared; one set must be provided to the Department for inclusion in the SWI and the other must be provided to the local government.

(2) A georeferenced ArcGIS compatible dataset with attribute tables and metadata must be developed for each of the following:

(a) Wetland polygons with a unique wetland identification label, Cowardin classification code(s) and modifiers, HGM classification, approximate wetland size, Locally Significant Wetland significance determination (if made), whether it was visually confirmed, and the Department's wetland delineation report file number, if any.

(b) Probable wetland points with PW label;

(c) Streams with unique identification labels and, where available, names;

(d) Other natural bodies of water with names;

(e) Artificially created wetlands and water features (such as irrigation canals and ditches, industrial ponds, log ponds, golf course features, and storm water detention ponds) uniquely identified and purpose of artificially-created feature, if known;

(f) Watershed boundaries (6th order Hydrologic Unit Code scale or finer);

(g) Study area boundary;

(h) Tax lot lines and numbers;

(i) Sample plot dataset with unique identification labels that correspond to the field data form; and

(j) Major streets with name labels.

(3) All georeferenced data sets must be projected using the Oregon Geographic Information Council-endorsed state standard: Oregon Lambert conformal conic (Datum: NAD 83; Units: International feet: 3.28084; Spheroid: GRS1980).

(4) Metadata must be completed for each layer, conform to the current Oregon Geographic Information Council Metadata Standard, and must include a disclaimer as described in OAR 141-086-0222(3m).

Stat. Auth.: ORS 273.045
Stats. Implemented: ORS 196.668 - 196.686 & 196.692
Hist.: DSL 2-2001, f. & cert. ef. 2-26-01; DSL 11-2008, f. 12-12-08, cert. ef. 1-1-09

141-086-0228

Review and Approval Process

- (1) A draft of all the LWI products required in OAR 141-086-0210 through -0225 of these rules must be provided to the Department (if the inventory was not developed by the Department) and the local government(s) for review.
- (2) The local government must provide opportunity for public review of and comment on the draft LWI products.
- (3) Public and local government comments on draft LWI products must be provided to the Department. The Department will request in writing from the party responsible for preparing the LWI any revisions or additions required in order for the LWI to be approved.
- (4) The Department will review final products to ensure that all changes requested by the Department have been adequately addressed.
- (5) If the final LWI products meet the requirements in these rules, the Department will send a letter of approval to the local government.

Stat. Auth.: ORS 273.045
Stats. Implemented: ORS 196.668 - 196.686 & 196.692
Hist.: DSL 2-2001, f. & cert. ef. 2-26-01; DSL 11-2008, f. 12-12-08, cert. ef. 1-1-09

141-086-0230

Revisions

- (1) A city or county may elect to or may be required by the Department of Land Conservation and Development (DLCDD) to revise their LWI. An LWI revision consists of either expanding the study area of an existing LWI or incorporating new wetland location and information into an existing LWI study area. The provisions in subsections (a) through (d) must be followed when an LWI is being revised.
 - (a) All Urban Growth Boundary expansion areas or other areas not included in the original LWI study area must be inventoried according to the requirements in these rules. If the original LWI area is not updated at the same time, it may still be necessary to update the LWI area adjacent to the new LWI area in order to align wetlands that are continuous between the two areas.
 - (b) When an LWI is being updated, newly identified wetlands or wetland boundary changes equal to or greater than one half of an acre must be identified, mapped and assessed using OFWAM.
 - (c) Sources of information for review of the previous study area to update the LWI must at a minimum include:
 - (A) Wetland delineation reports approved by the Department or map errors verified by the Department after the date of the approved LWI;
 - (B) Aerial photos approved by the Department, taken within five years of inventory revision initiation; and
 - (C) A field reconnaissance of the study area.

(d) Wetlands not previously mapped on the LWI must be verified by establishing a sample plot or by visual confirmation as required in OAR 141-086-0210(7) and (8) of this rule; previously mapped wetlands no longer apparent on aerial photos must also be verified with a sample plot or visually confirmed as necessary to confirm their absence.

(2) A draft of the revised LWI products as required in OAR 141-086-0228(1) through (5) must be provided to the Department and is subject to Department review and approval.

(3) If the LWI was used as the basis for an approved WCP, the local jurisdiction must instead:

(a) Provide to the Department, as part of the annual report (OAR 141-086-0035), a revised map and report indicating wetlands filled and wetlands restored, enhanced or created for mitigation; and

(b) Every five years, in conjunction with the Department's five year WCP review (ORS 196.684(6)), conduct an LWI review and incorporate new information, as required in OAR 141-086-0230(1)(b) through (1)(d).

(4) Newly-identified wetlands as identified by a Department-approved wetland delineation report or a removal-fill permit must not be added to the Department-approved Local Wetlands Inventory map without following the procedures outlined by OAR 141-086-0230(1)(a) through (d).

(5) Refinements to the location, extent, and/or absence of wetlands mapped on the LWI, as identified by a Department-approved wetland delineation or a Department wetland determination report, may be made at any time through an administrative process, by annotating the approved LWI or by creating a separate geospatial dataset containing the boundary adjustments, preserving the approved LWI mapping.

Stat. Auth.: ORS 196.674 - 196.681 & 196.692

Stats. Implemented: ORS 196.668 - 196.692

Hist.: LB 11-1991, f. & cert. ef. 11-15-91; LB 9-1994, f. & cert. ef. 12-15-94; DSL 2-2001, f. & cert. ef. 2-26-01; DSL 11-2008, f. 12-12-08, cert. ef. 1-1-09

141-086-0240

Landowner Notification

(1) When the LWI is approved by the Department, the local jurisdiction must notify by mail within one hundred twenty (120) calendar days all landowners of record whose parcel contains or abuts a mapped wetland or probable wetland.

(2) The local jurisdiction must provide one copy of the landowner notification letter to the Department.

Stat. Auth.: ORS 196.674 - 196.681 & 196.692

Stats. Implemented: ORS 196.668 - 196.692

Hist.: LB 11-1991, f. & cert. ef. 11-15-91; LB 9-1994, f. & cert. ef. 12-15-94; DSL 2-2001, f. & cert. ef. 2-26-01; DSL 11-2008, f. 12-12-08, cert. ef. 1-1-09

Identifying Significant Wetlands

141-086-0300

Purpose

ORS 197.279 (3) directs the Division of State Lands to establish these criteria and procedures for the identification of significant wetlands under Statewide Planning Goal 5. Local governments will use these

technical standards to complete their planning responsibilities for wetlands, which are established by the Land Conservation and Development Commission (OAR 660-023-0100).

Stat. Auth.: ORS 273 .360
Stats. Implemented: ORS 197.299
Hist.: LB 7-1996, f. 12-13-96, cert. ef. 1-1-97

141-086-0310

Policy

To protect the state's wetland resources, the functions and services they provide, and all interests, it is important that clear and consistent criteria be used to identify significant wetlands for planning purposes.

Stat. Auth.: : ORS 273 .360
Stats. Implemented: ORS 197.299
Hist.: LB 7-1996, f. 12-13-96, cert. ef. 1-1-97

141-086-0320

Uses and Applicability

(1) These rules provide standard criteria for local governments to use to meet their obligations for freshwater wetland planning as set forth by the Land Conservation and Development Commission (LCDC) in Goal 5. These rules do not address planning requirements for estuarine wetlands, which are covered under Statewide Planning Goal 16.

(2) Local governments shall apply the criteria for identifying locally significant wetlands (LSW). As specified in LCDC's Goal 5 rules (OAR 660-023-0100), the use of these criteria is required within urban growth boundaries (UGBs) and urban unincorporated communities (UUCs). The Goal 5 rules also authorize an option for counties to conduct detailed wetland planning in areas outside of UGBs and UUCs. Should a county choose to do so, the same rules and procedures as for UGBs and UUCs shall apply, including these criteria for significant wetlands.

(3) As provided by LCDC's Goal 5 rules (OAR Chapter 660, Division 23), local government planning and zoning responsibilities include the determination, designation, and protection of significant wetlands. A community that has identified significant wetlands prior to this rule should proceed under the provisions of OAR 660-023-0250.

Stat. Auth.: ORS 273 .360
Stats. Implemented: ORS 197.299
Hist.: LB 7-1996, f. 12-13-96, cert. ef. 1-1-97

141-086-0330

Definitions

(1) "Director" means the Director of the Division of State Lands or the Director's designee.

(2) "Division" means the Division of State Lands.

(3) "Indigenous Anadromous Salmonids" are chum, sockeye, Chinook and Coho salmon, and steelhead and cutthroat trout, that are members of the family Salmonidae and are listed as sensitive, threatened or endangered by a state or federal authority.

(4) "Inhabited by" means that a plant or animal species uses the site for rearing, feeding, or breeding or as a migration or dispersal corridor. This does not include incidental use of the site by an animal species.

(5) "Locally Significant Wetlands" or "LSW" are those wetland sites that provide functions or exhibit characteristics that are pertinent to community planning decisions made at a local scale, for example within a UGB. These wetland sites shall be identified by local governments according to the criteria and procedures in sections 141-086-0340 and 141-086-0350.

(6) "Native Plant Community" is used here to indicate a recognized assemblage of plant species indigenous to Oregon. All such wetland plant communities are listed in the most recent version of Classification and Catalog of Native Wetland Plant Communities in Oregon (Oregon Natural Heritage Program).

(7) "Rare Plant Community" is defined as relictual, uncommon or unique in Oregon, determined by number of occurrences and threats following national heritage program criteria (i.e., rarity ranking of G1-G3 or S1-S3). The most concise listing of wetland plant communities in Oregon that meet this standard for rarity is found in Appendix G of the Oregon Freshwater Wetland Assessment Methodology (Oregon Division of State Lands, 1996). The rarity rank of all wetland plant communities is also listed in the most recent version of Classification and Catalog of Native Wetland Plant Communities in Oregon (Oregon Natural Heritage Program).

(8) "Wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Stat. Auth.: ORS 273 .360

Stats. Implemented: ORS 197.299

Hist.: LB 7-1996, f. 12-13-96, cert. ef. 1-1-97

141-086-0340

Procedures for Identifying Locally Significant Wetlands

(1) LSW criteria are applied by the local government.

(2) The following base information is required prior to applying the LSW criteria:

(a) An approved Local Wetlands Inventory (OAR 141-086-0110 through 141-086-0240) covering the plan area; and

(b) A function and quality assessment of all inventoried wetlands using the Oregon Freshwater Wetland Assessment Methodology (OFWAM; Oregon Division of State Lands, 1996). Functional assessment descriptors from OFWAM appear in quotation marks in section 146-086-0350 of these rules. An equivalent functional assessment methodology may be used, or adjustments may be made, upon written approval by the Director. If a different assessment methodology is approved, then equivalent terminology will be set out in the Division's letter of approval.

Stat. Auth.: ORS 273 .360

Stats. Implemented: ORS 197.299

Hist.: LB 7-1996, f. 12-13-96, cert. ef. 1-1-97

141-086-0350

Locally Significant Wetland Criteria

(1) Exclusions. Regardless of their standing in relation to the criteria in OAR 141-086-0350(2) or (3) of these rules, wetlands shall not be designated as locally significant if they fall within any one of the following categories:

(a) Wetlands artificially created entirely from upland that are:

(A) Created for the purpose of controlling, storing, or maintaining stormwater; or

(B) Active surface mining or active log ponds; or

(C) Ditches without a free and open connection to natural waters of the state (as defined in OAR 141-085-0010(9)) and which do not contain food or game fish (as defined in ORS 496.009); or:

(D) Less than one acre in size and created unintentionally as the result of:

(i) Irrigation water overflow or leakage; or

(ii) Construction activity not related to compensatory mitigation for permitted wetland impacts; or

(E) Of any size and created for the purpose of wastewater treatment, cranberry production, farm or stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

(b) Wetlands or portions of wetlands that are contaminated by hazardous substances, materials or wastes as per the following conditions:

(A) The wetland is documented as contaminated on either the U.S. Environmental Protection Agency's (EPA) National Priority List (NPL, also known as the "superfund list"), or the Department of Environmental Quality's (DEQ) Inventory of Hazardous Substance Sites (ORS 465.225).

(B) Only the portion of the wetland affected by such hazardous substances or wastes shall be excluded from the LSW analysis. Affected portions shall be delineated in consultation with EPA and DEQ, and shall include areas potentially disturbed by clean-up activities.

(C) Contaminated wetlands that have subsequently been removed from the NPL or DEQ Inventory following clean-up shall be re-evaluated under the LSW criteria at the next periodic review.

(2) Mandatory LSW Criteria. A local government shall identify a wetland as locally significant if it meets one or more of the following criteria:

(a) The wetland performs any of the following functions at the levels indicated below using the Oregon Freshwater Wetland Assessment Methodology:

(A) "Diverse" wildlife habitat; or

(B) "Intact" fish habitat; or

(C) "Intact" water quality function; or

(D) "Intact" hydrologic control function.

(b) The wetland or a portion of the wetland occurs within a horizontal distance less than one-fourth mile from a water body listed by the Department of Environmental Quality as a water quality limited water body (303 (d) list), and the wetland's water quality function is described as "intact" or "impacted or degraded" using OFWAM. The 303(d) list specifies which parameters (e.g., temperature, pH) do not meet state water quality standards for each water body. A local government may determine that a wetland is not significant under this subsection upon documentation that the wetland does not provide water quality improvements for the specified parameter(s).

(c) The wetland contains one or more rare plant communities, as defined in this rule.

(d) The wetland is inhabited by any species listed by the federal government as threatened or endangered, or listed by the state as sensitive, threatened or endangered, unless the appropriate state or federal agency indicates that the wetland is not important for the maintenance of the species.

(A) The use of the site by listed species must be documented, not anecdotal. Acceptable sources of documentation may include but are not limited to: field observations at the wetland sites during the local wetlands inventory and functional assessments, and existing information on rare species occurrences at agencies such as the Oregon Natural Heritage Program, Oregon Department of Fish and Wildlife, Oregon Department of Agriculture and the U.S. Fish and Wildlife Service.

(B) Input originating from other locally knowledgeable sources constitutes "documentation" if verified by one of the above agencies or a university or college reference collection.

(e) The wetland has a direct surface water connection to a stream segment mapped by the Oregon Department of Fish and Wildlife as habitat for indigenous anadromous salmonids, and the wetland is determined to have "intact" or "impacted or degraded" fish habitat function using OFWAM.

(3) Optional LSW Criteria. At the discretion of the local government, wetlands that meet one or more of the following criteria may be identified as locally significant wetlands:

(a) The wetland represents a locally unique native plant community: wetland is or contains the only representative of a particular native wetland plant community in the UGB/UUC, which is only applicable if the entire UGB/UUC is inventoried. To be identified as a LSW, such a wetland must also have been assessed to perform at least one of the following functions at the levels indicated below using OFWAM:

(A) Its wildlife habitat descriptor is either "provides diverse habitat", or "provides habitat for some wildlife species"; or

(B) Its fish habitat descriptor is either "intact", or "impacted or degraded"; or

(C) Its water quality function descriptor is either "intact", or "impacted or degraded"; or

(D) Its hydrologic control function descriptor is either "intact", or "impacted or degraded".

(b) The wetland is publicly owned and determined to "have educational uses" using OFWAM, and such use by a school or organization is documented for that site.

Stat. Auth.: ORS 273 .360

Stats. Implemented: ORS 197.299

Hist.: LB 7-1996, f. 12-13-96, cert. ef. 1-1-97

141-086-0360

Purpose

Pursuant to ORS 197.279, 196.672 and 196.674, these rules establish procedures and criteria for identifying wetlands of statewide significance, called "outstanding state wetlands." These rules complement the rules for identifying locally significant wetlands (OAR 141-086-0300 through 141-086-0350).

Stat. Auth.: ORS 273 .045 & ORS 273 .051

Stats. Implemented: ORS 197.279(3), ORS 196.672 & ORS 196.674

Hist.: LB 4-1997, f. 4-15-97, cert. ef. 5-1-97

141-086-0370

Definitions

- (1) "**Classification**" means the designation of wetlands into hydrogeomorphic classes and subclasses. For example, "riverine" would be one class of wetlands.
- (2) "**Director**" means the Director of the Division of State Lands or the Director's designee.
- (3) "**Division**" means the Division of State Lands.
- (4) "**Functional Assessment**" means the process by which the capacity of a wetland to perform a certain function or group of functions is measured. Such functions would include but are not limited to: surface water storage, sediment removal, and maintenance of characteristic plant communities.
- (5) The "**Hydrogeomorphic Method**" or "**HGM**" is a scientific method of wetland classification and functional assessment based on a wetland's location in the landscape and the sources and duration of water flow. The HGM approach identifies the wetland classes present in each region, defines the functions that each class of wetlands performs, and establishes reference sites to define the range of functioning of each wetland class.
- (6) "**Outstanding State Wetlands**" or "**OSWs**" are reference standard wetlands identified within each Oregon region.
- (7) "**Reference Standard Wetlands**" are one component of an HGM and, for the purposes of these rules, are those sites that best exhibit the highest sustainable level of functional capacity for the functions performed by the regional wetland class or subclass.
- (8) "**Region**" means an ecosystem-based geographical subdivision of the state, such as the Level III and IV Ecoregions of Oregon (e.g., the Willamette Valley) mapped by the U. S. Environmental Protection Agency.
- (9) "**Wetlands**" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Stat. Auth.: ORS 273 .045 & ORS 273 .051

Stats. Implemented: ORS 197.279(3), ORS 196.672 & ORS 196.674

Hist.: LB 4-1997, f. 4-15-97, cert. ef. 5-1-97

141-086-0380

Applicability

- (1) These rules set forth the criteria and procedures by which the Division will identify outstanding state wetlands and provide the information to local governments. Due to the state's interest in OSWs and the expertise required for their identification, the Division is responsible for applying these rules.
- (2) The Land Conservation and Development Commission will determine any local land use planning responsibilities regarding OSWs identified by the Division.
- (3) OSWs identified according to these rules become part of the Statewide Wetlands Inventory.

141-086-0390

Criteria and Procedures

- (1) A wetland shall be identified as an OSW if it is judged by the Division to be a reference standard wetland as defined in sections 141-086-0370(7).

- (2) The Division may convene one or more technical panel(s) of wetland scientists with expertise in wetland functions, wetland classification, and/or regional wetland types in Oregon. The technical panel(s) will assist the Division in developing the hydrogeomorphic classification and functional assessment method (HGM) for Oregon, identifying the regional wetland classes and subclasses, primary functions, and reference standard wetlands. The Oregon HGM will be developed in stages, region by region, as resources allow. The Oregon HGM will be developed in cooperation with the Army Corps of Engineers, Environmental Protection Agency, Natural Resources Conservation Service, state resource agencies, and others as appropriate, and will incorporate protocols developed by the U.S. Army Corps of Engineers Waterways Experiment Station (for example, Technical Report WRP-DE-9, R. D. Smith et al., 1995).

- (3) Prior to designating a reference standard wetland as an OSW, the Division shall:
 - (a) Identify and map site boundaries;

 - (b) Develop management recommendations to conserve and protect the documented wetland functions of the site;

 - (c) Develop draft findings describing how the site has met the standards for an OSW;

 - (d) Provide public notice on the draft findings to the local government, affected landowners and land managers and other interested parties, and provide a 45-day public comment period;

 - (e) Hold at least one public meeting within the area of the proposed OSW(s) during the comment period; and

 - (f) Finalize the findings and site boundaries after consideration of public comment.

- (4) The Division shall provide all maps, criteria findings and supporting information regarding an identified OSW to the appropriate local government(s) for their use in land use planning activities.

APPENDIX H:

Staff Qualifications

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C. Mirth Walker, PWS, Senior Wetland Scientist has over 24 years of wetland consulting experience (20 with SWCA's Portland Office, which acquired Fishman Environmental Services in 2004), and conducts wetland and water delineations and natural resource site assessments; assesses vegetation communities and wetland functions; prepares and coordinates wetland permits at the local, state, and federal levels; designs wetland mitigation plans including restoration, enhancement, and creation plans; evaluates mitigation bank feasibility; conducts local wetland and natural resource inventories and assessments; and provides quality control and quality assurance review. Ms. Walker has an excellent reputation and a strong track record of working with clients and regulatory agency personnel to resolve wetland and natural resource issues. Ms. Walker has extensive experience in wetlands throughout Oregon and Washington in valley, coastal, montane, and arid climates, in both urban and rural environments. Ms. Walker is a certified Professional Wetland Scientist (PWS#415) by the Society of Wetland Scientists Professional Certification Program in 1995 (current certification valid through 2017). Ms. Walker was also provisionally certified as a Certified Wetland Delineator under a pilot program with the USACE Seattle District in 1993.

Ms. Walker conducted the Local Wetland Inventories and Natural Resource Assessments for the Cities of Adair Village, La Grande, Lakeside, Harrisburg, Hillsboro, King City, Mill City, Monroe, Scio, and Wilsonville; and has assisted with inventories and assessments for the Cities of Ashland, Tigard, Tualatin, and Stayton, Oregon. Ms. Walker has managed large and complex projects requiring extra coordination with other consultants, regulatory agencies, and multidisciplinary teams, as well as producing efficient and scientifically accurate wetland delineations for a variety of clients. Ms. Walker brings excellent fatal-flaw analysis capabilities to the table to identify potential roadblocks to permits early in the design process. Ms. Walker provides forensic wetland science analysis, aerial photograph interpretation, and expert witness testimony for clients and local jurisdictions.

Stacy Benjamin, Senior Ecologist has over 18 years of wetland consulting experience, and was previously the team lead for the wetlands and terrestrial biology program in SWCA's Portland office (she is now the Principal Ecologist with her own firm, Wetland Solutions Northwest, LLC). Ms. Benjamin conducts wetland and waters delineations, jurisdictional determinations, habitat and impact assessments, and prepares wetland permit applications and mitigation plans. Ms. Benjamin specializes in coordinating regulatory approvals for projects located in close proximity to wetlands and other natural resources. She works with clients and multidisciplinary project teams during the project design and alternatives analysis phase of projects to avoid and minimize impacts to natural resources. She also advises clients regarding programmatic permitting requirements and mitigation measures to facilitate permitting with the state and federal regulatory agencies. She has led wetland delineations for projects throughout Oregon including wind energy projects on up to 40,000 acres and has conducted natural resource inventories for several local jurisdictions. Ms. Benjamin also prepares National Environmental Policy Act (NEPA) documents, including biological assessments, environmental assessments, and environmental impact statements (EISs).

Melissa Katz-Moye, GISP, GIS Specialist is in SWCA's Portland office where she has provided geospatial data support for all natural and cultural project needs for over 10 years. She was primarily responsible for geospatial data development, management, analysis, and cartographic output; relational database design and implementation; programming for collaborative, web-enabled, internal and external applications; and GPS field data collection. She has been assisting SWCA wetland scientists and ecologists with wetland delineations and mitigation projects, natural resource inventories, botanical studies, habitat mapping, and natural resource and cultural resource reports for several years. Ms. Katz-Moye has also led and/or assisted with several GIS and GPS training courses. She has a strong background in GIS and cartography, and has won several awards for both static and digital, and interactive maps. She is always interested in emerging technologies for spatial and non-spatial data collection, management, analysis and visual dissemination. Ms. Katz-Moye is now a database manager for SWCA.

SIGNIFICANT GOAL 5 NATURAL RESOURCE SITES IN THE
SOUTH HILLSBORO COMMUNITY PLAN AREA

Wetland Resources:

<u>Wetlands Associated with Streams:</u>	<u>Site Code:</u>	<u>Size (acres):</u>
Butternut Creek, Reach 1	BuC1	44.62 acres
Butternut Creek, Reach 2	BuC2	7.73 acres
Butternut Creek Tributary 1	BuCTrib1	3.37 acres*
Gordon Creek, Reach 2	GC2	7.69 acres
Gordon Creek, Reach 2 Mitigation Site	GC2-W1	5.11 acres
Gordon Creek Tributary 1	GCTrib1	0.88 acres
Rosedale Creek, Reach 1	RsC1	1.97 acres
Rosedale Creek, Reach 2	RsC2	7.74 acres
Rosedale Creek, Reach 3	RsC3	8.27 acres
Rosedale Creek, Reach 4	RsC4	1.78 acres
Rosedale Creek Tributary 1	RsCTrib1	6.09 acres

Isolated Wetlands:

West Union Wetland	W1	1.03 acres
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Riparian Corridor Wildlife Habitat Resources:

Butternut Creek, Reach 1	BuC1-R/U	4.30 acres
Butternut Creek, Reach 2	BuC2-R/U	21.96 acres
Butternut Creek Tributary 1	BuCTrib1-R/U	7.24 acres**
Gordon Creek, Reach 2	GC2-R/U	27.93 acres

* A portion of Butternut Creek Tributary 1 wetlands was inventoried in the 2001 Goal 5 Natural Resources Inventory and Assessment, and the remaining portion of Butternut Creek Tributary 1 wetlands located within the Plan Area was inventoried in 2014. The wetland acreage listed herein represents the wetland acreage from these two inventories summed together. There are separate wetland summary sheets for BuCTrib1 for each of these inventories.

** A portion of the Riparian Corridor Wildlife Habitat resource associated with Butternut Creek Tributary 1 was inventoried in 2001 Goal 5 Natural Resources Inventory and Assessment, and the remaining portion of the Riparian Corridor Wildlife Habitat Resource was inventoried in 2014. The riparian corridor wildlife habitat acres listed herein represents the riparian corridor wildlife habitat acreage from these two inventories summed together. There are separate riparian corridor wildlife habitat summary sheets for each of these inventories.

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Butternut Creek, Reach 1	Site Code: BuC1
Location: SW 209 th Avenue west to Reach 2	
Field Date(s): none	
Drainage Basin: Tualatin River	
Adjacent Land Use: tree farm, agricultural, rural residential	
T1S, R2W Section 14, Tax Lots 1900, 2001, 2002, 2004, 2005	Acreage: 44.62
2100, 2101, 2102, 2200, 2400, 2402, 2403, 2404, 2405, 2406	
T1S, R2W Section 14DB, Tax Lots 100, 200	

General Description: Large areas along Butternut Creek which were likely cleared in the past for grazing have been colonized by dense stands of reed canarygrass; however, portions of the stream corridor are still shaded by forested and shrub-scrub wetlands. There are numerous beaver dams along Butternut Creek which have created deep backwater areas that slow the stream flow. Aside from at the beaver dams, woody debris is uncommon in the stream channel. The stream meanders through a broad flat floodplain and a small amount of riparian/upland forest dominated by Douglas fir, grand fir, and western red cedar is present adjacent to the floodplain. A heron rookery was observed in 1998 in the riparian forest along Butternut Creek (P. Quarterman).

Adjacent Stream Information: Butternut Creek

NWI Classification: 1% POW, 63% PSS/PEM, 2% PSS, 34% PFO

Hydrology Source: Butternut Creek is a perennial stream with steep banks and seeps emanating from the side slopes along the stream corridor

Mapped Soils: Huberly, Quatama, Wapato, Woodburn

Dominant Vegetation: (* = major dominant)

<u>Trees</u>	<u>Shrubs</u>	<u>Herbs/Emergents</u>
Oregon ash*	willow	reed canarygrass*
western red cedar	red-osier dogwood	bentgrass*
red alder	Douglas spirea	soft rush
	Pacific ninebark	pointed rush
	rose	tapered rush
	Himalayan blackberry	sawbeak sedge
		slough sedge
		water parsley

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	
Fish Habitat	High	
Water Quality	High	
Hydrologic Control	High	

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Butternut Creek, Reach 2	Site Code: BuC2
Location: East of SW 229th Avenue to Reach 1	
Field Dates: 2/26/2014 and 4/2/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Rural residential, agricultural	
Wetland Determination Plots: 6, 8	
T1N, R2W Section 15, Tax Lots 900, 912, 1000, 1100, 1200	Acreage: 7.73

General Description: Emergent and forested wetlands are present along Butternut Creek upstream of SW 229th Avenue. The stream channel is unmodified, is approximately 10 to 15 feet wide, and meanders through an intact floodplain. Emergent wetlands dominated by reed canary grass are present along portions of the stream channel. Evidence of beaver was observed including one beaver dam and several large fallen trees. Emergent wetlands are bordered by a narrow fringe of forested wetland which transitions to a wide and steeply sloped riparian/upland forest. Forested wetlands are dominated by a diverse, native, multi-layered tree and shrub community. A few narrow seep-fed drainages flow through the forested wetland to the main stem of Butternut Creek.

Adjacent Stream Information: Butternut Creek

NWI Cowardin Classification: Palustrine Forested (PFO) and Palustrine Emergent (PEM)

HGM Classification: Riverine Flow-through

Hydrology Source: Butternut Creek, groundwater seeps, precipitation

Mapped Soils: 43 – Wapato silty clay loam, 37C – Quatama loam

Dominant Vegetation: (* = major dominant)

Trees

red alder*
Oregon ash*
western red cedar

Shrubs

red osier dogwood*
western wahoo*
rose species
currant species

Herbs

reed canary grass*
slough sedge*
skunk cabbage
small-fruited bulrush
creeping buttercup

Wetland Function

Wildlife Habitat
Fish Habitat
Water Quality
Hydrologic Control

Rating

High
High
High
High

Comments

Diverse vegetation species and structure, forested
Unmodified channel, well-shaded
Has floodplain, large size
Densely vegetated, large size

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Butternut Creek Tributary	Site Code: BuCTrib1
Location: East of SW 229th Avenue to BuCTrib1 for 2001 LWI	
Field Dates: 2/26/2014, 4/2/2014 and 6/20/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Rural residential, agricultural	
Wetland Determination Plot: 10 and 17	
T1N, R2W Section 15, Tax Lots 1201, 1300	Acreeage: 1.78

General Description: This section of the Butternut Creek tributary is in a natural unmodified channel condition, in contrast to the extensively modified channel present immediately upstream of this unit. The stream channel flows through a narrow forested wetland fringe fed by seeps at the toe of slope adjacent to the stream. The stream and wetland fringe are bordered by a steeply sloped native riparian forest community ranging up to several hundred feet wide, except in the east corner where the stream is located within forested wetland with no adjacent riparian corridor on the north side.

Adjacent Stream Information: Butternut Creek tributary

NWI Cowardin Classification: Palustrine Forested (PFO)

HGM Classification: Riverine Flow-through

Hydrology source: Butternut Creek tributary, groundwater seeps, precipitation

Mapped Soils: 1 – Aloha silt loam, 22 – Huberly silt loam, 43 – Wapato silty clay loam, 45C – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Oregon ash*
red alder*
western red cedar
Pacific willow

Shrubs

western wahoo*
red osier dogwood
red elderberry
currant species

Herbs

slough sedge*
skunk cabbage*

Wetland Function

Wildlife Habitat
Fish Habitat
Water Quality
Hydrologic Control

Rating

High
High
High
Medium

Comments

Forested, intact riparian buffer
Unmodified channel, shaded
Densely vegetated
Wetland can store water

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Gordon Creek, Reach 2	Site Code: GC2
Location: West of SW 229 th Avenue	
Field Date(s): 11/1/00	
Drainage Basin: Tualatin River	
Adjacent Land Use: agricultural, rural residential, golf course	
T1S, R2W Section 10CD Tax Lots 100, 200, 300, 600, 700, 800 900, 1000	Acreage: 7.69
T1S, R2W Section 10DB Tax Lots 1400	
T1S, R2W Section 10DC Tax Lots 100, 1000, 1300	
T1S, R2W Section 15 Tax Lots 700, 1700	

General Description: Wetlands along the lower reach of Gordon Creek are primarily shrub-scrub and forested, with a minor emergent wetland component. Forested wetlands are dominated by Oregon ash, red alder, western red cedar and willow. The stream channel contains a fair amount of woody debris (P. Quarterman). Ettinger Pond is located downstream from this unit, outside the study area. There is a sloping riparian/upland forest forest dominated by Douglas fir and Oregon white oak is present south of Gordon Creek.

Adjacent Stream Information: Gordon Creek
NWI Classification: 3% POW, 45% PSS/PEM, 52% PFO
Hydrologic Source: Perennial stream occupying a narrow floodplain
Mapped Soils: Aloha, Huberly, Verboort, Wapato

Dominant Vegetation: (* = major dominant)

<u>Trees</u>	<u>Shrubs</u>	<u>Herbs/Emergents</u>
*Oregon ash	Douglas spirea	reed canarygrass
red alder	red-osier dogwood	broad-leaf cattail
western red cedar	rose	western buttercup
Pacific willow	ornamental hawthorn	slough sedge
	serviceberry	small-fruited bulrush
	Himalayan blackberry	mannagrass
	bittersweet nightshade	

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	
Fish Habitat	High	
Water Quality	High	
Hydrologic Control	High	

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Gordon Creek, Reach 2 – Mitigation Site (DSL 10429-FP)	Site Code: GC2-W1
Location: West of SW 229th Avenue to SW 234 th Avenue	
Field Date: 2/26/2014 (off-site)	
Drainage Basin: Tualatin River	
Adjacent Land Use: Rural residential, golf course to west.	
Wetland Determination Plots: None	
T1N, R2W Section 15, Tax Lot 300	Acreage: 5.11 (as digitized from aerial photograph)

General Description: Mitigation site for the Reserve Vineyards and Golf Club. Access was not granted to parcel. According to the fifth year wetland mitigation monitoring report prepared by Schott and Associates in 2008, the mitigation site is 6.35 acres consisting of 5.02 acres PFO/PEM, and 0.51 acre PFO/PSS wetlands, with 0.82 acre of open water.

Adjacent Stream Information: Drains to Gordon Creek through a tributary riparian corridor
NWI Cowardin Classification: Palustrine Forested (PFO), Palustrine Scrub/Shrub (PSS), Palustrine Emergent (PEM)
HGM Classification: Slope/Flats
Hydrology source: Groundwater, precipitation
Mapped Soils: 1 – Aloha silt loam, 22 – Huberly silt loam

Dominant Vegetation: (* = major dominant)

<u>Trees</u>	<u>Shrubs</u>	<u>Herbs</u>
black cottonwood*	Douglas spirea*	reed canary grass*
Pacific willow	willow species*	broad-leaf cattail*
Oregon ash	Douglas hawthorn	slough sedge
	clustered wild rose	soft rush
	Red-osier dogwood	spike rush
		western mannagrass
		slough grass
		tufted hairgrass
		softstem bulrush

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	Diverse structure and interspersed
Fish Habitat	NA	Downstream is piped; excavated pond
Water Quality	Medium	Groundwater fed
Hydrologic Control	Medium	Probably does not flood, minor restriction on outflow

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Gordon Creek Tributary	Site Code: GCTrib1
Location: West of SW 234th Avenue	
Field Dates: 2/26/2014 and 6/20/2014 (off-site)	
Drainage Basin: Tualatin River	
Adjacent Land Use: Rural residential.	
Wetland Determination Plots: None	
T1N, R2W Section 10, Tax Lots 400, 500, 600	Acreage: 0.88 –joins Gordon Creek, Reach 2 (see 2001 inventory data)

General Description: Forested wetland riparian corridor dominated by Oregon ash, with a tributary to Gordon Creek that flows west from the wetland mitigation site (GC2-W1) for the Reserve Vineyards and Golf Club. The site is grazed. The tributary is culverted under the extension of SW 234th Avenue, south of the site gate. Access was not granted.

Adjacent Stream Information: Tributary to Gordon Creek.

NWI Cowardin Classification: Palustrine Forested (PFO)

HGM Classification: Slope/Flats

Hydrology source: Tributary to Gordon Creek streamflow, groundwater, precipitation

Mapped Soils: 22 – Huberly silt loam, 43 – Wapato silty clay loam

Dominant Vegetation: (* = major dominant)

Trees

Oregon ash

Shrubs

Herbs

Wetland Function

Rating

Comments

Wildlife Habitat	High	Forested, connected to Gordon Creek riparian corridor
Fish Habitat	NA	Unable to assess from off-site
Water Quality	High	Surface stream flow, vegetated
Hydrologic Control	High	Ponding toward downstream confluence with Gordon Creek

Locally Significant Wetland? Yes, based on off-site assessment.

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Rosedale Creek, Reach 1	Site Code: RsC1
Location: North of SW Rosedale Road, east of Reach 2, west of SW 209th Avenue	
Field Date: 2/13/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Rural residential	
Wetland Determination Plots: None	
T1N, R2W Section 23AB, Tax Lot 1600	Acreege: 1.97

General Description: The upstreammost reach of Rosedale Creek is bordered by rural residential land use. The stream channel has not been modified in this reach. The stream is bordered by an approximately 200-foot wide band of young forested wetland. Oregon ash trees range from 3 to 10 inches in diameter. A chain link fence is present along the upstream edge of this site along the edge of SW 209th Avenue. Upland/riparian forest extends south of this unit (see unit RsC1-R/U).

Adjacent Stream Information: Rosedale Creek
NWI Cowardin Classification: Palustrine Forested (PFO)
HGM Classification: Slope/flats
Hydrology source: Rosedale Creek, precipitation
Mapped Soils: 42 – Verboort silty clay loam, 45B – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

<u>Trees</u>	<u>Shrubs</u>	<u>Herbs</u>
Oregon ash*	Himalayan blackberry	slough sedge*
	hawthorn species	reed canary grass*
	wild clustered rose	cattail
	Douglas spirea	

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	Forested with riparian corridor on south side
Fish Habitat	Medium	Surrounded by residential development, little instream structure
Water Quality	Medium	Surface flow, no evidence of flooding, smaller size
Hydrologic Control	High	Not in floodplain but downstream ponds and culverts restrict flow

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Rosedale Creek, Reach 2	Site Code: RsC2
Location: North of SW Rosedale Road, west of Reach 1, east of Reach 3	
Field Date: 2/13/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Agriculture, rural residential	
Wetland Determination Plots: None	
T1N, R2W Section 23, Tax Lots 700, 1100, 1101, 1200, 1201, 1300	
T1N, R2W Section 23AB, Tax Lot 800	Acreeage: 7.74

General Description: The stream channel in Reach 2 of Rosedale Creek has been extensively modified by ditching, straightening, and excavating two in-line ponds. The stream flows through agriculturally managed lands including a llama pasture where vegetation is grazed up to the edge of the channel. The stream and ponds may be used for irrigation purposes. Vegetation is predominantly emergent, although a few scattered shrubs are present along the stream channel. A wide band of hydric soil is mapped along the stream channel, and emergent wetlands were mapped from off-site based on the hydric soils mapping and wetland vegetation signatures on the aerial photograph.

Adjacent Stream Information: Rosedale Creek

NWI Cowardin Classification: Palustrine Emergent (PEM), palustrine open water (POW)

HGM Classification: Slope/flats

Hydrology source: Rosedale Creek, precipitation

Mapped Soils: 42 – Verboort silty clay loam, 43 – Wapato silty clay loam; 45A,B – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Shrubs

Herbs

Douglas' spirea
bittersweet nightshade
willow species

reed canary grass*
cattail
teasel

Wetland Function

Rating

Comments

Wildlife Habitat	High	Emergent with ponds
Fish Habitat	Medium	Channel modified, unshaded, no instream structure
Water Quality	Medium	No evidence of flooding
Hydrologic Control	High	In mapped floodplain, culverts and ponds restrict flow

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Rosedale Creek, Reach 3	Site Code: RsC3
Location: North of SW Rosedale Road, west of Reach 2, east of Reach 4	
Field Dates: 2/13/2014, 4/2/2014 and 6/20/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Agriculture, rural residential	
Wetland Determination Plots: 12 and 15	
T1N, R2W Section 23, Tax Lots 1300, 1400, 1401, 1402, 1500, 1700	Acreage: 8.27

General Description: Reach 3 of Rosedale Creek is bordered by similar agricultural uses as reach 4, including pasture and a hazelnut orchard; however, the stream channel has not been modified or ditched in this reach. The stream meanders through a wide band of forested wetland dominated by Oregon ash trees ranging from 6 to 24 inches in diameter. Upland/riparian forest extends north and south of this unit (see unit RsC3-R/U). A wet pasture dominated by meadow foxtail is present along the south side. This reach receives drain tile flow from the agricultural properties south of SW Rosedale Road.

Adjacent Stream Information: Rosedale Creek

NWI Cowardin Classification: Palustrine Forested (PFO) and Palustrine Emergent (PEM)

HGM Classification: Slope/flats

Hydrology source: Rosedale Creek, precipitation

Mapped Soils: 22 – Huberly silt loam, 43 – Wapato silty clay loam; 45A,B – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Oregon ash*
Douglas fir
cherry species

Shrubs

Himalayan blackberry*
red osier dogwood*
Pacific ninebark
snowberry

Herbs

slough sedge*
giant horsetail
reed canary grass
meadowfoxtail

Wetland Function

Wildlife Habitat
Fish Habitat
Water Quality
Hydrologic Control

Rating

High
High
High
High

Comments

Forested, some riparian corridor with interspersions
Intact canopy and instream structure
Well-vegetated, large size, woody vegetation
Evidence of flooding, restrictions in outlet

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Rosedale Creek, Reach 4	Site Code: RsC4
Location: North of SW Rosedale Road, west of Reach 3	
Field Dates: 2/13/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Agriculture	
Wetland Determination Plots: None	
T1N, R2W Section 22, Tax Lots 100, 200	Acreage: 1.78

General Description: The downstreammost reach (Reach 4) of Rosedale Creek flows through agriculturally managed lands including pasture and a hazelnut orchard. The stream channel has been modified by ditching, straightening, and excavating a small pond immediately north of SW Rosedale Road. Two drain tile outfalls were observed discharging into the upstream portion of the reach.

Adjacent Stream Information: Rosedale Creek

NWI Cowardin Classification: Palustrine Forested (PFO), Palustrine Scrub/Shrub (PSS), and Palustrine Emergent (PEM)

HGM Classification: Slope/flats

Hydrology source: Rosedale Creek, precipitation

Mapped Soils: 1 – Aloha silt loam, 37B – Quatama loam, 43 – Wapato silty clay loam; 45B – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Oregon ash
black cottonwood
cherry species

Shrubs

Himalayan blackberry
red osier dogwood
Sitka willow
wild clustered rose

Herbs

reed canary grass

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	Forested wetland with pond
Fish Habitat	Medium	Channelized stream with no instream structure
Water Quality	High	Surface flow, well-vegetated, evidence of flooding
Hydrologic Control	High	Minor restricted outlet, forested, smaller size

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

Rosedale Creek Tributary 1	Site Code: RsCTrib1
Location: North and south of SW Rosedale Road, west of SW 209th Avenue	
Field Dates: 2/13/2014 and 2/26/2014	
Drainage Basin: Tualatin River	
Adjacent Land Use: Agriculture, rural residential	
Wetland Determination Plots: None	
T1N, R2W Section 23, Tax Lots 1100, 2202, 2203, 2403	
T1N, R2W Section 23AB, Tax Lots 2800, 2900	Acreage: 6.09

General Description: This narrow tributary swale joins Reach 2 of Rosedale Creek from the south. The channel has been modified by ditching and straightening. The channel is approximately 2 feet wide and flows through pasture and large rural residential tax lots. Vegetation along the swale is mostly emergent, although a few scattered Oregon ash shrubs/small diameter trees are present.

The forest to the south of this tributary is a mix of shrubs and small trees ranging from 6 to 12 inches diameter at breast height (dbh) and appears to be upland based on our off-site observation, with dominants consisting of dense English hawthorn, English birch, Scouler's willow, madrone, Douglas fir (4-6 inches dbh), Oregon white oak (4-6 inches dbh), and Himalayan blackberry.

Adjacent Stream Information: Rosedale Creek

NWI Cowardin Classification: Palustrine Emergent (PEM) and Palustrine Forested (PFO)

HGM Classification: Slope/flats

Hydrology source: Precipitation

Mapped Soils: 1 – Aloha silt loam, 43 – Wapato silty clay loam, 45B – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Oregon ash

Shrubs

Oregon ash

Herbs

reed canary grass
soft rush

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	Medium	Moderate interspersions, not buffered
Fish Habitat	Medium or NA	Ditched wetland channel, no instream structure
Water Quality	High	Large size, well-vegetated
Hydrologic Control	Medium	Minor restriction on outlet, mostly emergent vegetation

Locally Significant Wetland? Yes

**CITY OF HILLSBORO LOCAL WETLANDS INVENTORY AND ASSESSMENT
WETLAND SUMMARY SHEET**

West Union Wetland	Site Code: W1
Location: West of SW 229th Avenue	
Field Dates: 2/26/2014 and 6/20/2014 (off-site)	
Drainage Basin: Tualatin River	
Adjacent Land Use: Rural residential, golf course to west and south.	
Wetland Determination Plots: None	
T1N, R2W Section 15, Tax Lot 300	Acreage: 1.03 (as digitized from aerial photograph)

General Description: Emergent wetland with clusters of trees located on western site boundary immediately east of the Reserve Vineyard and Golf Course (12th hole). Access was not granted to parcel and this area was viewed from the Golf Course. No evidence of ponding was observed in June; the boundary was mapped primarily from the March 2012 aerial photograph signature.

Adjacent Stream Information: Isolated.

NWI Cowardin Classification: Palustrine Forested (PFO) and Palustrine Emergent (PEM)

HGM Classification: Slope/Flats

Hydrology source: Groundwater, precipitation

Mapped Soils: 1 – Aloha silt loam

Dominant Vegetation: (* = major dominant)

Trees

black cottonwood
Scouler's willow

Shrubs

Scouler's willow
black hawthorn
wild clustered rose

Herbs

reed canary grass
curly dock
sweet vernal grass
tall ryegrass
Fuller's teasel

<u>Wetland Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	Medium	Isolated, moderate interspersed of emergent vegetation with scattered trees, some ponding
Fish Habitat	NA	
Water Quality	High	Surface runoff and groundwater fed, medium size
Hydrologic Control	High	No outlet, ponding

Locally Significant Wetland? Yes, based on off-site assessment.

**CITY OF HILLSBORO RIPARIAN CORRIDOR AND WILDLIFE HABITAT
INVENTORY AND ASSESSMENT
RIPARIAN/UPLAND SUMMARY SHEET**

SITE: Butternut Creek	Site Code: BuC1-R/U
Location: SW 209 th Avenue west to Reach 2 and BuC2-R/U	
Field Date: 11/1/00	
Adjacent Land Use: tree farm, agricultural, rural residential	
T1S, R2W Section 14, Tax Lots 2200, 2405, 2406	Acreage: 4.30

General Description: Riparian/upland forest is present on the north side of the portion of Butternut Creek located within the study area and consists of Douglas fir, grand fir and western red cedar. Himalayan blackberry has invaded the stream corridor and the BPA power line easement is highly disturbed. Agricultural and rural residential land uses border this unit to the north. No riparian/uplands are mapped to the south of Butternut Creek since it has been historically altered from its natural state due to removal of tree and shrub vegetation and land use change. The area south of the creek currently consists of a large tree farm which has a closed canopy, dense vegetation in most areas, and monospecific stands of trees, which limit its wildlife value. The Butternut Creek corridor is especially important for storm water protection since its headwater area upstream of the study area has been fully urbanized. The stream corridor is intact downstream of the study area. Butternut Creek is a perennial stream with very steep banks, meanders through a broad flat floodplain. DEQ water quality limited stream. A heron rookery was observed in 1998 near the western study area boundary.

Adjacent Stream Information: Butternut Creek
Mapped Soils: Aloha, Quatama

Dominant Vegetation: (* = major dominant)

<u>Trees</u>	<u>Shrubs</u>	<u>Herbs</u>
Douglas fir*	Himalayan blackberry*	
grand fir*	serviceberry	
western red cedar*	choke cherry	
	ornamental hawthorn	

<u>Riparian Habitat Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	Medium	
Water Quality Protection	High	
Ecological Integrity	Low	Extensive blackberry, altered by adjacent land use
Connectivity	Medium	
Uniqueness	Low	

Locally Significant Goal 5 Resource? Yes, due to the importance of riparian areas for water quality protection and as wildlife travel corridors.

Comments/Recommendations: Restore riparian corridor along south side of stream.

**CITY OF HILLSBORO RIPARIAN CORRIDOR AND WILDLIFE HABITAT
INVENTORY AND ASSESSMENT
RIPARIAN/UPLAND SUMMARY SHEET**

SITE: Butternut Creek	Site Code: BuC2-R/U
Location: East of SW 229th Avenue to Reach 1 and BuC1-R/U	
Field Dates: 2/26/2014 and 4/2/2014	
Adjacent Land Use: Rural residential, agricultural	
Upland Determination Plots: 7, 9	
T1N, R2W Section 15, Tax Lots 900, 905, 912, 1000, 1100, 1200	Acreeage: 21.96

General Description: A large area of riparian/upland forest borders both sides of Butternut Creek upstream of SW 229th Avenue. The riparian/upland forest is several hundred feet wide and is located on steep slopes above the Butternut Creek floodplain. The riparian/upland forest consists of a mature, multi-layered, mixed deciduous/coniferous forest with a diverse shrub understory. Red alder and Oregon ash trees range from 10 to 16 inches in diameter, and Douglas fir and western red cedar trees range from 12 to 30+ inches diameter. Very few invasive species are present. Wildlife sign included beaver, deer, and owl.

Adjacent Stream Information: Butternut Creek

Mapped Soils: 1 – Aloha silt loam, 37B,C – Quatama loam, 43 – Wapato silty clay loam, 45A – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Douglas fir*
western red cedar*
red alder*
Oregon ash

Shrubs

vine maple*
Indian plum*
beaked hazelnut
snowberry
salal
dwarf Oregon grape
tall Oregon grape
Himalayan blackberry
English holly

Herbs

sword fern*
trailing blackberry*
pacific waterleaf
fringecup
stinging nettle

<u>Riparian Habitat Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	Perennial water, high structural and species diversity
Water Quality Protection	High	
Ecological Integrity	High	Wide corridor, well-vegetated slopes
Connectivity	High	Minimal invasive species present
Uniqueness	Medium	Wide corridor, common vegetation community and habitat

Locally Significant Goal 5 Resource? Yes

**CITY OF HILLSBORO RIPARIAN CORRIDOR AND WILDLIFE HABITAT
INVENTORY AND ASSESSMENT
RIPARIAN/UPLAND SUMMARY SHEET**

SITE: Butternut Creek Tributary 1 **Site Code: BuCTrib1-R/U**
Location: East of SW 229th Avenue
Field Date: 2/13/2014, 4/2/2014 and 6/20/2014
Adjacent Land Use: Rural residential, commercial nursery
Upland Determination Plots: 11 and 17
T1N, R2W Section 15, Tax Lots 1201, 1300 **Acreage: 7.24**

General Description: A steeply sloped riparian/upland forest borders both sides of the Butternut Creek tributary, except in the outer northeast corner. The riparian/upland forest is similar in species composition and condition to the riparian/upland forest along the main stem of Butternut Creek and consists of a multi-layered, mixed deciduous/coniferous forest with a diverse shrub understory.

Adjacent Stream Information: Butternut Creek Tributary

Mapped Soils: 1 – Aloha silt loam, 22 – Huberly silt loam, 37C – Quatama loam, 43 – Wapato silty clay loam, 45A,C – Woodburn silt loam

Dominant Vegetation: (* = major dominant)

Trees

Douglas fir*
big-leaf maple
western red cedar

Shrubs

Himalayan blackberry
dwarf Oregon grape
tall Oregon grape
western wahoo
vine maple
beaked hazelnut
salal
oceanspray (creambush)

Herbs

trailing blackberry
sword fern
Pacific waterleaf
violet
Henderson's sedge
vanillaleaf

Upland Habitat Function

Rating

Comments

<u>Upland Habitat Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	High	Seasonal water, high structural and species diversity
Water Quality Protection	Medium	Well vegetated, moderately wide corridor
Ecological Integrity	High	Minimal invasive species present
Connectivity	Medium	Moderately wide corridor
Uniqueness	Medium	Common vegetation community and habitat

Locally Significant Goal 5 Resource? Yes

**CITY OF HILLSBORO RIPARIAN CORRIDOR AND WILDLIFE HABITAT
INVENTORY AND ASSESSMENT
RIPARIAN/UPLAND SUMMARY SHEET**

SITE: Butternut Creek Tributary 1 **Site Code: BuCTrib1-R/U**
Location: West of SW Vermont Street toward SW 229th Avenue
Field Date: none
Adjacent Land Use: tree farm, agricultural
T 1S, R 2W Section 15, Tax Lots 1201, 1300 **Acreage: N/A**

General Description: No riparian/uplands are mapped adjacent to this tributary since the riparian/upland corridor along the portion of the Butternut Creek tributary located in the study area has been historically altered from its natural state due to removal of tree and shrub vegetation and land use change. The tributary is bordered on the north and south by a large tree farm which has a closed canopy, dense vegetation in most areas, and mono-specific stands of trees, which limit its wildlife value. The headwaters of this tributary are located in a field planted in pasture grasses, with no tree or shrub cover adjacent to the stream channel. The stream corridor is intact downstream of the study area. Small intermittent drainage seeping out from historically tiled tributary.

Adjacent Stream Information: Butternut Creek Tributary
Mapped Soils: Aloha

Dominant Vegetation: (* = major dominant)
 Could not determine from off-site assessment

Trees **Shrubs** **Herbs**

<u>Riparian Habitat Function</u>	<u>Rating</u>	<u>Comments</u>
Wildlife Habitat	Low	
Water Quality Protection	High	
Ecological Integrity	Low	Altered by adjacent land use
Connectivity	Medium	
Uniqueness	Low	

Locally Significant Goal 5 Resource? Yes, although the riparian/upland corridor has been altered due to adjacent land use, it is still important for water quality protection.

Comments/Recommendations: Restore riparian corridor. This unit cannot be viewed from off-site.

**CITY OF HILLSBORO RIPARIAN CORRIDOR AND WILDLIFE HABITAT
INVENTORY AND ASSESSMENT
RIPARIAN/UPLAND SUMMARY SHEET**

SITE: Gordon Creek	Site Code: GC2-R/U
Location: West of SW 229 th Avenue	
Field Date(s): 11/1/00	
Adjacent Land Use: agricultural, rural residential, golf course	
T1S, R2W Section 10CD Tax Lots 100, 200, 300, 600, 700, 800	Acreage: 27.93
900, T1S, R2W Section 10DB Tax Lots 1400	
T1S, R2W Section 10DC Tax Lots 100, 1000, 1300	
T1S, R2W Section 15 Tax Lots 700, 1700	

General Description: This relatively undisturbed large riparian/upland forest is present along the south side of Gordon Creek along the majority of Reach 2 west of SW 229th Avenue. The riparian/upland forest is dominated by Douglas fir and Oregon white oak. An intact riparian corridor and the Meriwether Golf Course and Ettinger Pond are located downstream of SW 229th Avenue, outside the study area.

Adjacent Stream Information: Gordon Creek
Mapped Soils: Aloha

Dominant Vegetation: (* = major dominant)

	<u>Shrubs</u>	<u>Herbs</u>	
<u>Trees</u>			
*Douglas fir			
*Oregon white oak			
<u>Riparian Habitat Function</u>	<u>Rating</u>		<u>Comments</u>
Wildlife Habitat	High		large forest, good vegetation structure/diversity
Water Quality Protection	High		limited invasive species
Ecological Integrity	High		forest connected to Gordon Creek
Connectivity	Medium		high quality typical upland forest
Uniqueness			

Locally Significant Goal 5 Resource? Yes, due to the importance of riparian areas for water quality protection and as wildlife travel corridors. The large size of the forest west of SW 229th Avenue makes this unit especially valuable.

Comments/Recommendations: As development encroaches upon this unit, priority should be placed on maintaining the connection between the forest and the stream and preservation of one large forested area rather than fragmenting the forest into several smaller isolated areas. Control Himalayan blackberry along stream channel through riparian/upland forest.

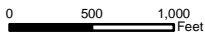
Goal 5 Significant Natural Resources in the South Hillsboro Community Plan Area

- South Hillsboro Community Plan Area
- Significant Wetlands
- Significant Riparian Corridor and Upland Wildlife Habitat
- Resources Already Adopted into the SNRO (2001)



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Attachment 2

Additional Comprehensive Plan Map Changes in the Reed's Crossing Area

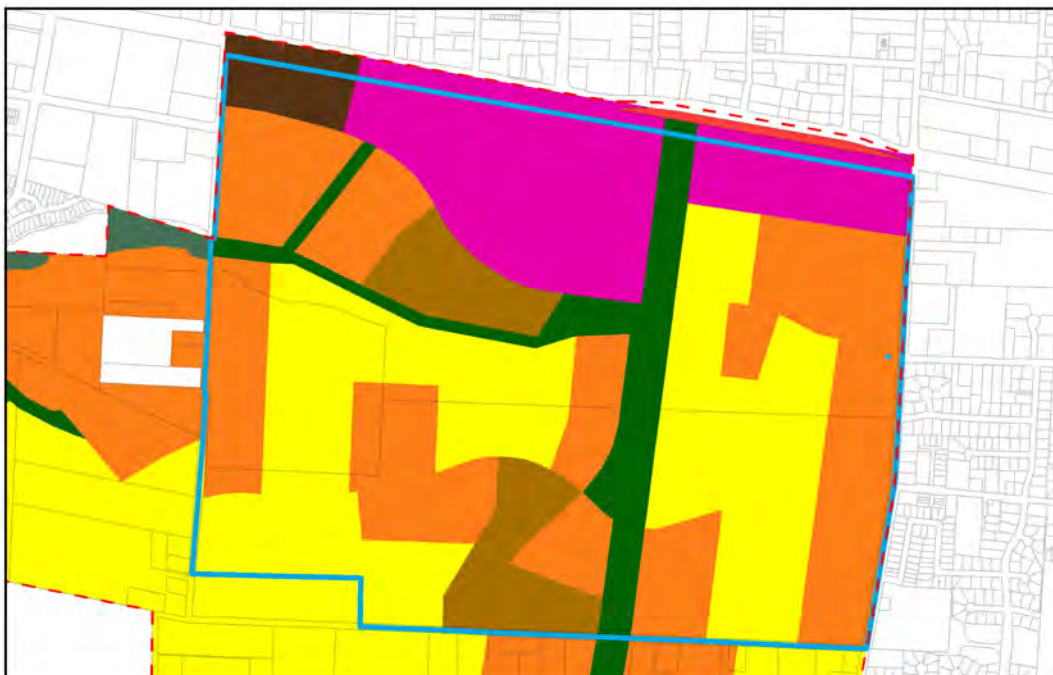
Plan Designation	Adopted	Proposed
	Gross Acres	Gross Acres
LDR	115	148
MDR	101	156
HDR	34	36
M-R	28	9
<i>Subtotal</i>	<i>278</i>	<i>349</i>
MU	87	76
Total	364	425

2012 Community Plan (Adopted)



- Commercial
- Mixed Use
- Mid-Rise Density Residential
- High Density Residential
- Medium Density Residential
- Low Density Residential
- Open Space
- Flood Plain
- Reed's Crossing Boundary
- - - South Hillsboro Boundary

Revised Comprehensive Plan Map (Proposed)



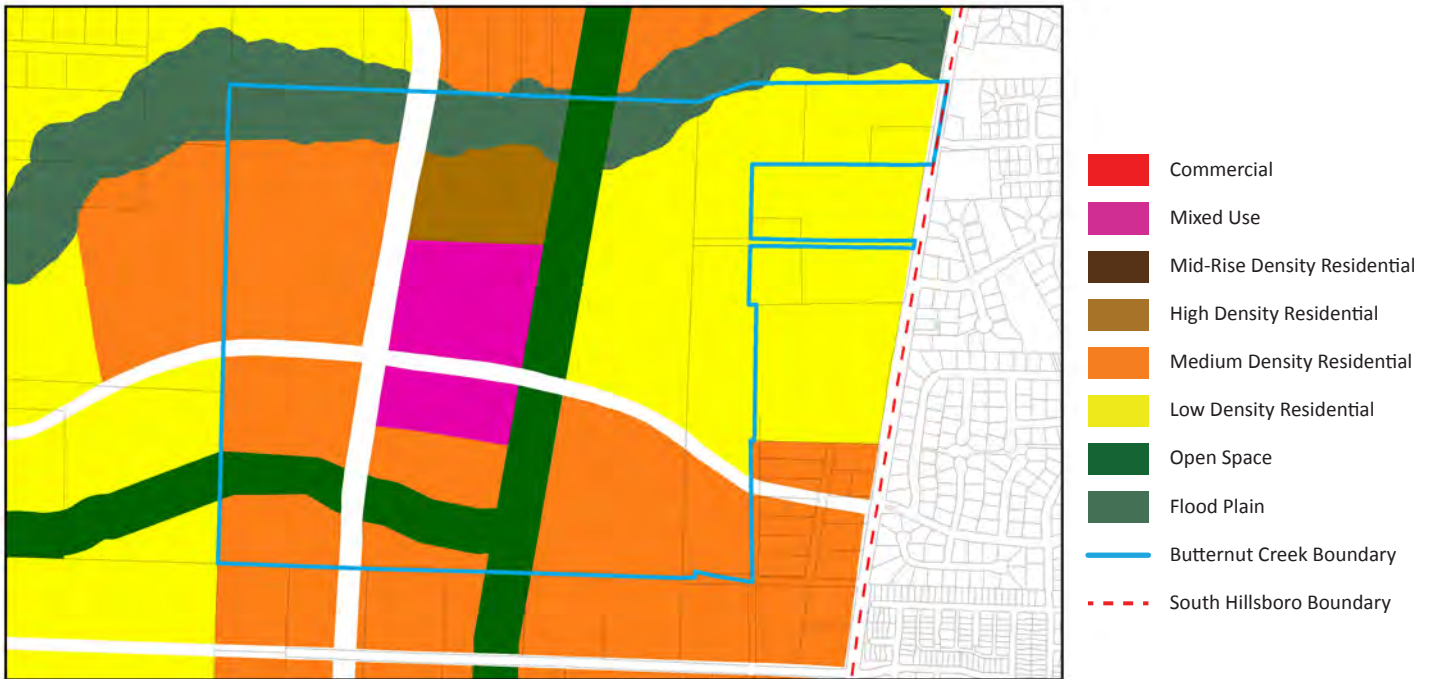
- Commercial
- Mixed Use
- Mid-Rise Density Residential
- High Density Residential
- Medium Density Residential
- Low Density Residential
- Open Space
- Flood Plain
- Reed's Crossing Boundary
- - - South Hillsboro Boundary

Attachment 3

Additional Comprehensive Plan Map Changes in the Butternut Creek Area

Plan Designation	Adopted	Proposed
	Gross Acres	Gross Acres
LDR	45	47
MDR	65	67
HDR	9	0
M-R	0	15
<i>Subtotal</i>	<i>119</i>	<i>129</i>
MU	17	20
Total	136	149

2012 Community Plan (Adopted)



Revised Comprehensive Plan Map (Proposed)

