
Witch Hazel Village South ESEE Analysis Report for Goal 5 Significant Natural Resources

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Prepared for:



Final Report

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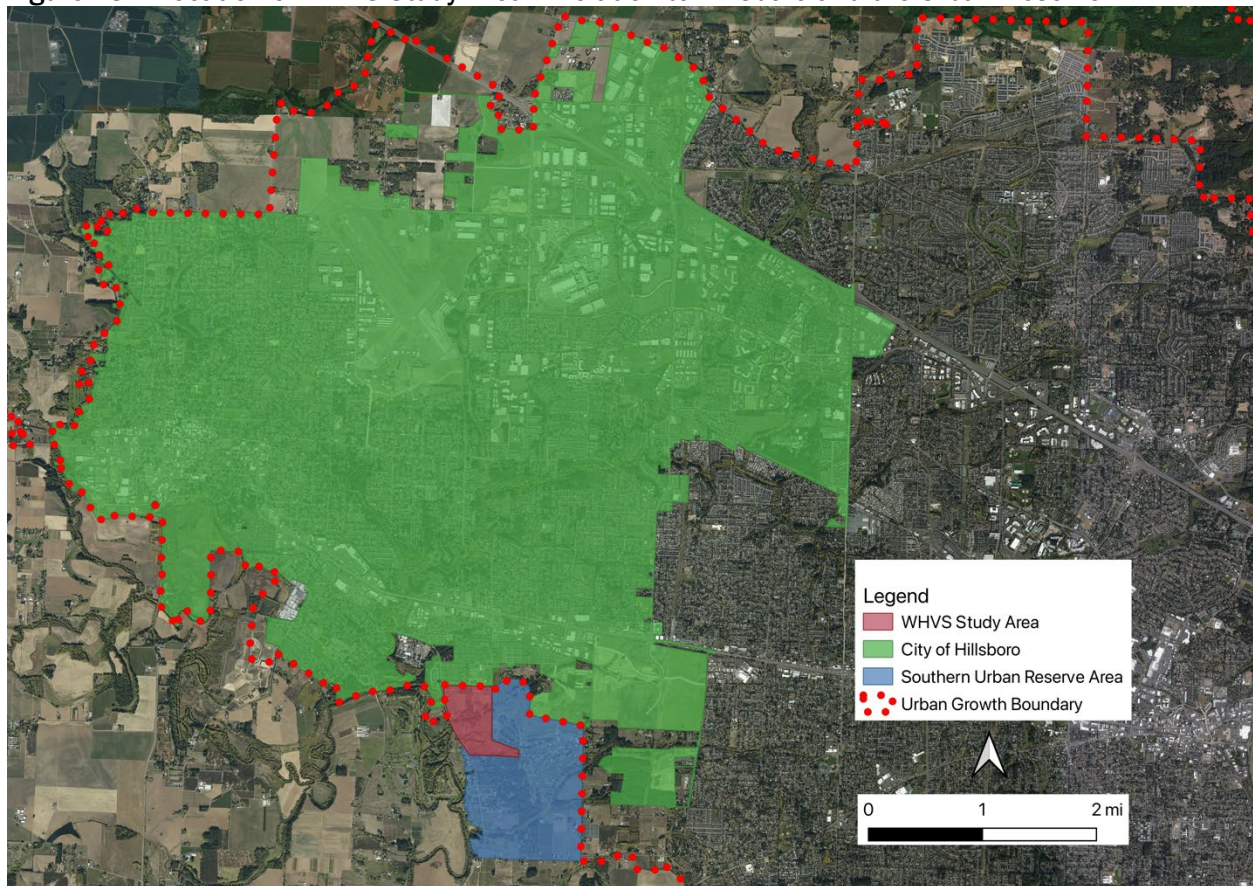
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Executive Summary

This report describes the results of a Goal 5 Economic, Social, Environmental, and Energy (ESEE) analysis for the Witch Hazel Village South (WHVS) study area. An ESEE analysis describes the Economic, Social, Environmental, and Energy consequences of allowing, limiting, or prohibiting land uses that conflict with, or adversely affect, Significant Natural Resources (SNRs). The quality of a natural resource’s ecological functions (e.g., wildlife habitat) defines a resource’s Significance and its Environmental Priority.

The approximately 150-acre WHVS study area is located south of Hillsboro’s City limits and includes the entirety of the WHVS Urban Growth Boundary expansion within the 940-acre Southern Urban Reserve Area (see Figure ES-1).

Figure ES-1 Location of WHVS Study Area in relation to Hillsboro and the Urban Reserve



The study area is currently located in unincorporated Washington County and zoned for Exclusive Farm Use (EFU). The area is planned for annexation to the City of Hillsboro and future residential development to address the deficit of housing in Hillsboro for specific housing categories, including larger-lot single family residential, apartments, and “missing

middle” housing types (e.g., multi-unit and clustered dwellings).¹ Potential future land uses in the study area that could conflict with SNRs are:

- Residential
- Transportation
- Public utilities and facilities
- Public open space and trails

The City of Hillsboro (Hillsboro) commissioned David Evans and Associates (DEA) to inventory SNRs in the study area.² DEA assessed the following resources for Significance:

- Wetlands,
- Riparian/upland wildlife habitat, and
- Isolated upland wildlife habitat.

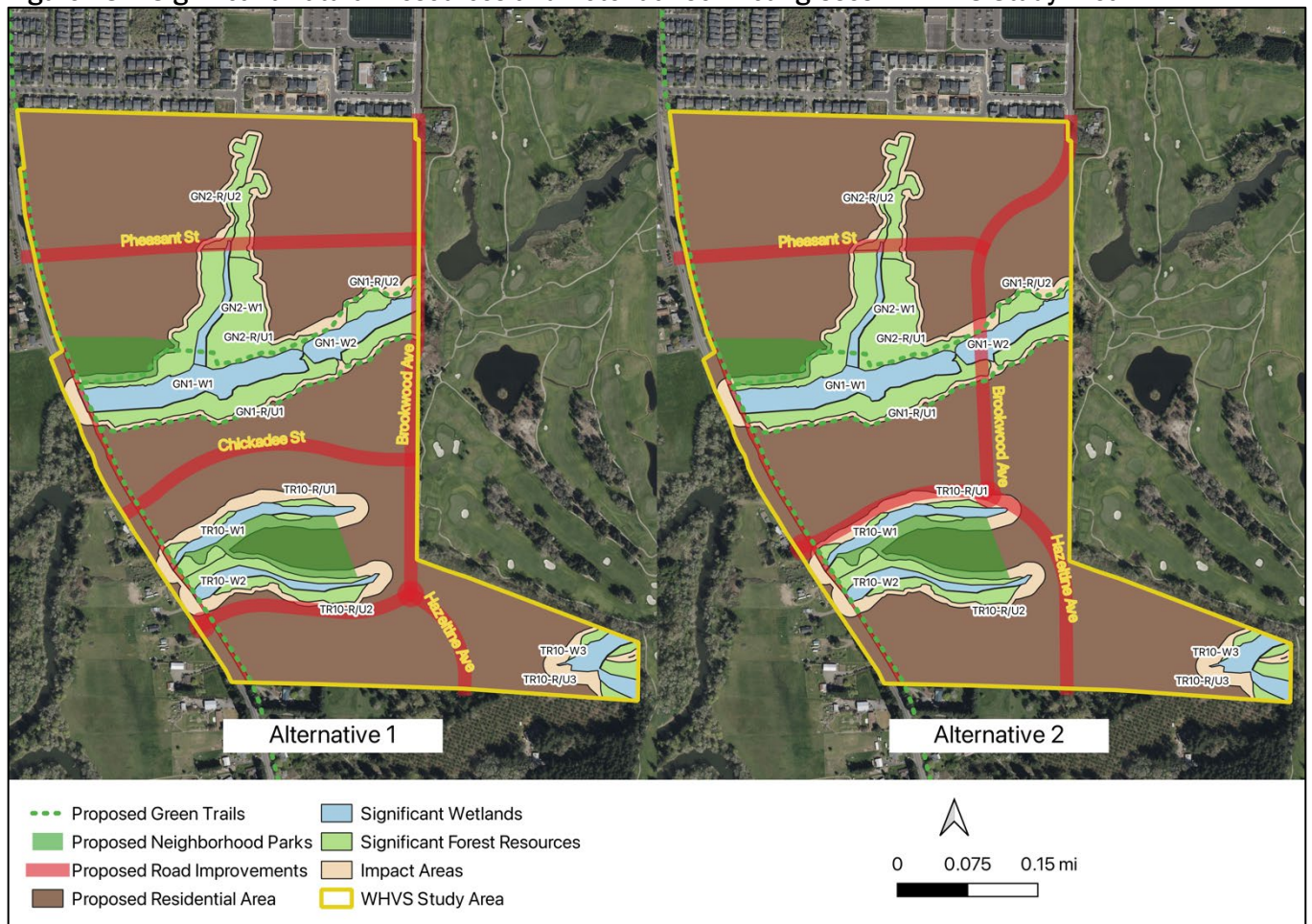
The WHVS study area included only one isolated upland wildlife habitat resource unit. It did not score as Locally Significant and therefore it does not qualify for protection under the SNR Overlay (SNRO) and does not need to be included in the ESEE analysis to determine its protection level. For detailed information on individual SNRs, please see the Local Wetlands Inventory and Forest Resources Inventory.³ Figure ES-2 shows an overview of the SNRs and potential conflicting uses. Two alternative development patterns are shown based on current uncertainty around placement of future roads.

¹ Hillsboro. 2018. *Witch Hazel Village South Concept Plan*. May. Pg. 45.

² David Evans and Associates. 2021a. *Witch Hazel Village South Local Wetlands Inventory*. Prepared for the City of Hillsboro.; David Evans and Associates. 2021b. *Draft Witch Hazel Village South Forest Resources Inventory and Assessment*. Prepared for the City of Hillsboro.

³ David Evans and Associates, 2021a; David Evans and Associates, 2021b

Figure ES-2 Significant Natural Resources and Potential Conflicting Uses in WHVS Study Area



In 2003, Hillsboro developed an analytical approach to conducting the ESEE analyses.⁴ Economic, social, environmental, and energy priorities that guide the analysis are an important component of this analytical approach. This ESEE analysis employs Hillsboro’s analytical approach and identifies ESEE priorities. Section 4 of this report describes the details of the ESEE analysis for each unit of SNR. Table ES 1 summarizes the results of the ESEE analysis by SNR unit.

The main factor influencing the ESEE results is the presence or absence of trails and transportation improvements within the study area. SNR lands that overlap with multi-use trails receive a Social Priority of “A,” meaning protecting these units would support Hillsboro’s priority for recreational lands. Lands with SNRs that overlap with planned transportation networks receive an Energy Priority of “A,” indicating their importance to public utilities and transportation needs of Hillsboro.

⁴ City of Hillsboro. 2003. *Economic, Social, Environmental and Energy (ESEE) Analyses of Significant Goal 5 Natural Resource Sites. Final Report.* May.

All lands with SNRs received an Economic Priority of “C” because the planned future land uses of the study area do not have a high Economic Priority in the ESEE methodology. (Examples of land use categories that have a high Economic Priority are commercial nodes and industrial land uses, which are not present in the study area.)

One wetland unit and four forest resource units received Environmental Priority “A,” and the remaining SNR units received “B” or “C.” This reflects the findings of the Goal 5 natural resources assessment and Hillsboro’s ESEE methodology for translating those findings into Environment Priority scores.

This analysis results in a range of recommended Protection Levels for SNRs, shown in the column in Table ES-1, from “Moderately Limit” to “Strictly Limit.” There is currently some uncertainty at the planning level about where or if some of the future land uses would materialize. The analysis reflects this uncertainty by considering multiple outcomes, the potential scores for which are indicated by a slash for a given Priority.

Table ES-1 Summary of ESEE Analysis Results for SNRs in the WHVS Study Area

SNR Unit	Economic	Social	Environmental	Energy	Recommended Level of Protection
Wetland SNRs					
GN1-W1	C	A/C	A	A/C	Limit/Strictly Limit
GN1-W2	C	A/C	C	A/C	Moderately Limit/ Limit/ Strictly Limit
GN2-W1	C	A/C	B	A/C	Moderately Limit/ Limit/ Strictly Limit
TR10-W1	C	A/C	C	A/C	Moderately Limit/ Limit/ Strictly Limit
TR10-W2	C	A/C	C	A/C	Moderately Limit/ Limit/ Strictly Limit
TR10-W3	C	C	B	C	Limit
Forest SNRs					
GN1-R/U1	C	A/C	A	A/C	Limit/Strictly Limit
GN1-R/U2	C	A/C	C	A/C	Moderately Limit/ Limit/ Strictly Limit
GN2-R/U1	C	A/C	A	A/C	Limit/Strictly Limit
GN2-R/U2	C	C	C	A/C	Moderately Limit/Limit
TR10-R/U1	C	A/C	A	A/C	Limit/Strictly Limit
TR10-R/U2	C	A/C	A	A/C	Limit/Strictly Limit
TR10-R/U2	C	C	A	C	Strictly Limit

1. Introduction

1.1 Background

This report presents the results of an ESEE analysis for the WHVS study area. Oregon Department of Land Conservation and Development (DLCD) identifies the purpose of state land use Goal 5, "... to conserve and protect significant Goal 5 resources."⁵ Significant Goal 5 resources (Significant Natural Resources, or SNRs) include riparian corridors, wetlands, and wildlife habitat. They are identified and described based on the relative quality of their ecological functions. An ESEE analysis is done when a local government selects the "Standard Approach" to Goal 5 compliance, and it describes the economic, social, environmental, and energy consequences of allowing, limiting, or prohibiting land uses that conflict with SNRs. Conflicting land uses are those that could adversely affect SNRs and include residential, industrial, or commercial development; transportation improvements; and public open space and parks, among other categories.

The City of Hillsboro (Hillsboro) commissioned David Evans and Associates (DEA) to inventory the Goal 5 natural resources in the study area. That analysis identified wetland and forest resources, some of which were determined to be locally "Significant" for the purposes of Goal 5 analysis and protection and others characterized as "not Significant," i.e., not to be regulated under Hillsboro's SNR Overlay (SNRO) code.

This ESEE analysis applies a methodology to weigh the tradeoffs associated with allowing, limiting, or prohibiting conflicting land uses on lands containing a SNR. See the map in Section 4 for the locations and distributions of SNRs in the WHVS study area.

1.2 Overview of the Analysis

DLCD outlines the method of conducting an ESEE analysis.⁶ The major steps in such an analysis are:

1. Identify the study area
2. Inventory Goal 5 resources
3. Identify which Goal 5 natural resources are Significant
4. Identify conflicting land uses
5. Conduct an ESEE analysis of allowing, limiting, and prohibiting conflicting uses on Significant Natural Resources

⁵ The State of Oregon. Oregon Administrative Rules. *Division 23 Procedures and Requirements for Complying with Goal 5*. http://arcweb.sos.state.or.us/pages/rules/oars_600/oar_660/660_023.html.

⁶ The State of Oregon. *Division 23 Procedures and Requirements for Complying with Goal 5*.

Hillsboro developed an analytical approach to conducting an ESEE analyses, described in a 2003 report on the initial Citywide ESEE analysis.⁷ Hillsboro has continued to apply this approach in subsequent ESEE analyses.

Hillsboro’s ESEE analytical approach has two parts:

1. The first part describes the *general* ESEE consequences of allowing, limiting, or prohibiting a range of potentially conflicting land uses on SNRs. This part relies on a general understanding of how conflicting land uses likely impact natural resources and develops a set of priorities that reflect Hillsboro’s planning and development objectives. For example, under Economic Priorities, Hillsboro ranks land uses based on their relationship to its economic goals. Under this ranking, areas of industrial use are ranked highest (ranking “A”), main-street areas are ranked mid-level (ranking “B”), and future urban lands ranked lower (ranking “C”). Hillsboro identified comparable rankings for Social, Environmental, and Energy Priorities.
2. The second part involves a *site-specific* ESEE analysis, which considers specific information about conflicting uses and SNRs in a given location, and applies the priorities developed in the first part accordingly. Results of the site-specific analyses may deviate from the general ESEE results depending on the extent to which site-specific conditions are unique or not represented by the general description.

This report documents the implementation of the second part of the above analysis in the WHVS study area. It identifies and describes WHVS SNRs and the potential future conflicting land uses within the study area. It then applies Hillsboro’s site-specific Economic, Social, Environmental, and Energy Priorities to determine whether a future land use should be moderately limited, limited, or strictly limited.

1.3 Organization of this Report

The remaining sections of this report are organized as follows.

- Section 2 *Overview of City of Hillsboro ESEE Methods* describes Hillsboro’s analytical approach to the ESEE analyses, focusing on the site-specific analysis presented in this report.
- Section 3 *The WHVS Study Area* briefly summarizes the study area including the existing and planned future land uses, describes the SNRs in the study area, and describes the land uses that could conflict with identified SNRs.
- Section 4 *Witch Hazel Village South Study Area ESEE Analysis* is the site-specific ESEE analysis for the SNRs in the study area.
- Section 5 *Conclusions* summarizes the conclusions of the WHVS ESEE analysis.

⁷ City of Hillsboro. 2003. *Economic, Social, Environmental and Energy (ESEE) Analyses of Significant Goal 5 Natural Resource Sites. Final Report.* May.

2. Overview of City of Hillsboro Goal 5 ESEE Methods

The first part of Hillsboro’s ESEE analytical approach, which it first completed in 2003, describes the *general* ESEE consequences of the “Allow,” “Limit,” and “Prohibit” scenarios for several conflicting land uses with potential to occur within the study area.⁸ This was done categorically, assessing general ESEE consequences without considering how the specifics of a given site would influence outcomes. The results from the 2003 City of Hillsboro General ESEE Analysis are presented in the Appendix.

The second part of Hillsboro’s ESEE analytical approach, which is completed for WHVS in this report, describes *site-specific* ESEE consequences. A site-specific ESEE analysis identifies the Economic, Social, Environmental, and Energy consequences of allowing, limiting, or prohibiting land uses that could impact or conflict with natural resource functions. The analysis involves the following steps:

1. Identify SNRs within the Study Area
2. Identify land uses that conflict with each SNR and its Impact Area
3. Determine Hillsboro’s ESEE priority scores for each of the proposed conflicting land uses for each SNR
4. Calculate a *Recommended Protection Level* based on the ESEE Priorities for each SNR

Results of the site-specific analyses may deviate from the general ESEE results depending on the extent to which conditions on a site are not representative of the general description. In cases where site-specific conditions are consistent with the general analysis, the results from the general ESEE analysis apply.

The next four sub-sections provide background for the analysis and describe the steps taken to develop and apply City of Hillsboro’s Site-Specific ESEE Methodology to the WHVS Study Area.

2.1 Identify SNRs

The DLCD Goal 5 guidelines list several potential types of Goal 5 natural resources.⁹ DEA identified potential SNRs by reviewing the DLCD list, reviewing planning documents that

⁸ The land uses in Hillsboro’s general Goal 5 analysis are: Residential; Schools, Churches, and fairgrounds/sports Stadiums, and Libraries; parks, Open space and Trails; Government, Institutional, Office, Commercial; Industrial; Private and Public Utilities and Facilities; Transportation; and Other Vegetation Disturbing Activities.

⁹ For the complete DLCD list of Goal 5 natural resources see: State of Oregon. No date. *Oregon Administrative Rules. Department of Land Conservation and Development. Division 23. Procedures and Requirements for Complying with Goal 5.* 660-023-0090 through 660-023-0230. http://arcweb.sos.state.or.us/pages/rules/oar_660/660_023.html.

describe the WHVS study area,¹⁰ and consulting with City of Hillsboro staff. This process identified three types of Goal 5 natural resources in the study area for assessment:

- Wetlands,
- Riparian/upland wildlife habitat, and
- Isolated upland wildlife habitat.

The quality of natural resources is important because the DLCDC Goal 5 guidelines only require an ESEE analysis to examine potential impacts of land uses on “Significant” natural resources. Natural resources that have been determined not to be locally “Significant” are excluded from the ESEE analyses and are not slated to receive protection under Hillsboro’s SNRO. However, they may be regulated under other codes and regulations.

Impact Areas

Negative impacts can happen where natural resources are removed for conflicting urban uses, such as utilities, housing, etc. Negative impacts can also occur when conflicting land uses occur near SNRs. DLCDC and Hillsboro call for mapping of these so-called “Impact Areas” as the geographic area within which conflicting land uses could negatively affect the Resources so that a buffer can be created. Hillsboro maps Impact Areas to create a buffer around all SNRs to help minimize conflicts with future land uses.

The City of Hillsboro Community Development Code specifies Impact Area widths that depend on the Resource type. Table 1 summarizes Impact Area widths in the Code as of this writing.

Table 1 City of Hillsboro Significant Natural Resource Impact Areas Widths

Source: City of Hillsboro Municipal Code. Chapter 12 Community Development Code. Subchapter 12.27 Overlay Zones. 12.27.210 Applicability, Exemptions, Boundary Interpretation and Modification. Available at http://qcode.us/codes/hillsboro/view.php?cite=_12.27.210&confidence=5.

Resource Type/Location	Impact Area Width	Impact Width Point of Measurement
Significant Wetlands Related to Streams With or Without Associated Upland Wildlife Habitat		From the edge of the delineated wetland boundary
Rock Creek Tributary 2	65 feet	
Glencoe Swale Tributary 1	120 feet	
Orenco Creek		
Rock Creek Tributary 3		
All Other Streams	75 feet	
Isolated Significant Wetlands	50 feet	

¹⁰ These documents include those footnoted throughout this report as well as: City of Hillsboro. 2004. *Witch Hazel Village Community Plan*. February.; Environmental Science and Assessment, LLC. 2021. *Witch Hazel Village South SNR Assessment*. Prepared for City of Hillsboro.

Significant Wildlife Habitat	25 feet	From the edge of the tree canopy for the protection of the root-zone
Riparian corridor and Associated Upland Wildlife Habitat	25 feet	

2.2 Identify Conflicting Uses

Conflicting uses are land uses that may negatively impact SNRs. DLCDC defines conflicting uses as follows:

“‘Conflicting use’ is a land use, or other activity reasonably and customarily subject to land use regulations, that could adversely affect a significant Goal 5 resource (except as provided in OAR 660-023-0180(1)(b)). Local governments are not required to regard agricultural practices as conflicting uses.”¹¹

“To identify these [conflicting] uses, local governments shall examine land uses allowed outright or conditionally within the zones applied to the [Goal 5] resource site and in its impact area.”¹²

The *Witch Hazel Village South Concept Plan* described the proposed plan for future development of the WHVS Study Area.¹³ The ESEE analysis compares the proposed future land uses as shown in the *Concept Plan* to the locations of the SNRs to identify the degree to which potential land uses conflict with SNRs within the study area.

2.3 Apply ESEE Priorities to Conflicting Land Uses

Hillsboro’s site-specific ESEE methodology draws from the general analysis completed in 2003 to define priorities for determining appropriate SNR Protection Levels when land uses conflict with the natural resource’s functions. These priorities provide the weights for the site-specific analyses for each SNR. For example, to the extent that a specific land use is important to achieving Hillsboro’s economic priorities, the site-specific ESEE analysis would reflect this land use–priority interaction.

The tables below replicate Hillsboro’s ESEE Priorities that relate to the conflicting land uses.¹⁴ Hillsboro describes each priority using letters, e.g., “A” for highest priority, “B” for mid-level, and “C” for lowest.

¹¹ State of Oregon. No date. *Oregon Administrative Rules. Department of Land Conservation and Development. Division 23. Procedures and Requirements for Complying with Goal 5.* 660-023-0010. http://arcweb.sos.state.or.us/pages/rules/oar_660/660_023.html.

¹² State of Oregon, 660-023-0040 *ESEE Decision Process*.

¹³ City of Hillsboro. 2018. *Witch Hazel Village South Concept Plan*. May.

¹⁴ City of Hillsboro, 2003.

2.3.1 Economic Priorities

Hillsboro ranks regional centers, industrial and employment areas, and intermodal transport facilities with the highest Economic Priority (see Table 2, below). Town and village centers, main streets, and station communities receive the next-highest priority. Residential development, transportation corridors, and future urban development lands have lower Economic priorities. Lands containing parks and open space have an Economic Priority of “Not Likely To Develop,” indicating Hillsboro’s program of not developing these areas for economic activities. Of the Economic Priority land uses listed in Table 2, the WHVS study area includes Neighborhoods as well as Parks and Open Space (highlighted in the table).

Table 2 City of Hillsboro Economic Priority Scoring

Source: City of Hillsboro, 2003.

Economic Priority	Description
A	Regional Centers
	Industrial and Employment Areas
	Intermodal Transport Facilities
B	Town Centers
	Village Centers
	Main Streets
	Station Communities
C	Inner Neighborhoods
	Outer Neighborhoods
	Corridors
	Future Urban Lands
Not Likely To Develop	Parks and Open Space

2.3.2 Social Priorities

Lands that support educational and recreational uses have the highest Social Priority. See Table 3 below.

Table 3 City of Hillsboro Social Priority Scoring

Source: City of Hillsboro, 2003.

Social Priority	Description
A	Sites that are actively used by schools or other for educational or recreational purposes on a regular basis, or those proposed for multi-use trails, warrant a greater degree of consideration for their social value than would otherwise be applied.
C	All other sites.

2.3.3 Environmental Priorities

Lands with a greater number of high-scoring natural resource functions have higher Environmental Priority ratings. See Table 4 below.

The WHVS study area includes SNRs having each of these Environmental Priorities.

Table 4 City of Hillsboro Environmental Priority Scoring

Source: City of Hillsboro, 2003.

Environmental Priority	Description
A	Highly valuable resource if: Wetlands rated “High” in 3 out of 4 ecological functions; and, All other resources rated “High” in 4 out of 5 ecological functions.
B	Very valuable resource if: Wetlands rated “high” in at least 2 ecological functions and rated “low” in not more than one function; and, All other resources rated “High” in at least 3 ecological functions and rated “Low” in not more than one ecological function.
C	Valuable resource if: All other Significant Goal 5 Natural Resources

2.3.4 Energy Priorities

Hillsboro’s Energy Priorities highlight the importance of sites that support transportation needs and locations for public utilities and facilities as identified and described in relevant planning documents. See Table 5 below.

Table 5 City of Hillsboro Energy Priority Scoring

Source: City of Hillsboro, 2018.

Energy Priority	Description
A	Sites with street connections, proposed public sewer or water services, and facilities shown in the WHVS Concept Plan warrant a greater degree of consideration for their energy value than would otherwise be applied.
C	All other sites.

2.4 Calculate Recommended SNR Protection Levels

2.4.1 City of Hillsboro’s General Analysis Recommendations

An ESEE analysis describes the Economic, Social, Environmental, and Energy consequences of allowing, limiting, or prohibiting conflicting uses within SNRs in the WHVS study area.¹⁵ For the purposes of this analysis, “Allow,” “Limit,” and “Prohibit” are defined as follows:

Allow Conflicting Uses: “Allowing” conflicting uses means that Hillsboro is not applying additional protections to SNRs; SNRs only receive protection through any other applicable local, State, and/or Federal requirements. This approach emphasizes *developing* lands containing SNRs.

Limit Conflicting Uses: “Limiting” conflicting uses strikes a balance between completely developing SNRs and completely protecting them. This approach involves developing lands in ways that minimize negative environmental and economic tradeoffs, supporting the

¹⁵ State of Oregon. No date. *Oregon Administrative Rules. Department of Land Conservation and Development. Division 23. Procedures and Requirements for Complying with Goal 5.* http://arcweb.sos.state.or.us/pages/rules/oar_660/660_023.html.

development goals embodied in local and regional land use plans, and protecting the most important SNRs.

Prohibit Conflicting Uses: “Prohibiting” conflicting uses would prevent development actions that conflict with or degrade SNRs. This approach emphasizes resource protection. Protection measures would exceed baseline protections provided by other local, State, and/or Federal requirements.

Allow, limit, or prohibit decisions apply *only* to locations where conflicting land uses overlap or occupy lands currently containing SNRs. These overlapping areas typically occupy portions of lands containing SNRs rather than the entirety of these lands. The actual areas of protection, permitted impacts, and mitigation will be determined at the time of land use permitting or review.

In Hillsboro’s general analysis, each of the ESEE factors are rated positive (+1), neutral (0), or negative (-1), for the “Allow,” “Limit,” and “Prohibit” scenarios for each potentially conflicting land use. See the Appendix to this report for the tables from Hillsboro’s 2003 ESEE report that show the results of the general ESEE analysis and Hillsboro’s recommendations for allowing, limiting, or prohibiting scenarios for each conflicting land use. The analysis concluded that adopting “Allow” or “Prohibit” scenarios would likely result in negative economic, social, environmental and energy consequences. The “Limit” scenario would provide Hillsboro with flexibility in planning to create positive ESEE outcomes. As a result, Hillsboro recommends the “Limit” scenario for all types of conflicting land uses, with some modifications for transportation and public utilities and facilities’ land uses. For information on the details of Hillsboro’s general analysis, see Hillsboro’s 2003 ESEE report.

Combining the general recommendation of “Limit” from the 2003 General ESEE Analysis (See the Appendix) with results from Hillsboro’s Economic, Social, Environmental, and Energy Priorities, from Table 2 through Table 5 above, yields the following results from applying or modifying Hillsboro’s general ESEE analysis.

Table 6 Site-Specific Application or Modification of Results from Hillsboro’s General ESEE Analysis
Source: City of Hillsboro, 2003.

Priority	Site-Specific Application or Modification of Results from Hillsboro’s General ESEE Analysis
Economic Priority	Within the “Limit” alternative, sites with an Economic Priority of “A” may warrant a lower protection level or mitigation. The general recommendation to “Limit” (without modification) may be appropriate for sites with an Economic Priority of “B”, “C”, or “Not Likely To Develop.”
Social Priority	Within the “Limit” alternative, sites with a Social Priority of “A” may warrant a greater level of protection or mitigation. The general recommendation to “Limit” (without modification) may be appropriate for sites with a Social Priority of “C.”
Environmental Priority	Within the “Limit” alternative, sites with an Environmental Priority of “A” may warrant a greater level of protection or mitigation.

	The general recommendation to “Limit” (without modification) may be appropriate for sites with an Environmental Priority of “B” or “C.”
Energy Priority	Within the “Limit” category, sites with an Energy Priority of “A” may warrant a lower level of protection or mitigation. The general recommendation to “Limit” (without modification) may be appropriate for sites with an Energy Priority of “C.”

2.4.2 Calculating Site-Specific Protection Levels for WHVS SNRs

Hillsboro’s 2003 ESEE report states that "Where an analysis of the ESEE priorities results in conflicting recommendations, the recommendations ‘cancel each other out’ and an ‘average’ of the recommendations is warranted."¹⁶

Table 7 illustrates how this concept translates to the three levels of protection envisioned in the program:

- Protection Level 1 = “Moderately Limit”
- Protection Level 2 = “Limit”
- Protection Level 3 = “Strictly Limit”

Where a balance occurs, the score “0” would result in the recommendations canceling each other out, and the average or baseline recommendation of "Limit" would be the outcome. Where there is a conflict (-1, -2, +1, or +2) the recommendation would differ from the baseline for a lesser or greater degree of protection.

Table 7 Examples of the ESEE Scheme to Calculate Protection Levels from a 2002 Angelo, Eaton & Associates Memo to Hillsboro

Lesser Protection Factors				Greater Protection Factors				Outcome	SNR Protection Level
Economic		Energy		Environmental		Social			
A = -1	B, C, N = 0	A = -1	C = 0	A = +1	B, C = 0	A = +1	C = 0		
X		X		X		X		0	2
X		X		X			X	-1	1
X		X			X	X		-1	1
X		X			X		X	-2	1
X			X	X		X		+1	3
X			X	X			X	0	2
X			X		X	X		0	2
X			X		X		X	-1	1
	X	X		X		X		+1	3
	X	X		X			X	0	2

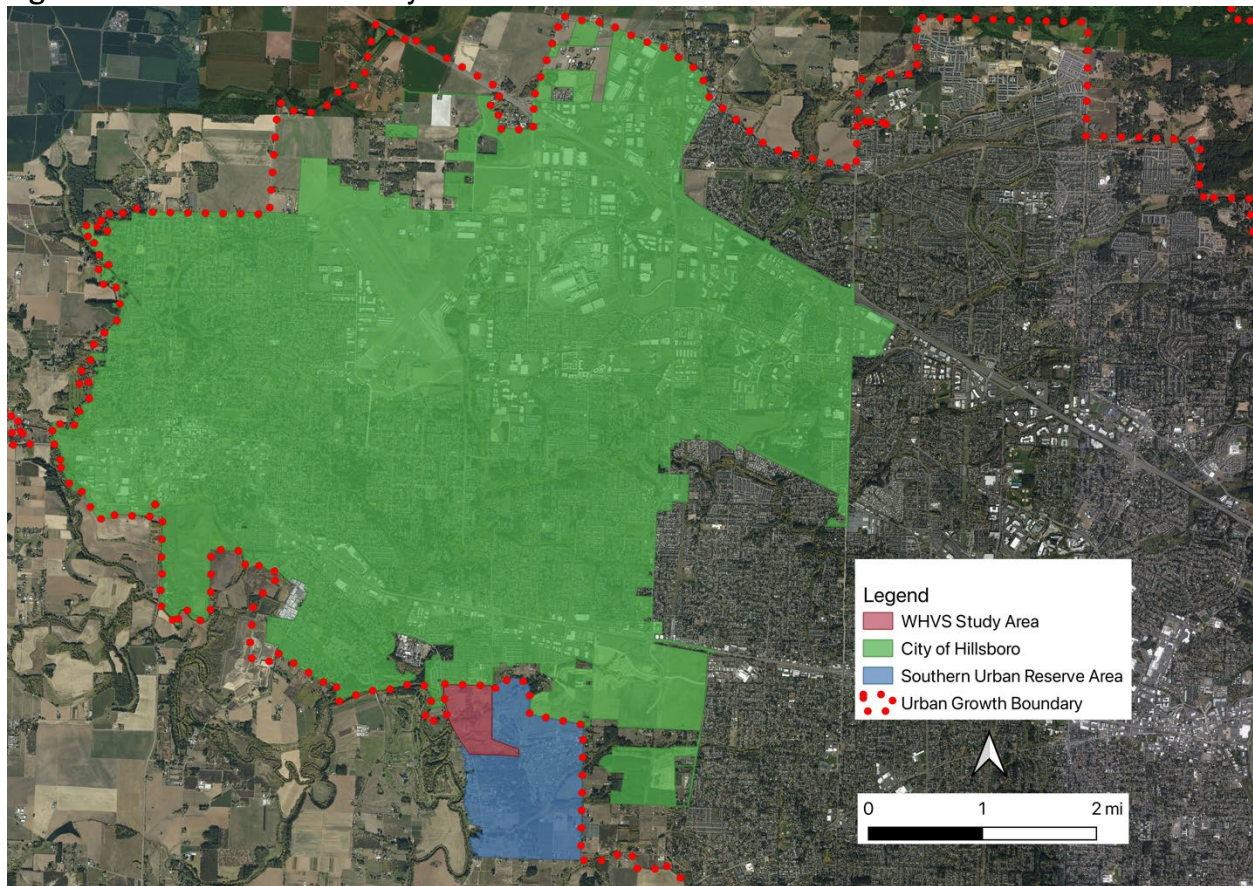
¹⁶ City of Hillsboro. 2003. *Economic, Social, Environmental and Energy (ESEE) Analyses of Significant Goal 5 Natural Resource Sites. Final Report.* May. Page 4–7.

3. Witch Hazel Village South Study Area

3.1 Description of the Study Area

The study area encompasses approximately 150 acres south of the current Hillsboro City limits.¹⁷ The area is bound by the Reserve Golf Club to the east, Southwest River Road (and the Tualatin River not far beyond that) to the west, Witch Hazel Village in the north, and the rest of the Southern Urban Reserve Area to the south.¹⁸ The larger 940-acre Southern Urban Reserve Area, an area deemed generally suited for urban development over the next 50 years, currently consists of farms and forests.¹⁹ See Figure 1 for location of the study area.

Figure 1 Location of WHVS Study Area in relation to Hillsboro and the Urban Reserve



The WHVS study area has a relatively flat topography, with elevations ranging from 170 feet in the north to 150 feet in the southwest.²⁰ Gordon Creek flows through the middle of the study area east to west. There are three unnamed tributaries to the Tualatin River in the southern

¹⁷ City of Hillsboro, 2018.

¹⁸ David Evans and Associates, 2021a.

¹⁹ City of Hillsboro, 2018.

²⁰ David Evans and Associates, 2021a.

portion of the study area.²¹ The study area currently comprises 16 tax lots that vary in size from 0.7 to 31.5 acres. There are 12 property owners across the 16 tax lots, with the largest property owner owning over 80 percent of the study area. The land is currently in unincorporated Washington County, zoned for Exclusive Farm Use (EFU), and used for farming, forestry, and small-scale livestock grazing.²²

Current plans envision residential development throughout the study area, mixed with parks, open spaces, and transportation networks that provide connectivity for vehicles, bicycles, and pedestrians.²³ The proposed use of the area for a combination of low- and medium-density housing stems from the deficit of single-family housing in Hillsboro for several income levels, as well as a goal of providing a variety of housing options.²⁴ The creation of transportation networks, parks, and open spaces aligns with Title 11 of the Metro's Urban Growth Management Functional Plan that envisions new development of regions in the Urban Growth Boundary to be "mixed-use, walkable, transit-friendly communities."²⁵

3.2 Inventory of SNRs in the Study Area

DEA inventoried and assessed wetlands and forests for inclusion in Hillsboro's local SNR program and a Local Wetlands Inventory for DSL.²⁶ For SNR determination purposes, Locally Significant resources are those that meet size criteria and have at least one ecological function rated as "high."

The WHVS Study Area contains 10.65 acres of wetlands and probable wetlands (see Table 8) in eight wetland units. Because of the way "probable wetlands" are defined, it is not possible for them to be Locally Significant, so the probable wetland was not included in the ESEE analysis. The remaining seven wetlands follow Gordon Creek (which flows westward through the middle of the study area) or other tributaries to the Tualatin River (which flows southward at the southwest corner of the study area).

All confirmed wetlands except assessment unit GN2-W2 met the Locally Significant wetland criteria. Most of these wetlands have relatively intact forest and scrub-shrub vegetation dominated by native plant species. However, wetlands GN1-W2 and GN2-W2 are substantially degraded, with GN1-W2 having minimal shrub or tree structure and being dominated by reed canarygrass, and GN2-W2 lying next to and within a cow pasture in a previously cleared ruderal site dominated by non-native Kentucky bluegrass.

²¹ Ibid.

²² City of Hillsboro, 2018.

²³ Ibid.

²⁴ Ibid.

²⁵ Oregon Metro. 2018. Urban Growth Management Functional Plan. April.

²⁶ David Evans and Associates, 2021a; David Evans and Associates, 2021b.

Table 8 OFWAM Functional Assessment Results and Local Significance Determinations for Confirmed Wetland Natural Resource Units

Source: David Evans and Associates, 2021a. Table 4, Page 10.

Wetland Assessment Unit	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Meets Significance Criteria?
Gordon Creek Wetlands					
GN1-W1	Diverse (High)	Intact (High)	Degraded (Medium)	Intact (High)	Yes
GN1-W2	Some habitat (Medium)	Intact (High)	Degraded (Medium)	Degraded (Medium)	Yes
GN2-W1	Diverse (High)	Intact (High)	Degraded (Medium)	Degraded (Medium)	Yes
GN2-W2	Some habitat (Medium)	N/A	Not present (Low)	Not present (Low)	No
Tualatin River Unnamed Tributary Wetlands					
TR10-W1	Diverse (High)	N/A	Degraded (Medium)	Degraded (Medium)	Yes
TR10-W2	Diverse (High)	N/A	Degraded (Medium)	Degraded (Medium)	Yes
TR10-W3	Diverse (High)	Intact (High)	Degraded (Medium)	Degraded (Medium)	Yes

Note: ECONorthwest also includes SWCA's metric for ranking the quality of each ecological function into "High", "Medium", and "Low"²⁷

The study area also contains eight forest units (see Table 9). Seven forest units totaling 17.10 acres met the "Locally Significant" criteria. All seven Locally Significant forest SNRs are connected with streams and wetlands in the study area; isolated forests are not Locally Significant. The majority of these forest SNRs are in the Gordon Creek subbasin.

Table 9 Functional Assessment Results and Local Significance Determinations for Riparian/Upland and Isolated Upland Wildlife Habitat Resource Units

Source: David Evans and Associates, 2021b. Table 3, Page 9.

Forest Assessment Unit	Acres	Wildlife Habitat	WQ Protection	Ecological Integrity	Connectivity	Uniqueness	Meets Significance Criteria?
GN1-R/U1	2.92	High	High	High	High	High	Yes
GN1-R/U2	1.58	High	Medium	Medium	High	Medium	Yes
GN2-R/U1	6.26	High	High	High	Medium	High	Yes

²⁷ SWCA Environmental Consultants. 2017. *Jackson East Natural Resource Inventory Report*. Prepared for City of Hillsboro. SWCA Project No. 33026. March 23.

Forest Assessment Unit	Acres	Wildlife Habitat	WQ Protection	Ecological Integrity	Connectivity	Uniqueness	Meets Significance Criteria?
GN2-R/U2	1.84	Medium	Medium	Low	Low	High	Yes
TR10-R/U1	1.17	High	High	High	Medium	High	Yes
TR10-R/02U2	2.33	High	High	High	Medium	High	Yes
TR10-R/U3	1.00	High	High	High	Medium	High	Yes
GN1-UF01	1.27	Medium	Medium	Medium	Medium	Medium	No

Goal 5 Natural Resources analyzed in this ESEE study are only those units of natural resources that DEA identified as “Locally Significant” using the adopted City of Hillsboro Goal 5 SNR scoring system. Units of natural resources that the DEA assessment deemed not “Locally Significant” are excluded from this ESEE analysis.

3.3 Conflicting Uses in Witch Hazel Village South Study Area

Hillsboro has not yet decided the exact locations of all potentially conflicting land uses in the study area. This subsection first describes conflicting residential land uses whose future locations are determined. Then it describes conflicting uses like transportation, public utilities, and parks and trails, for which Hillsboro is still refining specific locations.

3.3.1 Residential Land Uses

The primary proposed future land use in the study area is residential. Developing the area for residential use would address the deficit of housing needs for a variety of income brackets in Hillsboro. Hillsboro plans to develop approximately 39 acres into medium-density housing in the western portion of the study area. This residential use would accommodate a variety of housing from single-family attached homes to “missing middle” housing types like townhomes. It will consist of approximately 614 units with 15.6 units per acre. On the remaining eastern portion of the study area, Hillsboro plans to develop 33 acres of low-density residential housing with 231 units of detached single-family units. This low-density housing would provide a transition from the medium-density housing in the west to the open space in the Reserve Golf Course East of the study area. This land use is planned to accommodate 7 units per acre, resulting in a housing density of 11.7 units per acre in the entire study area.

Table 10 Proposed Mix of Residential Land Uses in WHVS Study Area

Source: City of Hillsboro, 2018.

Land Use	Gross Acres	Net Acres*	Average Dwelling Units per Net?? Acre	Total Units
Low-Density Residential	47.1	33	7	231

Medium-Density Residential	67.5	39.3	15.6	614
Total	114.6	72.2	11.7	845

* Net developable area is calculated by reducing gross acreage by resource areas, estimated infrastructure areas, and parks.

3.3.2 Transportation & Public Utilities

Transportation routes planned for the study area would provide connectivity between the study area and South Hillsboro. The locations of proposed routes will be further refined with future planning efforts.

The conceptual transportation routes within the study area are:

1. **Expanded River Road (Proposed):** The proposed expansion of River Road to become a three-lane arterial road with a 90-foot Right-Of-Way (ROW) that runs along the western boundary of the study area with additional future improvements like bike lanes and sidewalks.
2. **Brookwood Avenue Extension (Proposed):** A three-lane collector with a 75-foot ROW acting as an extension of Brookwood Avenue, a proposed arterial road. The Extension is planned to extend southwest from Witch Hazel Village to connect to River Road, crossing the study area. It may run along the eastern boundary and cross the study area south of the unnamed tributaries to the Tualatin River (Alternative 1) or it may run North-South crossing the eastern portion of Gordon Creek and then crossing East-West just north of the unnamed tributaries to the Tualatin River (Alternative 2).
3. **Hazeltine South Avenue (Proposed):** Proposed as a three-lane collector with a 75-foot ROW that would extend from Brookwood Avenue Extension towards the southern boundary of the study area. The route would run North-South to the east of the unnamed tributaries to the Tualatin River. The location of the route is slightly different under both alternatives.
4. **Pheasant Street (Proposed):** A two-lane neighborhood route with a 72-foot ROW connecting River Road in the West with Brookwood Avenue Extension in the East, north of Gordon Creek. The location of the route would be similar under both alternatives.
5. **Chickadee Street (Potential):** A two-lane neighborhood route with a 72-foot ROW connecting River Road in the West with Brookwood Avenue Extension in the East, south of Gordon Creek. The location of the route would only occur under one alternative (Alternative 1).

Public utilities like water mains, sanitary sewer, and stormwater drainage connections would be built within ROWs of the existing and proposed transportation routes in the study area. As a result, recommendations for protection levels on lands with proposed transportation routes would also capture tradeoffs associated with placement of future underground public utility connections.

3.3.3 Parks and Trails

Hillsboro proposes two trails to serve the future residents of WHVS. According to the Hillsboro Parks and Trails Master Plan, the Crescent Park Greenway Regional Trail will be built along the western boundary of the study area on the eastern side of the existing River Road. The trail will be design for hiking and walking with a 30-foot cross-section and a 12--foot concrete trail. Hillsboro has also proposed the Gordon Creek Community Trail that would be a multi-use greenway trail similar to the Crescent Park Greenway Regional Trail and would run alongside the northern and southern sections of Gordon Creek.

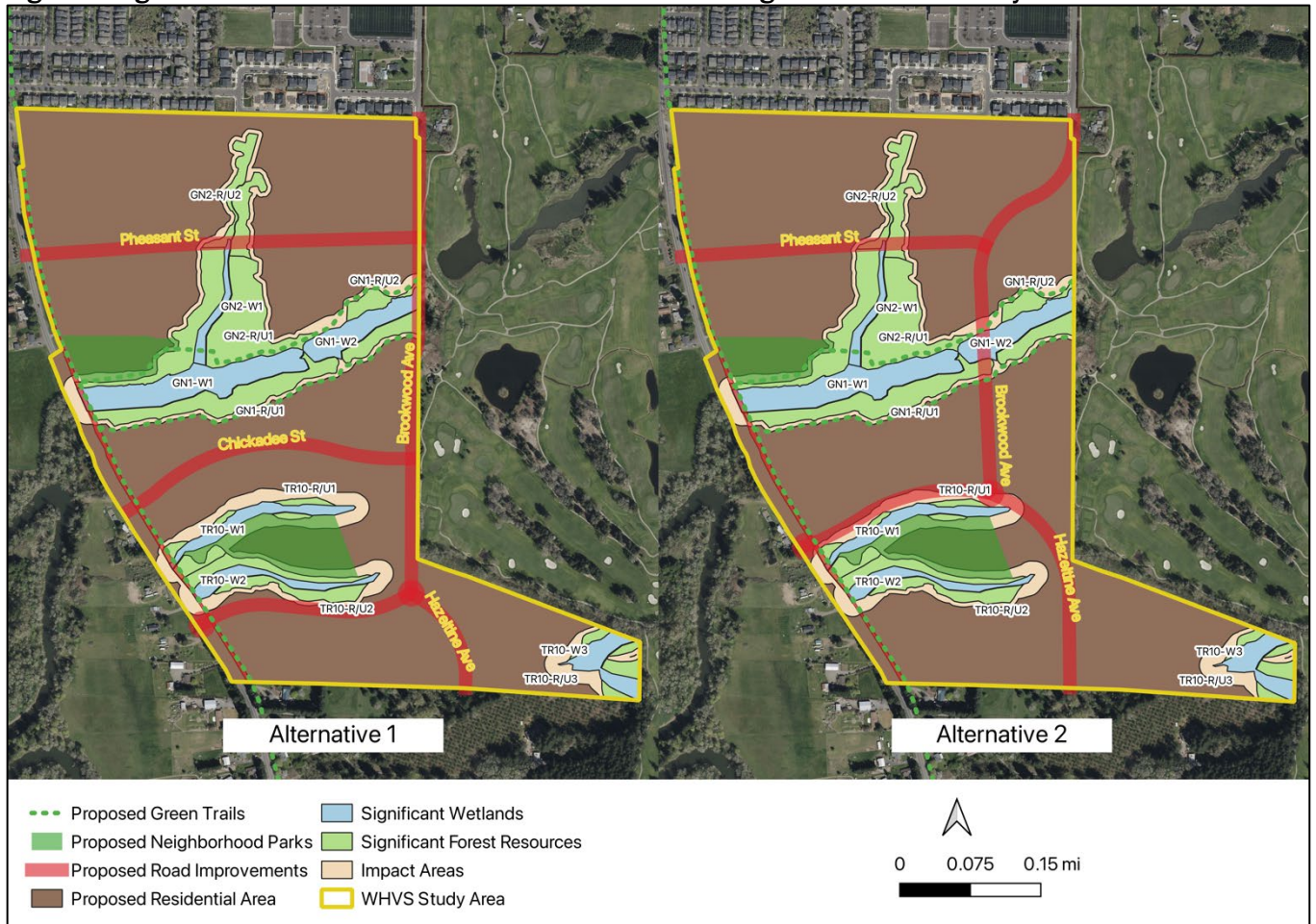
In addition to trails, Hillsboro has planned two neighborhood parks in the study area to align with the Hillsboro Parks and Recreation Department's service goal of providing a neighborhood park within a half-mile of all residents.²⁸ Together, the parks will total approximately 12 acres. The first park would be located north of Gordon Creek along the western edge of the study area; it would connect to the Gordon Creek Community Trail and have active recreation amenities such as playgrounds, bike racks, and game courts. The second park is planned to be south of Brookwood Avenue Extension between the two streams in the Tualatin River tributary subbasin with more passive recreational amenities such as picnic tables and open lawn areas.

²⁸ MIG, Inc. 2010. City of Hillsboro Parks & Trails Master Plan and Natural Resource Analysis. Prepared for the City of Hillsboro. Available at: https://issuu.com/hillsboro/docs/hillsboro_adopted_plan_021910_with_covers.

4. Witch Hazel Village South ESEE Analysis

This section details the results of the ESEE analysis, which weighs the proposed conflicting uses against the characteristics of the SNRs and their Impact Areas. The previous section describes the SNRs and proposed conflicting uses. Figure 2 shows the location of these features, with Alternative 1 and Alternative 2 depicting the proposed options for transportation alignments (the alternatives are otherwise the same).

Figure 2 Significant Natural Resources and Potential Conflicting Uses in WHVS Study Area



The following sections address conflicting uses within the wetland SNRs by unit (shown in blue in Figure 2), then conflicting uses within the forest SNRs by unit (shown in light green in Figure 2).

4.1 Locally Significant Wetlands

4.1.1 Wetland GN1-W1

Description

Wetland Unit GN1-W1 is located in the middle of the study area, adjoining the western boundary of the study area. The unit and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development
- Transportation & Public Utilities – River Road
- Parks and Open Spaces – Crescent Park Greenway Regional Trail, Gordon Creek Community Trail, Neighborhood Park

Site-Specific Economic Factors and Consequences

The land containing the wetland and its Impact Area has Economic Priority “C” due to the planned development of the land for open spaces and medium-density residential use.

Site-Specific Social Factors and Consequences

Currently, Crescent Park Greenway Regional Trail and Gordon Creek Community Trail are planned to intersect with the wetland and its Impact Area. A proposed neighborhood park is also planned to intersect with the Impact Area. The land where the trails and parks would be located has Social Priority “A” while the remaining land has Social Priority “C”.

Site-Specific Environmental Factors and Consequences

Given that the wetland ranked high for at least three ecological functions (see Table 8), the land containing the wetland has Environmental Priority “A.”

Site-Specific Energy Factors and Consequences

The future expansion of River Road and its ROW that would contain the proposed water main and sanitary sewer trunk line connections is planned to intersect with the wetland and its Impact Area. As a result, the land intersecting with the future expansion of River Road and its ROW has Energy Priority “A” while the remaining land has Energy Priority “C”.

Site-Specific ESEE Summary for Wetland GN1-W1

The land containing the wetland and its Impact Area received a ranking of “C” for Economic Priority while the land containing the wetland received a ranking of “A” for Environmental Priority. The land where the trails and park would be located has Social Priority “A” while the land where the road would be located has Energy Priority “A”. The remaining land has a ranking of “C” for both Social and Energy Priority. As a result, the analysis recommends protection level of “Limit” to “Strictly Limit” for the land depending on the type of conflicting use planned in the future.

Table 11 ESEE Results for Wetland GN1-W1

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
GN1-W1	C (0)	A (+1)	A (+1)	A (-1)	Strictly Limit (+1)	Land where trails/parks and roads are located
	C (0)	C (0)	A (+1)	A (-1)	Limit (0)	Land where only roads are located
	C (0)	A (+1)	A (+1)	C (0)	Strictly Limit (+2)	Land where only trails/parks are located
	C (0)	C (0)	A (+1)	C (0)	Strictly Limit (+1)	Remaining land containing wetland, open space, and residential use

4.1.2 Wetland GN1-W2

Description

Wetland GN1-W2 is located in the middle of the study area, adjoining the eastern boundary of the study area. The wetland and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development
- Transportation & Public Utilities – Brookwood Avenue Extension (Alternatives 1 and 2)
- Parks and Open Spaces – Gordon Creek Community Trail

Site-Specific Economic Factors and Consequences

The land containing the wetland and its Impact Area has Economic Priority “C” due to the planned development of the land for open spaces and low-density residential use.

Site-Specific Social Factors and Consequences

Currently, Gordon Creek Community Trail is planned to intersect with the wetland and its Impact Area. The land where the trail would be located has Social Priority “A” while the remaining land has Social Priority “C”.

Site-Specific Environmental Factors and Consequences

Given that the wetland is ranked high for only one ecological function (see Table 8), the land containing the wetland has Environmental Priority “C.”

Site-Specific Energy Factors and Consequences

The proposed Brookwood Avenue Extension and its ROW that would house the proposed water main connections is planned to intersect with the wetland and its Impact Area under both alternatives. The land where the road would be located has Energy Priority “A” while the remaining land has an Energy Priority “C”.

Site-Specific ESEE Summary for Wetland GN1-W2

The land containing the wetland and its Impact Area received a ranking of “C” for both Economic and Environmental Priority. The land where the trail would be located has Social Priority “A” while the land where the road would be located has Energy Priority “A”. The remaining land has a ranking of “C” for both Social and Energy Priority. As a result, the analysis recommends protection level of “Moderately Limit” to “Strictly Limit” for the land depending on the type of conflicting use planned in the future.

Table 12 ESEE Results for Wetland GN1-W2

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
GN1-W2	C (0)	A (+1)	C (0)	A (-1)	Limit (0)	Land where both trails and roads are located
	C (0)	C (0)	C (0)	A (-1)	Moderately Limit (-1)	Land where only roads are located
	C (0)	A (+1)	C (0)	C (0)	Strictly Limit (+1)	Land where only trails are located
	C (0)	C (0)	C (0)	C (0)	Limit (0)	Remaining land containing wetland, open space, and residential use

4.1.3. Wetland GN2-W1

Description

Wetland Unit GN2-W1 is located north of Gordon Creek. The unit and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development
- Transportation & Public Utilities – Pheasant Street
- Parks and Open Spaces – Gordon Creek Community Trail, Neighborhood Park

Site-Specific Economic Factors and Consequences

The land containing the wetland and its Impact Area has Economic Priority “C” due to the planned development of the land for open spaces and residential use.

Site-Specific Social Factors and Consequences

Currently, Gordon Creek Community Trail is planned to intersect with the wetland while a proposed neighborhood park is planned to intersect with the Impact Area. The land where the trail and park would be located has Social Priority “A” while the remaining land has Social Priority “C”.

Site-Specific Environmental Factors and Consequences

Given that the wetland is ranked high for two ecological functions and low for none (see Table 8), the land containing the wetland has Environmental Priority “B.”

Site-Specific Energy Factors and Consequences

The proposed Pheasant Street and its ROW that would house the proposed water main connections is planned to intersect with the wetland and its Impact Area. The land where the road would be located has Energy Priority “A” while the remaining land has Energy Priority “C”.

Site-Specific ESEE Summary for Wetland GN2-W1

The land containing the wetland and its Impact Area has Economic Priority “C” and the wetland has Environmental Priority “B”. The land where the trail and park would be located has Social Priority “A” while the land where the road would be located has Energy Priority “A”. The remaining land has a ranking of “C” for both Social and Energy Priority. As a result, the analysis recommends protection level of “Moderately Limit” to “Strictly Limit” for the land depending on the type of conflicting use planned in the future .

Table 13 ESEE Results for Wetland GN2-W1

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
GN2-W1	C (0)	A (+1)	B (0)	A (-1)	Limit (0)	Land where trails/parks and roads are located
	C (0)	C (0)	B (0)	A (-1)	Moderately Limit (-1)	Land where only roads are located
	C (0)	A (+1)	B (0)	C (0)	Strictly Limit (+1)	Land where only trails/parks are located
	C (0)	C (0)	B (0)	C (0)	Limit (0)	Remaining land containing wetland, open space, and residential use

4.1.4 Wetland TR10-W1

Description

Wetland Unit TR10-W1 is located south of Gordon Creek, adjoining the eastern boundary of the WHVS study area. The unit and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development
- Transportation & Public Utilities – River Road, Brookwood Avenue Extension (Alternative 2), and South Hazeltine Avenue (Alternative 2)
- Parks and Open Spaces – Crescent Park Greenway Regional Trail, Neighborhood Park

Site-Specific Economic Factors and Consequences

The land containing the wetland and its Impact Area has Economic Priority “C” due to the planned development of the land for open spaces and medium-density residential use.

Site-Specific Social Factors and Consequences

Currently, Crescent Park Greenway Regional Trail is planned to intersect with the wetland while a proposed neighborhood park is expected to intersect with the Impact Area. The land where the trail and park would be located has Social Priority “A” while the remaining land has Social Priority “C”.

Site-Specific Environmental Factors and Consequences

Given that the wetland is ranked high for only one ecological function (see Table 8), the land containing the wetland has Environmental Priority “C.”

Site-Specific Energy Factors and Consequences

The future expansion of River Road and its ROW that would contain the proposed water main and sanitary sewer trunk line connections would intersect with the wetland and its Impact Area. Brookwood Avenue Extension and South Hazeltine Avenue would potentially intersect with the wetland and its Impact Area under Alternative 2 (Figure 2). As a result, the land intersecting with the roads and their ROW has Energy Priority “A” while the remaining land has Energy Priority “C”.

Site-Specific ESEE Summary for Wetland TR10-W1

The land containing the wetland and its Impact Area received a ranking of “C” for Economic and Environmental Priority. The land where the trail and park would be located has Social Priority “A” while the land where the roads would be located has Energy Priority “A”. The remaining land has a ranking of “C” for both Social and Energy Priority. As a result, the analysis recommends protection level of “Moderately Limit” to “Strictly Limit” depending on the type of conflicting use planned in the future.

Table 14 ESEE Results for Wetland TR10-W1

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
TR10-W1	C (0)	A (+1)	C (0)	A (-1)	Limit (0)	Land where both trails/parks and roads are located
	C (0)	C (0)	C (0)	A (-1)	Moderately Limit (-1)	Land where only roads are located
	C (0)	A (+1)	C (0)	C (0)	Strictly Limit (+1)	Land where only trails/parks are located
	C (0)	C (0)	C (0)	C (0)	Limit (0)	Remaining land containing wetland, open space, and residential use

4.1.5 Wetland TR10-W2

Description

Wetland Unit TR10-W2 is located south of Gordon Creek, adjoining the eastern boundary of the WHVS study area. The unit and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development
- Transportation & Public Utilities – River Road, South Hazeltine Avenue, and Brookwood Avenue Extension (Alternative 1)
- Parks and Open Spaces – Crescent Park Greenway Regional Trail, Neighborhood Park

Site-Specific Economic Factors and Consequences

The land containing the wetland and its Impact Area has Economic Priority “C” due to the planned development of the land for open spaces and medium-density residential use.

Site-Specific Social Factors and Consequences

Currently, Crescent Park Greenway Regional Trail and a proposed neighborhood park are planned to intersect with the wetland and its Impact Area. The land where the trail and park would be located has Social Priority “A” while the remaining land has Social Priority “C”.

Site-Specific Environmental Factors and Consequences

Given that the wetland is ranked high for only one ecological function (see Table 8), the land containing the wetland has Environmental Priority “C.”

Site-Specific Energy Factors and Consequences

Proposed locations for South Hazeltine Avenue do not intersect with either the wetland or its Impact Area. The future expansion of River Road and its ROW that would contain the proposed water main and sanitary sewer trunk line connections would intersect with the wetland and its Impact Area. Brookwood Avenue Extension would potentially intersect with the wetland and its Impact Area under Alternative 1. As a result, the land intersecting with the future expansion of River Road and its ROW or Brookwood Avenue Extension has Energy Priority “A” while the remaining land has Energy Priority “C”.

Site-Specific ESEE Summary for Wetland TR10-W2

The land containing the wetland and its Impact Area received a ranking of “C” for Economic and Environmental Priority. The land where the trail and park would be located has Social Priority “A” while the land where the roads would be located has Energy Priority “A”. The remaining land has a ranking of “C” for both Social and Energy Priority. As a result, the analysis recommends protection level of “Moderately Limit” to “Strictly Limit” depending on the future location of the trail.

Table 15 ESEE Results for Wetland TR10-W2

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
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TR10-W2	C (0)	A (+1)	C (0)	A (-1)	Limit (0)	Land where both trails/parks and roads are located
	C (0)	C (0)	C (0)	A (-1)	Moderately Limit (-1)	Land where only roads are located
	C (0)	A (+1)	C (0)	C (0)	Strictly Limit (+1)	Land where only trails/parks are located
	C (0)	C (0)	C (0)	C (0)	Limit (0)	Remaining land containing wetland, open space, and residential use

4.2.5 Wetland TR10-W3

Description

Wetland Unit TR10-W3 is located south of Gordon Creek, adjoining the western boundary of the WHVS study area. The unit and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development

Site-Specific Economic Factors and Consequences

The land containing the wetland and its Impact Area has Economic Priority “C” due to the planned development of the land for low-density residential use.

Site-Specific Social Factors and Consequences

There are no planned parks or trails that intersect with the land containing the wetland or its Impact Area resulting in Social Priority “C.”

Site-Specific Environmental Factors and Consequences

Given that the wetland is ranked high for two ecological functions and low for none (see Table 8), the land containing the wetland has Environmental Priority “B.”

Site-Specific Energy Factors and Consequences

There are no planned transportation routes that intersect with the land containing the wetland or its Impact Area resulting in Energy Priority “C”.

Site-Specific ESEE Summary for Wetland TR10-W3

The land containing the wetland and its Impact Area received a ranking of “C” for Economic, Social, and Energy Priority, while the land containing the wetland received a ranking of “B” for Environmental Priority. As a result, the analysis recommends protection level of “Limit” for the land.

Table 16 ESEE Results for Wetland TR10-W3

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
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TR10-W3	C (0)	C (0)	B (0)	C (0)	Limit (0)	Land containing wetland and residential use
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4.2 Locally Significant Forest Resources

4.2.1 Forest Resources GN1-R/U1

Description

Forest Resource Unit GN1-R/U1 is located in the middle, adjoining the western boundary of the WHVS study area. The unit and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development
- Transportation & Public Utilities – River Road and Brookwood Avenue Extension (Alternative 2)
- Parks and Open Spaces – Crescent Park Greenway Regional Trail and Gordon Creek Community Trail

Site-Specific Economic Factors and Consequences

The land containing the forest resource and its Impact Area has Economic Priority “C” due to the planned development of the land for open spaces and medium-density residential use.

Site-Specific Social Factors and Consequences

Currently, Crescent Park Greenway Regional Trail and Gordon Creek Community Trail are planned to intersect with the forest resource and its Impact Area. The land where the trails would be located has Social Priority “A” while the remaining land has Social Priority “C”.

Site-Specific Environmental Factors and Consequences

Given that the forest resource ranked high for at least four ecological functions (see Table 9), the land containing the forest resource has Environmental Priority “A.”

Site-Specific Energy Factors and Consequences

The future expansion of River Road and its ROW that would contain the proposed water main and sanitary sewer trunk line connections would intersect with the forest resource and its Impact Area on the west. Brookwood Avenue extension is planned to intersect with the forest resource and its Impact Area on the east under Alternative 2. As a result, the land intersecting with road and its ROW has Energy Priority “A” while the remaining land has Energy Priority “C”.

Site-Specific ESEE Summary for Forest Resource GN1-R/U1

The land containing the forest resource and its Impact Area received a ranking of “C” for Economic Priority while the land containing the forest resource received a ranking of “A” for Environmental Priority. The land where the trail would be located has Social Priority “A” while

the land where the roads would be located has Energy Priority “A”. The remaining land has a ranking of “C” for both Social and Energy Priority. As a result, the analysis recommends protection level of “Limit” to “Strictly Limit” for the land depending on the type of conflicting use planned in the future.

Table 17 ESEE Results for Forest Resource GN1-R/U1

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
GN1-R/U1	C (0)	A (+1)	A (+1)	A (-1)	Strictly Limit (+1)	Land where both trails and roads are located
	C (0)	C (0)	A (+1)	A (-1)	Limit (0)	Land where only roads are located
	C (0)	A (+1)	A (+1)	C (0)	Strictly Limit (+2)	Land where only trails are located
	C (0)	C (0)	A (+1)	C (0)	Strictly Limit (+1)	Remaining land containing forest, open space, and residential use

4.2.6 Forest Resource GN1-R/U2

Description

Forest Resource Unit GN1-R/U2 is located in the middle of the study, running along either side of the Gordon Creek and adjoining the eastern boundary of the area. The unit and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development
- Transportation & Public Utilities – Brookwood Avenue Extension (Alternatives 1 and 2)
- Parks and Open Spaces – Gordon Creek Community Trail

Site-Specific Economic Factors and Consequences

The land containing the forest resource and its Impact Area has Economic Priority “C” due to the planned development of the land for open spaces and low-density residential use.

Site-Specific Social Factors and Consequences

Currently, Gordon Creek Community Trail is planned to intersect with the Impact Area. The land where the trail would be located has Social Priority “A” while the remaining land has Social Priority “C”.

Site-Specific Environmental Factors and Consequences

Given that the forest resource ranked high for less than three ecological functions (see Table 9), the land containing the forest resource has Environmental Priority “C”.

Site-Specific Energy Factors and Consequences

The proposed Brookwood Avenue Extension and its ROW that would house the proposed water main connections is planned to intersect with the forest resource under Alternative 1 and its Impact Area under Alternative 2. The land where the road would be located has Energy Priority “A” while the remaining land has an Energy Priority “C”.

Site-Specific ESEE Summary for Forest Resource GN1-R/U2

The land containing the forest resource and its Impact Area received a ranking of “C” for both Economic and Environmental Priority. The land where the trail would be located has Social Priority “A” while the land where the road would be located has Energy Priority “A”. The remaining land has a ranking of “C” for both Social and Energy Priority. As a result, the analysis recommends protection level of “Moderately Limit” to “Strictly Limit” for the land depending on the type of conflicting use planned in the future.

Table 18 ESEE Results for Forest Resource GN1-R/U2

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
GN1-R/U2	C (0)	A (+1)	C (0)	A (-1)	Limit (0)	Land where both trails and roads are located
	C (0)	C (0)	C (0)	A (-1)	Moderately Limit (-1)	Land where only roads are located
	C (0)	A (+1)	C (0)	C (0)	Strictly Limit (+1)	Land where only trails are located
	C (0)	C (0)	C (0)	C (0)	Limit (0)	Remaining land containing forest, open space, and residential use

4.2.7 Forest Resource GN2-R/U1

Description

Forest Resource Unit GN2-R/U1 is located in the middle of the study area, north of Gordon Creek and adjoining the western boundary of the study area. The unit and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development
- Transportation & Public Utilities – River Road and Pheasant Street
- Parks and Open Spaces – Crescent Park Greenway Regional Trail, Gordon Creek Community Trail, Neighborhood Park

Site-Specific Economic Factors and Consequences

The land containing the forest resource and its Impact Area has Economic Priority “C” due to the planned development of the land for open spaces and medium-density residential use.

Site-Specific Social Factors and Consequences

Currently, Crescent Park Greenway Regional Trail, Gordon Creek Community Trail, and a proposed neighborhood park are planned to intersect with the forest resource and its Impact Area. The land where the trail and park would be located has Social Priority “A” while the remaining land has Social Priority “C”.

Site-Specific Environmental Factors and Consequences

Given that the forest resource ranked high for at least four ecological functions (see Table 9), the land containing the forest resource has Environmental Priority “A.”

Site-Specific Energy Factors and Consequences

The future expansion of River Road and its ROW that would house the proposed water main and sanitary sewer trunk line connections are planned to intersect with the forest resource and its Impact Area in the west. Pheasant Street and its ROW are planned to intersect with the forest resource and its Impact Area in the north. The land where the road and its ROW would be located has Energy Priority “A” while the remaining land has Energy Priority “C”.

Site-Specific ESEE Summary for Forest Resource GN2-R/U1

The land containing the forest resource and its Impact Area received a ranking of “C” for Economic Priority and the land containing the forest resource received a ranking of “A” for Environmental Priority. The land where the trail and park would be located has Social Priority “A” while the land where the road would be located has Energy Priority “A”. The remaining land has a ranking of “C” for both Social and Energy Priority. As a result, the analysis recommends protection level of “Limit” to “Strictly Limit” for the land depending on the type of conflicting use planned in the future.

Table 19 ESEE Results for Forest Resource GN2-R/U1

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
GN2-R/U1	C (0)	A (+1)	A (+1)	A (-1)	Strictly Limit (+1)	Land where both trails/parks and roads are located
	C (0)	C (0)	A (+1)	A (-1)	Limit (0)	Land where only roads are located
	C (0)	A (+1)	A (+1)	C (0)	Strictly Limit (+2)	Land where only trails/parks are located
	C (0)	C (0)	A (+1)	C (0)	Strictly Limit (+1)	Remaining land containing forest, open space, and residential use

4.2.8 Forest Resource GN2-R/U2

Description

Forest Resource Unit GN2-R/U2 is located in north of Gordon Creek in the middle of the study area. The unit and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development
- Transportation & Public Utilities – Pheasant Street

Site-Specific Economic Factors and Consequences

The land containing the forest resource and its Impact Area has Economic Priority “C” due to the planned development of the land for residential use.

Site-Specific Social Factors and Consequences

There are no planned parks or trails that intersect with the forest resource or its Impact Area resulting in a Social Priority Grade “C.”

Site-Specific Environmental Factors and Consequences

Given that the forest resource is ranked high for only one ecological function (see Table 9), the land containing the forest resource has an Environmental Priority “C.”

Site-Specific Energy Factors and Consequences

The proposed Pheasant Street and its ROW that would house the proposed water main connections is planned to intersect with the forest resource and its Impact Area. The land where the road and its ROW would be located has Energy Priority “A” while the remaining land has Energy Priority “C”.

Site-Specific ESEE Summary for Forest Resource GN2-R/U2

The land containing the forest resource and its Impact Area received a ranking of “C” for Economic, Social, and Environmental Priority. The land where the road would be located has Energy Priority “A” while the remaining land has Energy Priority “C”. As a result, the analysis recommends protection level of “Moderately Limit” to “Limit” depending on the type of conflicting use planned in the future.

Table 20 ESEE Results for Forest Resource GN2-R/U2

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
GN2-R/U2	C (0)	C (0)	C (0)	A (-1)	Moderately Limit (-1)	Land where roads are located
	C (0)	C (0)	C (0)	C (0)	Limit (0)	Remaining land containing forest and residential use

4.2.9 Forest Resource TR10-R/U1

Description

Forest Resource Unit TR10-R/U1 is located south of Gordon Creek, adjoining the eastern boundary of the WHVS study area. The unit and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development
- Transportation & Public Utilities – River Road, Brookwood Avenue Extension (Alternative 2) and South Hazeltine Avenue (Alternative 2)
- Parks and Open Spaces – Crescent Park Greenway Regional Trail, Neighborhood Park

Site-Specific Economic Factors and Consequences

The land containing the forest resource and its Impact Area has Economic Priority “C” due to the planned development of the land for open spaces and medium-density residential use.

Site-Specific Social Factors and Consequences

Currently, Crescent Park Greenway Regional Trail and a proposed neighborhood park are planned to intersect with the forest resource and its Impact Area. The land where the trail and park would be located has Social Priority “A” while the remaining land has Social Priority “C”.

Site-Specific Environmental Factors and Consequences

Given that the forest resource ranked high for at least four ecological functions (see Table 9), the land containing the forest resource has Environmental Priority “A.”

Site-Specific Energy Factors and Consequences

The future expansion of River Road and its ROW that would contain the proposed water main and sanitary sewer trunk line connections would intersect with the forest resource and its Impact Area. Brookwood Avenue Extension and South Hazeltine Avenue would potentially intersect with the forest resource and its Impact Area under Alternative 2 (Figure 2). As a result, the land intersecting with the roads and their ROW has Energy Priority “A” while the remaining land has Energy Priority “C”.

Site-Specific ESEE Summary for Forest Resource TR10-R/U1

The land containing the forest resource and its Impact Area received a ranking of “C” for Economic Priority and the land containing the forest resource received a ranking of “A” for Environmental Priority. The land where the trail and park would be located has Social Priority “A” while the land where the roads would be located has Energy Priority “A”. The remaining land has a ranking of “C” for both Social and Energy Priority. As a result, the analysis recommends protection level of “Strictly Limit” to “Limit” depending on the type of conflicting use planned in the future.

Table 21 ESEE Results for Forest Resource TR10-R/U1

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
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TR10-R/U1	C (0)	A (+1)	A (+1)	A (-1)	Strictly Limit (+1)	Land where both trails/parks and roads are located
	C (0)	C (0)	A (+1)	A (-1)	Limit (0)	Land where only roads are located
	C (0)	A (+1)	A (+1)	C (0)	Strictly Limit (+2)	Land where only trails/parks are located
	C (0)	C (0)	A (+1)	C (0)	Strictly Limit (+1)	Remaining land containing forest, open space, and residential use

4.2.6 Forest Resource TR10-R/U2

Description

Forest Resource Unit TR10-R/U2 is located south of Gordon Creek, adjoining the eastern boundary of the WHVS study area. The unit and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development
- Transportation & Public Utilities – River Road, South Hazeltine Avenue, and Brookwood Avenue Extension (Alternative 1)
- Parks and Open Spaces – Crescent Park Greenway Regional Trail, Neighborhood Park

Site-Specific Economic Factors and Consequences

The land containing the forest resource and its Impact Area has Economic Priority “C” due to the planned development of the land for open spaces and medium-density residential use.

Site-Specific Social Factors and Consequences

Currently, Crescent Park Greenway Regional Trail and a proposed neighborhood park are planned to intersect with the forest resource and its Impact Area. The land where the trail and park would be located has Social Priority “A” while the remaining land has Social Priority “C”.

Site-Specific Environmental Factors and Consequences

Given that the forest resource ranked high for at least four ecological functions (see Table 9), the land containing the forest resource has Environmental Priority “A.”

Site-Specific Energy Factors and Consequences

Proposed locations for South Hazeltine Avenue do not intersect with either the forest resource or its Impact Area. The future expansion of River Road and its ROW that would contain the proposed water main and sanitary sewer trunk line connections would intersect with the forest resource and its Impact Area. Brookwood Avenue Extension would potentially intersect with the wetland and its Impact Area under Alternative 1. As a result, the land intersecting with the

future expansion of River Road and its ROW or Brookwood Avenue Extension has Energy Priority “A” while the remaining land has Energy Priority “C”.

Site-Specific ESEE Summary for Forest Resource TR10-R/U2

The land containing the forest resource and its Impact Area received a ranking of “C” for Economic Priority and the land containing the forest resource received a ranking of “A” for Environmental Priority. The land where the trail and park would be located has Social Priority “A” while the land where the roads would be located has Energy Priority “A”. The remaining land has a ranking of “C” for both Social and Energy Priority. As a result, the analysis recommends protection level of “Strictly Limit” to “Limit” depending on the type of conflicting use planned in the future.

Table 22 ESEE Results for Forest Resource TR10-R/U2

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
TR10-R/U2	C (0)	A (+1)	A (+1)	A (-1)	Strictly Limit (+1)	Land where both trails/parks and roads are located
	C (0)	C (0)	A (+1)	A (-1)	Limit (0)	Land where only roads are located
	C (0)	A (+1)	A (+1)	C (0)	Strictly Limit (+2)	Land where only trails/parks are located
	C (0)	C (0)	A (+1)	C (0)	Strictly Limit (+1)	Remaining land containing forest, open space, and residential use

4.2.7 Forest Resource TR10-R/U3

Description

Forest Resource Unit TR10-R/U3 is located south of Gordon Creek, adjoining the western boundary of the WHVS study area. The unit and its Impact Area potentially intersect with the following conflicting land uses:

- Planned residential development

Site-Specific Economic Factors and Consequences

The land containing the forest resource and its Impact Area has Economic Priority “C” due to the planned development of the land for low-density residential use.

Site-Specific Social Factors and Consequences

There are no planned parks or trails that intersect with the land containing the forest resource or its Impact Area resulting in Social Priority “C.”

Site-Specific Environmental Factors and Consequences

Given that the forest resource ranked high for at least four ecological functions (see Table 9), the land containing the forest resource has Environmental Priority “A”.

Site-Specific Energy Factors and Consequences

There are no planned transportation routes that intersect with the forest resource or its Impact Area resulting in Energy Priority “C”.

Site-Specific ESEE Summary for Forest Resource TR10-R/U3

The land containing the wetland and its Impact Area received a ranking of “C” for Economic, Social, and Energy Priority, while the land containing the forest resource received a ranking of “A” for Environmental Priority. As a result, the analysis recommends protection level of “Strictly Limit” for the land.

Table 23 ESEE Results for Forest Resource TR10-R/U3

Wetland Unit	Economic	Social	Environmental	Energy	Recommendation	Type of Conflicting Use
TR10-R/U3	C (0)	C (0)	A (+1)	C (0)	Strictly Limit (+1)	Land containing forest and residential use

5. Conclusions

This analysis applied the City of Hillsboro’s site-specific analytical approach to weighing conflicting uses in the study area. The study area contains both wetland and forest SNRs. Proposed future development is likely to include

- Low- to Medium-Density Residential Land Use,
- Transportation networks & public utilities within transportation ROWs, and
- Parks and trails.

This ESEE analysis reflects the City of Hillsboro’s ESEE priorities, consistent with the methodology described in Section 2.

Section 4 of this report describes the details of the ESEE analysis for each unit of SNR. Table 24 summarizes the results of the ESEE analysis by Forest resource.

Table 24 Summary of ESEE Analyses for SNRs in the WHVS Study Area

SNR Unit	Economic	Social	Environmental	Energy	Recommended Protection Level
Wetland SNRs					
GN1-W1	C	A/C	A	A/C	Limit/Strictly Limit
GN1-W2	C	A/C	C	A/C	Moderately Limit/ Limit/ Strictly Limit
GN2-W1	C	A/C	B	A/C	Moderately Limit/ Limit/ Strictly Limit
TR10-W1	C	A/C	C	A/C	Moderately Limit/ Limit/ Strictly Limit
TR10-W2	C	A/C	C	A/C	Moderately Limit/ Limit/ Strictly Limit
TR10-W3	C	C	B	C	Limit
Forest SNRs					
GN1-R/U1	C	A/C	A	A/C	Limit/Strictly Limit
GN1-R/U2	C	A/C	C	A/C	Moderately Limit/ Limit/ Strictly Limit
GN2-R/U1	C	A/C	A	A/C	Limit/Strictly Limit
GN2-R/U2	C	C	C	A/C	Moderately Limit/Limit
TR10-R/U1	C	A/C	A	A/C	Limit/Strictly Limit
TR10-R/U2	C	A/C	A	A/C	Limit/Strictly Limit
TR10-R/U2	C	C	A	C	Strictly Limit

See individual Site Specific ESEE Summary for SNR Unit tables in Section 4 for clarification on the Table 24 slashes (i.e., A/C, C/A) and other details. The recommended Protection Levels vary depending on location of conflicting uses within identified SNRs.

One wetland and four forest SNRs received Environmental Priority “A”; the remaining SNR units received a score of “B” or “C” reflecting the natural resources inventory results²⁹ and Hillsboro’s ESEE methodology and priorities established in 2003. The land that overlaps with multi-use trails and neighborhood parks has Social Priority “A,” meaning that protecting this land would support Hillsboro’s priorities for protecting natural areas for recreation. Land that overlaps with transportation networks has Energy Priority “A,” indicating its importance to the public utilities and transportation needs of the City. All units had an Economic Priority “C” because the entire study area is planned to be either residential or open space, neither of which receive an “A” Priority in Hillsboro’s overall prioritization for economic importance.

In WHVS, the Protection Levels are primarily driven by varying environmental importance of the SNRs and the presence or absence of trails, parks, or transportation improvements. Lands with environmentally important SNRs, recreational trails and neighborhood parks warrant higher protection levels while lands with transportation routes warrant lower protection levels. An interaction of these conflicting uses and the development of WHVS for residential use— which receives a low Economic Priority— results in recommendation levels that range from “Moderately Limit” to “Strictly Limit.” The recommendations provided here reflect the options given the uncertainty in locations of the planned infrastructure.

Despite the ESEE methodology that places Environmental and Social Priorities in opposition to Energy and Economic Priorities by recommending opposing effects on Protection Levels, land uses that have high Environmental and Social Priority can create beneficial effects for lands with high Economic Priority as well. For example, the protection of environmentally important wetlands like GN1-W1 and the surrounding recreational trails can provide aesthetic and recreational value to the future residents in adjacent residential areas improving property values and property tax revenues. As a result, a higher protection level for lands with high Social and Environmental Priority would also contribute to Hillsboro’s economic goals.

²⁹ David Evans and Associates 2021a, 2021b

Appendix

City of Hillsboro Summary of General Recommendations and Consequences

Table 3-16 from Hillsboro 2003 ESEE Report – Summary of Net Effects of Allowing, Limiting, or Prohibiting Conflicting Uses within Significant Goal 5 Resources and Impact Areas

Conflicting Land Use	Allow	Limit	Prohibit	Recommendation
Residential	-1	+2	-1	Limit
Schools, Churches, and Fairgrounds/Sports Stadiums, and Libraries	0	+2	-3	Limit
Parks, Open space and Trails	0	+3	-3	Limit
Government, Institutional, Office, Commercial	-2	+2	-2	Limit
Industrial	-2	+2	-2	Limit
Private and Public Utilities and Facilities	+2	+3	-3	Moderately Limit
Transportation	+1	+2	-3	Moderately Limit
Other Vegetation Disturbing Activities	-1	+3	-2	Limit

Source: City of Hillsboro, 2003.

Table 3-5 from Hillsboro 2003 ESEE Report: Summary of Consequences of Allowing Conflicting Uses within Significant Goal 5 Resources and Impact Areas

Conflicting Land Use	Economic	Social	Environmental	Energy	Net Effect
Residential	+1	-1	-1	0	-1
Schools, Churches, and Fairgrounds/Sports Stadiums, and Libraries	+1	+1	-1	-1	0
Parks, Open space and Trails	0	0	0	0	0
Government, Institutional, Office, Commercial	+1	-1	-1	-1	-2
Industrial	+1	-1	-1	-1	-2
Private and Public Utilities and Facilities	+1	0	0	+1	+2
Transportation	+1	0	-1	+1	+1
Other Vegetation Disturbing Activities	+1	0	-1	-1	-1

Source: City of Hillsboro, 2003.

Table 3-9 from Hillsboro 2003 ESEE Report: Summary of Consequences of Limiting Conflicting Uses within Significant Goal 5 Resources and Impact Areas

Conflicting Land Use	Economic	Social	Environmental	Energy	Net Effect
Residential	-1	+1	+1	+1	+2
Schools, Churches, and Fairgrounds/Sports Stadiums, and Libraries	0	0	+1	+1	+2
Parks, Open space and Trails	0	+1	+1	+1	+3
Government, Institutional, Office, Commercial	-1	+1	+1	+1	+2
Industrial	-1	+1	+1	+1	+2
Private and Public Utilities and Facilities	0	+1	+1	+1	+3
Transportation	0	0	+1	+1	+2
Other Vegetation Disturbing Activities	0	+1	+1	+1	+3

Source: City of Hillsboro, 2003.

Table 3-15 from Hillsboro 2003 ESEE Report: Summary of Consequences of Prohibiting Conflicting Uses within Significant Goal 5 Resources and Impact Areas

Conflicting Land Use	Economic	Social	Environmental	Energy	Net Effect
Residential	-1	0	0	0	-1
Schools, Churches, and Fairgrounds/Sports Stadiums, and Libraries	-1	-1	0	-1	-3
Parks, Open space and Trails	-1	-1	0	-1	-3
Government, Institutional, Office, Commercial	-1	0	0	-1	-2
Industrial	-1	0	0	-1	-2
Private and Public Utilities and Facilities	-1	-1	0	-1	-3
Transportation	-1	-1	0	-1	-3
Other Vegetation Disturbing Activities	-1	-1	0	0	-2

Source: City of Hillsboro, 2003.