

Green-Y Resource Lands:

Conversion to Conservation in the Puyallup-White
Watershed and Beyond

Regional Open Space Strategy (ROSS)
June 2016

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EXECUTIVE SUMMARY

Completed in July of 2014, the Puyallup-White Watershed Open Space Strategy (WOSS) was the first watershed planning study conducted by the Regional Open Space Strategy (ROSS) team. The WOSS presented four linked challenges, one of which – viability of resource lands – became the focus for this separate in-depth analysis. The Green-Y study area encompasses 152,448 acres located southeast of the city of Tacoma within a priority area highlighted in the Puyallup-White WOSS. This Green-Y Resource Lands report studies:

- The existing agricultural and working forest resource lands in the area;
- How urban pressures influence the conversion of resource lands;
- The expected amount and location of losses and/or gains in resource lands based on future land use designations;
- The current regulatory climate that allows conversion to occur; and
- The changes to policies, programs, and regulations that could be employed to better conserve resource lands within the Green-Y and the broader region.

The economic value of the existing resource lands within the Green-Y is between \$83M and \$200M based on open space service values. If urban sprawl and other drivers of change continue unrestrained in the study area, between \$82M and \$188M of this economic benefit could be lost due to resource land conversion. While both agricultural and forest resource lands have, and are predicted to continue to decrease within the study area, forest lands have shown the most dramatic decrease over time and are at the highest risk to future conversion.

The regulatory climate around converting resource lands to other land uses is complex and often vague. This situation has allowed resource lands to be converted to more developed uses. Perhaps the easiest resource lands to protect are in the Green-Y's rural areas outside of the Urban Growth Area (UGA), and within cities such as Sumner and Fife with strong right-to-farm policies and values. To conserve these resource lands, policies and programs already in place need to be better promoted as viable tools to increase conservation of these working lands. Transfer of Development Rights (TDR) programs should also be more closely linked to incentives for cities to increase zoning densities. TDR programs need to then be adopted within each city of the Green-Y, and preferably be connected to a regional TDR program, to maximize resource land conservation both outside and inside UGAs. Beyond promoting existing policies, the primary recommendations for better resource land conservation are to:

- Clarify resource designation criteria. Make it clear that resource lands can be designated and therefore protected both inside and outside of UGAs;
- Add protection guidelines/regulations for classified resource lands both inside and outside of UGAs;
- Promote the use of existing opportunities to designate/classify resource lands as such, or as open space or open space corridors within, between, and outside UGAs to increase the likelihood of their protection; and
- Expand education and outreach to improve implementation of current use taxation to facilitate preserving resource lands.

Research for this report indicates that the conversion of resource lands is not unique to the Green-Y or Pierce County, and is in fact a trend occurring in the greater Central Puget Sound Region. Success in the Green-Y could facilitate other areas within the region to better conserve resource lands, and this report could provide a scalable roadmap for others to follow.

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ACRONYM LIST

APS	American Physical Society
ARL	Agricultural Resource Lands
CO ₂	Carbon Dioxide
CPP	Countywide Planning Policy
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
EIA	United States Energy Information Administration
EPA	United States Environmental Protection Agency
GIS	Geographic Information System
GMA	Growth Management Act
lbs	Pounds
MPP	Multicounty Planning Policy
OFM	Office of Financial Management
OSU	Oregon State University
PCRC	Pierce County Regional Council
PDR	Purchase of Development Rights
PSP	Puget Sound Partnership
PSRC	Puget Sound Regional Council
RCW	Revised Code of Washington
ROSS	Regional Open Space Strategy
TDR	Transfer of Development Rights
TPCHD	Tacoma-Pierce County Health Department
UGA	Urban Growth Area
USDA	United States Department of Agriculture
WAC	Washington Administrative Code
WAGDA	Washington State Geospatial Data Archive
WOSS	Watershed Open Space Strategy
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

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CHAPTER 1 – THE EFFECTS OF RESOURCE LAND CONVERSION

1.0 INTRODUCTION

The Regional Open Space Strategy (ROSS) is a collaborative effort based at the University of Washington, aimed at integrating and elevating open space conservation and stewardship activities underway in the Central Puget Sound Region. The Central Puget Sound Region is comprised of King, Kitsap, Pierce, and Snohomish Counties, and the ROSS is working toward strategies to conserve and enhance the natural infrastructure of open space systems within these places (see **Figure 1.1**). These natural assets are critical to the ecological, economic, and cultural vitality of the Central Puget Sound Region, and are intrinsic to its very identity. The ROSS addresses open space systems at both a watershed and regional scale, and is developing

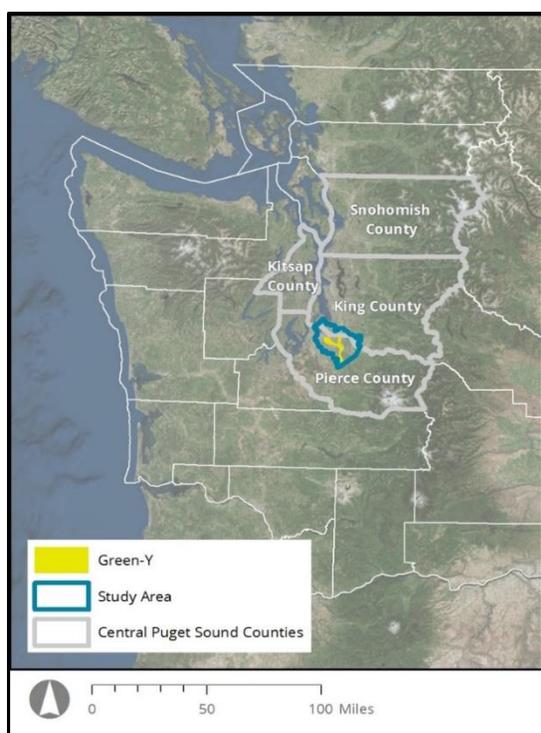


Figure 1.1 Central Puget Sound Region (Access Washington, 2015).

implementation and advocacy mechanisms to help ensure conservation of these spaces and their essential functions. Land conservation, in its varied forms, is one of the many tools used by governments, non-profits, and community organizations to preserve the natural functions of the environment. Land *conversion*, the process of transforming land from one use type or land cover to another, is a primary threat to maintaining natural infrastructure intact. This is true historically, and currently as the prevailing trends of conversion are away from vegetated land cover, and toward urbanization and its attendant impervious surfaces. Land conversion trends, and efforts to stem such pressures through land *conservation*, will be the focus of research and analysis for the first chapter of this report.

Completed in July 2014, the Puyallup-White Watershed Open Space Strategy (WOSS) was the first watershed planning study conducted by the ROSS team.¹ The goal of the report was to identify opportunities for enhancing stewardship and access to public lands, as well as priority areas for securing conservation lands. The WOSS report presented four linked challenges identified by the ROSS team, which together comprise key issues for the Puyallup-White watershed. These challenges include (1) the health of aquatic systems, (2) biodiversity, (3) availability and access to healthy, active lifestyles for individuals and communities, and (4) viability of resource lands.² Through careful examination of these challenges, the ROSS team identified a critical location where each overlapped geographically within the watershed, and then named this area the Green-Y (see **Figure 1.2**). Focused action within this Green-Y could bring about multiple benefits, and maximize conservation and stewardship resources for the benefit of the four challenges listed above. This report will look at the Green-Y and adjacent land,

¹ For the remainder of this paper the Puyallup-White Watershed will be interchangeably referred to as WRIA 10 (Water Resource Inventory Area). A WRIA is a watershed delineation and planning designation that is used by the

Washington State Department of Ecology (Ecology) and many others.

² For the purposes of this document, resource lands are considered working agricultural and forest lands.

together comprising a study area of 152,448 acres (238.2 square miles) located southeast of the City of Tacoma.

Among the four challenges revealed during development of the Puyallup-White WOSS, resource lands will be the subject of this report. Resource lands are the focus because they provide many millions of dollars in open space service value, and are particularly vulnerable to conversion in the Green-Y and the greater Central Puget Sound Region. The objective of this study is to identify what, if any, regulatory changes can be made to better preserve resource lands around the Green-Y, and then utilize the results as a case study for the broader region. Chapter 1 documents the ROSS team's first steps in addressing the challenges associated with the conversion of resource lands, specifically within the Green-Y and surrounding areas. (See **Figures 1.1** through **1.3** for a visual representation of the study area surrounding the Green-Y.) Research and analysis supporting resource land conservation will be advanced in this report through a discussion of where they are being lost within the study area, why these lands are being lost, and the impact this loss has, and will continue to have, on open space services. The effect of this loss, as it relates to the ROSS's five regional challenges of climate change, biodiversity, social equity, human health, and economic development will also be discussed in an effort to scale up this analysis to the larger Central Puget Sound Region. A goal of this chapter is to inform

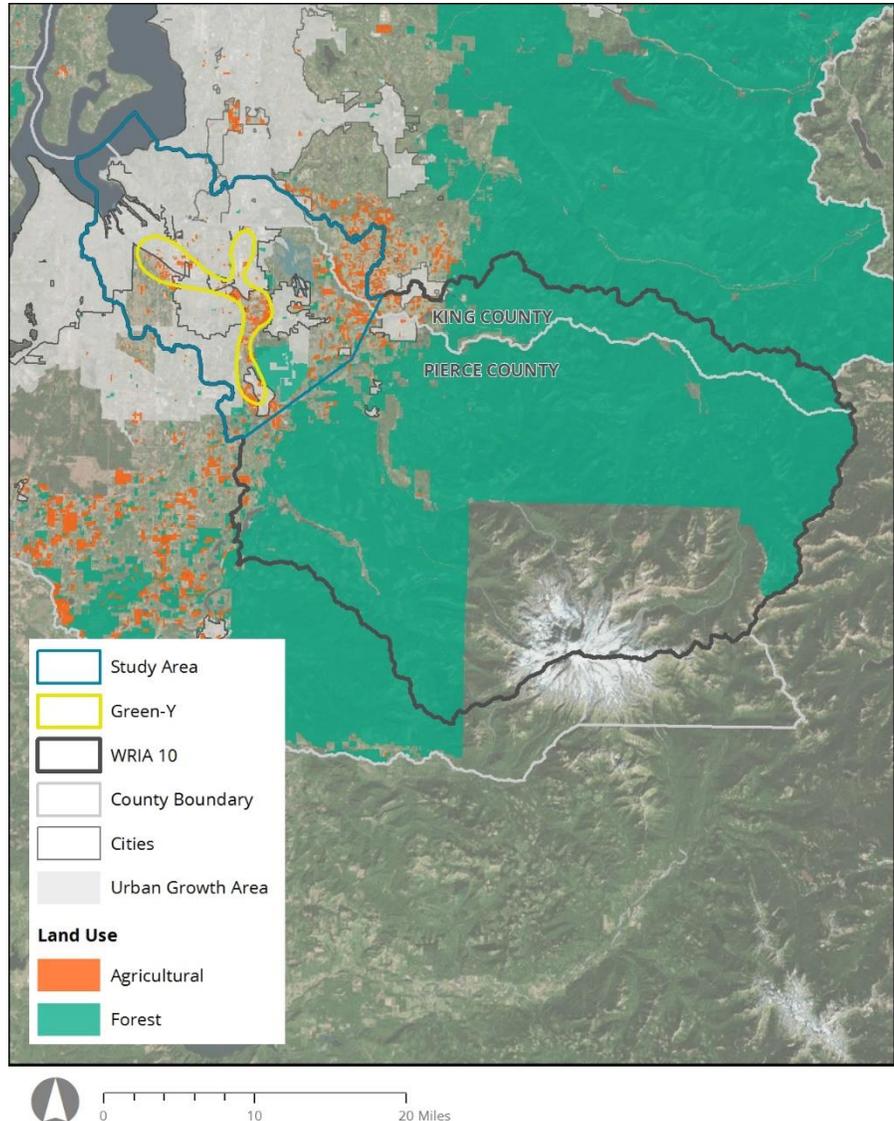


Figure 1.2 Existing land use conditions (Ecology, 2014; Access Washington, 2015).

decision makers of the planning-scale contributors to resource land conversion, and the environmental and economic impacts that this conversion can have today, and into the future. An attendant purpose is to provide an analytical model for decision makers and their staff to more easily and defensibly include the economic value of open space services in development cost/benefit analyses.

This chapter represents the first of three that together will examine the effects of resource land conversion on open space services (Chapter 1);

analyze the regulatory framework surrounding resource lands within the Green-Y (Chapter 2); and develop recommendations to prioritize resource land conservation within the greater Green-Y study area (Chapter 3).

1.1 METHODOLOGY

This chapter examines the impacts of resource land conversion on the quality, availability, and economic value of open space services. First, will be the exploration of historical trends (Section 2.0) that will include geospatial analysis of land use maps from 1992 through 2011. Next, extensive research will be conducted to identify plausible future land conversion projections (Section 3.0) and valuations of open space services (Section 4.0). Together, historical trends and projected future land conversion conditions will help predict future open space service conditions.

Predicting the future is an inherently problematic task. At best, such efforts can yield plausible outcomes, not one certain future. The discipline of planning helps make demographic predictions for specific locales, for instance, more plausible through analysis of the historic patterns of cause and effect, as well as the best available science from a variety of disciplines. Planners aim to use these projections to understand the potential impacts of one future condition over another, so as to help inform decision-makers in ensuring that

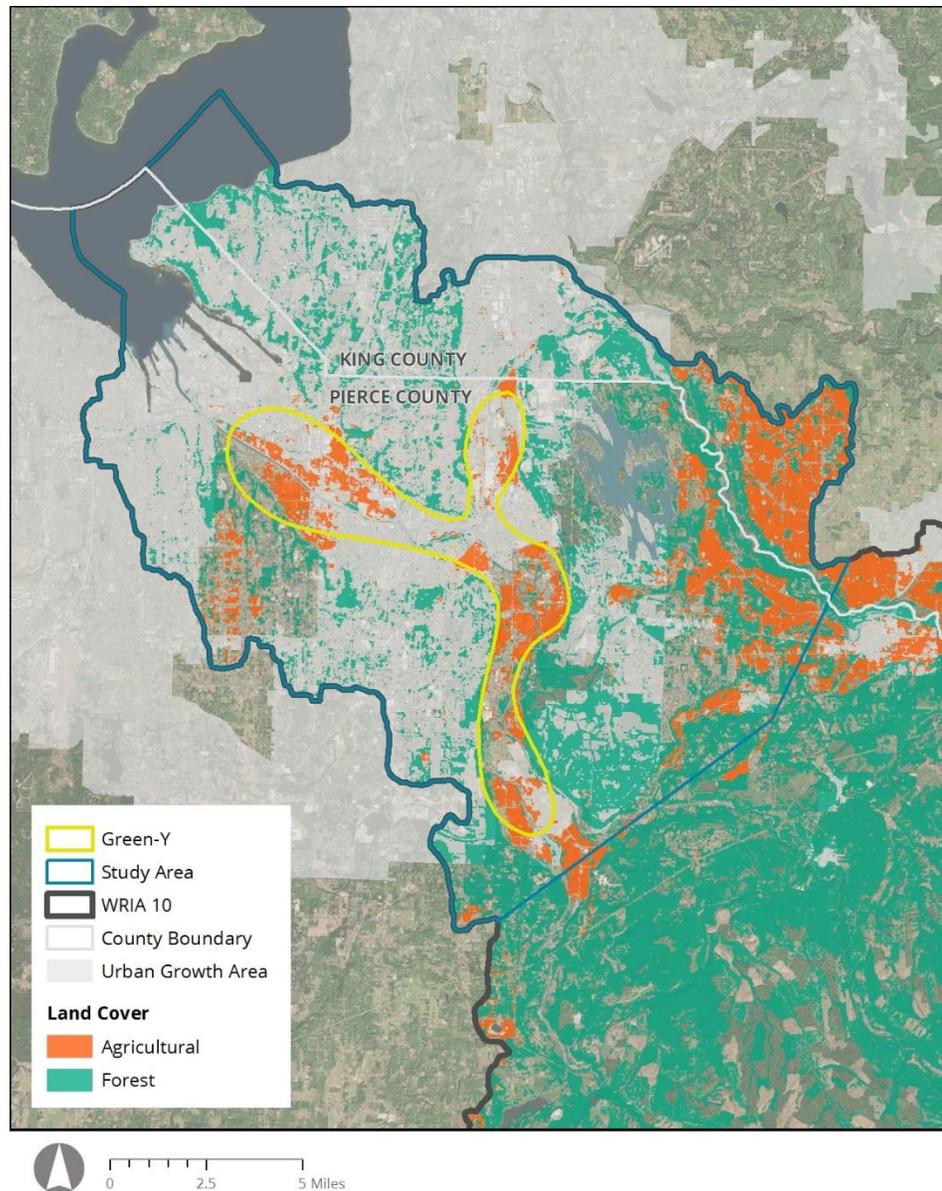


Figure 1.3 Study area and Green-Y with existing forest and agricultural land uses (Ecology, 2014; Access Washington, 2015).

there are adequate services and infrastructure – including natural infrastructure - to accommodate future conditions. Such is the ultimate goal of this chapter and the overall report.

In order to better understand the possible future trends of resource land conversion in the broader Puget Sound region, the ROSS team expected that three plausible future land use scenarios created by Oregon State University (OSU) in 2010 would be helpful. OSU developed the scenarios to help create a framework for decision makers to develop

more informed policy decisions and assessments. Unfortunately, it is not possible to scale down this analysis to the Green-Y. The ROSS team instead worked with pertinent future land use designations from the comprehensive plans and generalized zoning classifications of Pierce and King Counties, respectively. The ROSS team’s analysis is therefore based on existing plans and codes within the watershed. This examination helps to understand how resource lands could possibly look in the study area if the future followed a status quo scenario where the current regulations do not change. More specifically, examining the future land use designations and zoning classifications helped illustrate which existing forest and agricultural lands would be converted if future land use designations are built out to 100 percent of what would be allowed under current regulations. With these predictions, the ROSS team calculated the economic values of the existing and plausible future open space services within the study area based on an adapted methodology originally developed by the non-profit ecosystem valuation firm, Earth Economics. Earth Economics estimates these open space service values through a technique called “benefit transfer.” This process considers “a number of comparable, published, peer-reviewed studies of open space service values of agricultural lands from around the country/world” to estimate values for open space services within the study area (Earth Economics, 2015). With an understanding of the existing resource lands, their approximate value in the region, and how resource lands are expected to change in the future, it will be possible to anticipate the plausible impact of future resource land conversion within the study area on the economy, society, and the environment (Section 5.0).

1.2 DEFINITIONS

Before delving into a discussion concerning resource land conversion in the study area, it is important to define a few central terms in order to create a common understanding.

OPEN SPACE

Open Space, as used by the ROSS and in this report, is an expansive term that includes a wide

spectrum of lands both public and private, rural and urban, large and small, which together create the natural infrastructure on which society has always depended. Open spaces can be public parks, local and regional trail systems, wetlands and surface water bodies, wilderness lands, urban green spaces like parkways, rain gardens and green roofs, and resource lands for agricultural and timber production. Resource lands within WRIA 10 are the primary study focus for this document.

OPEN SPACE SERVICES

Open spaces in general, and resource lands in particular, are important because of the services they provide. There are 16 overarching service categories provided by open spaces (listed in the figure below) that each describe a diversity of individual services that are provided by ecosystems and built open space amenities, such as water purification and carbon sequestration. While these individual services are hard to quantify, they would be costly or impossible to replace if lost. Within this document the ecosystem services that can be provided by open spaces in general have been relabeled “open space services.”



Some of the open space services that can be provided by resource lands within the study include food production, timber production, genetic resource preservation, climate regulation,

water purification and regulation, flood protection, recreation, aesthetic beauty, education, and cultural heritage. (These open space services are broadly discussed within Section 2.0).

While resource lands within the study area provide important and often irreplaceable open space services, it is becoming more and more difficult for these lands to continue as productive landscapes into the future. Many of the resource lands within the study area are located in the urban/rural fringe, and as a result they have been easy targets for urban/suburban growth as urban centers expand, more annexations seem imminent, and land values outside of the city limits increase. (See Section 2.0 for a more detailed rationale behind resource land conversion). Consequentially, resource lands within the region are being cleared and converted to uses with more impervious surfaces at staggering rates. In the past 150 years, the Puget Sound has lost approximately 66 percent of its remaining old growth forest, over 90 percent of its native prairies, and approximately 80 percent of its marshes to development (PSP, 2015). Further, since 1950, 60 percent of farmland in the Puget Sound has been lost, and Washington State continues to lose 23,700 acres of agricultural lands every year (Canty et al., 2012, 6; Cascade Land Conservancy, 2009). These statistics have caused some to estimate that “the last acre of farmland in the region could be bulldozed or paved over by 2053” (Canty et al., 2012, 6).

REGIONAL CHALLENGES

The ROSS team has identified five regional challenges which represent critical concerns for the Central Puget Sound Region broadly, and which also apply to the study area. These challenges are climate change, biodiversity, social equity, human health, and economic development. The ROSS team coalesced around these five challenges because they encapsulate the breadth of human and environmental conditions in which open space

could positively contribute. Each regional challenge has its own associated set of metrics for understanding current conditions, and those that are anticipated in the future. These metrics aid in identifying intervention measures which are expected to bring about improved future conditions. Each of these regional challenges can be addressed in part through conservation and enhancement of our open spaces.

Each regional challenge also includes threats. For example, the threats associated with climate change include increases in temperature, flood risks, sea level rise, and drought that could all negatively impact the economy, society, and environment of the region.

The regional challenges represent stressors on our shared systems, but they also represent opportunity areas where open space services can play an essential role. For instance, increasing or maintaining open spaces in the region could help mitigate climate change through the sequestration of carbon dioxide, while at the same time creating a healthy and aesthetically pleasing environment that draws new businesses. The goal in examining open spaces through these regional challenge lens is to illustrate the overall importance of open spaces in the health and continued success of the region.

LAND USE vs LAND COVER

Land use and land cover are concepts used within this report to discuss existing and future resource lands in the study area. The total acres of resource land use and land cover differ within the study area for a number of reasons. One reason is that land cover data is often provided in a raster format (within GIS, the tool used for data analysis within this report) that assigns one number (or in this case, designation) for every land area unit. Each land area unit (or cell) is typically 30 by 30 meters. By contrast, land use data is typically provided in a



vector format, which can be displayed in fluid, contiguous shapes and numbers (designations). Vector layers provide more, and more precise, data than raster layers. Therefore, raster and vector data displayed in GIS can produce different area values even when land use and land cover inputs are the same, due to the difference in how data is stored within each layer.

Another possible reason for the disparity between land use and land cover values provided in this report could be that land cover data is generated from satellite images. Algorithms assign a land cover type for each raster cell based on best estimates of what is physically on the ground. Land use data is based on parcel information and describes how humans actually use the land. Land cover is therefore more general, and land use is more specific. What could appear to be a forest cell from a satellite photo could actually be a residential home with a large garden and expansive canopy cover. Both land cover and land use data are used in this report where appropriate. The open space valuation system developed by Earth Economics, for instance, can only be conducted using land cover. On the other hand, when considering future land use designation maps, it is more appropriate to compare it to existing land uses so that the scale and level of detail of the data sets are as similar as possible.

1.3 REPORT STRUCTURE

The remainder of this chapter will explore historical trends of agricultural and forest land conversion over time to provide an understanding of what open space services have been lost, as well as projections of future land conversion to estimate what could be lost in the future. The geographic

focus of this analysis will be within, and directly surrounding, the Green-Y. This study area is located within the northwestern, primarily urban, portion of WRIA 10, and is almost completely contained within the urban growth area (UGA) boundary of Pierce County (see **Figures 1.2** and **1.3**). Unfortunately, the diverse data needed for this type of focused analysis is not always available at the appropriate scale. As a result, the discussion in this report will sometimes increase beyond the study area to include Pierce and King Counties, as well as the entirety of the Central Puget Sound Region. The goal of the research and analysis within this report is to develop a robust understanding of resource land conversion within the study area and broader region. By scaling up the discussion, it will be possible to examine the applicability of this study to the region as a whole. Research uncovered that resource land conversion within the Green-Y study area, is reflective of the conversion issues within the greater Central Puget Sound Region.

2.0 REVIEW HISTORY

2.1 RESOURCE LAND OPEN SPACE SERVICES

Section 1.0 discussed open space services and resource lands in general. Section 2.0 will narrow the focus by describing the existing resource lands within the study area, and the services they naturally provide to the community at large.

As noted above, the study area is composed of the Green-Y and areas directly surrounding it within WRIA 10 (see **Figure 1.2**). The study area is primarily in Pierce County, although a sliver to the north is within King County. The resource land acreage within the study area and its component parts are displayed below in **Table 1.1**. While

Table 1.1 Existing agricultural and forest land uses in 2010 and land cover from 2011 (Ecology, 2014; Access Washington, 2015)

Area	Agricultural Resource Land		Forest Resource Land	
	Land Use (acres)	Land Cover (acres)	Land Use (acres)	Land Cover (acres)
Green-Y	2,874	4,595	108	1,144
Study Area	9,722	15,258	6,963	31,965
WRIA 10	12,337	20,022	358,702	365,888
Pierce County	28,235	36,170	424,003	572,438

Note: The data does not differentiate between working forest and non-working forest land so the above table represents all forest lands.

agricultural land uses within the Green-Y and Study Area outweigh forest land uses, the opposite is true when looking at the larger geographies of WRIA 10 and Pierce County. Similarly, when considering land cover instead of land use, forest cover acres are more than double agricultural land cover acres in the study area, although in WRIA 10 forest land cover acres are over 18 times more plentiful than agricultural land cover acres. These numbers could indicate that the study area is uniquely suitable for agricultural uses within the County and region; or that the study area is more urbanized than the surrounding WRIA or County. The true origins of these conditions will not be covered in this paper.

OPEN SPACE SERVICES

As explained above, agricultural and forest resource lands are included within the broad category of open space. For the purposes of this paper, the open space services provided by resource lands within the study area fall under the following overarching categories: food, air, materials, water, work, play, shelter, culture, aesthetics, community, health, education, and disaster mitigation. How agricultural and working forest resource lands serve to provide these open space services is briefly explained below. Within each category, every effort is made to focus on the direct benefits created within the study area, although the data needed for this level of analysis is often unavailable (see Section 4.0 for the specific valuation of open space services in the study area).

Food: Agricultural lands within Pierce County and the study area help produce the vegetables, fruit, and livestock that feed Washingtonians as well as national and global customers. Pierce County alone produces almost half of all rhubarb in the nation (Travel Tacoma, 2015), and devotes thousands of acres to the production of vegetables, melons, potatoes, hay, and cattle (USDA, 2015a). Agricultural and forest lands also provide habitat to the pollinating bee population that is essential for agricultural production.

Air: Vegetation, including forest cover and crops, can help to improve air quality by taking in and storing air pollutants such as ozone, carbon monoxide, sulfur dioxide, carbon dioxide,

particulate matter, and halogens in its biomass through photosynthesis (Phillips, 2014, 3; Liu and Li, 2012, 121). Through dry deposition, particulates can also collect on the leaves of vegetation. Rainwater can then wash these contaminants into the soil to be filtered by the root system (Dreistadt et al., 1990, 197).

Materials: Working forests within Pierce County and the study area provide the lumber that helps build the economy and more specifically, the regional infrastructure of the Puget Sound. Wood and wood fibers are also important materials within many of the Native American tribes of the region for their role in the creation of art, tools, medicine, transportation, shelter, and clothing. For example, every part of the red cedar tree has a “designated use,” with the main biomass used to construct “post-and-beam houses, spectacular totem poles, dramatic dance masks, and extraordinary dugout canoes,” inner bark used to weave mats, and root fiber woven into “watertight baskets” (American Forests, 2012). Further, agricultural lands can help transform human and animal waste by-products into a resource through the utilization of compost for fertilizer (providing a cross-over with the open space service category of “waste.”)

Water: Working forests, along with wilderness forest areas, help to recharge groundwater, keep surface waters cool, and filter out contaminants in stormwater before they reach surface water systems. As water collects in the soil around vegetation, the root systems can uptake harmful pollutants and store them in their biomass (Dreistadt et al., 1990, 197). Additionally, the pervious surfaces of these resource lands allow water to be absorbed into the soil and percolate down to recharge aquifers that can help alleviate water availability issues. Alternatively, the impervious surfaces of developed areas prevent recharge and cause stormwater to runoff into nearby surface water systems with more pollutants, at higher temperatures, and with more velocity than they would otherwise.

Work: Within Pierce County approximately 2,488 individuals work within the agricultural, forestry,

fishing and hunting, and mining industries. This equates to just 0.7 percent of the total County employment, although the work provided by these resource lands reaches beyond this total into the service industries that support agriculture and forestry, government agencies that oversee these industries, and to the large corporations such as Weyerhaeuser that are economic engines in the region and help attract more business to the area (U.S. Census Bureau, 2015a; TPCHD, 2015).

Play: Recreational opportunities vary on a farm by farm or forest by forest basis within Pierce County and the study area. Although, in many of the County's resource lands individuals are allowed to hunt, hike, horseback ride, etc. Farms also offer opportunities for agritourism, a quickly growing sector of the agricultural industry.

Shelter: Working forests provide lumber that can be used to build homes throughout the Puget Sound, and forests can provide shelter and transportation corridors to species when continuous and connected.

Culture: Working agricultural and forest lands also help connect us to our collective identity and history. Timber, for instance, was the first established industry within Pierce County. Taking part in forestry, or visiting working forests and farmland, allows many to feel closer to their roots (Turek, 2013). Further, trees, their wood products, and other native plants also hold special significance to many Native American tribes in the region. For instance, the cedar is "strongly associated with prayer, healing and protection against disease...the tree and its spirit [is considered] as sacred" to many Northwest Coast tribes (American Forests, 2012).

Aesthetic: Working forests and agricultural lands provide the naturalistic and idyllic scenery that is intrinsic to the identity of the Central Puget Sound Region. Further, Pierce County is especially known for its floral industry. The commodity group including nursery, greenhouse, floriculture, and sod products had the highest value of sales, when considering all agricultural products in the county in 2012. The total sales value was \$14,733,000, ranking Pierce County within the top ten counties

in the state when it comes to the flower production (USDA, 2015a).

Community: Resource lands provide places to gather, build, and strengthen relationships and community through shared work. Anecdotally, farming communities often describe their work as inherently interconnected. They are more productive when working as a community of agricultural producers, because "they can share equipment and advice, help one another when livestock escape, and share best practices and lessons learned." Many cite these and other benefits as hallmarks of "a rich agricultural tradition" (PCC Farmland Trust, 2015).

Health: Many resource lands provide opportunities for outdoor exercise and rest that contribute to physical and mental health and well-being. Studies have shown that even just views of trees can reduce stress levels and allow for mental restoration. For instance, one study reports that respondents with views of nature experienced stress relief 87 percent of the time and headache relief 52 percent compared to respondents who did not have such views (Hansmann et al., 2007, 213). Therefore, even if landowners within the study area's resource lands do not allow for public recreation on their property, simply being able to see these spaces can be good for the mental and physical health of Pierce County residents and visitors.

Education: Resource lands can tell the history of our natural world and inspire learning opportunities and scientific discovery. Agricultural and forest lands can provide ideal settings for environmental learning, which has been shown to improve attention, cognitive function, and leadership skill (Archie, 2003; Glenn, 2000; Taylor, 2001; Wells, 2000).

Disaster Mitigation: Agricultural and working forest lands can often reduce a community's vulnerability to, and the severity of, flooding and other natural disasters. As working forests and agricultural lands have pervious surfaces, stormwater or rising floodwater can be stored and/or slowed by these areas. This reduction in volume and velocity can work to reduce the

possible impact of these natural disasters, in terms of damage to built infrastructure and human lives downstream (Nowak et al., 2010, 6).

REGIONAL CHALLENGES

Beyond these open space services, agricultural and forest resource lands play a critical role in tackling the five regional challenges facing the Puget Sound today, including climate change, biodiversity, social equity, human health, and economic development.

Climate Change: Forests, and the vegetation within them, are some of the most effective and efficient vehicles for carbon sequestration accessible to society. One tree, on average, can sequester 48 pounds (lbs) of carbon dioxide (CO₂) a year (Evans, 2015). Taking this figure further, forest land can sequester an average of 21,600 lbs of CO₂ per year per acre (assuming 450 trees per acre). It also follows that if every vehicle in Pierce County consumed 12,000 gallons of gasoline a year, and emitted 19.64 lbs of CO₂ per gallon, the County would need 11 acres of forested land per vehicle, per year (EIA, 2015; EPA, 2005). While there may be enough acres of forest in Pierce County to uptake the CO₂ emitted by their vehicles every year, it is unclear if there are enough to uptake the CO₂ emitted by industries, homes, and buildings in the County, or begin to make a dent in global emissions. As CO₂ is a greenhouse gas playing a leading role in climate change, the uptake of CO₂ into biomass is a crucial mechanism to mitigate the effects of climate change. Afforestation and reforestation projects are seen as methods to do just that, and as working forests are long term stores of carbon dioxide, they are seen as a key tool in the climate mitigation toolbox. Many have tried to invent technologies that can sequester carbon, but these efforts have proven more costly and less effective than simply allowing trees to grow (APS, 2011, i).

Biodiversity: Pierce County is home to a great number of plants and animals, and this biodiversity is allowed to flourish to some degree because of the resource lands that provide habitat where these creatures can travel, sleep, hunt, and forage. Though working forests will by definition be cut down, while they are growing they can provide

corridors and habitat connections to wilderness areas, which allows for greater species diversity (Carrara et al., 2014). Even the working forests with active harvesting can continue to provide sufficient species habitat patches and corridors if harvest patterns are planned with habitat conservation in mind.

Social Equity: Farming and forestry provide a diversity of employment opportunities for individuals from all walks of life, including white and blue collar jobs that are vital to the region. Further, there is a strong tradition of agricultural and forestry work within Pierce County and the study area dating back over a 100 years that has helped form the cultural identities of many local communities. Preservation of these identities through conservation of agricultural and forestry lands will help maintain community resilience and preservation of tribal cultures. Preservation will also enable the continued provision of local, fresh, and healthful foods to small communities as well as the larger urban centers of the region (Earth Economics, 2015).

Human Health: As stated above, having access to resource lands for recreation or simply viewing them from a distance allows for physical and mental well-being of residents and visitors. These lands can also contribute to cleaner air, water, and soil for the county, as well as produce healthful food, shelter, and jobs that are necessary for human health (TPCHD, 2015).

Economic Development: The total market value of agricultural products sold in Pierce County is \$90,933,000 (USDA, 2015) and agriculture in the County employs 1,600 workers (Barney & Worth and Globalwise, 2006, 6). While agricultural lands have been declining on the whole throughout the county for the past 50 years, Pierce County is still ranked within the top 10 farming counties in Washington State based on the number of farms (1,478 in 2012) and acres (49,483). These farms produce major commodities and food products that put Pierce on the map and draw others to the County to work in the agricultural sector. Since 2007, the County has been experiencing slight increases in the number of farms and acres in

farmland, lending credence to the idea that success draws more success (U.S. Census Bureau, 2015a; USDA, 2015b).

2.2 REASONS FOR RESOURCE CONVERSION

Even with the multitude of benefits and services provided by resource lands, agricultural and forest lands have been declining within Washington State and the Puget Sound Region for at least 50 years (PSP, 2015). The reasons for this decrease are varied and complex, although some of the primary drivers for resource land conversion include population growth and the resulting increases in urbanized landscapes. The relatively low economic value derived from resource lands as compared to developed lands, when using traditional economic analysis methods, is also a key reason for conversion (Bolte and Vache, 2015).

As populations increase in cities across the Puget Sound, the demand for housing, commercial, and industrial uses also increases (DNR, 2015, 59). This increase in demand leads to increasing levels of resource and natural land conversion to more developed uses outside the boundaries of traditional urban areas. This urban sprawl is also known as urbanization – the spread of impervious surfaces, people, and built infrastructure over areas that were not previously urban in nature – and it is taking place across the four-county region (Merriam-Webster, 2015). This is especially the case within Washington State’s two most populous counties of King and Pierce, where WRIA 10 is located.³ From 1980 to 2012, Pierce County experienced a population growth of approximately 99 percent (from 405,643 residents in 1980 to nearly double that in 2012 with 808,200 residents). King County over the same time period experienced a population growth of approximately 52 percent (1,289,749 residents in 1980 to 1,957,000 residents in 2012). Populations in these two counties are expected to continue to increase through 2030 by approximately 22 and 11 percent, respectively (WSDOT, 2015). This expected population growth will likely create more pressure to convert resource lands to urban uses.

By definition, urbanization is legally allowed and encouraged within UGA boundaries of the Central Puget Sound Region. Therefore existing resource lands are not necessarily protected nor are new resource lands encouraged within urban areas. Under the Growth Management Act (GMA), agricultural and forest lands are considered a resource to be conserved primarily outside of the UGA in the more rural areas of a county. As the Green-Y and much of the study area are within Pierce County’s UGA (see **Figure 1.2**), the resource lands within its boundaries are at risk to conversion if the pressures to urbanize continue. Although, the GMA has not prevented the conversion of resource lands even outside of UGAs. Statewide, approximately 23,700 acres of agricultural lands are lost each year, and 17 percent of forest lands have been lost since the 1980s (Cascade Land Conservancy, 2009). (This will be more thoroughly discussed in Chapter 2.)

Compounding the land conversion pressures of population growth is the changing economic value of resource lands within the state, especially along the urban/rural fringe. Over time these lands become more economically valuable (under traditional economic terms) when developed for residential use than if they were to remain in use as working forests or farms. For instance, “forestlands on or near the urban-rural fringe now have a development value of 15-20 times their value as forests” (Cascade Land Conservancy, 2009). Additionally, land prices within the Puyallup Valley (an area surrounding the Puyallup River that includes the Green-Y and the study area) can range anywhere between \$50,000 and \$1 million dollars per acre, a value that is far above what can be reasonably assumed for agricultural production on the same acres (Barney & Worth and Globalwise, 2006, 6). The incentives for resource landowners to sell their property for development is clear and present.

³ The Green-Y is fully within Pierce County.

3.0 EXPLORE FUTURE CONVERSION POTENTIAL

3.1 HISTORICAL AND EXISTING RESOURCE LAND CONVERSION

Section 2.0 examined the qualitative value of agricultural and working forest lands, and some of the general rationale for why these resource lands have been decreasing over time in the study area. This section will identify more specifically what resource lands have decreased over time, and where these lands are located within the study area. This analysis of change is not all inclusive, as land cover change data was not readily available before 1992.

Figures 1.4 and **1.5** on the following pages highlight the changes in agricultural and working forest lands within the study area between 1992 and 2011. These figures illustrate the decrease in resource lands in the study area over this time, as displayed quantitatively in **Table 1.2**.

Resource land cover saw a steady decline throughout the study area from 1992 to 2011 of about 3 to 5 percent for agricultural and forest lands respectively (**Table 1.2**). The rate of conversion may have slowed in recent years, although without more recent land cover data this cannot be confirmed. The underlying causes of this conversion are also unknown, but as discussed earlier in this report, urbanization triggered by population growth and the low value of resource lands are the expected primary causes. This theory appears to be backed by the information provided in **Figures 1.4** through **1.6**.

When agricultural and forest lands lost from 1992

to 2011 are overlaid with Pierce and King County tax parcel information, it is clear that some of the resource lands were converted into residential subdivisions based on the appearance of new, small, curvilinear parcel layouts (**Figures 1.4** and **1.5**). Although as one travels east through the study area in **Figure 1.5**, the converted forest lands are located within larger parcels that do not yet have a residential pattern of development. On further examination, many of these large parcel conversion areas can still be linked to urbanization, as the forest lands were cut to make way for airports, golf courses, industrial areas, or future master planned communities.

A pattern of resource land conversion to allow for more urbanized uses is noticeable for both agricultural and forest lands. This pattern is further highlighted within **Figure 1.6** that displays the spread of urban land cover over time from west to east.

Figures 1.4 through **1.6** help show that while resource lands decreased from 1992 to 2011 in the study area, the amount of urbanized land increased. Urban development expanded from the urban core of cities such as Tacoma and Seattle, eastward throughout King and Pierce Counties. Also of note is that this growth was primarily contained within the UGA (**Figure 1.6**). Much of the agricultural and forest land conversion experienced during this time could therefore be a consequence of urban growth policies. This conclusion is based on an analysis of parcel information, the pattern of resource land conversion from west to east, and the location of most converted lands inside the UGA where urban development is encouraged

Table 1.2 Approximate change in agricultural and forest land cover over time within the study area (Ecology, 2014).

Year	Agricultural Land Cover (acres)	Percent Change	Forest Land Cover (acres)	Percent Change
2011	15,258	-1.5%	31,965	-3.7%
2006	15,495	-5.9%	33,203	-6.0%
2001	16,474	+0.8%	35,332	-6.8%
1996	16,345	-5.0%	37,904	-5.4%
1992	17,200	-	40,054	-

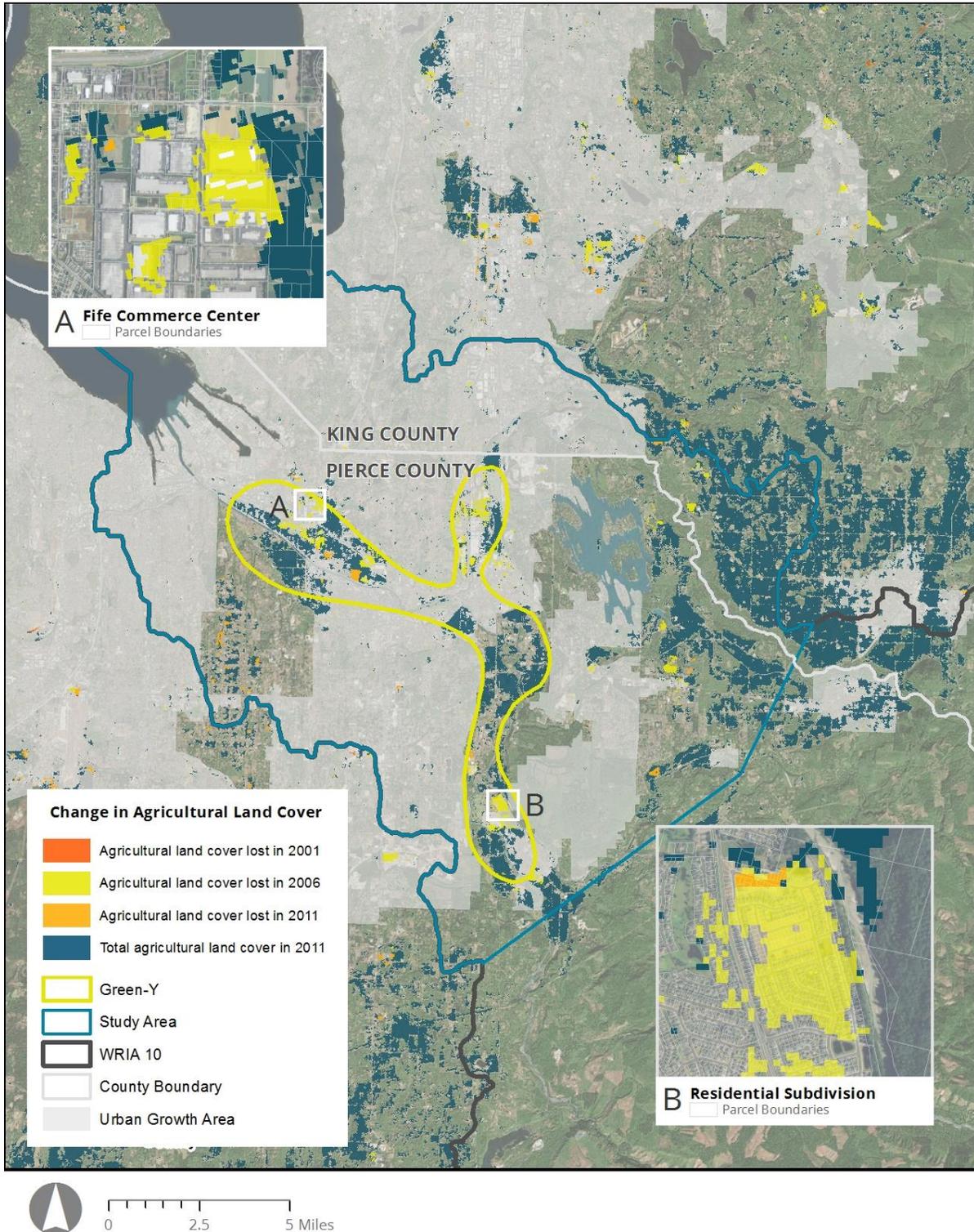


Figure 1.4 Change in agricultural land cover from 1992 to 2011. The red areas indicate agricultural land lost between 1992 and 2001, the yellow is areas converted between 2001 and 2006, etc. Note that most of the conversion has occurred within, or near, the UGA, indicating that urban development may be a leading cause of resource land conversion (Ecology, 2014; Access Washington, 2015).

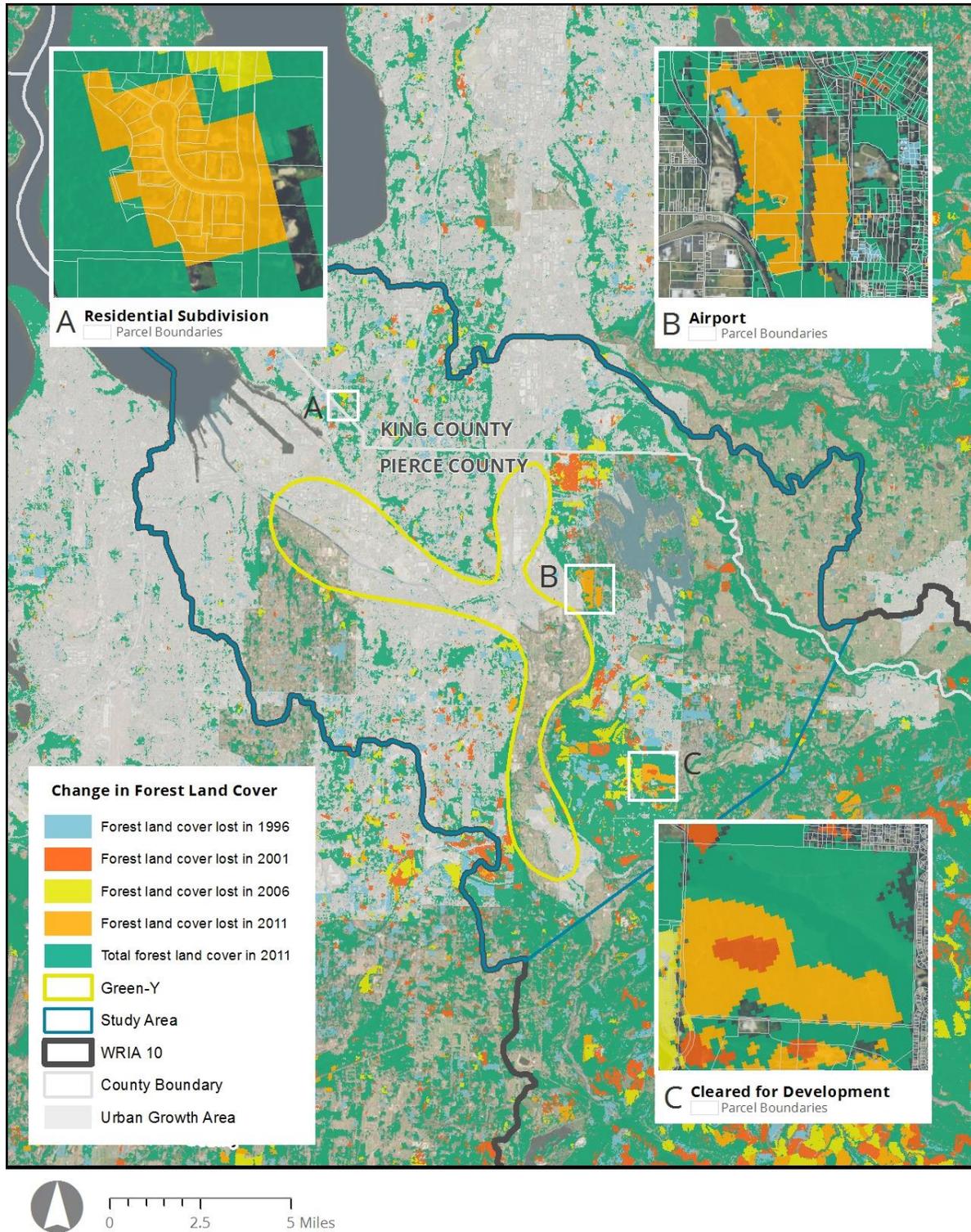


Figure 1.5 Change in forest land cover from 1992 to 2011. Note that the majority of the land conversion within the study area took place within, or near, the UGA indicating that urban development may be a leading cause of resource land conversion (Ecology, 2014; Access Washington, 2015).

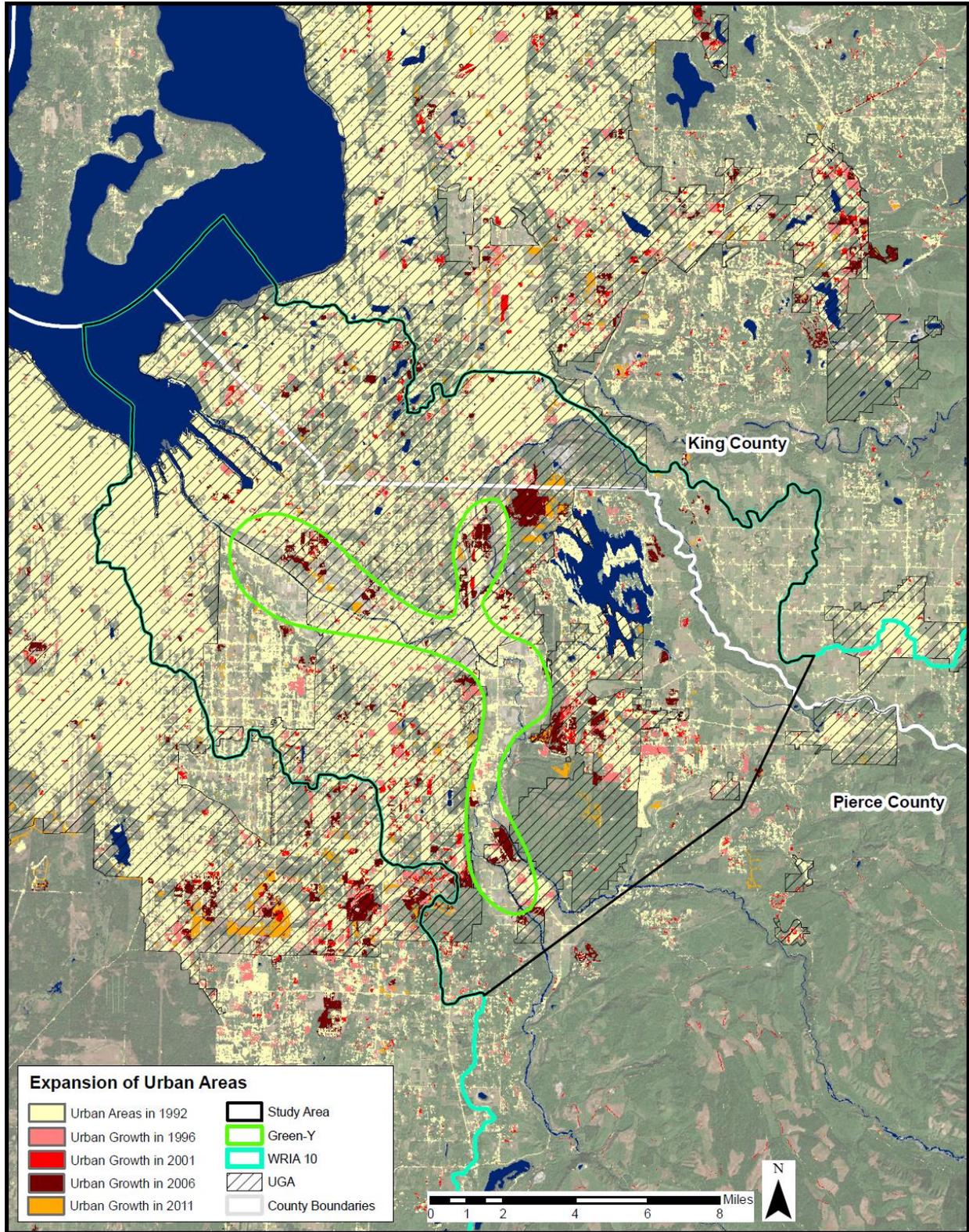


Figure 1.6 Change in urban (developed) land cover from 1992 to 2011. Note that the majority of the urban expansion has taken place within the UGA, suggesting that the GMA is effective (Ecology, 2014; Access Washington, 2015).

(**Figures 1.4 and 1.5**).⁴ The latter implies that remaining resource lands within and at the fringe of the UGA may be at a heightened risk of conversion due to further population growth and the resultant expansion of urban densities.

In summary, the figures and tables shown illustrate that the growth of urban areas has occurred from the urban core in the west, towards rural and resource lands to the east. As this urbanization has taken place, there has been a subsequent decline in resource lands within, and outside of, the UGA within the study area. Further, these figures indicate that urbanization is likely a major driver of land conversion in the study area (see **Appendix A** for more spatial details).

When considering broad scale historical resource land conversion, described in Section 2.0, as well as the current trends from 1992 to 2011, there is a clear pattern of loss within the study area. The question now becomes, will this decrease continue into the future?

3.2 FUTURE RESOURCE LAND CONVERSION

Predicting the future is a task fraught with uncertainty. Ultimately, while it is not possible to predict with certainty how future landscapes will be shaped, it is possible to project plausible futures based on historical trends, planning documents, as well as estimations of current and future human behavior. This report demonstrates that urbanization is an important driver of resource land conversion, and asserts that future urbanization trends will dictate those of resource lands if regulations or other restraints to conversion are not put in place.

As discussed above, the ROSS team has chosen to rely upon three plausible future land use scenarios for projecting future land conversion within the Central Puget Sound Region as a reference point.

These were created by OSU in 2010, and are shown graphically in **Figures 1.7 and 1.8**. These figures display land cover change and impervious pavement predictions between 2000 and 2060 for the region and study area. OSU based these predictions on three scenarios, 1) Status Quo – a scenario that assumes historic trends continue on into the future; 2) Managed Growth – a scenario where “an aggressive set of land use management policies beyond those in place today, focusing on protecting and restoring ecosystem function and concentrating growth within the Urban Growth Areas” are adopted; and, 3) Unmanaged Growth – a scenario that reflects “a relaxation of land use restrictions with limited protection of ecosystem functions” (Bolte and Vache, 2015, 4). The figures display that no matter the selected scenario, there will most likely be continued expansion of urbanization within the Central Puget Sound Region. The key differences include the geographic extent of this urbanization, and subsequent losses of resource land acreage. Zooming in to about the scale of King and Pierce Counties, OSU expects that developed areas will increase within each of the three scenarios between 0 and 10 percent, forest land covers will decrease in each of the scenarios by 0 to 10 percent, and agricultural land covers will stay roughly the same in each of the scenarios (Bolte and Vache, 2015, 22). See **Table 1.3**.

Table 1.3 Expected land cover change within each scenario (Bolte and Vache, 2015, 22).

Scenario	Developed land cover change	Forest land cover change	Agricultural land cover change
Status Quo	+9%	-9%	0%
Managed Growth	0%	0%	0%
Unmanaged Growth	+10%	-10%	0%

⁴ Outside of the study area the converted forest lands are not located within the UGA, and seem to be in the middle of large swaths of forest land cover areas. This could imply that there is another rationale for forest land conversion besides urbanization, or it could be an error with data analysis. When the trees within working forest

lands are cut down for timber, and a satellite takes an aerial picture, land cover analysis could indicate that the area no longer has a forest land cover. It could instead categorize the land as grassland, when in reality the parcel is simply undergoing a re-growth period.

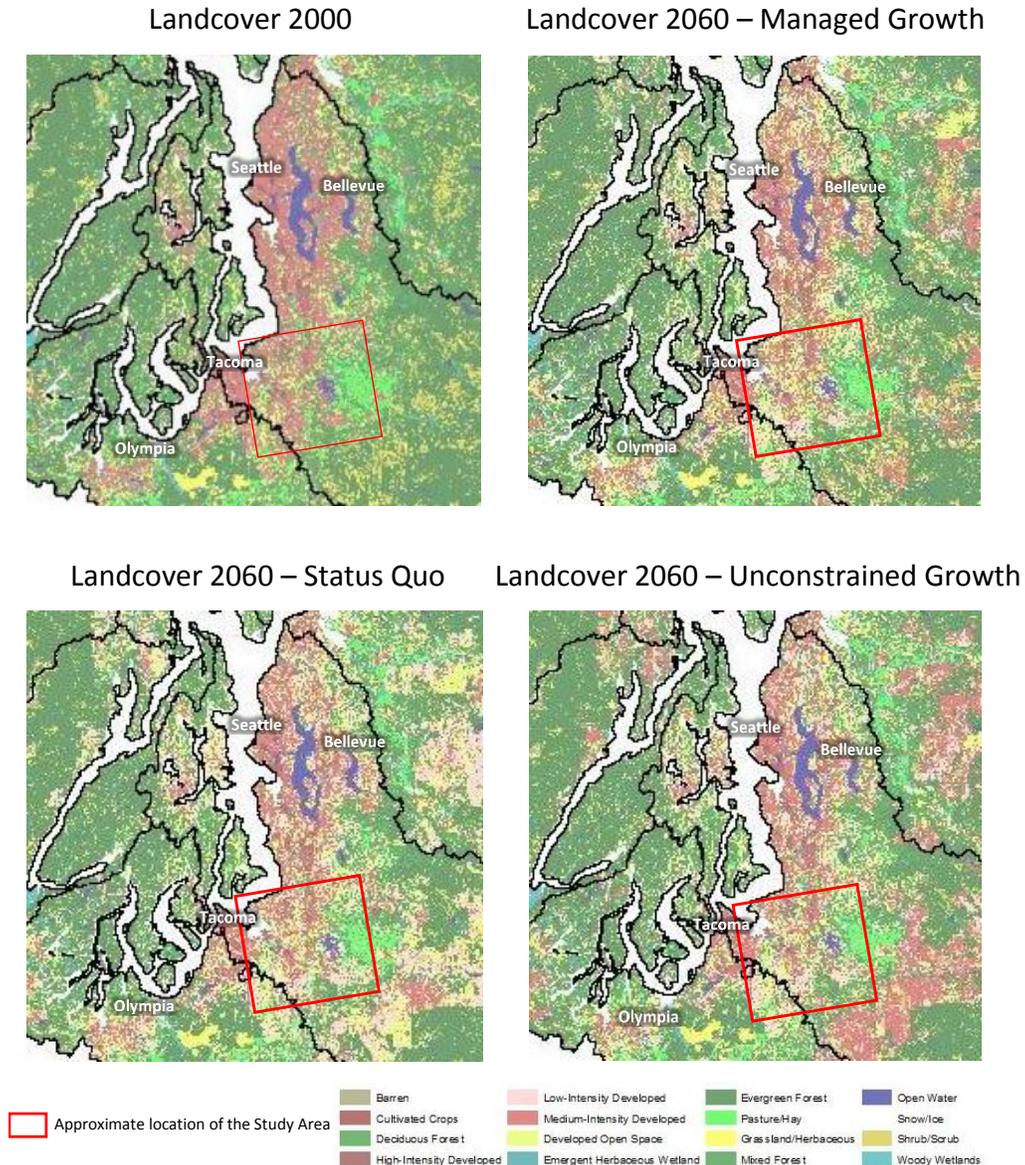


Figure 1.7 Predicted land cover change for the area around the study area, originally created by OSU. Original data was not available for analysis, although it appears that resource lands are expected to dwindle as urban areas expand within the study area within each scenario (Bolte and Vache, 2015).

OSU also illustrated the scenarios by showing their respective predictions for impervious surface area growth within the region. Impervious surface area is a measure of resource land conversion as it indicates a long-term land use dedicated to more intensive human activities. Growth in impervious surfaces characterizes development, and provides another tool for understanding resource land trends. The projected spread of impervious surfaces is visually displayed in **Figure 1.8** as a complement to the land cover change predictions

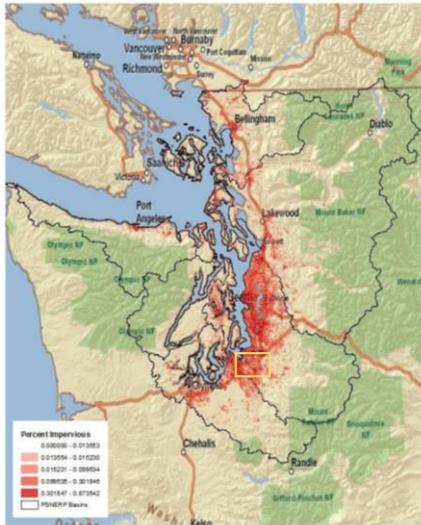
from OSU in **Figure 1.7**. It is clear from this study that resource land conversion is a phenomena common across the entire Puget Sound Region, and not just Pierce County or the Green-Y.

The two figures from OSU were developed at a much larger scale than this report's study area. In order to calculate potential resource land conversion at the scale of the study area with any specificity, the ROSS team examined anticipated future land use from comprehensive plans for

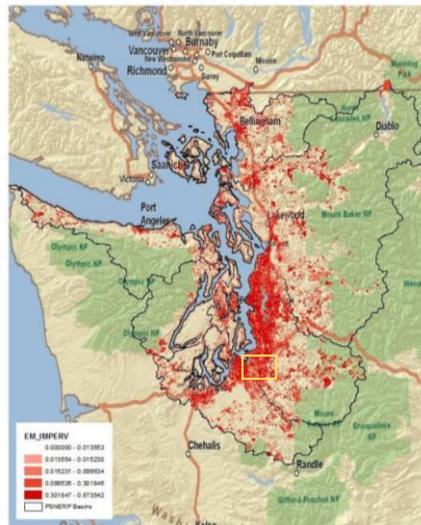
Pierce County and generalized zoning maps for the area within King County.⁵ Future land uses from these plans and maps were then overlaid with the current agricultural and forest land use areas in the study area. This is a crude way of determining what resource lands are at risk of conversion based on

the planned future land uses for the study area. If a maximum build-out of the future land use plan resource designations and the current resource land zoning classifications occurred, this could result in a reduction of agricultural and forest lands within the study area by 2,531 and 6,963 acres,

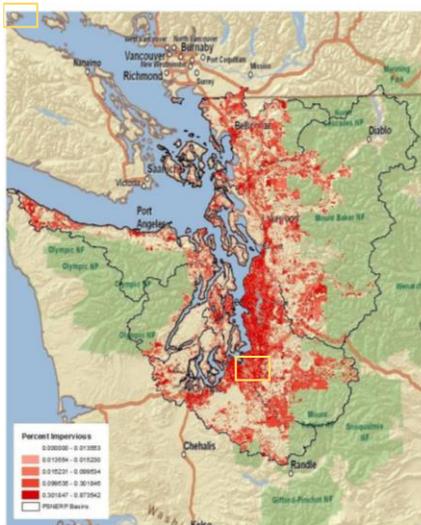
Percent Impervious 2000



Percent Impervious 2060 – Managed Growth



Percent Impervious 2060 – Status Quo



Percent Impervious 2060 – Unconstrained Growth

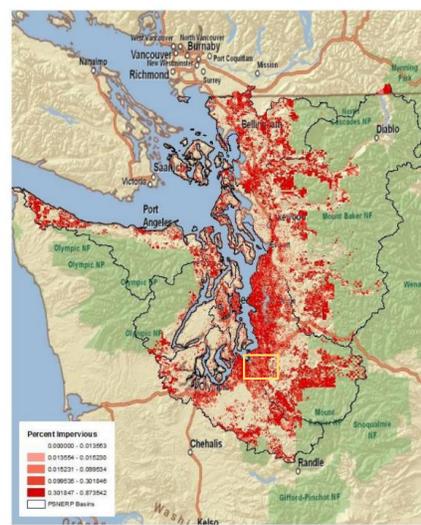


Figure 1.8 Plausible impervious surface area scenarios for the Puget Sound Region (Bolte and Vache, 2015).

⁵ Zoning maps were utilized in King County because geospatial data from the future land use plan in the County's Comprehensive Plan was not available.

respectively.⁶ Although, there is also the potential to increase agricultural lands by 8,387 acres beyond what is currently being used for agricultural purposes based on the future agricultural land use designations. This would result in a net increase of 5,856 acres of agricultural land within the study area (see **Table 1.5**).⁷ However, **Figures 1.9** and **1.10** help illustrate that many of the lands that have a future land use designation of agriculture are currently being used for residential purposes, or are developed in such a way that makes conversion back to agricultural uses unlikely. These statistics will be discussed later in this section.

The OSU figures and report are presented in this paper to help validate the idea that the resource conversion trends occurring in the study area are indicative of larger scale trends in the greater Puget Sound region.

Further, while the OSU figures do not help inform the specific potential future acreage numbers utilized within this paper, they do lend credence to the numbers the ROSS team did choose to use. As the Green-Y is not an anomaly, it can be used as a case study for the larger Central Puget Sound area. The conclusions of Chapter 1 and the rest of the report can therefore be used as a catalyst for a discussion about the larger region.

Figures 1.8 and **1.9** show six conditions of resource land use and future land use designations. The six conditions - such as land that is currently being used for agricultural purposes and has a future

land use designation of something other than agriculture - are more specifically explained in **Table 1.4**.

Lands currently being used as resource lands (agriculture and forestry) do not all enjoy future land use designations as such. For instance, within the study area, there are no areas with future land use designations of forest, and yet forestry land uses do currently exist. The majority of the lands currently used as forests have future land use designations of residential. This implies that most of the almost 7,000 acres of lands currently used as forests in the study area are at risk of conversion if the area is built out to 100 percent of the future land use designation potential. While there are about 45 acres of land currently used as forest with a future land use designation of agricultural resource land or rural farm in the study area, this does not indicate preservation of forest land. While this is a resource land designation, the forest land is still at risk of conversion because to be used for agriculture, the forest would likely need to be cleared.

Alternatively, much of the current lands used for agricultural purposes within the study area are located within areas with a future land use designation of that same purpose. Still, there are a number of acres currently being used for agriculture that are located outside of the future land use areas designated for agriculture. The areas that do not overlap could be at risk of conversion if the area is built out to 100 percent of imaged future within the study area. Finally, there

Table 1.4 Six conditions that can describe any one acre of land within the study area

	Existing Agricultural Land Use	Existing Forestry Land Use	Currently Used as Neither Agricultural nor Forestry
Future Land Use Designation of Agricultural	X	X	X
Future Land Use Designation of Forestry	<i>There are no future land use designated/zoned forestry areas in the study area.</i>		
Future Land Use Designation of Neither Resource	X	X	<i>X (This condition is not relevant for this report.)</i>

⁶ From this point on, the future resource land use designations within Pierce County's Comprehensive Plan, and the generalized resource zoning classifications from King County will be collectively referred to as "future resource land use designations."

⁷ These numbers are different than the estimates from the OSU report because the scale of this study is more precise, and the only driver this study utilizes is future resource land use designations.

are acres with a future land use designation of agriculture that are not currently being used for agricultural purposes. These acres represent a potential for land conversion toward agricultural purposes and thus, a potential net increase in

resource lands. While this net increase is possible, it is important to note that it is unlikely, as historical trends are toward resource land conversion to developed uses and not the other way around.

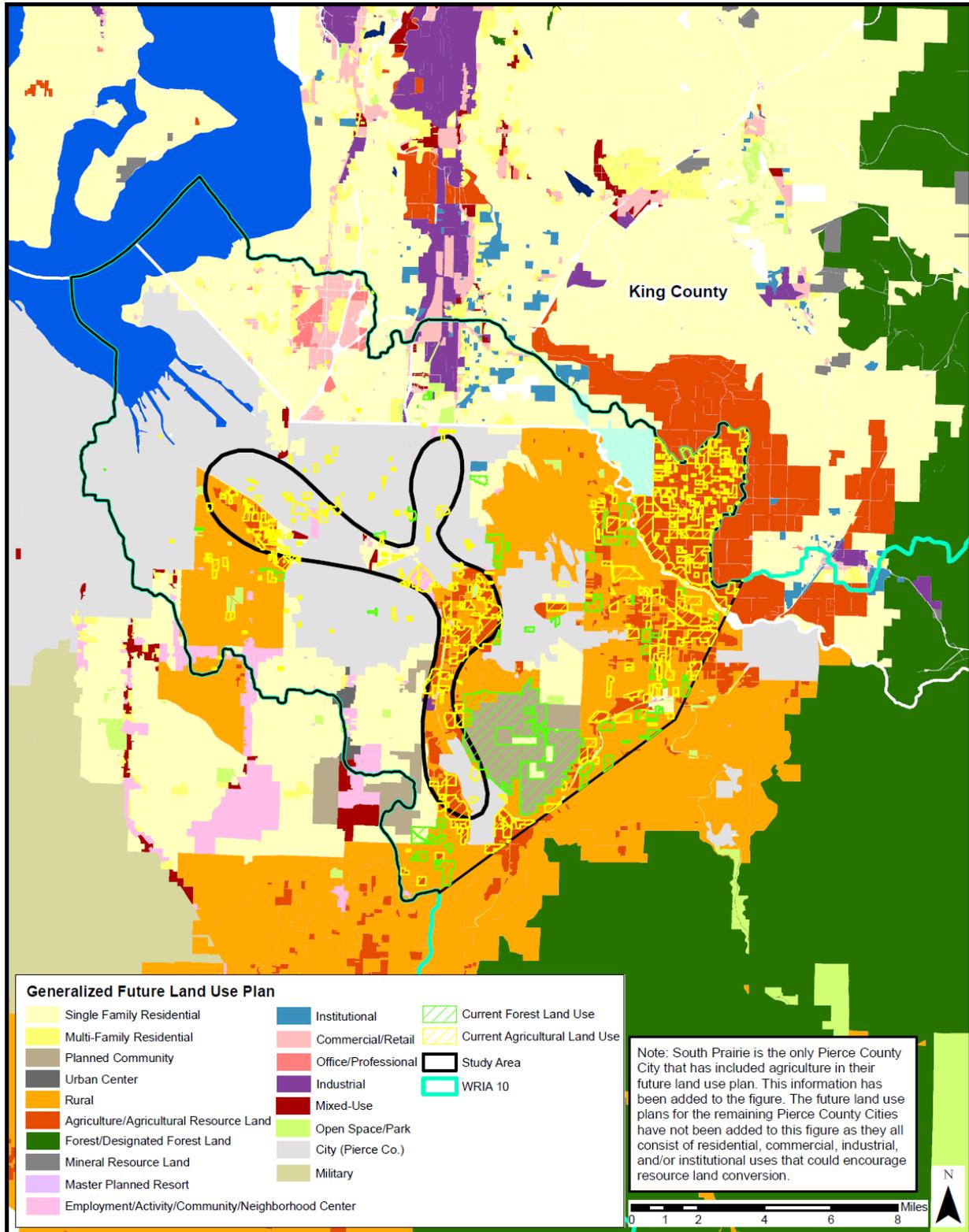


Figure 1.9 Generalized future land use designations from Pierce County and general zoning classifications from King County overlay with current agricultural and forest land uses (Ecology, 2014; WAGDA, 2015; Access Washington, 2015; King County, 2014).

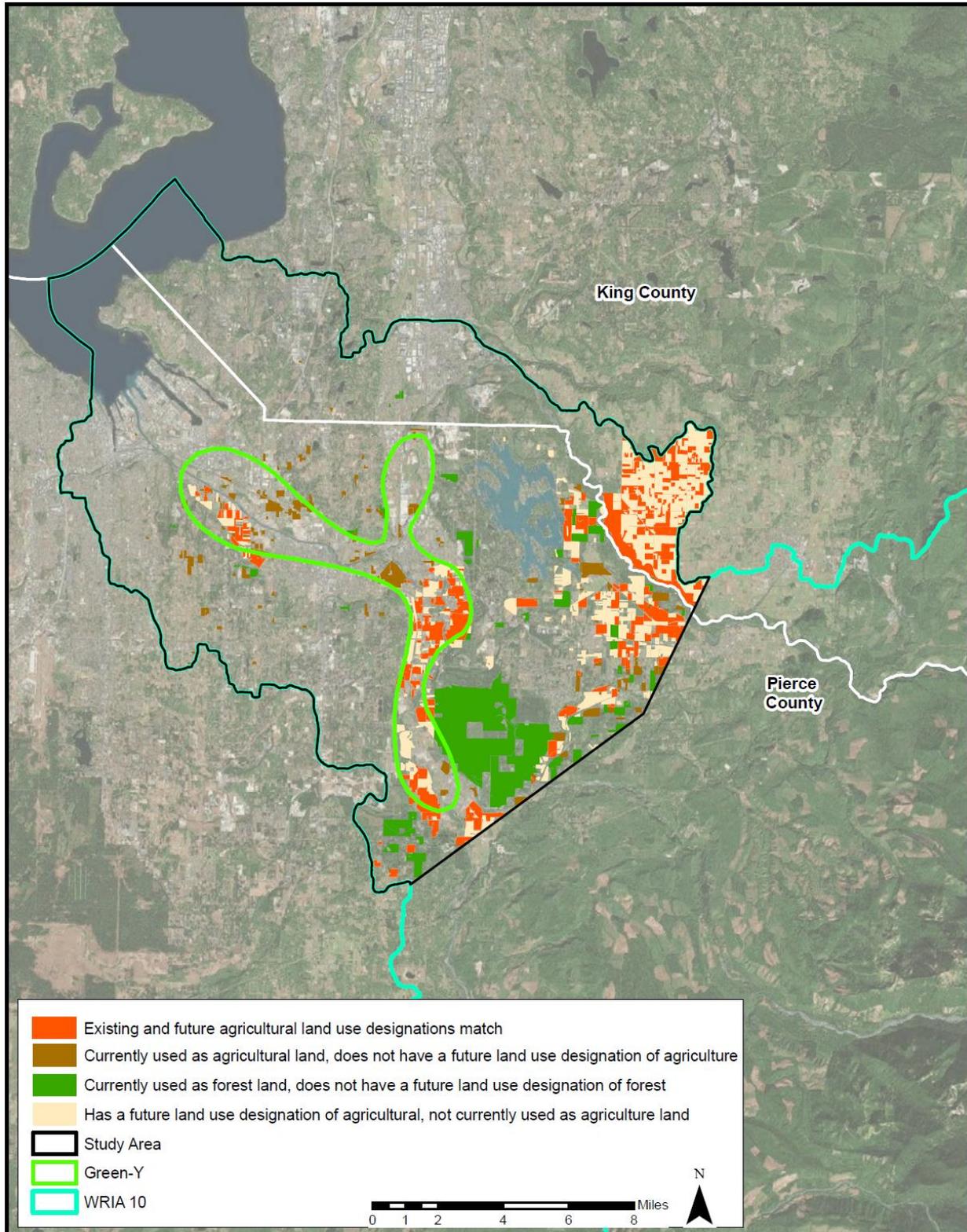


Figure 1.10 Examines the areas designated for future agricultural and forest land uses, and compares these lands with those currently used as such (Ecology, 2014; WAGDA, 2015; Access Washington, 2015; King County, 2014).

Table 1.5 illustrates the possible future increases and decreases in resource land acres based on the study area’s future land designations. The above discussion has focused on land use, although the table also includes land cover information as this is necessary for calculating the economic value of the resource lands. The plausible future resource land acres in the study area are the same when considering land use or land cover. While there are variations in the specific number of acres lost or gained, both land use and land cover analysis results in the same total future plausible resource land acres because this total number is based on the number of acres with a future land use designation of agriculture. Both cases show that if the vision for the study area is fulfilled, there would be a net loss of resource lands because of the total loss of all forest lands.

agricultural and forest lands, and then the cost to the region if the predicted resource land conversions come to pass. It is important to identify and discuss these costs, as they are a crucial, often missing, piece of many cost/benefit analyses conducted when evaluating whether to invest in infrastructure, and/or allow resource lands to be converted to residential, urban, or other impervious land cover types. This analysis is meant to help create a more balanced cost/benefit analysis, not replace it.

A potential economic benefit of development that could also help the environment, for instance, could relate to using increased tax revenue, from an increased tax base, toward furthering environmental policies or technological development. These benefits are not included

Table 1.5 Plausible future resource land loss or gain in the study area based on future land use designations (Access Washington, 2015; King County, 2014).

	Agricultural Lands (acres)		Forest Lands (acres)	
	Land Use	Land Cover	Land Use	Land Cover
Acres currently being used as / covered with resource lands	9,722	15,258	6,963	31,965
Acres where the current use / cover and future resource designations overlap (<i>Lands not necessarily at risk to future conversion</i>)	7,191	8,753	0	0
Acres with a future resource designation beyond those currently being used as / covered with resource lands (<i>New acres that could be potentially converted to resource lands</i>)	8,387	6,825	0	0
Acres currently being used as /covered with resource lands that are not designated as such (<i>Land potentially at risk to future conversion</i>)	2,531	6,505	6,963	31,965
Plausible future resource land acres	15,578	15,578	0	0

Note: The plausible future resource land acres for agricultural resource lands are the same when considering land use and land cover because the number is based on the number of acres designated as agriculture in the study area despite what is currently used or covered with resource lands.

4.0 EXAMINING CHANGE IN THE VALUE OF OPEN SPACE SERVICES

Section 3.0 examined the historical trends and plausible future changes in resource lands within the study area based on future land use designations. This section will identify the existing value of the open space services provided by

within this paper because they are highly contextual to the actual type and location of development, and how and if increased tax dollars are spent on the environment. This type of contextual analysis can only be conducted when considering whether to construct specific capital investments. Further, even if the best case scenario for environmental benefits due to development

were to occur, studies have shown that technological improvements in grey infrastructure to replace lost ecosystem services are far more expensive and less effective than the original green infrastructure. Some could argue that the heightened levels of revenue generated by development would offset the increased cost or inefficiencies of grey infrastructure solutions. However, there are several factors to be considered, as often the full costs and externalities of the development equation, such as pollution, traffic, and costs to provide public services, are not included. Further, analysis indicates that it is very difficult or impossible to recreate high quality habitat, and it is rare that substantial portions of development revenue go back to support the disturbed ecosystems. Development, however can include green infrastructure for creative solutions..

The economic values of ecosystem services associated with resource lands displayed in the tables below were calculated using a modified Benefits Transfer methodology and base numbers originally developed by Earth Economics for the Central Puget Sound Region (discussed in Section 1.0) (Earth Economics, 2015). It is important to note that this report likely underestimates the value of ecosystem services since proximity to urban areas, another attribute that Earth Economics utilizes to identify potential values when conducting more project-specific analyses, was not taken into account. Proximity relates to the idea that, for instance, deciduous forests in close proximity to urban areas actually provide more service value than the same acreage of deciduous forest located in the middle of the wilderness. This was not considered because to do so would have required modeling and funding beyond the scope of this report. While these numbers are only conservative estimates of the true value open spaces provide to the culture, economy, and health of the study area, they present an idea of their economic value beyond production valuations of crop yields.

If resource lands are converted to developed land uses as predicted, this would represent a significant, negative economic impact to the region in two respects. The first is that the total economic productivity of resource lands would be

significantly reduced. The second is that if the region is to enjoy the same level of service that is currently provided by these open spaces, in the form of carbon sequestration, maintenance of water and air quality, and many others, the costs would be substantially greater for grey infrastructure substitutes. This would result in dramatically diminished environmental quality, and therefore a lower quality of life.

The technological substitutes will be likely more expensive and less effective than their natural counterparts. For example, studies have shown that there is no more efficient method to sequester carbon than the natural processes that take place within trees and other vegetation. When manmade technologies attempt to recreate these processes, the costs can escalate from the price of a tree, to \$600 per metric ton of carbon dioxide stored (APS, 2011, i). Further, a study conducted by the Trust for Public Land and the American Water Works Association concluded that “a 10 percent decrease in forest cover in a watershed can increase water treatment and chemical costs by as much as 20 percent” (Furniss, 2010, 45). Removing forest lands within the study area for developed uses as planned could substantially increase the time, money, and energy necessary to treat water to a level where it is safe to drink.

The open space service values per acre of specific land cover within **Table 1.6** are represented with a range due to the “variation of findings within the published literature” as well as the natural variation present in local conditions (Earth Economics, 2015). For instance, a mature evergreen tree stores far more carbon than a newly planted deciduous tree. All of the potential open space services that could be provided by resource lands are not represented in the tables below, as Earth Economics was only able to consider Aesthetic, Air, Disaster Mitigation, Food, Health, Play, Materials, Shelter, Waste, and Water services based on available data. Therefore the economic valuations within **Tables 1.7, 1.8, and 1.9** should be considered conservative.

Table 1.6 Open space service valuations per acre, per resource land cover type

Open Space Service	Forest Land Cover						Agricultural Land Cover			
	Deciduous Forest Value Per Acre		Evergreen Forest Value per Acre		Mixed Forest Value per acre		Pasture/Hay Value per Acre		Cultivated Value per Acre	
	Low	High	Low	High	Low	High	Low	High	Low	High
Aesthetic	\$342	\$3,183	\$342	\$3,183	\$342	\$3,183	\$0	\$103	\$0	\$75
Air	\$190	\$190	\$190	\$190	\$190	\$190	\$0	\$0	\$0	\$0
Waste	\$726	\$726	\$726	\$726	\$726	\$726	\$0	\$0	\$0	\$0
Shelter	\$2	\$6	\$3	\$13	\$2	\$6	\$0	\$3	\$0	\$0
Play	\$535	\$545	\$533	\$543	\$533	\$543	\$0	\$0	\$0	\$0
Disaster Mitigation	\$808	\$1,085	\$755	\$1,563	\$734	\$1,112	\$10	\$236	\$6	\$155
Health	\$13	\$13	\$13	\$13	\$13	\$13	\$17	\$17	\$14	\$196
Materials	\$16	\$18	\$18	\$18	\$18	\$18	\$0	\$0	\$0	\$0
Food	\$0	\$0	\$0	\$0	\$0	\$0	\$42	\$147	\$62	\$2,089
Total	\$2,632	\$5,766	\$2,580	\$6,249	\$2,558	\$5,791	\$69	\$505	\$82	\$2,515

Table 1.7 Current open space service valuations per land cover within the study area

Open Space Service	Forest Land Cover						Agricultural Land Cover			
	Deciduous Forest Value (~6,961 acres in study area)		Evergreen Forest Value (~8,957 acres in study area)		Mixed Forest Value (~16,047 acres in study area)		Pasture/Hay Value (~13,006 acres in study area)		Cultivated Value (~2,252 acres in study area)	
	Low	High	Low	High	Low	High	Low	High	Low	High
Aesthetic	\$3,063,245	\$28,509,675	\$2,380,656	\$22,156,806	\$5,488,128	\$51,078,100	\$0	\$1,339,633	\$0	\$168,919
Air	\$1,701,803	\$1,701,803	\$1,322,587	\$1,322,587	\$3,048,960	\$3,048,960	\$0	\$0	\$0	\$0
Waste	\$6,502,678	\$6,502,678	\$5,053,673	\$5,053,673	\$11,650,236	\$11,650,236	\$0	\$0	\$0	\$0
Shelter	\$17,914	\$53,741	\$20,883	\$90,493	\$32,094	\$96,283	\$0	\$39,018	\$0	\$0
Play	\$4,791,918	\$4,881,487	\$3,710,203	\$3,779,813	\$8,553,135	\$8,713,606	\$0	\$0	\$0	\$0
Disaster Mitigation	\$7,237,140	\$9,718,190	\$5,255,542	\$10,880,015	\$11,778,613	\$17,844,438	\$130,061	\$3,069,451	\$13,514	\$349,100
Health	\$116,439	\$116,439	\$90,493	\$90,493	\$208,613	\$208,613	\$221,104	\$221,104	\$31,532	\$441,443
Materials	\$143,310	\$161,223	\$125,298	\$125,298	\$288,849	\$288,849	\$0	\$0	\$0	\$0
Food	\$0	\$0	\$0	\$0	\$0	\$0	\$546,258	\$1,911,904	\$139,640	\$4,704,966
Total	\$23,574,447	\$51,645,236	\$17,959,334	\$43,499,177	\$41,048,627	\$92,929,085	\$897,424	\$6,581,110	\$184,685	\$5,664,428

Note: The low and high values within the table were calculated by multiplying the total acreage of each land cover type in the study area by the open space value per acre, per land cover type. Again it should be noted that these values are conservative because the value of proximity is not accounted for, and benefits transfer calculations were only conducted for some of the open space services that resource lands provide.

Table 1.8 Predicted open space service valuations per land cover within the study area based on Earth Economics calculations and future land use designations

Open Space Service	Forest Land Cover						Agricultural Land Cover			
	Deciduous Forest Value (~0 acres in study area)		Evergreen Forest Value (~0 acres in study area)		Mixed Forest Value (~0 acres in study area)		Pasture/Hay Value (~13,472 acres in study area)		Cultivated Value (~2,106 acres in study area)	
	Low	High	Low	High	Low	High	Low	High	Low	High
Aesthetic	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,387,634	\$0	\$157,932
Air	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Waste	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Shelter	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$40,417	\$0	\$0
Play	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Disaster Mitigation	\$0	\$0	\$0	\$0	\$0	\$0	\$134,722	\$3,179,433	\$12,635	\$326,392
Health	\$0	\$0	\$0	\$0	\$0	\$0	\$229,027	\$229,027	\$29,481	\$412,728
Materials	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Food	\$0	\$0	\$0	\$0	\$0	\$0	\$565,831	\$1,980,410	\$130,557	\$4,398,924
Total	\$0	\$0	\$0	\$0	\$0	\$0	\$929,580	\$6,816,920	\$172,672	\$5,295,976
Difference from Existing	(\$23,574,447)	(\$51,645,236)	(\$17,959,334)	(\$43,499,177)	(\$41,048,627)	(\$92,929,085)	\$32,156	\$235,810	(\$12,013)	(\$368,452)

Note: All resource land cover contained within areas designated as resource lands, as well as land designated as resource land that does not currently have a resource land cover type, were considered plausible resource lands for the future. There are no lands designated as forest that do not currently have a forest land cover. There are almost 7,000 acres of land designated as agriculture that does not currently have an agricultural land cover. The agriculturally designated lands were not broken down by pasture/hay and cultivated lands, so these additional plausible agricultural acres were added to the two land cover types based on the percentage breakdown of the existing land covers (i.e. 15 percent of the total current agricultural land cover acres are cultivated, and 85 percent are pasture/hay, and the additional future acres were distributed the same way). The low and high values within Table 6 were calculated by multiplying the total acreage of each land cover type that is predicted to remain in the study area, by the open space value per acre, per land cover type.

Table 1.9 Total existing and predicted economic value of open space services attributed to resource lands in the study area.

	Low	High
Current Valuation	\$83,664,517	\$200,319,036
Future Valuation	\$1,102,252	\$12,112,896
Difference	(\$82,562,265)	(\$188,206,141)

Tables 1.6, 1.7, 1.8, and 1.9 above reveal both the high economic value of the open space services within the study area’s existing resource lands (over \$200 million), and the extreme risk land conversion poses in the region. If 100 percent of the build out possible through future land use designations were to take place, the study area alone could lose between \$83 and \$188 million in economic value of their environmental assets. This is especially troubling considering that these values are conservative because they do not take into account proximity values and the several other open space services that resource lands provide.

5.0 EFFECTS OF LAND CONVERSION ON REGIONAL CHALLENGES

The discussion within Section 4.0 focused on the potential impact of resource land conversion on open space services through a discussion of their current and plausible future economic values. This section will focus on the impact that resource land conversion could have on the five regional challenges of climate change, biodiversity, social equity, human health, and economic development.

Climate Change: The impact from a loss of resource lands toward mitigating the effects of, and adapting to, climate change could be dramatic and varied. Decreases in carbon stock, water and air purification capacity, and temperature normalizing services across the region will result from decreasing forest acreage, for instance, and could mean the difference between climate change impacts that are survivable or not.

Biodiversity: The unique plant and animal species within the study area that depend on resource

lands for habitat or transportation corridors may no longer be present if resource lands are converted to developed uses. With less forested land, there are fewer opportunities for species to safely migrate, live, feed, and procreate within the area. The impact is not only on affected species, but to the basic aesthetic and recreational needs of humans as well.

Social Equity: As resource lands are converted within the study area and the Central Puget Sound Region in general, the capacity for these lands to benefit society also decreases. The cultural heritage of the area is due in part to the agricultural and forestry traditions that developed over centuries. If these lands and related jobs, culture, and identity are lost, so too will intrinsic qualities of local tradition and culture. Further, with a loss of jobs in these industries, employment opportunities for people traditionally in blue and white collar occupations may decrease as many people in the region derive part or all of their income from resource lands (Barney & Worth and Globalwise, 2006).

Human Health: If agriculture and forest lands are lost in the area, the community may also lose access to local, fresh, and healthy foods, and clean air and water. Further, losses in open spaces could also negatively impact resident’s ability to get physical exercise through outdoor recreation. Less obvious, but no less essential is the impact the loss of resource lands have on human health from the standpoint of mental, emotional, and spiritual recharge.

Economic Development: With fewer farms, food, and timber, there are less jobs for residents in the

area. Loss of resource lands signals diminished environmental quality which can also lead to a loss in attracting and retaining talented employees, and less incentive for new businesses to locate in the region.

6.0 SUMMARY

This chapter has detailed the current agricultural and forest lands within the study area. It also highlights the land's current economic value, as defined by open space services, and the potential economic cost that could be borne across the region if resource lands are converted to more developed uses, as expected based on scenario planning and future land use designations. While both agricultural and forest resource lands have and are predicted to continue decreasing within the study area, forest lands have shown the most severe decrease over time. Forest lands also have the highest risk of future conversion based on the area's planned land use designations. Historically, conversion of agricultural lands have decreased at a slower pace than forest lands within the study

area, and could actually increase in number if future land use planning actions are fully realized. Even with these advantages, agricultural resource lands in the study area are still vulnerable to development pressures.

The above discussion focused on the potential impacts of resource land conversion within the study area. More broadly, it also illustrated the potential impacts within the greater Central Puget Sound Region should these historical trends continue unchecked. The qualitative and quantitative discussion within this chapter has focused on the geographic context of the study area, however this could be scaled up to the region in more detail with a similar methodology and more research.

Chapter 2 of this report will go in depth about the current regulatory climate in the region, and Chapter 3 will discuss the potential changes in policy that could prevent the loss of resource lands and their essential open space services.

CHAPTER 2 - THE REGULATORY CLIMATE OF RESOURCE LAND PRESERVATION

1.0 INTRODUCTION

In order to understand what might facilitate further conversion or alternatively, help conserve resource lands in the Green-Y, this chapter will delve into an analysis of the policy framework that regulates resource lands on state, regional, county, and local levels. The opportunities and challenges within the existing regulations will be examined, as well as possible modifications to the regulatory framework that could help to better conserve resource lands within the Green-Y.

1.1 MAINTAINING RESOURCE LANDS

The goal of this report is to develop a strategy for maintaining and conserving resource lands within the Green-Y that can at the same time inform the broader WRIA 10 and Central Puget Sound Region (see **Figure 1.1**). The strategic advantage of conserving these specific agricultural and working forest lands within the region is discussed in detail in Chapter 1.

The Green-Y is located primarily within the Urban Growth Area (UGA) boundary. UGAs are areas where the Growth Management Act (GMA) of Washington allows counties and cities to plan for future growth beyond their existing corporate limits (see **Figure 2.1**).

One of the primary goals of the GMA is to prioritize urban growth within the UGA, and preserve resource lands outside of the UGA, in more rural areas. This has been identified as a challenge as it makes maintaining resource lands in urban areas – where they may also be needed to maintain cultural, aesthetic, or habitat values – difficult. While the GMA has been largely successful at separating rural and urban growth, it has done so perhaps at the expense of removing our green infrastructure from the urban landscape, as evidenced in Chapter 1. The challenge is trying to find ways to maintain or increase protection of resource lands located within the UGA, and subsequently the Green-Y, when the GMA seems to encourage the opposite.

Much of the southern portion of the Green-Y is located outside of the UGA. These lands are at risk to conversion because they have not been designated as agricultural or working forest resource lands or otherwise protected within the comprehensive plans and generalized zoning classifications of Pierce and King Counties (see Chapter 1 for more details).

To be protected from conversion, these existing resource lands outside of the UGA would need to

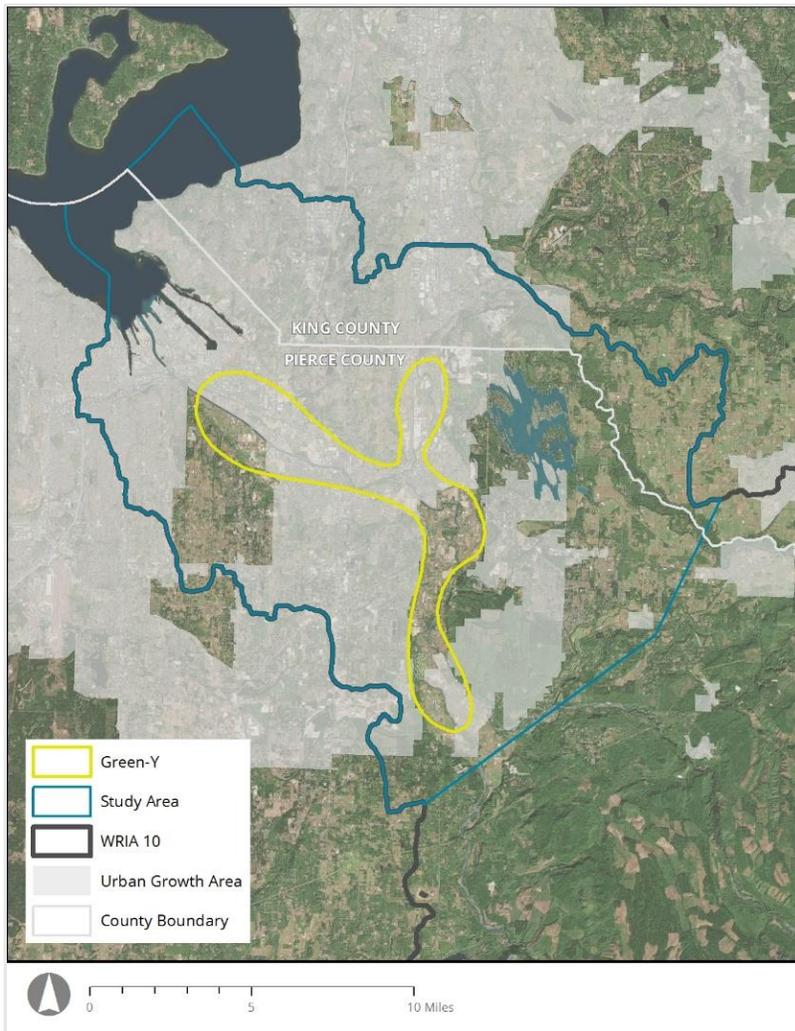


Figure 2.1 The UGA in relation to the Green-Y within WRIA 10 (Access Washington, 2015; Ecology, 2014).

be designated as resource lands, open space, or other appropriate classifications instead of commercial, industrial, or residential. Considering the established criteria required to designate resource lands – discussed in Section 1.2 of this chapter – achieving resource protection in rural areas should not be as great of a challenge. Nonetheless, there are acres of resource lands in the Green-Y that are located outside of the UGA that are not protected. As a result, while the majority of the discussion and policy recommendations within this chapter will be focused on how to better conserve existing resource lands within the UGA, protecting resource lands in rural areas will also be discussed.

Overall, Chapter 2 will explore the challenges and opportunities associated with protecting the Green-Y's existing resource lands by examining the regulatory context of these lands at the state, region, county, and city level. The final section of this chapter will provide recommendations for modifying existing policies and regulations to bring about expanded conservation of the study area's resource lands both in and outside of the UGA. Discussion of options for accomplishing such regulatory changes will be provided in Chapter 3.

1.2 DEFINING NATURAL RESOURCE LANDS AND OPEN SPACES

Before initiating the regulatory discussion, it is important to identify how agricultural and working forest resource lands, as well as open spaces are defined within various laws.

Revised Code of Washington (RCW) 36.70A.030 Definitions:

*(2) "Agricultural land" means land primarily devoted to the commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees not subject to the excise tax imposed by *RCW 84.33.100 through 84.33.140, finfish in upland hatcheries, or livestock, and that has long-term commercial significance for agricultural production.*

*(8) "Forest land" means land primarily devoted to growing trees for long-term commercial timber production on land that can be economically and practically managed for such production, including Christmas trees subject to the excise tax imposed under *RCW 84.33.100 through 84.33.140, and that has long-term commercial significance. In determining whether forest land is primarily devoted to growing trees for long-term commercial timber production on land that can be economically and practically managed for such production, the following factors shall be considered: (a) The proximity of the land to urban, suburban, and rural settlements; (b) surrounding parcel size and the compatibility and intensity of adjacent and nearby land uses; (c) long-term local economic conditions that affect the ability to manage for timber production; and (d) the availability of public facilities and services conducive to conversion of forest land to other uses.*

Neither natural resource lands nor open space are specifically defined under this section of the statute.

Washington Administration Code (WAC) 365-190-030 guidelines define agricultural and forestry lands nearly verbatim to RCW 36.70A.030. Although WAC 365-190.030 adds a note about resource lands to both the definition of agricultural and forest lands, copied below, and removes the factors to be considered when determining if forest land is primarily devoted to timber production.

(1)...These [agricultural] lands are referred to in this chapter as agricultural resource lands to distinguish between formally designated lands, and other lands used for agricultural purposes.

(7)...These [forest] lands are referred to in this chapter as forest resource lands to distinguish between formally designated lands, and other lands used for forestry purposes.

Further, WAC 365-190-030 defines natural resource lands:

(15) "Natural resource lands" means agricultural, forest and mineral resource lands which have long-term commercial significance.

Open space is not defined in the RCW or WACs associated with the Growth Management Act, but is defined for purposes of the Open Space Taxation Act Rules under WAC 458-30-200. Note that under (gg)(iii), farm and agricultural land can be classified as open space land for purposes of reducing property tax.

(gg) "Open space land" means one of the following:

(i) Any parcel(s) of land so designated by an official comprehensive land use plan adopted by any city or county and zoned accordingly;

(ii) Any parcel(s) of land, by preserving it in its present use would either:

(A) Conserve and enhance natural or scenic resources;

(B) Protect streams or water supply;

(C) Promote conservation of soils, wetlands, beaches, or tidal marshes;

(D) Enhance the value to the public of abutting or neighboring parks, forests, wildlife preserves, nature reservations or sanctuaries, or other open space;

(E) Enhance recreation opportunities;

(F) Preserve historic sites;

(G) Preserve visual quality along highway, road, or street corridors, or scenic vistas;

(H) Retain in its natural state, tracts of land of not less than one acre in size situated in an urban area and open to public use on such conditions as may be reasonably required by the granting authority; or

(iii) Any parcel(s) of farm and agricultural conservation land.

1.3 DESIGNATING AND CLASSIFYING NATURAL RESOURCE LANDS

The RCW 36.70A.170 specifies the types of natural resource lands that must be designated. These are agricultural and forests lands that are: 1) not already characterized by urban growth, and 2) have long-term significance for commercial production.

WAC 365-190 provides the minimum guidelines that counties and cities must consider in designating natural resource lands to assure the long-term conservation of agriculture and forest resource lands. WAC 365-190-020(3) states:

When classifying and designating natural resource lands and critical areas, counties and cities should integrate regulatory and non-regulatory approaches together in a comprehensive program that relates to existing local, state, and federal efforts. An integrated approach should also consider...the need to identify open spaces and their corridors, [among other planning requirements].

Local governments designated the majority of their resource lands as required shortly after the passage of the GMA in the 1990's. WAC 365-190-050 spells out three central criteria for designating agricultural resource lands:

(3)(a) The land is not already characterized by urban growth.

This factor states the obvious to ensure the land being considered for designation as an agricultural resource is not already encumbered by other uses. Criteria for this factor references WAC 365-196-310 which is focused on urban growth areas.

(3)(b) The land is used or capable of being used for agricultural production.

This factor is based on physical and geographical characteristics.

(3)(c) The land has long-term commercial significance for agriculture.

This factor is based on the nonexclusive criteria of farmland soils, availability of roads used in transporting agricultural products; tax status, proximity to markets and other contextual criteria.

Beyond the three criteria note above, the WAC provides other criteria that may be used in the designation process:

(4) When designating agricultural resource lands, counties and cities may consider food security issues, which may include providing local food

supplies for food banks, schools and institutions, vocational training opportunities in agricultural operations, and preserving heritage or artisanal foods.

“Designated” agricultural resource lands enjoy a heightened level of regulatory protection against conversion as they are by definition determined to be significant farm lands, identified as such in comprehensive plans, and cannot be used for other purposes. WAC 365-190-050(2) states that

Once lands are designated, counties and cities planning under the act must adopt development regulations that assure the conservation of agricultural resource lands.

The existing agricultural lands that do not meet the criteria for designation as significant resources can still be protected through heightened consideration of the compatibility of nearby development, as specified under WAC 356-190-050(6):

Counties and cities may further classify additional agricultural lands of local importance. Classifying additional agricultural lands of local importance should include, in addition to general public involvement, consultation with the board of the local conservation district and the local committee of the farm service agency. It may also be useful to consult with any existing local organizations marketing or using local produce, including the boards of local farmers markets, school districts, other large institutions, such as hospitals, correctional facilities, or existing food cooperatives.

These additional lands may include designated critical areas, such as bogs used to grow cranberries or farmed wetlands. Where these lands are also designated critical areas, counties and cities planning under the act must weigh the compatibility of adjacent land uses and development with the continuing need to protect the functions and values of critical areas and ecosystems.

There are also *classified* agricultural lands, as specified in WAC 458-30-200, that are locally important, but are not necessarily protected

through regulations (WAC 365-190-050). Classified agricultural lands are those currently used for agricultural purposes, as generally defined by size and gross income. (See WAC 458-30-200 for the specific criteria.) Classified agricultural lands can be located within non-agricultural zones that can legally be developed to other uses. Classified resource lands are referenced throughout this chapter as “existing resource lands.”

The designation of forest resource lands are based on the same three factors and criteria as those for agricultural resource lands (WAC 365-190-060(2)).

Additionally under WAC 365-190-060(3):

Counties and cities may also consider secondary benefits from retaining commercial forestry operations. Benefits from retaining commercial forestry may include protecting air and water quality, maintaining adequate aquifer recharge areas, reducing forest fire risks, supporting tourism and access to recreational opportunities, providing carbon sequestration benefits, and improving wildlife habitat and connectivity for upland species. These are only potential secondary benefits from retaining commercial forestry operations, and should not be used alone as a basis for designating or dedesignating forest resource lands.

Finally, WAC 365-196-335 requires counties and cities planning under GMA to identify open space corridors which include:

(1)(a) Lands useful for recreation, wildlife habitat, trails, and connection of critical areas

(2)(d) Link established large areas of parks and recreational lands, resource lands, greenbelts, streams, and wildlife corridors to help protect fish and wildlife habitat conservation areas.

Open space corridor requirements and open space designations under the Open Space Taxation Act (WAC 458-30-200), provide another opportunity to protect existing agricultural and working forest lands that do not meet natural resource designation criteria.

2.0 REVIEW REGULATORY FRAMEWORK

2.1 CURRENT POLICIES AND REGULATIONS CONCERNING RESOURCE LANDS

In order to make policy recommendations aimed at enhancing protections of the Green-Y's resource lands, especially those located within the UGA, it is necessary to understand the existing regulatory framework. The ROSS team reviewed state, regional, county, and local regulations and policies that pertain to resource lands within the Green-Y. These include the State GMA; Forest Practices Act; Vision 2040 for its multi-county planning policies (MPPs); Pierce County's Countywide Planning Policies (CPPs); the comprehensive plans of the counties and cities within and adjacent to the Green-Y; and other guidance.

The following discussion will identify and examine some of the most important policies affecting agricultural and working forest lands within the study area. The focus of this discussion will be to identify areas within the existing regulatory framework where policies may or may not support the protection of resource lands in or outside of the UGA within the Green-Y. The goal of this analysis of applicable laws is to understand how current statutes, policies, guidelines, and regulations either support or restrict protection of resource lands in the Green-Y. Chapter 3 will then identify how these and other policies and regulations could be modified to allow for better protection of resource lands within the Green-Y.

STATE REGULATIONS

The **Growth Management Act (GMA)** is pronounced through the goals and objectives established in Chapter 36.70A of the RCW, and administered through WAC 365-190 and WAC 365-196. The GMA is a statute that went into effect originally in 1990, with major amendments in 1991, aimed at managing growth and development. It allows for the creation of UGAs that define the boundaries of anticipated future urban growth of

cities beyond their existing incorporated limits. Rural areas, which include low-density residential areas as well as natural resource areas (i.e. agricultural and working forest lands) among others, are typically located outside of these UGA boundaries. The goal is to geographically concentrate denser urban development so as to protect natural resource lands elsewhere. This is to be accomplished on the county and city level through comprehensive plans that serve as the blueprints for development. Comprehensive plans must include the following eight elements: land use, housing, capital facilities plan, utilities, rural, transportation, economic development, and parks and recreation. Without a land use plan and accompanying development regulations, history has shown that resource and other "natural" landscapes are usually converted into low density housing and commercial developments when urban populations increase. These conditions of urban sprawl cost society in several ways, including the high costs associated with extending essential infrastructure, environmental costs of lost ecosystem services, and cultural costs in the form of lost wild and recreational lands that are intrinsic to the very identity of the Central Puget Sound Region.

WAC 365-196-480 discusses natural resource land designation criteria, and includes agricultural and forest lands within that category. The pertinent points made within this administrative code that local governments must consider are detailed below:

(1)(d) Forest land and agricultural land located within urban growth areas shall not be designated [emphasis added] as forest resource land or agricultural resource land unless the county or city has enacted a program authorizing transfer of development rights.¹

(2)(b) In general, natural resource lands should be located beyond the boundaries of urban growth areas; and urban growth areas should avoid

¹ TDR is encouraged in the GMA to transfer development rights from areas that jurisdictions want to protect, usually outside of UGAs, to parcels within UGAs where cities want to develop above and beyond what is allowed

within zoning regulations. There is no apparent language within the GMA that precludes a community from designating agricultural or forest lands within the UGA as a sending parcel.

including designated natural resource lands. In most cases, the designated purposes of natural resource lands are incompatible with urban densities. For inclusion in the urban growth area, counties and cities must first review the natural resource lands designation and conclude the lands no longer meet the designation criteria for resource lands of long-term commercial significance.

(2)(d) Counties and cities may also consider retaining local agricultural lands in or near urban growth areas as part of a local strategy promoting food security, agricultural education, or in support of local food banks, schools, or other large institutions.

The citations above represent the general direction of WAC guidelines that encourage conservation of natural resource lands, but emphasize that resource lands be located outside urban areas except in limited circumstances.

The basis for the conservation of resource lands, that are more commonly designated outside of urban areas, comes from RCW 36.70A.040.

(4)(b) The county and each city that is located within the county shall adopt development regulations conserving agricultural lands, forest lands, and mineral resource lands it designated under RCW 36.70A.060 within one year of the date the county legislative authority adopts its resolution of intention.

WAC 365-196-815(1) provides counties and cities guidance for the conservation of natural resource lands based on the requirement from RCW 36.70A.040.

(a) Counties and cities planning under RCW 36.70A.040 must adopt development regulations that assure the conservation of designated agricultural, forest, and mineral lands of long-term commercial significance. If counties and cities designate agricultural or forest resource lands within any urban growth area, they must also establish a program for the purchase or transfer of development rights.

(b) 'Conservation' means measures designed to assure that the natural resource lands will remain available to be used for commercial production of the natural resources designated. Counties and cities should address two components to conservation:

(i) Development regulations must prevent conversion to a use that removes land from resource production. Development regulations must not allow a primary use of agricultural resource lands that would convert those lands to nonresource purposes. Accessory uses may be allowed, consistent with subsection (3)(b) of this section.

(ii) Development regulations must assure that the use of lands adjacent to designated natural resource lands does not interfere with the continued use, in the accustomed manner and in accordance with the best management practices, of these designated lands for the production of food, agricultural products, or timber, or for the extraction of minerals.

In subsequent language, this code restates the same exception as WAC 365-196-480, that counties and cities can designate agricultural or forest lands within urban areas when a Transfer of Development Rights (TDR) program is in place. This is an exception that is reflected in GMA under RCW 36.70A.060(4):

Forest land and agricultural land located within urban growth areas shall not be designated by a county or city as forest land or agricultural land of long-term commercial significance under RCW 36.70A.170 unless the city or county has enacted a program authorizing transfer or purchase of development rights.

Beyond implementing a TDR program, there are also opportunities to conserve resource lands that are not designated as such through the use of open space corridors, as defined in RCW 36.70A.160.

Each county and city that is required or chooses to prepare a comprehensive land use plan under RCW 36.70A.040 shall identify open space corridors within and between urban growth areas.

They shall include lands useful for recreation, wildlife habitat, trails, and connection of critical areas as defined in RCW 36.70A.030. Identification of a corridor under this section by a county or city shall not restrict the use or management of lands within the corridor for agricultural or forest purposes. Restrictions on the use or management of such lands for agricultural or forest purposes imposed after identification solely to maintain or enhance the value of such lands as a corridor may occur only if the county or city acquires sufficient interest to prevent development of the lands or to control the resource development of the lands. The requirement for acquisition of sufficient interest does not include those corridors regulated by the interstate commerce commission, under provisions of 16 U.S.C. Sec. 1247(d), 16 U.S.C. Sec. 1248, or 43 U.S.C. Sec. 912. Nothing in this section shall be interpreted to alter the authority of the state, or a county or city, to regulate land use activities.

The city or county may acquire by donation or purchase the fee simple or lesser interests in these open space corridors using funds authorized by RCW 84.34.230 or other sources.

WAC 365-196-815(3)(b) also suggests a number of potentially “innovative zoning techniques” that could help maintain and protect agricultural land uses that already exist within the UGA that do not include making natural resource or open space designations. These include the following zoning options:

(i) Agricultural zoning, which limits the density of development and restricts or prohibits nonfarm uses of agricultural land and may allow accessory uses, including nonagricultural accessory uses and activities, that support, promote, or sustain agricultural operations and production.

(ii) Cluster zoning, which allows new development on one portion of the land, leaving the remainder in agricultural open space uses.

This is an important line because it discusses the idea that agricultural land, which is typically discussed as natural resource land, could also be considered open space.

(iii) Large lot zoning, which establishes as a minimum lot size the amount of land necessary to achieve a successful farming practice.

(v) The transfer or purchase of development rights from agricultural lands, which can be used through cooperative agreements with cities, or counties with nonmunicipal urban growth areas, as receiving areas for the use of these development rights.

Throughout the GMA, the use of TDR programs is encouraged “as an innovative land use management technique (RCW 36.70A.090) that transfers development from areas a community wants to conserve to urban areas where growth should be encouraged” (Cascade Land Conservancy, 2009, 6). Regions, counties, and cities are not required to create or take part in such a program, but as discussed in this chapter, if a county or city has implemented a TDR program, they are often allowed to designate existing resource lands as such within urban areas. Further, a TDR program can be a tool to help conserve resource lands outside of UGAs in rural areas. The specific TDR programs that currently exist within the Central Puget Sound Region, Pierce County, and the City of Tacoma will be discussed later in this section.

Beyond the GMA there are additional state regulations that pertain to the management of resource lands within urban areas, including Chapter 76.09 of the RCW: **Forest Practices Act**. RCW 76.09.050 establishes four classes of forest practices for working forest lands. Class IV forest practice activities does not preclude working forests within urban areas, although this Class also does not necessarily conserve working forests within urban areas. Class IV forest practices can take place:

(1)(a) On forest lands that are being converted to another use;

(1)(b) On lands which, pursuant to RCW 76.09.070 as now or hereafter amended, are not to be reforested because of the likelihood of future conversion to urban development;

These provisions imply that Class IV forest practices could simply be the process of clearing land intended for development, instead of conserving the land as working forest. Although, there is also the ability to conserve working forest land within urban areas with Class IV forest practices approval. Approved Class IV practices can also be those:

(1)(c) That involve timber harvesting or road construction on forest lands that are contained within "urban growth areas," designated pursuant to chapter 36.70A RCW, except where the forest landowner provides:

(i) A written statement of intent signed by the forest landowner not to convert to a use other than commercial forest product operations for ten years, accompanied by either a written forest management plan acceptable to the department or documentation that the land is enrolled under the provisions of chapter 84.33 or 84.34 RCW; or

(ii) A conversion option harvest plan approved by the local governmental entity and submitted to the department as part of the application.

The Forest Practices Act therefore allows for at least temporary protection of working forest lands within urban areas, although only at the private landowner's discretion.

Overall, these state Acts concerning agricultural and working forest resource lands suggest that resource lands should not be newly formed within an existing UGA. However, state RCW policies and WACs remark that agricultural resource lands can be located in UGAs, when counties and cities have a TDR program. At the same time, WAC-365-190-310 states that, "Inside the urban growth areas densities must be urban." Urban densities are contextual, and WAC 365-196-300 helps counties determine what is appropriate. This language holds both opportunities and challenges to conserving existing resource lands within the UGA.

While there is an interest within state policies to conserve resource lands, it is clear resource lands are preferred outside of urban areas. This creates an opportunity for the existing resource lands within the Green-Y, outside of the UGA, to be

classified/designated as resource lands or open spaces. Such a designation could also help create a buffer in the urban/rural fringe that would provide relief from urban sprawl in the form of health, recreation, aesthetic, habitat and other ecosystem benefits in the study area.

REGIONAL POLICIES AND REGULATIONS

Vision 2040 is a multi-county planning strategy, developed by the Puget Sound Regional Council (PSRC), aimed at managing growth within the Central Puget Sound four-county region. Under the GMA, MPPs provide a common regionwide framework for countywide and local planning. The unified structure established by the MPPs has both practical and substantive effects on city and county comprehensive plans by providing a mechanism for achieving consistency on regional planning matters. They also guide a number of regional processes, including the Regional Council's policy and plan review process, the evaluation of transportation projects seeking regionally managed funding, and the development of criteria for Regional Council programs and projects.

The main goals of these advisory policies reflect those of the GMA. In particular, those associated with natural resources are to restore, protect, and sustain the natural environment; have growth focused in UGAs; have cities develop as the center of housing, jobs, and other activities; and permanently protect resource lands (PSRC, 2009, 13). The Plan has an overarching environmental goal of "protecting and restoring natural systems, conserving habitat, improving water quality, reducing greenhouse gas emissions and air pollutants, and addressing potential climate change impacts. Vision 2040 asserts that the health of all residents is connected to the health of the environment" (PSRC, 2009, xi). The environmental goal also emphasizes sustainable growth, which could allow for the inclusion of resource land preservation if framed appropriately. Together these goals connote a strong position in favor of resource land conservation.

As with the state law and guidance discussed above, resource lands within Vision 2040 include agricultural and forest lands. Consistent with GMA

policies, Vision 2040 creates land use categories for urban and rural lands (PSRC, 2009, 46).

MPP-DP-2: Encourage efficient use of urban land by maximizing the development potential of existing urban lands, such as advancing development that achieves zoned density (PSRC, 2009, 47).

Common elements of rural areas include small-scale farms, wooded areas, lakes, streams, and open spaces. Rural lands primarily contain a mix of low-density residential development, agriculture, and forests (PSRC, 2009, 53).

The MPPs articulated in Vision 2040 are aimed toward preserving resource lands within rural areas, and dense urban lands within cities. To permanently protect resource lands, Vision 2040 includes the following MPPs that guide development of countywide planning policies:

MPP-DP-29: Protect and enhance significant open spaces, natural resources, and critical areas.

MPP-DP-30: Establish best management practices that protect the long-term integrity of the natural environment, adjacent land uses, and the long-term productivity of resource lands.

MPP-DP-31: Support the sustainability of designated resource lands. Do not convert these lands to other uses.

MPP-DP-32: Ensure that resource lands and their related economic activities are not adversely impacted by development on adjacent non-resource lands (PSRC, 2009, 56).

Appropriate locations for agricultural lands are mentioned only twice within Vision 2040. The first is when the plan discusses community gardens, although this topic likely does not apply to agricultural resource lands, as community gardens are typically comprised of small, publicly owned parcels with multiple users, located within developed communities. They are not typically leased by those who work their lands, and are not known for producing cash crops. Agricultural resource lands on the other hand, are typically comprised of larger parcels owned and/or

operated by professional farmers, whose yields are sold to market.

The second reference appears in:

MPP-DP-47: Support agricultural, farmland, and aquatic uses that enhance the food systems in the central Puget Sound region and its capacity to produce fresh and minimally processed foods (PSRC, 2009, 59).

This implies that agricultural land uses should be “supported” within the region, and makes no mention of location. However, the extent of this support is not defined, and could be intended to refer only to existing agricultural resource lands, not to the conservation of new agricultural lands.

In language similar to that found in the GMA, the plan under MPP-DP-48 advocates for TDR as an innovative technology:

Encourage the use of innovative techniques, including the transfer of development rights, the purchase of development rights, and conservation incentives. Use these techniques to focus growth within the urban growth area (especially cities) to lessen pressures to convert rural and resource areas to more intense urban-type development, while protecting the future economic viability of sending areas and sustaining rural and resource-based uses (PSRC, 2009, 60).

The regional recommendation concerning TDR programs seems to only refer to transfers between rural and urban areas, not urban to urban.

The **Regional Transfer of Development Rights Alliance** includes King, Pierce, Snohomish, and Kitsap Counties, as well as the non-profit organization Forterra, PSRC, and the Washington State Department of Commerce. “The Alliance works to encourage cities to participate in the conservation of farm, forestry and open space land through TDR in the four central Puget Sound counties.” The idea of a regional TDR program, beyond individual county or city programs, is beginning to gain traction due to the work of this group (Department of Commerce, 2016).

Agreements for a regional TDR program were first inked between King County, Seattle, and Issaquah

in 2001, and expanded to the rest of the Central Puget Sound to some degree by 2009. The successes of the regional alliance thus far have been to help the four counties adopt individual TDR programs. Results thus far include:

Over 180,000 acres of farmland, forestland, and open space are under conservation easement;

2,628 transferable development right credits have been purchased from farmland, forestland, and open space; [and]

Over 250 credits have been transferred into cities and unincorporated urban growth areas
(Department of Commerce, et al., 2013, 2).

TDR programs on any level generally work to protect resource lands – typically in rural settings – by sending their development credits to cities where projects would like to develop above and beyond the current allowances. This requires a demand for increased development opportunity beyond zoned capacity. Generally the regional demand is low, since zoned capacity is currently adequate. If and when credits are purchased, the resource lands must remain undeveloped and the urban project can develop more intensely. A regional TDR program differs from a county or city program in that sending and receiving parcels can be located across jurisdictional boundaries.

Moving forward, the goal is to create “a critical mass of development capacity for regional TDRs,” because involvement in the Puget Sound’s program is voluntary and has not yet reached full capacity. Currently, the four counties have TDR programs, but there is not yet one overarching regional program. Further, the majority of all TDR activity takes place in King County, where demand may exceed zoned capacity in some urban areas (Department of Commerce, et al., 2013). See **Table**

2.1 for an example of the current disparity across the counties.

COUNTYWIDE POLICIES AND REGULATIONS

This section’s discussion of CPPs will focus on Pierce County, where the Green-Y itself is located. The larger study area around the Green-Y includes a sliver of land located in King County.

The PSRC MPPs guide development of the CPPs that complement multicounty policies, and provide a more specific level of detail to guide county and local comprehensive planning in each of the four counties. Both multicounty and countywide planning policies address selected issues in a consistent manner, while leaving other issues to local discretion. Much of the implementation of Vision 2040 occurs through local planning and actions.

Local governments have the authority to create a set of policies and regulations to manage growth, although the goal of MPPs and CPPs is to keep these policies generally consistent across political boundaries, and in line with the overall GMA. The GMA requires all counties with populations greater than 50,000 to delineate UGAs in order to have orderly development paced to the local government’s ability to provide public services and facilities; i.e, prevent urban sprawl. Where each county/city locates its UGA boundaries depends in part on the existing population, expected future populations, ability to provide services, and other details from its comprehensive plans, in terms of capacity to grow based on buildable lands analyses.

With an estimated population of 831,928 (US Census Bureau, 2014), Pierce County and its cities address the challenges of planning for growth through their **Countywide Planning Policies**

Table 2.1 Number of Acres Under TDR Conservation Easement (Department of Commerce, et al., 2013, 10)

County	Urban Open Space	Rural Land	Agricultural Land	Forest Land	Total
King	121	2,576	170	181,754	184,621
Pierce	0	90.1	120.5	0	210.6
Snohomish	0	0	74	50	124
Kitsap	0	0	0	0	0
Total	121	2,666.1	364.5	181,804	184,995.6

(CPPs). Guided by the regional MPPs in Vision 2040, the CPPs are intended to coordinate the multiple planning efforts undertaken by the County and its cities. Many of the CPPs for Pierce County relate, directly or tangentially, to working forest and agricultural resource lands. These policies often refer back to state law, such as when the CPPs explain which lands may be designated agricultural resource lands (PCRC, 2012, 16). The Pierce County CPP Ag-1 lists each of the four designation criteria within WAC 365-190-050 for agricultural resource lands in particular, and add two more:

(1.5): Designation of at least a minimum amount of agricultural land county-wide necessary to maintain economic viability for the agricultural industry, and retain businesses supporting agriculture such as processors, suppliers, and equipment dealers should be considered.

(1.6): Agricultural lands of local significance should be designated through consultation with the public and stakeholders such as, local conservation districts, and organizations promoting farming and local agricultural producers (PCRC, 2012, 17).

The CPPs not only substantiate the importance of preserving agricultural land, but also propose methodologies for achieving this goal that emulate the suggestions found in the GMA. According to the CPP Ag-3, agricultural preservation in Pierce County can be achieved through:

(3.1): Implementing agricultural area zoning that maintains large minimum lot sizes in agricultural areas, prohibition of conversion to non-farm uses and urban scale development, and flexible approaches such as clustering;

(3.2): Buffering agricultural areas from urban development;

(3.3): Avoiding location of major new roads or capacity expansions in agricultural areas unless management is controlled to inhibit intrusion of non-farming uses;

(3.4): Purchase of development rights;

(3.5): Transfer of development rights within the jurisdiction, including the designation of receiving

zones for agricultural development rights and between jurisdictions, including the designation of receiving zones by local agreement;

(3.6): Lease of development rights for a term of years;

(3.7): 'Anti-nuisance' laws to protect agricultural activities from being defined as a public nuisance;

(3.8): Preferential tax treatment ('use value assessment');

(3.9): Other innovative techniques including, but not limited to, purchase-leaseback through issuance of bonds, university purchase for research, and prevention of the formation of improvement districts or the creation of benefit assessments within designated agricultural preservation areas; [and/or]

(3.10): Reduced fee structure for agricultural related permitting (PCRC, 2012, 18-19).

None of these recommendations for how to designate or preserve agricultural lands of long term commercial significance specifies where this land must be located. Although, once again, it is assumed that agricultural lands of significance are outside of urban areas, as one of the goals of preserving agricultural land is to preserve the rural character of the County. This indicates that preserving agricultural lands within the unincorporated areas of the Green-Y and study area could be supported by these CPPs.

The CPP Ag-7 also states that those municipalities choosing to designate significant agricultural lands:

Shall ensure that prime agricultural lands presently in the unincorporated County or within a municipality are preserved and protected by the enactment of appropriate land use controls; or by including the land in the urban growth area boundary of a municipality only if the municipality has delineated standards and criteria relating to preserving the agricultural lands, and transfer and purchase of development programs (PCRC, 2012, 19-20).

Again, this implies that existing agricultural lands in the Green-Y and throughout the study area outside

of the UGA should be protected through land use controls. Further, if these CPPs were fully implemented, much of these lands should already be conserved. For the study area's existing agricultural lands within the UGA, preservation is dependent on the existence of a TDR program. This process is similar to the state regulations, only within the CPPs it seems that a County-level TDR program is not enough to designate existing agricultural lands within the UGA. To accomplish this resource designation, and the accompanying protections within the UGA, a TDR program must be enacted on a municipal level as well.

Further, CPP Ag-6 specifically discusses the conversion of agricultural land within UGAs, stating that "zoning changes and comprehensive plan amendments" could address conversion pressures, so long as the land in question is to remain in "agricultural use...within Urban Growth Areas" (PCRC, 2012, 19). CPP Ag-8 further discusses land conversion by stating that public facilities, even those that do not serve agricultural lands, should not stimulate growth around agricultural lands in such a way as to make preservation more difficult (PCRC, 2012 20).

CPP Env-4.9 directs municipalities to:

Establish best management practices that protect the long-term integrity of the natural environment, adjacent land uses, and the long-term productivity of resource lands (PCRC, 2012, 48).

CPPs Env-4.10 and 4.11 similarly calls on cities to:

(4.10): Support the sustainability of designated resource lands. Conversion of lands to other uses is strongly discouraged; and

(4.11): Ensure that resource lands and their related activities are not adversely impacted by development on adjacent non-resource lands (PCRC, 2012, 48).

This is strong language that aims to preserve the integrity of resource lands in Pierce County, and these policies do not prioritize areas outside of the UGA above those resource areas within the UGA.

The CPP Env-5.4 also indicates that there should be "a 'no net loss' approach where applicable" to

resource lands in the County (PCRC, 2012, 48). No net loss could afford resource lands within the UGA protection under the law, as resource lands both inside and outside of the UGA could together comprise a net total number of acres that shall not decrease. However, 'no net loss' allows for situations where resource land area is developed in urban areas and restored within rural areas, with a net zero loss of resource lands across the county. Further, the qualifier "where applicable" may reduce the power of the policy, depending on how it is interpreted.

There are other countywide policies that tangentially relate to the classification and conservation of resource lands. Pierce County's CPP CU-1, for instance, is dedicated to maintaining the character of communities. As working farms and forest lands often play a large role in creating the character of a place, this policy is directly applicable to resource lands (PCRC, 2012, 29). There are also CPPs that aim to emphasize a diverse economy that includes small and locally owned businesses, including family farms and forestry (PCRC, 2012, 32). CPP Ec-2.8 states that the County will:

Promote diverse economic opportunities [through] maintaining and enhancing natural resource-based industries, including productive timber, agriculture, fishing and mining (PCRC, 2012, 32-33).

The CPP does not explicitly state restrictions on where such productive lands must be located in order to be maintained. Although CPP Ec-6.10 states that the County:

Shall work to strengthen existing businesses and industries and...add to the diversity of economic opportunity and employment...in rural and natural resource areas supporting economic activity at a size and scale that is compatible with the long-term integrity and productivity of these lands (PCRC, 2012, 34-35).

Here these protections are only afforded to resource lands in rural or resource areas, implying that a resource designation is required, and is likely only located in rural areas.

The **Pierce County Comprehensive Plan** is the document that guides growth and development in the unincorporated portions of Pierce County.² One of the 14 planning goals of the Comprehensive Plan is to:

Maintain and enhance natural resource-based industries, including productive timber, agricultural, and fisheries industries. Encourage the conservation of productive forest lands and productive agricultural lands, and discourage incompatible uses (Pierce County, 2016, 1-7).

Such a goal is consistent with other countywide plans, as it originates from language within state GMA and WAC guidance. Just as with policies at the state or regional level, the geography of where these resource lands should be protected is not always clearly stated in Pierce County's Comprehensive Plan. For instance, one land use policy goal is to "conserve and preserve resource lands as a limited resource of both environmental and economic value" (Pierce County, 2016, 2-57). Within the UGA, another goal within the Land Use Element of the Comprehensive Plan is to encourage Master Planned Communities as part of the "well-designed, compact urban development with a balance of uses" (Pierce County, 2016, 2-41). "Measures to protect critical areas and conserve resource lands" is also one of goals under this land use designation, in the event such lands are located within a proposed master planned development.

The Comprehensive Plan also suggests that resource lands may be allowed in both urban and rural areas with statements such as:

The County encourages agricultural activities as an appropriate land use throughout the rural areas... [and] Agricultural activities are also allowed in the urban area (Pierce County, 2016, 2-59).

This confirms that resource lands, such as agriculture, can be located and protected in the Green-Y whether they are located within or outside of the UGA. The Plan makes further definitive

statements protecting agriculture outside of the UGA.

The focus for preservation of agricultural lands [through designation] must be on lands not already characterized by urban growth, lands that are used or capable of being used for agricultural production, or lands that have long-term commercial significance for agriculture....Only rural lands shall be considered for the Agricultural Resource Lands designation (Pierce County, 2016, 2-59).

Designated Agricultural Resource Lands (ARL) within the Comprehensive Plan are defined as those lands meeting the GMA definition and the "Minimum Guidelines of WAC 365-190-050." Further, these lands must be devoted primarily:

To the commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products or of berries, grain, hay, straw, turf, seed, Christmas trees...finfish in upland hatcheries, or livestock, and that has long-term commercial significance for agricultural production [as stated in RCW 36.70A.030] (Pierce County, 2016, 2-59).

Even firmer language is used for forest resource land. The Comprehensive Plan states that forest resource lands "should be located outside of the Urban Growth Area (UGA), and have limited public services and facilities" (Pierce County, 2016, 2-66). Further, the minimum parcel size for a designated agricultural resource land is 5 acres or larger (Pierce County, 2016, 2-60) and 40 acres or larger for forest resource lands (Pierce County, 2016, 2-66). In urban environments characterized by smaller parcels, these large parcel size requirements may be difficult to find. Although, "LU-84.2.1.1 Minimum [agricultural designation] parcel size" does create some leeway for smaller parcels.

Options for including parcels below the 5-acre threshold are provided in community planning

² The incorporated portions of the County have their own Comprehensive Plans that are consistent because of the CPPs.

processes, or the Comprehensive Plan Amendment process (Pierce County, 2016, 2-60).

The 40 acre parcel size minimum for forest designations does not provide this exception. In general, parcel size restrictions, especially for working forests, can be used as another means to discourage resource lands outside of the UGA and maybe even the urban/rural fringe (Pierce County, 2016, 2-60).

In summary, while the Pierce County Comprehensive Plan seems to provide clear direction about designated resource lands it does not seem to provide clear direction on whether resource lands can be preserved by classifying them as such within UGAs. Without a prohibition, there is an opportunity for existing resource lands to be conserved within the UGA.

See **Table 2.2** for a breakdown of resource lands located within the Green-Y study area that are inside or outside of the UGAs. It is important to note that despite policies and goals to protect resource lands within rural areas, even these resource land uses do not appear to be free from the risk of conversion.³

The **Buildable Lands Program** of Washington State provides tools for each county and its cities to identify and monitor land supply and demand. Future demand is determined by projected population growth assigned by the State Office of Financial Management (OFM). The OFM assigns these population projections to the counties of the state, which then must collaborate with their cities

to determine how this growth will be accommodated. If the demand for land is expected to be greater than the supply within the existing UGA, cities are encouraged to find ways to increase density, or counties and cities can begin to plan for annexation within the UGA boundaries. As a last resort UGA boundaries can be expanded.

Pierce County's Buildable Lands Program analyzes two aspects of growth and development within the County:

1. *Accommodation of projected population growth during the 20-year planning period [of the Comprehensive Plan; and]*
2. *The availability of commercial and industrial land for employment purposes.* (Pierce County, 2014c, 12).

When taken together, these types of analyses allow the local governments to see what capacity exists within the UGAs, and how it might work to add to that capacity if so needed. As stated within its policies:

The Buildable Lands Program is aimed at ensuring greater consistency between local planning efforts under the GMA and the growth and development patterns actually occurring in the urban areas of the county and its cities and towns (Pierce County, 2014c, 12).

Available buildable lands are those that are vacant or considered underutilized, and therefore could be developed further to accommodate residential or commercial activity.

Table 2.2 Approximate acres of resource lands located inside and outside of the UGA within the study area (Ecology, 2014; WAGDA, 2015; Access Washington, 2015; King County, 2014)

Resource	Existing within the Study Area	Existing with Resource Designation as such	Existing within the UGA	Existing within City Boundaries	Existing in Rural Area
Agriculture Land Use	9,722	7,191	1,246	890	8,477
Forest Land Use	6,963	0	4,873	143	2,090
Total	16,685	7,191	6,119	1,033	10,567

Note: The UGA is a larger area than the cities within the study area. In fact, all of the city boundaries located within the study area fit within the UGA.

³ This assumption is based on the numbers within **Table 2.2**. There are less acres of existing resource lands within

the study area designated as such than there are located within the rural area (outside of the UGAs and city limits).

Vacant lands include parcels without an established structure or land use activity, including agricultural and resource lands, but excluding those enrolled in a current use tax program (Pierce County, 2014c, 18).

Underutilized lands include parcels that have an existing structure(s) or land use activity and have the ability to accommodate additional employment (jobs) or housing units (Pierce County, 2014c, 19).

These definitions create a challenge for the preservation of resource lands that currently exist within the UGA because these resource lands may be seen as land assets that could be developed for residential or commercial uses when population and development pressures grow. This policy does not afford existing resource lands within the UGA much protection, and in fact, encourages their conversion to more developed uses. The Buildable Lands Program in Pierce County does not directly affect existing resource lands of the Green-Y that are located outside of the UGA.

As previously stated, Pierce County does have a **TDR Program** to protect:

Valuable farmland, habitat, and environmentally sensitive land while encouraging growth in areas suitable for development. The program allows landowners to sell the right to develop their land and to transfer those development rights to a different parcel of land (Pierce County, 2014b).

This also means that, according to WAC 365-190 and WAC 365-196, the County is allowed to designate agricultural and forest resource lands within the UGA if they meet designation criteria. Further, the TDR program itself has criteria for what can and cannot be a sending parcel, which is defined as a parcel of land selling development rights so that it may remain undeveloped in perpetuity.

To be a sending parcel, the land “must contain a public benefit,” a definition which includes land that is designated as agricultural or forest resource

(Pierce County, 2014a). This criterion does not include any geographic requirement that sending parcels only be located outside of the UGA. This is an opportunity that already exists within the County and is most likely not being accessed to the fullest extent, as there are very few agricultural and forest lands designated as such within the UGA – in terms of zoning or land uses. It is also possible that the TDR program may not be utilized to its fullest extent in Pierce County simply because there is not a demand for it.⁴ There is perhaps no market for development rights because there is already adequate capacity in the urban areas without having to purchase more from sending parcels (Kopits et al., 2008). Further, there could be a common misconception that sending parcels must always be in rural areas, and that receiving parcels must be within urban areas of the same jurisdiction. Finally, the TDR process may be perceived as complex and time consuming for those who own or seek to develop land, further discouraging popular use of the program (Stinson, 1996, 357).

CITY POLICIES AND REGULATIONS

There are several cities that overlap or share borders with and around the Green-Y and study area. The cities discussed in this chapter include Tacoma, Federal Way, and Auburn because they are the largest municipalities in the study area. Puyallup, Fife, Sumner, Edgewood, and Orting will also be discussed as they occupy a large portion of the Green-Y. These cities, as well as neighboring municipalities are displayed in **Figure 2.2** on the following page.

The City of **Tacoma’s Comprehensive Plan** does not provide much guidance on the subject of agricultural or forest resource lands. These lands are mentioned in reference to the subject as a goal in the Pierce County Comprehensive Plan to

Maintain and enhance natural resource based industries, including productive timber, agriculture and fisheries industries. Encourage the conservation of productive forest lands and

⁴ When the Pierce County TDR website is examined, there are only three properties for sale and zero desired

receiving credits (Pierce County Planning and Land Services Department, 2014b).

productive agricultural lands, and discourage incompatible uses (City of Tacoma, 2014, Intro-8).

The City's Plan does have an urban forestry element, which clearly states that there are no, or very little, commercial timber operations in the city. The urban forest in Tacoma is considered to be primarily composed of backyards, street trees, and open spaces as opposed to forestry operations.

It is also important to note that the City of Tacoma adopted a **TDR program** in 2012. At the time of this writing it was unclear if any credits have been transferred or purchased since that time (City of Tacoma, 2015).

While Tacoma's Comprehensive Plan does not provide much discussion of resource lands, **Federal Way's Comprehensive Plan** has a section on healthy food access which highlights urban agriculture.

Health food resources such as farmers markets, community gardens, pea patches, and urban farms provide public health, economic, social, and environmental benefits for the community...Urban agriculture in Federal Way supports and encourages healthy and active lifestyles through a wide range of activities such as raising, cultivation, processing, marketing, and distribution of food in urban areas (City of Federal Way, 2015, II-24).

Under the land use goal to "promote urban agriculture activities through existing and new programming and partnerships," the City has created policies to:

Encourage and support the use of public lands for urban

agricultural activities by establishing criteria for assessing suitable sites (City of Federal Way, 2015, II-26).

Further policies under this goal include supporting:

Joint-use agreements for publicly or privately owned sites for uses such as urban farms, community gardens, and pea patches [and]... consider development incentives, grants, and other funding sources to support development of urban

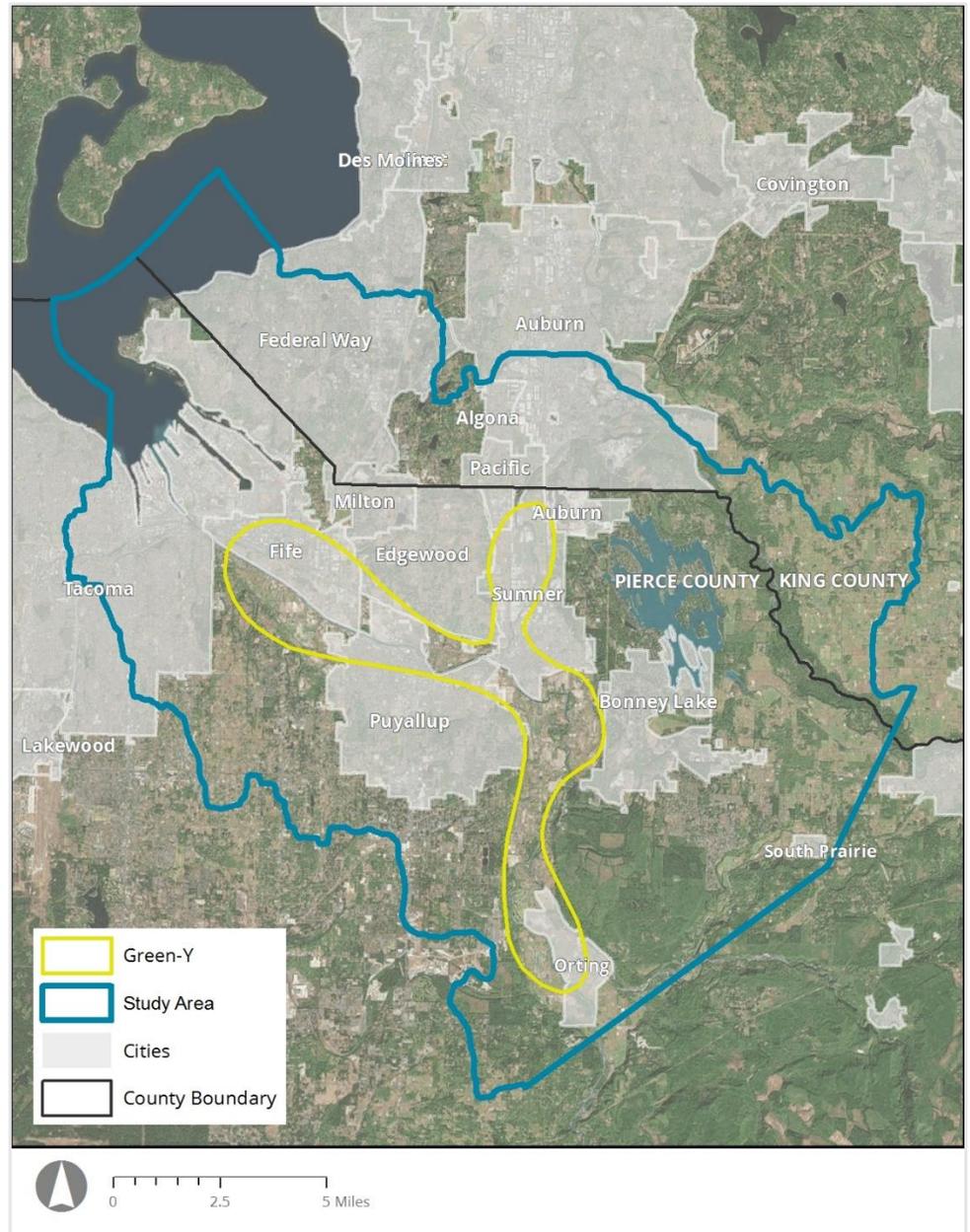


Figure 2.2 The cities abutting and overlapping with the Green-Y (Access Washington, 2015; Ecology, 2014).

agriculture sites and programming (City of Federal Way, 2015, II-26).

While many of the state, regional, and county level policies discuss the protection or designation of existing agricultural lands, Federal Way's Comprehensive Plan is discussing how to create new agricultural lands within the UGA (City of Federal Way, 2015, II-26). The City focuses on creating *new* resource lands, because they do "not have land used by resource-based industries" currently within the city (City of Federal Way, 2015, IX-1). It is important to note that some may consider urban agricultural lands to be different in size and character than working farms, but Federal Way's language leaves room for creativity in meeting its goals of bringing agricultural production into the city.

The City of **Auburn's Comprehensive Plan** states the same general goal of maintaining and enhancing resource lands. The City's plan goes beyond the County's policies in stating that agricultural and forest resource lands should not be designated as such if "urban levels of growth" are occurring around them. This implies that resource lands cannot be located within the UGA, however, the City notes that resource lands can be open spaces (City of Auburn, 2015).

The City of **Puyallup's Comprehensive Plan** also goes beyond what is written in the CPPs and the GMA in its discussion of resource lands. This is likely because Puyallup is partially composed of non-urban land uses, such as productive farms, that help create a unique identity the City would like to maintain (City of Puyallup, 2012, III-16).

Despite this:

After considerable study, including public participation involving landowners, representatives of Pierce County and adjacent communities, it was determined that the land currently in agricultural production should not be considered commercially viable long-term for purposes of agricultural land use designation. Nonetheless, voluntary continuation of agricultural activities should be encouraged and actively promoted (City of Puyallup, 2012, III-25).

This statement holds an interesting paradox – the Plan says they will not designate resource lands as such in the UGA, but that this should not discourage resource land preservation. The Plan also has an Agricultural Overlay policy that includes "right-to-farm" code restrictions to encourage agricultural uses on existing agricultural lands within the unincorporated UGA (City of Puyallup, 2012, III-26). The City has also been a large supporter of a regional TDR program (City of Puyallup, 2012, III-27).

A guiding policy within the City of **Fife's Comprehensive Plan** is to "Provide for the conservation of natural resource lands" for economic as well as cultural reasons (Fife City Council et al., 2005, 1-12). There are also broadly stated goals to conserve agricultural lands and retain resource areas. Natural-resource based industries, according to the Fife Comprehensive Plan, include agriculture and mining, although resource areas can include a "floodplain, farm, forest, habitat, [or] shoreline" (Fife City Council et al., 2005, 2-30). Implementation strategies to conserve agricultural lands include the desire to create a voluntary TDR program that could work directly with the Pierce County TDR program. While the City would seem to encourage sending parcels be in rural areas and receiving parcels be within the city limits, the Plan also states that sending parcels should be resource lands and does not delineate where those resource lands should be located. Further, Policy 6.1 aimed at conserving agriculture land states that the City should:

Maintain agricultural regulatory requirements and provisions for the purpose of supporting the continued agricultural activities in the Fife Urban Growth Area (Fife City Council et al., 2005, 2-29).

This is a clear statement for retaining agricultural areas within the UGA. The City has also clearly stated their wish to maintain right-to-farm ordinances and land use controls to protect agricultural lands both outside and inside the UGA.

While the City would like to implement a voluntary TDR program, they do not yet have one, and as such do not yet have any designated agricultural lands within city limits. They are working toward a

TDR program because they recognize the importance of agricultural land protection, wherever it may exist, to maintain their unique culture.

The City recognizes that agricultural uses may occur within the Urban Growth Areas. Such uses are allowed in all zones (excluding Community Mixed Use Zone), except for the slaughtering and processing of animals (Fife City Council et al., 2005, 2-23).

Fife’s Comprehensive Plan not only states a clear desire to preserve agricultural lands, wherever they may exist, it also provides strategies to achieve this preservation. However, the preservation of working forest lands are not discussed.

The Environmental Element of the City of **Sumner’s Comprehensive Plan** notes the goal of protecting “viable long-term natural resource lands, including agriculture and mining.” In discussing how this protection of agricultural lands can occur, the Plan states that:

Agricultural lands of long-term commercial significance [will be protected in coordination with Pierce County] through transfer of development rights, purchase of development rights, cluster zoning, and limitations on the extensions of public utilities and public facilities (City of Sumner, 2015, 73).

This language is similar to the other comprehensive plans of the area, as well as the state and regional policies surrounding resource lands. Although the Sumner Comprehensive Plan goes further than many of these other policies by creating objectives to:

Protect farming...within the city through right-to-farm legislation, allowance of markets and roadside stands, and provision of necessary services.

Seek innovative ways to support agriculture through business development, buy local programs, and flexible zoning. [And]

Where appropriate, utilize a planned mixed use development overlay zone or detailed subarea plan, to ensure buffers and other measures to

reduce impacts to agricultural lands of long-term commercial significance from conflicts with development prior to annexation (City of Sumner, 2015, 73).

Clearly, Sumner wants to protect significant agriculture lands inside city borders, and their Plan does not differentiate between agricultural lands present inside or outside of the UGA. Further, this Plan seems to raise agriculture and farming uses above other more developed uses. Again, working forest resource lands are not mentioned.

On the other side of the spectrum, the City of **Edgewood’s Comprehensive Plan** does not speak about resource lands, except to state that they can be considered vacant lands and a part of the gross developable acres of the City (Edgewood City Council, 2015, 101). Although there are goals within the Plan to retain agricultural land uses to preserve the character of the city (Edgewood City Council, 2015, 26), and to ensure health food access through “continued agricultural uses in the City” (Edgewood City Council, 2015, 28). The type of protections necessary to preserve the unique character of, or necessary food access for, the City is not spelled out within the Plan. There is also no mention of working forest lands. This Plan, like many others in the area, seems to protect agricultural lands within the UGA in some instances and encourages their conversion to more developed uses in other instances.

Like many of the smaller cities within the Green-Y, the vision statement within the City of **Orting’s Comprehensive Plan** focuses on the need to preserve the “pastoral heritage” of Orting that is rooted in “small-scale agricultural establishments” (City of Orting, 2008, 1-5). The Plan also has a primary goal of preserving “important agricultural lands” without differentiating where these lands should be located (City of Orting, 2008, 1-5). Beyond these broad statements, there is almost no mention of resource lands elsewhere in the Plan. Within the Land Use Element there is a casual mention of a TDR program that is being considered within one community with potentially identified agricultural sending sites.

2.2 EXISTING CHALLENGES

There are challenges within the existing policies at every level of government that have explicitly or inadvertently enabled the conversion of resource lands to more intense development within the Green-Y and surrounding study area. By specifying strict criteria for lands to be designated as agricultural and forest resource lands, protections have been afforded to a select group of resource uses. While agricultural and forest lands within UGAs often cannot meet those designation criteria, they are still providing great value to their communities, and are particularly vulnerable to conversion.

The designation criteria of minimum parcel size, requirements of commercial and hydrogeological significance, and the qualifier that adjacent areas should not already be defined by urban uses make it challenging to protect working farm and forest lands, particularly within UGAs, and sometimes even in rural areas where providing these lifestyles, economies, and open space values would be beneficial to the region. Designating resource lands outside of UGAs should not be challenging on its face, and yet many of these forest and farm lands have not yet been designated or classified so that they can be conserved. Most county and city comprehensive plans include broad goals and policy statements surrounding the preservation of agricultural land that are often taken directly from state and regional policies. More research and other approaches may be needed to encourage communities to protect more resource lands. Further, while the preservation of agricultural lands is often discussed, policies associated with the protection of forest lands are often neglected.

Implementing these broad policies are made even more challenging when landowners actively resist efforts to designate or classify their lands as resource lands. Generally, this reluctance is because economic incentives push for land use designations that would allow more developed uses. Please see Chapter 1 for more information about the rationale behind resource land conversion in the Green-Y.

Other challenges in conserving resource lands specifically within the UGAs of the Green-Y are related to lack of specificity in policy and regulatory text. Most state, county, and city policies do not specifically prohibit resource lands from being located in urban areas. Although, they often imply that agriculture or working forest lands are not compatible with urban uses, by stating they should be located outside the UGA in rural areas. At other times in the same sections of policy documents, there is language that seemingly allows resource lands in the UGA, while almost explicitly stating that resource lands should be located in rural areas only. This creates confusion, and clarification of these policies and regulations are needed.

Another challenge to protecting resource lands, especially those within the urban/rural fringe, is that resource lands can be defined as vacant or underutilized lands according to the Pierce County Buildable Lands Program. With such a label, these lands are put at increased risk of development because, by this definition, these lands have capacity for new or infill development and are likely being taxed based on that potential. Despite the current agricultural or working forest land uses, a city or county is encouraged to increase density and develop uses on these resource lands. This creates a cultural, but also economic incentive to develop resource lands instead of protect them through resource classifications or designations.

Beyond being labeled buildable lands, existing agricultural and working forest resource lands that are not protected through designation or classification are at risk to conversion unless the comprehensive plan (future land use) and zoning maps indicate some type of reserve or resource overlays in those areas. There is not another classification or designation at this point that can be applied to these lands to keep them as working resource lands. There is a need for an expanded or clarified open space or resource category that could include lands that do not fit the criteria for designated resource lands. This would be helpful both within, and potentially outside of, the UGA.

Since 1990, when the GMA was adopted, new knowledge has substantiated that farm and forest lands are beneficial to the well-being of humans

and wildlife if regulated correctly. It may be time to revisit goals, policies, and development regulations to allow for small farm/woodlot activities within UGAs under specific circumstances.

2.3 EXISTING OPPORTUNITIES

Before recommending regulatory changes to better conserve resource lands in the Green-Y and surrounding study area, it is important to note that there are some feasible solutions within existing policies. Perhaps the least challenging resource lands to protect through resource designations are in rural areas outside of the UGA, and within cities such as Sumner and Fife with strong right-to-farm policies and beliefs. To conserve these resource lands, and specifically the agricultural resource lands, the policies and regulations already in place can simply be implemented. Conserving existing resource lands outside of the UGA would preserve necessary open space services for the Green-Y and region, and could also help slow urban sprawl in rural areas.

The policies within Sumner and Fife's Comprehensive Plan are particularly important to implement as they encourage the conservation of agricultural lands within their city and UGA borders. If the existing agricultural resource lands within these cities are designated as such, they could serve as pioneers leading to more widespread acceptance and conservation of resource lands within the UGA in the Green-Y. These urban lands could be designated as resource lands through persuasive economic and environmental arguments made to decision makers to initiate implementation of the policies. At the very least, stakeholders could argue that these resource lands could be designated as open spaces and/or open space corridors. These potential changes from resource designation to resource classification or open space designation would discourage land conversion and better protect working farm and forest lands. With stringent criteria for designating resource lands, it will perhaps be more feasible to protect classified resource lands through the use of open space designations.

More specifically, if agricultural and working forest lands could be considered an open space by counties and cities as implied by WAC 365-196-815 and local regulations, then planning for and incorporating these resource lands within the UGA could be accomplished within the Parks and Recreation element that is mandatory for Comprehensive Plans. If resource lands could be designated under the open space umbrella, there is the opportunity to protect those lands regardless of where they are located (PCRC, 2012, 53).

Also of note is that the CPPs encourage "utilizing positive incentives to ensure conservation over time" of resource lands (PCRC, 2012, 48). While these positive incentives are not defined, this opens the door to varying forms of tax relief, funds channeled toward conservation easements, TDR, and other creative provisions. This interest in conserving resource lands within the UGA is best exemplified in the comprehensive plans of Federal Way and Puyallup.

Finally, TDR programs should be adopted within each city surrounding the Green-Y, and be, preferably, linked to a regional TDR program. This would not only allow cities within the Green-Y to designate existing resource lands as such within the UGA, but also provide a tool to help conserve existing resource lands outside of the UGA. However, an essential ingredient to a successful TDR program is market demand in cities. Counties and cities could help create this demand by allowing up-zoning only through purchase of TDR credits. Further, counties and cities may want to create a bank of TDR credits through the purchase or transfer of credits from sending resource parcels before there is demand. This anticipation of demand would help conservation begin today. Another opportunity to promote TDR program adoption and usage could be to demonstrate the need for access to healthy foods in urban and urban/rural fringe areas. Such a rationale may build political will for granting natural resource designation to appropriate lands within the UGA.

Pierce County and the City of Tacoma each have a TDR program, but other cities in the vicinity of the Green-Y do not (City of Tacoma, 2015). Ensuring that each city in the region has a TDR program is

important as many regulations refer back to the idea that working lands, while discouraged from being located within UGAs, are not outright prohibited if there is a TDR program in place. While these policies often do not differentiate between the necessity for a countywide or local TDR program, local coordination and incentive programs would be helpful.

3.0 SUMMARY

This chapter analyzed the regulatory environment surrounding resource lands within the Green-Y and study area through an investigation of the opportunities and challenges presented by existing policies and regulations. The existing regulatory framework values resource lands and calls for their conservation, especially in rural areas, while at the same time limiting their establishment in urban areas in favor of more dense development. This

has been accomplished by outlining criteria for designating agricultural and forest lands with long-term commercial significance, and specifically distinguishing them as agricultural resource lands or forest resource lands, in contrast to agricultural lands or forest lands. This distinction may have resulted in confusion.

Whether resource lands within the UGA are protected depends on local community values. Resource lands outside of the UGA should be easier to protect as the goals, policies and regulations at all levels of government point to rural areas as the favored location for resource lands. The challenge is creating a strategy that broadens understanding about agricultural and working forest lands to include their ability to provide benefits beyond their production value so that protection of these lands is more easily implemented inside and outside of the UGA.

CHAPTER 3 – RECOMMENDATIONS TO BETTER PRESERVE RESOURCE LANDS

1.0 INTRODUCTION

Chapter 2 analyzed the policies that regulate resource lands within and outside UGAs, revealing the opportunities and challenges to conserving existing resource lands in the Green-Y. This chapter will focus specifically on recommendations that would allow for better resource land protection within the Green-Y and surrounding study area. These recommendations span the state, regional, county, and local policy frameworks. It is important to note that the state, regional, and even most of the county recommendations will increase the ability of resource lands to be protected beyond just the Green-Y. As illustrated in Chapter 1, resource land conversion is a serious issue across the entire Central Puget Sound Region. The recommendations within Chapter 3 transcend the specific Green-Y geography and, if implemented, could help the entire region retain and benefit from resource lands and their essential open space services.

The recommended state and regional policy modifications, in particular, are actions that could take longer to implement, as they would involve a larger stakeholder group, but they are recommendations that would help the entire Puget Sound. The Pierce County and local municipality recommendations are likely actions that could be implemented to help the Green-Y and surrounding study area in the more immediate future. These smaller scale modifications could also still help the entire region if they became roadmaps of positive change that neighboring cities followed.

2.0 OPTIONS FOR REGULATORY CHANGES

2.1 PROPOSED RECOMMENDATIONS

The following discussion will look beyond the policies and regulations as they exist, to identify where modifications could reduce conversion of

resource land and allow for more resource land conservation. The existing guidance is clear with regards to protecting designated resource lands in rural areas. The suggested modifications will therefore include a specific focus on conserving existing resource lands both within and outside of UGAs that may not meet the criteria for designation. Suggested modification to policies will be displayed through strike-out (~~removed~~) and double-underlined (added) text that provides an example of how policies could be modified.

In general, the proposed recommendations are to:

- Clarify resource designation criteria. Make it clear that resource lands can be designated and therefore protected both inside and outside of UGAs;
- Add protection guidelines for classified resource lands both inside and outside of UGAs;
- Make use of existing opportunities to designate/classify resource lands as open space or open space corridors within, between, and outside UGAs to increase the likelihood of their protection; and
- Promote the use of land use and zoning classifications to conserve resource lands as such, or as open spaces. Further, improve land use regulations and implementation of current use taxation to facilitate preserving resource lands.

STATE POLICIES AND GUIDANCE RECOMMENDATIONS

Agricultural Resource Lands: WAC 365-190-050 defines when agricultural lands can be designated in the state as resource lands. While there is an often overlooked provision that suggests local governments can classify additional agricultural lands to increase the likelihood of resource land protection in both rural and urban areas, this still does not require local governments to conserve agricultural land uses.

(6) *Counties and cities may further classify additional agricultural lands of local importance. Classifying additional agricultural lands of local importance should include, in addition to general public involvement, consultation with the board of the local conservation district and the local committee of the farm service agency. It may also be useful to consult with any existing local organizations marketing or using local produce, including the boards of local farmers markets, school districts, other large institutions, such as hospitals, correctional facilities, or existing food cooperatives.*

These additional lands may include designated critical areas, such as bogs used to grow cranberries or farmed wetlands. ~~Where these lands are also designated critical areas,~~ Counties and cities planning under the act must weigh the compatibility of adjacent land uses and development with the continuing need to protect the functions and values of critical areas and ecosystems.

As the provision currently stands, local jurisdictions are only required to “weigh the compatibility of adjacent land uses and development with the continuing need to protect” if the classified agricultural areas are also designated critical areas, such as steep slopes or wetlands. To fully provide protection to agricultural resource lands inside and outside of the UGA, this should be altered as suggested above, or resource designations must also be considered.

The designation criteria of WAC 365-190-050(3) focuses primarily on land outside of the UGA, although there are a few overlooked provisions that should be capitalized upon. More specifically, (3)(c) is one of three factors that must be considered when local jurisdictions decide which agricultural resource lands to designate as such. Agricultural land can be considered for designation if they have “long term commercial significance” that is determined based on a number of factors. Some of these factors (noted below) open the door to agricultural resource designation within urban areas, and can be slightly modified to remove ambiguous language.

(iii) Tax status, including whether lands are enrolled under the current use tax assessment under chapter 84.34 RCW and whether the optional public benefit rating system is used locally, and whether there is the ability to purchase or transfer land development rights. If one or all of these three criteria are in place within an area, agricultural lands can be designated as such within or outside of urban growth areas, as deemed appropriate by the counties and cities;

(v) Relationship or proximity to urban growth areas whereas agricultural lands can be designated within urban growth areas, if the surrounding uses are compatible, and development within rural areas should not occur if it is incompatible with existing agricultural lands;

(x) Land values under alternative uses, unless the lands are enrolled under the current use tax assessment under chapter 83.34 RCW.

Further, WAC 365-190-050(4) and (5) allow for the designation of agricultural resource lands inside and outside of urban areas.

(4) When designating agricultural resource lands, counties and cities may consider food security issues, which may include providing local food supplies for food banks, schools and institutions, vocational training opportunities in agricultural operations, and preserving heritage or artisanal foods.

(5) When applying the criteria in subsection (3)(c) of this section, the process should result in designating an amount of agricultural resource lands sufficient to maintain and enhance the economic viability of the agricultural industry in the county over the long term; and to retain supporting agricultural businesses, such as processors, farm suppliers, and equipment maintenance and repair facilities.

Forest Resource Lands: Criteria for forest resource lands within WAC 365-190-060 focus on designating lands for long-term commercial significance as well, but unlike with agricultural resource lands there are no provisions for classifying forest lands of local importance. A new line item could be added:

(6) Counties and cities may further classify additional forest lands of local importance in both rural and urban areas. Classifying additional forest lands of local importance should include, in addition to general public involvement, consultation with the appropriate stakeholders, including urban foresters. Counties and cities should work to protect classified forest lands of local importance through land use and zoning classifications and overlays regardless of their location inside or outside of urban growth areas.

As with agricultural resource lands, designating forest resource lands as such will also be important to fully protect these working lands inside and outside of UGAs. There is already a provision within WAC 365-190-060 that allows the designation of forest lands within urban areas due to the “secondary benefits” of working forests that are important for urban and rural areas. Although the provision also says that these benefits alone should not be the basis for designating forest lands. This could be altered in the following manner to allow for enhanced conservation of working forest lands inside and outside of the UGA:

(3) Counties and cities may also consider secondary benefits from retaining commercial forestry operations as a basis for designating forest lands within urban and rural areas. Benefits from retaining commercial forestry may include protecting air and water quality, maintaining adequate aquifer recharge areas, reducing forest fire risks, supporting tourism and access to recreational opportunities, providing carbon sequestration benefits, and improving wildlife habitat and connectivity for upland species. ~~These are only potential secondary benefits from retaining commercial forestry operations, and should not be used alone as a basis for designating or dedesignating forest resource lands.~~

Utilizing Open Space Designations: If in the short term these agricultural and forest resource land provisions cannot be altered in the means suggested above, use of an open space land use category may be the most efficient means for the conservation of those working lands. This could be deployed in conjunction with RCW 84.34 Open Space Taxation Act and WAC 458-30-200 which

allows a reduction in property tax for open space lands. Depending on the will of counties and cities, open space lands can be designated as such within urban or rural areas (see Chapter 2 for a further definition).

Another often overlooked provision in the GMA that should be utilized to conserve existing resource lands that do not meet resource designation criteria is RCW 36.70A.160. This provision specifies the identification of open space corridors within and between urban growth areas. It specifically notes that existing agricultural and working forest resource lands can be identified as open space corridors, and that these can be located within urban areas.

Each county and city that is required or chooses to prepare a comprehensive land use plan under RCW 36.70A.040 shall identify open space corridors within and between urban growth areas. They shall include lands useful for recreation, wildlife habitat, trails, and connection of critical areas as defined in RCW 36.70A.030. Identification of a corridor under this section by a county or city shall not restrict the use or management of lands within the corridor for agricultural or forest purposes. Restrictions on the use or management of such lands for agricultural or forest purposes imposed after identification solely to maintain or enhance the value of such lands as a corridor may occur only if the county or city acquires sufficient interest to prevent development of the lands or to control the resource development of the lands.

The changes and more wide-spread use of existing provisions in the WAC noted within this section should make it possible to have agricultural and forest resource lands protected as such within the UGA. While it is critical to protect resource lands within the UGA (as described in Chapter 1), the majority of areas within the UGA would continue to remain urban as originally intended if these recommendations were implemented.

It is important to appreciate the original need that spurred the creation of the GMA to create a black and white (or grey and green) system separating urban areas from rural areas to better manage growth. But it may now be time to recognize

refinements constructed into the legislation that allows and encourages green to be infused into grey areas.

SAMPLE REGIONAL RECOMMENDATIONS

Changing the state level regulations may be very difficult to achieve, and in this case may not be necessary to reverse the trend of resource land conversion. It may be more effective in the short term to target the regional, countywide, and local policies and regulations.

Vision 2040 provides regional direction for the counties and its cities of the Central Puget Sound to implement a regional growth strategy. Enabling the protection of resource lands, generally seen as rural uses, into urban landscapes could be strengthened through modifications of the multi-county planning policies (MPPs) under the Development Patterns for Land Use, Orderly Development and Design goals. Recommendations are provided below:

Urban Lands:

MPP-DP-2: Encourage efficient use of urban land by maximizing the development potential of existing urban lands, such as advancing development that achieves zoned density, and recognizing the benefits provided by resource lands within and near urban areas by utilizing innovative techniques such as transfer or purchase of development rights to ensure long-term viability of those lands (PSRC, 2009, 47).

MPP-DP-14: Preserve and enhance existing neighborhoods and create vibrant, sustainable compact urban communities that provide diverse choices in housing types, a high degree of connectivity in the street network to accommodate walking, bicycling and transit use, and sufficient public and open spaces.” (PSRC, 2009, 52).

Resource Lands:

MPP-DP-31: Support the sustainability of classified and designated resource lands, open spaces, and critical areas. Do not convert these lands to other uses regardless of their location in rural or urban areas.(PSRC, 2009, 56).

MPP-DP-32: Ensure that resource lands and their related economic activities are not adversely

impacted by development on adjacent non-resource lands regardless of their location in rural or urban areas (PSRC, 2009, 56).

Regional Design:

MPP-DP-39: Identify and create opportunities to retain open spaces and working farms and forests, develop parks, civic places and public spaces, especially in or adjacent to centers (PSRC, 2009, 58).

Built Environment & Health:

MPP-DP-47: Support agricultural, farmland, and aquatic uses that enhance the food systems in the central Puget Sound region and its capacity to produce fresh and minimally processed foods through conservation of resource lands and through development regulations (PSRC, 2009, 59).

COUNTYWIDE RECOMMENDATIONS

The policy and program recommendations made in this section serve to clarify and enhance resource land conservation within and outside of the UGA. Overall, the existing policies, programs, and regulations could be used to conserve resource lands in both urban and rural areas if fully utilized.

Where the CPPs discusses ‘no net loss’ of resource lands, the text could be modified to make the statement stronger.

Env-4: The County, and each municipality in the County, shall consider the following regarding natural resources:

4.4 adopting a ‘no net loss’ approach where applicable, to resource lands both inside and outside of urban growth area boundaries. If resource lands are removed within the urban growth area, an equivalent number of acres must be created elsewhere within the county. If the lost acres are within an urban area, the newly created acres should also be within an urban area, and vice-versa for rural areas (PCRC, 2012, 48).

There are further opportunities for policy modification within the **Buildable Lands Program** of Pierce County. The primary challenge, as previously noted, is the definition of vacant and underutilized lands because it includes resource

lands. This challenge could become an opportunity with the following changes:

Vacant lands include parcels without an established structure or land use activity, including excluding classified or designated agricultural and working forest resource lands, and but excluding those enrolled in a current use tax program. Properties that are identified as being enrolled in a current use tax program, particularly for open spaces, are not included in the underutilized inventory because of the extra difficulties that are associated with developing those lands (Pierce County, 2014c, 18).

Underutilized lands include parcels that have an existing structure(s) or land use activity and have the ability to accommodate additional employment (jobs) or housing units, excluding classified or designated agricultural and working forest resource lands inside or outside of the urban growth area (Pierce County, 2014c, 19).

With these changes, resource lands will be excluded from the definition of vacant or underutilized lands. This could be important so that resource lands receive recognition as viable and productive land uses that accommodate jobs. This would also subsequently remove them from Pierce County's inventory of buildable lands, and therefore from the possibility of future urban development on these resource lands.

The **Pierce County Comprehensive Plan** could also be updated to strengthen preservation of resource lands inside and outside of the UGA as follows:

LU-84.1.1: The focus for preservation of agricultural lands must be on lands not already characterized by urban growth, lands that are used or capable of being used for agricultural production, or lands that have long-term commercial significance for agriculture regardless of their location inside or outside of the UGA.

LU-84.1.2: Only rural lands shall be considered for the Agricultural Resource Lands designation Agricultural lands inside or outside of the UGA that meet the criteria within LU-84.1 may be classified or designated agricultural resource land and

receive heightened protection as defined in Goal LU-80 (Pierce County, 2016, 2-59).

The Plan's statements concerning forest resource lands could also be updated, and a new provision of sustaining small forestry operations could be added to support conservation efforts.

Goal LU-91: Lands should be designated or classified as forest resource lands of long-term commercial significance to receive heightened protection as defined in Goal LU-80, based on three factors:

...LU-91.3: The land has long-term commercial, cultural, or environmental significance which is defined as:

...LU-91.3.3: The area should be located primarily outside of the Urban Growth Area (UGA), and have limited public services and facilities. Although, existing forest lands within or outside of the UGA can have cultural and environmental significance if the secondary benefits of the forested land such as recreational opportunities, mental restoration, water purification, and carbon sequestration are considered beneficial to long-term community health and environmental quality.

LU-91.3.5: Forest lands consist of predominantly large parcels that are at least 40 acres or greater in size in rural areas. Smaller forest parcels located within urban growth areas can have long-term commercial, cultural, and/or environmental significance to the surrounding local economy, community, and ecosystem (Pierce County, 2016, 2-66)

Goal LU-92: Limit development on designated or classified Forest Resource Lands.

LU-92.8: Allow small forestry operations to occur within and outside of the UGA in a manner that is compatible with urban and rural character.

The Pierce County Comprehensive Plan could further be updated to strengthen the conservation of resource lands within the County by modifying the open space network goals.

LU-112.2: Additional areas should be considered for designation as open space where preservation efforts should be incentivized (see Goal LU-113), including:

LU-112.2.1: Wooded areas – including, but not limited to, small forestry operations within or outside the UGA that may not meet designation criteria – that serve a functional purpose in climate, noise, light, habitat, and pollution control.

LU-112.2.2: Environmentally or geographically unique areas – including, but not limited to, existing agricultural and working forest lands that may not meet designation criteria – and scenic view points and scenic corridors as defined in Chapter 2.114 PCC, Current Use Assessment Administrative Procedures.

LU-112.2.3: Lands that can provide for a separation between communities, thereby preserving character, preventing sprawl, and creating a buffer between urban and rural areas or other land uses. These lands can include, but are not limited to, agricultural and working forest lands that do not meet resource designation criteria (Pierce County, 2016, 2-77).

LOCAL RECOMMENDATIONS

The broad nature of state and county-level policies provides an opportunity for local governments to add details for managing how they envision growth to occur in their communities.

Similar to the framework at the state, regional, and county levels, most city policies do not prohibit existing resource land use to occur within their boundaries. Although, resource land designations are encouraged primarily in rural areas, and if these criteria cannot be updated, the existing provisions for open space and open space corridor designations to conserve existing resource lands need to be promoted. Additionally, the use of TDR and PDR programs both within urban areas and between urban and rural areas could be helpful in encouraging resource land conservation, but these programs must be linked to zoning to have an effect. For instance, a TDR program will only

become popular and heavily used when zoning capacity in urban areas is limited.

To improve protection of resource lands, more explicit policies could also be added to the comprehensive plans of the counties and cities in the Green-Y. These policy updates could emulate those that have already been established within the cities of Federal Way and Sumner. For example:

Health food resources such as farmers markets, community gardens, pea patches, and urban farms provide public health, economic, social, and environmental benefits for the community...Urban agriculture in [insert city] supports and encourages healthy and active lifestyles through a wide range of activities such as raising, cultivation, processing, marketing, and distribution of food in urban areas.

Similarly, resource lands within [insert city] and outside of the urban core should be preserved for their ability to help [insert city] adapt to, and mitigate against, the negative impacts of climate change. Working forests areas in particular can help filter air, water, and soil to increase environmental quality, reduce the city's flood vulnerability, moderate microclimates, and address water availability. Further, right-to-farm policies that apply to both agricultural and working forest resource lands will help [insert city] maintain our unique way of life and economic base into the future" (City of Federal Way, 2015, 11-24).

2.2 INITIAL STRATEGIES

The advantages to making the changes discussed above are that the regulatory environment around resource lands would become clearer. Further, these changes could help develop regulations to preserve more resource lands, and their important open space services, wherever they may be located.

The process to change policies and regulations can be long and arduous. Bringing attention to them through an amendment process could pave the way for expanding urban growth into rural and resource lands instead of expanding opportunities to conserve resource lands. From this perspective, utilizing the existing policies to their full extent may

have its benefits. Taking full advantage of the opportunities within the existing policies could prevent the status quo of continually declining resource lands and their open space services within the Green-Y, study area, and region.

Most of the jurisdictions in the Central Puget Sound have recently updated their comprehensive plans, so opportunities for wholesale changes to zoning classifications will likely be delayed until the next comprehensive updates, targeted for 2023. More piecemeal protections could be implemented in the interim. The PSRC will be embarking on an update of Vision 2040 in the coming months and this could provide regional opportunities. Reinforcing the MPPs with the aforementioned recommendations would be timely to set the stage for future comprehensive changes at the county and city level.

Working with stakeholders already on the ground, such as the Pierce County Conservation District, non-profit organizations such as Forterra, landowners, local governments, and others, will be essential in both convincing local governments to implement existing policies, and communities to lobby for regulatory changes.

One economic incentive that should be used in particular to encourage private landowners could be to promote and provide training on the current use taxation programs. Based on the Open Space Taxation Act of 1970, classified/designated resource lands as well as designated open spaces can be taxed at their current use, instead of their highest and best use (Department of Revenue, 2014). One of the central reasons for resource land conversion discussed in Chapter 1, is the immediate financial benefits landowners can secure by selling their land. Educating landowners about this current use taxation opportunity could save property owners money, and inspire interest in conservation rather than conversion.

Many often believe that if the current use taxation policies are utilized widely this could reduce the tax base within counties and cities. This is generally a misconception as studies have found that:

Removing habitat and recreation land from the tax rolls does not generally result in a reduction of a

county's tax base. This is because the lost tax revenues are mostly shifted to other taxpayers in the county. So, while county tax revenues are usually not impacted, individual taxpayers within the county could experience some increase in tax rates. The amount of this tax shift, however, would be small relative to many other kinds of exemptions affecting county tax revenues that are borne by property taxpayers. In addition, the original value of the lands that are acquired for habitat and recreation (especially habitat) is generally low, resulting in generally smaller shifts – or impacts – to other taxpayers...[This] report estimates the annual incremental property tax revenue impact of habitat and recreation land acquisitions represents approximately five one thousandths of one percent of state and local property tax revenues (The Interagency Committee for Outdoor Recreation, 2005, 32).

To further aid in persuading local governments, it will be important to emphasize the real economic value of these agricultural and forest resource lands in terms of their open space services, as discussed in Chapter 1. For instance, reducing stormwater costs, increasing local capacity to adapt to and mitigate against natural disasters such as floods and landslides, and increasing the appeal of city living for new and existing residents may provide the motivation needed to focus on retaining agricultural and forest resource lands.

While there appears to be no silver bullet for slowing the pace of resource land conversion in the Green-Y, implementing the recommendations in this chapter through collaboration with stakeholders will bring the working farms and forests within the study area one step closer to protection. Further, success in the Green-Y could lead other areas within the Central Puget Sound Region toward improved conservation of their own agricultural and forest resource lands. Work in the Green-Y could provide a scalable roadmap for others to follow.

3.0 CONCLUSIONS

This report documents the detailed analysis of resource lands within the Green-Y and surrounding areas within the Puyallup-White Watershed. This examination began with determining the historical, current, and predicted future location of resource lands, as well as the economic value of these lands based on open space services. Beyond the resource lands on the ground, an exploration of the regulatory framework was also conducted to better understand the existing policies that have allowed for resource lands to be converted. The ROSS team's findings indicate that modifications could be made to the existing policy framework to strengthen protections for resource lands. Although, while existing policies appear to encourage protection of resource lands primarily in rural areas, there are also several overlooked provisions which could be utilized to better protect agricultural and forest resource lands inside and outside of the UGA. Open space and open space corridor designations, for instance, are opportunities to conserve existing resource lands that do not meet stringent resource designation criteria within and outside of the UGA.

Finally, greater education or momentum to expand the use of existing provisions to prevent

conversion may be required to better protect urban and rural resource lands in the Green-Y.

While these recommendations were specifically made for the protection of agricultural and working forest resource lands within the Green-Y and study area, they are also applicable to the greater region. While the Green-Y study area lost over 11 percent of its agricultural lands and 20 percent of its forest cover between 1992 and 2011 alone, the greater Puget Sound has also suffered dramatic losses. In the past 150 years, the Puget Sound has lost approximately 66 percent of its remaining old growth forest (PSP, 2015) and 60 percent of farmland in the Puget Sound has also been lost since 1950 (Canty et al., 2012, 6; Cascade Land Conservancy, 2009). These historic losses are also expected to continue into the future at the Green-Y and regional scale, with some estimating that “the last acre of farmland in the region could be bulldozed or paved over by 2053” (Canty et al., 2012, 6).

As analysis spanned state, regional, county, and local policies, the policy and regulatory recommendations within this report could be scaled up beyond the Green-Y case study to other areas concerned with agricultural and working forest land conversion.

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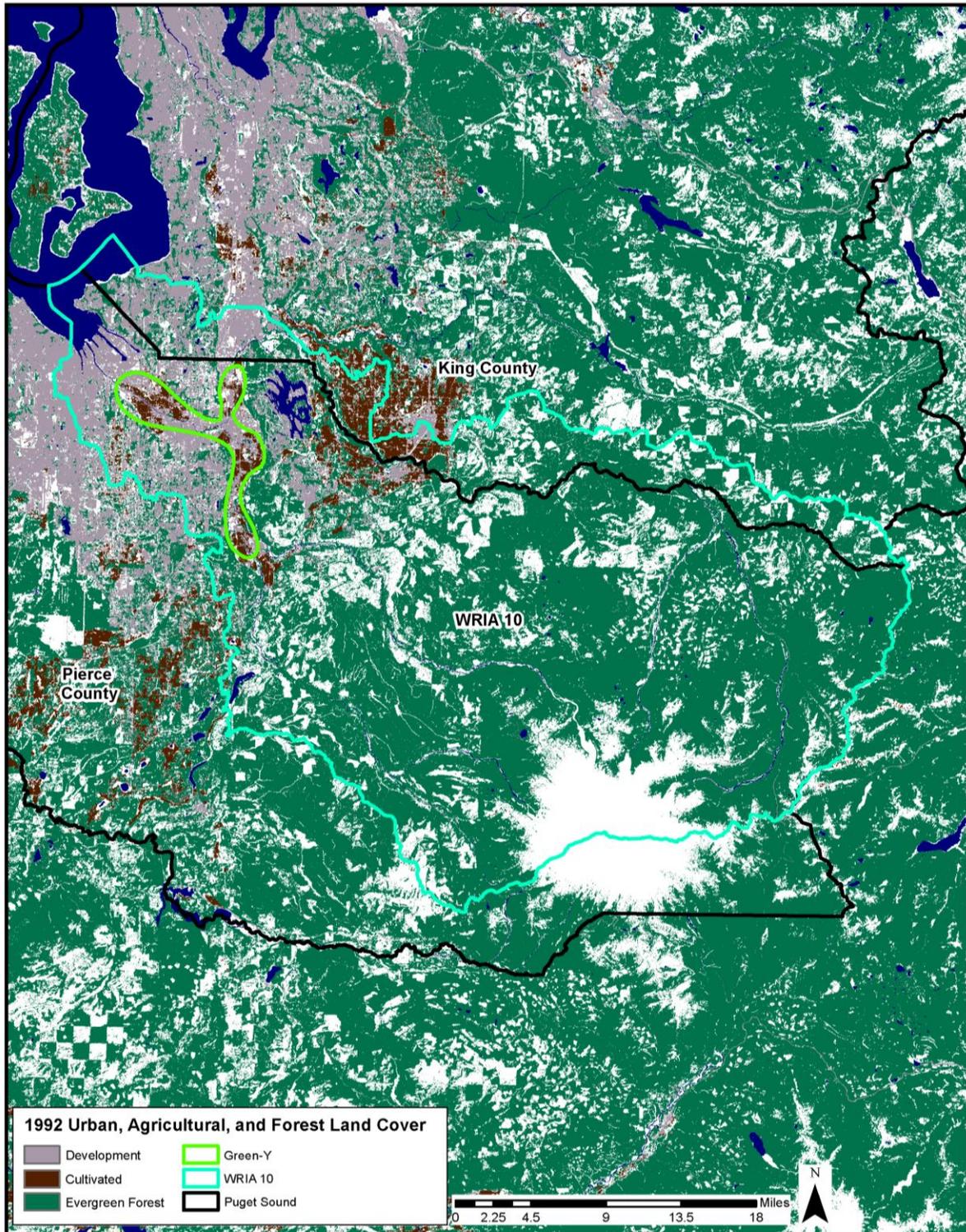
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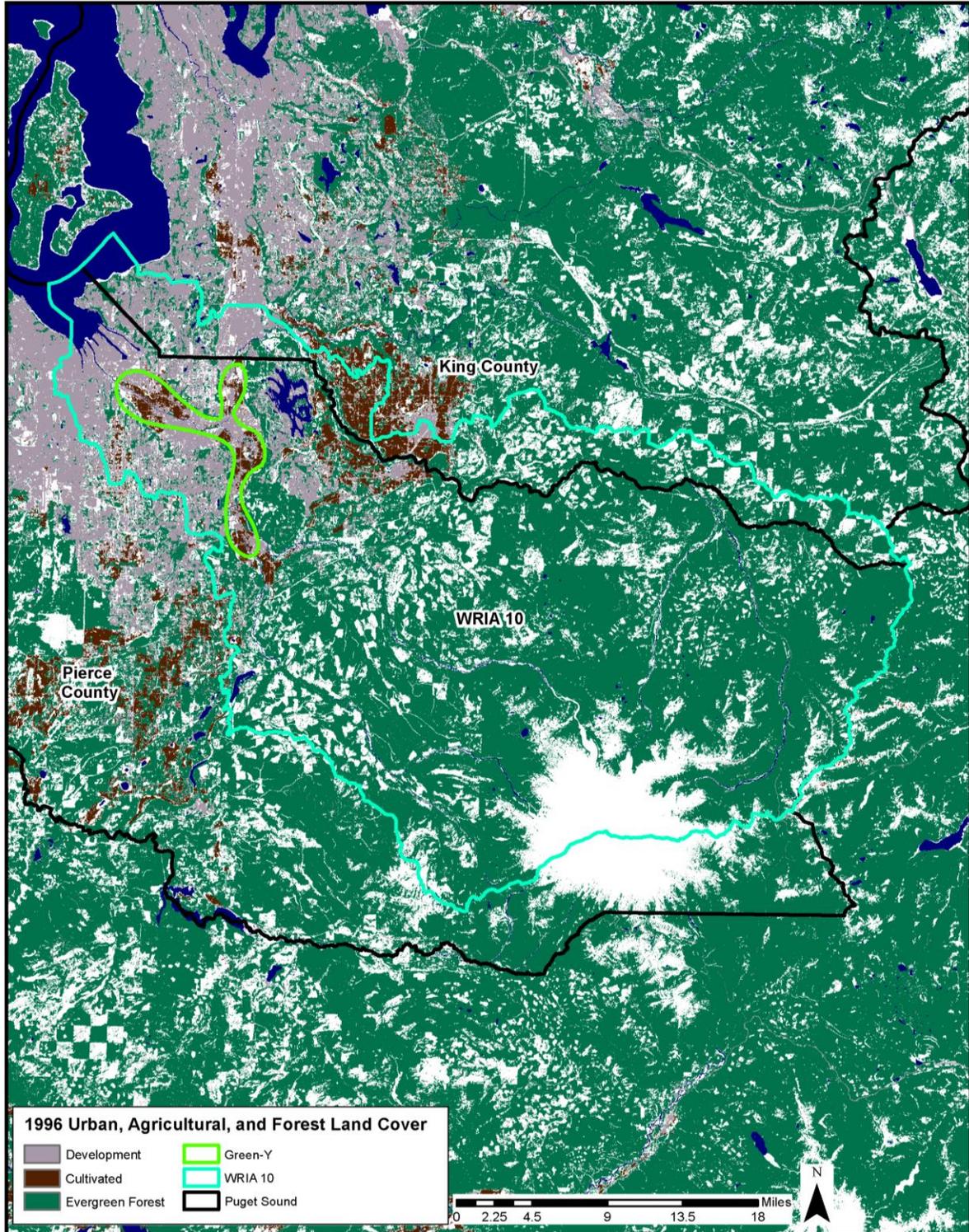
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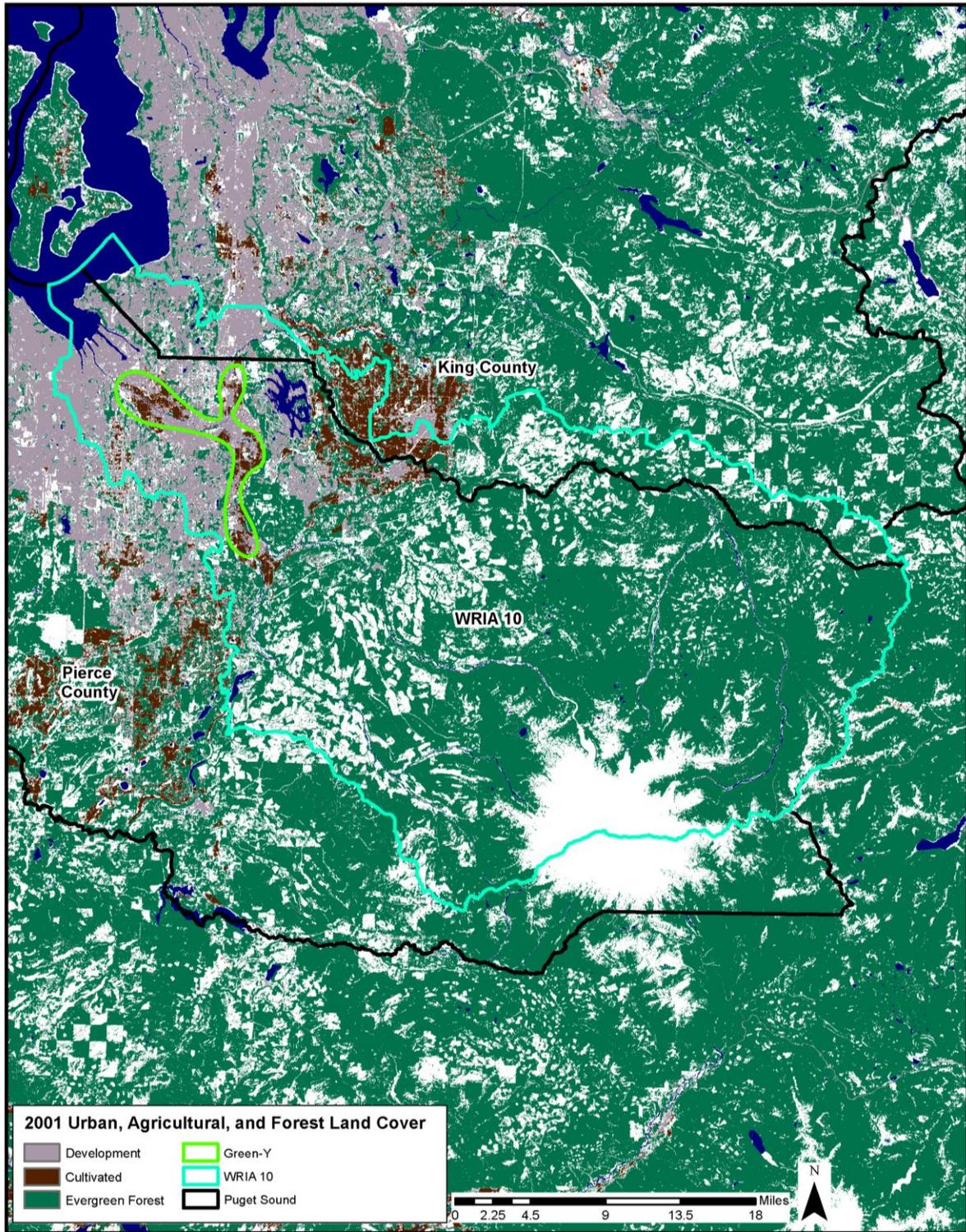
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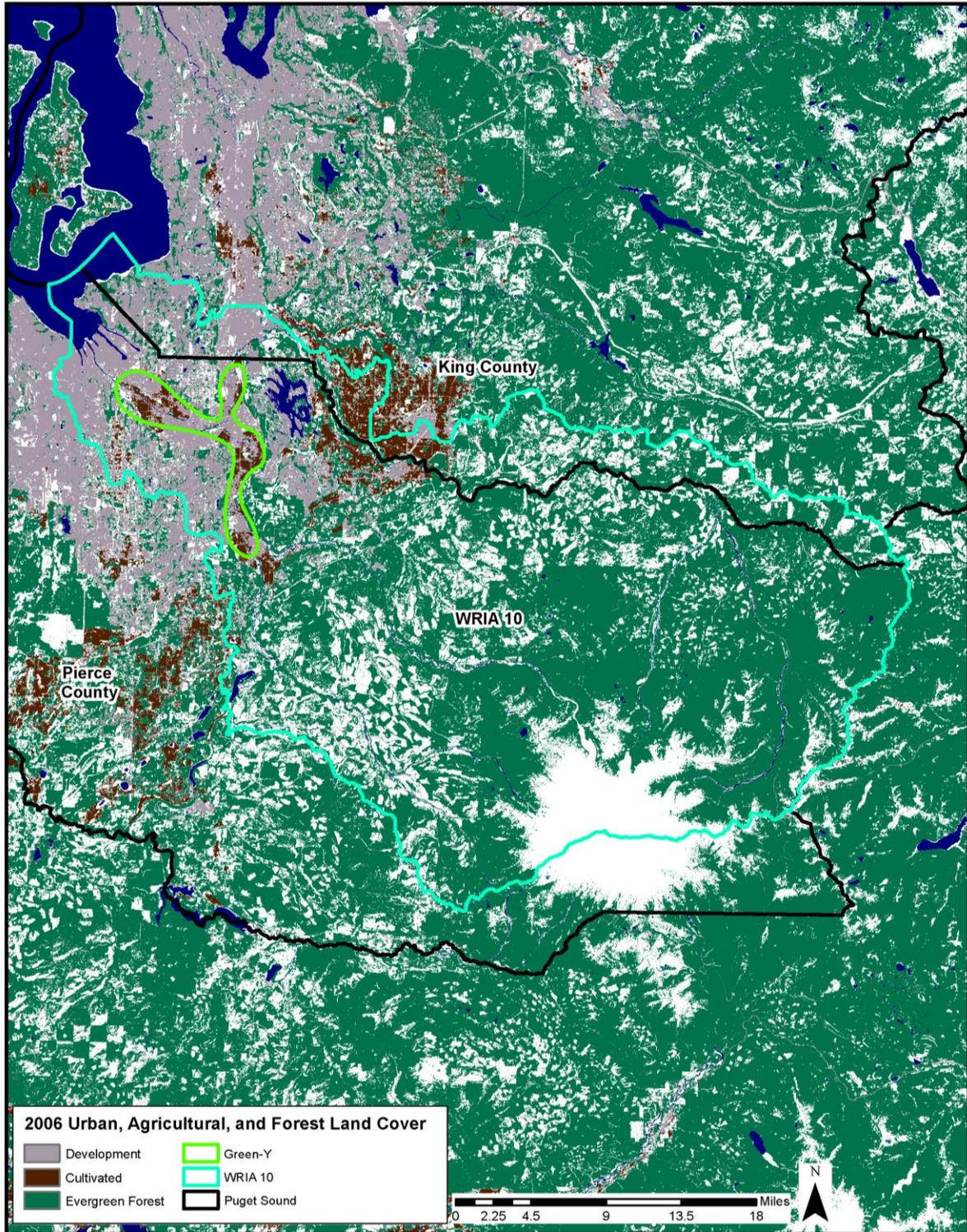
APPENDIX A

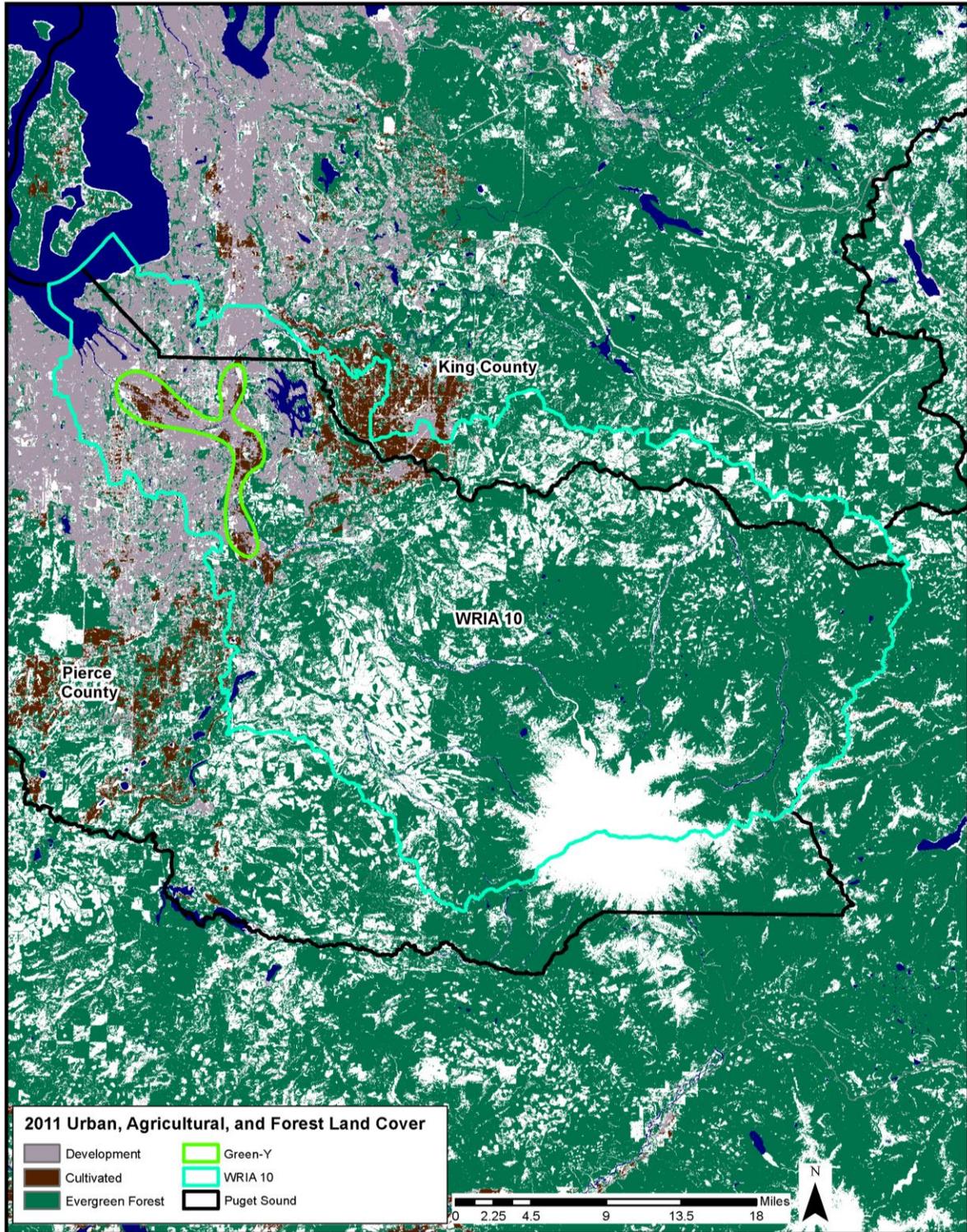
Appendix A contains a separate figure displaying the urban, agricultural, and forest land cover for 1992, 1996, 2001, 2006, and 2011 to provide a broader context for the conclusions made within report above.











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