



Spring 2010

Yew Street urbanization: environmental impact assessment (EIA)

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Yew Street Urbanization



Environmental Impact Assessment (EIA)

ESTU 436 Spring 2010

Alyssa Fritz

Patrick Danner

Renaë Fisher

Reid Haefer

Emily Lewis




Environmental Impact Assessment
Huxley College of the Environment

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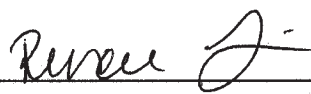
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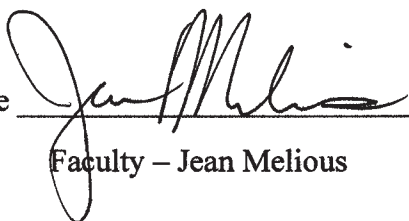
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Signature 
Renae Fisher

Signature 
Faculty – Jean Melious

Date 6-2-2010

Dear Concerned Citizens,

This document contains the Environmental Impact Assessment (EIA), which will assess potential impacts of the proposal to urbanize the South Yew Street area. The proposed project will remove the area from the Urban Growth Area reserve and change the zoning from R10 to UR3, UR4, RR2, and ROS. If the area is developed to full capacity, approximately 900 additional housing units will be constructed for residential use.

Compiled in accordance with the State Environmental Policy Act (SEPA WAC 197-11), the enclosed report was generated by the students of Western Washington University's Environmental Capstone Course 436. The information contained within the report was compiled using information from government documents as well as credible scientific and technical sources.

The environmental impacts on both the natural and built environment have been considered at length. In addition, the impacts of an alternative to the proposed action along with a no action option were assessed within this EIA. Infill development in the City of Bellingham is recommended as the preferred alternative because it is expected to adequately accommodate the projected increases in population for Whatcom County. Furthermore, it is expected that infill development will increase the City of Bellingham and Whatcom County's growth capacity at a lower environmental cost.

A formal presentation of findings will occur on the June 2, 2010 in the Bellingham Community Co-op Communications Facility located at 1220 North Forest Street.

Sincerely,

Patrick Danner

Alyssa Fritz

Rena Fisher

Emily Lewis

Reid Haefer

Yew Street Urbanization

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DISCLAIMER

This report represents a class project that was carried out by students of Western Washington University, Huxley College of the Environment. It has not been undertaken at the request of any persons representing local governments or private individuals, nor does it necessarily represent the opinion or position of individuals from government or the private sector.

Fact Sheet

Project Title

Proposed Yew Street Urbanization

Description of Project

The proposed action is the development of approximately 545 acres located in the Yew Street area within the Lake Padden watershed. The area will be rezoned from R10 densities to UR3, UR4, RR2, and ROS. This will result in the urbanization of this area, which will include approximately 900 additional housing units.

Legal Description of Project

A section of land located in Washington State, Whatcom County, in the south half of the southeast quarter of Section 05, Township 37N, Range 03E,W.M.

Project Proposer

Yew Street Associates
510 Lakeway Dr.
Bellingham WA. 98225

Lead Agency

Whatcom County
Planning and Development Services
5280 Northwest Drive,
Bellingham WA 98226-9013

Permit List

City of Bellingham

Water/Sewer Permits (BMC 2-5.02)

Whatcom County

Building Permit – Residential and Detached Accessory Structures
Comprehensive Plan Amendment
Final Subdivision Approval
Preliminary Subdivision Application
Land Disturbance and Clearing Application
Water System Construction and Operation Approval
Natural Resource Notification of Activity
Notice on Title of Critical Areas & Restriction on Use or Alteration
Revocable Encroachment Permit
Road Construction Permit
Unopened and/or Unmaintained County Road Rights-of-Way Improvement Permit
Zoning Amendment Application

Federal and Washington State

Endangered Species Act (ESA) Checklist for Development within the ESA Potential Impact Area

NPDES Construction Stormwater General Permit and Coverage

NPDES Sand & Gravel General Permit

Wetlands Permit

Water Quality Certification

401 Water Quality Certification

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Wilson Library

Huxley Map Library

Acknowledgements

Dan McShane, Whatcom County Council Member

Darby Galligan, Bellingham City Development Specialist

Issue Date

June 2, 2010

Public Presentation time and date

June 2, 2010 6:30-7:30pm

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Executive Summary

The purpose of this Environmental Impact Assessment (EIA) is to analyze and determine any probable significant adverse environmental impacts of urban development in the South Yew Street area. An EIA also identifies possible alternatives to the proposed action, along with helpful mitigation measures for both the proposed action and alternatives. This document will analyze the alternative action of infill development into the City of Bellingham's Samish Way Urban Village, and a "no action" alternative.

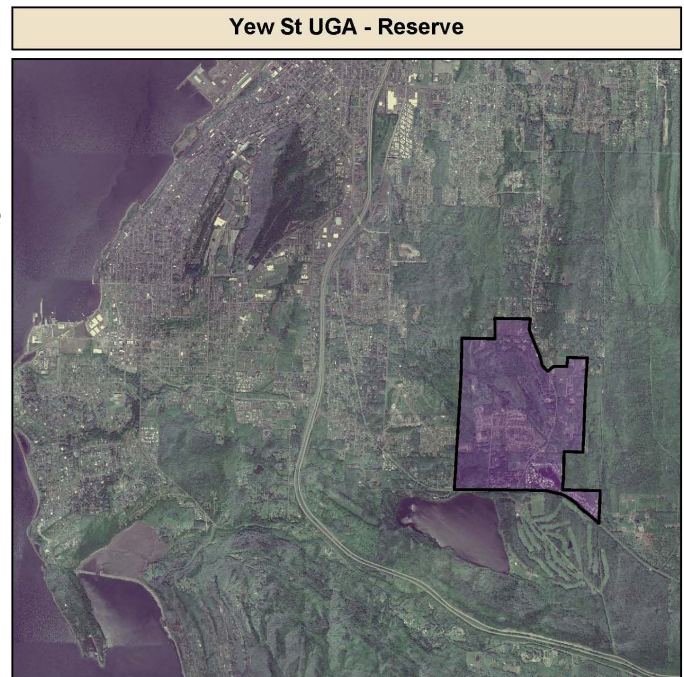
Proposed Action

The proposed action would reinstate the South Yew Street area into the City of Bellingham's UGA by removing its current UGA "reserve" status. The current UGA "reserve" status restricts urban development in the portion of the Yew Street UGA that is within the Lake Padden watershed, which is approximately 545 acres. "Reserve" status was designed by Whatcom County to protect sensitive areas throughout the City's UGAs, by preventing development in these areas until existing UGAs were developed to capacity. Reinstatement into the UGA will allow urban levels of development in the area, and eventual annexation into the City of Bellingham. To accommodate higher density residential and urban development portions will be rezoned from R10 to ROS, RR2, UR3, and UR4. For the purpose of analyzing the probable significant adverse environmental impacts, this EIA will assume that the area will ultimately be developed to maximum capacity. That is to say, this document assumes that entire area will be built to maximum capacity, with an approximately 900 additional dwelling units, and a population increase of 2,000 and 2,500.

Reason for Proposal

South Yew Street was part of the UGA for fifteen years prior to being placed in "reserve" status, and therefore is comprised of some urban development and services, such as water, sewer, and utility infrastructure. Present land use is residential single family, public, and vacant land. There are approximately 480 housing units and the existing population is about 1, 170 people.

As part of the UGA this area would provide the City of Bellingham with more options for accommodating population growth. Currently, the City's land supply will not be adequate to provide for the County's expected increases in population. This proposal will ensure that future growth is concentrated around the City of Bellingham where urban services and infrastructure already exists (Crawford, 2009). Additionally, because this land was previously in the UGA, many private property owners have made significant financial investments into the area with the intention of providing urban services (Crawford, 2009).



Map 1

Summary of Impacts

To properly analyze the environmental impacts of the proposed action, this EIA will assume that the area will be developed according to the revised zoning, and to maximum capacity, which would result in approximately 900 additional housing units. The South Yew Street area is located within the Lake Padden watershed, and therefore urban development, construction, and necessary infrastructure improvements, such as new and improved roads, will have probable significant adverse environmental impacts. Development of this magnitude will result in land conversion from forested area to approximately 30 to 45 percent impervious surface. The proposed urbanization of this area will thus result in a large increase in impervious surface, forest clearing, and development in sensitive areas such as wetlands. These actions lead to adverse environmental impacts including but not limited to; non-point source (NPS) pollution, sediment loading of already impaired local water bodies, and destruction or modification of important habitat for threatened species like Chinook salmon.

Mitigation of these impacts is possible for certain elements of the environment through the use of recommended and required measures. Required measures include the prerequisites outlined in Whatcom County Water Resource Protection Overlay District, Stormwater Special District, and Water Resource Special Management. These three designations attempt to limit the impacts of development on the Lake Padden watershed by creating stricter development standards and stormwater controls. Recommended measures include Low Impact Development (LID) or Best Management Practices (BMP). Both of these practices reduce the amount of impervious surface and forest clearing associated with development.

Even after the above required and recommended mitigation measures are utilized however, development of the proposed magnitude will have probable and significant adverse environmental impacts on the area's natural environment. A majority of the significant adverse impacts will be upon water quality and health of the watershed. In addition, this development will adversely effect the built environment by significantly changing the aesthetic qualities and recreational opportunities of the area. The project will benefit the City of Bellingham and Whatcom County by providing more housing opportunities in order to accommodate projected population growth.

Exact impacts determined by this EIA are relatively uncertain because the proposed action may not result in the magnitude of development and impact that this EIA analyzed. Nevertheless, any scale of urban development in sensitive watersheds will be likely to have similar adverse effects.

Maps

1. Location
2. Alternative
3. Slopes
4. Padden Creek Watershed
5. Watershed & Nearby River Systems
6. Wetlands
7. Recreation
8. Transportation
9. Public Services
10. Land Use

Figures

Figure 1: GHG chart

Figure 2: NAAQS

Figure 3: Effects of Urbanization on Volume and Rates of Surface Runoff

Tables

Table 1: Plant Species in the Proposed Project Area

Table 2: Possible Species Located within Project Area or likely to be effected

Table 3: Typical Noise Levels

Glossary

Best Management Practices (BMP): These practices are defined by the Washington States Storm Water Manual, “as schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices, that when used singly or in combination, prevent or reduce the release of pollutants to waters (BMP 2009).” BMPs are meant to reduce pollutant loads and concentrations, and reduce discharges to prevent stream channel erosion. The National Pollutant Discharge Elimination Systems Permit requires local governments to develop BMPs, which address six main elements: public education and outreach, public participation and involvement, illicit discharge detection and elimination, construction site runoff control, post-construction runoff control, and pollution prevention or good housekeeping (DOE website).

Bellingham’s Multi-Family Design Review Guidelines: A set of guidelines introduced in order to ensure that new multi-family development is in line with existing neighborhood character.

Brownfield Site: Previously developed land that has been left abandoned or underused.

Community Block Watches: An organized group of citizens devoted to crime and vandalism prevention within a neighborhood community. Also, known as “neighborhood watch” or “neighborhood crime watch.”

Clean Air Act (CAA): Defines the Environmental Protection (EPA) Agencies role in regulating air quality within the U.S. The EPA allows individual states the responsibility of compliance and enforcement of CAA regulations. The act addresses air pollutants such as ozone smog, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, and particulate soot.

Cluster Developments: A pattern of development in which structures are grouped together on land in order to leave larger parts of the land undeveloped and available for other uses such as farming, conservation, and wildlife habitat. ozone smog, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, and particulate soot.

Critical Areas Ordinance (CAO): Requires the protection of critical areas and their regulated buffers from harmful impacts. On-going agricultural activities may be permitted within critical areas and/or their buffers with the submittal and approval of a Farm Conservation Plan.

Division of Emergency Management (DEM): is responsible for developing and maintaining a community infrastructure for emergency and disaster mitigation, planning, response, and recovery. The Division maintains a chemical inventory database for identified Extremely Hazardous Substances and provides public education on the risks of hazardous chemicals. The DEM works as the “community coordinator” for the Local Emergency Planning Committee (LEPC), which works with businesses and industry to ensure compliance with the Emergency Planning and Community Right- to- Know Act (EPCRA).

Economic Development Investment Program: Authorized by the Washington State Legislature to provide financing via low interest loans, grants, or a combination of the two for public facility planning, acquisition, construction, repair, reconstruction, replacement or rehabilitation or improvement within Whatcom County.

Endangered Species Act (ESA): Protects plants and animals that are listed by the federal government as “endangered” or “threatened.” It is enforced and implemented by the United States Fish and Wildlife service and National Marine Fisheries Service.

Eutrophication: is a syndrome of ecosystem response to human activities that fertilize water bodies with the nutrients nitrogen and phosphorus. This process leads to a change in animal and plant population and can

result in the degradation of water and habitat quality.

Flood Peak Desynchronization: When flooding is delayed by temporary water storage in wetlands.

Greenfield Site: Land that has been left undeveloped or exists as farmland, park, or other natural states.

Growth Management Act (GMA): This law came into effect in 1990, and has been amended regularly since then. The GMA guides the timing, location, and character of land use and development in Washington State.

Hydraulic Grade Line: In hydrologic terms, a line whose plotted ordinate position represents the sum of pressure head plus elevation head for the various positions along a given fluid flow path, such as along a pipeline or a ground water streamline.

Impact Fee: Is implemented by a local government on a new or proposed development to help assist or pay for a portion of the costs that the new development may generate due to increased use of public services.

Intelligent Transportation Systems: The application of technology to transportation network in order to improve efficiency.

Level of Service: A measure used to determine the effectiveness of transportation infrastructure.

Local Emergency Planning Committee (LEPC): The committee is appointed by the State Emergency Response Commission, and is composed of many officials throughout Whatcom County including: elected representatives, law enforcement, and fire departments. The Committee makes available information about hazardous chemicals and maintains the Whatcom County HAZMAT Contingency Plan.

Low Impact Development (LID): This is an approach to urbanization that manages stormwater impacts. Low impact development techniques attempt to imitate natural hydrology or movement of water by decreasing the amount of impervious surface, which is normally associated with urban or residential development. An example of an LID practice is pervious pavement or vegetated roofs.

National Ambient Air Quality Standards (NAAQS): Required by the Environmental Protection Agency (EPA) under the Clean Air Act (CAA). They included standards on carbon monoxide, particulate matter, ozone, and sulfur dioxide.

Open Space Reserve Area: An open space reserve area is defined as, "a portion of a subdivision or short subdivision set aside...and permanently dedicated for active or passive recreation, critical area protection, natural resource or archaeological site preservation, wildlife habitat, and/or visual enjoyment (WCC 20.71.352)." The objective of preserving open space by consolidating development is to reduce potential stormwater runoff and its impacts, while additionally, preserving critical areas necessary for wildlife habitat and aesthetic or recreation uses.

Person-Trip: A trip by one person utilizing any mode of transportation.

Pipeline Safety Ordinance; ZON2007-00014: "The purpose of this ordinance is to help minimize unnecessary risk to the public from hazardous natural gas transmission pipelines by: (1) Minimizing the likelihood of accidental damage to pipelines through ensuring there is adequate communication between developers and property owners; (2) limiting exposure of land uses with high on-site populations that are difficult to evacuate; (3) Ensuring that there is adequate protection of existing pipelines from inadvertent damage during nearby construction."

Primary Arterial: Provide a linkage between major population and activity centers. The streets are designed to carry volumes in excess of 10,000 vehicles per day (vpd). Right of ways range from 80-100ft, with speed limits ranging from 25-35mph.

Priority Habitat: A habitat type with unique or significant value to many species.

Priority Habitat Species (PHS) or Priority Species: Fish and Wildlife species requiring protective measures and/or management guidelines to ensure their perpetuation.

Pump Station: A building in which two or more pumps operate to supply fluid flowing at adequate pressure to a distribution system.

Real Estate Excise Taxes: A tax levied on all sales of real estate, measured by the full selling price, including liens, mortgages and other debts. Collected at 1.28 percent.

Secondary Arterial: Collect and distribute traffic between neighborhoods and commercial areas. These streets are designed to carry 5,000 to 15,000 vpd.

Species of Concern (SOC): Any native Washington Fish and Wildlife species that are listed as Endangered, Threatened, or Candidate.

Stormwater Special District: According to Whatcom County Title 20.80.636, any new construction within a stormwater special district that increases impervious surfaces by more than 500 square feet on a lot less than five acres, or any renovation project where the work exceeds 50 percent of the assessed value of the existing structure, must have a permanent on-site, stormwater quality and quantity facility.

Transportation Impact Fees: Charges imposed by local government pertaining specifically to the construction of public streets and roads.

Urban Growth Area (UGA): A tool of the GMA that determines where urban development should be encouraged. These are areas where growth and higher densities are expected and supported by urban services, and are meant to preserve natural resources like farms and forests.

Washington State Utilities and Transportation Commission (WUTC): The WUTC is a three-member board, appointed by the Governor and confirmed by the Senate to six year terms, that regulates the rates, services, and practices of privately-owned utilities and transportation companies, including electric, telecommunications, natural gas, water, and solid waste collection companies, pipeline safety, private commercial ferries, buses, and motor carriers.

Water main: A principal pipe in a system of pipes for conveying water, especially one installed.

Water Resource Protection Overlay District: Whatcom county code 20.71 established a Watershed Resource Protection Overlay District to place further controls on development and to preserve and protect unique and important water resources. The district protection creates stricter restrictions on development within designated watersheds. Certain land uses, which have negative impacts on water quality, such as gas stations or dry cleaning establishments, are prohibited within this district. Additionally, there are limits to impervious surface increases (WCC 20.71.302). For UR or RR zone districts 80 percent of the lot or parcel should be kept free of impervious surfaces or structures (WCC 20.71).

Water Resource Special Management Areas: The intent of a water resource management area is to establish more stringent standards for forest clearing activity in highly valued water resource areas, environmentally sensitive areas, or where unstable natural conditions exist and clearing would result in hazardous conditions (WCC 20.80.735). The preservation of existing trees on site will reduce the quantity of stormwater runoff. In addition, forest cover supports interception, infiltration, and evapotranspiration of rainfall and surface runoff, which helps maintain the quality of stormwater runoff during and after development.

Zoning Designations

UR3- Urban Residential 3 units/acre
UR4- Urban Residential 4 units/acre
RR2- Rural Residential 2 units/acre
R10- Rural 1unit/10 acres
ROS- Residential Open Space

Acronyms

Bellingham Municipal Code (BMC)
Best Management Practice (BMPs)
Cascade Natural Gas (CNG)
Clean Air Act (CAA)
Concurrency Service Area (CSA)
Department of Ecology (DOE)
Endangered Species Act (ESA)
Environmental Protection Agency (EPA)
Growth Management Act (GMA)
Household Hazardous Waste (HHW)
Intelligent Transportation System (ITS)
Level of Service (LOS)
Low Impact Development (LID)
National Ambient Air Quality Standards (NAAQS)
National Pollutant Discharge Elimination Systems Permit (NPDES)
Non Point Source (NPS)
Northwest Clear Air Agency (NWCAA)
Polychlorinated Biphenyl (PCBs)
Priority Habitat Species (PHS)
Primary Transit Network (PTN)
Puget Sound Energy (PSE)
Real Estate Excise Taxes (REET)
Species of Concern (SOC)
Sanitary Services Co. (SSC)
Transportation Impact Fees (TIF)
Urban Growth Area (UGA)
Washington State Department of Ecology (WA DOE)
Washington State Department of Fish and Wildlife (WDFW)
Washington State Utilities and Transportation Commission (WUTC)
Water Resource Inventory Area No. 1 (WRIA 1)
Whatcom County Critical Areas Ordinance (WCCAO)
Whatcom County Code (WCC)

Alternatives

Reasonable Alternative

The alternative to the proposed project is infill of underused land areas in the City of Bellingham. Infill involves developing land located within a central district that, for various reasons, has not been utilized to its highest potential. There are numerous benefits associated with infill as it increases land efficiency and limits the negative externalities associated with sprawl, such as elimination of farmland, increases in impervious surfaces, and dependence on personal automobiles. Rather than developing within the South Yew Street area, which is a current greenfield site, the 900 units could be located in an already urbanized, but underutilized area. The units can be located on Samish Way, as part of the proposed Samish Way Urban Village Subarea Plan. Residential units will be located on the 78-acre area located west of I-5 at the base of Sehome Hill Arboretum, north of Bill McDonald Parkway and south of Edwards Street. This area can accommodate the development of both single family and multi-family residential units. The Samish Way Subarea is a gateway to both downtown and Western Washington University, easily accessed from Interstate-5. In addition to grocery and retail services, the area also contains various hotels and places for recreation.

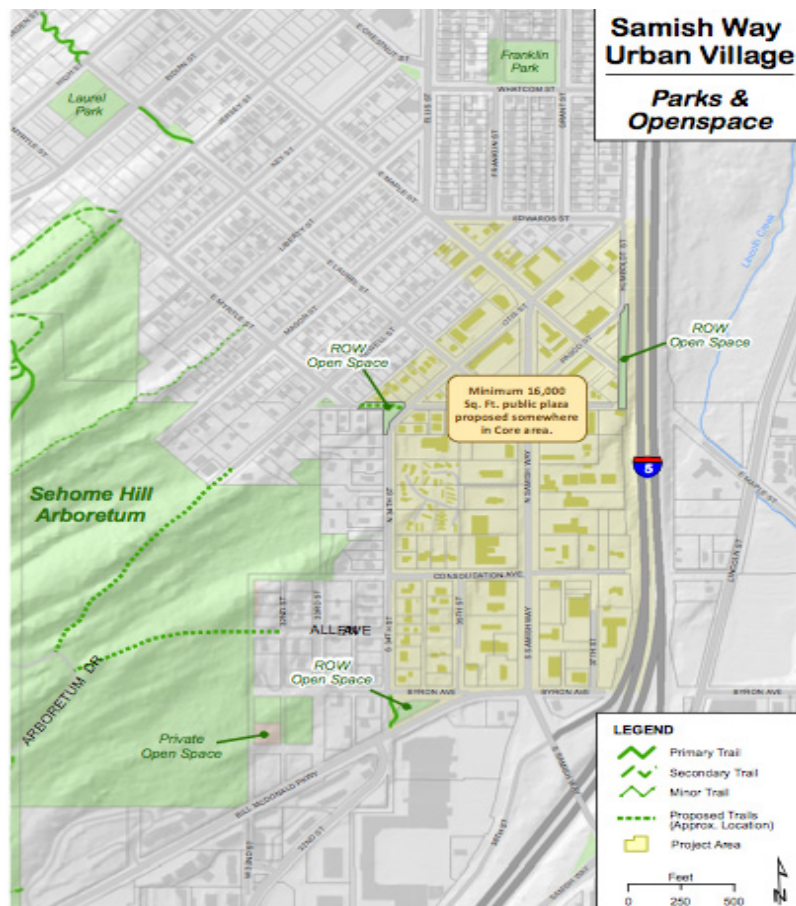
This alternative proposal would result in compact, mixed-use development, increasing accessibility to basic necessities, public transportation, and adding to the overall walk-ability of the Samish Way area. Given the already existing infrastructure, both economic and environmental costs, would be reduced by accepting this alternative.

Location of Alternative

Samish Way Urban Village- 78-acre area located west of I-5 at the base of Sehome Hill Arboretum, north of Bill McDonald Parkway and south of Edwards Street.

No-Action

The No Action Alternative will allow the land to remain zoned as R10. This area would still be used for housing, rural housing, and school activities. Leaving the site as is will not pose any more hazards to the natural environment than the existing conditions. Population growth however will continue to occur throughout the City of Bellingham and Whatcom County. The proposed growth will place pressure on existing open space within Whatcom County and existing UGAs. Development outside of current UGAs or incorporated areas will require the expansion of existing municipal systems and infrastructure, such as roads and stormwater management facilities.



Affected Environment

1. Natural Environment

1.1 Earth

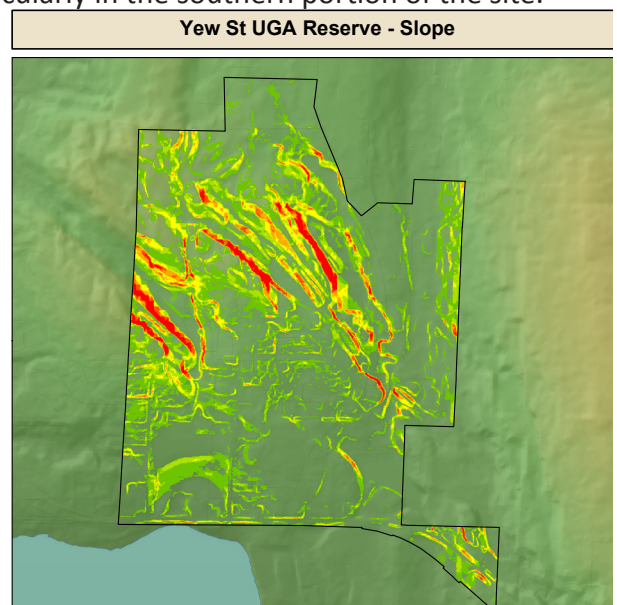
1.1. A. Existing Conditions

The South Yew Street UGA is comprised of many large tracts of undeveloped and forested land. There is a single subdivision in the area as well as sporadic single family homes and mobile home parks. Currently, there are approximately 300 housing units within the area. The Yew Street UGA is largely undeveloped, containing a number of subdivisions which range from a few dozen to a few hundred homes. An estimated amount of current impervious cover in the area is approximately 5 percent of the 545 acres (GIS derived statistic). Due to minimal development, large portions of the site are free from impervious surfaces.

While mostly flat, a number of hills and steep slopes exist, particularly in the southern portion of the site.

These include County-delineated critical geologic areas.

These areas are designated as slopes between 15 and 35 percent. The steepest slopes on the site are upwards of 65 percent, but the majority of slopes in the area are approximately 30-40 percent. These slopes are mainly contained in the region bound by Palmer Road to the north, Edgefield Drive to the south, to the west of Yew Street. Most of the soil contained in the site is a loamy texture from various geologic origins. A number of other complex soil types also of varying geologic origin are present. According to the City of Bellingham, there have been no notable landslides or alluvial fans of note in this area.



Map 3

1.1. B. Significant Impacts

A change in zoning to UR4, UR3, and RR2 would have a number of impacts on the soil environment. Such development will result in an increase in impervious surface. This increase is due to the construction of homes, commercial structures, and necessary infrastructure additions, such as roads and sidewalks. The South Yew Street UGA encompasses approximately 545 acres. Whatcom County regulations limit the total amount of impervious surface in areas zoned UR4 to 20 percent of the total site (WCC 20.71.300). Therefore, assuming full build out, impervious surfaces in this area is expected to account for at least 110 acres. Such a qualifier is used because this accounts only for lots it does not consider new or improved roads.

A change in the zoning designation will allow for urban levels of development, which results in the conversion of land from current natural vegetation and forest to about 30 to 45 percent impervious surface coverage. An increase in impervious alters natural ecological processes, such as groundwater recharge, and will erode stream beds leading to sediment loading in Lake Padden as well as surrounding creeks and the Padden watershed. The installation of subterranean infrastructure, such as water and sewer pipes will disrupt the subsurface soil environment. In addition, the alteration of steep slopes can cause them to become unstable.

1.1. C. Alternatives

i. Infill

Concentrating development into the Samish Way urban village will result in little or no increase in impervious surface within the boundaries of the Yew Street UGA reserve. As a result there would be no effect on the soils, terrain, or slopes of the proposed area. Furthermore, development will occur in areas with existing infrastructure and therefore developing this area will reduce the need to alter subterranean or soil features of undeveloped land.

ii. No – action

If the South Yew Street area remains as a UGA “reserve,” with the current zoning designations, urbanization will not occur in the proposed area. However, not developing this land creates pressure to develop other areas of open space in existing UGAs and Whatcom County.

1.1. D. Mitigation Measures

Required

The Yew Street UGA Reserve is governed by Whatcom County Code (WCC) Chapter 20.71, which establishes the area as a Water Resource Protection Overlay District. These districts were designed to preserve water resources throughout Whatcom County. As a result, a specific regulatory framework exists to deal with the unique requirements of the Lake Padden watershed. This framework requires stricter controls on stormwater management and land use, such as restricting land conversions that are detrimental to water quality, like dry-cleaning establishments.

WCC 20.71.302 governs open space and impervious surface requirements. As stated previously, parcels in areas zoned for urban densities (UR3 or UR4) must be free of impervious surfaces on 80 percent of land therein, while areas zoned for rural densities (R2) must be 90 percent free of impervious surfaces. Furthermore, the establishment of open space reserve areas is established in WCC 20.71.352, which requires the preservation of open space in order to protect natural vegetation and preserve water quality of sensitive watersheds, such as the Lake Padden Watershed.

WCC 16.16.320 states that developments permitted within geologically hazardous areas must be “engineered and/or constructed to minimize risk to health and safety.” Furthermore, all projects in geologically hazardous areas must be examined by a state-licensed professional to ensure proper design and construction.

Recommended

Additional, suggested mitigation measures include the use of Low Impact Development (LID). Low impact development techniques include the use of pervious surfaces and green roofs. Use of these mitigation techniques would help decrease the level of impervious surface and soil disruption due to development as these practices attempt to maintain the natural hydrological functions of a developed area.

a. Level of significance after mitigation

The the soil and slopes will be altered as a result of the proposed development, and the impacts will be significant regardless of mitigation.

1.2 Air

1.2. A. Existing Conditions

The site is located in the Fraser Air Shed, which encompasses the greater Vancouver, B.C. Area. Air quality in the South Yew Street area is considered good quality. The area is regulated under the Northwest Clean Air Agency (NWCAA), Washington State Department of Ecology (WA DOE), and the United States Environmental Protection Agency (EPA). The NWCAA operates two air-monitoring sites in Whatcom County, one located near Alabama Hill and the other in Custer. Under the U.S. Clean Air Act (CAA), the EPA is required to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to human health. Such particulates include those less than ten microns in size (PM10), sulfur dioxide, and oxides of nitrogen, ozone, carbon monoxide, and lead.

1.2. B. Significant Impacts

The proposal will increase air pollution in the area through the release of particulates, greenhouse gases, ozone, carbon monoxide, nitrogen oxides, and sulfur oxides. Particulate matter is a mixture of small particles composed of acids, organic chemicals, metals, soil, and dust. Those particulates that are between 10 and 2.5 microns in diameter can be found near roadways and dusty industries. These materials can cause human lung and heart problems through inhalation, and are directly caused by industrial emissions, residential wood combustion, and dust from roadways. Other toxicants of concern which result from automobile emissions include ozone, carbon monoxide, nitrogen oxides, sulfur oxides, and greenhouse gases. Greenhouse gases (GHG) are an air pollutant category commonly comprised of carbon dioxide (CO₂), methane, nitrous oxide, water vapor, O₃, and halocarbons. Carbon dioxide is the most common GHG and contributes significantly to global climate change. Ozone is a highly reactive form of oxygen and is created through the industrial and mobile sources. Sulfur and Nitrogen Oxide pollution occurs through tailpipe emissions and other stationary sources.

Local Industry

The Proposal will increase activities of local industries due to the increased demand of resources required for residential development. Local industries include an aluminum plant, oil refineries, electric power plants, and a natural gas pipeline compressor station. The industrial activity during construction will increase emissions of common pollutants such as ozone, nitrogen oxides, and greenhouse gases. Air pollution is contributed by local industries during construction, continuing indefinitely as a result of energy demand from new developments.

Figure 1: GHG Inventory

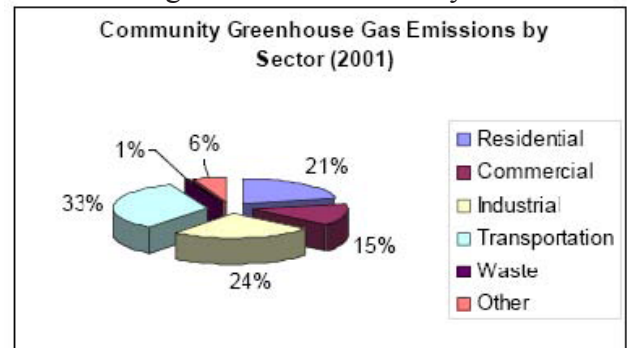


Figure 2: NAAQS

National and State of Washington Ambient Air Quality Standards			
Pollutant	National (EPA)		Washington State
	Primary	Secondary	
Carbon Monoxide			
8-hour average	9ppm	9ppm	9ppm
1-hour average	35ppm	35ppm	35ppm
Particulate Matter			
<i>PM10</i>			
Annual Average	50 µg/m ³	50 µg/m ³	50 µg/m ³
24-hour average	150 µg/m ³	150 µg/m ³	150 µg/m ³
<i>PM2.5</i>			
Annual average	15 µg/m ³	15 µg/m ³	15 µg/m ³
24-hour average	35 µg/m ³	35 µg/m ³	35 µg/m ³
<i>Lead</i>			
Quarterly average	1.5 µg/m ³	1.5 µg/m ³	1.5 µg/m ³
Sulfur Dioxide			
Annual average	0.03 ppm	no standard	0.02 ppm
24-hour average	0.14 ppm	no standard	0.10 ppm
3-hour average	no standard	0.50 ppm	no standard
1-hour average	no standard	no standard	0.40 ppm
Ozone (O₃)			
8-hour average	0.075 ppm	0.075 ppm	0.075 ppm
Nitrogen Dioxide			
Annual average	0.05 ppm	0.05 ppm	0.05 ppm

Notes:
 Annual standards never to be exceeded. Short-term standards not to be exceeded more than once per year unless noted.
 ppm = parts per million
 PM10 = particles 10 microns or less in size
 PM2.5 = particles 2.5 microns or less in size
 µg/m³ = micrograms per cubic meter
 a 0.25 ppm not to be exceeded more than two times in 7 consecutive days.
 b Not to be exceeded on more than 1 day per calendar year as determined under the conditions indicated in Chapter 173-475 Washington Administrative Code (WAC).

Construction

Construction of approximately 900 single family units will cause increases in air pollution through heavy machinery emissions, dust from grading, demolition work, sand blasting, spray painting, and burning of debris. Particulate matter from dust is created through grading and excavation. The Department of Ecology has identified diesel exhaust as the air pollutant most harmful to public health in Washington State. Use of heavy machinery also produces tailpipe emissions. In general, construction will cause temporary increases in local air pollution.

Motor Vehicles

Residential units and new roads necessary for this development will increase vehicle traffic in the area, adversely affecting air quality by increasing the emissions of carbon monoxide, oxides of nitrogen, fine particulates, and sulfur oxides. The proposal will allow approximately four thousand residents to move into the area. This will increase daily vehicle trips in the area significantly and result in the influx of 4.9 metric tons of CO₂ per person per year. Motor vehicles are Washington's main source of air pollution and can cause cancer, asthma, and other human health problems. Air quality affects will continue as long as there is increased vehicle traffic.

Wood Smoke

Increased residential development in this area would augment pollution levels from wood smoke. Potential sources include timber harvesting, outdoor burning, fireplaces, and wood stoves. Wood smoke is regulated through EPA wood stove requirements, which attempts to limit the negative effect of wood smoke through such measures as burn bans during stagnant weather conditions. Though wood smoke occurs only temporarily during construction, it will persist as a result of residential use of wood stoves for heating.

1.2. C. Alternatives

i. Infill

Infill development within underused sites in the current urban growth area and urban villages will lessen the air quality concerns caused by the proposed development. Infill reduces potential air quality concerns by limiting the use of large construction equipment, increasing the use of public transportation, and increasing the overall walkability of a neighborhood.

ii. No – action

This alternative will not degrade air quality in the proposed area however development will occur in other areas throughout the county and city to accommodate projected population growth. Depending on the placement of this development, this may create air quality concerns for other areas of Whatcom County and the City of Bellingham.

1.2. D. Mitigation Measures

Required

The proposal must mitigate air pollution to fulfill National Ambient Air Quality Standard Requirements. There are a variety of measures which must be employed to not exceed the described limits. Encouraging alternative travel modes and providing sufficient public transportation infrastructure will mitigate vehicle related air pollution. Construction mitigation involve dust suppressing techniques such as plastic sheeting, watering dry dirt roads and work areas, and suspending work during windy or extremely dry periods. Regulatory measures and voluntary bans on residential burning can reduce the air concerns caused by wood smoke. The Northwest

Clean Air Agency (NWCAA) requires that only dry, clean, untreated wood or manufactured logs can be burned. Additionally, wood stoves must meet Washington State air emission standards, and be certified by the EPA as a clean burning wood stove.

Recommended

In addition, it is recommended that the proposal takes action address its role in global climate change, through reducing greenhouse gas emissions. In terms of transportation, encouraging carpooling, walking, biking, and public transit will reduce automobile emissions. Limiting the natural vegetation that is destroyed during construction allows for carbon sequestration. Requiring or encouraging LEED building or neighborhood design can reduce GHG emissions from residential development.

a. Level of significance after mitigation

There will be a significant adverse impact on air quality even with the proposed mitigation measures. Vehicular emissions, such as greenhouse gases, will increase due to more traffic in the area. This along with particulate matter from construction are two pollution sources which will have the greatest adverse impact and are difficult to properly mitigate.

1.3 Water

1.3. A. Existing Conditions

The proposal would urbanize the portion of the Yew Street UGA, which is located within the Lake Padden watershed, and is currently designated UGA reserve. The site is currently zoned for rural density development, which allows one unit per 10 acres (R10). The area has a mix of homes on urban sized lots in medium density subdivisions, several mobile home parks, and a number of single-homes on one to five acre rural lots.

Water from this area drains southward via Gallagher Creek and a smaller unnamed stream into Lake Padden. Lake Padden then empties out into Padden Creek, which is inside the Bellingham City limits. Padden Creek flows to the Padden Creek Sub-Basin of the Bellingham Bay Watershed.

Lake Padden

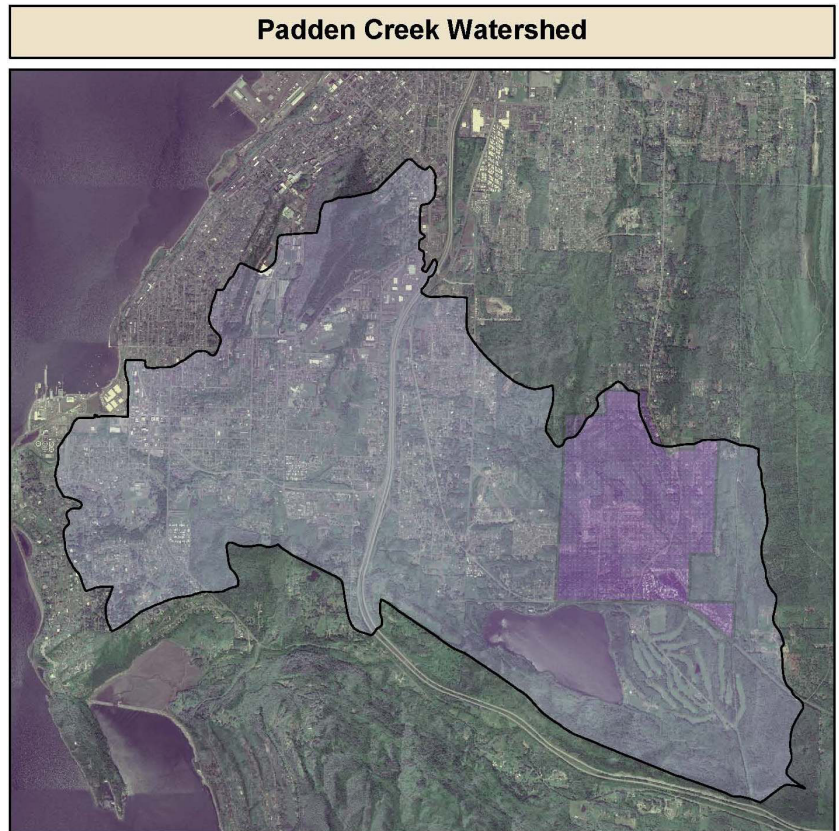
Lake Padden is a 150- acre lake situated within Bellingham city limits. Streams emptying into the lake are generally intermittent in nature and flow from forested areas. Lake Padden is highly utilized by residents of Whatcom County for recreation, such as fishing, swimming and boating.

Non point source (NPS) pollutants enter Lake Padden via stormwater runoff, and include chemicals used in lawn and garden maintenance as well as automobile-related oils and heavy metals. Lake Padden is currently listed on the Washington State Department of Ecology (WA DOE) 303(d) list of impaired bodies of water for Polychlorinated Biphenyls (PCBs) (Harris 2009). The commercial production of PCBs ceased in the 1970s, but these chemicals are persistent, which means once in the environment they do not readily break down. PCBs remain and cycle through the air, water, and soil for long periods of time. This chemical is demonstrated to cause cancer and other adverse health effects on the immune, reproductive, nervous, and endocrine systems in both humans and aquatic species or waterfowl.

Padden Creek

Padden Creek is a highly disturbed stream channel with mixed and residential development. This creek flows through Lake Padden and empties into Bellingham Bay. Thus, the conditions of Lake Padden and the surrounding watershed effect and modify the conditions of this creek. It currently supports the runs of Chum and Coho salmon, with the occasional presence of migrating Chinook salmon and Steelhead trout. Padden creek is on the WA DOE list of impaired water bodies for dissolved oxygen, fecal coliform, and temperature (Harris 2009).

Inputs of pollution, such as chemical nutrients, phosphorus and nitrogen, can result in lower dissolved oxygen levels. If dissolved oxygen levels become too low it creates suboptimal habitats for fish and aquatic



Map 4

organisms. Urban and agricultural run-off contains organic matter that is decomposed by microorganisms, which consume and further deplete dissolved oxygen levels.

The presence of fecal coliform bacteria indicates contamination from fecal sources, such as surface runoff, leaking septic systems, or broken sewer lines. Fecal coliform generally does not cause illness directly, but its presence in water is considered an indicator of pathogens that cause waterborne illnesses and conditions, such as gastrointestinal and upper respiratory illness.

The temperature of a water body affects the quality of habitat it will provide for various types of organisms. Warmer water temperatures hold less dissolved oxygen, and do not support aquatic species such as salmon, which require cold clean water. Increased temperature or drastic fluctuations in water temperature can primarily be attributed to loss of vegetation along streams, and loss of stream flow due to withdrawals and lack of groundwater recharge (Booth et al. 2006).

A 2003 study by the WA DOE found that 19 different varieties of pesticides, in three separate sites within Padden Creek including:

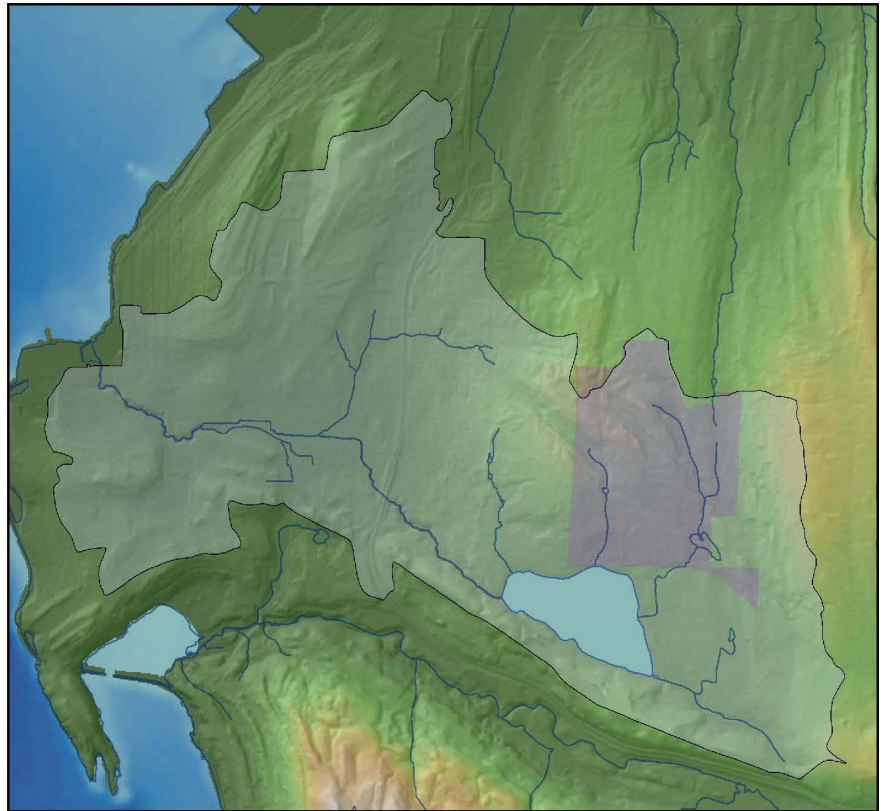
- Fourteen herbicides: dichlobenil, diuron, MCPP (mecoprop), 2, 4-D, trichlopyr, pentachlorophenol, prometon, dicamba, simazine, MCPA, lenacil, terbuthylazine, atrazine, and bromoxynil.
- Two herbicide breakdown products: 2,3,4,6-tetrachloropheno, and 2,6-dichlorobenzamide
- Two fungicides: chlorathalonil (daconil) and 4-nitrophenol, a breakdown product

The report also indicates that residential uses of pesticides are responsible for a majority of these concentrations.

Wetlands

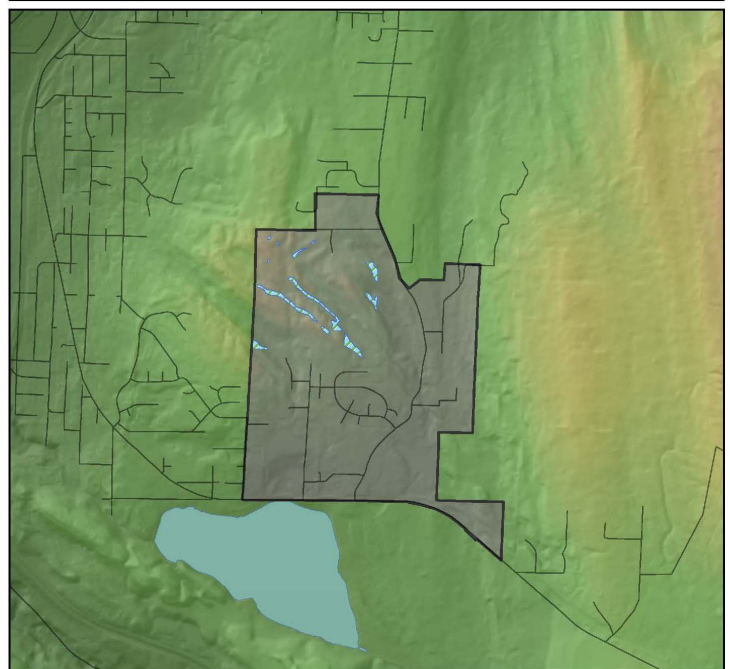
Wetlands can be described as areas that are frequently saturated, and support species of vegetation that rely upon saturated soils.

Padden Creek Watershed & Nearby River Systems



Map 5

Yew St UGA Reserve - Wetlands



Map 6

Essential ecosystem services are provided by wetlands, such as water purification, flood protection, shoreline stabilization, groundwater recharge and stream flow maintenance, and fish and wildlife habitat.

Many non-forested and forested wetlands are scattered throughout the proposed Yew Street site. A 1995 study identified three wetland tributaries to Lake Padden: 1) Our Lake Wetland (OL-1), Our Lake Wetland (OL-2), and Governor Road Wetland. Both Governor Road and OL-1 are open pond wetlands, and OL-2 is a palustrine forested wetland. The Governor Road Wetland and OL-1 are relatively undisturbed wetland ecosystems, and have many diverse vegetation species and few non-point source pollution problems.

1.3. B. Significant Impacts

The proposal will change the zoning in the area to higher density urban and rural density (from R10 to UR4 and UR3). This will allow for urban development, which will significantly change the current land use of the area. As urban development occurs it will alter the natural landscape by increasing the amount of impervious surface throughout the site. Urban development or zoning designations (UR3 and UR4) in Whatcom County results in approximately 30 to 40 percent impervious surface coverage, including roads and dwelling units. Impervious surfaces are materials that prevent the infiltration of water into the soil (Chester and James, 1996). The most common types of impervious surfaces associated with development are rooftops and roads, but other types include sidewalks, patios, and compacted soils. "Imperviousness" of an area is associated with stream-system decline (Booth et al., 2002).

As the natural landscape is replaced with impervious surfaces it can lead to degraded water quality. An increase in impervious surface alters the hydrologic cycle, disturbing the way that water is transported and stored. A reduction in natural infiltration results in a decrease of groundwater recharge, and water tables in the surrounding area are lowered. These changes to hydrology threaten water supplies and reduce groundwater contribution to stream flows, which can create dry streambeds during low flow periods. Additionally, as impervious surface area increases so does the volume and runoff of stormwater, which causes erosion from stream banks and downstream areas, ultimately resulting in wider, straighter stream channels (Chester and James, 1996).

Another impact due to increases in impervious surface and urban development is the loss of tree or forest cover. The removal of tree canopy to clear areas and accommodate residential development will increase the amount of rainfall that makes it to the ground, and subsequently increase stormwater runoff. Tree canopies are responsible for the interception of roughly 40% of rainfall however during development trees must be removed to build roads and houses. Loss of forest cover has further adverse impacts on water quality. It leads to greater water temperature fluctuations, which is problematic for sensitive fish species that depend on consistent, cool water temperatures for survival. With urban development there is a loss of vegetation coupled with an increase in stormwater runoff, which results in erosion and overall loss of riparian or streamside habitat (Chester and James 1996). A decline in biotic diversity occurs where watershed imperviousness exceeds 10 percent (Booth et al. 2002).

Intensive land uses, such as urban or residential development, create a corresponding increase in pollution generation. Increased stormwater runoff from impervious surfaces transport pollutants directly into waterways creating a source of non-point source pollution. Non-point source (NPS) pollution comes from many diffuse sources, and is caused by rainfall or snowmelt moving over and through the ground. Runoff moves over impervious surfaces and picks up natural and man-made pollutants and then deposits them into lakes, rivers, and wetlands. Major categories of NPS pollution include pathogens, which are disease causing microorganisms, nutrients, toxic contaminants, and debris (Chester and James, 1996). The Environmental Protection Agency (EPA) indicates that the following pollutants are most likely found from increased residential and/or mixed development: sediment from development and new construction; oil, grease, and toxic

chemicals from automobiles; nutrients and pesticides from turf management and gardening; viruses and bacteria from failing septic systems; road salts; and heavy metals. Pathogen contamination indicates possible human health hazards, which can result in closed beaches. Toxic chemicals like heavy metals and pesticides are often persistent in the environment, and harm human and aquatic species health. An increase in sediment is a large source of NPS pollution because many pollutants adhere to eroded soil particles. An overabundance of nutrients can lead to harmful algal blooms, which can then cause harmful reductions in life-sustaining, dissolved oxygen levels. A nutrient of special concern is phosphorous, which is found in most soils and fertilizers. Increased run-off rates combined with intensified levels of residential use of this chemical will cause higher levels of phosphorous to reach Lake Padden, and the Padden Creek watershed.

Urban or residential development can degrade wetland quality by increasing sediment, nutrients and other contaminant loads beyond a wetlands capacity to assimilate them. Wetland degradation due to increase in impervious surface as well as removal of vegetation and forest habitat during urban and residential development will have a significant impact on the water quality of Padden Creek and Lake Padden.

In conclusion, urban-induced stormwater runoff causes flooding, erosion, habitat damage, and increases the rate at which pollutants and sediment are delivered to streams resulting in a reduction of water quality (Booth et al., 2002; Booth et al., 2006). Due to Lake Padden's sensitivity, strict stormwater requirements will be necessary to prevent excessive degradation and eutrophication.

Effects of urbanization on volume and rates of surface water runoff

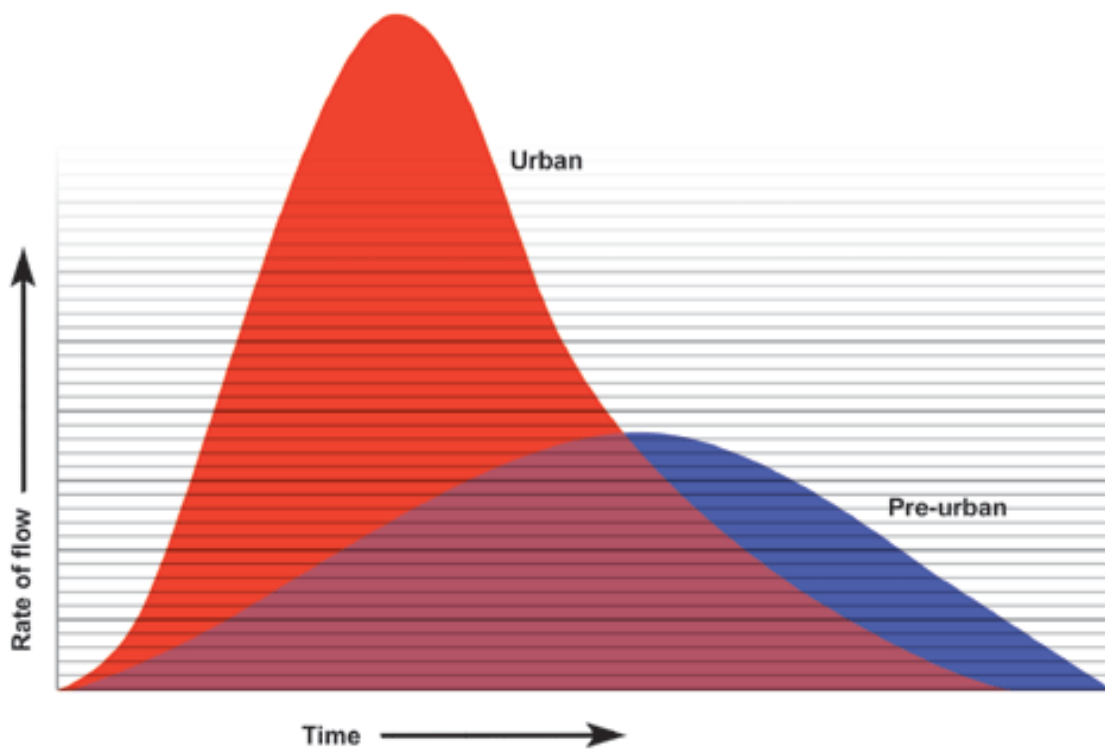


Figure 3

Urbanization increases peak flows and runoff volumes

source: www.ec.gc.ca/eau-water

1.3. C. Alternatives

i. Infill

Concentrating new development and growth into the Samish Way urban village, will limit the need for an increase in impervious surfaces. This would reduce significant impacts on water quality and sensitive watersheds. Infill will prevent the removal of vegetation and forest cover for new developments, and decrease urbanization in critical areas, such as wetlands. The Samish Way urban village project will follow the development guidelines described in the BMC 20.12.030, which outlines landscaping requirements to reduce impervious surface. Specifically, the development project will utilize LID described in the Green Factor scoring system, such as green roofs and pervious surfaces. Therefore, infill development will be the preferential alternative to preserve and protect the water quality of Lake Padden and the Padden watershed, because it will provide equal or more housing capacity, and do so with limited increase of impervious surfaces.

ii. No – action

This alternative will keep the South Yew Street area as UGA “reserve”, and will not affect the existing water quality conditions of Lake Padden and Padden Creek. However, development and growth will persist elsewhere throughout the City of Bellingham and Whatcom County. Growth and development, outside of incorporated land or designated UGAs, will require the expansion of existing municipal systems and infrastructure, such as stormwater management facilities and roads, and result in continuing increases in impervious surfaces.

1.3. D. Mitigation Measures

Managing land-cover changes, limiting imperviousness, and reducing clearing of forest cover are the best ways to minimize the harmful impacts of development on a watershed (Booth et al. 2002). Mitigation measures include:

Required

Significant impacts to water quality can be reduced through required mitigation measures, which include Whatcom County officials implementing and enforcing the standards of Whatcom County Code 20.71. This regulation establishes the Lake Padden Watershed as a Watershed Resource Protection Overlay District. This district creates special protections and restrictions on development activities within the watershed such as restricting certain land uses like gas stations or dry cleaning establishments, which may have a negative impact on water quality. In addition, it limits the amount by which impervious surface areas may increase. For example, for UR and RR zone districts 80 percent of the lot or parcel should be kept free from impervious surfaces or structures.

The Lake Padden watershed is a Stormwater Special Management District. Developers are therefore required to follow the stormwater management guidelines outlined in Whatcom County’s Stormwater Special District regulations (Whatcom County Title 20.80.636). These guidelines stipulate that permanent onsite stormwater quality and quantity facilities are required for lots less than five acres in size with new construction that increases impervious surfaces by more than 500 square feet.

Any Forest clearing activities that take place during development must comply with Lake Padden Watershed's designation as a Water Resource Special Management Area (Whatcom County Title 20.80.735). This means county review and approval is required for clearing activities that exceed threshold requirements: all clearing activity, which is associated with a fill and grade permit, building permit, or other development proposal. Clearing activity in a water resource special management areas need to conform to the following conditions:

- 1) Prior to any clearing activity temporary erosion and sediment control shall be installed and inspected.
- 2) Clearing and construction activities need to be phased to limit the amount of exposed soil at one time.
- 3) All disturbed areas shall be provided with soil stabilization within two days of disturbance.
- 4) Tree canopy retention should occur in priority areas, such as landslide hazards or high erosion hazards.

Stormwater discharges require a National Pollutant Discharge Elimination Systems Permit (DOE website). The NPDES stormwater program requires municipalities to take efforts that include reducing water pollution from stormwater runoff. These efforts are defined as Best Management Practices (BMPs). Meant to reduce pollutant loads and concentrations, BMPs also help to decrease stream channel erosion by reducing the amount of stormwater discharge. BMPs achieve these aims through six measures: public education and outreach, public participation and involvement, illicit discharge detection and elimination, construction site runoff control and post construction runoff control, and pollution prevention and good housekeeping.

Recommended

Promotion of clustered development and preservation of open space will reduce the impact of development to water quality. The goal of clustered developments or subdivisions is to protect half or more of the forest or natural vegetation and ground cover in a particular area. Clustering is intended to preserve open space, reduce total impervious surface area, and minimize development in critical areas (WCC 20.71.350). This type of development helps avoid the removal of natural vegetations and forests around streams, wetlands, and maintains intact riparian buffers (Booth, Hartley, Jackson 2002). In addition, the clustering of development will reduce development costs and increase infrastructure efficiency. Another mitigation measure is to utilize Low Impact Development (LID) practices to decrease the amount of impervious surface by techniques such as vegetated roofs and the use of pervious pavement.

a. Level of significance after mitigation

Regardless of mitigation measures, such as LID or BPM, urban or residential development in this area will create a significant increase in impervious surfaces within the Lake Padden watershed, and thus, result in adverse environmental impacts.

1.4 Plants

1.4. A. Affected Environment and Existing Conditions

Most of South Yew Street remains undisturbed by development and is considered wetland or riparian woodland habitat due to its location within the Padden Creek watershed. Wetlands operate as natural reservoirs for precipitation, increase groundwater recharge, and help to reduce soil erosion and surface runoff. Riparian zones possess similar vegetation characteristics to wetland ecosystems and provide significant ecosystem services.

Rare plants that may be found in the planning area are identified in *Rare Plants in Bellingham and Whatcom County Wetlands*, Florence Caplow, 1991 (available at the Planning and Community Development Department, Bellingham City Hall). While there are no existing plant inventories, the following plants are often found within riparian and wetland habitats with those that were identified on the field site visit indicated below:

Table 1: Plant Species within the Project Area

Species	Identified	Not Identified
Red alder	X	
Vine maple	X	
Western hemlock	X	
Douglas fir	X	
Paper birch		X
Lady fern	X	
Sword fern	X	
Devil's club	X	
Skunk cabbage	X	
Himalayan blackberry		X
Water lily		X
Few-seeded bittercress	X	
Red cedar	X	
Northwest blackberry		X
Big-leafed maple	X	
Buttercup	X	
Creeping raspberry	X	
Snowberry		X
Elderberry		X
Spirea	X	
Soft rush		X
Cattail		X
Oregon grape		X
Nettle		X

1.4. B. Significant Impacts

The effects of urbanization will result in significant vegetation alternation and/or removal, fragmentation of and loss of open space, the introduction of foreign vegetation, increases in impervious surfaces, and widespread fertilizer and pesticide use. Loss of vegetation will have profound impacts on the greater ecological stability within the Yew Street development zone. Such effects include increased erosion and runoff which may increase the influx of sediment and pollutants into streams. Removal will also result in a loss of riparian cover, posing a significant risk to aquatic species that depend on stable water temperatures and quality. Flood peak desynchronization may also be cause for concern since the alteration of vegetation and

increase of impervious surfaces within wetland areas has been known to increase flood frequency, resulting in higher peak flows.

1.4. C. Alternatives

i. Infill

By concentrating development into a proposed urban village, like Samish Way, there will be no loss of vegetation within and around the South Yew Street area, but increases in impervious surfaces and stormwater runoff will take place in the urban village due to development. However, the landscaping and vegetation of urban villages are managed according to the BMC 20.12.030, which requires street trees, yards and open spaces, and freeway trees, and therefore, improves the vegetation of the proposed infill site.

ii. No – action

If no development occurs in the South Yew Street area, there will be no impacts to plants. The population of Whatcom County and the City of Bellingham is nonetheless projected to increase, which will increase the demand for urban and residential development. If development occurs outside of designated UGAs, then growth is likely sprawl into rural land or open space. Depending on the nature of such expansion, it will adversely affect vegetation in previously undeveloped areas.

1.4. D. Mitigation Measures

Required Measures

The removal of vegetation for roads, housing developments, and other necessary infrastructure will result in the removal of most existing plant species. This area of the Yew Street area contains Critical Areas and therefore it is necessary that the proposed urbanization incorporate the mitigation techniques outlined in the Whatcom County Critical Areas Ordinance (WCCAO). In particular, it is required that the development integrates Best Available Science (BSA) into the planning and construction process (RCW 36.70A.172). This includes identifying priority habitats of local importance, generating holistic ecosystem protection schemes, providing adequate riparian buffers, and avoiding any unnecessary impacts to native vegetation. Furthermore, it is necessary that all new development complies with Buffering Plantings requirements as outlined in Whatcom County Code 20.80.345 as well as adhere to the regulation outlined in the Long-Range Integrated Vegetation Management Plan that can be found in Whatcom County Code 12.48.030.

It is further indicated in WCCAO (WCC 16.16.720.H.3) that Type 1 (shoreline) streams require 150 foot riparian buffer while rivers and streams that are salmon-bearing require a 100 foot buffer from the typical high water mark of each bank. Watercourses that are non-salmon bearing are allotted a 50 foot buffer width.

Under Bellingham Municipal Code 16.60.060, the clearing of vegetation for development shall not result in any damage to water resources or abutting lots or parcels.

Recommended

Both cluster development as well as low impact development would provide a fair degree of protection for natural vegetation and a reduction in total impervious surface cover. Specialized development would also serve to help mitigate the influx of excessive nutrient, sediment, and contaminant loads into sensitive riparian habitat.

a. Level of significance after mitigation

Even after use of the proposed mitigation measures, the loss of vegetation within the proposed area would be significant.

1.5 Animals

1.5. A. Existing Conditions

The Yew Street UGA Reserve is within the Padden Creek watershed, which includes Lake Padden as well as Padden Creek. As part of the Growth Management Act (GMA), the Washington Department of Fish and Wildlife (WDFW) designated Lake Padden as a Priority Habitat. Priority Habitats are significant areas for species within the region that have declining populations and are vulnerable to habitat alterations. A Priority Habitat is defined by the WDFW as an area with one or more of the following characteristics: comparatively high wildlife density, high species richness, significant wildlife breeding habitat, significant wildlife seasonal ranges, significant movement corridors for wildlife, limited availability and/or high vulnerability. Lake Padden is a Priority Habitat for high wildlife density, richness, and as an important wildlife corridor.

Species within the Project Area

This area contains the largest protected contiguous open space within the City of Bellingham, and is important habitat for many different varieties of indigenous fauna. The species within the watershed include common upland forest-associated species, wetland and stream aquatic and semi-aquatic fish, amphibians, birds, mammals, and various field and shrub-dwelling mammals. According to the City of Bellingham's Wildlife and Habitat Assessment (1995) there were approximately 178 different species residing in the Padden watershed, including an undetermined amount of fish species and 140 bird species. Fish species found in Lake Padden include: cutthroat trout, rainbow trout, and landlocked sockeye or Kokanee salmon. Two unnamed tributaries to Lake Padden provide spawning habitats for cutthroat trout and Kokanee salmon. Additionally, Padden Creek is an important salmon rearing and spawning habitat (refer to Table 2).

Lake Padden is an area of avian concentration and diversity. Padden Creek, Lake Padden, and the surrounding watershed contains extensive forest, riparian, wetland, lake, and shoreline habitats, which provide vital foraging, nesting, resting, and cover areas for many bird species. This area is located in the Pacific Flyway, which is an area of great importance for north-south migrating waterfowl.

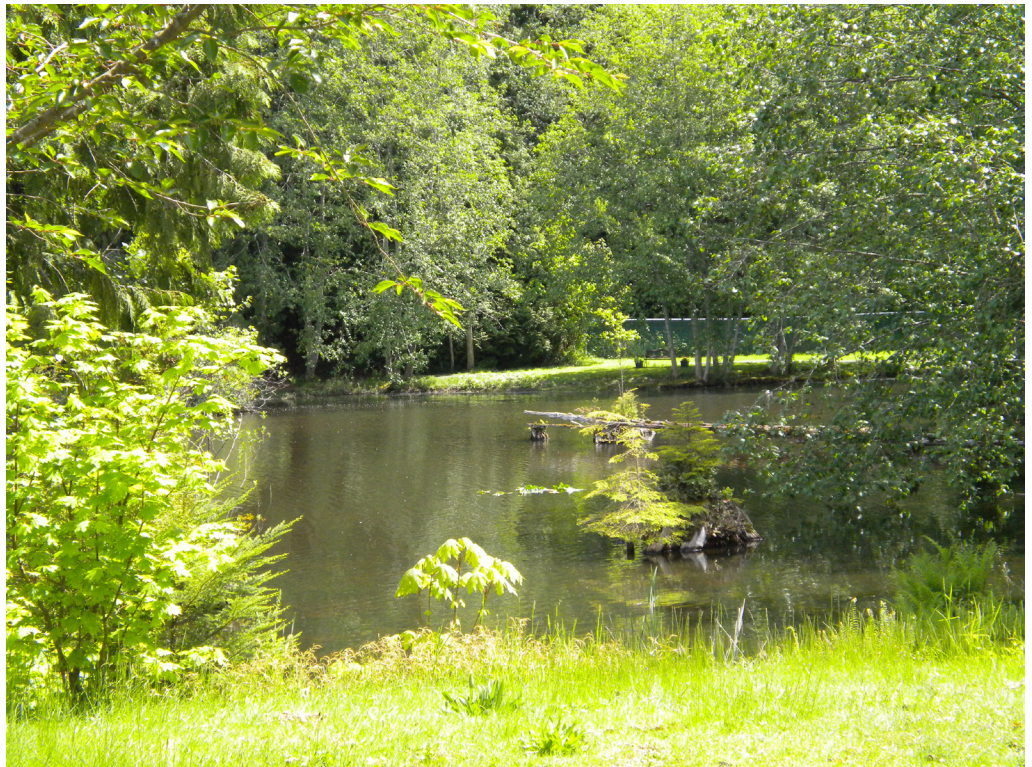


Table 2: Possible Species Located within Project Area or likely to be effected*

Species	Designation	Species	Designation
Cutthroat trout	NL	Bald Eagle	PS(1)
Kokanee salmon	PS (3)	Osprey	NL
Steelhead salmon	PS (2)	Red-tailed hawk	NL
Coho	PS (2)	Merlin	PS(2)
Chinook	T	Pileated woodpecker	SOC
Chum	SOC	Band-tailed pigeon	PS(3)
Wandering garter snake	NL	Rugged grouse	NL
Western terrestrial garter snake	NL	Black swift	NL
Common garter snake	NL	Common nighthawk	NL
Northwestern garter snake	NL	Barred owl	NL
Terrestrial garter snake	NL	Great blue heron	PS(2)
Northern alligator lizard	NL	Green-backed heron	NL
Pacific chorus frog	NL	Hooded merganser	NL
Red-legged frog	NL	Wood duck	PS(3)
Western toad	SOC	Double –crested cormorant	PS(2)
Rough skinned newt	NL	Western grebe	SOC
Deer mouse	NL	Vagrant shrew	NL
Townsend’s vole	NL	Coast mole	NL
Western Jumping Mouse	NL	Douglas Squirrel	SOC
Eastern cottontail	NL	Silver haired bat	NL
Chipmunk	NL	Townsend’s Big-eared bat	SOC
Flying squirrel	NL	Raccoon	NL
Striped skunk	NL	Mink	NL
Porcupine	NL	Long-tailed weasel	NL

* This list is not an exhaustive account of all species in the area, but represents the species that may be affected by the proposed action.

PS(3)- Criteria 3 species: native and non-native species that are of recreational, commercial, or tribal importance population declines with a specific area or statewide. **PS(2)**- Criteria 2 species: those species that are susceptible to significant population declines within a specific area or statewide. **SOC** – Species of Concern: those species, which are legally established as endangered, threatened, or candidates by the WDFW or ESA. **T**- Listed under the ESA as threatened. **NL**- Not listed.

Habitat Health

Fragmentation of habitat and loss of sufficient wildlife corridors has been the greatest impediment to mammal survival within the Lake Padden area. Sediment loading and polluted runoff entering Lake Padden and Padden Creek, in conjunction with stream alterations and the construction of impassable culverts, have been detrimental to the survival of many fish species. In addition, loss of wetlands within the Padden Creek watershed due to development has harmed both bird and avian species. Wetlands help to reduce floodwater and contribute to low stream flow, which is necessary for healthy salmon habitat as well as important habitat for many avian and waterfowl species.

Species of Interest

There are twenty-four possible Species of Concern (SOC) and Priority Habitat Species (PHS) in the Padden watershed.

Chinook salmon is listed as threatened species under the United States Endangered Species Act (ESA), which means that this species is likely to become endangered in the foreseeable future without proper protections. Population and economic growth, coupled with increased development, have significantly increased impacts to fish habitat, and often create unfavorable conditions to the maintenance and restoration of healthy salmon populations. Chinook salmon are significantly affected by low summer stream flows and land use practices that affect water quality, such as increased water temperature and non-point source pollution. By Federal law, Whatcom County must take steps to recover threatened salmon runs.

1.5. C. Significant Impacts

Urban and residential development can negatively impact wildlife and their habitat. A significant adverse environmental impact associated with this project is the increase in impervious surface from new road construction. Runoff from new construction carries greater sediment per unit of area to receiving waters than runoff from previously developed or agriculture areas. In general stormwater runoff from paved surfaces is high volume with little infiltration, which reduces the recharge of natural groundwater and thus lowers the overall water table of an area. A reduction of the water table results in increased variation of natural stream flows, and consistent stream flow is important to salmon health and restoration. In addition, runoff from paved surfaces is warmer and may increase the temperature of streams, which has serious impacts on the entire stream ecosystem. Stormwater runoff from urban or residential areas contains pollutants and toxic chemicals from road surfaces (Eissinger, 2003). Other significant adverse effects of urban development include: de-vegetation and alteration of shorelines and loss of riparian areas; removal or replacement of native vegetation with activities like forest clearing; fragmentation of contiguous habitat; increased biocide and pesticide application; detrimental modifications to soil due to pesticide residue and removal or lack of topsoil; and the placement of barriers to wildlife migration and corridors, such as roads and fences.

Urbanization modifies habitat that once was able to support native species and vegetation. For example, the disappearance of wild salmon from many of Bellingham's streams confirms that the negative impacts of urban development make local streams unlivable for salmon. Decreased oxygen levels, increase in water pollution and sediment, and barriers to movement like culverts and roads have all severely impacted the health of Bellingham's salmon population (Eissinger, 2003). Overall, urban or residential development causes a loss of biodiversity. For example, as the City of Bellingham developed it experienced a decrease in populations among many large mammals, like cougar, black bear and elk that depend on large contiguous habitats.

Lake Padden and the Padden Creek watershed is significant habitat for not only protected salmon, but also, a variety of avian and mammal species. Again, this area is one of Bellingham's last remaining continuous habitats, which contains mature conifer forest, forested wetlands, and many priority species. The urbanization of this area would have significant adverse impacts on wildlife and habitat because it would result in a loss

or degradation of important habitat and water quality. The project's adverse impacts would especially harm important salmon habitat, which currently needs restoration and protection in order to sustain the threatened Chinook and other dwindling salmon populations.

1.5. C. Alternatives

i. Infill

This alternative would concentrate urban and residential development and its corresponding developments within the City of Bellingham. The proposed infill development site is not in an area that is considered priority habitat, and does contain PHS. Therefore, the impact would be less significant to wildlife and fish species than urbanization of the Lake Padden watershed.

ii. No – action

Urban and residential development will continue to occur in order to accommodate the pressures of the projected population growth of the City of Bellingham and Whatcom County. The placement of this development will be outside the City of Bellingham or designated UGAs in rural areas or current open space. Therefore, this alternative will result in a significant increase in impervious surface and habitat modification, but depending on placement, does not necessarily need to occur within a Priority Habitat or sensitive area, such as the Lake Padden Watershed.

1.5. D. Mitigation Measures

All wildlife, especially the PHS and threatened species that reside in the area, depend on clean water. Therefore, any potential mitigation of the impacts of development on Lake Padden, Padden Creek, and the surrounding watershed's animals will require the adoption of measures that improve water quality, reduce the amount of impervious surfaces, and avoid development in critical or sensitive habitat.

Required Measures

Whatcom County is required by the ESA to protect the Chinook salmon from further degradation. Therefore efforts must be taken to mitigate any adverse effects the development may cause to Chinook salmon habitat. Chinook salmon need particular habitat conditions such as deeper pools and larger gravel for spawning, and shaded riparian areas to ensure water temperature stays cool with minimal temperature fluctuations. Both the Forests and Fish Law and the Salmon Recovery Act provide a framework for protecting forested land and enhancing salmon recovery. In addition, the WRIA 1 Watershed Management Project and Whatcom County's Critical Areas Ordinance (CAO) work to further protect sensitive habitats. The CAO requires that development must be a minimum of 100-feet from fish-bearing streams and a minimum of 50 feet from streams without fish.

The NPDES permit requires cities and municipalities to take steps to reduce water pollution from stormwater runoff. These measures are referred to as BMP, and include actions such as, public education, construction site runoff control, and pollution prevention measures during and after development. This involves the adoption of strict stormwater management policies, which treat runoff by removing toxic substances and other water pollutants. Guidelines for stormwater management for the Lake Padden watershed are outlined in Whatcom County Code 20.71 and 20.80.635, which establish the area as a Watershed Resource Protection overlay District, and a Stormwater Special District. Both of these measures provide additional stormwater controls to preserve and protect important water resources.

The project area is also habitat for a pair of Bald eagles that nest and fish on the south side of the lake. Bald eagles are a PHS, and are protected by the Bald Eagle Protection rules. These rules indicate critical habitat for Bald eagles, such as roost sites and nest or perch trees. When land activities like forest clearing, construction,

or land conversion are determined to harm Bald eagle habitat, a management plan is constructed to reduce negative impacts and limit disturbing activities. Because this area contains Bald eagles, a plan must be created to insure that critical Bald eagle habitat and roosting sites are protected. This will involve surveying the site to determine where Bald eagles reside within the vicinity, and then designating this as protected area where forest clearing and habitat modification, such as large poles or wires, should be avoided.

Recommended Measures

There are measures the county and developers of the area could take that are not required, but would reduce the impact of development on species health. These measures include the promotion of Low Impact Development (LID) techniques, facilitate projects to improve riparian habitat along streams and wetlands, increase public education and awareness about the effects of toxic chemicals and pesticides on water bodies, and ensure that Priority Habitats are protected through low impact land use designations. LID techniques reduce the amount of impervious surfaces by development methods such as, pervious pavement or green roofs. Low impact land use designations are reduced density zoning such as rural or recreational open space, and these designations can ensure that that high intensity development does not occur in sensitive habitats.

a. Level of significance after mitigation

There will be a significant impact to animals in the project area. Mitigation measures may reduce, but will not eliminate the adverse impacts to fish and wildlife species caused by development of the proposed magnitude.

1.6 Energy & Natural Resources

1.6. A. Existing Conditions

The area is composed of a large forested natural resource that lies east and west of Yew Street. Although it has been slightly fragmented due to previous development, it still remains largely intact. Currently, the area contains both natural gas and electricity infrastructure. Natural gas is a colorless, odorless, and flammable fuel distributed to homes and businesses through underground piping. Cascade Natural Gas (CNG) is the natural gas distributor within this area. A majority of natural gas consumption is for residential use, such as the heating of space and water. Natural gas reaches Bellingham from Canada by going through Sumas, west to Acme, south down Britton road, and into Bellingham. Puget Sound Energy (PSE) purchases electricity from high voltage lines that run through Skagit County and Canada. PSE then sells this electricity to residents in Bellingham and Whatcom County. Currently, there is both natural gas and electricity infrastructure running along Yew Street.

1.6. B. Significant Impacts

Electricity

The proposal will increase electricity demand due to residential need for light, heat, and the operation of machinery. In general, new development increases electricity demand and therefore requires increased capacity. Increased capacity may require the construction of new transmission lines and substations.

Natural Gas

An increase in the size of pipelines may be necessary to meet increased natural gas demand. Burning natural gas produces carbon dioxide and additional pipelines may pose a risk of leakage and explosions such as the 1999 Whatcom Creek incident.

Forest Resources

Development of the area entails the permanent removal of portions of the forests. In order for residential neighborhoods to be established, native vegetation must be eradicated. Removal of forested area can also increase stormwater run-off and erosion. In addition to being a natural resource, the forest can be considered an aesthetic resource to the residents currently living in the area.

1.6. C. Alternatives

i. Infill

Infill development will not require the construction of additional electrical capacity and natural gas pipelines. Although infill will result in the same increase in quantity of demand for energy, it prevents the additional infrastructure expansions that would be necessary in order to accommodate development in the South Yew Street area that is distant from existing infrastructure. Brownfield construction mitigates the need for new pipelines and transformers, due to reliance on those already existing. The proposed infill site contains significant existing infrastructure and little additions will be necessary.

ii. No – action

A no action alternative would prevent the need for increased energy capacity and infrastructure in the South Yew Street area, and thus, will allow the forested area to remain intact. However, population is projected to increase throughout the Whatcom County and the City of Bellingham, which will require accommodation through new developments. Growth outside of designated UGAs will strain current city and county infrastructure, and will involve extending transmission lines to other areas of the county.

1.6. D. Mitigation Measures

Recommended

The demand for electricity and natural gas capacity can be mitigated by the coordination of Puget Sound Energy with both the city of Bellingham and Whatcom County planning departments. Household energy conservation measures can also reduce the total demand for natural gas and electricity. Selective site development that minimizes the total amount of deforestation can mitigate the effect of the forest resource. Incentives and regulations that encourage open space can also reduce developmental encroachment on forested areas.

a. Level of significance after mitigation

With mitigation techniques, the impact on energy may be insignificant due to already existing energy infrastructure and possible conservation methods. The impact on the forest resource however will be significant given the need for land clearing in order to construct houses.

2. Built Environment

2.1 Environmental Health

2.1. A. Existing Conditions

Exposure to Hazardous Materials

Chemicals are used on a daily basis in residential areas for many different household or gardening activities. However, such chemicals can become hazardous to human and environmental health if they are improperly released. Household Hazardous Waste (HHW) includes products, such as paints, cleaners, oils, batteries, and pesticides. A potentially hazardous chemical has four characteristics: ignitability, corrosivity, reactivity, and toxicity. Improper disposal methods of hazardous chemicals include: pouring chemicals down the drain, on the ground, into storm sewers, or in some cases throwing chemicals away with the regular trash. These disposal methods may not have an immediate effect, but overtime-improper disposal can lead to environmental pollution and threats to human and wildlife health. With proper disposal, HHW may not pose any threat to environmental health.

Environmental Health Hazards

Lake Padden is a popular recreational park in Whatcom County that provides public access to fishing, swimming, boating, and hiking. It is also listed as a 303(d) impaired water body, which means that the WA DOE has determined that Lake Padden's present condition violates water quality standards for one or more pollutants. Lake Padden is listed for increased levels of PCBs, a man-made organic chemical, which accumulates in plants and the bodies of organisms. PCBs can cause a variety of adverse health effects, such as cancer, and disruptions to the immune, reproductive, endocrine, and nervous system (EPA PCBs). The United State banned the production of PCBs in 1979, but this chemical remains present in older equipment like transformers and capacitors. PCBs do not readily break down in the environment and cycle between air, water, and soils.

Risk of Fire and Explosion

The planning area is currently served by Cascade Natural Gas (CNG), which delivers natural gas to homeowners through underground pipes. Natural gas is a potentially hazardous liquid because it is flammable. Pipelines transporting natural gas create the risk of leakage and explosion.

2.1. B. Significant Impacts

If urban development occurs in the planning area then the local environment will experience increased exposure to HHW which, if not properly disposed, could lead to adverse environmental impacts. Increased stormwater runoff into Lake Padden will increase the levels of phosphorous, an element is found in nearly all soils. If there is a high quantity of phosphorus in water bodies, it can lead to harmful or toxic algal blooms which could hinder the recreational activities on the lake and lead to further environmental degradation.

Urban development and increased population density in the Yew Street area will create a higher demand for energy sources in the area. This may require Whatcom County to build more natural gas transmission lines and thus increase the likelihood of explosion or leakage.

During construction the risk of fire and explosion will be on par with that of residential construction projects. This process will not involve the transport of hazardous waste.

The ability to respond to hazardous events is limited in areas outside of the City of Bellingham. Therefore, additional staffing and emergency response operations will be necessary in order to provide an adequate response to hazardous events.

2.1. C. Alternatives

i. Infill

Concentrating development within an urban village potentially exposes more people to already existing hazardous conditions or sites. This alternative will most likely not involve the construction or extension of transmission pipelines. In addition, the City of Bellingham is currently capable of a timely response to hazardous events, such as explosions or leaks.

ii. No – action

Under this alternative population growth will continue to increase exposure to HHW and because growth will occur outside of the present UGAs or City limits, there will need to be an extension of infrastructure and transmission pipelines. This will increase the risk of explosion, fire, or leakage of natural gas.

2.1. D. Mitigation Measures

There are many mitigation measures that if utilized can reduce adverse effects to environmental health.

ii. Required

Proper disposal of hazardous chemicals and waste during construction must be properly executed. Additionally, the goals of the Local Emergency Planning Committee (LEPC) and the Division of Emergency Management (DEM) should be upheld by ensuring that any hazardous chemicals or potentially actions, such as the extension of transmission pipelines, are reported and identified. This will ensure proper response and planning for a possible increase in emergency situations throughout the area.

Whatcom County should develop maps to depict the location of transmission pipelines in order for government officials and private property developers to take proper safety measures when developing and planning for future land uses of the area.

ii. Recommended

In April 2010 Whatcom County drafted a Pipeline Safety Ordinance, which has yet to be accepted. The measures outlined in the proposed ordinance, such as technological features like accelerated notice of a pipeline failure to facilitate evacuation and emergency response, can nonetheless increase pipeline safety and construction.

Additional measures to mitigate impacts to environmental health include public education efforts about how to properly use, store, dispose, and recycle HHW. The placement of signs on all new and existing storm drains to forbid the dumping of any chemical directly into the drain is encouraged. Whatcom County should also establish rules regarding the amount and types of pesticides that are allowed on lawns and gardens in the Lake Padden watershed.

a. Level of significance after mitigation

The impacts of the proposed action on environmental health are not significant after mitigation. If the proper mitigation and disposal methods are utilized then HHW will not adversely effect the environment. Protection measures during and after development will reduce the risk of explosion or leakage from natural gas pipelines.

2.2 Noise

2.2. A. Existing Conditions

Noise is often referred to as unwanted sound and is characterized by intensity, frequency, and duration. The level of sound is usually measured in decibels (db) though it can also be measured in dBA, which is weighted to account for frequency and pitch. Noise can cause a variety of human health issues including stress, high blood pressure, hearing loss, sleep disruption, and more. In addition, it is an ecological concern since it can disturb natural wildlife. Noise is generally greater in more densely developed areas. Current sources of noise in the area include vehicle traffic and residential activity though noise on the existing site is minimal due to limited development.

Although the federal government addresses noise pollution through Noise Control Act of 1972, today it is generally regulated by the Washington Department of Ecology (WA DOE). The WA DOE establishes that any loud noise that occurs between 10pm and 7am can be considered noise pollution. Under Chapter 173-60 and 173-62 WAC, the WA DOE establishes Maximum Environmental Noise Levels and Motor Vehicle Noise Performance Standards.

Table 3: Typical Noise Levels

Sound Source	dBA
Threshold of Hearing	0
Soft Whisper	30
Remote Park Area	35
Window Air Conditioner	55
Quiet Conversation at 3 Feet	60
Vacuum Cleaner at 10 Feet	70
Major Highway at 100 feet	75
Busy Urban Street	80



2.2. B. Significant Impacts

The Whatcom County Critical Areas Ordinance states that increased noise or light from development may affect existing species by disrupting their habitat and flushing them from breeding or foraging areas, interrupting or interfering with their courtship, and potentially increasing their susceptibility to predation. Undeveloped areas of Whatcom County, such as the greater Yew Street, are considered at risk from increased noise.

Vehicles

The increase in vehicle traffic on roadways in the area will augment noise levels mainly through engines, tires, exhaust, and air movement. Sources of vehicular noise are influenced by the type of vehicle, speed, inclines, type of pavement, and other factors. The amount of sound that reaches inhabitants of the area is affected by distance from source, vegetation, topography, and man made obstacles. On average, an automobile will produce 80 dB of noise which is recognizable from 25 feet away. In addition to the noise created by normal size vehicles, the use of emergency vehicles, such as ambulances and firetrucks, will contribute to increased noise pollution. Vehicle noise will persist as a long-term element of the area. Although it can be recognized at all hours, noise will occur mostly during the day, specifically during the morning and late afternoon rush hours.

Construction

Construction that will occur during development causes short-term noise that can be attributed mostly to heavy machinery. A chainsaw produces 117 dB (from 3 feet) and a diesel truck produces 100 dB (from 30 feet). This source of noise will occur predominantly during the weekday working hours. Loud construction equipment can be a disturbance to existing residents and the natural habitat.

2.2. C. Alternatives

i. Infill

Infill development would decrease noise by focusing construction in already developed areas, allowing for greater access to public transit and alternative modes of transportation which would consequently lead to a decrease in total automobile noise. In addition, this alternative would prevent wildlife disturbance caused by noise.

ii. No – action

This alternative will not increase noise in the South Yew Street area. Depending on placement of new development however, noise may increase in other areas of Whatcom County and the City of Bellingham. Though it is site-contingent, noise may be better mitigated or accommodated in such areas. Nevertheless, any development outside of current UGAs or the City could result in adverse impacts of noise pollution in other undeveloped areas.

2.2. D. Mitigation Measures

Required

Under Chapter 173-60 WAC, Maximum Environmental Noise Levels, the WA DOE establishes a limit of 55 dBA for the EDNA of residential areas. The proposal must mitigate sound to a point that fulfills this noise limit. Furthermore between the hours of 10:00 p.m. and 7:00 a.m. the noise limitations must be reduced by 10 dBA for receiving property within residential areas. In order to fulfill these requirements, construction must occur only during day time hours. Building with noise attenuating materials near sensitive areas and requiring buffers around sources of noise can additionally reduce observed noise at receiving sites. Other than construction, it is unlikely that other mitigation measures are required to fulfill noise regulations.

Recommended

Additional mitigation measures can be taken to reduce the increase in total noise. Vehicle noise can be lessened by traffic control devices, speed limits, and regulations on vehicle types. Sound walls and sound absorptive pavement can also mitigate vehicle sound. Public transportation infrastructure can reduce sound coming from large quantities of passenger vehicles. In regards to construction, building with noise attenuating materials near sensitive areas and requiring buffers around sources of noise can reduce observed noise at receiving sites.

a. Level of significance after mitigation

Noise will be significant even after required and recommended mitigation measures are instituted due to the unavoidable noise created from construction and vehicular traffic.

2.3 Land & Shoreline Use

2.3. A. Existing Conditions

Urban Growth Area Boundary

The Growth Management Act (GMA) requires state and local governments to manage Washington's population growth by identifying and protecting critical areas and natural resource lands, designating urban growth areas, and preparing comprehensive plans. These plans are then implemented through capital investments and development regulations. All proposed actions, such as urbanization of Yew Street, must be in compliance with the GMA.

Bellingham added this area to the Urban Growth Area in 1997. In 2009 it designated this area as an UGA "reserve", meaning that it will not be incorporated into city limits or developed until all current UGAs have been built out. The area was placed in "reserve" status due to its location within the Lake Padden watershed.

Comprehensive Plan

The Comprehensive Plan Land Use Chapter discusses in detail the concept of Urban Growth Areas (UGAs) and it identifies specific criteria for land to be classified as a UGA. This site meets the outlined criteria, and thus, is a logical area to incorporate into the existing UGA boundaries. The Comprehensive Plan also encourages joint planning between the city and the county, which would be applicable to this specific site since it is within Whatcom County, yet lies right next to the City of Bellingham. This area is also served by both Whatcom County and by the City of Bellingham services, which encourage joint planning between the two agencies.

After this area's placement with the UGA the land allocation forecasts and population projections for Whatcom County were further analyzed, and ultimately, the Whatcom County Council determined that this land is not necessary to accommodate growing populations. Thus, it was removed the UGA and given the status of UGA "reserve."

Shoreline

The southwest corner of the area in question is close to the Lake Padden shoreline. Currently the shoreline is designated as Natural and Urban Conservancy. The designation "natural" means the shoreline is generally free of human activity, and "urban conservancy" means the shoreline provides opportunities for substantial numbers of citizens to have visual and/or physical access to the shoreline, provided such access does not decrease or harm ecological function. The shoreline around Lake Padden is a recreational area that is protected under state and city policies, such as the Shoreline Master Program.

Samish Way road divides Lake Padden and the South Yew Street site. While the shoreline will not be directly affected, there will be an increase in runoff, which could affect the environment of the shoreline. Lake Padden is regulated and preserved as a regional recreational attraction. The lake's shoreline is also preserved and enhanced where feasible, to improve the shoreline ecology and public access and recreational opportunities. The existing and any new upland activities should be monitored to preserve water quality for continued recreational enjoyment and ecological function.

Shoreline provides opportunities for substantial numbers of citizens to have visual and/or physical access to the shoreline, provided such access does not decrease or harm ecological function. The shoreline around Lake Padden is a recreational area that is protected under state and city policies, such as the Shoreline Master Program.

Existing Zoning

The existing comprehensive plan designation for this area is Urban Growth Area Reserve, meaning that it will be developed in the future after the city and the current Urban Growth Areas have been filled. This area is currently zoned Rural 10 acre, meaning one house per 10 acres is allowed. The present use of this area is residential single family, public and vacant land. The surrounding areas are comprised of residential single family, residential multi family, public, and rural.

2.3. B. Significant Impacts

This change in zoning and development of this area will have a significant impact on the land and shoreline use of this area. Higher density zoning will allow for more human impacts on the shoreline of Lake Padden. This change will not alter the makeup of the shoreline due to the proposed recreational open space (ROS) area proposed along the shoreline of Lake Padden. Influxes of more people in the surrounding area due to increased development however will add more traffic to the area impacting the current natural and conserved shoreline.

2.3. C. Alternatives

i. Infill

Areas such as Samish Way are currently used as Urban Villages to accommodate future growth within the Bellingham city limits. Development within the Samish Way urban village and the current city limits will maintain the current zoning designation of the South Yew Street area. This alternative will reduce the impacts on the shoreline of Lake Padden because it will focus development away from this area.

ii. No – action

This alternative will keep the zoning R10, and the area will remain in the UGA Reserve. Therefore, the South Yew Street area will maintain its current shoreline conditions.

2.3. D. Mitigation Measures

Required

According to the City of Bellingham’s Shoreline Master Program, development of residential units should result in no net loss of ecological function. Thus, the design of residential development should include the preservation of existing native vegetation to the greatest extent possible. Residential development must be designed to minimize the amount of impervious surface area and should utilize Low Impact Development (LID) techniques to the greatest extent practicable (e.g., permeable pavers, stormwater infiltration and filtration).

Recommended

Mitigation measures that are not required, but would reduce impacts to shoreline development include lower density zoning, such as rural zoning designations, and LID measures, which attempt to maintain natural hydrologic functions. In addition, a ROS was proposed around the shoreline of Lake Padden. This designation would reduce any residential or urban development in the area, and would preserve the shoreline for recreational purposes.

a. Level of significance after mitigation

After mitigation measures are taken there will not be a significant adverse impact on the Shoreline of Lake Padden. There will be significant impact on the land use of the South Yew Street area.

2.4 Housing

2.4. A. Existing Conditions

The area currently consists of approximately 480 housing units, most of which are single-family. The South Hill neighborhood consists of approximately 200 single-family residential homes, with other areas containing rural housing. There is also an elementary school located on the site. The South Yew Street area is primarily composed of undeveloped land, giving it a rural character. Isolated portions of this area have steep and possibly unstable slopes. In addition, there are concentrations of housing in four subdivisions along Yew Street and two mobile home parks in the southern portion of the area.

2.4. B. Significant Impacts

If the South Yew Street area is built out completely with UR4, UR3, RR2 and ROS, the zoning would allow for approximately 900 units more units hosting approximately between 2,000 and 2,500 people. This will not cause residential displacement and most of houses will be single-family units. The average price of a new single family home in this area would be between \$400,000 and \$600,000, based off existing single-family homes within the vicinity. The proposed action expands the current Urban Growth Area. If fully developed, the area will consist of mostly new homes, and many of the existing houses were built within the last 20 years.



2.4. C. Alternatives

i. Infill

If infill occurs within city limits, existing zoning and neighborhoods would be suited for new homes. Also the price of a new home in city limits would be cheaper than in a UGA area, creating more diverse opportunities for homebuyers. The impacts from the materials used would be the same.

ii. No – action

If the zoning of this area does not change, one home per 10 acres would still be allowed. The price of land would follow recent economic trends.

2.4. D. Mitigation Measures

Recommended

Mitigation of environmental degradation will occur by using construction methods that foster sustainability, such as LID, which alleviate building footprints of new homes. Additionally, houses can be designed and built to foster efficient resource use as well as protect the environment of the proposed area. Protection of ecosystems and biodiversity, improved air quality, reduced solid waste and conservation of natural resources can be

achieved through thoughtful planning, such as low intensity zoning designation in critical or sensitive areas. Proposed buildings should be focused in environmentally conscious sites.

Benefits of LID include increased home values, more efficient, economic lifestyles, and reduced cost of living while in turn improving the environmental health of the community.

a. Level of significance after mitigation

Impact on Housing will be positive because there will be more housing units to accommodate population projections and thus there will not be an adverse impact.



2.5 Aesthetics

2.5. A. Existing Conditions

The South Yew Street UGA reserve area is naturally very aesthetically pleasing. The area lies right next to Lake Padden. It has been partially developed with newer homes, a few older homes on rural lots, and mobile home parks. From the site there are mountainous views, and from off-site the area provides view of a forested, undeveloped area near the city. The area overall has a rural feel and character.

2.5. B. Significant Impacts

The proposed action will result in urban development that will include mainly single-family, residential homes, and open recreation areas. This action will result in many new homes near the City of Bellingham, and will preserve a recreational area around Lake Padden.

The views for current homeowners will change from natural woodlands to a developed neighborhood. Additionally, views of the area from offsite will change from a natural rural looking area to a developed urban feeling area. The loss of trees and natural areas would be replaced by housing units.

2.5. C. Alternatives

i. Infill

The aesthetics of Samish Way would be altered by the proposed infill project however the aesthetics and views of the project area would remain unaltered. Infill would change the aesthetics of the Samish Way urban village. Currently, the Samish Way area is a commercial corridor with many fast food restaurants along the road. The City of Bellingham's proposed infill project will attempt to make this area an urban village. Aesthetics of Samish Way therefore will change from a transit oriented corridor to a working environment with fewer fast food restaurants and more opportunity for housing. This area would be generally more pleasing to the eye.

ii. No – action

The area would remain as natural woodlands, and retain its rural feel. Additionally, the views of the surrounding mountains would remain consistent.

2.5. D. Mitigation Measures

Recommended

Loss of natural views from the South Yew Street area as well as views from off-site cannot be mitigated if development occurs. However, attempting to keep the area naturally wooded and incorporating green space corridors can help to keep the area aesthetically pleasing.

a. Level of significance after mitigation

After mitigation measures are implemented to preserve aesthetic values, there will be significant adverse impacts on aesthetics in the project area.

2.6 Light & Glare

2.6. A. Existing Conditions

Sources of light and glare come from street and home lights. The South Yew Street area is currently only partially developed, meaning the area is only slightly affected by light and glare. The existing forested conditions reduce any current impacts from light and glare however Yew Street experiences high traffic. Sources of light seen from the South Yew Street are a result of the 'sky glow' effect from the North Yew Street development. The other three sides of the proposed project area are surrounded by forest cover and Lake Padden, and thus are not affected by light or glare.

2.6. B. Significant Impacts

Construction

Regardless of the intensity of development, any home and road construction will significantly increase sources of light and glare. Sources of lighting may include nighttime security lighting, illumination from the headlights of vehicles, or construction equipment during early morning or late afternoon hours. Potential sources of glare may include reflections from vehicle windshields and from plastic used to cover stockpiles and stored construction material. Nighttime lighting associated with construction activity (if any) could also temporarily affect wildlife.

Development

If a rezone is adopted and development occurs, there would be significant light and glare impacts. Light and glare could come from lighting via new residences (interior and exterior lights); street lights; windows and vehicle windshields; the lights of vehicles traveling on collector roads and residential access roads; and pedestrian-oriented lighting along sidewalks and in public amenity areas may contribute to a combination of light and glare throughout the site. These effects would most likely be seen from Lake Padden, the areas surrounding the City of Bellingham, and the North Yew Street UGA. As urbanization continues to occur there would be an increased glow from the area.

2.6. C. Alternatives

i. Infill

Effects of light and glare would be significantly reduced if infill occurs within the Samish Way urban village project. This infill site is already impacted by sources of light and glare at all times of the day. Adding more housing in this area would not create significant increases to existing conditions. This alternative would also reduce the impacts of light and glare in the proposed area.

ii. No – action

This alternative would not change the current light and glare levels of the South Yew Street area.

2.6. D. Mitigation Measures

Recommended

Mitigation of light and glare is possible through the use of light fixture shielding systems, which emit light down to areas intended to be illuminated, and do not affect surrounding areas of the community. The amount of reflected glare can be reduced through the appropriate selection of painted or treated surfaces for standards. Use of Compact Florescent Light bulb (CFL) can be used to reduce the amount of energy consumption and increase the lifetime of the lighting. Construction can also be restricted to the daytime, which will reduce the

amount of lighting needed. Appropriate landscaping measures can be used to reduce the amount glare from on and off site lighting.

a. Level of significance after mitigation

If mitigation measures were implemented there would be an impact from light and glare due to the increased traffic and construction accompanying development projects. .

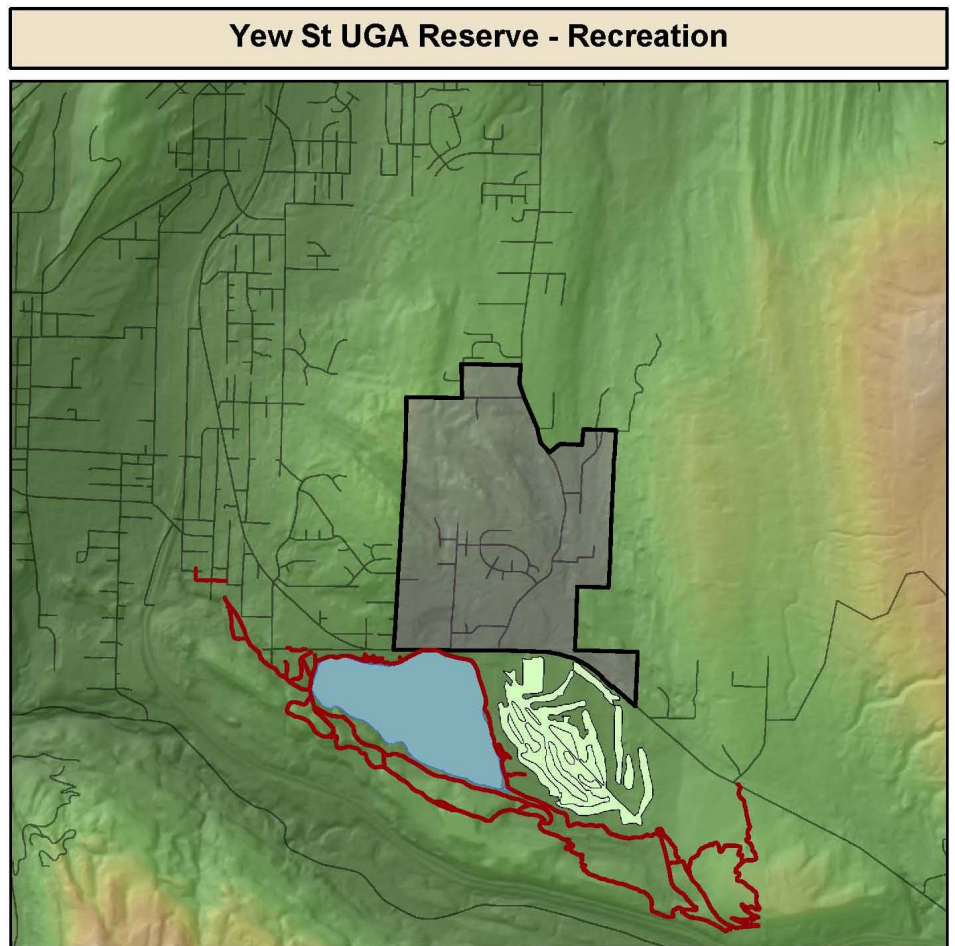
2.7 Recreation

2.7. A. Existing Conditions

The primary recreational facilities in and around the South Yew Street area are Lake Padden, Lake Padden Park, and Lake Padden Golf Course. Lake Padden Golf Course is an 18-hole golf course located to the east of Lake Padden on Samish Way. Lake Padden and the adjacent park are recreational facilities, which provide opportunities for hiking, running, swimming, softball, tennis, boating and fishing and a playground. Currently, powered boats are not allowed on the lake. The park and surrounding areas contain over 10 miles of trails, including a running path that circles the lake (GIS derived). The lake, park, and golf course are actively used, particularly in the summer months.

2.7. B. Significant Impacts

As outlined in the Water and Earth sections of this document, the proposed action would impact the aquatic resources surrounding the South Yew Street UGA. Increased runoff would introduce harmful nutrients to both Lake Padden and Padden Creek. Both of these water bodies are already significantly polluted, as addressed earlier in this document. Any further pollution to the Lake, especially in the form of phosphorous and nitrogen can result in harmful algal blooms. This may restrict use of the lake for swimming or fishing activities. The proposed development will also increase the population to the area, which could increase the number of people using this recreational area for enjoyment.



Map 7

2.7. C. Alternatives

i. Infill

Infill would concentrate development along Samish Way. Such development will not impact on recreation opportunities in and around Lake Padden. There are no current recreational activities around Samish Way due the area being highly commercial. Increased development in this area would therefore not have an impact upon recreation in Samish Way.

ii. No – action

As outlined in the Water and Earth sections of this document, the proposed action would impact the aquatic resources surrounding the South Yew Street UGA. Increased runoff would introduce harmful nutrients to both Lake Padden and Padden Creek. Both of these water bodies are already significantly polluted, as addressed earlier in this document. Any further pollution to the Lake, especially in the form of phosphorous and nitrogen can result in harmful algal blooms. This may restrict use of the lake for swimming or fishing activities. The proposed development will also increase the population to the area, which could increase the number of people using this recreational area for enjoyment.

2.7. D. Mitigation Measures

Recommended

In order to mitigate the adverse impacts to recreation Whatcom County can implement many recommended mitigation measures. These measures include continuing to implement and update the goals and policies of the Recreation chapter of the Whatcom County Comprehensive Plan, the Whatcom County Natural Heritage Plan, the Whatcom County Comprehensive Parks and Recreation Open Space Plan, the Whatcom County Bicycle Plan and the City of Bellingham’s Comprehensive Recreation, Parks and Open Space Plan along with the appropriate capital facilities plans.

In addition, the County should maintain a freshwater trail network for hand-carry or car-top craft including launch sites for canoes, kayaks, and Lorries.

a. Level of significance after mitigation

After mitigation the Recreational opportunities will still be available in the Lake Padden area. There might be an increase in activity in the area due to population increase nearby.

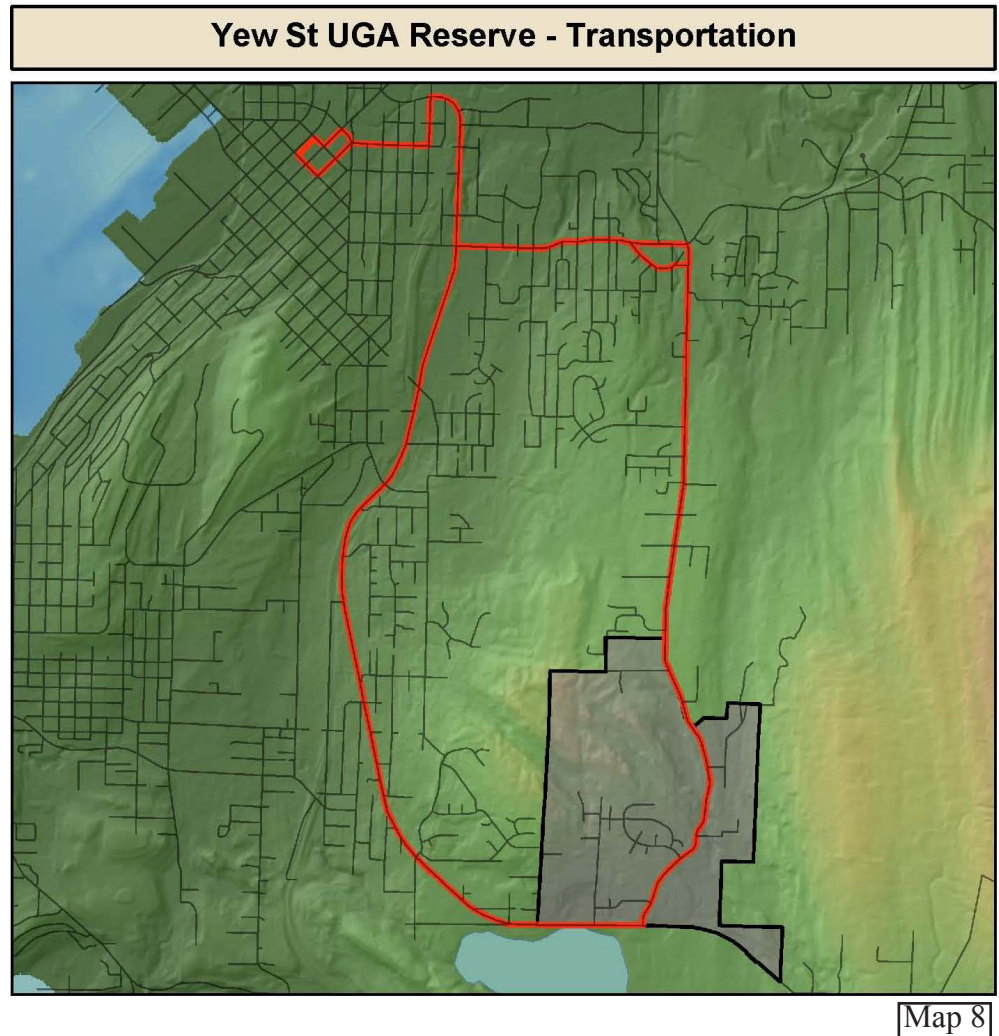
2.8 Transportation

2.8. A. Existing Conditions

The main arterials serving the South Yew Street area are Samish Way to the south and Lakeway Drive to the north. Both are classified as primary arterials, serving as links to Interstate 5. Yew Street is considered a secondary arterial however numerous collector arterials can be found within the proposed project area. Sehome Ave and Tacoma Ave run perpendicular to the east off Yew Street while Reveille, Democrat, and Bass Street intersect Yew Street at various intervals. San Juan Boulevard, Eaglewood Lane, Palmer Road, and Woodbine Way run perpendicular to the west. Those living within Yew Street can access Interstate 5 by heading west Samish Way or Lakeway Drive.

There are no major transportation facilities within the immediate vicinity. Bellingham International Airport is 8 miles from the South Yew Street area while the nearest Amtrak train station is 6 miles to the southwest. The Port of Bellingham provides freight and passenger transportation services, and there is a marina located 4 miles to the northwest.

Whatcom Transit Authority (WTA) currently serves this area on two bus routes: 43 & 44, Yew St during the morning and evening. This bus runs once an hour from 6:25am to 6:25pm on weekdays, and from 9:25am to 5:25pm on Saturdays. The only stop in this area is on the corner of Yew St and Samish Way. This route also serves Lakeway Drive, the Downtown Station, and Samish Way.



Currently, there is a Yew Street Road improvement project underway between Kingsmill Street and Tacoma Avenue, one mile south of Bellingham's city limits. Listed as #3 on the 2010-2015 Six Year Whatcom County Transportation Improvement Program, the scope consists of approximately 1,500 feet of new road, complete with urban features such as stop signs, sidewalks, curbs/gutters, and increased lane width. The total cost of this project is \$3,425, 000.00 and construction is set to begin in June, 2010.

2.8. B. Significant Impacts

Development in the South Yew Street area would require increased transportation infrastructure to accommodate the influx of residential populations. This will result in a significant increase in new roads. Congestion along Samish Way and Lakeway Drive will increase because they are the only roads that link the proposed project with Interstate 5 and the City of Bellingham. Secondary and collector arterials as well as local access neighborhood streets would be added onto existing Yew Street infrastructure networks to collect and distribute traffic between new developments. Should the project be developed to the fullest extent, we would expect there will be approximately 900 housing units constructed, each containing an average of 2 cars per household for which additional parking spaces would need to be constructed to accommodate.

Increased urban densities will put pressure on existing modes of public transportation, necessitating additional routes and travel times. According to the City of Bellingham's Comprehensive Plan, any significant alteration to the existing street network will result in an improvement to the pedestrian and bicycle infrastructure in the modified area.

As residential development increases along South Yew Street, the south portion of Lakeway Drive-Yew Street intersection will become congested as travel into Bellingham grows accordingly.

2.8. C. Alternatives

i. Infill

Concentrating development in areas with existing urban infrastructure would reduce both cost and impact to the natural and built environment. A Primary Transit Network (PTN) was implemented by the WTA in July, 2005. This network was designed to provide high-frequency public transit on Bellingham City arterials, and connects urban villages, such as Samish Way Urban Village to centers of employment. Should the infill alternative occur, this network may help to reduce private automobile trips and subsequently decrease congestion.

The Samish Way Urban Village is designed to be mixed use, containing employment, shopping, entertainment, and residential areas. There will also be increased vehicle traffic to and from the area. Traffic congestion on the arterial streets serving the village will be increased as a result. If arterial streets serving these villages are specifically designed to accommodate foot and bicycle traffic, increases in vehicle traffic can be avoided.

ii. No-Action

With no development in the South Yew Street area, the transportation infrastructure will remain the same. However, in order to accommodate growth in other areas outside of existing UGAs there will be pressure to increase infrastructure throughout Whatcom County. A continued pattern of low-density residential development will put a greater reliance on private automobiles to satisfy transportation needs. This will result in increased commuting times for drivers and transit passengers; increased air and water pollution from motor vehicles; reduced efficiency and cost-effectiveness of existing public transportation; increased municipal financial burdens due to necessary capital improvements and maintenance of the transportation network; and decreased opportunities for alternative modes of travel.

2.8. D. Mitigation Measures

Required

While the South Yew Street area remains outside of Bellingham's city limits, any improvements in road infrastructure would be subject to City guidelines and required mitigation measures because much of the increased traffic would enter the municipal area. Under Bellingham's Comprehensive Plan, new development is prohibited unless adequate person trips are available or improvements are made to the multimodal transportation system to accommodate impacts. Guidelines for such actions are specified under the provisions of the current Growth Management Act and Bellingham's Transportation Concurrency Management Ordinance (BMC 13.70). In order to abide by these criteria, development within the South Yew Street area must incorporate measures to ensure that Level of Service (LOS) does not fall below set thresholds. As a consequence, LOS standards must continue to affect existing motorized vehicle circulation systems. Improvements in WTA public transit service and constructing new bicycle and pedestrian routes should also be taken into account. Additional WTA routes and travel times would be necessary to facilitate increased urban densities.

Transportation concurrency requirements outlined in the Growth Management Act (RCW 36. 70A.070) (6) (b)), the issuing of land use and building permits for new development is contingent upon meeting one of the following three criteria:

- 1.) The Concurrency Service Area (CSA) affected by the proposed development has an adequate number of Person Trips Available
- 2.) CSA affected by the proposed development has new multimodal transportation facilities scheduled and fully funded for improvement with the first, second, or third year of the City's Six-Year Transportation Improvement Program; or
- 3.) The transportation facilities affected by the proposed development are designated as "Highways of Statewide Significance and not subject to local transportation concurrency standards.

The Plan further indicates that all new and reconstructed streets are to include pedestrian sidewalks, as well as, bike lanes.

Recommended

Impacts to existing transportation infrastructure will not only occur on Yew Street, but also on the surrounding primary and secondary arterials. The Comprehensive Plan recommends the following additions to the existing road infrastructure within the South Yew Street area:

- 1) Yew Street Road improved to secondary arterial between San Juan Boulevard and Samish Way;
- 2) New Consolidation Parkway/San Juan Boulevard extension east into UGA;
- 3) New Governor Road collector arterial between Samish Way and San Juan Blvd;
- 4) New Palmer Road east-west collector arterial between Governor Road and Yew Street Road.

It is further recommended that the Samish Way corridor receives 3-lane improvements as well as additional bicycle lanes to enhance access to Lake Padden from Yew Street. Sidewalks should be included along this corridor as well as pedestrian crossings when appropriate.

In terms of increased demands on public transportation, new development should follow WTA guidelines described in WTA's 2004 Strategic Plan. The use of Intelligent Transportation Systems (ITS) designed for improving transit services by providing more information at bus stops and on board buses on route/time availability. This would serve to encourage public over personal modes of transportation.

In order to encourage development to be transit supportive, pedestrian-oriented, and bicycle friendly, new development should implement Bellingham’s Multifamily Design Review Guidelines. Developers are advised to work with the City and County Bicycle and Pedestrian Advisory Committees and Neighborhoods to identify areas in need of improvement. Additional transportation funding should be pursued through collected Transportation Impact Fees (TIF) and/or alternative sources as Real Estate Excise Taxes (REET).

a. Level of Significance after Mitigation

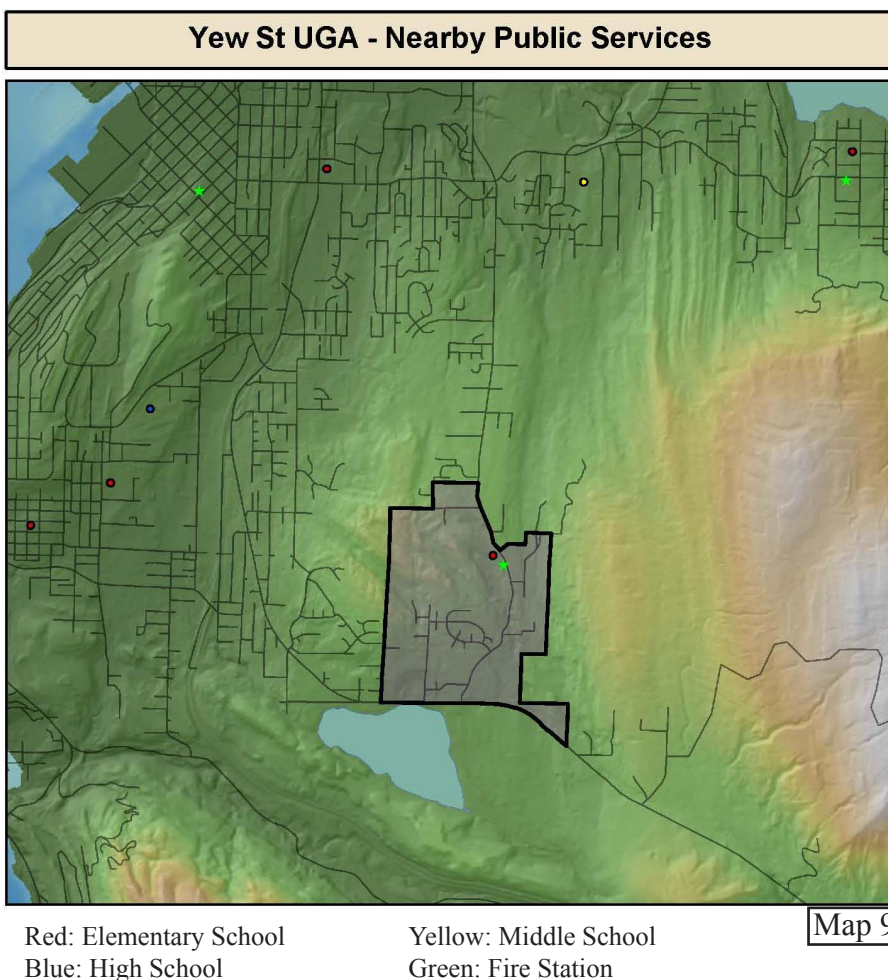
Even with adequate improvements in infrastructure, the environmental and financial impacts to existing transportation would be significant.

2.9 Public Services

2.9. A. Existing Conditions

South Whatcom Fire Association, Station #10, and the Whatcom County Sheriff's Office currently serve South Yew Street area. The South Yew Street Fire Station was built in the late 1980's and currently houses one engine company, one reserve medic unit, and one reserve engine company. The total operating district of Station #10 is 3.0 square miles and serves a population of about 1000 individuals. It currently has 18 volunteers based out of its location on 1095 Yew Street Road. Additional aid is provided in conjunction with Districts #2, 6, and 9 as well as the City of Bellingham. At the present time, the county does not have the capacity to accommodate increased levels of urban development.

Currently, Wade King Elementary School is located in the immediately vicinity at 2155 Yew Street Road. The closest middle school is Fairhaven Middle School, which is situated approximately 5 miles from the Yew Street Area. Sehome High School is the closest high school at 3.66 miles from the proposed area. Other than the buses that serve Wade King Elementary School, Bellingham School District currently provides no transportation means to other schools within the city.



2.9. B. Significant Impacts

If the South Yew Street area becomes part of the Urban Growth Area (UGA), it would continue to be served by the South Whatcom Fire Association and Whatcom Sherriff's Office. Additional urban densities would put increased pressure on the county's public services to effectively provide adequate protection and assistance. Neighborhood crime statistics are unavailable at the present time.

2.9. C. Alternatives

i. Infill

Concentrating development into existing urban areas would eliminate the need for increased public safety infrastructure and maintain adequate response times. Under the infill alternative it would still be necessary to hire additional public service personnel such as paramedics, firefighters, and police offers however it would

pose less of a significant impact in terms of increased infrastructure development, as would be necessary with the proposed project.

ii. No – action

In the absence of the proposed urbanization of South Yew Street, the existing public services will remain the same. Projected increases in population will most likely be pushed to other urban areas within the City or out into rural areas of the county. If the latter should occur, traffic congestion and response times would be increased. New fire facilities will have to be built to better serve these new urban densities, which will be coupled with increased personnel hiring as well as additional emergency response equipment.

2.8. D. Mitigation Measures

Required

Necessary increases in public services will put stress on the municipal budget. However, impact fee ordinances would serve to mitigate the costs of increased public safety services. Under Chapter 20.75 of the Whatcom County Code, for instance, school facility impact fees will be imposed on new development that will have foreseeable impacts on district schools.

According to a 2008 report compiled by the Bellingham Fire Department, fires and critical medical incidents may take longer to reach in the outer areas of the city. In order to ensure optimal response times, it would be required to construct additional fire facilities and/or enter into inter-governmental agreements with adjacent fire districts in order to provide adequate and timely protection. Additional fire hydrants would be installed every 300 feet along applicable roadway intersections. Hiring of county police officers would be necessary to accommodate the proposed urbanization.

Increased levels of residential development will augment the student populations within the Bellingham School District. Additional routes would need to be incorporated into existing public school transportation to Fairhaven Middle School and Sehome High School.

Recommended

In order to decrease reliance on police protection, the urbanized area could organize community “block watches” designed to reduce the overall crime of a neighborhood. Educational efforts by fire and police protection personnel may also help to reduce the level of emergency responses. All available state and federal law financial assistance for law enforcement programs should be pursued to the fullest extent in order to limit reliance on local funding for expanded operations.

a. Level of significance after mitigation

With adequate mitigation measures, the impact on public services by increased residential areas in the Yew Street area would not be significant.

2.10 Utilities

2.10. A. Existing Conditions

Water and Sewage

Within the planning area, seven community water associates operate as distributional organizations. Though considered independent in operation and maintenance, many of them receive their water from the City of Bellingham. Much of Yew Street is currently connected Bellingham city water mains, excluding the area between Samish Way and Spring Valley Ave, which is attached to the Spring Valley, Yew Tree Acres, and Forest Park water systems.

Private septic tank systems as well the City provides wastewater disposal services however only the areas immediately north of Lake Padden and the northern half of Yew Street are served by the municipal lines. 80 residential units are served by the city north of the lake while 74 residential units are currently served along the northern Yew Street line.

Sanitary Services

Under Whatcom County's Universal Waste Collection Ordinance, residents are specifically required to sign up for waste collection. Waste and recycling services are currently provided by Sanitary Services Co. (SSC), which operates on a fee-based system and has the exclusive right to collect garbage throughout the City of Bellingham and neighboring growth areas. SSC deposits municipal solid waste at a regional transfer stations located on Slater Road in Ferndale, owned and operated by Recomp of Washington, Inc. and Recycling and Disposal Services (RDS). All recycled materials collected in residential areas on a weekly basis are transferred to the Parberry Recycling site in Bellingham.

Communications

Currently, the Yew Street area is served by regulated telephone monopolies. Utilities and Transportation Commission of Washington State (WUTC) regulate the current rates and services. The Qwest Telephone Company serves the City of Bellingham as well as the outlying fringe areas. Cable and broadcast television services are provided to Whatcom County via the Comcast Cable Company.

Under City Ordinance 2006-03-026, there is a prohibition against new utility service zones outside of the Urban Growth Area.

2.10. B. Significant Impacts

Once the Yew Street area is part of the UGA and subsequently annexed into the City of Bellingham, the area will have to be supplied with adequate municipal water and sewer lines to accommodate increased urban densities. In terms of construction, this means the excavation of soil and vegetation for trenches as well as the installation of water and sewer piping. Additional maintenance and building costs would need to be incorporated into city budgeting. In terms of sanitary services, the amount of residential waste will be augmented as a result of Yew Street urbanization. Sanitary Services Co. would have to expand routes and visiting times to accommodate new clientele. Though typically low impact, communication utilities would be required to dig additional ditches and telephone poles for the proposed urbanization.

2.10. C. Alternatives

i. Infill

By concentrating growth into existing urban densities, additional distributions of water and sewer services would be easier to facilitate. Existing lines may have to be increased in size to allow for greater liquid flow

rates, however, this may prove to be more efficient and cost-effective than building new systems. Incorporating new populations into existing SSC areas would decrease waste collection, transport, and processing costs. An emphasis on developing where infrastructure capacity already exists would create the need for changes in communication facilities to accommodate new urban densities.

ii. No – action

Bellingham City does not have sufficient sewer or water supplies to accommodate expected increases on population (Comprehensive Plan). Thus, without increased development these population influxes would be forced into the rural areas of the county creating a greater dependence on septic and independent well systems. Costs for waste disposal would be pushed onto Sanitary Services or other cities, UGAs, and/or rural areas. Increased traffic congestion, travel time, and decreased waste disposal efficiency is likely to occur without adequate mitigation measures in place. A similar situation is likely to occur with an increased need for communication services.

2.10. D. Mitigation Measures

Required

Water and Sewage

Increased urbanization levels will require the expansion of existing water and sewer services within the Yew Street area. Due to the addition of approximately 1500 residential units, additional infrastructure such as storage tanks, water mains, and pump stations are likely to be necessary for augmented levels of residential use. Water conservation programs, as outlined in the City of Bellingham 2009 Water System Plan, will help to maintain city-wide per capita daily consumption and to keep water demand equal or to or below city growth rate. Included in these conservation programs is the construction of 1.35 million gallons (MG) of storage in the upper Yew Street pressure zone at a hydraulic grade line (HGL) of 870 feet to provide storage for upper Yew Street and Governor Road pressure zones.

The City of Bellingham has already set up an infiltration/inflow abatement program for wastewater management, which will reduce the need for future capital improvements and maintenance costs. A new trunk main will be added onto the Yew Street sewer on Yew Street from South Hills Drive north to Palmer Road. Continued upgrades to current geologic information and the Wastewater Conveyance Plan will be necessary to provide service that is both economically efficient and up-to-date with present technologies. All alterations will need to be in line with Bellingham Municipal Code, Section 5: Criteria for Sewage Design and Municipal Code, Section 6: Water Distribution System Design Requirements. Officials should also take advantage of the Whatcom County Economic Development Investment Program (EDI) to help finance additional public facility construction.

There is a minimum 1500gpm (gallon per minute flow) requirement for all multifamily residential development within urban growth areas.

Sanitary Services

Whatcom County's Universal Waste Collection Ordinance dictates that all residents must sign up for waste collection services. All new residential developments must provide easy access for recycling and solid waste transport trucks.

Communications

Construction of additional communications lines must be coordinated with City and County Planning documents. Under Whatcom County Code **3.22.020**, in accordance with the provisions of RCW Chapter 82.14B there is levied an excise tax on the use of telephone access lines in the amount of \$0.50 per month for each telephone access line. The amount of tax shall be uniform for each telephone access line.

Recommended

Water and Sewage

The City of Bellingham has recommended building a new 40th Street pump station with a capacity of 740gpm to serve the new upper Yew Street storage center as well as the construction of 12-inch pipeline to connect the pump station to the new Upper Yew 870 reservoir.

An inventory of water systems, monitoring of distribution systems, and systematic drinking water evaluations should be implemented in order to ensure compliance with Bellingham City's Comprehensive Water Plan. Both water and sewage mains should also be upgraded and monitored for adequate service should residential development occur.

a. Level of significance after mitigation

With adequate mitigation measures in place, the impact of increased utility use as a result of the proposed urbanization project would not be significant.

2.11 Historic & Cultural Preservation

No significant adverse impact.

Decision Matrix

SEPA Elements	Proposal	After Mitigation	Alternative 1	No Action
Earth	-	-	0	0
Air	-	-	+	+
Water	-	-	0	0
Plants	-	-	+	+
Animals	-	-	0	+
Energy and Natural Resources	-	0	+	+
Environmental Health	-	0	+	0
Noise	-	0	+	+
Land and Shoreline Use	-	-	+	0
Housing	+	+	0	-
Aesthetics	-	-	0	+
Light and Glare	-	0	0	+
Recreation	-	0	+	0
Historic and Cultural Preservation	0	0	0	0
Transportation	-	-	0	+
Public Services	-	0	+	0
Utilities	-	0	-	0

Appendix

GHG Worksheet

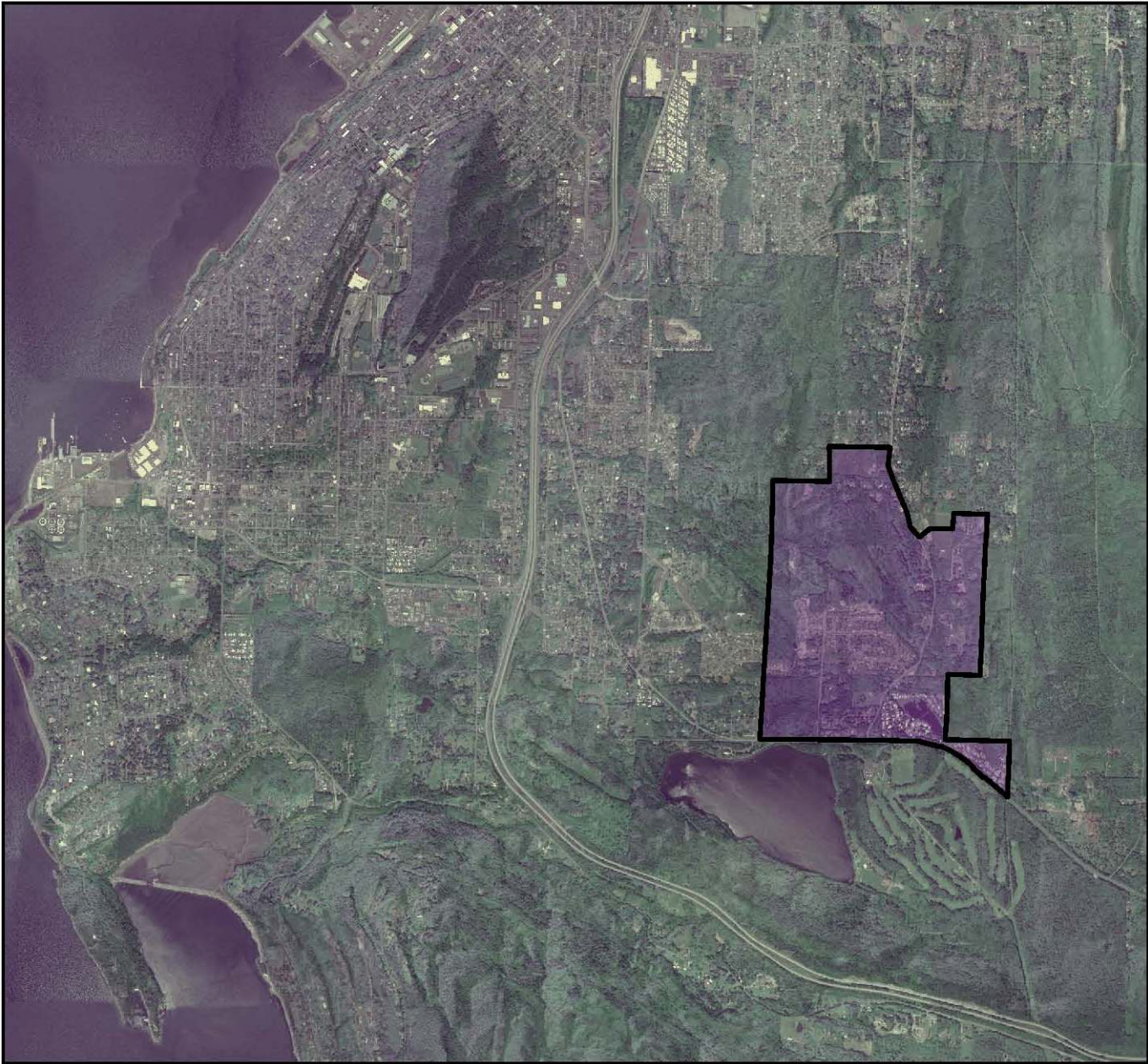
Section I: Buildings

Type (Residential) or Principal Activity (Commercial)	# Units	Square Feet (in thousands of square feet)	Emissions Per Unit or Per Thousand Square Feet (MTCO ₂ e) Embodied	Energy		Lifespan
Single-Family Home	900		98	672	792	1405655
Multi-Family Unit in Large Building	0		33	357	766	0
Multi-Family Unit in Small Building	0		54	681	766	0
Mobile Home	0		41	475	709	0
Education		0.0	39	646	361	0
Food Sales		0.0	39	1,541	282	0
Food Service		0.0	39	1,994	561	0
Health Care Inpatient		0.0	39	1,938	582	0
Health Care Outpatient		0.0	39	737	571	0
Lodging		0.0	39	777	117	0
Retail (Other Than Mall)		0.0	39	577	247	0
Office		0.0	39	723	588	0
Public Assembly		0.0	39	733	150	0
Public Order and Safety		0.0	39	899	374	0
Religious Worship		0.0	39	339	129	0
Service		0.0	39	599	266	0
Warehouse and Storage		0.0	39	352	181	0
Other		0.0	39	1,278	257	0
Vacant		0.0	39	162	47	0


Section II: Pavement


Pavement	5,000.00	250000
Total Project Emissions:		1655655


Yew St UGA - Reserve



Legend

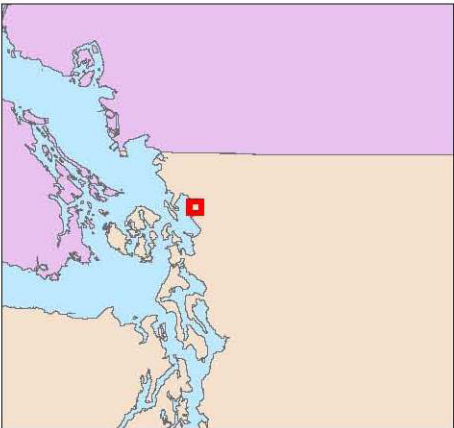
 UGA Reserve



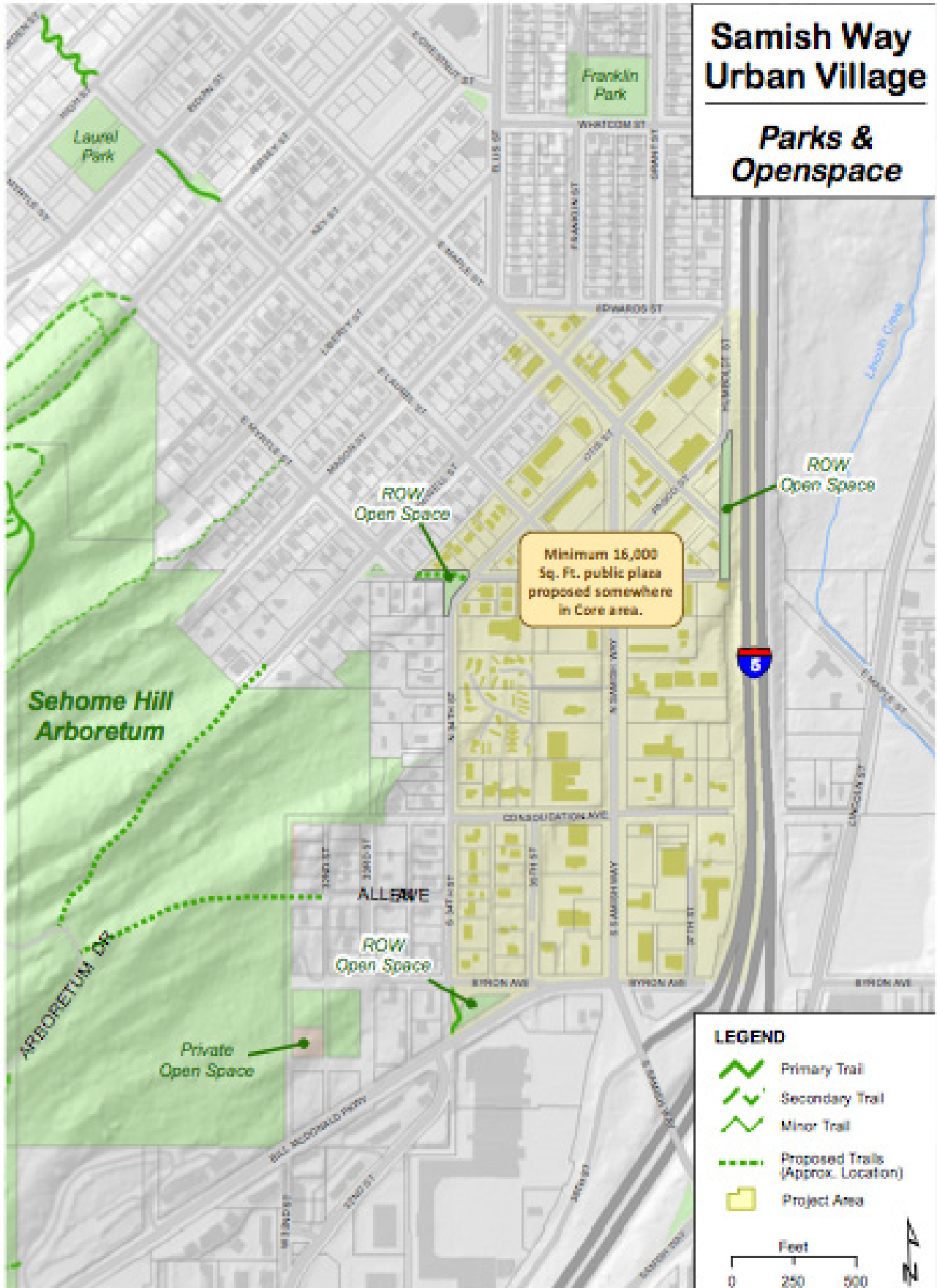


Miles

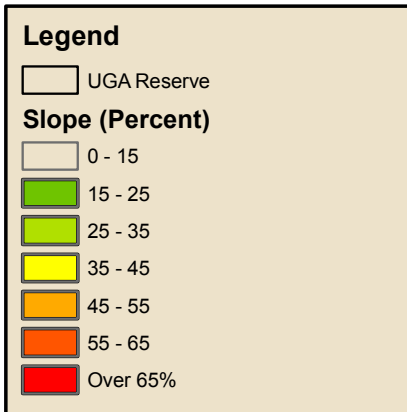
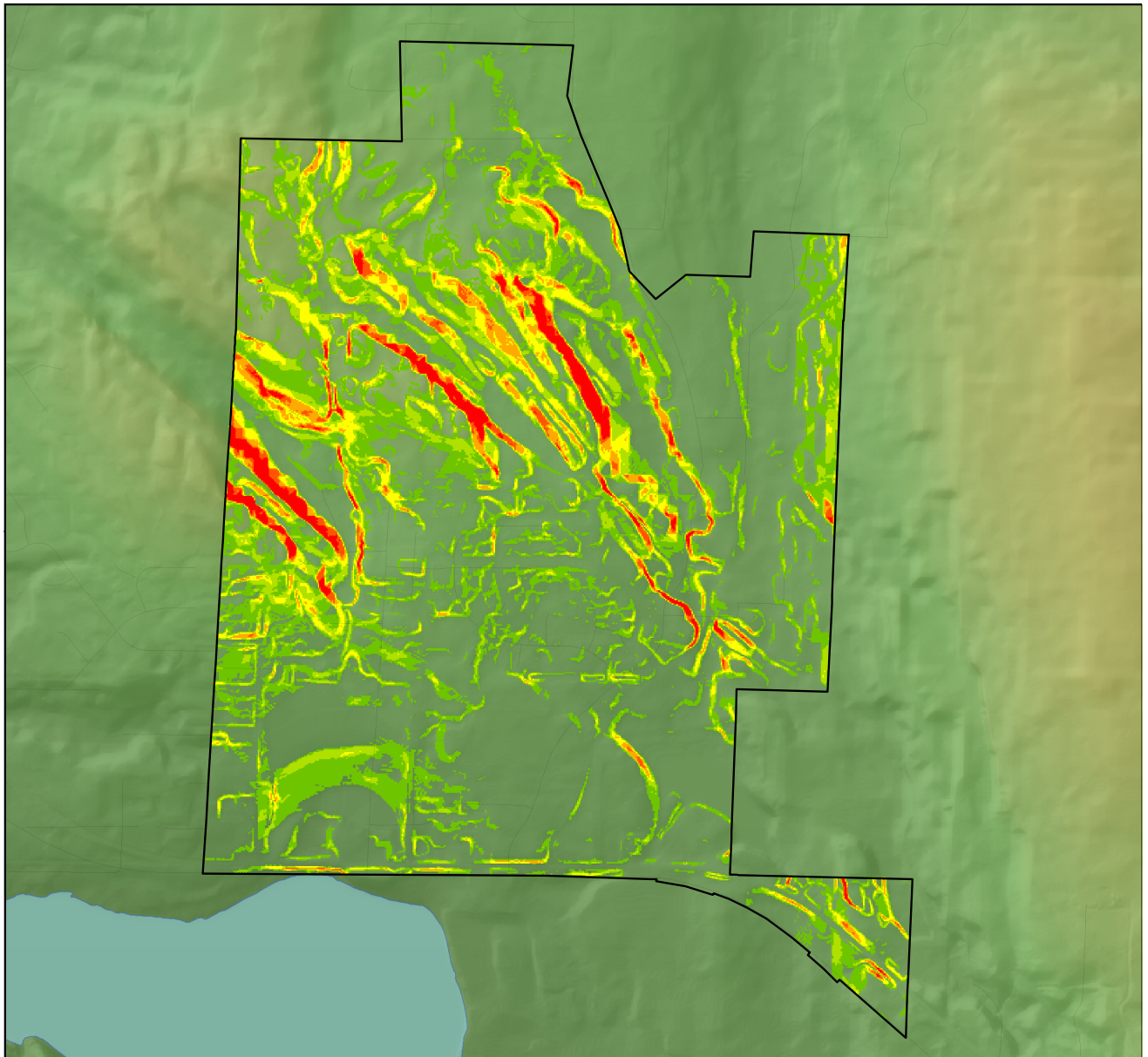
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Created: 23 May 2010
Data Source: City of Bellingham and WWU
Projection: NAD 1927 State Plane WA North



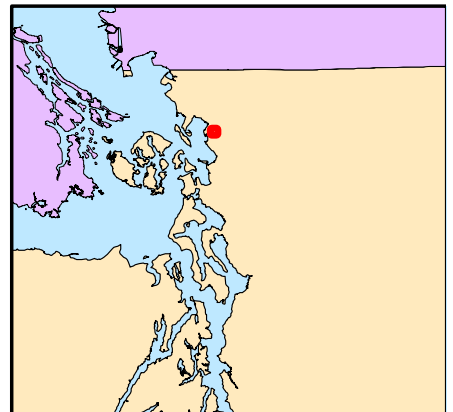
Map 2



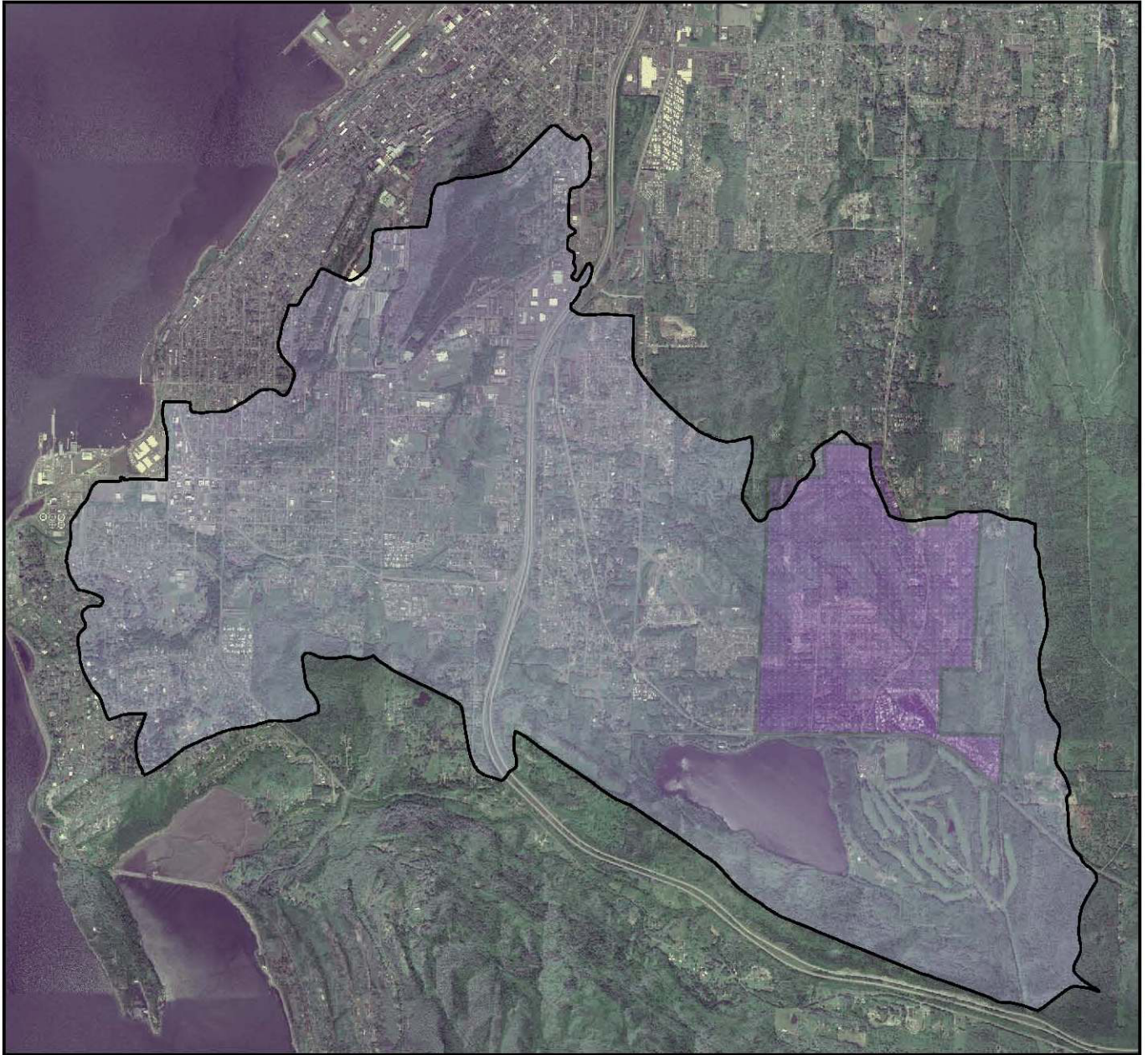
Yew St UGA Reserve - Slope



Cartographer: Patrick T Danner
Created: 30 May 2010
Source: City of Bellingham & WWU
Projection: NAD 1927 State Plane WA N



Padden Creek Watershed



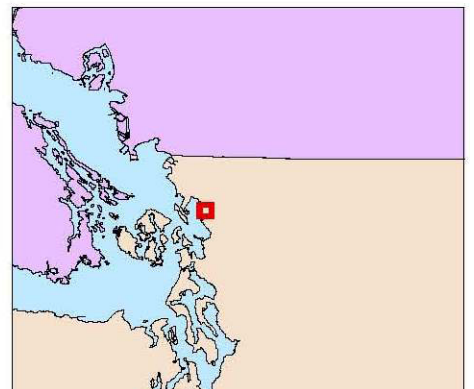
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-  UGA Reserve
-  Padden Creek Watershed

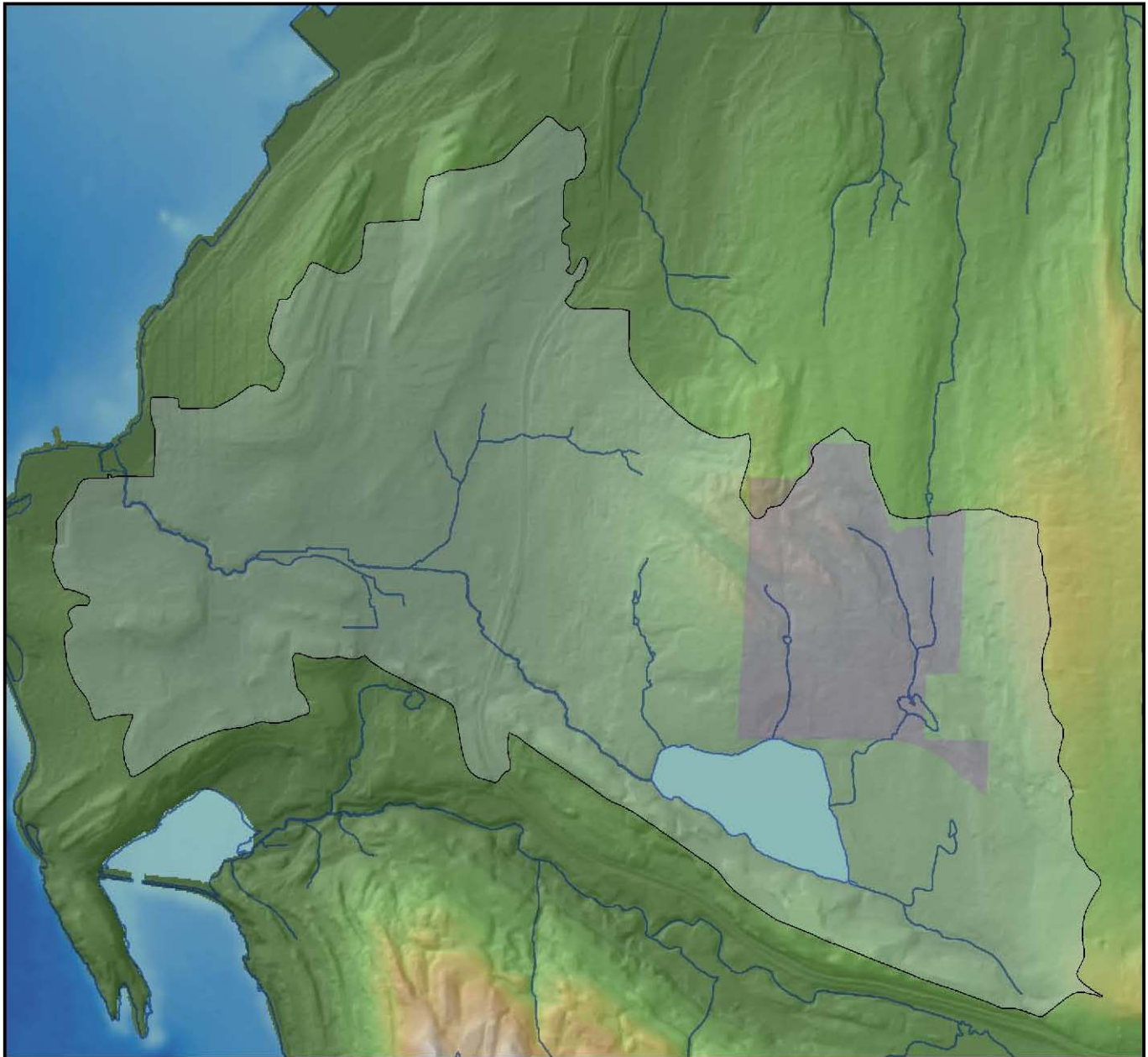


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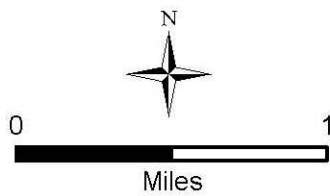


Padden Creek Watershed & Nearby River Systems

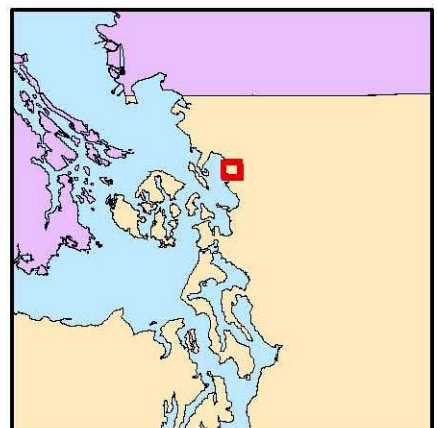


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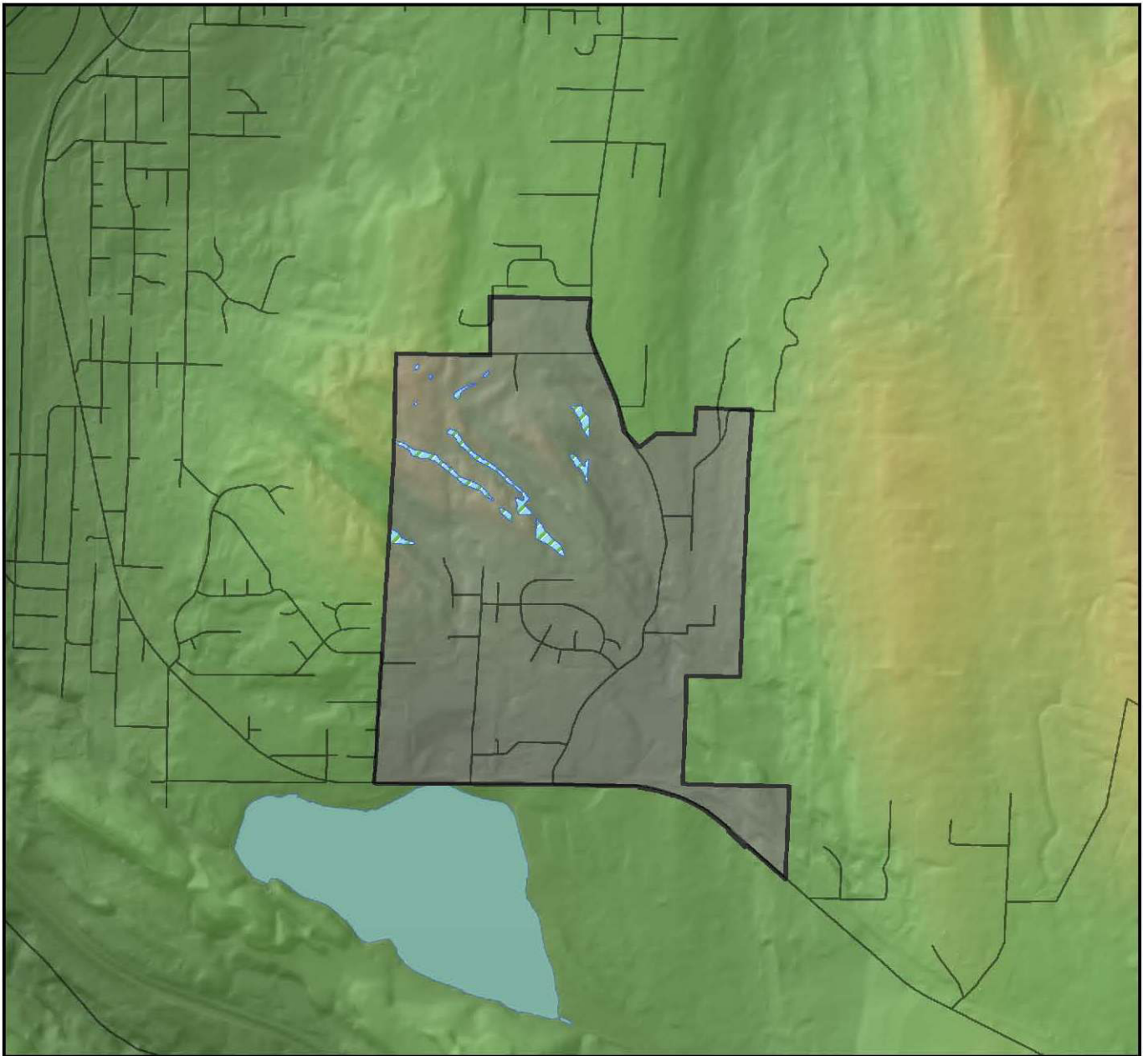
- Streams
- UGA Reserve
- Padden Creek Watershed



Cartographer: Patrick T Danner
Source: WWU
Creation Date: 17th May 2010
Projection: NAD27 WA State Plane N



Yew St UGA Reserve - Wetlands

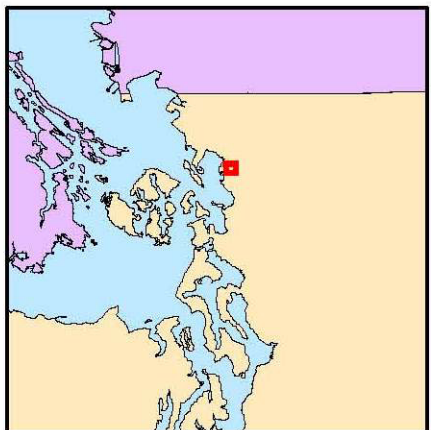


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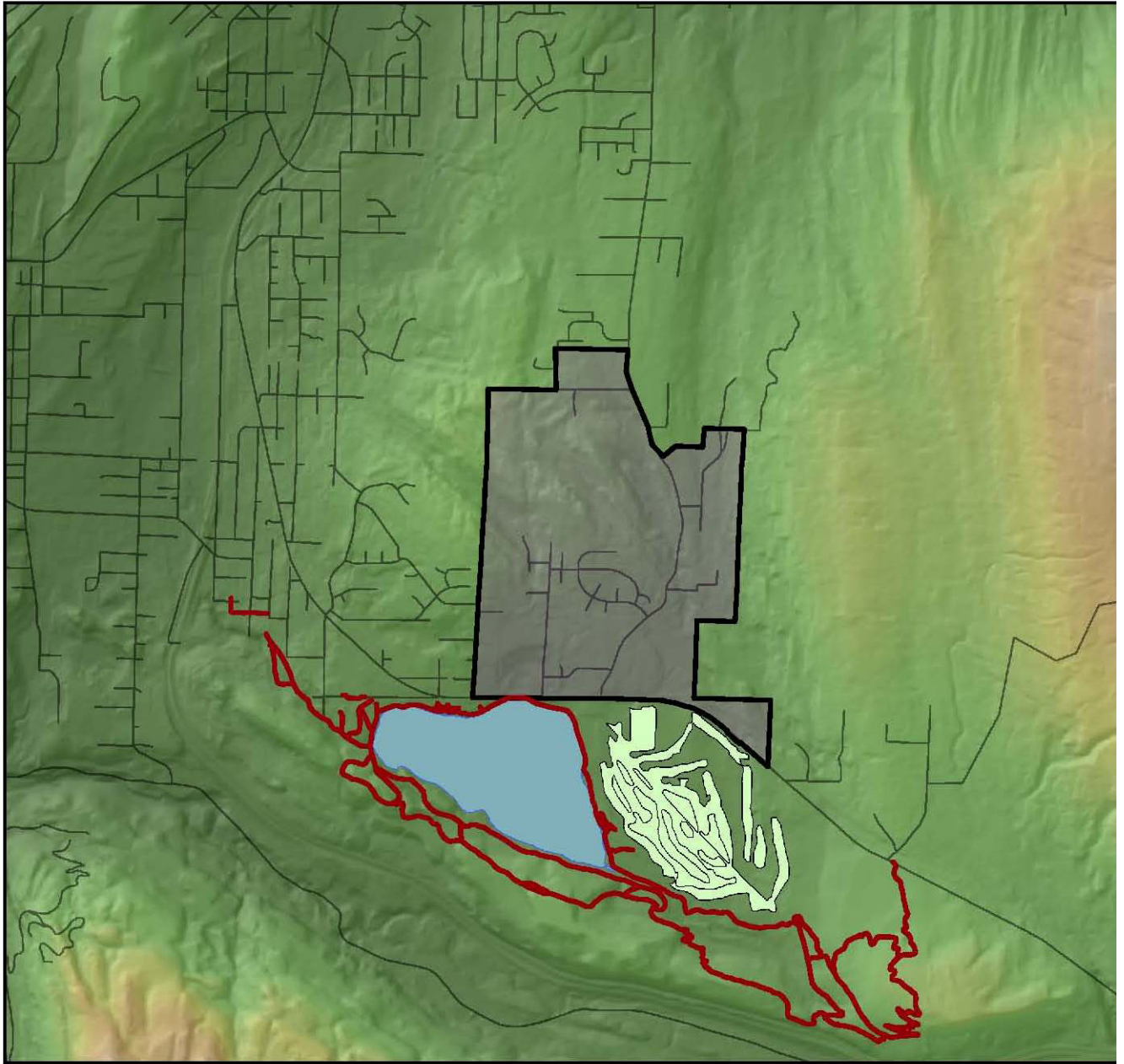
- Roads
- Wetlands
- UGA Reserve

0 0.5
Miles

Cartographer: Patrick T Danner
Source: WWU
Creation Date: 17th May 2010
Projection: NAD27 WA State Plane N



Yew St UGA Reserve - Recreation

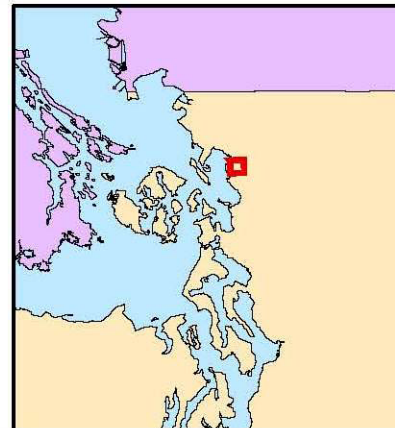


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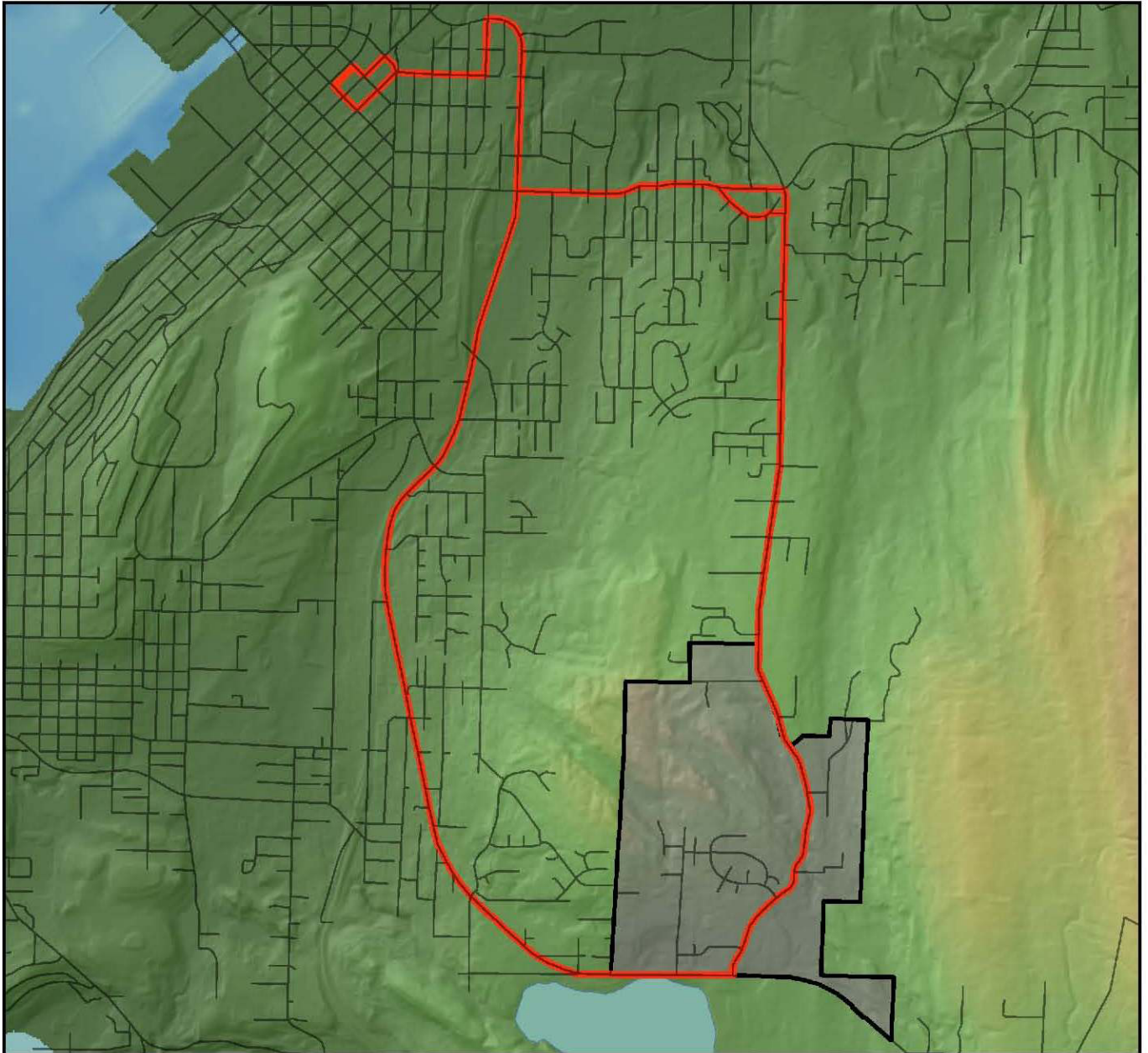
-  Lake Padden Trail System
-  UGA Reserve
-  Golf Course
-  Roads



Cartographer: Patrick T Danner
Source: WWU
Creation Date: 17th May 2010
Projection: NAD27 WA State Plane N

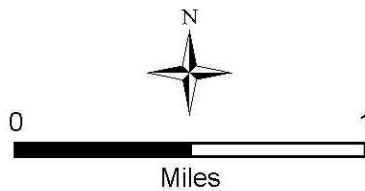


Yew St UGA Reserve - Transportation

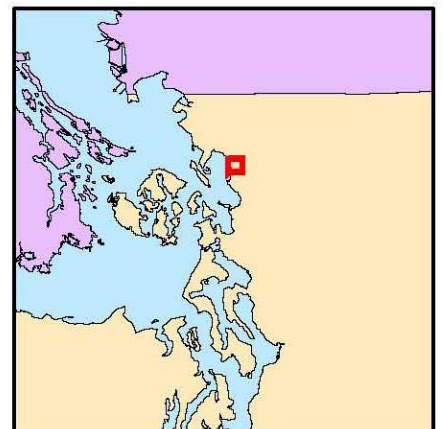


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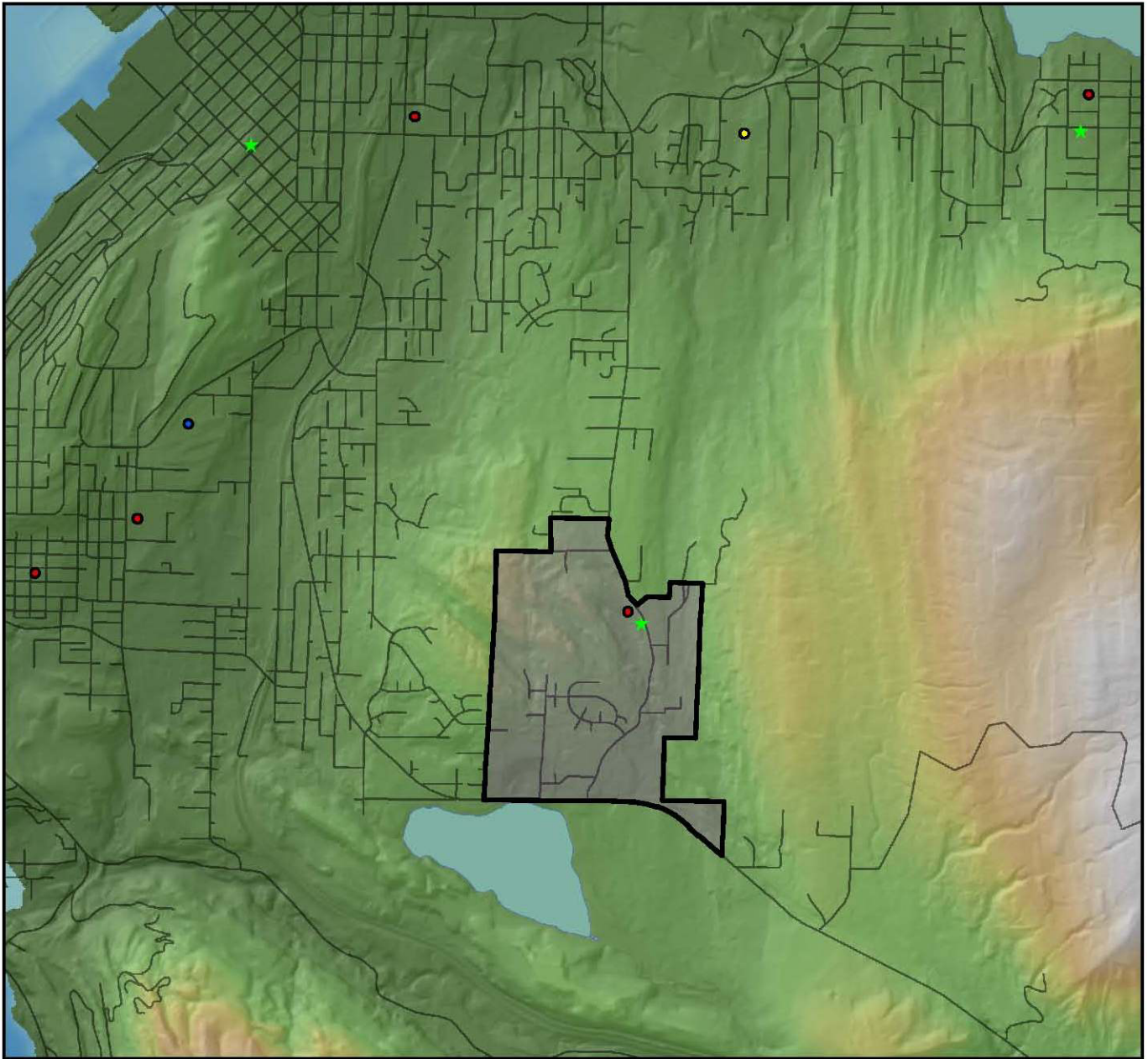
- Roads
- WTA Route 43/44
- UGA Reserve



Cartographer: Patrick T Danner
Source: WWU
Creation Date: 17th May 2010
Projection: NAD27 WA State Plane N

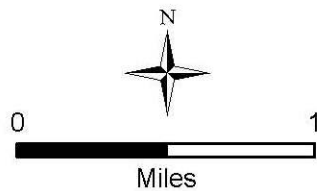


Yew St UGA - Nearby Public Services

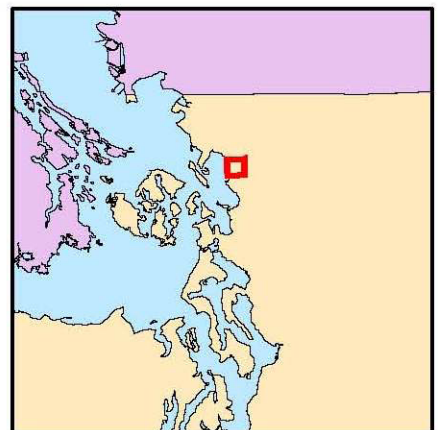


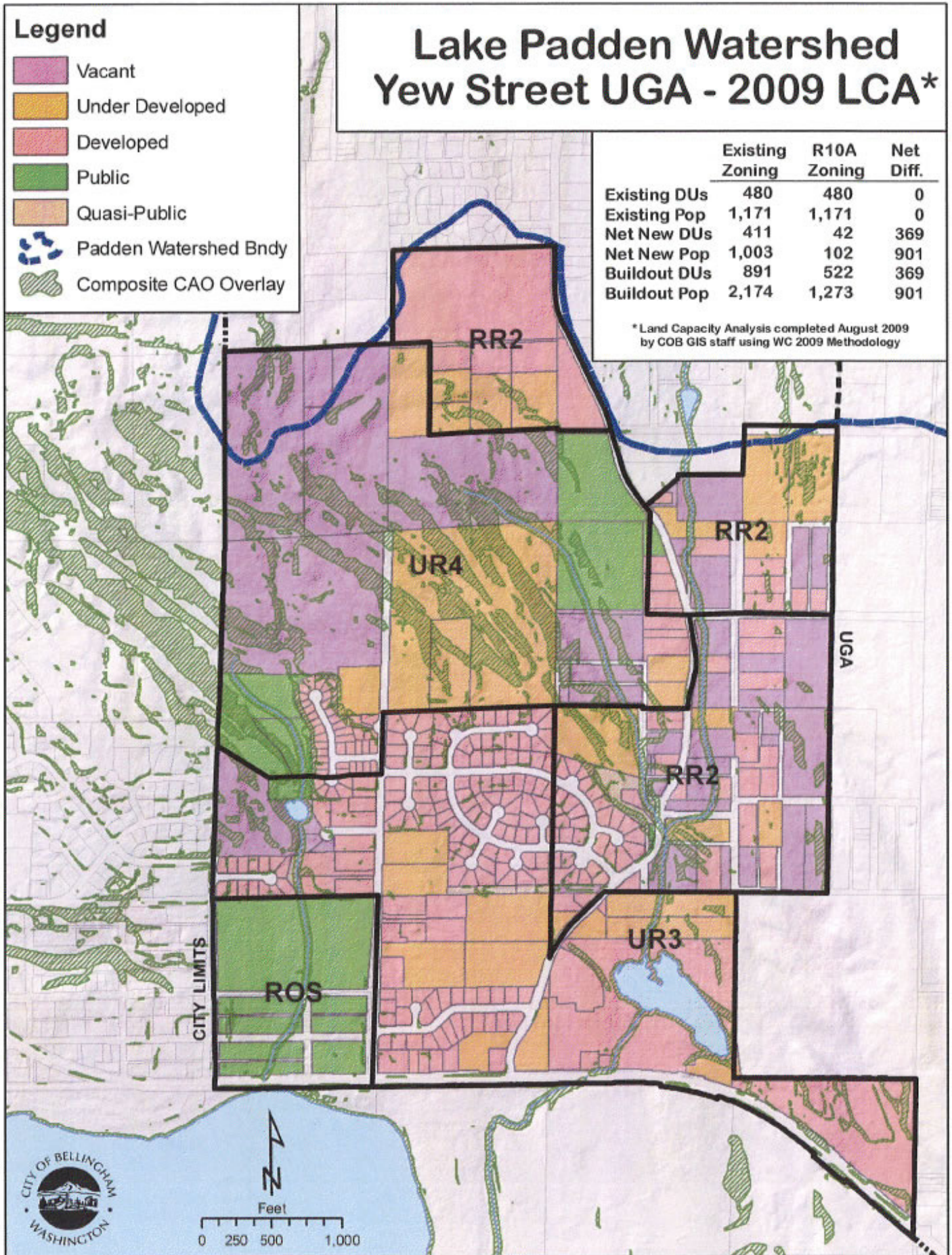
Legend

- Elementary Schools
- Middle Schools
- High Schools
- ★ Fire Stations
- ▭ UGA
- ▭ UGA Reserve
- Roads



Cartographer: Patrick T Danner
Source: WWU
Creation Date: 17th May 2010
Projection: NAD27 WA State Plane N





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