



Prepared by the Lake Whatcom
Interjurisdictional Coordinating Team

Lake Whatcom

Management Program

2015-2019 Work Plan

April, 2015

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Lake Whatcom Management Program

lakewhatcom.whatcomcounty.org

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Table of Contents

Program Overview.....	1
Introduction.....	1
Watershed and Lake Facts.....	2
1992 General Program Goals.....	3
Phosphorus Focus.....	4
Program Development Timeline.....	5
Program Areas and Objectives.....	6
Reading the Work Plan.....	7
Program Area 1: Land Preservation.....	8
Program Area 2: Stormwater.....	10
Program Area 3: Land Use.....	13
Program Area 4: Monitoring & Data.....	16
Program Area 5: Hazardous Materials.....	18
Program Area 6: Recreation.....	19
Program Area 7: Aquatic Invasive Species.....	21
Program Area 8: Utilities & Transportation.....	23
Program Area 9: Education & Engagement.....	24
Program Area 10: Administration.....	28
2015-2019 Work Plan: Action Timeline.....	30
2015-2019 Work Plan: Cost Estimates.....	41
2015-2019 Work Plan: Funding Sources.....	42
2015-2019 Stormwater Capital Projects & Funding Commitments.....	43
Resources.....	44

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PROGRAM OVERVIEW

Introduction

Lake Whatcom's water quality has deteriorated as a result of excessive phosphorus entering the lake from residential development, logging, airborne deposition, and natural processes. This phosphorus loading has contributed to algal blooms and dissolved oxygen deficits, causing problems for the City's water supply system, aquatic biota, and recreational users of the lake.

The City of Bellingham, Whatcom County, and the Lake Whatcom Water and Sewer District came together in 1998 to formalize, by interlocal agreement, the Lake Whatcom Management Program. The goal of the Program is to improve lake water quality by jointly implementing programs affecting the Lake Whatcom Watershed.

In 1998, Lake Whatcom water quality failed to meet state dissolved oxygen standards and was placed on Washington's list of impaired waters. In subsequent years, total phosphorus and fecal coliform were added to the list of impairments. In response to these listings, a Total Maximum Daily Load (TMDL) study was developed by the Washington Department of Ecology (DOE) to determine the actions needed to return the lake to acceptable water quality standards (See Phosphorus Focus, page 4).

To improve selection and implementation of watershed management projects, the three jurisdictions created the Interjurisdictional Coordinating Team (ICT) in 2000 to coordinate Lake Whatcom Management Program activities.

The ICT, composed of staff from each of the three jurisdictions and the Sudden Valley Community Association, meets regularly to coordinate work plans, evaluate program effectiveness, and analyze data collection and monitoring results. The ICT prepared this plan.

This Lake Whatcom Management Program 2015-2019 Work Plan is the fourth five-year work plan developed by the team. During the next five years, this work plan will guide management of actions that will reduce the amount of phosphorus reaching the lake and address other watershed issues.

Consistent with previous efforts, the 2015-2019 Work Plan is organized around Program Areas, each with unique objectives and performance measures. This structure was adopted in order to make the plan more accessible to readers while providing the structure needed for consistent and data-driven accounting of activities and progress. Additional information on the Program Area structure is available on page 7.

While projects to reduce the amount of phosphorus and fecal coliform continue to be a major focus of the Lake Whatcom Management Program, other program areas, most notably Land Preservation and Aquatic Invasive Species, continue to be very active in preventing additional pollutant loading and protecting other aspects of the Lake Whatcom ecosystem.

This work plan is founded on our long-standing commitment to protect, preserve and enhance the water quality of Lake Whatcom.

In reaffirming this commitment last year, we worked with our Councils and Commission to establish milestones for removing phosphorus and bacteria from stormwater entering Lake Whatcom.

Since then, we have clarified the work, costs, and funding necessary to restore lake water quality to a near-natural condition. Our collaborative efforts are reflected in this 2015-2019 Work Plan.

We are pleased to report that we remain on task and on schedule toward achieving a clean and protected source of drinking water, and a healthy habitat for wildlife and people.

Kelli Linville, Bellingham Mayor

Jack Louws, County Executive

Patrick Sorensen, District General Manager

PROGRAM OVERVIEW

Watershed and Lake Facts

Population and Drinking Water Supply

- Lake Whatcom is the drinking water source for about 100,000 residents of Whatcom County, about half the county's population.
- Lake Whatcom provides drinking water for the City of Bellingham, Lake Whatcom Water and Sewer District, several smaller water districts and associations, and a few hundred homes that draw water directly from the lake.
- The City of Bellingham withdraws water from the lake's middle basin through a 1,200-foot wooden pipeline that leads to the water treatment plant.
- About 15,500 people live in the Lake Whatcom Watershed, in about 6,900 homes (as of February, 2015).

Volume, Area, Elevation

- Lake Whatcom holds about 250 billion gallons of water.
- Lake Whatcom is about 10 miles long and just over one mile wide at its widest point.
- Total shoreline length is approximately 30 miles.
- The surface area of Lake Whatcom is about 5,000 acres, with eight percent within city limits.
- The surface area of the Lake Whatcom Watershed is about 56 square miles (36,000 acres), with about three percent within city limits.
- The maximum allowed lake level is 314.94 feet above sea level.

Tributaries and Drainage

- Lake Whatcom is fed by numerous perennial and intermittent streams including Silver Beach Creek, Carpenter Creek, Olsen Creek, Smith Creek, Anderson Creek, Brannian Creek, and Austin Creek.
- Lake Whatcom also receives water diverted from the Middle Fork of the Nooksack River.
- Lake Whatcom naturally drains into Bellingham Bay through Whatcom Creek.

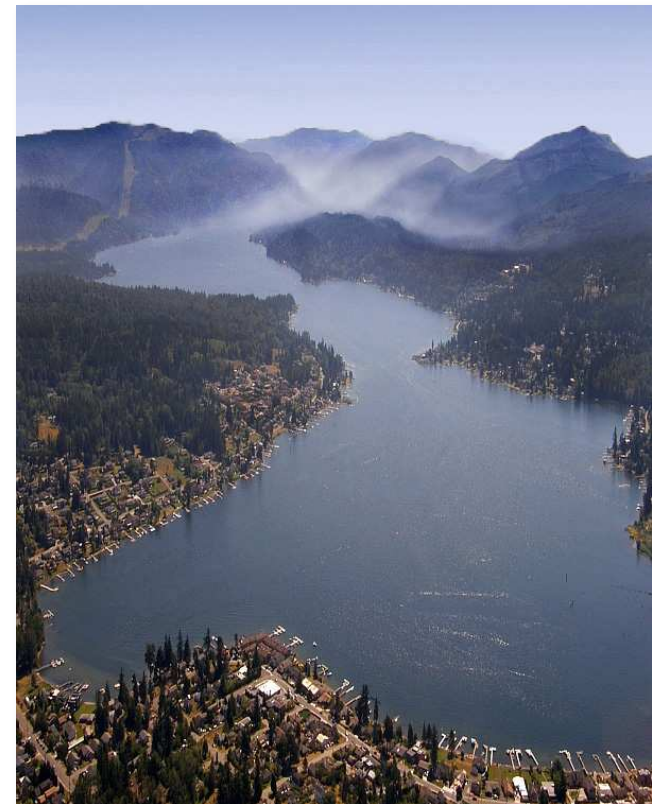


Photo by City of Bellingham, 2010

PROGRAM OVERVIEW

1992 General Program Goals

- To recognize Lake Whatcom and its watershed as the major drinking-water reservoir for the county and develop public and private management principles for the lake and watershed consistent with a drinking water reservoir environment.
- To protect, preserve and enhance water quality and manage water quantity to ensure long-term sustainable supplies for a variety of uses, with priority placed on domestic water supply. Management programs and actions will be made in recognition of existing contractual agreements and potential review and renegotiation in light of these goals.
- To prioritize protection over treatment in managing Lake Whatcom and its watersheds. Management actions shall reflect a long-term view of replacement or treatment costs.
- To manage water quantity to sustain long-term efficient use of the water for beneficial uses within the county that are consistent with a drinking-water reservoir, and recognize the integral link with the Nooksack River and associated water resource concerns.
- To ensure that opportunities for public comment and participation are provided in policy and management program development, and to promote public awareness and responsible individual actions.
- To promote learning, research, and information opportunities which better our understanding of the watershed system, the impacts of activities, and the benefits and potentials of policies implemented.

General Goal Statements from the Joint Resolution (1992) of the City of Bellingham, Whatcom County, and the Lake Whatcom Water and Sewer District.

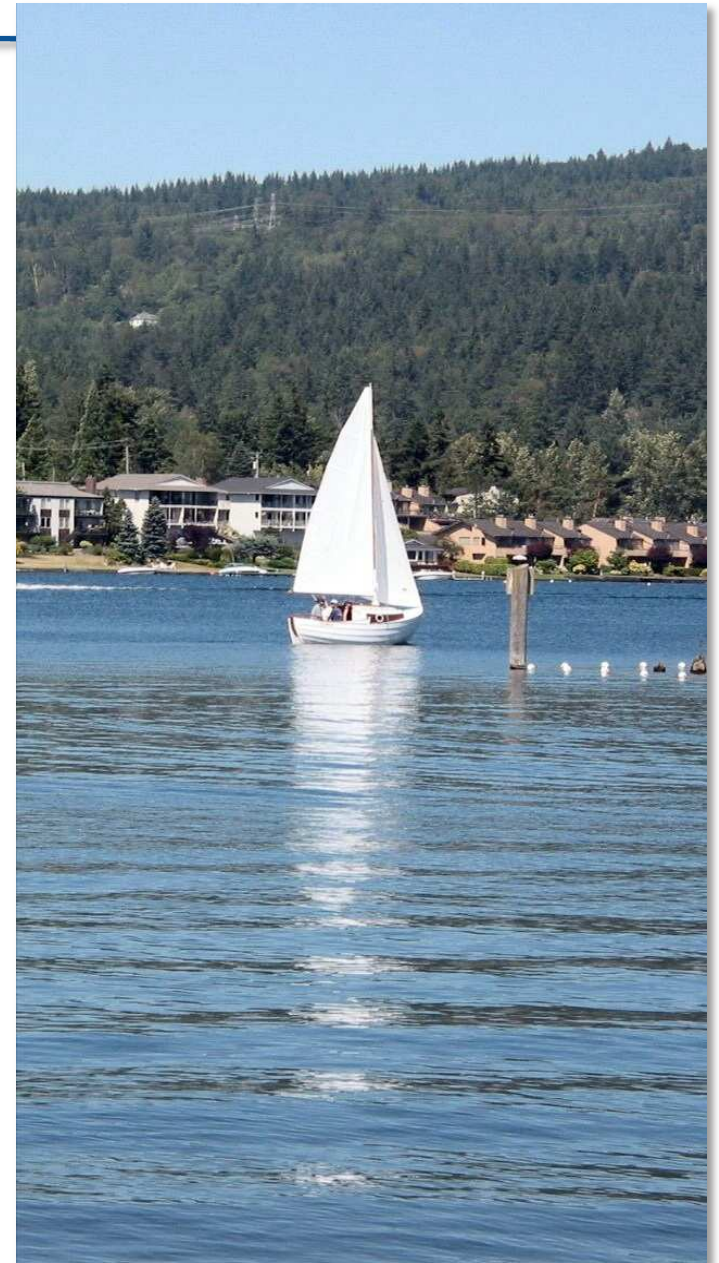


Photo from City of Bellingham Archive, 2004

PROGRAM OVERVIEW

Phosphorus Focus

What is phosphorus?

Phosphorus is a naturally occurring nutrient that stimulates plant growth and is essential for animal and plant life.

Where does phosphorus come from?

In nature phosphorus is found in soils, sediments, and organic material. Phosphorus is transported by water and air. Specific sources include:

- Exposed soil from construction and landscaping
- Lawn and garden products such as fertilizers and pesticides
- Leaves, grass clippings, and other compost
- Pet and wildlife droppings
- Failing septic systems
- Phosphorus-based soaps and detergents

How does phosphorus get into the lake?

While phosphorus is a naturally occurring nutrient, human activity often increases the amount of phosphorus entering the lake in stormwater. Surfaces such as roads, roofs, driveways, and yards cannot adequately absorb and filter stormwater and so it runs directly into storm drains that lead to the nearest lake or stream. On natural landscapes, stormwater slowly seeps into the ground where it is naturally filtered by forests and soils.

Phosphorus and Lake Whatcom

In 1998, Lake Whatcom was included on the state's list of water bodies that failed to meet water quality standards. Lake Whatcom was listed for low dissolved oxygen levels, a direct result of high levels of phosphorus entering the lake.

Based on this listing, the Washington State Department of Ecology began working on a mandatory water quality improvement plan, called the Lake Whatcom TMDL (Total Maximum Daily Load). The plan sets the phosphorus reduction target needed for the lake to meet federal and state water quality standards.

Achieving this target requires investment of millions of dollars over many decades; however, the City of Bellingham and Whatcom County are already taking significant steps to protect Lake Whatcom.

Since the early 1990s, the City of Bellingham and Whatcom County have been working together to reduce phosphorus loading to the lake by:

- Adopting stormwater and land use regulations to reduce phosphorus loading
- Constructing, operating, and maintaining stormwater treatment facilities

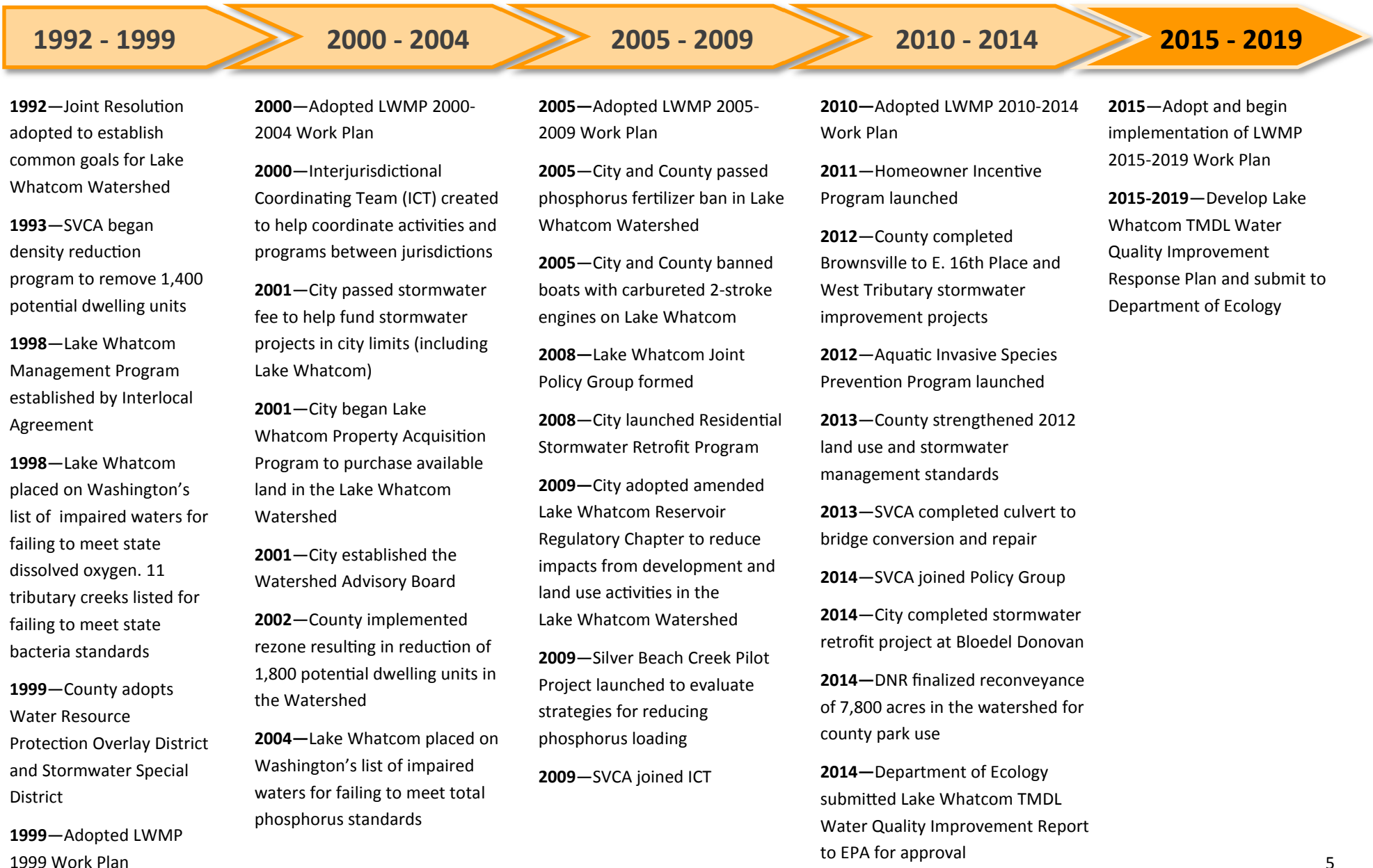
- Piloting residential retrofit programs to reduce phosphorus loading from developed lots
- Preserving land in the watershed that might otherwise be susceptible to development or other land disturbance activities

These efforts have resulted in a reduction of approximately 380 pounds of phosphorus entering Lake Whatcom between 2004 and 2014. These accomplishments are just the beginning. Over the next five years, the City of Bellingham and Whatcom County plan to construct additional stormwater treatment facilities in the Lake Whatcom Watershed, while improving the effectiveness of facilities. Additional efforts will include the continuation of incentive programs to reduce phosphorus coming from developed lots. The success of these efforts also depends on the effectiveness of stormwater and land use regulations, and active participation of watershed residents.

More detail regarding activities planned for the 2015-2019 Work Plan is found on the succeeding pages.

PROGRAM OVERVIEW

Program Development & Accomplishments Timeline



PROGRAM OVERVIEW

Program Areas and Objectives

1. Land Preservation

Preserve and restore land that might otherwise be susceptible to development or other land disturbance to protect water quality and fish and wildlife habitat.

2. Stormwater

Prevent water quality and quantity impacts associated with stormwater runoff by implementing best management practices, pollutant source control, construction and maintenance of stormwater facilities, inspections, and compliance.

3. Land Use

Prevent water quality and quantity impacts from new residential development and redevelopment, and from forest practices.

4. Monitoring & Data

Collect and manage data to increase our understanding of water quality and pollution sources, and to guide management decisions.

5. Hazardous Materials

Prevent water quality impacts associated with improper storage and handling of hazardous materials, and ensure that spill prevention and response programs adequately protect water quality.

6. Recreation

Promote recreational opportunities that are consistent with water quality goals, and improve ways to reduce impacts of existing activities.

7. Aquatic Invasive Species

Prevent new aquatic invasive species (AIS) introductions to Lake Whatcom and other waterbodies and minimize impacts associated with established invasive species.

8. Utilities & Transportation

Prevent water quality and quantity impacts from water, sewer, and transportation systems.

9. Education & Engagement

Protect water quality by educating and engaging watershed residents and visitors.

10. Administration

Coordinate and support implementation of the Lake Whatcom Management Program Work Plan.

The 2015-2019 Work Plan differs somewhat from previous five-year plans. Some Program Area topics are combined to bring similar topics together or recognize similarities in implementation. Transportation topics are moved to the Utilities Program Area. Forestry/Fish/Wildlife is eliminated as a Program Area heading. Forestry joins development issues in the Land Use Program Area. Fish/Wildlife is implemented in Land Preservation and other Program Areas that improve or protect habitat. Enforcement is now part of Stormwater since most inspection and enforcement services are related to stormwater regulations and runoff. Education and engagement topics can be found both under Education & Engagement as well as under their respective Program Areas.

PROGRAM OVERVIEW

Reading the Work Plan

The **Program Area name** can be found here.

The Program Area **Objective** can be found here. This area also includes **Leads** and potential **Partners** responsible for accomplishing the actions listed below.

Program Area **cost estimates** for the 2015-2019 period can be found here. Cost estimates for each Program Area can be found in the **Cost Estimates Table** on page 42.

Land Preservation

OBJECTIVE: Preserve and restore land that might otherwise be susceptible to development or other land disturbance to protect water quality and fish and wildlife habitat.

Leads: City of Bellingham, Whatcom County

Partners: Whatcom Land Trust, Watershed Advisory Board, Sudden Valley Community Association

Estimated Investments:
\$25 million

1.1 Property Acquisition

Purchase property to reduce development and other land use impacts and maintain natural functions of the watershed.

1. Purchase watershed properties based on criteria and priorities.

1.2 Conservation Easements

Use conservation easements to provide long term protection of land.

1. Create conservation easements for new preserves.
2. Modify existing conservation easements to include additional properties.

1.3 Property Management

Manage watershed properties to improve the watershed's water quality and fish and wildlife habitat.

1. Create management plans that address forestry, recreation (facilities, trails, roads), and vegetation (planting and maintenance) management needs for all properties.
2. Develop management plan for new Whatcom County Park Property to include road and trail assessment and actions to protect water quality.

*See Action Timeline Table on page 30 for a list of actions and their estimated occurrence

Performance Measures:

- Number of development units removed from watershed
- Number of acres acquired or otherwise protected in the watershed

Performance Measures can be found here and indicate how progress toward completing the Program Area objective is being measured.

Program Areas are organized into **Action Categories** that are identified by the Program Area number and the category number (e.g. 1.1). Under each category, there is a brief definition of the category's purpose followed by a numbered list of **Actions** that will be implemented over the 2015-2019 period to achieve that purpose.

A complete list of actions and their estimated occurrence during the 2015-2019 period can be found in the Action Timeline Table starting on page 30.

This colored box is also used to highlight **Resources** such as websites, reports, and references to applicable regulations.

This section is used to highlight **Program Area accomplishments** or to provide additional background information.

In 2014, Whatcom County and the State Department of Natural Resources finalized the acquisition of 8,844 acres (approximately 7,800 acres are in the Lake Whatcom Watershed) to the County. The addition of this acreage to the protected category of lands in the Lake Whatcom Watershed is a significant step in management of the Watershed for improvement and protection of water quality.

Photo by T. Calderon, 2013

Land Preservation

OBJECTIVE: Preserve and restore land that might otherwise be susceptible to development or other land disturbance to protect water quality and fish and wildlife habitat.

Leads: City of Bellingham, Whatcom County

Partners: Whatcom Land Trust, Watershed Advisory Board, Sudden Valley Community Association

Estimated Investments:
\$25 million

1.1

Property Acquisition

Purchase property to reduce development and other land use disturbances that degrade the natural functions of the watershed.

1. Purchase watershed properties based on criteria and availability.

1.2

Conservation Easements

Use conservation easements to provide long term protection to watershed properties.

1. Create conservation easements for new preserves.
2. Modify existing conservation easements to include additional properties in existing preserves.

1.3

Property Management

Manage watershed properties to improve the watershed's natural functions that protect water quality and fish and wildlife habitat.

1. Create management plans that address forestry, recreation (facilities, trails, roads), and vegetation (planting and maintenance) management needs for all properties.
2. Develop management plan for new Whatcom County Park Property to include road and trail assessment and actions to protect water quality.

***See Action Timeline Table on page 30 for a list of actions and their estimated occurrence**

Performance Measures:

- Number of development units removed from watershed
- Number of acres acquired or otherwise protected in the watershed
- Acres affected/actions taken to enhance or restore natural functions on watershed properties

In 2014, Whatcom County and the State Department of Natural Resources finalized the reconveyance of 8,844 acres (approximately 7,800 acres are in the Lake Whatcom Watershed) to the County. The addition of this acreage to the protected category of lands in the Lake Whatcom Watershed is a significant step in management of the Watershed for improvement and protection of water quality.

Land Preservation

OBJECTIVE: Preserve and restore land that might otherwise be susceptible to development or other land disturbance to protect water quality and fish and wildlife habitat.

Leads: City of Bellingham, Whatcom County

Partners: Whatcom Land Trust, Watershed Advisory Board, Sudden Valley Community Association

Estimated Investments:
\$25 million

1.3

Property Management Continued...

Manage watershed properties to improve the watershed's natural functions that protect water quality and fish and wildlife habitat.

3. Implement management plans for all properties.
4. Conduct periodic inspections to monitor restoration sites, invasive species control sites and other property management actions.
5. Actively respond to encroachments and other property management issues.
6. Engage watershed residents and recreational users in watershed property stewards program (e.g. mountain bikers, property owners, etc.).

The City of Bellingham began purchasing available land in the Lake Whatcom Watershed through the Property Acquisition Program starting in 2001. As of 2014, the City has purchased approximately 1,892 acres of land at a cost of \$29.5 million dollars. The City has also protected an additional 164 acres of land through conservation easements or restrictive covenants.

Resources:

Lake Whatcom Property Acquisition Program
cob.org/services/environment/lake-whatcom/lw-property-acquisition-program.aspx

Whatcom County Parks & Recreation—Reconveyance
whatcomcounty.us/625/Lake-Whatcom-Reconveyance

Protected Property in the Lake Whatcom Watershed Map
cob.org/documents/pw/lw/acquisition-land-map.pdf

Stormwater

OBJECTIVE: Prevent water quality and quantity impacts associated with stormwater runoff.

Leads: City of Bellingham, Whatcom County

Partners: Lake Whatcom Water & Sewer District, Sudden Valley Community Association, watershed residents and property owners, Sustainable Connections, Whatcom Conservation District, RE Sources

Estimated Investments:
\$14 million



2.1

Capital Facilities

Construct and retrofit capital facilities to reduce water quality and quantity impacts associated with stormwater runoff.

1. Complete scheduled capital improvement projects in the Lake Whatcom Watershed. (See 2015-2019 Stormwater Capital Projects & Funding Commitments, page 44).
2. Inform the public about timelines, impacts and purpose of projects during design and construction through press releases, web posts, public meetings, tours, and signage.

2.2

Residential Stormwater Projects

Address unmanaged runoff and phosphorus from residential streets, alleys, and private properties around Lake Whatcom.

1. Implement program to help watershed property owners reduce runoff from their properties using low-impact development strategies.
2. Investigate barriers to residential projects and adapt program to address those barriers.
3. Provide financial, technical, and/or development incentives (e.g. site visits, project options, one-on-one assistance) to encourage completion of private retrofits.
4. Facilitate, plan, and support neighborhood-scale retrofits of public and private properties.

Performance Measures:

- Acres treated by stormwater facilities and projects in watershed
- Pounds of phosphorus reduced annually as a result of stormwater facilities and projects
- Phosphorus removal efficiency of stormwater facilities
- Fecal coliform removal efficiency of stormwater facilities (reported in 2019)
- Number of properties completing residential stormwater projects

In 2014, Whatcom County completed the Coronado/Fremont Stormwater Improvement Project. This project provides stormwater quality treatment for 170 acres using a combination of constructed facilities to prevent erosion, reduce velocities, and trap sediments including bio-infiltration swales, storm canister vaults, and bank stabilization.

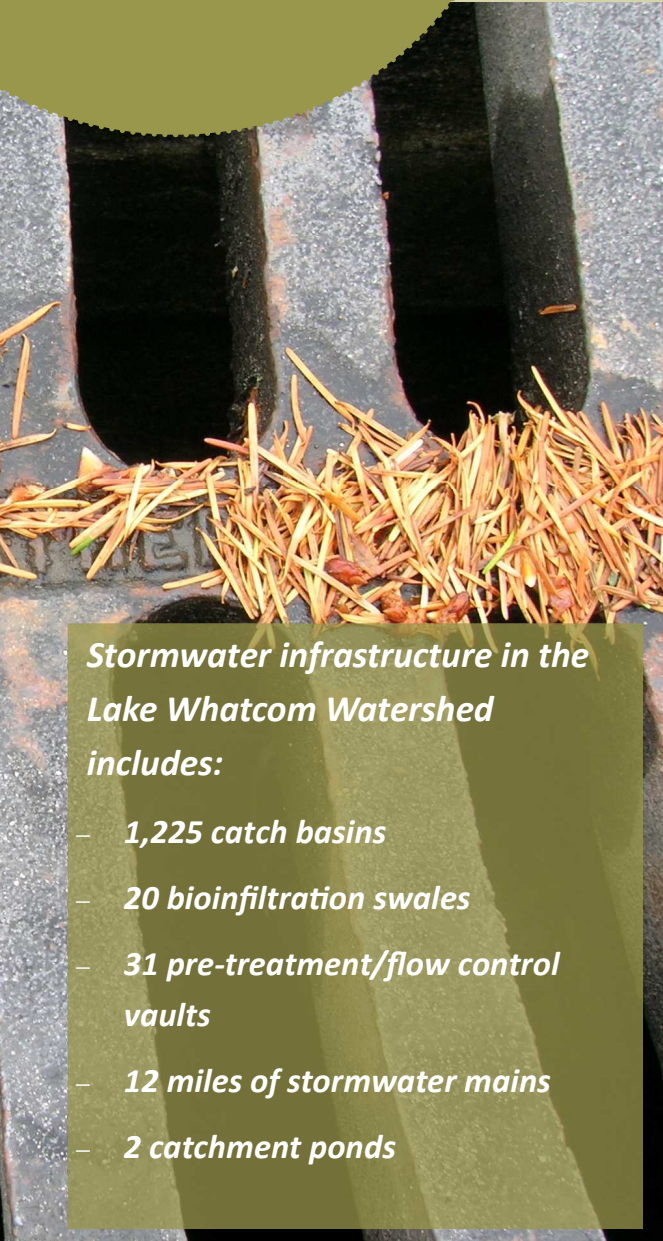
Stormwater

OBJECTIVE: Prevent water quality and quantity impacts associated with stormwater runoff.

Leads: City of Bellingham, Whatcom County

Partners: Lake Whatcom Water & Sewer District, Sudden Valley Community Association, watershed residents and property owners, Sustainable Connections, Whatcom Conservation District, RE Sources

Estimated Investments:
\$14 million



Stormwater infrastructure in the Lake Whatcom Watershed includes:

- 1,225 catch basins
- 20 bioinfiltration swales
- 31 pre-treatment/flow control vaults
- 12 miles of stormwater mains
- 2 catchment ponds

2.3

Public Facility Operation, Inspection and Maintenance

Operate, inspect, and maintain all public stormwater facilities.

1. Inspect all public stormwater facilities in accordance with the 2013-2018 Western Washington Phase II Municipal Stormwater Permit.
2. Schedule regular maintenance of public stormwater facilities.
3. Inspect and maintain all other publicly-owned stormwater infrastructure as necessary.
4. Continue enhanced street sweeping to capture roadway pollution prior to entering stormwater systems.

2.4

Private Facility Inspection and Maintenance

Ensure, to the maximum extent practicable, that private stormwater facilities are inspected and maintained.

1. Inspect private stormwater facilities, consistent with legal authority, and provide technical assistance when needed, to ensure post-construction maintenance standards are met.
2. Track and report inspections and correction actions to assure long-term effectiveness of private systems and investments.
3. Support inspection and maintenance by instructing owners about system needs and maintenance requirements.

Performance Measures:

- Number of inspection and maintenance activities at public and private facilities
- Number of inspection and enforcement actions associated with development activities in the watershed.
- Percentage of people who are aware of the impacts of stormwater pollution and benefits of low impact development (measured once in five-year period)
- Number and types of incentives distributed to watershed residents

Stormwater

OBJECTIVE: Prevent water quality and quantity impacts associated with stormwater runoff.

Leads: City of Bellingham, Whatcom County

Partners: Lake Whatcom Water & Sewer District, Sudden Valley Community Association, watershed residents and property owners, Sustainable Connections, Whatcom Conservation District, RE Sources

Estimated Investments:
\$14 million

2.5

Development Review

Reduce polluted stormwater runoff from prospective development.

1. Review all development activities to assure compliance with phosphorus reduction regulations.
2. Use low impact development (LID) strategies to the maximum extent practicable.
3. Inspect and enforce requirements for erosion controls.
4. Track and report inspection and enforcement activities associated with water quality impacts to Lake Whatcom.
5. Continue to assess the effectiveness of stormwater and development regulations.

2.6

Community Education and Engagement

Educate and engage the community to reduce practices that contribute to stormwater impacts.

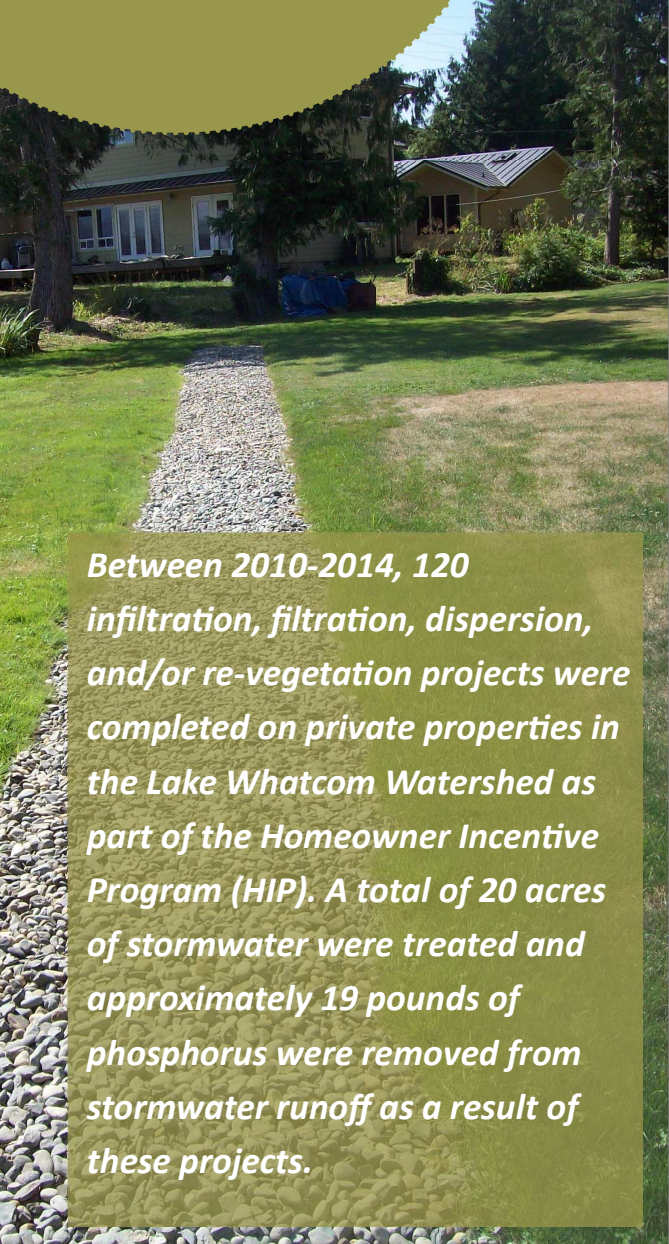
1. Raise awareness about causes and impacts of stormwater pollution and benefits of low impact development (LID).
2. Remove barriers and provide incentives to facilitate behaviors that protect water quality, including watershed-friendly yard care techniques, proper pet waste management, and proper vehicle, equipment and building maintenance.
3. Provide outreach to watershed residents to increase compliance with stormwater regulations.

Resources:

Lake Whatcom Management Program Capital Improvement Projects website
lakewhatcom.whatcomcounty.org/our-programs/capital-projects

City of Bellingham 2007 Comprehensive Stormwater Plan
cob.org/documents/pw/storm/2007-stormwater-comp-plan.pdf

Whatcom County 2008 Lake Whatcom Comprehensive Stormwater Plan
whatcomcounty.us/1022/Lake-Whatcom-Comprehensive-Stormwater-PI



Between 2010-2014, 120 infiltration, filtration, dispersion, and/or re-vegetation projects were completed on private properties in the Lake Whatcom Watershed as part of the Homeowner Incentive Program (HIP). A total of 20 acres of stormwater were treated and approximately 19 pounds of phosphorus were removed from stormwater runoff as a result of these projects.

Land Use

OBJECTIVE: Prevent water quality and quantity impacts from new residential development and redevelopment, and from forest practices.

Leads: City of Bellingham, Whatcom County

Partners: Interjurisdictional Committee, Department of Natural Resources, Department of Ecology

Estimated Investments:

\$165,000

3.1

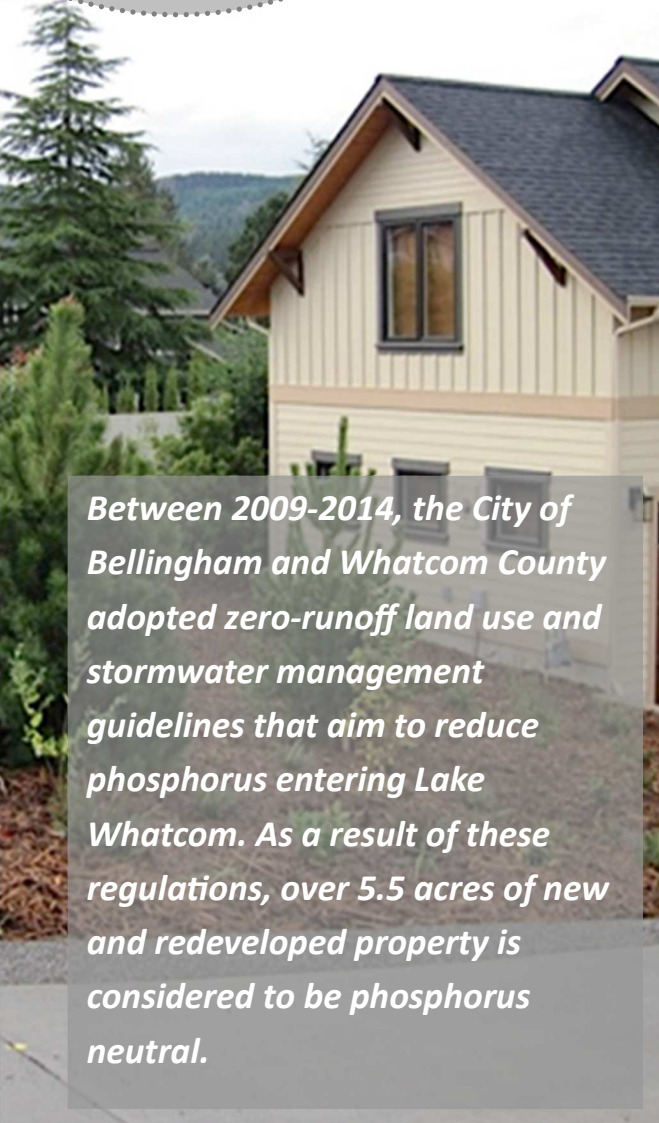
Development

Use development regulations to protect lake water quality.

1. Standardize tracking and performance measurement across jurisdictions.
2. Track all building and development activities in the watershed and make information accessible to City, County, and District (Annual Buildout Report).
3. Track and report on the number and type of land use and development-related permit violations in the watershed. (See 2.5 for Stormwater Violations, page 12).
4. Continue collaboration between City and County when developing or revising development regulations.
5. Continue to assess the effectiveness of development regulations.
6. Continue to monitor properties (including Natural Vegetation Protection Areas) over time to ensure performance standards are met.
7. Develop Low Impact Development standards in accordance with the Western Washington Phase II Municipal Stormwater Permit, to be adopted by December 13, 2016.
8. Provide outreach to watershed residents to increase compliance with development regulations.

Performance Measures:

- Total area of new and redeveloped properties considered phosphorus neutral
- Number of development-related permit violations in the watershed
- Acres of timber harvested on public and private forestry lands
- Amount of road constructed/abandoned on public and private forestry lands
- Acres treated with herbicides on public and private forestry lands
- Acres replanted on public and private forestry lands



Between 2009-2014, the City of Bellingham and Whatcom County adopted zero-runoff land use and stormwater management guidelines that aim to reduce phosphorus entering Lake Whatcom. As a result of these regulations, over 5.5 acres of new and redeveloped property is considered to be phosphorus neutral.

Land Use

OBJECTIVE: Prevent water quality and quantity impacts from new residential development and redevelopment, and from forest practices.

Leads: City of Bellingham, Whatcom County

Partners: Interjurisdictional Committee, Department of Natural Resources, Department of Ecology

Estimated Investments:

\$165,000

3.2

Forestry

Assess forestry activities to verify that adverse water quality impacts are minimized.

1. Review Interjurisdictional Committee reports of Department of Natural Resources activities.
2. Review and comment on private property forest practice applications where merited.
3. Track permitted forest practice activities to develop a summary of forest conditions in the watershed.
4. Work with private forest landowners to improve forest practices that protect water quality.
5. Continue to assess the effectiveness of the Department of Ecology's water quality assurances.
6. Improve forestry best management practices through interagency agreements or code modifications.

The Lake Whatcom Interjurisdictional Committee was convened in 2004 to provide technical review and recommendations to DNR for site-specific forest management proposals. Areas of primary focus include slope stability, water quality and public safety.

Resources:

Lake Whatcom Landscape Pilot Project: Report to the Board of Natural Resources
www.dnr.wa.gov/Publications/lm_lkwa_pilot_11report.pdf

Bellingham Municipal Code (BMC) 16.80 (Lake Whatcom Reservoir Regulatory Chapter), 15.42 (Stormwater Regulations), 16.55 (Critical Areas Ordinance), Title 22 (Shoreline Master Program)
codepublishing.com/wa/bellingham/

Whatcom County Code (WCC) 20.51 (Lake Whatcom Watershed Overlay District & Stormwater Regulations), 16.16 (Critical Areas Ordinance), Title 23 (Shoreline Management Program)
codepublishing.com/wa/whatcomcounty/

Monitoring & Data

OBJECTIVE: Collect and manage data to increase our understanding of water quality and pollution sources, and to guide management decisions.

Leads: City of Bellingham, Whatcom County, Lake Whatcom Water & Sewer District

Partners: Institute for Watershed Studies

Estimated Investments:
\$2 million

4.1 Lake Whatcom Monitoring

Continue long-term baseline water quality monitoring in Lake Whatcom and selected tributary streams.

1. Contract with Western Washington University Institute for Watershed Studies.
2. Discuss monitoring results and receive updates on water quality trends.

4.2 Tributary Monitoring

Continue contracts for monitoring of Lake Whatcom tributaries including the collection of data on phosphorus concentrations and turbidity during stormwater events, and fecal coliform.

1. Oversee and refine tributary monitoring contracts.
2. Discuss tributary monitoring results and determine policy implications.
3. Develop water quality monitoring program for non-urban areas in the watershed.

4.3 Stormwater Monitoring

Continue to monitor stormwater facilities to evaluate their effectiveness at removing phosphorus and fecal coliform before it enters Lake Whatcom.

1. Receive updates on stormwater monitoring program results.
2. Develop recommendations to improve removal of phosphorus and fecal coliform by stormwater facilities; update best management practices as needed.

Performance Measures:

- Update and calibrate models annually
- Provide annual summary of monitoring activities and reports

The City of Bellingham and Western Washington University have collaborated on lake water quality monitoring efforts since the early 1960s. Beginning in 1988, a more formal monitoring program was initiated by the City and the Institute for Watershed Studies to provide long-term water quality data for the lake and its tributaries.

Monitoring & Data

OBJECTIVE: Collect and manage data to increase our understanding of water quality and pollution sources, and to guide management decisions.

Leads: City of Bellingham, Whatcom County, Lake Whatcom Water & Sewer District

Partners: Institute for Watershed Studies

Estimated Investments:
\$2 million

4.4

Load and Response Models

Continue to support data collection needed to improve accuracy of hydrologic and phosphorus load and response models.

1. Identify data and monitoring needs and implement projects to acquire the needed information.
2. Continue to generate high quality streamflow, water quality, and weather data.
3. Update and recalibrate the phosphorus loading model with additional data.
4. Develop and implement strategy to update and recalibrate response model.
5. Conduct third party review to assess lake model's methodology for simulating phosphorus loading.

4.5

Information

Manage and develop summaries of monitoring data and reports.

1. Review and summarize monitoring studies and reports to determine water quality trends and policy implications, and make information easily accessible to the public.
2. Maintain and update Data Catalog.
3. Provide open access storage of monitoring reports.

The Data Management Team, comprised of staff from the City, Whatcom County, Lake Whatcom Water and Sewer District, Department of Ecology, and consultants, meets monthly to review monitoring and modeling results and to determine their policy implications.

Resources:

Lake Whatcom Monitoring Reports (Western Washington University - Institute for Watershed Studies)
www.wu.edu/iws/

Lake Whatcom Data Catalog

Copies of documents are available at the Whatcom County Public Works Water Resources Library and the Bellingham Public Library

Hazardous Materials

OBJECTIVE: Prevent water quality impacts associated with improper storage and handling of hazardous materials, and ensure that spill prevention and response programs adequately protect water quality.

Leads: City of Bellingham, Whatcom County

Partners: Department of Ecology

Estimated Investments:
\$50,000

5.1

Hazardous Materials

Facilitate removal of hazardous materials from watershed residences.

1. Conduct a hazardous materials collection event at locations in the watershed.
2. Promote and provide education on proper use and storage of hazardous materials.

5.2

Spill Prevention and Response

Protect water quality by providing adequate spill prevention and response programs.

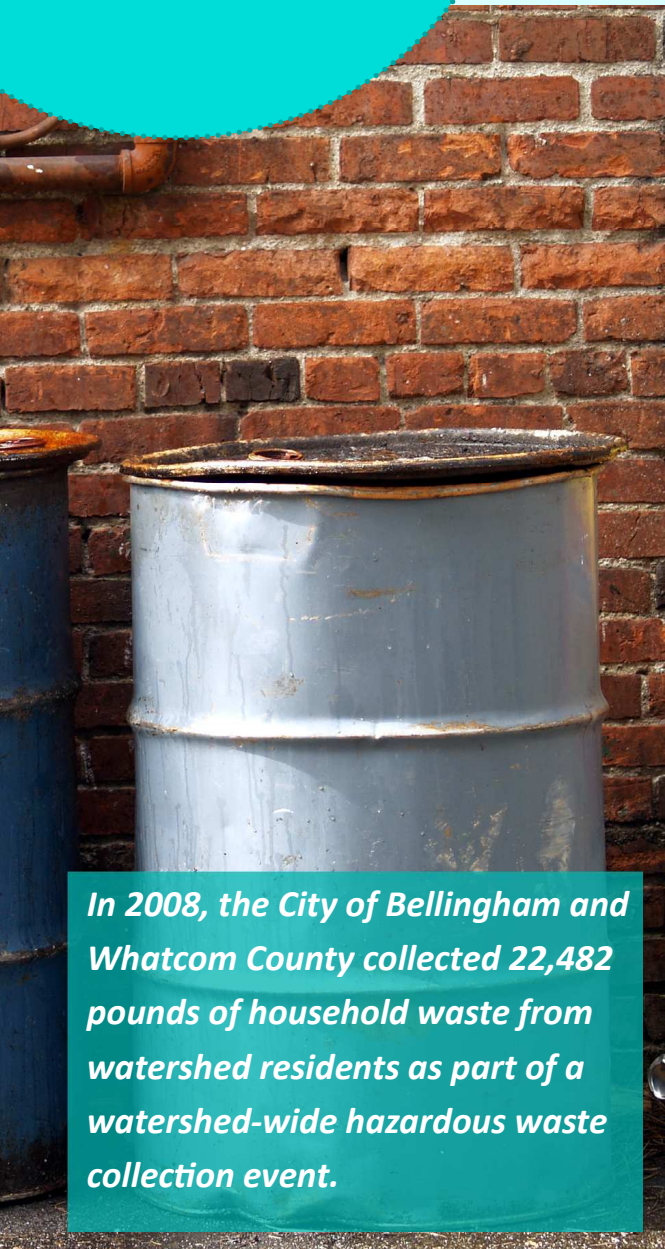
1. Continue to detect and remediate illicit discharges, connections, and improper disposal, including spills into the City and District sewer systems.
2. Educate watershed residents and visitors on how to prevent and report spills.
3. Continue to record and respond to all calls regarding illicit discharges or illegal spills received via the stormwater hotline number.
4. Review spill response procedures and reporting protocols.
5. Conduct ongoing field staff training regarding spill prevention and response.

Performance Measures:

- Pounds of hazardous materials collected from watershed residents
- Number of participants in hazardous materials collection event
- Number of spills, illicit discharges, or incidents reported in the watershed

Resources:

Washington Toxics Coalition
watoxics.org



In 2008, the City of Bellingham and Whatcom County collected 22,482 pounds of household waste from watershed residents as part of a watershed-wide hazardous waste collection event.

Recreation

OBJECTIVE: Promote recreational opportunities that are consistent with water quality goals, and improve ways to reduce impacts of existing activities.

Leads: Whatcom County, City of Bellingham

Partners: Sudden Valley Community Association, recreational user groups (e.g. boaters, bikers, hikers, horseback riders)

Estimated Investments:
\$1.1 million

6.1

Recreational Facilities

Develop or improve recreational facilities to promote recreational opportunities while reducing impacts to lake water quality.

1. Explore options for providing recreational amenities (including parking, signage, picnic sites, shelters, information kiosks, trash and pet waste receptacles, and restrooms).
2. Create low maintenance nutrient and pesticide-free landscapes.
3. Infiltrate or treat stormwater following stormwater best management practices.

6.2

Trails

Develop or improve trails and roads to reduce impacts to water quality.

1. Build and maintain trails and roads to prevent erosion and ensure runoff is infiltrated before reaching a water body.
2. Connect trails to other parks, trails, facilities and transportation networks.
3. Provide trailhead amenities such as restrooms and information kiosks when feasible.
4. Install directional and use signs on trails.



In 2014, Whatcom County and the State Department of Natural Resources finalized the reconveyance of 8,844 acres to the County for park use. The Whatcom County Parks Department has initiated a public process to help determine the best use of these lands for recreation and water quality protection.

Performance Measures:

- Number of new recreational facilities constructed in watershed
- Number of new or improved trails created in watershed
- Number of individuals using parks/trails in watershed
- Number of interpretive/informational exhibits installed

Recreation

OBJECTIVE: Promote recreational opportunities that are consistent with water quality goals, and improve ways to reduce impacts of existing activities.

Leads: Whatcom County, City of Bellingham

Partners: Sudden Valley Community Association, recreational user groups (e.g. boaters, bikers, hikers, horseback riders)

Estimated Investments:
\$1.1 million

6.3

Public Access

Provide low impact public access opportunities.

1. Provide public access using existing parks and trails whenever possible.
2. Improve bike lanes and transit services to recreational facilities.
3. Maintain and develop access to key viewpoints in watershed.

6.4

Public Information and Stewardship

Provide watershed stewardship information to recreational users.

1. Install interpretive and/or informational exhibits at trailheads when feasible.
2. Provide opportunities for community engagement in watershed stewardship activities.
3. Work with recreational user groups (e.g. mountain bikers, horseback riders, hikers, etc.) to reduce water quality impacts (e.g. erosion) resulting from improper trail use.
4. Explore options for promoting watershed-friendly recreational opportunities in the watershed including stewardship messages



In 2014, the City completed stormwater and shoreline improvement projects at Bloedel Donovan Park including stormwater mitigation, the removal of the existing concrete bulkhead, beach improvements, as well as expanding native planting areas. These projects mitigate for, or eliminate sources of nutrient and bacteria loading in stormwater runoff from Bloedel Donovan Park into Lake Whatcom.

Resources:

Whatcom County Parks & Recreation—Reconveyance
whatcomcounty.us/625/Lake-Whatcom-Reconveyance

Whatcom County Parks & Recreation Comprehensive Parks, Recreation and Open Space Plan
co.whatcom.wa.us/653/2008-Comprehensive-Plan

City of Bellingham Comprehensive Parks, Recreation and Open Space Plan
cob.org/documents/parks/development/pro-plan/pro-plan-full.pdf

Aquatic Invasive Species

OBJECTIVE: Prevent new aquatic invasive species (AIS) introductions to Lake Whatcom and other waterbodies and minimize impacts associated with established invasive species.

Leads: City of Bellingham, Whatcom County, Lake Whatcom Water & Sewer District

Partners: Washington Department of Fish and Wildlife

Estimated Investments:
\$1.5 million



Almost 13,000 watercraft inspections for aquatic invasive species have been conducted since the launch of the Aquatic Invasive Species Prevention Program in 2012.

Photo by City of Bellingham, 2014

7.1 Watercraft Inspections

Implement mandatory watercraft inspection program at Lake Whatcom and Lake Samish.

1. Hire, train, and manage seasonal aquatic invasive species inspectors.
2. Evaluate and adjust hours of operation and level of service at check stations based on boat inspection data.
3. Organize group/community-level inspections to enhance efficiency of on-call inspections.
4. Improve efficiency and accuracy of data collection at check stations.

7.2 Watercraft Decontaminations

Improve capability to decontaminate watercraft that do not pass inspection.

1. Develop standard decontamination protocols for inspection staff.
2. Provide decontamination training to inspection staff.
3. Decontaminate watercraft that do not pass inspection.
4. Maintain decontamination equipment.

7.3 Monitoring and Response

Implement comprehensive aquatic invasive species monitoring program for Lake Whatcom.

1. Develop and implement AIS Monitoring Plan for Lake Whatcom.
2. Conduct regular zebra/quagga mussel monitoring events in Whatcom County waters.
3. Develop AIS Rapid Response Plan for Lake Whatcom.

Performance Measures:

- Number of watercraft inspections conducted
- Number of watercraft decontaminations conducted
- Number of monitoring events conducted in watershed
- Number of opportunities to collaborate with local and regional partners
- Number of people who were sent informational materials

Aquatic Invasive Species

OBJECTIVE: Prevent new aquatic invasive species (AIS) introductions to Lake Whatcom and other waterbodies and minimize impacts associated with established invasive species.

Leads: City of Bellingham, Whatcom County, Lake Whatcom Water & Sewer District

Partners: Washington Department of Fish and Wildlife

Estimated Investments:
\$1.5 million



In September of 2011, invasive Asian clams (Corbicula fluminea) were discovered in Lake Whatcom, Lake Padden, and Whatcom Creek.

Photo by City of Bellingham, 2011

7.4

Research and Collaboration

Collaborate with local and regional partners to develop regional prevention strategy and summarize research on prevention and management strategies.

1. Track the spread of AIS and incorporate any new prevention and management efforts being implemented at the local, regional, and national levels.
2. Communicate with local, state, and regional aquatic invasive species personnel to share information and resources.

7.5

Education and Engagement

Provide AIS education to and facilitate stewardship by watershed residents, boaters and other lake visitors.

1. Inform watershed residents, boaters, and other lake visitors about AIS issues and engage them in prevention activities through informational materials, online education tools, community events and public meetings, and in-person conversations during inspections.
2. Provide opportunities for community engagement in monitoring activities.

Performance Measures:

- Number of unique visitors to Whatcom Boat Inspections website
- Number of people who completed the online AIS Awareness Course

Resources:

Lake Whatcom Aquatic Invasive Species Annual Reports and Documents
lakewhatcom.whatcomcounty.org/resources

Whatcom Boat Inspections website
whatcomboatinspections.com

Aquatic Invasive Species Awareness Course
whatcomboatinspections.com/ais-awareness-course

Utilities & Transportation

OBJECTIVE: Prevent water quality and quantity impacts from water, sewer, and transportation systems.

Leads: Lake Whatcom Water & Sewer District, City of Bellingham, Whatcom County

Partners: Whatcom Transit Authority

Estimated Investments:
\$1.4 million

8.1

Water

Manage water supply systems to minimize water quality and quantity impacts.

1. Evaluate the City's water supply infrastructure, diversion water quality, and lake management for opportunities to reduce impacts to lake water quality.
2. Conduct water audits to detect and repair water system leaks to reduce water waste.
3. Encourage water-use efficiency through public education and outreach, water meter installation, and/or rebate projects.

8.2

Sewer and On-Site Sewer Systems

Reduce water quality degradation from on-site sewer (septic) systems and sewers.

1. Provide sewer service to areas with on-site treatment when permissible.
2. Maintain and replace sanitary sewer infrastructure in the watershed to reduce the potential of sewer overflows.
3. Enforce on-site sewer system operation and maintenance regulations, update database of on-site sewer systems, and respond to failing septic systems.
4. Provide training courses (online and in person) to certify homeowners to inspect their own septic systems.

Performance Measures:

- Complete evaluation of City's water supply system by October 1, 2015
- Estimated gallons of water conserved in City and District service areas
- Number of watershed homeowners certified in on-site sewer system inspection
- Number of overflows and on-site sewer system failures
- Number of new connections made within 200 feet of sewer line

The City of Bellingham and the Lake Whatcom Water and Sewer District are required to provide annual drinking water quality reports to their water customers. These reports highlight drinking water monitoring results and show that the City and the District are committed to meeting drinking water standards established by the federal Safe Drinking Water Act.

Utilities & Transportation

OBJECTIVE: Prevent water quality and quantity impacts from water, sewer, and transportation systems.

Leads: Lake Whatcom Water & Sewer District, City of Bellingham, Whatcom County

Partners: Whatcom Transit Authority

Estimated Investments:

\$1.4 million

8.3

Roads and Transportation

Inform watershed residents and visitors about alternative transport opportunities and design and develop transportation systems to protect water quality.

1. Employ road design standards to reduce impacts to water quality.
2. Evaluate road design, construction and maintenance projects in the watershed for effectiveness at reducing impacts to water quality.
3. Inform watershed residents and visitors about alternative transportation opportunities to limit the number of vehicle trips being made in the watershed.

Performance Measures (Continued):

- Number of drive-alone trips replaced by alternative transportation methods

Resources:

City of Bellingham Drinking Water Quality Reports

cob.org/services/environment/lake-whatcom/water-quality.aspx

Lake Whatcom Water and Sewer District Consumer Confidence Reports

lwwsd.org/resources/customer-information/

City of Bellingham's Water Use Efficiency Program 2014-2019

cob.org/documents/pw/environment/water-conservation/2014-2019-water-use-efficiency-program.pdf

City of Bellingham Water Use Efficiency Annual Performance Reports

cob.org/services/environment/conservation/goals-measures.aspx

Whatcom County On-Site Sewage System Program, WCC 24.05

whatcomcounty.us/documentcenter/view/2053

Lake Whatcom Water & Sewer District 2010 Water System Comprehensive Plan

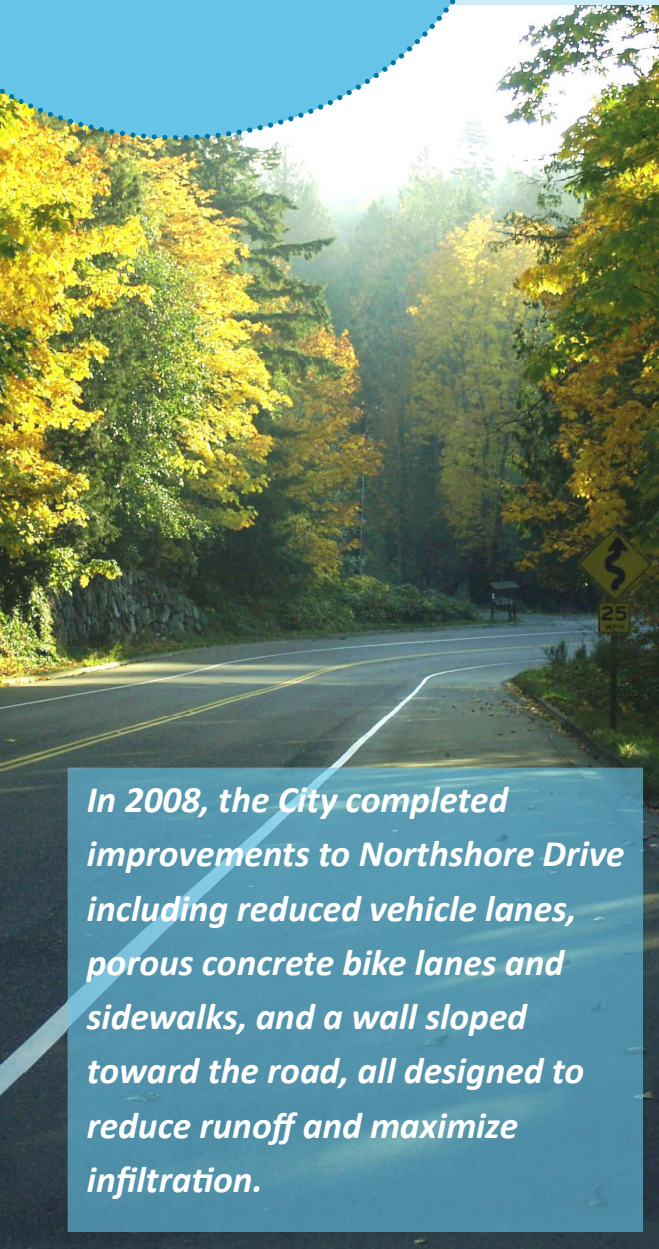
lwwsd.org/resources/2010-water-system-comprehensive-plan/

Lake Whatcom Water & Sewer District 2014 Sewer Comprehensive Plan

lwwsd.org/resources/2007-comprehensive-sewer-plan/

Whatcom Smart Trips

whatcomsmarttrips.org/



In 2008, the City completed improvements to Northshore Drive including reduced vehicle lanes, porous concrete bike lanes and sidewalks, and a wall sloped toward the road, all designed to reduce runoff and maximize infiltration.

Education & Engagement

OBJECTIVE: Protect water quality by educating and engaging watershed residents and visitors.

Leads: City of Bellingham, Whatcom County

Partners: Sudden Valley Community Association, WSU Extension, Sustainable Connections, RE Sources, Whatcom Conservation District

Estimated Investments:

\$60,000*

*Total Cost Estimate of Education and Engagement Activities from all Program Areas: \$3.4 million.

The way we think about community outreach has evolved over time. In order to protect Lake Whatcom, it is essential to have engaged community members that take action. While information and education can raise awareness and increase understanding, alone, they do not motivate most people to act. In order to facilitate an engaged community, we must provide incentives that motivate people to act and remove barriers that might make it more difficult for people to act. In this plan, we have redistributed outreach activities to their corresponding program area because they are essential to reaching each program's objectives. We believe the integration of outreach activities with other program activities is a better representation of the total work being done to meet program goals. Our outreach specialists work on multiple programs, and our program area specialists often provide outreach to the public for their programs.

9.1

General Lake Whatcom Education and Engagement

Provide education and outreach to watershed residents, property owners, visitors, and the community about Lake Whatcom and the Lake Whatcom Management Program.

1. Provide introductory education about Lake Whatcom to new watershed residents, community members and Lake Whatcom visitors.
2. Provide information to watershed residents and visitors about Lake Whatcom Management Program activities and programs.
3. Maintain up-to-date information and resources online.
4. Measure watershed residents' understanding of watershed issues and adoption of stewardship behaviors at least once very five years, and use the results to adapt programs and direct resources more effectively.

Performance Measures:

These performance measures are for 9.1 activities only. Performance measures for 9.2 activities can be found under the respective Program Areas.

- Number of new watershed residents sent informational materials
- Number of unique visitors to Lake Whatcom web pages
- Percentage of watershed residents participating in stewardship behaviors (reported by behavior once per five-year period)

Between 2010 and 2014, WSU Extension offered Gardening Green workshops to increase awareness about sustainable landscaping practices and to empower watershed residents to implement on-the-ground changes to their properties.

Education & Engagement

OBJECTIVE: Protect water quality by educating and engaging watershed residents and visitors.

Leads: City of Bellingham, Whatcom County

Partners: Sudden Valley Community Association, WSU Extension, Sustainable Connections, RE Sources, Whatcom Conservation District

Estimated Investments:

\$60,000*

*Total Cost Estimate of Education and Engagement Activities from all Program Areas: \$3.4 million.

9.2

Program Area-Specific Education and Engagement Activities

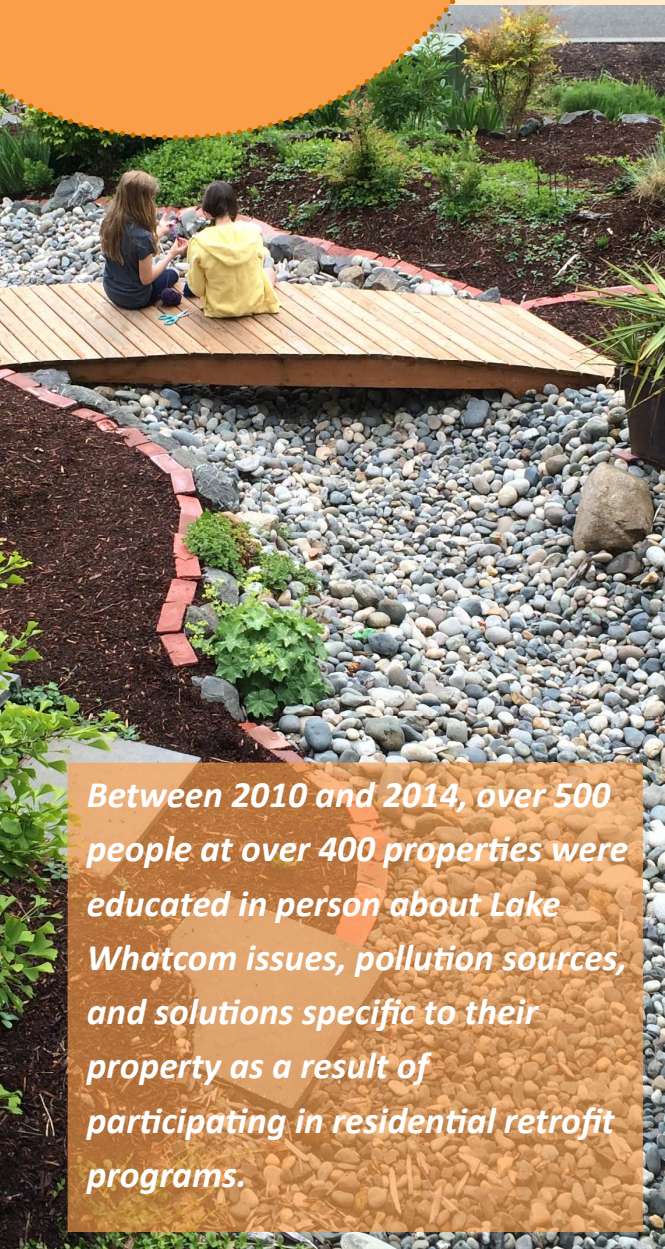
The following Program Area-specific education and engagement activities are also listed under their respective Program Area which is provided in parentheses.

1. Land Preservation

1. Engage watershed residents and recreational users in watershed property stewards program (e.g. mountain bikers, property owners, etc.). (1.3)

2. Stormwater

2. Inform the public about timelines, impacts and purpose of projects during design and construction. (2.1)
3. Engage residents during and after construction of projects in conversations about what they can do to reduce pollution from their properties. (2.1)
4. Implement program to help watershed property owners reduce runoff from their properties using low impact development strategies. (2.2)
5. Investigate barriers to residential projects and adapt program to address those barriers. (2.2)
6. Provide financial, technical, and/or development incentives (e.g. site visits, project options, one-on-one assistance, etc.) to encourage completion of retrofits. (2.2)
7. Facilitate, plan, and support neighborhood-scale retrofits of public and private properties. (2.2)
8. Support inspection and maintenance by instructing owners about system needs and maintenance requirements. (2.4)
9. Raise awareness about causes and impacts of stormwater pollution and benefits of low impact development (LID). (2.6)



Between 2010 and 2014, over 500 people at over 400 properties were educated in person about Lake Whatcom issues, pollution sources, and solutions specific to their property as a result of participating in residential retrofit programs.

Photo by J. Johnson, 2014

Performance measures for 9.2 activities can be found under the respective Program Areas.

Education & Engagement

OBJECTIVE: Protect water quality by educating and engaging watershed residents and visitors.

Leads: City of Bellingham, Whatcom County

Partners: Sudden Valley Community Association, WSU Extension, Sustainable Connections, RE Sources, Whatcom Conservation District

Estimated Investments:

\$60,000*

*Total Cost Estimate of Education and Engagement Activities from all Program Areas: \$3.4 million.



9.2

Program Area-Specific Education and Engagement Activities — Continued...

2. Stormwater

10. Remove barriers and provide incentives to facilitate behaviors that protect water quality, including watershed-friendly yard care techniques, proper pet waste management, and proper vehicle, equipment and building maintenance. (2.6)
11. Provide outreach to watershed residents to increase compliance with stormwater regulations. (2.6)

3. Land Use

12. Provide outreach to watershed residents to increase compliance with stormwater regulations. (3.1)
13. Work with private forest landowners to improve forest practices that protect water quality. (3.2)

4. Monitoring & Data

14. Review and summarize monitoring studies and reports to determine water quality trends and policy implications, and to make information easily accessible to the public. (4.5)

5. Hazardous Materials

15. Conduct a hazardous materials collection event at locations in the watershed. (5.1)
16. Promote and provide education on proper use and storage of hazardous materials. (5.1)
17. Educate watershed residents and visitors on how to prevent and report spills. (5.2)

6. Recreation

18. Install interpretive and/or informational exhibits at trailheads when feasible. (6.4)
19. Provide opportunities for community engagement in watershed stewardship activities. (6.4)
20. Work with recreational user groups (e.g. mountain bikers, horseback riders, hikers, etc.) to reduce water quality impacts (e.g. erosion) resulting from improper trail use. (6.4)

Performance measures for 9.2 activities can be found under the respective Program Areas.

Education & Engagement

OBJECTIVE: Protect water quality by educating and engaging watershed residents and visitors.

Leads: City of Bellingham, Whatcom County

Partners: Sudden Valley Community Association, WSU Extension, Sustainable Connections, RE Sources, Whatcom Conservation District

Estimated Investments:

\$60,000*

*Total Cost Estimate of Education and Engagement Activities from all Program Areas: \$3.4 million.



Between 2012 and 2014, aquatic invasive species inspectors interacted with almost 13,000 boat owners and park users through the boat inspection program to engage them in aquatic invasive species prevention efforts.

Photo by City of Bellingham, 2013

9.2

Program Area-Specific Education and Engagement Activities — Continued...

6. Recreation

21. Explore options for promoting watershed-friendly recreational opportunities in the watershed including stewardship messages. (6.4)

7. Aquatic Invasive Species

22. Inform watershed residents, boaters, and other lake visitors about AIS issues and engage them in prevention activities through informational materials, online education tools, community events and public meetings, and in-person conversations during inspections. (7.5)
23. Provide opportunities for community engagement in monitoring activities. (7.5)

8. Utilities & Transportation

24. Encourage water-use efficiency through public education and outreach, water meter installation, and/or rebate projects. (8.1)
25. Provide training courses (online and in person) that certify homeowners to inspect their own septic systems. (8.2)
26. Inform watershed residents and visitors about alternative transport opportunities to limit the number of vehicle trips being made in the watershed. (8.3)

10. Administration

27. Schedule annual meetings to coordinate community education and engagement efforts by Lake Whatcom Management Program staff and partners. (10.1)
28. Inform the community about opportunities for involvement in public meetings, comment periods and decision-making processes. (10.1)

Resources:

Lake Whatcom Management Program
lakewhatcom.whatcomcounty.org

Administration

OBJECTIVE: Coordinate and support implementation of the Lake Whatcom Management Program Work Plan.

Leads: City of Bellingham, Whatcom County, Lake Whatcom Water & Sewer District

Estimated Investments:
\$400,000

10.1

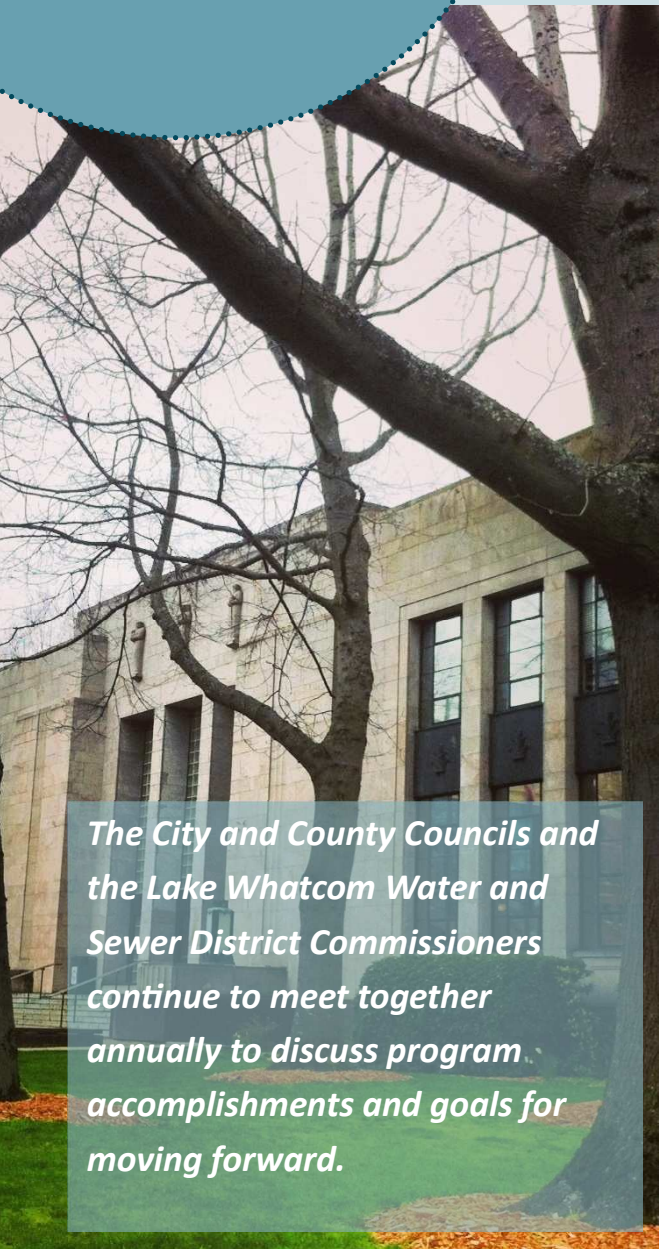
Coordination

Coordinate Lake Whatcom Management Program meetings and information-sharing opportunities by scheduling meetings, providing topic research and presentations, creating agendas and minutes, and other work products.

1. Schedule monthly meetings of the Lake Whatcom Watershed Advisory Board to discuss management program issues and receive citizen comments and suggestions.
2. Schedule monthly meetings of the Data Management Team to address issues related to monitoring, modeling, Total Maximum Daily Load (TMDL) requirements and other data management.
3. Schedule monthly meetings of the Interjurisdictional Coordinating Team to oversee work plan implementation efforts and work product development.
4. Schedule monthly meetings of the Lake Whatcom Joint Policy Group to discuss Lake Whatcom policy topics and provide guidance and direction to staff.
5. Schedule annual Joint Councils and Commission meeting to discuss Lake Whatcom Management Program works plans and accomplishments.
6. Schedule Management Team meetings as needed to provide staff with administrative direction.
7. Schedule annual meetings to coordinate community education and engagement efforts by Lake Whatcom Management Program staff and partners.
8. Inform the community about opportunities for involvement in public meetings, comment periods, and decision-making processes.

Performance Measures:

- Number of coordination meetings held
- Number of contracts overseen
- Develop annual progress reports to highlight program accomplishments



The City and County Councils and the Lake Whatcom Water and Sewer District Commissioners continue to meet together annually to discuss program accomplishments and goals for moving forward.

Administration

OBJECTIVE: Coordinate and support implementation of the Lake Whatcom Management Program Work Plan.

Leads: City of Bellingham, Whatcom County, Lake Whatcom Water & Sewer District

Estimated Investments:
\$400,000



The Lake Whatcom Management Program was established in 1998 by an Interlocal Agreement between the City of Bellingham, Whatcom County and the Lake Whatcom Water and Sewer District.

Photo from City of Bellingham Archive, 2004

10.2 Work Plans and Reports

Support development of work plans, presentations, and reports.

1. Develop Lake Whatcom Management Program five-year work plans.
2. Develop annual work plans.
3. Develop annual Lake Whatcom Management Program progress reports.
4. Refine performance measure tracking and reporting.
5. Develop presentations as needed.
6. Oversee development of work products for Lake Whatcom programs as directed.

10.3 Funding

Establish work plan funding needs and strategy to support work plan implementation.

1. Communicate funding needs in City/County/District budget processes.
2. Identify and seek grant funding to support implementation of work plan tasks.

10.4 Regulatory Agencies

Support work plan implementation by communicating with agencies.

1. Communicate with regulatory agencies regarding lake water quality, natural resources, and land use activities in the watershed.

10.5 Contracts

Oversee variety of consultant and contractor projects, contracts, and work products.

1. Oversee all contracts with consultants and contractors.

Resources:

1992 Lake Whatcom Joint Resolution

lakewhatcom.whatcomcounty.org/1992JointResolution.pdf

Lake Whatcom Management Program Work Plans and Progress Reports

lakewhatcom.whatcomcounty.org/resources

2015-2019 Work Plan – Action Timeline

Occurrence: The estimated timeline for completing the action can be found here (e.g. ongoing, as needed, 2015, annually, monthly, etc.)

1.	Land Preservation	Occurrence
1.1	1. Purchase watershed properties based on criteria and availability	Ongoing
1.2	1. Create conservation easements for new preserves	As needed
	2. Modify existing conservation easements to include additional properties in existing preserves	As needed
	– Include Galbraith Mountain properties in conservation easements for adjacent preserves	2015
	– Include Shetabi property in Agate Bay Preserve conservation easement	2015
1.3	1. Create management plans that address forestry, recreation, and vegetation management needs for all properties	As needed
	– Develop management plans for Shetabi, Mullen and other newly acquired properties	2015
	2. Develop management plan for new Whatcom County Park Property to include road and trail assessment and actions to protect water quality	2015-2016
	3. Implement management plans for all properties	Ongoing
	– Implement forest practices on Galbraith Mountain properties to improve natural functions	2015-2016
	– Complete planting of west portion of Agate Bay Preserve	2015
	4. Conduct periodic inspections to monitor restoration sites, invasive species control sites and other property management activities.	Ongoing
	5. Actively respond to encroachments and other property management issues	Ongoing
	– Reconsider Bonneville Power Administration easement management criteria	2015-2016
	6. Engage watershed residents and recreational users in watershed property stewards program	Ongoing
	– Work with recreational mountain biking organizations to reduce erosion potential from trails	2015

2015-2019 Work Plan – Action Timeline

Occurrence: The estimated timeline for completing the action can be found here (e.g. ongoing, as needed, 2015, annually, monthly, etc.)

2.	Stormwater	Occurrence
2.1	1. Complete scheduled capital improvement projects in the Lake Whatcom Watershed	Ongoing
	– Complete treatment facilities along Northshore Drive from Britton Rd. to E. North Street	2015
	– Construct treatment facilities at Huntington and Shepardson Streets	2015
	– Construct City/County joint treatment facility	2015
	– Design and begin construction of treatment facility at E. North Street	2015
	– Design treatment facility at E. Oregon and Stanley Streets	2015
	– Design treatment facility for Agate Heights/Bay Lane	2015
	– Design treatment facility for Britton Road from Lahti Drive to Northshore Drive	2015
	– Design pilot treatment system at E. Oregon east of Chautauqua	2015
	2. Inform the public about timelines, impacts and purpose of projects during design and construction through press releases, web posts, public meetings, tours, and signage	Ongoing
2.2	1. Implement program to help watershed property owners reduce runoff from their properties using low-impact development strategies	Ongoing
	2. Investigate barriers to residential projects and adapt program to address those barriers	Ongoing
	– Assess successes and failures of Homeowner Incentive Program, identify barriers and benefits to residential retrofits, use resulting information to improve residential retrofit program, including focus group testing of proposed program	2015
	3. Provide financial, technical, and/or development incentives to encourage completion of private retrofits	Ongoing
	4. Facilitate, plan, and support neighborhood-scale retrofits of public and private properties	Ongoing
2.3	1. Inspect all public stormwater facilities in compliance with the 2013-2018 Western Washington Phase II Municipal Stormwater Permit	Per Schedule
	2. Schedule regular maintenance of public stormwater facilities	Per Schedule
	3. Inspect and maintain all other publicly-owned stormwater infrastructure as necessary	Per Schedule
	4. Continue enhanced street sweeping to capture roadway pollution prior to entering stormwater systems	Per Schedule

2015-2019 Work Plan – Action Timeline

Occurrence: The estimated timeline for completing the action can be found here (e.g. ongoing, as needed, 2015, annually, monthly, etc.)

2.	Stormwater	Occurrence
2.4	1. Inspect private stormwater facilities, consistent with legal authority, and provide technical assistance when needed, to ensure post-construction maintenance standards are met	Per Schedule
	2. Track and report inspections and correction actions to assure long-term effectiveness of private systems and investments	Ongoing
	3. Support inspection and maintenance by instructing owners about system needs and maintenance requirements	Ongoing
2.5	1. Review all development activities to assure compliance with phosphorus reduction regulations	Ongoing
	2. Use low impact development strategies to the maximum extent practicable	Ongoing
	3. Inspect and enforce requirements for erosion controls	Ongoing
	4. Track and report inspection and enforcement activities associated with water quality impacts to Lake Whatcom	Ongoing
	5. Continue to assess the effectiveness of stormwater and development regulations	Ongoing
2.6	1. Raise awareness about causes and impacts of stormwater pollution and benefits of low impact development	Ongoing
	2. Remove barriers and provide incentives to facilitate behaviors that protect water quality, including watershed-friendly yard care techniques, proper pet waste management, and proper vehicle, equipment and building maintenance	Ongoing
	– Contract with WSU Whatcom Extension to provide Sustainable Landscaping Course in fall and spring	2015
	– Participate in regional vehicle leaks campaign, Don't Drip and Drive, within the Bellingham community	2015
	– Make community-wide pet waste and car washing program available to watershed residents at additional watershed resident-targeted outlets	2015
	3. Provide outreach to watershed residents to increase compliance with stormwater regulations	Ongoing

2015-2019 Work Plan – Action Timeline

Occurrence: The estimated timeline for completing the action can be found here (e.g. ongoing, as needed, 2015, annually, monthly, etc.)

3.	Land Use	Occurrence
3.1	1. Standardize tracking and performance measurement across jurisdictions	2015
	2. Track all building and development activities in the watershed and make information accessible to City, County, and District	Ongoing
	3. Track and report on the number and type of land use and development-related permit violations in the watershed	Ongoing
	4. Continue collaboration between City and County when developing or revising development regulations	Ongoing
	5. Continue to assess the effectiveness of development regulations	Ongoing
	6. Continue to monitor properties (including Natural Vegetation Protection Areas) over time to ensure performance standards are met	Ongoing
	7. Develop Low Impact Development standards in accordance with the Western Washington Phase II Municipal Permit, to be adopted by December 13, 2016	2015-2016
	8. Provide outreach to watershed residents to increase compliance with development regulations	Ongoing
3.2	1. Review Interjurisdictional Committee reports of Department of Natural Resources activities	As needed
	2. Review and comment on private property forest practice applications where merited	As needed
	3. Track permitted forest practice activities to develop a summary of forest conditions in the watershed	Ongoing
	4. Work with private forest landowners to improve forest practices that protect water quality	2015-2016
	5. Continue to assess the effectiveness of the DOE water quality assurances	Ongoing
	6. Improve forestry best management practices through interagency agreements or code modifications	2015-2016

2015-2019 Work Plan – Action Timeline

Occurrence: The estimated timeline for completing the action can be found here (e.g. ongoing, as needed, 2015, annually, monthly, etc.)

4.	Monitoring and Data	Occurrence
4.1	1. Contract with Western Washington University Institute for Watershed Studies	Biennially
	2. Discuss monitoring results and receive updates on water quality trends	Ongoing
4.2	1. Oversee and refine tributary monitoring contracts	Annually
	2. Discuss tributary monitoring results and determine policy implications	Ongoing
	3. Develop water quality monitoring program for non-urban areas in the watershed	2015
4.3	1. Receive updates on stormwater monitoring program results	Ongoing
	2. Develop recommendations to improve removal of phosphorus and fecal coliform by stormwater facilities; update best management practices as needed	Ongoing
4.4	1. Identify data and monitoring needs and implement projects to acquire the needed information	Ongoing
	2. Continue to generate high quality streamflow, water quality, and weather data	Ongoing
	3. Update and recalibrate the phosphorus loading model with additional data	Annually
	– Receive lake model data gap analysis from Hydrologic Services	2015
	4. Develop and implement strategy to update and recalibrate response model	2015-2016
	5. Conduct third party review to assess lake load model's methodology for simulating phosphorus loading	2015
4.5	1. Review and summarize monitoring studies and reports to determine water quality trends, policy implications, and make information easily accessible to the public.	Annually
	2. Maintain and update Data Catalog	Biennially
	3. Provide open access storage of monitoring reports	Annually

2015-2019 Work Plan – Action Timeline

Occurrence: The estimated timeline for completing the action can be found here (e.g. ongoing, as needed, 2015, annually, monthly, etc.)

5.	Hazardous Materials	Occurrence
5.1	1. Conduct a hazardous materials collection event at locations in the watershed	2016
	2. Promote and provide education on proper use and storage of hazardous materials	Ongoing
5.2	1. Continue to detect and remediate illicit discharges, connections, and improper disposal, including spills into the City and District sewer systems	As needed
	2. Educate watershed residents and visitors on how to prevent and report spills	Ongoing
	3. Continue to record and respond to all calls regarding illicit discharges or illegal spills that are received via the stormwater hotline number	As needed
	4. Review spill response procedures and reporting protocols	As needed
	5. Conduct ongoing field staff training regarding spill prevention and response	Ongoing

2015-2019 Work Plan – Action Timeline

Occurrence: The estimated timeline for completing the action can be found here (e.g. ongoing, as needed, 2015, annually, monthly, etc.)

6.	Recreation	Occurrence
6.1	1. Explore options for providing recreational amenities	Per Plan
	2. Create low maintenance nutrient and pesticide-free landscapes	Per Plan
	3. Infiltrate or treat stormwater following stormwater best management practices	Per Plan
6.2	1. Build and maintain trails and roads to prevent erosion and ensure runoff is infiltrated before reaching a water body	Ongoing
	2. Connect trails to other parks, trails, facilities and transportation networks	Per Plan
	3. Provide trailhead amenities such as restrooms and information kiosks when feasible	Ongoing
	4. Install directional and use signs on trails	Ongoing
6.3	1. Provide public access using existing parks and trails whenever possible	Ongoing
	2. Improve bike lanes and transit services to recreational facilities	When feasible
	3. Maintain and develop access to key viewpoints in watershed	Per Plan
6.4	1. Install interpretive and/or informational exhibits at trailheads when feasible	Ongoing
	2. Provide opportunities for community engagement in watershed stewardship activities	Ongoing
	3. Work with recreational user groups to reduce water quality impacts resulting from improper trail use	Ongoing
	4. Explore options for promoting watershed-friendly recreational opportunities in the watershed including stewardship messages	Ongoing
	– Develop and disseminate informational brochures to inform the public of new recreational opportunities and stewardship messages	2015

2015-2019 Work Plan – Action Timeline

Occurrence: The estimated timeline for completing the action can be found here (e.g. ongoing, as needed, 2015, annually, monthly, etc.)

7.	Aquatic Invasive Species	Occurrence
7.1	1. Hire, train, and manage seasonal aquatic invasive species inspectors	Seasonally
	2. Evaluate and adjust hours of operation and level of service at Check Stations based on boat inspection data	As needed
	3. Organize group/community-level inspections to enhance efficiency of on-call inspections	Seasonally
	4. Improve efficiency and accuracy of data collection at Check Stations	As needed
7.2	1. Develop standard decontamination protocols for inspection staff	2015
	2. Provide decontamination training to inspection staff	Seasonally
	3. Decontaminate watercraft that do not pass inspection	As needed
	4. Maintain decontamination equipment	Annually
7.3	1. Develop and implement AIS Monitoring Plan for Lake Whatcom	Seasonally
	– Develop AIS Monitoring Plan for Lake Whatcom	2015
	2. Conduct regular zebra/quagga mussel monitoring events in Whatcom County waters	Monthly
	3. Develop AIS Rapid Response Plan for Lake Whatcom	2015-2016
7.4	1. Track the spread of AIS as well as any new prevention and management efforts being implemented at the local, regional, and national levels	Weekly
	2. Communicate with local, state, and regional aquatic invasive species personnel to share information and resources	Quarterly
7.5	1. Inform watershed residents, boaters, and other lake visitors about AIS issues and engage them in AIS prevention and monitoring efforts through informational materials, online education tools, community events and public meetings, and in-person conversation during inspections	Seasonally
	2. Provide opportunities for community engagement in monitoring activities	Seasonally

2015-2019 Work Plan – Action Timeline

Occurrence: The estimated timeline for completing the action can be found here (e.g. ongoing, as needed, 2015, annually, monthly, etc.)

8.	Utilities and Transportation	Occurrence
8.1	1. Evaluate the City's water supply infrastructure, diversion water quality, and lake management for opportunities to reduce impacts to lake water quality	2015-2016
	2. Conduct water audits to detect and repair water system leaks to reduce water waste	Ongoing
	3. Encourage water-use efficiency through public education and outreach, water meter installation, and/or rebate projects	Ongoing
8.2	1. Provide sewer to areas with on-site treatment when permissible	When feasible
	2. Maintain and replace sanitary sewer infrastructure in the watershed to reduce the potential of sewer overflows	Ongoing
	3. Enforce septic system operation and maintenance regulations, update database of septic systems, and respond to failing septic systems	Ongoing
	4. Provide training courses (online and in person) to certify homeowners to inspect their own on-site sewer systems	Ongoing
8.3	1. Employ road design standards to reduce impacts to water quality	Ongoing
	2. Evaluate road design, construction and maintenance projects in the watershed for effectiveness at reducing impacts to water quality	Ongoing
	3. Inform watershed residents and visitors about alternative transportation opportunities to limit the number of vehicle trips being made in the watershed	Ongoing

2015-2019 Work Plan – Action Timeline

Occurrence: The estimated timeline for completing the action can be found here (e.g. ongoing, as needed, 2015, annually, monthly, etc.)

9.	Education and Engagement	Occurrence
9.1	1. Provide introductory education about Lake Whatcom to new watershed residents, community members and Lake Whatcom visitors	Ongoing
	– Develop process for regularly identifying new watershed owners and residents to provide them with introductory information about Lake Whatcom and to connect them with stewardship resources and opportunities	2015
	2. Provide information to watershed residents and visitors about Lake Whatcom Management Program activities and programs	Ongoing
	3. Maintain up-to-date information and resources online	Ongoing
	4. Measure watershed residents' understanding of watershed issues and adoption of stewardship behaviors at least once very five years, and use the results to adapt programs and direct resources more effectively	2016
9.2	1. Engage watershed residents and recreational users in watershed property stewards program (1.3)	Ongoing
	2. Inform the public about timelines, impacts and purpose of projects during design and construction (2.1)	Ongoing
	3. Engage residents during and after construction of projects in conversations about what they can do to reduce pollution from their properties (2.1)	Ongoing
	4. Implement program to help watershed property owners reduce runoff from their properties using low impact development strategies (2.2)	Ongoing
	5. Investigate barriers to residential projects and adapt program to address those barriers (2.2)	Ongoing
	6. Provide financial, technical, and/or development incentives to encourage completion of retrofits (2.2)	Ongoing
	7. Facilitate, plan, and support neighborhood-scale retrofits of public and private properties (2.2)	Ongoing
	8. Support inspection and maintenance by instructing owners about system needs and maintenance requirements (2.4)	Ongoing
	9. Raise awareness about causes and impacts of stormwater pollution and benefits of low impact development (2.6)	Ongoing
	10. Remove barriers and provide incentives to facilitate behaviors that protect water quality, including watershed-friendly yard care techniques, proper pet waste management, and proper vehicle, equipment and building maintenance (2.6)	Ongoing
	11. Provide outreach to watershed residents to increase compliance with stormwater regulations (2.6)	Ongoing
	12. Provide outreach to watershed residents to increase compliance with stormwater regulations (3.1)	Ongoing

2015-2019 Work Plan – Action Timeline

Occurrence: The estimated timeline for completing the action can be found here (e.g. ongoing, as needed, 2015, annually, monthly, etc.)

9.	Education and Engagement	Occurrence
9.2	13. Work with private forest landowners to improve forest practices that protect water quality (3.2)	2015-2016
	14. Review and summarize monitoring studies and reports to determine water quality trends and policy implications, and to make information easily accessible to the public (4.5)	Annually
	15. Conduct a hazardous materials collection event at locations in the watershed (5.1)	2016
	16. Promote and provide education on proper use and storage of hazardous materials (5.1)	Ongoing
	17. Educate watershed residents and visitors on how to prevent and report spills (5.2)	Ongoing
	18. Install interpretive and/or informational exhibits at trailheads when feasible (6.4)	Ongoing
	19. Provide opportunities for community engagement in watershed stewardship activities (6.4)	Ongoing
	20. Work with recreational user groups to reduce water quality impacts resulting from improper trail use (6.4)	Ongoing
	21. Explore options for promoting watershed-friendly recreational opportunities in the watershed including stewardship messages (6.4)	Ongoing
	22. Inform watershed residents, boaters, and other lake visitors about AIS issues and engage them in prevention activities through informational materials, online education tools, community events and public meetings, and in-person conversations during inspections (7.5)	Seasonally
	23. Provide opportunities for community engagement in monitoring activities (7.5)	Seasonally
	24. Encourage water-use efficiency through public education and outreach, water meter installation, and/or rebate projects (8.1)	Ongoing
	25. Provide training courses that certify homeowners to inspect their own septic systems (8.2)	Ongoing
	26. Inform watershed residents and visitors about alternative transport opportunities to limit the number of vehicle trips being made in the watershed (8.3)	Ongoing
	27. Schedule annual meetings to coordinate community education and engagement efforts by Lake Whatcom Management Program staff and partners (10.1)	Annually
	28. Inform the community about opportunities for involvement in public meetings, comment periods and decision-making processes (10.1)	As needed

2015-2019 Work Plan – Action Timeline

Occurrence: The estimated timeline for completing the action can be found here (e.g. ongoing, as needed, 2015, annually, monthly, etc.)

10.	Administration	Occurrence
10.1	1. Schedule monthly meetings of the Lake Whatcom Watershed Advisory Board	Ongoing
	2. Schedule monthly meetings of the Data Management Team	Ongoing
	3. Schedule monthly meetings of the Interjurisdictional Coordinating Team (ICT)	Ongoing
	4. Schedule monthly of the Lake Whatcom Joint Policy Group to discuss Lake Whatcom policy topics and to provide policy guidance and direction to staff	Ongoing
	5. Schedule annual Joint Councils and Commission meeting to discuss Lake Whatcom Management Program works plans and accomplishments	Annually
	6. Schedule Management Team Meetings as needed to provide staff with administrative direction	As needed
	7. Schedule annual meetings to coordinate community education and engagement efforts by Lake Whatcom Management Program staff and partners	Annually
	8. Inform the community about opportunities for involvement in public meetings, comment periods, and decision-making processes	As needed
10.2	1. Develop Lake Whatcom Management Program five-year work plans	2019
	2. Develop annual work plans	Annually
	3. Develop annual Lake Whatcom Management Program progress reports	Annually
	4. Refine performance measure tracking and reporting	2015
	5. Develop presentations as needed	As needed
	6. Oversee development of work products for Lake Whatcom programs as directed	As directed
10.3	1. Communicate funding needs in City/County/District budget processes	Biennially
	2. Identify and seek grant funding to support implementation of work plan tasks	As needed
10.4	1. Communicate with regulatory agencies regarding lake water quality, natural resources, and land use activities in the watershed	As needed
10.5	1. Oversee all contracts with consultants and contractors	Ongoing

2015-2019 Work Plan – Cost Estimates

2015-2019 Work Plan Cost Estimates				
Program Area	Staff Costs	Capital Costs	Other Costs*	Total
1. Land Preservation	\$850,000	\$23.8 million	\$400,000	\$25 million
2. Stormwater	\$3 million	\$9.5 million	\$1.5 million	\$14 million
3. Land Use	\$90,000	–	\$75,000	\$165,000
4. Monitoring & Data	\$100,000	–	\$1.9 million	\$2 million
5. Hazardous Materials	\$25,000	–	\$25,000	\$50,000
6. Recreation	\$100,000	\$1 million	–	\$1.1 million
7. Aquatic Invasive Species	\$1.3 million	\$5,000	\$200,000	\$1.5 million
8. Utilities & Transportation	\$500,000	–	\$900,000	\$1.4 million
9. Education & Engagement**	\$40,000	–	\$20,000	\$60,000
10. Administration	\$400,000	–	–	\$400,000
LWMP Work Plan Total	\$6.4 million	\$34.3 million	\$5 million	\$45.7 million
*Other Costs include supplies, materials, equipment, consultant fees, and procedural costs. **Cost estimates for Program-Area-specific education and engagement actions are included in the totals of each respective Program Area. The total estimated cost of all education activities for the 2015-2019 Work Plan is \$3.4 million.				

2015-2019 Work Plan – Funding Sources

Program Area	Jurisdiction	Funding Sources
1. Land Preservation	Whatcom County	Conservation Futures Tax, General Fund
	City of Bellingham	Lake Whatcom Property Acquisition Fees, Water Utility Fees
	Lake Whatcom Water and Sewer District	Utility Fees
2. Stormwater	Whatcom County	Flood Control Zone District Taxes, Real Estate Excise Taxes, Grants
	City of Bellingham	Stormwater Utility Fees, Lake Whatcom Property Acquisition Fees, Grants
	Lake Whatcom Water and Sewer District	Utility Fees
3. Land Use	Whatcom County	Development Fees, General Fund
	City of Bellingham	Development Fees, General Fund, Lake Whatcom Property Acquisition Fees
	Lake Whatcom Water and Sewer District	Utility Fees
4. Data and Monitoring	Whatcom County	Flood Control Zone District Tax
	City of Bellingham	Stormwater Utility Fees, Water Utility Fees
	Lake Whatcom Water and Sewer District	Utility Fees
5. Hazardous Materials	Whatcom County	Solid Waste Excise Tax
	City of Bellingham	Stormwater Utility Fees, Water Utility Fees
	Lake Whatcom Water and Sewer District	Not Applicable
6. Recreation	Whatcom County	Conservation Excise Tax, General Fund
	City of Bellingham	Greenways Tax, General Fund
	Lake Whatcom Water and Sewer District	Not Applicable
7. Aquatic Invasive Species	Whatcom County	General Fund, Boat Inspection Fees
	City of Bellingham	Water Utility Fees, Boat Inspection Fees
	Lake Whatcom Water and Sewer District	Utility Fees, Boat Inspection Fees
8. Utilities and Transportation	Whatcom County	County Road Taxes
	City of Bellingham	Street Funds, Utility Fees
	Lake Whatcom Water and Sewer District	Utility Fees
9. Education and Outreach	Whatcom County	Flood Control Zone District Taxes, Grants
	City of Bellingham	Stormwater Utility Fees, Water Utility Fees, Grants
	Lake Whatcom Water and Sewer District	Utility Fees
10. Administration	Whatcom County	Flood Control Zone District Taxes
	City of Bellingham	Stormwater Utility Fees, Water Utility Fees
	Lake Whatcom Water and Sewer District	Utility Fees

2015-2019 Stormwater Capital Projects & Funding Commitments

Project Information				Funding Commitments*		
Project Title	Short Description	Funding Jurisdiction	Region	Current Cycle (2015-2016)	Future (2017-2020)	Total
Academy Road/Joint with COB	Pretreatment, bioinfiltration swale, filter cartridge vault, high flow bypass, vegetated buffer	Whatcom County	Basin 1 East	\$845,000.00	\$0.00	\$845,000.00
Academy Road/Joint with COB	Pretreatment, bioinfiltration swale, filter cartridge vault, high flow bypass, vegetated buffer	City of Bellingham	Basin 1 East	\$300,000.00	\$0.00	\$300,000.00
Cedar Hills/Euclid	Rain gardens, filter vaults, swales	Whatcom County	Geneva UGA	\$630,000.00	\$0.00	\$630,000.00
Agate Heights Estate/Bay Lane	System upgrades to improve water quality (bioinfiltration swales, reduce ditch erosion)	Whatcom County	Basin 3 East	\$110,000.00	\$500,000.00	\$610,000.00
Beaver Creek	Restore and repair eroded sections of Creek	Whatcom County	Basin 3 West	\$105,000.00	\$470,000.00	\$575,000.00
Sudden Valley	Drainage system upgrades and outfall retrofits	Whatcom County	Sudden Valley	\$0.00	\$640,000.00	\$640,000.00
Silver Beach Creek	Main channel restoration below Hillsdale using natural vegetation	Whatcom County	Hillsdale UGA	\$0.00	\$200,000.00	\$200,000.00
East Oregon St. Infiltration and Dispersion Facility	Infiltration and treatment system on undeveloped, City-owned property	City of Bellingham	Basin 1 North	\$100,000.00	\$0.00	\$100,000.00
Britton Road Improvements	Retrofit existing system for water quality treatment	City of Bellingham	Basin 1 North	\$300,000.00	\$0.00	\$300,000.00
Anderson Creek Restoration	Maximize phosphorus sequestration in creek system including reduction of diversion inputs	City of Bellingham	Basin 3 East	\$600,000.00	\$0.00	\$600,000.00
Silver Beach Creek Easements	Reduce bank loss and erosion in constrained creek channel	City of Bellingham	Basin 1 North	\$0.00	\$700,000.00	\$700,000.00
Lake Whatcom SSWU Improvements	Implement retrofit projects on neighborhood-scale	City of Bellingham	City only	\$0.00	\$1,000,000.00	\$1,000,000.00
Park Place Alum Facility	Retrofit existing system for water quality treatment	City of Bellingham	Basin 1 North	\$0.00	\$100,000.00	\$100,000.00
Mill Creek Pond Improvements	Retrofit pond system to provide for water quality benefits	City of Bellingham	Basin 1 West	\$0.00	\$700,000.00	\$700,000.00
				Approximate Whatcom County Capital Costs		\$3,500,000.00
				Average Whatcom County Costs		\$700,000.00
				Approximate City of Bellingham Capital Costs		\$3,800,000.00
				Average City of Bellingham Costs		\$760,000.00

Residential Retrofit Projects	Short Description	Funding Jurisdiction	Region	Current Cycle (2015-2016)	Future (2017-2020)	Total
Residential Retrofits, within City	Provide funding for residential retrofitting projects within City	City of Bellingham	City only	\$200,000.00	\$300,000.00	\$500,000.00
Residential Retrofits, Watershed-Wide	Provide funding for residential retrofitting projects watershed-wide	LWMP (Combined Funding)	Watershed-Wide	\$250,000.00	\$975,000.00	\$1,225,000.00
				Approximate Residential Retrofit Program Costs		\$1,725,000.00

*Projects are based on City and County six year plan data.

Proposed expenditures for 2017-2019 do not have budget approval.

Approximate Grand Total Funding	\$9,025,000.00
Average Annual Funding	\$1,805,000.00

Resources and Contacts

Land Preservation

Lake Whatcom Property Acquisition Program
cob.org/services/environment/lake-Whatcom/lw-property-acquisition-program.aspx

Whatcom County Parks & Recreation—Reconveyance
co.whatcom.wa.us/625/Lake-Whatcom-Reconveyance

Protected Property in the Lake Whatcom Watershed Map
cob.org/documents/pw/lw/acquisition-land-map.pdf

Stormwater

Lake Whatcom Management Program Capital Improvement Projects
lakewhatcom.whatcomcounty.org/our-programs/capital-projects

Capital Projects Update: Presentation (12/01/2014)
lakewhatcom.whatcomcounty.org/resources

City of Bellingham 2007 Comprehensive Stormwater Plan
cob.org/documents/pw/storm/2007-stormwater-comp-plan.pdf

Whatcom County 2008 Lake Whatcom Comprehensive Stormwater Plan
whatcomcounty.us/1022/Lake-Whatcom-Comprehensive-Stormwater-Pl

Land Use

[Bellingham Municipal Code \(BMC\)](#) 16.80 (Lake Whatcom Reservoir Regulatory Chapter), 15.42 (Stormwater Regulations), 16.55 (Critical Areas Ordinance), Title 22 (Shoreline Master Program)
codepublishing.com/wa/bellingham/

[Whatcom County Code \(WCC\)](#) 20.51 (Lake Whatcom Watershed Overlay District & Stormwater Regulations), 16.16 (Critical Areas Ordinance), Title 23 (Shoreline Management Program)
codepublishing.com/wa/whatcomcounty/

Lake Whatcom Landscape Pilot Project: Report to the Board of Natural Resources
www.dnr.wa.gov/publications/lm_lkwa_pilot_11report.pdf

Lake Whatcom Watershed Annual Build-Out Analysis Reports
lakewhatcom.whatcomcounty.org/resources

Monitoring and Data

Lake Whatcom Monitoring Reports
www.edu/iws/

Lake Whatcom Data Catalog
Copies of documents are available at the Whatcom County Public Works Water Resources Library and the Bellingham Public Library

Hazardous Materials

Whatcom County Emergency Management Plan
whatcomready.org/wp-content/uploads/2012/06/Whatcom-County-CEMP-2008.pdf

Washington Toxics Coalition
watoxics.org

Stormwater Hotline: (360) 778-7979
cob.org/services/environment/stormwater/stormwater-report-form.aspx

Recreation

Whatcom County Parks & Recreation—Reconveyance
co.whatcom.wa.us/625/Lake-Whatcom-Reconveyance

Whatcom County Comprehensive Parks, Recreation and Open Space Plan
co.whatcom.wa.us/653/2008-Comprehensive-Plan

City of Bellingham Comprehensive Parks, Recreation and Open Space Plan
cob.org/documents/parks/development/pro-plan/pro-plan-full.pdf

Aquatic Invasive Species

Lake Whatcom Aquatic Invasive Species Program Annual Reports and Documents
lakewhatcom.whatcomcounty.org/resources

Whatcom Boat Inspections
whatcomboatinspections.com

Aquatic Invasive Species Awareness Course
whatcomboatinspections.com/ais-awareness-course

Whatcom Boat Inspections Hotline: (360) 778-7975

Resources and Contacts

Utilities and Transportation

City of Bellingham Drinking Water Quality Reports
cob.org/services/environment/lake-whatcom/water-quality.aspx

Lake Whatcom Water and Sewer District Consumer Confidence Reports
lwwsd.org/resources/customer-information/

City of Bellingham's Water Use Efficiency Program 2014-2019
cob.org/documents/pw/environment/water-conservation/2014-2019-water-use-efficiency-program.pdf

City of Bellingham Water Use Efficiency Annual Performance Reports
cob.org/services/environment/conservation/goals-measures.aspx

Whatcom County On-Site Sewage System Program, WCC 24.05
whatcomcounty.us/documentcenter/view/2053

Lake Whatcom Water & Sewer District 2010 Water System Comprehensive Plan
lwwsd.org/resources/2010-water-system-comprehensive-plan/

Lake Whatcom Water & Sewer District 2014 Sewer Comprehensive Plan
lwwsd.org/resources/2007-comprehensive-sewer-plan/

Whatcom Smart Trips
whatcomsmarttrips.org/

Education and Engagement

Lake Whatcom Management Program
lakewhatcom.whatcomcounty.org

City of Bellingham Lake Whatcom Stewardship
cob.org/services/environment/lake-whatcom/stewardship-solutions.aspx

WSU Whatcom County Extension Sustainable Landscaping
whatcom.wsu.edu/ch/sustainable.html

Administration

1992 Lake Whatcom Joint Resolution
lakewhatcom.whatcomcounty.org/1992JointResolution.pdf

Lake Whatcom Management Program Work Plans and Progress Reports
lakewhatcom.whatcomcounty.org/resources

Lake Whatcom Meetings and Agendas
lakewhatcom.whatcomcounty.org/news

Lake Whatcom Management Program Contacts
lakewhatcom.whatcomcounty.org/contacts

Lake Whatcom Management Program Contacts:

Whatcom County Public Works
Gary Stoyka, (360) 715-7450, GStoyka@co.whatcom.wa.us

City of Bellingham Public Works—Natural Resources
Clare Fogelsong, (360) 778-7900, cfogelsong@cob.org

Lake Whatcom Water and Sewer District
Patrick Sorensen, (360) 734-9224, patrick.sorensen@lwwsd.org

