

Chapter Eleven Environment

Editor’s Note: This version contains recommendations from the WRIA 1 Planning Unit’s Environmental Caucus. Such recommendations are shown in ~~strikeout/underline~~ with a yellow highlight. Staff has not yet determined whether it supports these recommendations, as they were provided just prior to the Planning Commission’s first meeting on this chapter. Staff will review and provide additional comments for the P/C at your Oct. 8 meeting where P/C proposed amendments to Ch. 11 will be considered.

10 INTRODUCTION

11 Each person in Whatcom County has a fundamental right to a healthful and safe
12 environment in which to live and grow. With this right comes a responsibility to
13 contribute to the protection and enhancement of our natural environment.
14 Consequently, an important goal of the Whatcom County Comprehensive Plan is to
15 protect or enhance the county's environmental quality. This means that, individually
16 and collectively, we have the obligation to protect these resources for our children
17 and their children. Essential to this is the establishment of safe development
18 practices and patterns that do not significantly disrupt natural systems and that
19 ensure the continuation of ample amounts of clean water, natural areas, farmlands,
20 forest lands, and fish and wildlife habitat.

21 Chapter Organization

22 This chapter is composed of an introduction and four sections organized by topic
23 heading. The first section, entitled "General Environmental Management,"
24 addresses general environmental goals and policies. The remaining three sections
25 deal with Natural Hazards, Water Resources, and Natural Systems. ~~An Action Plan
26 at the end of the chapter recommends specific actions to implement these goals
27 and policies.~~ Together, the elements sections of this chapter provide the direction
28 necessary to ensure promote long-term sustainability of the environment in
29 Whatcom County.

30 Reason for Change: Action plan has been deleted, and unaccomplished actions
31 added to the policies.

32 Purpose

33 Whatcom County's natural environment, with its seasonally abundant supply of
34 water, its beauty, and its other natural resources, has attracted people to our
35 community for generations. This setting is important to our sense of well-
36 beingspirit, to our health, to our economic well-being, and to our future. ~~Yet
37 s~~Sustaining these assets in the face of increasingly intense human activity ~~has
38 becomes~~ more difficult ~~over the each~~ years. The challenge of protecting this
39 environment while accommodating growth ~~will requires~~ maintaining guidelines for
40 development a blueprint that can help guide development so that ~~it growth~~ does
41 not ultimately overrun the very assets that brought most of us here. The purpose of
42 this chapter is to create such a blueprint guidelines.

1 **Process**

2 This chapter was first originally produced by the Citizens' Environmental Task Force
 3 (ETF). The ETF began its task with fourteen members from diverse backgrounds,
 4 who were selected by the County Executive in October 1993. The ETF's objectives
 5 were divided into two tasks: develop an Environmental chapter for the
 6 comprehensive pPlan, and develop regulatory and non-regulatory tools to
 7 implement the provisions of the comprehensive pPlan.

8 Members of the ETF participated in the county's Visioning Process by attending
 9 town hall meetings to explain the committee's activities and to gather additional
 10 public input regarding the environment. The values and alternatives gathered
 11 through the Visioning Process are reflected in this chapter.

12 **GMA Goals, and County-Wide Planning Policies, and Visioning Community** 13 **Value Statements**

14 GMA Planning Goal 10, "Environment," provides the directive for much of this
 15 chapter. It requires Whatcom County to "protect the environment and enhance the
 16 state's high quality of life, including air and water quality, and the availability of
 17 water." In addition, some of the goals and policies of this chapter support Planning
 18 Goal 9, "Open Space and Recreation," which directs the county to "conserve fish
 19 and wildlife habitat."

20 Relative to environmental protection, Whatcom County's County-Wide Planning
 21 Policies (CWPP) give the most attention to water issues. They state, "The quality of
 22 life and economic health of Whatcom County communities depend on the
 23 maintenance of a safe and reliable water supply. All jurisdictions and water
 24 purveyors should cooperate to ensure the protection and quality of the area's water
 25 resources." ~~Five~~ specific policies address water, promoting inter-jurisdictional
 26 cooperation in conserving, protecting, and managing the water resource, and in
 27 reducing water pollution. The CWPP also support protecting wildlife habitat and
 28 corridors, natural drainage features, and "other environmental, cultural and scenic
 29 resources."

30 **GMA Requirements**

31 The GMA ~~also~~ requires Whatcom County to identify and manage critical areas in
 32 such a manner as to prevent destruction of the resource base and reduce potential
 33 losses to property and human life. The GMA has identified Critical Areas to include
 34 the following areas and ecosystems:

- 35 • Wetlands
- 36 • ~~Areas with a critical recharging effect on aquifers used for potable~~
 37 ~~water~~ Critical Aquifer Recharge Areas
- 38 • Fish and wildlife habitat conservation areas
- 39 • Frequently flooded areas
- 40 • Geologically hazardous areas: ~~(GMA Definition)~~

Background Sources

The background information contained in this chapter incorporates background information from the following documents:

- ~~Whatcom County Environmental Resources Report Series: Alluvial Fan Hazard Areas. Whatcom County Planning Department, August 1992.~~
- ~~Whatcom County Environmental Resources Report Series: Category I Wetlands. Whatcom County Planning Department, April 1992.~~
- ~~Whatcom County Environmental Resources Report Series: Wetlands in the Nooksack River Floodplain. Whatcom County Planning Department, December 1992.~~
- ~~Whatcom County Environmental Resources Report Series: Depressional Areas in the Nooksack River Floodplain. Whatcom County Planning Department, December 1992.~~
- ~~Whatcom County Environmental Resources Report Series: Hydrologic and Fishery Resources of Whatcom County. Whatcom County Planning Department, December 1994.~~

Reason for Deletion: These references are old. Newer, pertinent documents are referenced below and in the bibliography.

ENVIRONMENTAL SETTING

Whatcom County bedrock geology can be divided into five bedrock geologic provinces. From east to west these provinces are the Methow terrain, the Cascade Crystalline Core, the Northwest Cascades System, the Fraser Lowland, and the San Juan Island system. Tectonic activity over the past 15 million years has created the present North Cascades and the formation of Mount Baker, a 10,000-foot high composite volcano.

The mountains of Whatcom County, as well as the streams, lakes, valleys, ~~and~~ hills, and shorelines are the result of millions of years of geologic events. Over 2.5 million years ago during the Ice Ages, glacial ice invaded the Puget Sound lowlands from the north at least four times, with the last major glacial event, the Fraser Glaciation, ending approximately 12,000 years ago. A minor advance of glacial ice, the Sumas Advance, ended approximately 10,000 years ago. The ice formed from the accumulation of snow in the British Columbia Coast Range and interior of British Columbia. Numerous glaciers are still present within the mountains of Whatcom County, and some of these mountain glaciers formerly extended far down the mountain valleys of the County. The underlying bedrock was deeply eroded during these glacial events creating very steep mountainsides, and in some areas, particularly in northwestern Whatcom County, a thick sequence of glacial related sediments was deposited. The glacial ice was approximately 6,000 feet thick in the vicinity of Bellingham.

Two main glacial advances are the most important to our area, the Salmon Springs glaciation and the later Vashon glaciation. Each time the massive glacier advanced,

1 | it dammed up the Puget lowlands to form a huge lake. As the floating ice melted,
2 | sand, gravel, clay and occasional boulders would melt out of the ice and fall to the
3 | sea floor. This deposit, the Bellingham Drift, covers the ground surface over a large
4 | area of western Whatcom County. Each time the Ice Age glacier advanced, it also
5 | compacted underlying sediments with its great weight. It created a concrete-like
6 | material called "till" (also known as "hardpan") beneath it. Because the Bellingham
7 | Drift consists primarily of clay and silt, it is relatively impermeable; water tends to
8 | accumulate on the ground surface. Wetlands are common on the Bellingham Drift.

9

10 | On the bottom of the lake, "rock flour"~~---~~the finely ground remains of rocks
11 | pulverized by glacial action~~---~~settled out. These deposits became the familiar "blue
12 | clays" of the Puget lowland. The milky color of the Nooksack River is due to the
13 | same kind of rock flour, created by glacial activity on the slopes of Mount Baker.

14 | Additionally, each time the glacier retreated, water from the melting ice deposited
15 | thick layers of sand and gravel known as "outwash." The outwash areas are
16 | typically where we find our most productive aquifers, since these loose sands and
17 | gravel are porous and drain rapidly. While these areas absorb rainwater for our
18 | later use from wells, they are also vulnerable to contamination. An example of this
19 | phenomenon is found in the outwash sands and gravels resulting from the Sumas
20 | Advance. Large melt water streams and rivers flowed from this glacier depositing
21 | the Sumas Outwash sands and gravels. The Sumas Outwash sands and gravels
22 | make up the best non-~~flood~~-plain farmland in the County and some of the highest
23 | quality construction gravel deposits~~as well~~. Abandoned outwash channels were
24 | formerly used as sources of peat.

25 | Each of these glacial sediments—lake bed deposits, till and outwash~~---~~is present in
26 | various places from place to place and in varied combinations in Whatcom County.
27 | These sediments provide both the formations that hold the groundwater for many
28 | of the area's wells, and the parent material for most of the different soils.

29 | Out of these long physical processes a complex natural ecology has emerged that
30 | supports a diversity of wildlife. Many of our lakes, rivers, and streams support fish
31 | including, but not limited to, native species such as~~7~~ the five pacific salmon
32 | (Chinook, Coho, Sockeye, Chum, Pink) as well as Steelhead, Rainbow Trout,
33 | Cutthroat (coastal and resident), Bull Trout, and Dolly Varden. Every year salmon
34 | return to spawn in the streams and rivers of Whatcom County. Bufflehead and
35 | goldeneye ducks winter here. Additionally, numerous bird species including scoters,
36 | snow geese, trumpeter swans, canvasbacks, cormorants, grebes, loons, and other
37 | migrating waterfowl pass through every spring and fall as they travel between their
38 | breeding grounds in Alaska and Canada and their wintering grounds in California
39 | and Mexico. Mallards, Canada geese, great blue herons, and numerous songbirds
40 | live in the county year-round. Maintaining these unique resources is a high priority
41 | for both present and future county residents. Whatcom County is home to a distinct
42 | subspecies of the Great Blue Heron, which is the third largest colony in the Puget
43 | Sound area. The wetlands, fields, streams, and nearshore habitat in the county
44 | support many birds of special concern, such as the bald eagle (ESA threatened),
45 | the pileated woodpecker (candidate for State threatened list), and the peregrine

1 falcon (ESA monitored). The National Audubon Society has designated Semiahmoo,
2 Drayton Harbor, and Birch Bay as “important Bird Areas.”

3 **ENVIRONMENTAL MANAGEMENT**

4 **Introduction**

5 General environmental goals and policies are intended to provide guidance for
6 environmental management that will promote environmental protection and good
7 stewardship practices through a balance of public education and involvement;
8 incentives, acquisition and voluntary programs; land use planning and regulations;
9 environmental monitoring; and intergovernmental cooperation. These goals and
10 policies are also intended to provide guidance to County government as it assists its
11 citizens in maintaining a balance between individual property rights, economic
12 development and environmental protection.

13 **GMA Requirements**

14 See Appendix C.

15 **Background Summary**

16 Development in the last 100 years has had a significant impact on the natural
17 environment in Whatcom County. At the turn of the 20th century, the areas
18 surrounding Lynden, Sumas, and Ferndale were logged, drained and converted to
19 agricultural land. In the intervening years, many of the remaining forests were
20 logged, many streams re-routed and channelized, and much of the native
21 vegetation removed and replaced with a wide variety of introduced vegetative
22 types. Roads now crisscross most areas, with homes, farms, businesses, and
23 industries scattered throughout the county.

24 **Issue, Goals, and Policies**

25 There are designated many lands in Whatcom County that can still accommodate
26 extensive development. The-Whatcom eCounty also has areas that are sensitive to
27 human activity (wetlands, streams, lakes, marine shorelines) and lands that can
28 pose a hazard to the community (floodplains and unstable slopes). In these These
29 are the areas where development must be carefully planned or limited to maintain
30 environmental quality and public safety. This can be done through the creation and
31 implementation of goals and policies that seek to reduce hazards and prevent
32 adverse environmental impacts.

33 **Community and Environmental Protection**

34 The elements of the natural environment—water, air, soil, plants, and animals—are
35 interconnected and interdependent, functioning as one dynamic ecosystem.
36 Environmental resources within this ecosystem are extensive and, in some cases,
37 irreplaceable. They provide important beneficial uses to the community such as the
38 supply of clean drinking water; management of stormwater run-off and flood
39 hazard management~~control~~; support for a wide variety of fish and wildlife; fresh air
40 and a sense of place that residents invest in, enjoy, and expect.

1 Some of these same resources result in serious environmental constraints or pose a
 2 hazard to development and a danger to the community. Flooding in the Nooksack
 3 River is frequent and impacts much of the valley floor. There are numerous
 4 wetlands and hydric soils throughout the lowlands that provide critical wetland
 5 functions ~~but and are generally unsuitable for inhibit~~ development. The steep
 6 gradient and geologic structure of the mountain ranges in conjunction with heavy
 7 annual precipitation can contribute to slope instability and flood-prone drainage
 8 basins.

9 Much of the environmental degradation and destruction to property occurs as a
 10 result of a lack of ~~information knowledge~~ rather than willful action. Natural systems
 11 are subtle and complex. Too often both their benefits and hazards are not readily
 12 apparent to the community. Additionally, base-line information is not always
 13 available to help ~~identify project~~ the real costs or hazards of building in Whatcom
 14 County. There ~~is may be~~ a need for further research and education.

15 **Goal 11A: Protect natural resources and systems, life, and property**
 16 **from potential hazards.**

17 Policy 11A-1: Support good stewardship of Whatcom County lands, and apply
 18 this principle to the management of public lands.

19 Policy 11A-2: Protect the environment through a comprehensive program that
 20 includes voluntary activity, education, incentives, regulation,
 21 enforcement, restoration, monitoring, acquisition, mitigation,
 22 and intergovernmental coordination.

23 Policy 11A-3: Continue to identify and designate Environmentally Critical
 24 Areas and other important environmental features.

25 Policy 11A-4: Manage designated Environmentally Critical Areas (ECAs) as
 26 needed, to ~~minimize or~~ protect against environmental
 27 degradation and reduce the potential for losses to property and
 28 human life.

29 Policy 11A-5: Actively pursue voluntary, cooperative, and mutually beneficial
 30 efforts aimed at advancing county environmental goals.

31 Policy 11A-6: ~~Aim to meet or exceed Adopt in accordance with~~ national, state,
 32 and regional ~~regulations the required~~ air quality standards. Work
 33 with the Northwest Clean Air Agency to ensure compliance with
 34 applicable air quality standards. ~~Develop and implement~~
 35 ~~programs to monitor and assure compliance with those~~
 36 ~~standards.~~

37 Reason for change: No individual jurisdiction adopts its own air monitoring
 38 programs; the Northwest Clean Air Agency performs this role.

39 Policy 11A-7: Support efforts to educate and inform the public as to the
 40 benefits of a healthy and viable environment, their ecologically
 41 fragile areas, and their economic and social value.

- 1 | Policy 11A-8: Coordinate efforts with property owners, citizen groups, and
 2 governmental and non-governmental agencies in furthering
 3 Whatcom County's environmental goals and policies.
- 4 | Policy 11A-9: Cooperate with state and federal agencies and neighboring
 5 jurisdictions to identify and protect threatened and endangered
 6 fish and wildlife species and their habitats.
- 7 | Policy 11A-10: Support acquisition, conservation easements, open space, and
 8 other such programs to protect high-value natural areas as
 9 identified through the GMA planning process, the Natural
 10 Heritage Plan, the state Priority Habitats and Species (PHS)
 11 program, the Lake Whatcom Management Program, and other
 12 sources.
- 13 | Policy 11A-11: Designate high-value open space and natural areas for
 14 acquisition, conservation easements, open space and other such
 15 programs to protect these natural areas upon request or
 16 consent of the property owner.
- 17 | Policy 11A-12: Broadly inform the citizens of the county of the locations of
 18 potential development constraints associated with natural
 19 conditions. Information should include known natural hazards,
 20 and an assessment of the potential danger to both the property
 21 owner and the public.

22 Administration and Regulation

23 There are currently a multitude of regulations and administrative processes at the
 24 federal, state and local level that together have become excessive and difficult to
 25 understand. Conflicting regulations and complicated administrative processes can
 26 create undue hardship on community members and result in reduced levels of
 27 environmental protection. Regulatory inspection and enforcement of environmental
 28 regulations are currently inconsistent and lack effectiveness. The combination of
 29 complex regulations and inadequate enforcement have led to a lack of
 30 administrative predictability, widespread violations, and ultimately to environmental
 31 deterioration.

32 | **Goal 11B:** Simplify and harmonize regulations to address ~~Ease the~~
 33 ~~burden of excessive and~~ confusing regulations; in
 34 instances when they are clearly identified, relating to the
 35 identification, delineation, and protection of
 36 environmental features.

37 | Policy: 11B-1: Develop, as a significant primary component of a comprehensive
 38 environmental management program, non-regulatory measures
 39 that include voluntary activity, science-based education,
 40 incentives, restoration, acquisition, mitigation, and
 41 intergovernmental coordination.

- 1 Policy 11B-2: Provide incentives for good stewardship of the land through the
2 use of non-regulatory and innovative land use management
3 techniques.
- 4 Policy 11B-3: Support education as an important tool in developing public
5 appreciation for the value of natural systems and provide the
6 public with informational materials and presentations relating to
7 natural system functions, regulations, and issues.
- 8 Policy 11B-4: Promote cooperation and coordination among involved
9 government agencies when multiple agencies have jurisdiction
10 over aspects of a single project, **especially technical assistance**.
- 11 Policy 11B-5: Process the environmental review of building and development
12 permit applications within an established time-frame that is
13 predictable and expeditious.
- 14 Policy 11B-6: Provide clear, timely, appropriate, and understandable direction
15 to citizens, developers, and property owners.
- 16 Policy 11B-7: ~~Simplify~~ Keep regulations as simple as possible and establish
17 maintain effective inspection, compliance, and enforcement
18 measures.
- 19 Policy 11B-8: Recognize the policies of the Whatcom County Shoreline
20 Management Program as constituting a “Shoreline Element” of
21 this plan. The shoreline program regulations and policies shall
22 be considered to be consistent with this plan ~~until such time as~~
23 ~~any necessary amendments are made~~.

24 **The Environment and Property **Ownership Rights****

25 Prior to the 1970s, growth in Whatcom County was relatively slow and received
26 little management. As a result, private property owners were left to their own
27 resources as they determined how best to use their land. However, as increasing
28 numbers of people have moved to this area and settled, a greater demand has
29 been placed on Whatcom County's natural resources. The problems that arise from
30 this situation have caused many to realize that what one person does with his or
31 her property may have an impact on the larger environmental system that sustains
32 us as a community and on the ~~property~~ rights of other property owners. Land use
33 decisions can no longer be considered exclusively private matters. We are aware
34 that public actions impact every private citizen in Whatcom County and that private
35 actions may have public consequences as well. ~~Nevertheless, the right of the~~
36 ~~individual to use his or her property, within the bounds permitted by law, is a value~~
37 ~~supported by law and the community and must be recognized when making land~~
38 ~~use decisions in Whatcom County. To that end, the law must protect the public good~~
39 ~~from detrimental private actions.~~

- 40 **Goal 11C:** **In implementing ~~Whatcom County~~ environmental**
41 **policies, practice consideration for provide for protection**
42 **of private property rights and economic opportunities,**
43 **and plan appropriately for growth.**

- 1 Policy 11C-1: Actively pursue voluntary and cooperative efforts that advance
2 Whatcom County's goals in a mutually beneficial manner.
- 3 Policy 11C-2: ~~Review current comprehensive~~ When adopting new
4 environmental protection programs, ~~to ensure that they~~
5 consider multiple economic parameters including development
6 objectives and impacts and the economic benefits of the natural
7 environment as both a resource and an amenity.
- 8 Policy 11C-3: Emphasize an approach to environmental protection ~~by that~~
9 combines effective legal protections with encouraging the use
10 of conservation easements, open space taxation, land
11 acquisition, purchase/transfer of development rights, and other
12 mechanisms ~~to that~~ assist affected property owners. Consider
13 mechanisms to compensate affected property owners in the
14 event that the regulations implementing these Environmental
15 Goals and Policies prohibit or significantly restrict the use of
16 property as otherwise permitted by law constitute a "taking."

17 Climate Change

18 Climate change is a global phenomenon that has the potential for significant local
19 impacts to natural resources, ecosystem functions as well as human health,
20 infrastructure, and the economy. In Washington State, the Climate Impacts Group
21 (CIG), a consortium of scientists at the University of Washington, has done the
22 most extensive analysis of potential local climate change impacts in the Pacific
23 Northwest. Based on a range of climate change model projections as well as peer-
24 reviewed scientific publications, the CIG concludes that during the next 20-40 years
25 the Pacific Northwest climate may change significantly. See *Climate Change*
26 *Impacts and Adaptation in Washington State: Technical Summaries for Decision*
27 *Makers, Climate Impacts Group, University of Washington, December 2013.* The
28 CIG confirms that global climate models project mid-21st century temperatures in
29 the Pacific Northwest that are higher than the natural range of temperature
30 observed in the 20th century. The CIG reports that as a result of likely climate
31 change—causing slightly higher average annual temperature—impacts to the Pacific
32 Northwest will likely affect a broad spectrum of the natural environment, but most
33 notably changes to water resources, including:

- 34 • More precipitation falls as rain rather than snowfall in the Cascades due to an
35 increased snow-line elevation
- 36 • Decreased (winter) mountain snowpack and earlier (spring) snowmelt
- 37 • Higher winter streamflow in rivers that depend on snowmelt
- 38 • Higher winter streamflow in rain-fed river basins if winter precipitation
39 increases in the future as projected
- 40 • Earlier peak (spring) streamflow in rivers that depend on snowmelt
- 41 • Lower summer streamflow in rivers and streams
- 42 • Decreased water in summer for irrigation, fish, human consumption and
43 recreational use (more drought-like conditions)

- Scouring floods due to an increase in rain on snow events decimating salmon populations.

Climate change impacts are likely to include longer-term shifts in forest types and species, potentially increasing wildfire risk and greater exposure to insects and disease. Nearshore and riverine fisheries may be subjected to increased stress due to even lower average summer stream flows (and higher summer stream temperatures) and increased acidity in Puget Sound. Agricultural sector concerns include the cost of climate adaptation, development of more climate-resilient technologies and management and availability of adequate water supplies. Susceptibility to natural hazards is also expected to intensify due to climate change, including increased landslides, erosion and coastal and riverine flooding due to more winter rainfall and potential rising sea levels.

In 2007, Whatcom County completed a Climate Protection and Energy Conservation Action Plan that laid out specific actions and targets for reducing greenhouse gas emissions and increasing energy conservation efforts in response to potential climate change.

Reason for Change: Climate change was not addressed in the Comprehensive Plan

Goal 11CC Strengthen the sustainability of Whatcom County's economy, natural environment, and built communities by responding and adapting to the impacts of climate change.

Policy 11CC-1 Whatcom County's natural resource-based economic sectors, natural systems, water resources, infrastructure, emergency management and public health all face potentially noteworthy climate change related risks in the future. The County should consider potential long-range climate change implications into its on-going functional planning and implementation actions. The County should:

1. Study the resilience of its natural and built environments to the potential impacts of climate change;
2. Identify the relative vulnerability of these sectors to climate change; and
3. Examine the adaptive capacity of these sectors to cope with or mitigate climate change and take advantage of any beneficial opportunities.

Policy 11CC-32 Develop strategies that encourage a diversified and sustainable economy that is resilient to the impacts of climate change.

Policy 11CC-43 Promote the efficient use, conservation and protection of water resources.

Policy 11CC-54 Pursue strategies to reduce the vehicle miles traveled (VMT) in the county by encouraging expanded availability and use of public transportation, carpooling, and non-vehicular modes of transportation.

1 Policy 11CC-75 Establish land use patterns that minimize transportation-related
 2 greenhouse gas emissions and encourage the preservation of
 3 natural resource lands.

4 Reason for Change: Address most current scientific assessments of potential, local
 5 climate change impacts.

6 NATURAL HAZARDS

7 Introduction

8 The location, climate, and geology of Whatcom County combine to create many
 9 natural hazards to people and their developments. Earthquakes, volcanoes,
 10 landslides, and flooding ~~streams and rivers~~ are some of the major natural hazards
 11 found in our region. Additionally, old mines are scattered around the county that
 12 could be dangerous to the community. Natural Hazards goals and policies are
 13 intended to provide guidance to county government as it assists its citizens in
 14 effectively managing natural hazards in a manner ~~which~~ that minimizes the danger
 15 to each member of this community, while continuing to provide for economic
 16 opportunities.

17 Background Summary

18 Natural Hazards include the following (**Map 2711-4**):

19 **Landslide Hazards** – The geologically recent retreat of glaciers from the Whatcom
 20 County landscape, succeed by contemporaneous geomorphic processes of erosion,
 21 sediment transport, deposition, isostatic rebound and tectonic uplift, has left many
 22 hillsides over-steepened and susceptible to naturally occurring and human-
 23 triggered slope failure landslides and erosionearth movements. Several large, well-
 24 known landslides are presently active exist in Whatcom County, such as the Swift
 25 Creek Slide on Sumas Mountain and the Darrington Slide located in the upper Jones
 26 Creek Watershed. In addition, numerous large-scale, pre-historic slope failure
 27 deposits have been mapped by past workers and are readily identified in more
 28 recently available lidar imagery. Various slope failure processes contribute to the
 29 mosaic of landslide hazards present in the County the large slide on Slide Mountain
 30 south of Maple Falls. These larger land slides affect significant areas with and the
 31 potential exists for a multitude of impacts ranging from periodic small- to large-
 32 scale rockfall and slides, as well as the potential for massive debris slides and
 33 avalanches, destructive debris flows, and deep-seated earthflows, slumps and
 34 slides. deposits. Numerous smaller These landslides processes act on both the
 35 large- and small-scale, and though much less catastrophic in nature, smaller
 36 landslides occur more frequently and pose a continually hazard to County residents
 37 and infrastructurealso exist in the county, affecting smaller areas. In addition, the
 38 presence of eCertain types of geologic conditions and formations are common
 39 culprits in the occurrence of landslides, namely the Chuckanut Formation and the
 40 Darrington Phyllite, but are also frequently observed in unconsolidated glacial
 41 sediments, in the presence of day-lighting groundwater seams and springs, on
 42 slopes in excess of 35 percent, along coastal bluffs, and in areas of fluvial
 43 erosionare susceptible to land sliding under certain conditions. In the 1970s, a

1 ~~portion of Interstate 5 south of Bellingham collapsed where the freeway crossed~~
2 ~~portions of unstable Chuckanut Formation.~~

3 Reason for Change: Updated due to updated knowledge.

4 **Alluvial Fan Hazards** – Alluvial fan hazards areas exist where steep mountain
5 streams flow onto floodplains or into lakes and deposit debris and sediment.
6 Because these streams are steep and flow in confined canyons, they can carry more
7 sediment and debris than a similar-sized stream flowing over flat land. During a
8 large storm, streams on alluvial fans can create catastrophic flooding and debris
9 floods, such as were experienced in 1983 in the Lake Whatcom area. During this
10 storm event, the Sudden Valley development on Lake Whatcom incurred significant
11 damage to property from flooding and debris flows on the Austin Creek alluvial fan.

12 **Flood Hazards** – Heavy winter rains and a transient snowpack combined with the
13 steep and sometimes unstable slopes of Whatcom County's foothills, create
14 conditions ideal for flooding and debris flows along many of our rivers and streams.
15 The Nooksack River floodplain alone covers 38,000 acres in Whatcom County. In
16 1989 and 1990, the Nooksack River overflowed and flooded lowland Whatcom
17 County causing millions of dollars of damage. During some extreme floods, the
18 Nooksack River overflows near Everson and adversely impacts residents along
19 Johnson Creek in Sumas, and in the Abbotsford area of British Columbia. It is
20 predicted that climate change will exacerbate flooding, due to increased tides and
21 changes in rainfall patterns. Significant damage may result from ~~these such~~ floods.
22 In 1991, Whatcom County formed a county-wide Flood Control Zone District to
23 address the major flooding issues in the county.

24 **Volcanic Hazards** – The presence of Mt. Baker is an asset to our region. Its
25 10,778-foot peak is one of the dominant features of Whatcom County's landscape.
26 However, Mt. Baker is also considered one of the most potentially active volcanoes
27 in the Cascade Range, and of the six major volcanoes in the range, Mt. Baker is
28 considered by geologists to be very hazardous during and after an eruption. ~~The~~
29 ~~frequency of Mt. Baker volcanic events averages once every 200 years. The last~~
30 ~~recorded significant event was about 200 years ago.~~ Pyroclastic flows, ash flows,
31 and especially volcanic mudflows, (also called known as lahars,) are believed to be
32 the greatest dangers to human life and development in Whatcom County. Geologic
33 evidence indicates that an eruption on Mt. Baker caused a major ~~mudflow-lahar~~
34 about ~~6,000-6,600~~ years ago ~~which that~~ inundated the Middle Fork Nooksack Valley
35 from its headwaters downstream past the confluence with the North Fork at
36 Welcome. The same ~~mudflow, or-lahar,~~ is now known to have been over 300 feet
37 deep in the upper reaches of the Middle Fork extended as far east-west as Nugent's
38 Corner, ~~and likely traveled to the Puget Sound.~~ A major ~~mudflow-lahar~~ along the
39 Nooksack would divert the river from its channel and cause mass flooding.
40 Fortunately, volcanic eruptions are infrequent with periods of hundreds and
41 thousands of years between events, but this infrequency also makes forecasting a
42 volcanic eruption extremely difficult. However, a major eruption of Mt. Baker would
43 pose a serious threat to human life and property. The deeply weathered nature of
44 the rocks forming Mt. Baker may also fail, triggering a mudflow that would travel
45 rapidly down the stream channels ringing the volcano and result in damage similar
46 to that from a volcanic eruption trigger. Mapping over the past decade of other

1 Cascade volcanoes has demonstrated massive mudflows extending from the
2 volcanoes to Puget Sound, from Mount Rainier and Glacier Peak.

3 Reason for Change: According to web research, the event frequency doesn't appear
4 to be true; in fact there doesn't appear to be a frequency to the known events.

5 **Earthquake Hazards** – Whatcom County lies within the influence of the
6 convergent plate margin between the Pacific and North American Plate termed the
7 Cascadia Subduction Zone. Regionally-extensive and damaging, a major
8 earthquakes, termed mega-thrusts, are possible when stress generated between
9 the subducting Pacific Plate and over-riding North American Plate is released. fault
10 area off the coast of western North America. The Cascadia subduction zone has the
11 potential for A mega-thrust earthquake is capable of generating an earthquake of
12 magnitude 9, eight or greater, and research has indicated an approximate
13 recurrence interval of earthquakes every 500-600 years. Associated with the
14 stresses generated at the convergent plate margin are shallow, crustal faults that
15 are mapped This type of earthquake is called a great interplate earthquake.
16 throughout Whatcom County. Earthquake activity on these fault systems is much
17 more frequent than that observed at the Cascadia Subduction Zone, and the has
18 recently experienced much smaller interplate earthquakes near Deming area is
19 considered one, fortunately with little damage to property. Deming is one of the
20 most seismically active areas in Washington. Recent research has shown that these
21 crustal faults are capable of generating a magnitude 7 earthquake with an average
22 recurrence interval of These types occur more frequently (30 to 50 years) than the
23 great interplate earthquakes. While all buildings are susceptible to damage from
24 seismic-shaking earthquakes, structures built on peat soils, and large areas of non-
25 structural fill, or liquefiable soils are prone to more severe shaking during an
26 earthquake. If the shaking is strong enough, or of sufficient duration, structures
27 may collapse or become damaged due to building fatigue, ground
28 settlement/liquefaction, and/or lateral spreading. In addition to seismic hazards
29 posed by the Cascadia Subduction Zone, a significant mega-thrust earthquake has
30 the potential to generate a large and destructive tsunami that has the potential to
31 affect most low-bank areas of the County.

32 Reason for Change: Updated due to updated knowledge.

33 **Mine Hazards** – Mine hazard areas are sites of abandoned underground mine
34 shafts, adits, and mine tailings. Coal mining was a major industry in Whatcom
35 County in the early part of the 20th century, and several major mines were
36 developed in various parts of the county. All of the formerly active mines are now
37 no longer worked and are abandoned. For the most part these mine locations are
38 known and mapped, such as the extensive coal mines under the northern part of
39 the City of Bellingham and in the Blue Canyon area of South Lake Whatcom.

40 **Issues, Goals, and Policies**

41 **Landslides** – Siting human development on or adjacent to known landslide hazard
42 areas can create health and safety risks for humans and their property. on and
43 around these hazards, especially during The risks can be elevated due to extreme
44 weather events and earthquakes, but may also occur with little or no warning. or

1 ~~in the case of the Swift Creek Landslide~~~~Sumas Mountain, the release of asbestos-~~
 2 ~~laden sediment poses an additional risk to public health.~~ Development activity can
 3 ~~also~~ de-stabilize naturally unstable slopes and impact natural systems. However,
 4 predicting the exact timing, location, or extent of a damaging landslide is difficult,
 5 and in particular areas of the County landslide hazards are not possible to
 6 completely mitigate or avoid. In some circumstances, the development of upland
 7 properties may place ~~While upslope landowners may develop their properties with~~
 8 ~~little or no on-site impacts,~~ downslope neighbors and natural systems ~~may be~~
 9 ~~placed~~ at risk from rockfall or landslides ~~as a result of the upslope land~~
 10 ~~development.~~ A similar relationship holds true for development at the toe of a
 11 potentially unstable slope. In either event, development in proximity to landslide
 12 hazards must proceed in consideration of potential impacts in order to ensure life
 13 safety and preserve and protect public and private infrastructure.

14 Reason for Change: Updated due to updated knowledge.

15 **Alluvial Fans** – Because alluvial fan areas are associated with streams, are
 16 generally gently sloping and elevated above the adjacent flood-plain, and are
 17 located at the base of mountains, they have historically been popular places to
 18 develop. However, once every 10-25 years, a large storm event occurs in our area
 19 and creeks flood homes and developments, causing damage to property, natural
 20 systems, and sometimes loss of lives.

21 **Flooding** – Floodwaters from the Nooksack River can damage rural homes,
 22 agricultural areas, businesses, and industries in the small cities situated along the
 23 river, ~~;~~ fish and wildlife habitat and other natural systems, ~~;~~ and disrupt
 24 transportation and utility corridors. Storm tides can flood homes and roads along
 25 low, exposed marine shorelines in the Birch Bay, Sandy Point, Point Roberts, and
 26 Gooseberry Point areas. Homes along Lake Whatcom, Lake Samish, and Cain/Reed
 27 Lakes have also been impacted by flooding during extreme storm events. Property
 28 and public safety are also impacted by rapid channel morphology events. Bank
 29 protection projects offer only limited protection and often backfire. The only sure
 30 way to protect property and public safety is to strongly discourage new
 31 development in the River Migration Zone.

32 **Volcanoes** – A volcanic eruption or mudflow at Mount Baker could potentially
 33 severely affect river flow on the Nooksack River or Baker River and cause severe
 34 property damage near the volcanoes or along mudflow-lahar routes.

35 **Earthquakes** – A major earthquake ~~could~~ may likely and significantly affect
 36 Whatcom County. If the shaking is strong enough, buildings may collapse, roads
 37 could be damaged, and/or communications, power, and utilities could be severely
 38 disrupted, mud and rock slides could occur on unstable slopes, and local sea levels
 39 may change as shorelines assume altered post-quake elevations.

40 Reason for Change: Recommended changes by the Marine Resources Committee.

41 **Mines** – Some abandoned mine areas may pose a risk of ground subsidence from
 42 the collapse of abandoned mine shafts. Air and water pollution may also be hazards
 43 associated with abandoned mine tailings and trapped toxic gases. Development on
 44 or near mine hazards could be adversely impacted.

1 **Balanced Management** – A central issue common to all development in natural
 2 hazard areas is the need for Whatcom County to balance the responsibility of local
 3 government to protect the public interest and provide for a safe and healthy
 4 environment while safeguarding the rights of private property owners.

5 **Economic Impact** – Damage to private and public property resulting from the
 6 siting of human development in areas of natural hazards is significant to the people
 7 of Whatcom County. The 1990 Nooksack River floods caused over \$20 million
 8 | dollars of damage to roads, bridges, buildings, and farmland. Disaster relief efforts
 9 are expensive and dangerous to conduct during an emergency. Public efforts to
 10 reduce hazards, such as the establishment of the Flood Control Zone District, are
 11 also expensive.

12 **Goal 11D:** **Minimize potential loss of life, damage to property, the**
 13 | **expenditure of public funds, and degradation of natural**
 14 **systems resulting from development in hazardous areas**
 15 **such as floodplains, landslide-prone areas, seismic**
 16 **hazards areas, volcanic impact areas, abandoned mine**
 17 | **locations, potentially dangerous alluvial fans, and other**
 18 **known natural hazards by advocating the use of land**
 19 **acquisition, open space taxation, conservation**
 20 **easements, growth planning, regulations, and other**
 21 **options to discourage, or minimize development, or**
 22 **prohibit inappropriate development, in such areas.**

23 Reason for change: We do use regulations as well as these other measures to
 24 achieve this.

25 | Policy 11D-1: ~~Avoid or m~~Minimize ~~or avoid~~ public investments for future
 26 infrastructure development on known natural hazard areas.

27 | Policy 11D-2: ~~Utilize~~Use the Best Available Science to research and investigate
 28 the nature and extent of known natural hazards in the county
 29 and make this information available to the general public and
 30 policy makers in an accessible and understandable form.

31 Policy 11D-3: Broadly inform the citizens of the county of the locations of
 32 known natural hazards, and the potential for adverse impacts of
 33 | such natural hazards to the health, safety, and welfare of people
 34 and their property.

35 | Policy 11D-4: ~~Formally e~~Establish acceptable levels of public risk for
 36 development in known natural hazard areas based upon the
 37 | nature of the natural hazard, and levels of public risk, and
 38 establish maintain regulatory criteria for approving,
 39 disapproving, conditioning, or mitigating development activity.

40 | Policy 11D-5: Allow ~~all~~permitted uses that do not require human habitation ~~as~~
 41 so long as probable adverse off-site impacts to other properties
 42 or natural systems (those impacts resulting from the interaction
 43 of the natural hazard and the proposed development) are
 44 minimized or mitigated. Probable adverse impacts should be

1 prevented or avoided in habitats of ~~State~~ ~~sensitive~~ or federally
 2 listed sensitive plant and animal species.

3 Policy 11D-6: Prohibit the siting of critical public facilities in known natural
 4 hazard areas unless the siting of the facility can be shown to
 5 have a public benefit ~~which~~ that outweighs the risk of siting in
 6 the particular hazard area.

7 ~~Policy 11D-7: Develop a comprehensive land use management program~~
 8 ~~consistent with the findings and recommendations of the~~
 9 ~~Comprehensive Flood Hazard Management Plan.~~

10 Reason for Change: Similar to new policy 11D-15.

11 Policy 11D-~~87~~: Maintain ~~Develop~~ a comprehensive program of regulatory and
 12 non-regulatory mechanisms to achieve Natural Hazard goals and
 13 policies. This program should include such mechanisms as
 14 education, tax incentives, zoning, land-use regulations,
 15 conservation easements, purchase of development rights,
 16 transfer of development rights, and public acquisition.

17 Policy 11D-~~98~~: ~~Review and revise~~ Be consistent with the Natural Hazard goals
 18 and policies and consider the locations of Natural Hazard Areas
 19 when establishing or changing zoning patterns and densities.

20 Reason for Change: Policies 9-15, below, were moved from the Action Items section
 21 which is being deleted.

22 ~~Policy 11D-109: To address the causes of flooding and avoid expensive and~~
 23 ~~maintenance-intensive bank protection measures, the County~~
 24 ~~shall~~ should prioritize its floodplain property acquisition program
 25 ~~and add an emphasis of~~ and emphasize restoring river
 26 ~~connectivity to historic side channels and floodplain areas. This~~
 27 ~~approach addresses the causes of flooding in contrast to~~
 28 ~~expensive and maintenance intensive bank protection measures.~~

29 Policy 11D-10: Take steps to discourage additional floodplain development.

30 Policy 11D-11: Require applicants for development permits located in natural
 31 hazard areas to provide development plans designed to
 32 minimize the potential to exacerbate the natural hazard as well
 33 as the risk of damage to property or threats to human health
 34 and safety. In natural hazard areas where engineering solutions
 35 cannot be designed to withstand the forces expected to occur
 36 under the design event of a particular natural hazard, or off-site
 37 adverse impacts to adjacent properties or natural systems
 38 cannot be adequately mitigated, Whatcom County may deny
 39 development permits intended for permanent or seasonal
 40 human habitation.

41 Policy 11D-132: Consider conducting a public process with affected citizens,
 42 technical experts, and decision-makers to establish
 43 recommended levels of public risk for each of the identified

1 natural hazards. In developing recommended levels of public
 2 risk for natural hazards, consider the appropriate variables
 3 affecting developments in hazardous areas. These variables may
 4 include:

- 5 • Specific types of risk associated with the particular hazard
6 area.
- 7 • The gradation of hazards associated with a particular geo-
8 hazard.
- 9 • Level of detail necessary to map hazard areas.
- 10 • Different levels of risk associated with different ownership
11 classes (e.g. public ownership versus private ownership).
- 12 • Different levels of risk associated with different types of
13 land uses.
- 14 • Mitigation measures related to specific adverse impacts of
15 development in hazard areas.

16 Once a set of risk levels have been identified, propose these risk levels for adoption
 17 by the County Council as the level to which future development
 18 must be designed and appropriate locations for them.

19 Policy 11D-143: ~~Formally~~ Consider establishing acceptable levels of public risk for
 20 use in approving and conditioning development activity in
 21 known natural hazard areas. The established level of risk may
 22 be expressed as the potential hazard posed as determined by
 23 scientific and historical methods applicable to each specific
 24 natural hazard.

25 Policy 11D-154: Review the findings and recommendations of alluvial fan hazard
 26 evaluations and make appropriate recommendations for land
 27 use and zoning regulations to the County Council to assist in
 28 reducing the hazards posed on these fans. Whatcom County has
 29 completed or nearly completed alluvial fan evaluations of
 30 Canyon Creek, Jones Creek, and Glacier-Gallop Creeks.

31 Policy 11D-165: Review the findings and recommendations of the
 32 Comprehensive Flood Hazard Management Plan (CFHMP) and
 33 make appropriate recommendations for land use and zoning
 34 regulations to the County Council to assist in the
 35 implementation of the CFHMP.

36 Reason for Change: Policies 9-15, above, were moved from the Action Items
 37 section which is being deleted.

1 WATER RESOURCES

2 Introduction

3 Water resources refer to the numerous surface waters such as lakes, streams,
4 wetlands, groundwater aquifers, estuaries, and marine water bodies within
5 Whatcom County (**Map 2411-1**). These water bodies are often integrally linked
6 through the complex network referred to as the water cycle. The water cycle
7 describes the series of transformations that occur in the circulation of water from
8 the atmosphere onto the surface and into the subsurface regions of the earth, and
9 then back from the surface to the atmosphere. Water resources of Whatcom County
10 provide natural beauty, recreation, habitat for fish and wildlife, water for
11 drinking, agriculture, and industry, and other benefits essential to the quality of
12 life and economic health of the community. The quality of life and economic health
13 of our county's communities depend on the maintenance of a safe and reliable
14 water supply. Decisions affecting any element of the water environment must be
15 based on consideration of the effects on other elements.

16 Background Summary

17 Whatcom County has 16 major freshwater lakes, 3,012 miles of rivers and streams,
18 over 37,000 acres of wetlands, 134 miles of marine shoreline, and aquifers
19 containing an undetermined amount of groundwater. These water resources serve
20 multiple uses including providing a source of drinking water for the people of
21 Whatcom County. Surface water sources such as Lake Whatcom, the Nooksack
22 River, and Lake Samish provide water to more than half the county residents with
23 the remainder relying on groundwater either from individual wells or from about
24 300 public water systems. Agriculture relies on both ground and surface water for
25 irrigation, drinking water for livestock, and facility wash down. Businesses and
26 industries may also require water, sometimes in substantial quantities, ~~from~~
27 as well as and potable supplies. Water is also essential to meet many of
28 what are referred to as "in-stream" uses, such as ~~for~~ recreation, shellfish growing
29 and harvesting, ~~habitat for~~ fish and wildlife habitat, aesthetics, and other uses and
30 benefits.

31 Groundwater is contained in aquifers, which are subterranean layers of porous rock
32 or soil. Most of the surficial aquifers in Whatcom County are replenished by
33 rainwater, ~~though some may contain water trapped during glacial periods~~. Aquifers
34 are often integrally linked with surface water systems and are essential for meeting
35 in-stream and out-of-stream water needs such as for drinking water, agriculture,
36 other and industry, and other uses.

37 Rainfall that ~~does not soak into the ground or evaporate is regarded as surface~~
38 water and runs into drainage courses such as, ditches, streams, wetlands, rivers,
39 lakes, and the Strait of Georgia supports local surface and marine waters. Natural
40 ~~and manmade~~ drainage systems have many important functions, including storing
41 excess water flow, purifying surface water, recharging groundwater, conveying
42 water, and supporting important biological activities. As more areas in Whatcom
43 County are being urbanized, natural water resource systems are being replaced
44 with built systems, leading to permanent changes in hydrology.

1 | Whatcom County government has a major role in helping to maintain these benefits
2 through its many responsibilities and programs, particularly in the areas of health,
3 safety, land use, and development. The intent of the following goals and policies is
4 to provide guidance to Whatcom County government as it assists its citizens in
5 effectively managing our water resources in a manner that ensures that the
6 benefits of those resources are maintained far into the future. The water resource
7 section focuses primarily on groundwater and surface water management. Surface
8 water management relates generally to watershed protection and
9 stormwater/drainage systems. However, some policy direction may indirectly be
10 provided for areas such as wetlands, estuaries, streams, and marine waterbodies
11 within the Water Resource section. Some of these areas are covered in more detail
12 in other sections within the Environment Chapter.

13 Whatcom County Water Resource Programs

14 Reason for Change: The following text describing County water programs has been
15 added to describe the current environment and activities.

16 WRIA 1 Watershed Management Project

17 The WRIA 1 Watershed Management Project is the result of the 1998 Washington
18 State Watershed Management Act, which required all participating local
19 governments to address water quantity, with the option of addressing water
20 quality, instream flows, and fish habitat. The WRIA 1 Watershed Management
21 Project has brought together citizens, local governments, tribes, and state and
22 federal agencies to address these issues.

23 The framework for watershed management in the state is based on geographic
24 areas known as Water Resource Inventory Areas (WRIAs). WRIA 1 includes the
25 Nooksack River basin and several adjoining smaller watersheds, such as the coastal
26 drainages of Dakota and California Creeks, as well as Lake Whatcom.

27 Watershed planning in WRIA 1 started in 1998 with the signing of a Memorandum
28 of Agreement (MOA) between the Initiating Governments. In the WRIA 1 the
29 Initiating Governments are Whatcom County, City of Bellingham, Public Utility
30 District No. 1, Lummi Nation, and Nooksack Tribe (the latter joining slightly later
31 through a Letter of Agreement). The role of the Initiating Governments was to
32 review a recommended Watershed Plan and take it to their governments' councils
33 for adoption.

34 WRIA 1 Joint Board

35 In 1999, an Interlocal Agreement further formalized the government-to-
36 government relationship essential to the tribes' participation in the process by
37 creating a Joint Board. The Joint Board is comprised of the Initiating Governments,
38 including the mayor of the City of Bellingham, executive for Whatcom County,
39 manager of Public Utility District No. 1, and designated policy representatives of
40 Lummi Nation and Nooksack Tribe. The Board manages the project's administrative
41 functions such as contracts and budgets. Members of the Joint Board also sit on the
42 Joint Policy Boards.

WRIA 1 Joint Policy Boards

The WRIA 1 Joint Policy Boards are comprised of members of the WRIA 1 Joint Board and Salmon Recovery Board. This organizational level interacts with federal, state, and regional organizations at a policy-level and provides policy related direction to staff for purposes of incorporating regional issues into work plans, programs, etc. Additionally, the Joint Policy Boards:

- Endorse programs/actions to forward to Legislative Bodies, as applicable
- Provide WRIA 1 programs policy direction
- Meet and discuss watershed and salmon program topics as joint policy boards with decision-making of each policy board retained.

Local Integrating Organization (LIO)

The Whatcom Local Integrating Organization (LIO) is a function of the WRIA 1 Watershed Joint Board and WRIA 1 Salmon Recovery Board (Joint Policy Boards). Local integrating organizations are designated by the Puget Sound Partnership. The two WRIA 1 Boards accepted the function of the Whatcom LIO in October 2010 under the integrated program structure, and was officially recognized by the Puget Sound Partnership's Leadership Council in November 2010. The purpose of the Whatcom LIO is to coordinate implementation of Puget Sound Action Agenda priorities that are consistent with or complement local priorities. One of its functions is to provide a local update to the Action Agenda for Puget Sound. Local updates are intended to identify local priorities in the form of near-term actions (NTAs), which are priority actions with measurable outcomes that can be implemented in the next two years and that align with strategies in the Action Agenda for Puget Sound.

WRIA 1 Watershed Management Plan

The WRIA 1 Watershed Management Plan was completed in 2005 through the cooperation of local stakeholders and governments. It provides a roadmap for addressing water quantity, water quality, instream flow, and fish habitat challenges. The goals of the WRIA 1 Watershed Management Project are to have water of sufficient quantity and quality to meet the needs of current and future human generations, including the restoration of salmon, steelhead, and trout populations to healthy harvestable levels, and the improvement of habitats on which fish and shellfish rely. These goals are addressed more specifically below:

- **Water Quantity** – To assess water supply and use, and develop strategies to meet current and future needs. The strategies should retain or provide adequate amounts of water to protect and restore fish habitat, provide water for future out-of-stream-uses, and ensure that adequate water supplies are available for agriculture, energy production, and population and economic growth under the requirements of the state's Growth Management Act.
- **Water Quality** – To ensure that the quality of our water is sufficient for current and future uses, including restoring and protecting water quality to meet the needs of salmon and shellfish, contact recreational uses, cultural

1 uses, protection of wildlife, providing affordable, safe domestic water
 2 supplies, and other beneficial uses. The initial objectives of the water quality
 3 management strategy will be to meet the water quality standards.

- 4 • **Instream Flow** – To supply water in sufficient quantities to restore salmon,
 5 steelhead, and trout populations to healthy and harvestable levels and
 6 improve habitats on which fish rely.
- 7 • **Fish Habitat** – To protect or enhance fish habitat in the management area
 8 and to restore salmon, steelhead, and trout populations to healthy and
 9 harvestable levels and improve habitats on which fish rely.

10 In 2010, the WRIA 1 Joint Board adopted a work plan, budget and financing
 11 strategy, called the Lower Nooksack Strategy, to advance a negotiated settlement
 12 of Tribal and state in-stream flow water rights on the mainstem of the Nooksack
 13 River, while maximizing the economic and environmental benefits of out-of-stream
 14 water use in the Lower Nooksack sub-basin. The Joint Board adopted the Lower
 15 Nooksack Strategy consistent with WRIA 1 Watershed Management Plan priorities.

16 Lower Nooksack Strategy Objectives:

- 17 • Develop and implement a process for negotiating settlement of water rights
 18 on the Mainstem Nooksack River.
- 19 • Update and verify the Lower Nooksack River sub-basin water budget and
 20 develop a groundwater model.
- 21 • Determine out-of-stream water user needs:
 - 22 ○ Public water system needs determined by updated the Whatcom
 23 County Coordinated Water System Plan (CWSP).
 - 24 ○ Other out-of-stream user needs (e.g., agriculture, private domestic
 25 wells, industrial, etc.) determined through a regional water supply
 26 planning process.
- 27 • Continue and, if appropriate, enhance targeted streamflow and water quality
 28 sampling.
- 29 • Advance work on tools that foster water resource allocations consistent with
 30 long-term economic and environmental land-use goals for implementation in
 31 five years.

32 Lake Whatcom Watershed Management

33 Reason for Change: The below text regarding Lake Whatcom was moved from
 34 Chapter 2 to this chapter.

35 Lake Whatcom is large multi-purpose reservoir that is the source of drinking water
 36 for the City of Bellingham, Lake Whatcom Water and Sewer District, several other
 37 smaller water districts/associations, and about 250 homes that draw water directly
 38 from the lake. All told, the lake provides water to about half the population of
 39 Whatcom County.

1 Lake Whatcom is a multiple use lake and watershed. In addition to providing water
2 for drinking, commercial and industrial uses, the lake is used for boating,
3 swimming, and fishing. The majority of the watershed is forested, mainly
4 surrounding the large southernmost portion of the lake. Other land uses include
5 residential development (approximately 5,0300 homes are located within the
6 watershed), limited agriculture and commercial development, parks, and other
7 public facilities. The on-going management challenge is trying to determine the
8 extent to which these practices can occur while maintaining safe, clean drinking
9 water. The challenge is further complicated by possible requirements related to the
10 Endangered Species Act, tribal water rights, and the potential impact these issues
11 may have on how the City's diversion from the Nooksack River is operated.

12 The City of Bellingham and Lake Whatcom Water and Sewer District are responsible
13 for ensuring drinking water standards are met for their customers. To date water
14 supplies have consistently met standards. The ability to continue to economically
15 meet drinking water standards requires maintaining source water that requires
16 minimal treatment. For this reason the City of Bellingham maintains an on-going
17 source water-monitoring program. Other agencies including Western Washington
18 University, Department of Natural Resources, Department of Fish and Wildlife,
19 Department of Ecology, Lake Whatcom Water and Sewer District, and Whatcom
20 County, have also conducted monitoring, studies, and/or evaluations of the lake
21 and watershed.

22 ~~Lake Whatcom is the drinking water source for approximately half of Whatcom~~
23 ~~County. Recent sStudies on Lake Whatcom conducted over a number of years~~
24 ~~indicate water quality in the lake has declined. Oxygen levels in Lake Whatcom are~~
25 ~~declining to lower levels, and are declining faster than in the past. In 19971998,~~
26 ~~the Washington State Department of Ecology listed Lake Whatcom as an impaired~~
27 ~~water body and placed Lake Whatcom on the Federal Clean Water Act 303(d) list~~
28 ~~because of low oxygen levels in the Lake and high bacteria levels in streams that~~
29 ~~flow into the Lake. The 303(d) listing requires the establishment of a Total~~
30 ~~Maximum Daily Loads (TMDLs) that designates loading capacity of the lake such~~
31 ~~that there will be no measurable change in oxygen levels from natural lake~~
32 ~~conditions. The TMDL goals will require a variety of planning, pollution prevention,~~
33 ~~pollution reduction and technical approaches. Meeting the TMDL goals will be~~
34 ~~required in order to stabilize water quality in Lake Whatcom. The Department of~~
35 ~~Ecology issued the "Lake Whatcom Watershed Total Phosphorus and Bacteria Total~~
36 ~~Maximum Daily Loads: Volume 1, Water Quality Study Findings" in 2008. This study~~
37 ~~documented that Lake Whatcom is impaired for dissolved oxygen due to~~
38 ~~phosphorus loading and that streams flowing into Lake Whatcom do not meet fecal~~
39 ~~coliform bacteria standards. Loading capacities for total phosphorus and bacteria~~
40 ~~reduction targets were set forth in this document. In 2013 The Department of~~
41 ~~Ecology issued a draft "Lake Whatcom Watershed Total Phosphorus and Bacteria~~
42 ~~Total Maximum Daily Loads: Volume 2, Water Quality Improvement Report and~~
43 ~~Implementation Strategy." in 2013. This report identifies how much phosphorus can~~
44 ~~be discharged to the Lake and identifies how the bacteria load should be allocated~~
45 ~~between the County and City of Bellingham, in order to meet water quality~~
46 ~~standards.~~

1 A significant cause of declining oxygen levels has been from residential
2 development in the watershed. Past development permitted by the City of
3 Bellingham and Whatcom County has led to increased phosphorus loading into the
4 lake, which [stimulates algae growth. Bacteria that consume the dying algae deplete](#)
5 [the dissolved oxygen, leading to in turn has led to](#) lower oxygen levels in the lake.
6 Past poorly managed forest practices may have led to significant increases in
7 phosphorus loading to the lake.

8 In November/December 1992, a joint resolution was passed by the Bellingham City
9 Council, Whatcom County Council, and [the Lake Whatcom Water and Sewer District](#)
10 [\(formerly Water District 10\)](#) Commissioners, which reaffirmed this position with six
11 general goal statements and a set of specific goal statements in various categories.
12 The specific goal statements for urbanization were the following:

- 13 • Prevent water quality degradation associated with development within the
14 watershed.
- 15 • Review and recommend changes in zoning and development potential that
16 are compatible with a drinking-water reservoir environment.
- 17 • In addition to zoning identify and promote other actions to minimize potential
18 for increased development in the watershed (i.e. land trust, development
19 rights, cost incentives, etc.).
- 20 • Develop specific standards which reduce the impacts of urbanization, such as
21 minimal lot clearing; clustered development to reduce infrastructure;
22 collection and treatment of stormwater before entering the lake.
- 23 • Develop appropriate interlocal agreements with governing agencies to
24 prohibit the potential for additional development once an agreed upon level is
25 set.

26 The joint resolution included goals for watershed management that extended
27 beyond urbanization. Goals were included for stormwater management, on-site
28 waste systems, conservation, forest management, spill response, hazardous
29 materials transport and handling, data/information management, education/public
30 involvement, and other topics. A joint strategy was agreed to for developing
31 specific plans to meet the adopted goals. Eight high priority goals were selected
32 first and plans have been completed and jointly adopted for each of the goals.

33 In 1998, the City, County, and District 10 formalized their joint commitment to
34 protect and manage the lake through the joint adoption of an interlocal agreement
35 and allocation of funding toward protection and management efforts in the
36 watershed. A five-year program plan was developed for ten program areas. Specific
37 priority was placed on activities related to watershed ownership, stormwater
38 management, and urbanization/land development.

39 The watershed contains four developed areas: the City of Bellingham, which
40 straddles the upper portion of the northern-most basin of the lake; Geneva, which
41 is immediately south and east of Bellingham's city limits and is part of the city's
42 urban growth area; Hillsdale, which is immediately north and east of Bellingham's
43 city limits and is also part of the city's urban growth areas; and the Sudden Valley
44 Rural Community. In addition, it includes a variety of other zones, including

1 resource, rural, and residential rural zones. ~~Over~~ Outside the Bellingham City limits,
2 approximately 70%75% of the watershed is in Forestry zoning and more than
3 75%73% of the current land use is forestry.

4 ~~In 2003, there were approximately 2,730 existing dwelling units in the Lake~~
5 ~~Whatcom watershed located outside of the Bellingham UGA. Under the zoning~~
6 ~~adopted in January 2004, the gross potential build-out in this area is about 6,507~~
7 ~~total dwelling units. Therefore, even under the more restrictive zoning adopted in~~
8 ~~January of 2004, there could be a significant amount of new development in the~~
9 ~~watershed.~~

10 Water and sewer service are provided by the Lake Whatcom Water and Sewer
11 District ~~Water District 10~~. Capacity problems in the district's sewer line, which
12 serves Geneva and Sudden Valley, have caused overflows into the lake in the past.
13 An aggressive program to preclude stormwater infiltration has eliminated the
14 overflow problems to a large extent. In addition, the district has a contractually
15 limited flow capacity to Bellingham. The Lake Louise Road sewage interceptor was
16 constructed in January 2003 to carry waste water from Sudden Valley and Geneva
17 and serves as a complement to the Lake Whatcom Boulevard trunk line. The
18 interceptor was designed to service full build-out of Sudden Valley and Geneva.

19 ~~There are several pending subdivisions in the area which are being proposed at less~~
20 ~~than full density but which will increase the overall development level outside of~~
21 ~~urban areas to a significant degree.~~

22 Whatcom County has taken a number of actions to reduce phosphorus and
23 otherwise address Lake Whatcom water quality. These include rezoning land to
24 allow less development in the watershed, adoption of the Lake Whatcom
25 Comprehensive Stormwater Management Plan, revising stormwater management
26 standards for private development to significantly reduce potential phosphorus
27 runoff, construction of stormwater capital improvement projects and adoption of
28 regulations that restrict the application of commercial fertilizers.

29 In 2014, approximately 8,800 acres of forest lands around Lake Whatcom were
30 transferred to Whatcom County from the Washington Department of Natural
31 Resources through reconveyance. These lands will provide passive recreation
32 opportunities with hiking and biking trails connecting various communities,
33 neighborhoods and parks throughout the watershed. Under County ownership, the
34 forests will be allowed to mature to an older growth environment benefiting the
35 watershed and helping to stabilize steep slopes that surround the lake. In 2006 the
36 Whatcom County Council approved funding to study reconveyance of DNR-managed
37 County Forest Board Lands.

38 There are still state forest lands in the Lake Whatcom watershed. In 2004, the
39 Department of Natural Resources (DNR) Board on Natural Resources adopted the
40 Lake Whatcom Landscape Plan. This plan provides additional protections on state
41 managed lands within the Lake Whatcom watershed. The plan provides additional
42 protections on streams and potentially unstable slopes not normally included in
43 forest practices in Washington State. ~~If the DNR exchanges land from the~~
44 ~~watershed the protections provided by the plan would not be applicable to the new~~
45 ~~owner.~~

Sudden Valley ~~Recreational Subdivision~~

Reason for Change: The following text was moved from Chapter 2, and edited for brevity.

Sudden Valley ~~is a community within the Lake Whatcom Watershed. It was established in the early 1970s as a recreation/resort area located in the Lake Whatcom Watershed. B~~ut over the last thirty years ~~it has developed into an urban significant residential area. Sudden Valley has private paved roads, all underground utilities (electricity, gas, cable and telephone), and a public water and sewer system provided by Lake Whatcom Water and Sewer District. Fire District #2, strategically located in Sudden Valley, provides fire and ambulance service. Sudden Valley's 1,724 total acres originally included 4,648 platted single-family lots/condominiums, a limited commercial area, community facilities, a marina, and a golf course. Of the 1,545 acres, 835 acres of open space and 140 acres of golf course (63%) are community association owned. The remaining 749 acres (43%) are private property. 2000 US Census data indicates that approximately 26% of the existing housing in Sudden Valley is either seasonal or vacant.~~

~~Sudden Valley contributes to a high volume of vehicle trips on Lake Whatcom Boulevard and Lake Louise Road. Right-of-way and alignment studies have been proposed for the 6-year TIP to study alternatives, cost and location relative to addressing the growing volume of vehicular trips on Lake Whatcom Boulevard and Lake Louise Road. Public transportation services are provided by the Whatcom Transportation Authority (WTA).~~

~~Sudden Valley lies within the Lake Whatcom Watershed where limiting development has been identified as desirable. The Sudden Valley Community Association (SVCA) has a Board of Directors mandated lot consolidation program with a targeted density reduction of 1,400 lots, reducing the total lots for development from 4,648 to 3,248. To date approximately 75% (1,047 lots) have been placed into density reduction of which 452 are voluntary private lot consolidation. SVCA funding has been set aside to purchase additional lots for density reduction. In accordance with the 2000 Lake Whatcom Management Program, the County and Lake Whatcom Water and Sewer District have also assisted Sudden Valley with their density reduction program through several joint agreements and exchanges of property and restrictive covenants. To date, the SVCA, County, and Lake Whatcom Water and Sewer District have acquired 115 undeveloped lots in Sudden Valley at annual tax foreclosure auctions. The Lot Consolidation Covenant to Bind process has, also, increased voluntary private lot consolidation. The County Council has exempted Sudden Valley from the Lake Whatcom Transfer of Development Rights (TDR) program because Sudden Valley's density reduction plan meets the intent of the TDR program.~~

Since 1985, Sudden Valley has mandated the use of appropriate stormwater best management practices through standards for individual stormwater detention for all new construction. Any new building permits on existing lots must be able to demonstrate that stormwater detention is included on the plan as a precondition to issuance of a permit. Sudden Valley is also subject to additional regulatory protections that apply to the Lake Whatcom watershed under the Water Resource

1 Protection Overlay District, Stormwater Special District, and Water Resource Special
2 Management Area requirements. Under the provisions of these special districts,
3 potential impacts from impervious surfaces, stormwater runoff, and clearing
4 activities are required to be addressed either on-site or through a community-wide
5 process.

6 ~~Sudden Valley has implemented a 10-year Forest and Wildlife Stewardship (FAWS)~~
7 ~~plan with the State of Washington Department of Natural Resources (DNR). This~~
8 ~~plan provides environmental education and guidance to the Sudden Valley~~
9 ~~community, on a continuing basis, to assure sound environmental health and safety~~
10 ~~for plants, animals, and residents with an emphasis on properly managing flora and~~
11 ~~fauna indigenous to the region.~~

12 A variety of agencies, organizations, and individuals play a role in managing and
13 protecting Lake Whatcom. In an effort to coordinate efforts of these various
14 players, in 1990, the City of Bellingham, Whatcom County, and Water District 10
15 (now known as the Lake Whatcom Water and Sewer District) began meeting to
16 develop a joint management strategy for the Lake Whatcom watershed. The
17 resulting Lake Whatcom Management Program guides actions to protect Lake
18 Whatcom as a long-term supply of drinking water for the City of Bellingham and
19 portions of Whatcom County. The program emphasizes protection over treatment in
20 managing Lake Whatcom and its watershed.

21 The structure of the Lake Whatcom Management Program includes legislative
22 bodies, a management team, an interjurisdictional coordinating team, agency staff,
23 and advisory committees.

24 The Lake Whatcom Watershed Management Program website
25 (<http://www.lakewhatcom.whatcomcounty.org/resources>) contains the management
26 plans, reports, and work programs, as well as the jurisdictions' pertinent
27 regulations and brochures on the different programs aimed at the various efforts to
28 improve water quality.

29 **Groundwater Protection & Management**

30 Groundwater is contained in aquifers, which are subterranean layers of porous rock
31 or soil. Most aquifers are replenished by rainwater, though some may contain water
32 trapped during glacial periods. Aquifers are often integrally linked with surface
33 water systems and are essential for meeting in-stream and out-of-stream water
34 needs such as for drinking water, agriculture, and industry. Whatcom County
35 residents rely heavily on groundwater for drinking water, agriculture, and
36 commercial and industrial needs. Groundwater also plays an important role in
37 maintaining stream flows.

38 Many studies have been conducted related to groundwater quality in Whatcom
39 County documenting water quality issues such as exceedances of standards for
40 nitrate, ethylene dibromide (EDB) and 1,2-dichloropropane (1,2-D), pesticides, iron
41 and other agricultural-related contaminants, particularly in the northern portion of
42 the County. In general, groundwater in Whatcom County is very vulnerable to
43 contamination because much of the County's groundwater lies within a shallow
44 unconfined aquifer. Activities that occur on the surface of the ground directly affect

1 groundwater quality. Shallow wells that draw water from unconfined water table
2 aquifers are at highest risk.

3 Whatcom County's Critical Areas Regulations protect Critical Aquifer Recharge Areas
4 (CARAs) during the development process, by precluding certain uses in CARAs
5 and/or requiring certain precautions be taken in handling certain chemicals.

6 **Flood Hazard Management**

7 A comprehensive approach to flood hazard management planning provides for a
8 better understanding of the river and floodplain system and ensures that flooding
9 and channel morphology problems are not simply transferred to another location
10 within the basin, but are addressed in a comprehensive, basinwide manner. This
11 approach directs future flood hazard management expenditures in the most
12 efficient and cost effective manner.

13 Whatcom County Public Works coordinates with the Flood Control Zone District
14 Advisory Committee (FCZDAC) to identify and characterize flooding problems and
15 provide recommendations for achieving consistent long-term flood hazard reduction
16 strategies. Some activities typically involved in developing a Comprehensive Flood
17 Hazard Management Plan (CFHMP) include data collection, hydraulic modeling,
18 alternatives analysis, floodplain mapping, and meander limit identification. In
19 addition to the technical components in comprehensive flood planning, extensive
20 coordination with the public and other agencies is required throughout the planning
21 process.

22 Other County flood management programs include:

23 **Early Flood Warning** – Work with the United States Geological Survey (USGS)
24 to maintain a network of early flood warning stations to help citizens prepare and
25 take appropriate measures to protect lives and property from flood damages.

26 **Flood Hazard Reduction Program** – Implement projects to reduce future
27 flood damages and public expenditures to repair damaged areas. Examples include
28 construction of setback levees and overflow spillways, and designation of overflow
29 corridors in overbank areas. Two alluvial fan studies have been completed for Jones
30 Creek and Canyon Creek. For Jones Creek, review of potential mitigation measures
31 and concept design of a preferred approach has also been completed.

32 **Comprehensive Flood Hazard Management Planning** – Identify flooding
33 problems and provide recommendations for achieving long-term flood hazard
34 reduction strategies. The Lower Nooksack River Comprehensive Flood Hazard
35 Management Plan was adopted in 1999. Implementation of the plan is ongoing.

36 **Preparedness and Response** – Plan for and implement a coordinated
37 response during flood events to ensure public safety and minimize flood damages.

38 **National Flood Insurance Program** – Participate in the Congress-initiated
39 National Flood Insurance Program (NFIP) of 1968, to make affordable flood
40 insurance available to citizens of communities that adopt approved flood
41 management regulations.

1 Repair and Maintenance Program – Address problem areas with rivers,
2 streams, and coastlines of Whatcom County, and mitigates future flood damages in
3 a proactive and cost-effective manner.

4 Technical Assistance – Provide technical assistance regarding drainage and
5 flood issues to private citizens and businesses located along the many water bodies
6 within Whatcom County.

7 **Organization**

8 **Flood Control Zone District Advisory Committee (FCZDAC)**

9 Following the severe floods of 1989 and 1990, in 1992 Whatcom County created
10 the countywide Flood Control Zone District (FCZD), including both incorporated and
11 unincorporated areas of the County. The FCZD is a quasi-municipal corporation that
12 is a separate legal entity from the Whatcom County government. Even though this
13 legal separation exists, the Whatcom County Council and the County Executive
14 (Board of Supervisors) and the Public Works Department (staff) perform the
15 governance and administrative support for the district.

16 The primary purpose of the FCZD is flood hazard management. Revenue generated
17 to for this purpose is accomplished in two ways: (1) a county-wide uniformly
18 applied service charge; and, (2) supplemental revenue generated within localized
19 Diking Districts and Sub-Flood Districts where specific local project activity is
20 planned.

21 While the primary purpose of the FCZD is flood hazard management, the district is
22 allowed to address a wide variety of water resource issues. Due to this ability,
23 revenue generated by the district is currently used to finance additional water
24 supply and water quality related improvement projects.

25 **Pertinent Documents**

26 **Lower Nooksack River Comprehensive Flood Hazard Management Plan** 27 **(CFHMP)**

28 In 1999, the county adopted the Lower Nooksack River Comprehensive Flood
29 Hazard Management Plan (CFHMP). The CFHMP identifies projects, programs, and
30 other recommendations aimed at reducing future flood damages along the Lower
31 Nooksack River.

32 **Critical Areas Regulations (WCC 16.16)**

33 Whatcom County's Critical Areas Regulations aim to protect people and property in
34 Frequently Flooded Area (FFAs) by requiring that any development conforms to
35 WCC Title 17, Flood Damage Prevention.

36 **Stormwater Management**

37 Stormwater runoff occurs when precipitation from rain or snowmelt flows over the
38 land surface. The addition of roads, driveways, parking lots, rooftops and other
39 surfaces that prevent water from soaking into the ground to our landscape greatly

1 increases the runoff volume created during storms. This runoff is swiftly carried to
2 our local streams, lakes, wetlands and rivers and can cause flooding and erosion.
3 Stormwater runoff also picks up and carries with it many different pollutants that
4 are found on paved surfaces such as sediment, nitrogen, phosphorus, bacteria, oil
5 and grease, trash, pesticides and metals.

6 County Stormwater Management Programs

7 National Pollutant Discharge and Elimination System (NPDES) Phase II 8 Permit

9 Stormwater runoff picks up pollution as it travels over our developed landscapes
10 and is a major source of water quality problems. In 1987, the Federal Clean Water
11 Act was amended to address stormwater problems. As a result, the United States
12 Environmental Protection Agency (EPA) created the National Pollutant Discharge
13 Elimination System (NPDES) to address stormwater runoff. States are then required
14 to administer permits to local jurisdictions to regulate runoff as part of the NPDES
15 Program. The Permit is referred to as the "NPDES Phase II Permit" or "Phase II
16 Municipal Stormwater Permit".

17 In February of 2007, the Washington State Department of Ecology issued Whatcom
18 County's Phase II Municipal Stormwater Permit. This permit regulates discharges
19 from Small Municipal Separate Storm Sewers, and is part of the National Pollutant
20 Discharge and Elimination System (NPDES) and State Waste Discharge General
21 Permit. It sets forth requirements of municipalities to address stormwater runoff in
22 areas determined to have population densities reaching urban standards. Whatcom
23 County is required to implement various stormwater management strategies to
24 comply with this State permit.

25 The current Permit boundary covers approximately 15,000 acres and generally
26 includes the following areas (Figure 1):

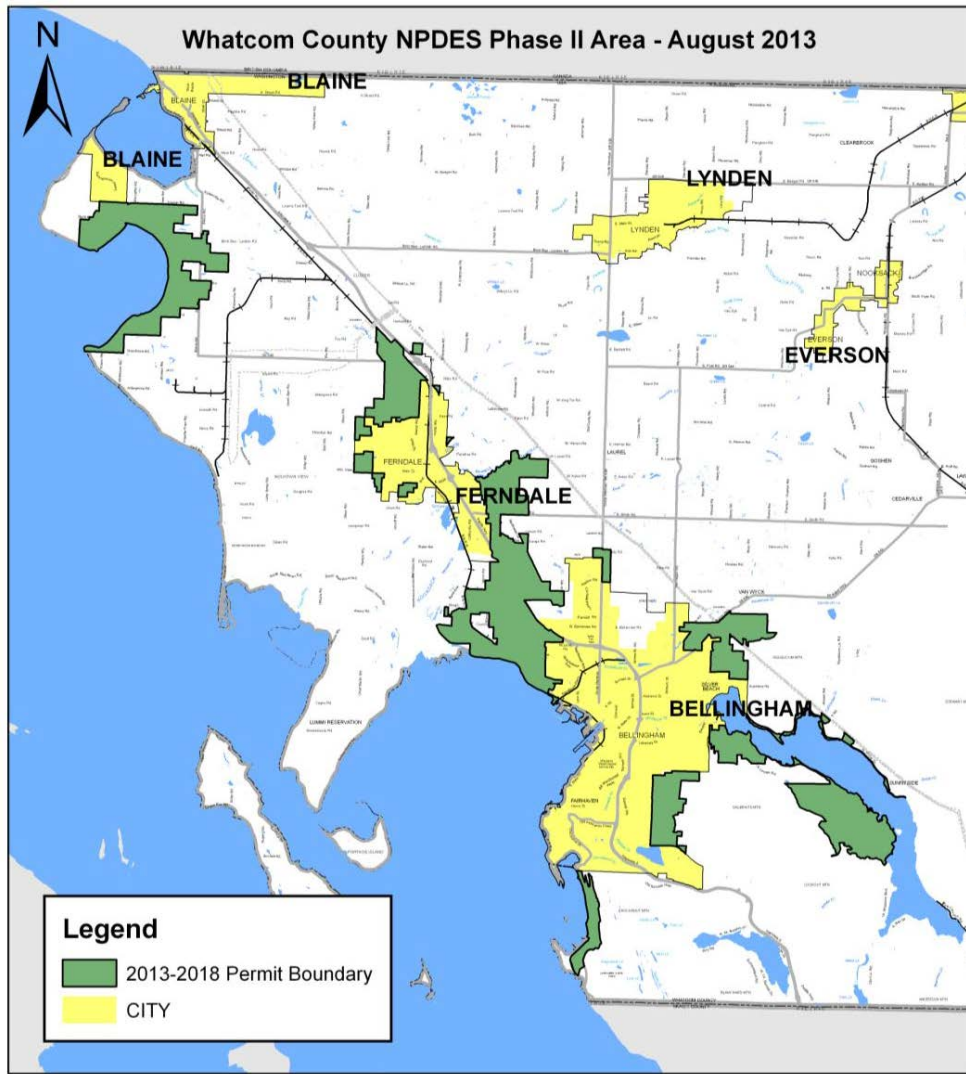
- 27 • Bellingham Urban Growth Area
- 28 • Sudden Valley
- 29 • Portions of the Hillsdale and Emerald Lake area
- 30 • Portions along North Shore Drive on Lake Whatcom and Lake Whatcom
31 Boulevard
- 32 • Ferndale Urban Growth Area
- 33 • Portions along Chuckanut Drive and Chuckanut Bay
- 34 • Birch Bay Urban Growth Area (Beginning August 1, 2013)
- 35 • The entire Lake Whatcom watershed is subject to illicit discharge detection
36 and elimination requirements of the Permit.

37 Jurisdictions are allowed to discharge runoff into water bodies of the State (such as
38 rivers, lakes, and streams) as long as they implement programs that protect water
39 quality by reducing pollutants to the maximum extent possible through
40 requirements of the NPDES Phase II Permit. Those requirements are reported and

1 submitted to the Department of Ecology through the Stormwater Management
 2 Program (SWMP) and the Annual Compliance Report.

3 The Western Washington Phase II Municipal Stormwater Permit is required by the
 4 State of Washington Water Pollution Control Law Chapter 90.48 RCW, and the
 5 Federal Water Pollution Control Act Title 33 United States Code (Clean Water Act).
 6 The Permit is administered by the Washington State Department of Ecology.

7



8

9 **Figure 1. NPDES Phase II Boundaries**

10 **Pollution Identification and Correction (PIC) Program**

11 Everyone wants clean water to support healthy drinking water, safe recreational
 12 uses, quality water for irrigation and livestock, healthy fish, and shellfish that are
 13 safe to consume. Currently, many creeks in Whatcom County do not meet water
 14 quality standards for fecal coliform bacteria. Fecal coliform bacteria are found in the
 15 intestinal tract of warm-blooded animals and when found in creeks are an indicator

1 of human or animal waste in the water. The higher the bacteria level, the greater
2 the public health risk to people drinking, wading, fishing, or consuming shellfish.
3 The Pollution Identification and Correction (PIC) Program has been created to help
4 implement community solutions to clean water.

5 **Pollution** – The key potential sources of bacteria that have been identified in
6 Whatcom County coastal drainages are (1) **animal waste** from agricultural
7 operations, domestic pets, waterfowl, and urban wildlife, and (2) **human sewage**
8 from failing on-site sewage systems (OSS), leaking sewers, or cross-connections.

9 **Identification** – Whatcom County coordinates a routine water quality
10 monitoring program at approximately 90 stations in watersheds that discharge to
11 marine waters. Samples are collected on at least a monthly basis and analyzed for
12 fecal coliform bacteria. Results are evaluated annually to identify focus areas with
13 the largest bacteria problems. Within the focus areas, creek segments are
14 monitored and potential bacteria sources are identified.

15 **Correction** – Technical and financial resources are offered to landowners to
16 identify and implement solutions on their property. Residents can help improve the
17 community's water quality by inspecting and maintaining septic systems and by
18 fencing animals out of creeks, ditches and swales. By actively managing pastures,
19 creating protected heavy use areas, and covering manure storage areas, residents
20 can prevent manure-contaminated mud from polluting surface water. Planting
21 shrubs and trees along creek banks and picking up after dogs also contributes to
22 better water quality.

23 **Marine Resources Management**

24 Marine habitats include all salt water bodies and their shorelines, kelp beds,
25 eelgrass meadows, salt marshes, beaches, and mudflats. These habitats play a vital
26 role in the health of the local environment as well as of the broader Puget Sound
27 region. They provide spawning, rearing, and feeding grounds for a wide variety of
28 marine life as well as refuge for juvenile and adult fish, birds, and shellfish. The
29 vegetation on back-shore marshes and within estuaries buffers adjacent upland
30 areas by absorbing wave energy and slowing erosion.

31 Symptoms of ecosystem stress include declining stocks of salmon, bottomfish, and
32 forage fish; closures of recreational and commercial shellfish beds; degradation and
33 losses of eelgrass beds, kelp forests, and other marine habitats; and dwindling
34 populations of seabirds and marine mammals.

35 The Northwest Straits Marine Conservation Initiative was authorized by Congress in
36 1998. The Initiative established the Northwest Straits Commission and Marine
37 Resources Committees (MRCs) in seven western Washington counties, including
38 Whatcom County. The MRCs' main purpose is to guide local communities, using up-
39 to-date information and scientific expertise, to achieve the important goals of
40 resource conservation and habitat protection within the Northwest Straits. The
41 Whatcom County MRC acts as an advisory committee to the Whatcom County
42 Council.

Shellfish Recovery

Many of the marine waterbodies in Whatcom County support natural and cultured bivalve shellfish, including oysters and many species of clams. The warm, nutrient-rich tide flats in and around Lummi, Portage, and Birch Bays and Drayton Harbor, and Eliza and Lummi Islands represent unique water resources in this regard. Commercial shellfish growers, recreational clam and oyster harvesters, and Native Americans have used this resource for many years. It is an important part of our community's heritage.

Our ability to grow and harvest shellfish that is safe for human consumption is directly linked to surface water quality and the influence it has on marine waters. The primary measure of water quality for shellfish harvesting is bacterial contamination associated with human sewage and animal wastes. Potential sources of fecal bacteria include municipal sewage treatment plants, on-site sewage systems, boat waste, farm animals, pets, and wildlife. Since 1995, valuable shellfish beds in Portage Bay and Drayton Harbor have been downgraded (harvest prohibited) due to non-point pollution impacting recreational, tribal, and commercial harvesting. In 2014, Portage Bay was identified as a threatened Shellfish Growing Area by the Washington Department of Health. (Washington Department of Health, 2014)

Shellfish Advisory Boards

Whatcom County has three Shellfish Advisory Boards, one for each of the Shellfish Protection Districts: Birch Bay, Drayton Harbor, and Portage Bay. Each advises the County Council on proposed actions and operations relating to the restoration of water quality in their respective watersheds.

Shellfish Recovery Plans

Shellfish Recovery Plans have been created for each of three districts. The plans outline the primary sources of bacteria and actions to improve water quality.

- Drayton Harbor Shellfish Recovery Plan (2007)
- Portage Bay Shellfish Recovery Plan (2014), Portage Bay Initial Closure Response Strategy (1998)
- Birch Bay Initial Closure Response Strategy (2009)

Pertinent Documents

Whatcom Marine Resources Committee 2011- 2015 Strategic Plan (2010)

This document outlines the MRC's mission, vision, and values, their goals and objectives, and strategies for achieving them.

Shoreline Management Program

The State Legislature passed the Washington State Shoreline Management Act (SMA) in June 1971. The SMA was overwhelmingly passed by public initiative in 1972. Under the SMA, each county and city was required to prepare a shoreline

1 “master program” in accordance with the shoreline guidelines issued by the State
2 Department of Ecology in 1972.

3 The Whatcom County Shoreline Management Program (SMP), WCC Title 23, is the
4 document that implements the goals and policies of the SMA at the local level. It
5 was adopted in 1976 in accordance with RCW 90.58. The goals and policies of the
6 Whatcom County Shoreline Management Program also constitute the shoreline
7 component of the Whatcom County Comprehensive Plan.

8 Under the provisions of the SMA, all development **along** shorelines of the state is
9 required to comply with the provisions of local shoreline master programs. The
10 Whatcom County Shoreline Management Program works with other chapters of the
11 Whatcom County Code to protect and preserve saltwater and freshwater shorelines
12 throughout the county by managing natural resources and directing development
13 and land use suitable for the shoreline environment.

14 The Whatcom County Shoreline Management Program jurisdiction includes:

- 15 • More than 130 miles of marine shoreline
- 16 • More than 60 miles of lake shoreline
- 17 • More than 220 miles of stream channels
- 18 • All wetlands and floodways associated with the above shorelines, together
19 with all upland areas within 200-feet of the Ordinary High Water Mark
20 (OHWM).

21 Whatcom County and the Washington State Department of Ecology (DOE) share
22 joint authority and responsibility of the Whatcom County SMP. Whatcom County
23 **Planning and Development Services** is the primary agency responsible for
24 implementation of the Whatcom County Shoreline Management Program.

25 **Issues, Goals, and Policies**

26 **Watershed Planning and Management**

27 **General**

28 ~~Problems exist which affect water resources in Whatcom County. Surface and~~
29 ~~groundwater quality problems can be found in many areas of Whatcom County and~~
30 ~~are described in various chapters of the Comprehensive Plan. There are significant~~
31 ~~legal limitations in obtaining new consumptive water rights in a majority of the~~
32 ~~County. Management actions between and within jurisdictions are not always well~~
33 ~~coordinated or consistent. Additionally, there is much to learn about the physical~~
34 ~~characteristics and availability of the resource, since water resources are heavily~~
35 ~~linked in complex systems that are only understood in varying degrees. Sound~~
36 ~~technical data upon which to base a thorough understanding of these complex~~
37 ~~systems is still continuously being developed. Other issues, In the last 10 years,~~
38 ~~there have been many updated regulations, and policies such as the Clean Water~~
39 ~~Act, Endangered Species Act, and State water code, and tribal actions act to further~~
40 ~~exacerbate which come into play more and more, aimed at solving and~~
41 ~~rationalizing and lend unpredictability to the problems associated with water.~~

1 ~~These problems and issues have already led to many impacts on the community.~~
 2 ~~The impacts include health concerns associated with drinking contaminated water;~~
 3 ~~fisheries depletion and closure of shellfish harvesting areas and other in-stream~~
 4 ~~problems; a lack of adequate water storage and delivery systems to meet the~~
 5 ~~requirements of growth and development; concerns with the availability of water to~~
 6 ~~meet existing agricultural and public water supply demands; potential difficulties~~
 7 ~~and additional costs associated with obtaining building permits and subdivision~~
 8 ~~approvals; and other related increasing financial costs to the community.~~

9 ~~Long-term resolution of the numerous, complex, and changing water issues~~
 10 ~~requires actions in many areas. Sound technical data and a better understanding of~~
 11 ~~the water systems is are needed, including the recognition that water resources~~
 12 ~~must be managed as an integrated system. Cooperation and coordination among~~
 13 ~~the various users, jurisdictions, and those who impact the resource is necessary.~~
 14 ~~Creative solutions should be pursued which extend beyond regulatory action to~~
 15 ~~include education and, technical and financial assistance.~~

16 Reason for Change: Much of the above text was incorporated into the revised
 17 "Background Information" section.

18 **Goal 11E:** **Protect and enhance water quantity and quality and**
 19 **promote sustainable and efficient use of water resources.**

20 Policy 11E-~~21~~: Maintain as a high priority the protection of water quality and
 21 quantity, ~~and associated features like watersheds and aquifers.~~

22 Policy 11E-2: Actively participate in and support WRIA 1 Watershed Planning
 23 efforts associated with the coordination of local, federal, tribal,
 24 and state agencies to achieve integration or consistency
 25 between the various levels of environmental regulations relating
 26 to the County. In conjunction with the cities, other municipal
 27 corporations, tribal governments, federal and state agencies,
 28 public and private utilities, and the public, develop programs,
 29 such as WRIA Watershed Management Planning, which promote
 30 sustainable and efficient use of water resources.

31 ~~Policy 11E-12: Actively participate in the development of WRIA Watershed~~
 32 ~~Management Plannings efforts and the process to establish a~~
 33 ~~county-wide water resources management body.~~

34 Reason for Change: The two above policies were combined.

35 Policy 11E-~~82~~: Work cooperatively with Federal, State, and local jurisdictions,
 36 Tribal governments, municipal corporations, and the public to
 37 implement the goals and, policies, ~~and action items contained in~~
 38 of this chapter plan as well as state water resources and water
 39 quality laws.

40 Policy 11E-~~53~~: Manage ~~and prioritize~~ water resources for multiple instream and
 41 out-~~of-~~stream beneficial uses, including commensurate with
 42 instream flows set by the State Department of Ecology.

1 Reason for Change: Recommended change by Dept. of Ecology. When issuing water
 2 rights, the state’s surface water & groundwater codes specifically do **not** prioritize
 3 one beneficial use above another. Also, ISFs and water rights are all by priority
 4 date.

5 Policy 11E-~~4~~4: Actively promote and participate in education, research, and
 6 information opportunities ~~which~~that better our understanding of
 7 the county's complex water resource systems. New information
 8 should be considered in the development and evaluation of
 9 management actions.

10 Policy 11E-~~35~~5: Pursue the most effective methods for protecting water quantity
 11 and quality, through both regulatory (e.g. zoning, enforcement,
 12 fines) and non-regulatory approaches (education, incentives,
 13 and technical/financial assistance). Emphasis should be placed
 14 on non-regulatory approaches where possible and effective.

15 Policy 11E-~~96~~6: Track the development of policies and regulations at the local,
 16 state, and federal level. Provide input to those regulations and
 17 policies as necessary to ensure that the interests of Whatcom
 18 County are considered.

19 Policy ~~41F~~11E-~~67~~7: In conjunction with all jurisdictions, develop and adopt
 20 programs to protect water quality and quantity within
 21 watersheds, aquifers, and marine water bodies ~~that~~which cross
 22 jurisdictional boundaries.

23 Policy 11E-~~118~~8: Promote awareness and participation in management and
 24 protection efforts by individual citizens and the community as a
 25 whole.

26 **Surface Water and Groundwater**

27 ~~Surface water systems face sediment, nutrient, bacteria, petroleum, metals, and~~
 28 ~~other contamination from a variety of point and non-point sources. Groundwater~~
 29 ~~supplies in some areas are also vulnerable to contamination. Nitrates, arsenic,~~
 30 ~~bacteria, elevated chlorine levels, EDB, 1,2-DCP, and other contaminants have been~~
 31 ~~found in some groundwater supplies at levels that exceed those considered safe for~~
 32 ~~drinking water.~~

33 Reason for Change: Background information is now provided in the section
 34 "Background Summary."

35 **Goal 11F:** Bring all water uses in Whatcom County into compliance
 36 with state water law and do so in a way that enhances
 37 instream flows, water quality, and habitat. Protect and
 38 enhance Whatcom County’s surface water and
 39 groundwater quality and quantity for current and future
 40 generations.

41 Policy 11F-1: Enhance instream flow.

- 1 | Policy 11F-2: Take action to address water needs of fish listed as Threatened
2 | under the ESA.
- 3 | Policy 11F-3: Manage surface water systems, where appropriate, on a
4 | watershed basis.
- 5 | Policy 11F-~~24~~: In conjunction with the public and appropriate local, State, and
6 | Federal jurisdictions, define and identify and develop
7 | management strategies for watershed basins and subbasins
8 | which-that may require special protection. These areas may
9 | include aquifers, critical aquifer recharge areas as defined under
10 | the Growth Management Act, Groundwater Management Areas,
11 | wellhead protection areas, and high priority watersheds such as
12 | those specified under WAC 400 (Local Planning and
13 | Management of Non-point Source Pollution), WRIA Watershed
14 | Management Planning, and under legislative policy direction
15 | (e.g. Nooksack Basin, Lake Whatcom, Lake Samish and Drayton
16 | Harbor).
- 17 | ~~Policy 11F-7:~~ ~~Continue identifying areas that require special protection such~~
18 | ~~as wellhead protection areas, aquifers, and high-priority~~
19 | ~~watersheds, and incorporate that knowledge into management~~
20 | ~~actions, including dissemination of the information to the~~
21 | ~~general public.~~
- 22 | ~~Policy 11F-3:~~ ~~In conjunction with the public and appropriate local, State,~~
23 | ~~Tribal, and Federal jurisdictions, develop management strategies~~
24 | ~~for those areas requiring special protection.~~ Management efforts
25 | should consider both water quality and quantity. Water quality
26 | efforts should help reduce the likelihood that potential
27 | contaminant sources will pollute water supplies. Water quantity
28 | efforts should include consideration and protection of recharge
29 | areas as appropriate and potential effects on stream flow.
- 30 | Reason for Change: The above three policies were similar, so combined into one.
- 31 | Policy 11F-~~435~~: Support the ~~completion and~~ implementation of local and /state
32 | Watershed ~~Action Management Plans, the Lower Nooksack~~
33 | ~~Strategy,~~ the Lake Whatcom Management Program, NPDES
34 | Phase II Permitting, and the WRIA Watershed Management
35 | ~~Projects as some of the means of addressing non-point source~~
36 | ~~pollution.~~
- 37 | Policy 11F-~~546~~: Pursue the adoption and implementation of ground and/or
38 | surface water management plans and their ~~integration e the~~
39 | ~~plans~~ into local comprehensive plans. Designate the Lake
40 | Whatcom and Lake Samish Watersheds as a high priority in this
41 | effort.

1 Stormwater and Drainage

2 ~~Stormwater is that portion of rainwater that does not naturally percolate into the~~
 3 ~~ground or evaporate, but flows overland or through pipes, gullies, or channels into~~
 4 ~~a defined channel, or a constructed infiltration facility. In many cases, stormwater~~
 5 ~~is associated with impervious surface in areas where development has taken place.~~
 6 ~~In these areas, replacement of natural drainage systems with built systems results~~
 7 ~~in short and long term public costs and can lead to environmental degradation,~~
 8 ~~including flooding, erosion, sedimentation, habitat loss, and degradation of water~~
 9 ~~quality.~~

10 ~~Various land uses can have significant effects on water flow. Sedimentation from~~
 11 ~~ground disturbed by grading, new development, farming, and logging can reduce~~
 12 ~~river or stream channel capacity, fill small lakes, and smother aquatic life and~~
 13 ~~habitat. Surface water runoff from developed areas can carry pollutants such as~~
 14 ~~petroleum productsoil, heavy metals, garden chemicals, and animal wastes into the~~
 15 ~~water system; runoff from farms and forests can bring pollutants including~~
 16 ~~fertilizers and pesticides.~~

17 Reason for Change: Background information is now provided in the section
 18 "Background Summary."

19 **Goal 11G:** **Protect water resources and natural drainage systems by**
 20 **controlling the quality and quantity of stormwater runoff.**

21 Policy 11G-1: Manage stormwater runoff to minimize surface water quality and
 22 quantity impacts and downstream impacts on channel
 23 morphology, property owners, and aquatic species and habitats.

24 Policy 11G-2: Maintain or enhance, when appropriate, natural drainage
 25 systems and natural water storage sites in order to better
 26 protect water quality, moderate water quantity, minimize
 27 environmental degradation, and reduce public costs.

28 Policy 11G-3: Limit the alteration of natural drainage systems and natural
 29 water storage sites without acceptable mitigating measures.
 30 Such measures should not significantly degrade water quality or
 31 fish and wildlife habitat, and should not increase hazards to the
 32 community.

33 Policy 11G-4: Support the use by resource industries, such as agriculture,
 34 forestry, and mineral resource extraction, of management
 35 practices that minimize erosion and sedimentation, and
 36 significantly reduce pollutants.

37 Policy 11G-5: Evaluate the role of watersheds in the maintenance of water
 38 quality and quantity and determine what cumulative impacts
 39 development activity may have on watershed hydrology.

40 Policy 11G-6: Develop specific stormwater management programs for each
 41 drainage basin within the county's jurisdiction whichthat may be
 42 impacted by urban levels of development. Recognize the Lake
 43 Whatcom Watershed, Lake Samish, and Drayton Harbor as high

- 1 priorities in this effort. Coordinate efforts with the Lake
 2 Whatcom ~~Management Committee Policy Group program~~, the
 3 various shellfish protection districts, and other watershed
 4 management ~~plans/entities~~.
- 5 Policy 11G-7: Establish, as a high priority, a stormwater maintenance program
 6 ~~which that~~ as ensures that stormwater systems are adequately
 7 maintained and function at or near design capacity.
- 8 Policy 11G-8: Encourage the use of low impact development strategies.
 9 Minimize the amount of impervious surface whenever
 10 practicable by using natural engineering design methods such as
 11 the use of ~~open, grassed street swales/rain gardens instead of~~
 12 ~~curbs and gutters~~. Where feasible, encourage alternate
 13 surfacing options and other techniques associated with low
 14 impact development (see Glossary).
- 15 Policy 11G-9: Develop and administer stormwater management standards as
 16 required by the NPDES Phase II Permit.
- 17 Policy 11G-10: Develop and administer regulations and incentives such that
 18 there is no net loss of ecological functions and values of
 19 regulated wetlands and fish and wildlife habitats.
- 20 Policy 11G-11: Place a high priority on integrating impervious surface reduction
 21 incentives into policies, regulations, and standards for the Lake
 22 Whatcom and Lake Samish watersheds.

23 Reason for Change: This policy comes from the Action Plan that was removed from
 24 this chapter.

- 25 Policy 11G-12: Develop and implement comprehensive stormwater
 26 management programs and strategies designed to eliminate
 27 address runoff from all private and public developments and
 28 facilities within regulated and sensitive watersheds.
- 29 1. Implement the Western Washington Phase II Municipal
 30 Stormwater Permit as part of the National Pollutant
 31 Discharge Elimination System (NPDES) Program.
 32 Incorporate watershed considerations into the
 33 development of a comprehensive stormwater
 34 management strategy for designated areas.
 - 35 2. Review Stormwater Special Districts Standards,
 36 Watershed Protection Districts, and other related codes
 37 that address runoff treatment from potentially polluting
 38 surfaces for their applicability to other sensitive
 39 watersheds with the Technical Advisory Committee and
 40 other appropriate agencies. Coordinate efforts for
 41 ongoing monitoring and evaluation within the sensitive
 42 watersheds and NPDES areas.

1 3. Amend subdivision, zoning, and other land use
 2 regulations and design standards to require that land use
 3 activities minimize the amount of impervious surface,
 4 with a zero additional runoff objective.

5 4. Identify and implement a long-term funding source to
 6 provide for water resource protection services including
 7 non-point source identification and enforcement of
 8 applicable county regulations.

9 5. Focus on the Lake Whatcom watershed as a high priority
 10 in developing a stormwater management program.
 11 Develop a stormwater management plan that achieves a
 12 uniform level of protection throughout the Lake Whatcom
 13 watershed. Ensure coordination and communication with
 14 the public and affected jurisdictions such as the Lake
 15 Whatcom Water and Sewer District, the Sudden Valley
 16 Community Association, and the City of Bellingham.

17 1-6. Ensure that existing stormwater standards are
 18 adequately enforced within Stormwater Special Districts,
 19 Watershed Protection Districts, and the NPDES areas.

20
 21 Develop a comprehensive stormwater management program
 22 designed to manage runoff from public facilities and industrial,
 23 commercial, and urban residential areas including streets and
 24 roads in compliance with NPDES requirements. Establish a
 25 stormwater management plan for rural roads. Each component
 26 of the program shall cover both new and existing developments.
 27 Emphasis should be placed on controlling stormwater through
 28 source controls and Best Management Practices. Establish a long
 29 term goal of minimal pollutant discharge into surface water
 30 resources.

31 2. At a minimum, the components of this program shall include:

- 32 • Identification of potentially significant pollutant sources
 33 and their relationship to the drainage system and water
 34 bodies.
- 35 • Investigation of problem drains, including sampling.
- 36 • Programs for operation and maintenance of storm drains,
 37 detention systems, ditches, and culverts.
- 38 • A water quality response program to investigate sources
 39 of pollutants, spills, fish kills, illegal hookups, dumping,
 40 and other water quality problems. These investigations
 41 should be used to support compliance/enforcement
 42 efforts.

- 1 • Assurance of adequate local funding for the stormwater
- 2 program through surface water utilities, sewer charges,
- 3 fees, or other revenue-generating sources.
- 4 • Local coordination arrangement such as interlocal
- 5 agreements, joint programs, consistent standards, or
- 6 regional boards or committees.
- 7 • Regulations requiring implementation of stormwater
- 8 control for new development.
- 9 • A public stormwater educational program aimed at
- 10 residents, businesses, and industries in the urban area.
- 11 • Strong inspection, compliance, and enforcement
- 12 measures.
- 13 • An implementation schedule.
- 14 • Adequate design specifications and construction practices
- 15 to ensure minimal on-site erosion and sedimentation
- 16 during and after construction.
- 17 3. Incorporate watershed considerations into the development of a
- 18 comprehensive stormwater management strategy. This should
- 19 include the identification of priority watersheds relative to
- 20 stormwater management and the application of Action Item 1 to
- 21 each watershed in the order of their priority.
- 22 4. Review Stormwater Special Districts Standards that address
- 23 runoff treatment from potentially polluting surfaces for their
- 24 applicability to other sensitive watersheds.
- 25 5. Amend subdivision, zoning, and other land use regulations and
- 26 design standards to require that land use activities minimize the
- 27 amount of impervious surface. Low impact surfacing options
- 28 should be encouraged wherever possible.
- 29 6. Identify and implement a long-term funding source to provide
- 30 for water resource protection services including non-point
- 31 source identification and enforcement of applicable county
- 32 regulations.
- 33 7. Focus on the Lake Whatcom watershed as a high priority in
- 34 developing a stormwater management program. Develop a
- 35 stormwater management plan that achieves a uniform level of
- 36 protection throughout the Lake Whatcom watershed. Ensure
- 37 coordination and communication with the public and affected
- 38 jurisdictions such as the Lake Whatcom Water and Sewer
- 39 District, the Sudden Valley Community Association, and the City
- 40 of Bellingham.
- 41 8. Work with the Technical Advisory Committee and other
- 42 appropriate agencies in revising or developing standards

necessary to ensure watershed protection and then coordinate the effort within sensitive watersheds for ongoing monitoring and evaluation.

~~9. Develop and implement a stormwater maintenance program for the Lake Whatcom Watershed that would ensure that existing systems are adequately maintained.~~

~~10.7. Ensure that existing stormwater standards are adequately enforced within Stormwater Special Districts.~~

Reason for Change: The double underlined and struck out policy was an action item. The new language (underlined) is a rewrite of the policy by Public Works.

Water Conservation

Goal 11-H: Policy 11E-4: Support water conservation, reclamation, and reuse measures and education as a means to helping ensure sufficient water supplies in the future.

Policy ~~11E-11H-17~~: Support and assist water users in the development of cost-effective means of improving efficiency of water use.

Policy 11E-82: Support efforts to establish and protect sustainable water supplies to meet existing and future demands for water in the county.

Policy 11E-23: Develop and implement an action plan to institute county-wide metering of all water users by 2020. Encourage water purveyors to meter water use to promote conservation.

Policy 11H-4: Develop and implement an action plan with an aggressive timeline (3-5 years) for meeting the Department of Ecology's Instream Flow Rule.

Policy 11H-5: Insist on and support state, federal and tribal efforts to identify and curtail illegal water use and enforce applicable laws, codes and regulations.

Policy 11H-6: Coordinate all local water and land management efforts, plans and data to ensure adequate oversight of water quantity and quality issues.

Lake Whatcom Watershed

Goal 2MM11-I: Prioritize the Lake Whatcom watershed area as an area in which to minimize development, repair existing stormwater problems, (specifically for phosphorus), and ensure forestry practices do not negatively impact water quality. Provide sufficient funding and support to be successful.

- 1 | Policy [11-I2MM-1](#): Work with property owners to find acceptable development
2 | solutions at lower overall densities than the present zoning
3 | allows.
- 4 | Policy [11-I2MM-2](#): Develop a storm drainage utility district or other funding
5 | mechanism to deal with the unique problems of development in
6 | a drinking water watershed.
- 7 | Policy [11-I2MM-3](#): Recognize that all users of Lake Whatcom water have an
8 | interest in the resource and should share in the cost of its
9 | protection.
- 10 | Policy [11-I2MM-4](#): Work cooperatively with the City and [Lake Whatcom Water and](#)
11 | [Sewer District](#)~~Water District 10~~ to identify, review, and, as
12 | appropriate, recommend changes to existing monitoring
13 | programs that will address the needs of the various
14 | jurisdictions. Place a particular focus on the information needed
15 | to evaluate the impacts of additional development in the
16 | watershed. Include an analysis of the diversion from the Middle
17 | Fork of the Nooksack. Coordinate effort with the Lake Whatcom
18 | Management Committee process.
- 19 | Policy [11-I2MM-5](#): Evaluate and pursue, as appropriate, the use of incentives to
20 | encourage voluntary lot consolidation, transfer or purchase of
21 | development rights, current use taxation, and participation in
22 | open space conservation programs.
- 23 | Policy [11-I2MM-6](#): Do not allow density bonuses within the Lake Whatcom
24 | Watershed.
- 25 | Policy [11-I2MM-7](#): Work cooperatively with the City and [the Lake Whatcom Water](#)
26 | [and Sewer District](#)~~Water District 10~~ to develop benchmarks to
27 | determine the effectiveness of management options; when
28 | goals have been achieved; or when additional actions are
29 | necessary.
- 30 | Policy [11-I2MM-8](#): Continue to develop and refine structural and non-structural
31 | best management practices (BMPs), both voluntary and
32 | required, to minimize development impacts within the Lake
33 | Whatcom watershed.
- 34 | Policy [11-I2MM-9](#): Work to keep [state-owned forest lands](#)~~Whatcom County Forest~~
35 | [Board and Forest Purchase lands](#) within the Lake Whatcom
36 | watershed in public ownership, and support managing forestry
37 | on [thesesaid](#) lands in a manner that minimizes sediment and
38 | phosphorus yields from streams.
- 39 | Policy [11-I2MM-10](#): Encourage the location of public services such as schools,
40 | libraries, [parks/open space](#) and post offices, within Rural
41 | Communities that would likely reduce the vehicle miles traveled
42 | within the watershed.

1 Reason for change: This change was recommended by the County Health
2 Department.

3 [Policy 11-I2MM-11:](#) Continue to work with Bellingham and Lake Whatcom
4 Water and Sewer District to protect and manage the Lake
5 Whatcom watershed in accordance with the 1998 jointly
6 adopted interlocal agreement. Focus on continued
7 implementation of the 5-Year Work Plans of the Lake Whatcom
8 Management Program. In addition, work with the affected
9 jurisdictions and secure funding for programs.

10 Reason for change: This text was moved from the action plan items in Chapter 2.

11 [Policy 11-I2MM-12](#) Review and modify (as needed) the current development review
12 process for projects in the Lake Whatcom Watershed to ensure
13 coordination with other jurisdictions.

14 Reason for change: This text was moved from the action plan items in Chapter 2.

15 [Policy 11-I2MM-13](#) The existence of sewer lines in the Rural and Rural Forestry
16 comprehensive plan designations will not be utilized to justify
17 rezoning property in the Lake Whatcom watershed to allow
18 higher density land uses.

19 Reason for change: This text was moved from the action plan items in Chapter 2.

20
21 Note: Policies 11-I-14 through 21 were moved from Chapter 2.

22 | Policy [11-I2BB-14](#): Facilitate meeting the unique needs of Sudden Valley due to its
23 location within the Lake Whatcom Watershed.

24 | Policy [11-I2BB-15](#): Recognize the existing parcelization and the commitment for
25 development of the remaining multi-family parcels in Sudden
26 Valley.

27 | Policy [11-I2BB-16](#): Work with the Community Association towards achievement of
28 the density reduction target of 1,400 lots within Sudden Valley.

29 | Policy [11-I2BB-17](#): If the county acquires lots through tax foreclosure, consider
30 selling them as non-buildable lots.

31 | Policy [11-I2BB-18](#): Support Lake Whatcom Water and Sewer District's effort to
32 maintain adequate sewer capacity and control stormwater run-
33 off in keeping with appropriate environmental controls and the
34 Sudden Valley Community Association's density reduction goal.

35 | Policy [11-I2BB-21](#): Work with all parties to maintain, and appropriately plan for
36 infrastructure, public services, and stormwater retention so that
37 Sudden Valley can develop to its appropriate potential.

38 Note: Policies 11-I-14 through 21 were moved from Chapter 2.

1 NATURAL SYSTEMS

2 Introduction

3 | “Natural systems” refers to the complex biological ecosystem that has
4 | ~~grown~~~~developed~~ from the geologic setting of Whatcom County. It includes fish and
5 | wildlife, as well as diverse vegetation that has adapted to a variety of physical and
6 | climatic conditions (**Map 2511-2, Map 2611-3**). Natural Systems goals and
7 | policies are intended to provide guidance to county government as it assists citizens
8 | to effectively manage and enhance these natural systems, and ensures that the
9 | benefits of these systems are maintained far into the future.

10 Background Summary

11 | Whatcom County provides a wide variety of natural habitats ~~which~~~~that~~ support and
12 | shelter a diverse array of fish and wildlife species. The county's wildlife is
13 | particularly varied and abundant when compared to many other areas of
14 | Washington State. There are a number of factors that have contributed to this:
15 | abundant water resources, rich soils, mild climate conditions, and a moderate
16 | degree of urbanization are among the most important. Among the habitats of
17 | importance to fish and wildlife are the following:

- 18 | • wetlands, lakes, and streams~~;~~
- 19 | • nearshore, inter~~-~~tidal, ~~and~~~~estuarinees~~ habitats~~,~~ and marine habitats
20 | including, but not limited to, kelp and eelgrass beds~~;~~
- 21 | • riparian areas and other travel corridors~~;~~
- 22 | • snags and downed logs~~;~~
- 23 | • forested habitats in a variety of successional stages~~;~~
- 24 | • caves, cliffs, and talus slopes~~;~~
- 25 | • grasslands and cultivated fields~~;~~
- 26 | • thickets and fence rows~~;~~

27 | **Aquatic habitats** include rivers, streams, ponds, lakes~~,~~ and their riparian borders.
28 | Together, these habitats are essential to Whatcom County's fish and wildlife.
29 | Twenty~~-~~~~six~~ species of fish,~~-~~~~including~~ twelve economically important stocks of
30 | salmon and trout,~~-~~~~inhabit~~ fresh water in Whatcom County for all or part of their
31 | life cycles. Healthy flowing streams and rivers, as well as off~~-~~channel wetland
32 | habitats, are essential to the survival of the majority of these fish. Wetland ponds,
33 | especially beaver ponds, provide optimal habitats for rearing and over~~-~~wintering of
34 | young fish, particularly ~~e~~Coho salmon and cutthroat trout juveniles.

35 | Most regional wildlife species regularly use aquatic and riparian habitats for
36 | breeding, feeding, shelter~~,~~ and migratory activities. Of this large grouping, over half
37 | are dependent upon wetland habitats at some point in their life cycles, and would
38 | decline or disappear in the absence of wetlands. Wetlands also contain unique
39 | vegetative communities that harbor many species of rare and unusual plants.

1 Issues, Goals, and Policies

2 General – Natural Systems

3 Growth and urbanization of the land base have and may continue to impose a risk
 4 to the degradation and reduction of natural systems. Wetlands and estuaries
 5 continue to be lost incrementally. Streams and their adjacent riparian habitat are
 6 affected by land clearing, ditching, erosion, and road building. Lakeshore
 7 development degrades the foreshore environment for waterfowl and other species,
 8 as well as negatively affecting water quality. It is estimated that Washington has
 9 also lost approximately one-third of its historic eelgrass beds from a variety of
 10 causes, including dredging, shading, and filling. Large-diameter snags and downed
 11 logs, an essential feature for dozens of wildlife species, are lost during clearing or
 12 intensive forest management. Forested habitats are lost to a number of
 13 development processes including urbanization, agriculture, increased
 14 rural/suburban housing density, and timber harvesting. The delicate environment of
 15 cliffs and caves may be affected by housing development, mining, and other
 16 activities. Conversely, grasslands, thickets, fields, and fence rows are habitats
 17 largely provided and enhanced by human activities, and are thus fairly abundant
 18 and stable within the developing county. The existence of farms, in particular, has
 19 contributed to an abundance of these more open, pastoral habitats.

20 Many stream systems in Whatcom County have been altered by agriculture,
 21 forestry, development, and flood control practices, contributing to fisheries loss,
 22 water pollution, sedimentation and other problems. These impacts can directly
 23 affect the fisheries resources by depositing silt and debris into spawning beds, by
 24 removing trees that shade and cool the water, stabilizing banks, interfering with the
 25 recruitment and establishment of large woody debris (LWD), by obstructing fish
 26 passage with culverts and roads, by altering natural channels through filling, bank
 27 hardening, and channelizing. In addition, the physical processes that create
 28 functional habitats for fish life stages are altered by increasing flows through
 29 stormwater runoff or consuming water volume for other out-of-stream uses.

30 Finally, the cultural value of functioning habitats, including wetlands and the fish
 31 and wildlife they harbor, has often been ignored in land use decisions. The
 32 gathering of fish, game, and other natural resources forms a central aspect of many
 33 cultures in this region. Also, the mere presence of these natural resources
 34 constitutes a community amenity that is a substantial part of our local economic
 35 base.

36 **Goal 11H: Protect and enhance natural systems, which provide**
 37 **economic, ecological, aesthetic, and cultural benefit.**

38 Policy 11H-1: Define and identify habitats and habitat features important to a
 39 balanced and sustainable web of life that supports fish and
 40 wildlife.

41 Policy 11H-2: Develop and adopt programs ~~which-that~~ protect habitats ~~that~~
 42 ~~are~~ essential to the conservation of species that have been
 43 identified as endangered, threatened, or sensitive by the state
 44 or federal government. Specifically, these programs should

- 1 maintain and encourage restoration of habitat conditions for
 2 ~~threatened-listed~~ species.
- 3 Policy 11H-3: Develop and adopt programs ~~which-that~~ provide incentives for
 4 the protection of environmentally fragile areas or critical wildlife
 5 habitats.
- 6 Policy 11H-4: Where feasible, incorporate fish and wildlife habitats into public
 7 capital improvement projects, ~~and consider for incorporation~~
 8 ~~into a mitigation banking program.~~
- 9 Policy 11H-5: Provide measures to mitigate negative water quality and
 10 quantity impacts from both public and private alterations of
 11 natural drainage systems.
- 12 Policy 11H-6: Consider sensitive fish, shellfish, and wildlife species and their
 13 habitats when establishing zoning densities and patterns.
- 14 Policy 11H-7: Promote voluntary fish and wildlife habitat enhancement
 15 projects through educational and incentive programs. These
 16 projects, which can be done by individuals, organizations, and
 17 businesses, should buffer and expand fish and wildlife habitat.
- 18 Policy 11H-8: Give careful consideration to the siting of industrial, commercial,
 19 residential, and other land use designations when located near
 20 important marine habitats.
- 21 Policy 11H-9: Protect, retain, and enhance the beneficial uses and functions of
 22 streams and rivers. Define and identify the beneficial uses and
 23 functions of streams and rivers, ~~which-including~~ wildlife and
 24 fisheries habitat, water quality, open space, aesthetics, and
 25 recreation.
- 26 Policy 11H-10: Protect and enhance natural systems when flood hazard
 27 management ~~control~~ measures are ~~utilized~~used.
- 28 Policy 11H-11: Regulate the operation of river gravel extraction activities in
 29 such a manner so as to provide long-term protection of fish and
 30 wildlife habitat and water quality.
- 31 Policy 11H-12: ~~Support-Ensure that~~ design and development of residential and
 32 industrial development ~~that~~ minimizes disturbance to rivers,
 33 streams, and functioning riparian areas.
- 34 Policy 11H-13: Evaluate the full value of the fishery, ~~including~~ its cultural and
 35 economic value ~~in~~ land use decisions that may impact that
 36 fishery. Unavoidable impacts to an individual habitat or fishery
 37 should be mitigated.

38 **Native Fish and Wildlife Populations and Habitat**

39 Optimum habitat for Pacific Northwest salmon and other fish is one that resembles
 40 the riparian landscape of pre-settlement times: braided streams wandering freely
 41 through nearly continuous forest; trees overhanging and partly fallen into streams;

1 stream beds with abundant logs, step waterfalls, pools, and cutbanks, and
2 vegetated marine and estuarine communities. In most cases, it is not realistic to
3 return to that state. However, measures can be taken to retain or regain those
4 features ~~which that~~ provide the minimum requirements of a viable fishery.

5 The best habitat for native wildlife includes native plants, ~~which that have evolved~~
6 ~~and occur naturally in the county.~~ Native plants are more closely matched to local
7 soils, climate, and wildlife. They provide the right kinds of food, shelter, and
8 diversity needed by wildlife. Native plants frequently need less watering, spraying,
9 pruning, fertilizing, ~~and-or~~ other maintenance than ~~do~~ exotic or imported plants.
10 Loss of native vegetation through conversion to ornamental vegetation and non-
11 native species often results in loss of wildlife habitat, increased competition to
12 native wildlife from introduced species such as starlings, and increased
13 maintenance needs. Loss of native vegetation also can occur through invasions
14 such as the spread of *Spartina*, which can drastically displace important native
15 eelgrass communities.

16 **Salmon Recovery Program**

17 The decline of salmonids throughout Washington and the Pacific Northwest over the
18 past century is well established. Since 1991, numerous evolutionarily significant
19 units (ESUs) of Pacific salmonids have been listed as endangered or threatened
20 under the Endangered Species Act (ESA), including those of chinook, coho, chum,
21 sockeye, and steelhead. Decline in salmonid abundances have been attributed to
22 widespread loss and degradation of habitat, due to hydropower, residential and
23 urban development, agriculture, and forestry. Fishing and hatchery production have
24 also contributed to declines.

25 In the Nooksack basin, it is clear that abundances of several salmonid stocks have
26 diminished substantially from historical levels. The declines in local salmonid stocks,
27 especially Chinook salmon, have had profound economic, cultural and social
28 impacts on the greater WRIA 1 community. Direct impacts include reduced jobs and
29 income for commercial fisherman, severe curtailment of tribal and subsistence
30 catch, and loss of tourism associated with recreational fishing. In addition, ESA
31 listings impose constraints on the activities of local and tribal governments,
32 businesses, the agricultural community, and citizens, who must seek to avoid or
33 minimize take of listed species. Nonetheless, salmon remain an integral part of the
34 natural and social landscape of Whatcom County and the Nooksack River
35 watershed. Recent watershed recovery planning and restoration efforts by federal,
36 state, local and tribal governments, non-profit organizations, businesses, and
37 private citizens demonstrate a commitment to salmon recovery in WRIA 1.

38 The WRIA 1 Salmon Recovery Program is a multi-government planning effort with a
39 WRIA-wide scope to address salmon recovery and protection of ESA and non-ESA
40 listed salmonids.

41 **WRIA 1 Salmon Recovery Strategy**

42 The ultimate goal for salmon recovery in WRIA 1 is to recover self-sustaining
43 salmonid runs to harvestable levels through the restoration of healthy rivers and
44 natural stream, river, estuarine, and nearshore marine processes, careful use of

1 hatcheries, and responsible harvest, and with the active participation and support
2 of local landowners, businesses, and the larger community. The purpose of the
3 WRIA 1 Salmonid Recovery Plan is to identify the actions necessary to recover
4 WRIA 1 salmonid populations, especially listed species, and to outline the
5 framework for implementation of recommended actions that have been agreed to
6 by local, state, tribal, and federal governments and stakeholders in WRIA 1. In the
7 near term, the objectives are to:

8 (1) Focus and prioritize salmon recovery efforts to maximize benefit to the two
9 Nooksack early chinook populations;

10 (2) Address late-timed Chinook through adaptive management, focusing in the
11 near-term on identifying hatchery- versus naturally-produced population
12 components;

13 (3) Facilitate recovery of WRIA 1 bull trout and steelhead by implementing
14 actions with mutual benefit to both early chinook, and bull trout and
15 steelhead and by removing fish passage barriers in presumed bull trout and
16 steelhead spawning and rearing habitats in the upper Nooksack River
17 watershed; and

18 ~~(1)~~(4) Address other salmonid populations by (a) protecting and restoring
19 WRIA 1 salmonid habitats and habitat-forming processes through
20 regulatory and incentive based programs; and (b) encouraging and
21 supporting voluntary actions that benefit other WRIA 1 salmonid
22 populations without diverting attention from early chinook recovery.

23 Focusing efforts on early chinook is consistent with regional salmon recovery –
24 current abundance and productivity for the two populations is very low and
25 recovery of both populations is critical to delisting and recovery of the Puget Sound
26 Evolutionarily Significant Unit (ESU) for Chinook salmon.

27 **Salmon Recovery Board (SRB)**

28 WRIA 1 Salmon Recovery Board membership includes the County Executive,
29 Bellingham Mayor, Mayors of the Small Cities of Whatcom County, the regional
30 director of the Washington Department of Fish and Wildlife, and policy
31 representatives from Lummi Nation and Nooksack Indian Tribe.

32 The WRIA 1 Salmonid Recovery Plan (2005), a chapter of the Puget Sound Salmon
33 Recovery Plan, guides restoration in the Nooksack River and adjacent watersheds.
34 This plan was developed in partnership with Nooksack Tribe, Lummi Nation,
35 Washington Department of Fish and Wildlife, Bellingham, and the small cities of
36 Whatcom County. Chinook salmon populations (listed as threatened with extinction
37 under the Federal Endangered Species Act) are prioritized, yet the plan also
38 provides the template for recovery of threatened steelhead and bull trout and the
39 other salmon and trout populations native to Whatcom County.

40 The salmon plan was developed in parallel with the WRIA 1 Watershed Management
41 Plan. Salmon habitat is intricately linked to watershed management; salmon
42 recovery will be most successful when fish habitat objectives are carefully
43 coordinated with watershed management objectives. [Integrating salmon recovery](#)

- 1 with flood hazard management and restoring fish passage under County roads are
 2 two primary areas of focus.
- 3 **Goal 11J: Protect and enhance natural systems that support native**
 4 **fish and wildlife populations and habitat.**
- 5 Policy 11J-1: Strongly discourage any activity that might cause significant
 6 degradation of the fishery resource or habitat.
- 7 Policy 11J-2: Support the protection and enhancement of significant fish
 8 spawning and rearing habitat, food resources, refugia (shelter),
 9 and travel passages.
- 10 Policy 11J-3: When possible, establish non-regulatory mechanisms and
 11 incentives for development that accommodates the habitat
 12 needs of fish and wildlife and encourages good stewardship
 13 practices.
- 14 Policy 11J-4: Support protection and enhancement of fish and wildlife habitat
 15 through site design in new development.
- 16 Policy 11J-5: Native vegetation and soils on stream banks and shorelines
 17 should be disturbed as little as possible. In situations where re-
 18 vegetation is necessary to restore stream bank or shoreline
 19 stability and provide shading, site-specific native plants should
 20 be used. Retention of vegetated riparian areas on all lake and
 21 marine shorelines should also be encouraged.
- 22 Policy 11J-6: Prohibit Discourage shoreline armoring with the exception of
 23 protection of urban areas and major infrastructure. Instead,
 24 Encourage natural or bio-engineering solutions such as
 25 planting native vegetation, engineered log jams/LWD, and
 26 beach nourishment along eroding banks to address stream and
 27 shoreline bank erosion problems. Riparian buffers should be
 28 replanted with suitable native vegetation as a part of all bank
 29 stabilization projects.
- 30 Policy 11J-7: Encourage native vegetation and soils retention and plantings
 31 ~~which that~~ provide or maintain the beneficial uses and functions
 32 of streams, rivers, lakes, and marine shorelines.
- 33
- 34 Policy 11J-8: Maintain and encourage restoration of habitat functions for
 35 threatened and endangered fish species.
- 36 Policy 11J-9: Use Best Available Science to inform the creation of regulations
 37 to mitigate adverse impacts of development adjacent to rivers,
 38 streams, and marine shorelines.
- 39 Policy 11J-10: Require Encourage landowners to protect surface water quality
 40 with filter strips or other appropriate water cleansing
 41 mechanisms installed between lawns, landscaping, livestock
 42 pens, or agricultural fields and waterbodies.

1 Reason for Change: Proposed policies 11J-9 and 11J-10 were proposed by the
2 Marine Resources Committee.

3 Policy 11J-11: ~~Formulate and implement~~ ~~Develop~~ ~~Consider~~ ~~developing~~ a
4 comprehensive ~~watershed~~ ~~landscape~~-based environmental
5 management program to protect fish and wildlife. The program
6 ~~will~~ ~~should~~ include the following:

7 1. Formulate an administrative approach to the review of
8 development and planning proposals that consider natural
9 system policies.

10 2. Investigate and develop programs for acquisition and
11 restoration of important fish and wildlife habitat areas.

12 3. Develop and enter into cooperative agreements with State
13 and Federal agencies and neighboring jurisdictions for the
14 purpose of identifying and protecting natural systems.

15 4. Identify and map important habitat corridors throughout the
16 county.

17 4-5. Support the development of ~~an~~ educational ~~booklet~~
18 materials which lists, describes, and characterizes the
19 appropriate use of native vegetation to enhance natural
20 systems in Whatcom County.

21 Reason for Change: Proposed policy 11J-11 comes from the Action Plan that was
22 removed from this chapter.

23 Policy 11J-12: ~~E~~ ~~Consider~~ establishing formal meander limits for the Nooksack
24 River, ~~precluding~~ ~~ge~~ additional development within this zone, and
25 promote the River and Flood property acquisition program
26 within these areas.

27 Reason for Change: Proposed policy 11J-12 comes from the Action Plan that was
28 removed from this chapter.

29 Policy 11J-13: Diligently work to prevent the spread of invasive species.

30 Reason for Change: New policy suggested by Dept. of Ecology.

31 Policy 11J-14: ~~Actively participate in and support WRIA 1 Salmon Recovery~~
32 ~~efforts to return self-sustaining salmonid runs to harvestable~~
33 ~~levels through the restoration of healthy rivers, marine~~
34 ~~shorelines, and natural processes, careful use of hatcheries, and~~
35 ~~responsible harvest.~~

36 Reason for Change: There were no policies acknowledging the County's position
37 regarding salmon recovery or its work with the Salmon Recovery Board.

38 Policy 11J-15: Lead a local effort to create and implement a comprehensive
39 plan to achieve a harvestable surplus of wild salmon in WRIA 1.

1 Wetlands

2 Wetlands are crucial environmental features in Whatcom County. Once thought of
3 as waste areas and unproductive lands, it is now known that wetlands provide
4 | invaluable functions in aquifer recharge, groundwater storage, flood—water
5 detention, pollutant removal and purification of water supplies, as well as provision
6 of fish and wildlife habitat. Loss of wetlands has been due to many factors including
7 urbanization, and to a large degree to agricultural development and associated
8 drainage projects.

9 A plethora of complex and often confusing laws govern the definition, delineation,
10 and protection of wetlands. These laws originate at national, state, and county
11 levels. Land managers and private citizens often experience difficulty in
12 interpreting, synthesizing, and applying wetland regulations. In general, however,
13 state regulations must comply with federal standards and local regulations must
14 comply with both federal and state standards.

15 | **Goal 11K:** **Conserve and enhance important-regulated wetlands.**

16 Policy 11K-1: Recognize natural wetlands such as swamps, bogs, saltwater
17 | marshes, and ponds for their value in cleaning water, reducing
18 flood damage, providing valuable habitat for plants, fish and
19 wildlife, and as sites for groundwater recharge.

20 Policy 11K-2: Develop and adopt criteria to identify and evaluate wetland
21 functions that meet the Best Available Science standard and
22 that are consistent with state and federal guidelines.

23 | Policy 11K-3: Biologicalal functions of wetlands are complex and interwoven.
24 Evaluate the full range of potential and immediate economic
25 | impacts in land-use decisions relating to wetlands, including
26 fisheries, wildlife, recreation, farmlands, sustainable resources,
27 | air and water quality, flood hazard managementcontrol, real
28 estate, cultural attributes, and other entities.

29 Policy 11K-4: Require Encourage land development that avoids or mitigates
30 | wetland impactss. Impacts to important wetlands should be
31 contingent upon full mitigation measures that equitably
32 | compensate for wetlands impacts, on a case-by-case basis.
33 Approved mitigation measures shall include resources for long-
34 term monitoring and adaptive management of mitigation
35 outcomes to assure effectiveness. Strongly discourage alteration
36 of land that results in the degradation of significant wetlands
37 regardless of proposed mitigation measures.

38 Policy 11K-5: Development Property rights and public services are an essential
39 | component of our political and economic system. Where such
40 assets rights and public services are significantly compromised
41 | by the goal of wetland preservation, adverse wetland impacts
42 may, as a last resort, be permitted through standardized
43 | mitigation. This may include avoidance, impact minimization,
44 restoration, enhancement, creation, or off-site compensation for

1 loss of wetland functions in accordance with mitigation
2 sequencing.

3 Policy 11K-6: Recognize beneficial wetland uses, functions, and values.
4 Support protection of fish and wildlife habitat, water quality,
5 plant diversity, flood attenuation and low-flow contribution, and
6 water storage through planning, acquisition, incentive programs,
7 and mitigation.

8 ~~Policy 11K-7: Development proposals applications should be assessed on a~~
9 ~~case-by-case basis so that marginal wetlands are not preserved~~
10 ~~at the expense of upland areas with higher habitat value.~~

11 **Marine Habitat**

12 ~~Marine habitats include all salt water bodies and their shorelines, kelp beds,~~
13 ~~eelgrass meadows, salt marshes, beaches, and mudflats. These habitats play a vital~~
14 ~~role in the health of the local environment as well as of the broader Puget Sound~~
15 ~~region. They provide spawning, rearing, and feeding grounds for a wide variety of~~
16 ~~marine life as well as refuge for juvenile and adult fish, birds, and shellfish. The~~
17 ~~vegetation on back-shore marshes and within estuaries buffers adjacent upland~~
18 ~~areas by absorbing wave energy and slowing erosion.~~

19 ~~Symptoms of ecosystem stress include declining stocks of salmon, bottomfish, and~~
20 ~~forage fish; closures of recreational and commercial shellfish beds; degradation and~~
21 ~~losses of eelgrass beds, kelp forests, and other marine habitats; and dwindling~~
22 ~~populations of seabirds and marine mammals.~~

23 ~~The Northwest Straits Marine Conservation Initiative was authorized by Congress in~~
24 ~~1998. The Initiative established the Northwest Straits Commission and Marine~~
25 ~~Resources Committees (MRCs) in seven western Washington counties, including~~
26 ~~Whatcom County. The MRCs' main purpose is to guide local communities, using up-~~
27 ~~to-date information and scientific expertise, to achieve the important goals of~~
28 ~~resource conservation and habitat protection within the Northwest Straits. The~~
29 ~~Whatcom County MRC acts as an advisory committee to the Whatcom County~~
30 ~~Council.~~

31 Reason for Change: This text was moved to an earlier section of this chapter.

32 **Goal 11L: Protect and enhance marine resources in Whatcom**
33 **County.**

34 Policy 11L-1: Support the Whatcom County Marine Resources Committee in
35 their pursuit of the Northwest Straits Commission benchmarks
36 as follows:

- 37 ▪ Broad county participation in MRC's.
- 38 ▪ A net gain in high-value habitat and ecosystem functions.
- 39 ▪ A net reduction in shellfish bed closures.
- 40 ▪ Measurable increases in factors supporting bottomfish
- 41 recovery.
- 42 ▪ Population increases in other key indicator species.
- 43 ▪ Coordination of scientific data.

- Successful public education and outreach efforts.
- The establishment of a regional system of Marine Protected Areas (MPA's).

Shellfish Habitat

~~Many of the marine water bodies in Whatcom County support natural and cultured bivalve shellfish, including oysters and many of species of clams. The warm, nutrient-rich tideflats in and around Lummi, Portage, and Birch Bay, and Drayton Harbor, and Eliza and Lummi Islands represent unique water resources in this regard. Commercial shellfish growers, recreational clam and oyster harvesters, and Native Americans have utilized this resource for many years. It is an important part of our community's heritage.~~

~~Our ability to grow and harvest shellfish that is safe for human consumption is directly linked to surface water quality and the influence it has on marine waters. The primary measure of water quality for shellfish harvesting is bacterial contamination associated with human sewage and animal wastes. Potential sources of fecal bacteria include municipal sewage treatment plants, on-site sewage systems, boatwaste, farm animals, pets, and wildlife. Since 1995, valuable shellfish beds in Portage Bay and Drayton Harbor have been downgraded (harvest prohibited) due to non-point pollution impacting recreational, tribal, and commercial harvesting. In July 2003, Birch Portage Bay was added identified as a threatened Shellfish Growing Area by the Washington Department of Health to the Washington State list of threatened shellfish harvesting areas. (Washington Department of Health, 2014)~~

Reason for Change: This text was moved to an earlier section of this chapter.

Goal 11M: Protect and enhance shellfish habitat in commercial and recreational areas in order to ensure a productive resource base for long-term use.

Policy 11M-1: Identify and designate marine shellfish habitat for commercial and recreational uses.

Policy 11M-2: Restore degraded waters within the drainage basins of shellfish growing areas to a level that allows/supports shellfish harvesting by work with the Department of Ecology, Tribes, Department of Health, and affected property owners to improve water quality.

Reason for Change: Suggestion by Dept. of Ecology.

Policy 11M-3: Protect shellfish resources by means of pollution prevention. This should include surface and ground-water monitoring for early detection of pollution which-that will minimize the damage and cost of resource restoration.

Policy 11M-4: Improve knowledge of the importance of protecting, preserving, and improving the quality of shellfish habitat within the County.

- 1 Seek out valuable partnerships that will raise awareness,
2 provide education, and enhance shellfish habitat.
- 3 Policy 11M-5: Explore and Developing Low Impact Development standards in
4 shellfish habitat areas.
- 5 Policy 11M-6: Identify and encourage the use of stormwater treatment
6 systems and Best Management Practices that will help reduce
7 fecal coliform bacteria levels in stormwater ~~that discharges~~
8 directly into shellfish habitat areas ~~and encourage their use and~~
9 ~~construction~~.
- 10 Policy 11M-7: Solicit input from the ~~Puget Sound Action Team staff and~~
11 Shellfish Protection District advisory committees and appropriate
12 state, federal, and tribal agencies when considering updates to
13 the Comprehensive Plan that relate to shellfish protection.
- 14 Policy 11M-8: Identify and restore functions, selected through best available
15 landscape-based science, of key wetland areas, ~~which are~~
16 ~~selected through best available landscape-based science~~.
- 17 Policy 11M-9: Modify county roadside ditch maintenance procedures to protect
18 water quality.
- 19 Policy 11M-10: Continue to partner with jurisdictions in British Columbia to
20 minimize impacts on water quality, including that affecting
21 shellfish habitat.

22 Reason for change: Proposed Policies 11M-11 through 16 were moved from Action
23 Plan, which has been deleted.

- 24 Policy 11M-11: Work within the structure of County programs such as the WRIA
25 Watershed Management Planning process to achieve
26 improvements in land use Best Management Practices that will
27 positively affect change in marine water quality.
- 28 Policy 11M-12: Continue to develop programs that help identify potential
29 pollution sources and ensure timely and science-based
30 approaches are used in response to problems as they arise.
- 31 Policy 11M-13: Develop educational tools and opportunities to raise public
32 awareness of marine issues and to inform them of how they can
33 have a positive impact by helping preserve these marine
34 resources.
- 35 Policy 11M-14: Identify areas (such as wetlands and the nearshore
36 environment) that are important to shellfish habitat
37 preservation. Also identify river and stream processes that
38 adversely impact shellfish habitat. Use this information when
39 making land use management and preservation decisions.
- 40 Policy 11M-15: Create a tracking mechanism to document progress made
41 toward improving downgraded shellfish areas. This information
42 will be useful not only in helping to support an upgrade when

1 water quality shows improvement, but also in helping to prevent
2 degradation in currently approved shellfish areas.

3 Policy 11M-16: Work with ~~other~~the County Shellfish Advisory Boards
4 ~~e~~Committees, ~~programs, or processes, such as MRC~~Marine
5 ~~Resources~~ Committee, Salmon Recovery Fund Board, ~~and~~ WRIA
6 Watershed Management Board, and other local, state, federal,
7 and tribal agencies ~~Planning~~to address issues associated with
8 shellfish, shellfish area closures, and shellfish habitat.

9 Reason for change: Proposed Policies 11M-11 through 16 were moved from Action
10 Plan, which has been deleted.

11 Policy 11M-17: ~~E~~Consider establishing the Drayton Harbor Watershed as a
12 sending area when considering a ~~transferrable~~transfer of
13 development rights (TDR) ~~program~~sending area in the Drayton
14 Harbor Watershed.

15 Reason for change: Moved from Policy 2F-7 and edited.

16 Policy 11M-18 Support the Department of Health’s On-Site Sewage System
17 (OSS) Program as a means to lower degradation of our
18 waterways.

19 Reason for Change: Monitoring septic systems is an important component of
20 helping keep our waters clean.

21 **Other Marine and Marine Dependent Organisms and Systems**

22 Our Marine system supports not only local critical and global fisheries resources,
23 but also myriad interdependent organisms, the importance of which we lack the
24 capacity to fully grasp. The Marine ecosystem is a complex web of life that is
25 increasingly affected by anthropogenic impacts. Toxics, hormones, heavy metals,
26 and other harmful substances flushed into nearshore and marine environments with
27 storm water have been shown to have deleterious cumulative impacts on a range of
28 aquatic and marine dependent organisms. Whatcom County will take steps to halt
29 the practice of treating its streams and rivers as a storm sewer and the marine
30 system a water treatment facility.

31 Policy 11-N: Promote Best Management Practices, land use, and stormwater
32 policies that result in a minimal release of harmful chemicals
33 and metallic substances into surface water and the marine
34 environment.

35 Reason for Change: Recommended addition by the Marine Resources Committee.

36 **Environment—Action Plan**

37 *Note:* The Action Plans in each of the Comprehensive Plan elements is proposed for
38 deletion, as many of the items have been accomplished. Those that have not been
39 accomplished are being considered for adding into the policies, above.

1 **Environmental Management**

2 **Community Protection and Environmental Preservation**

- 3 • ~~Work with the community to develop and implement a comprehensive environmental management strategy. The result of these efforts should be a Comprehensive Environmental Management Program that identifies both regulatory and non-regulatory elements. These elements should be organized, developed, and implemented consistent with the three sections of the Environmental chapter. They include Water Resources, Natural Systems, and Natural Hazards.~~
- 10 • ~~Explore and develop a funding source for environmental management efforts. The development of a management strategy should include evaluation of resource availability to ensure realistic goals and efficiency in implementation.~~

14 *Reason for deletion:* This work has been accomplished through the adoption of the
 15 Critical Areas Regulations, participation in the WRIA 1 planning process and
 16 development of the Watershed Plan, participation in the Salmon Recovery planning
 17 process and development of the Salmon Recovery Plan, and other similar plans.

18 **Environmental Management Program Development**

19 **A. Regulatory Action**

- 20 • ~~Ensure that local regulations are not in conflict with one another, are in compliance with the comprehensive plan, meet the GMA requirements, and are capable of being administered in an efficient and fair manner. Successful integration of Whatcom County environmental regulations must include the following:~~
 - 25 • ~~Whatcom County Code~~
 - 26 • ~~Title 16 Environment~~
 - 27 ○ ~~Critical Areas Regulations~~
 - 28 ○ ~~SEPA Regulations~~
 - 29 ○ ~~Agriculture Nutrient Management Plan~~
 - 30 • ~~Title 17 Flood Damage Prevention~~
 - 31 ○ ~~Flood Hazard Management~~
 - 32 • ~~Title 20 Zoning~~
 - 33 ○ ~~Water Resource Protection Overlay Districts~~
 - 34 ○ ~~Stormwater Special Districts~~
 - 35 ○ ~~Water Resource Special Management Areas~~
 - 36 ○ ~~Clearing Regulations~~
 - 37 • ~~Title 21 Land Division Regulations~~

- ~~• Title 23 Shoreline Management Program~~
- ~~• Title 15 Building and Construction~~
- ~~• Whatcom County Comprehensive Plan (agriculture, forestry, mining)~~
- ~~• Whatcom County Coordinated Water System Plan~~
- ~~• Other Local Environmental Regulations or Standards~~

Reason for deletion: This action has been accomplished.

- ~~• Development Standards: As a subset of regulations, update the existing development standards to provide the detailed specifications to implement the necessary regulatory and non-regulatory environmental programs in Whatcom County. At a minimum, these should include or compliment the following:~~

- ~~• Whatcom County Road Standards~~
- ~~• Chapter 2: Stormwater Management~~
- ~~• Chapter 3: Land Clearing~~
- ~~• Low Impact Development Standards~~

~~Because standards only provide the technical guidance for implementation of those activities allowed by regulatory authority, the development of these standards must follow both comprehensive plan and regulatory development.~~

Reason for deletion: This action has been accomplished.

- ~~• Continue to participate and support WRIA Watershed Planning efforts associated with the coordination of local, federal, tribal, and state agencies to achieve integration or consistency between federal, tribal, state, and local environmental regulations relating to the county. The objective should be to reduce confusion, conflicts, and duplication in administrative interpretation and at the counter during the permitting process.~~

Reason for deletion: This action item has been moved to Policy 11E-5.

- ~~• Take steps to discourage additional floodplain development.~~

Reason for deletion: This has been largely accomplished through the adoption of the Critical Areas Regulations, WCC Chapter 17 (Flood Damage Prevention), and the Comprehensive Flood Hazard Management Plan. Additionally, it has been included to Policy 11D-11.

~~B. Non-regulatory Action~~

- ~~• Develop a comprehensive and streamlined system of permitting and approval of building and land development projects which incorporates environmental protection. All effort should be made to make the permitting process accessible and understandable to the public. To this~~

~~end, the application and permitting process should be housed in one accessible location. Additionally, a uniform, step-by-step procedure should be developed for the permitting process. This procedure should be available as a printed handout to prospective applicants and other interested parties.~~

Reason for deletion: This action item has been accomplished.

- ~~• Develop systems for tracking development in sensitive areas such as the Lake Whatcom, Lake Samish, Drayton Harbor, and Birch Bay watersheds or priority areas containing habitats used by federally listed threatened or endangered species.~~

Reason for deletion: This action item has been accomplished.

- ~~• Maintain a working relationship with a local Land Trust and/or other similar organizations. In doing so, Whatcom County should seek assistance in the development and implementation of such non-regulatory elements as education, acquisition, mitigation and mitigation banking, conservation easements, and other non-regulatory tools.~~

Reason for deletion: This action item has been accomplished.

- ~~• Develop non-regulatory programs for consideration of adoption by the County Council. In achieving these non-regulatory elements, Whatcom County should endeavor to reach cooperative arrangements with landowners, jurisdictions, and other interests. The programs will be comprised of a number of elements, including:~~

~~Education~~

~~Free Market Mechanisms~~

~~Technical Assistance~~

~~Restoration and Preservation~~

~~Acquisition~~

~~Innovative Development Alternatives~~

~~Incentives such as Development Rights Transfer, Tax Deferrals, etc.~~

~~Mitigation Banking~~

~~A technical committee should be established to develop these options and offer further recommendations to the County Council. Additionally, consideration should be given to the merits of using other sources of expertise in developing a non-regulatory program of this type.~~

Reason for deletion: This action item has been accomplished.

~~C. Administrative Procedure~~

- ~~• Improve existing administrative procedures as follows:~~
- ~~• Enforcement: Establish strong education inspection, compliance, and enforcement measures for each of the three programs (Natural~~

~~Hazards, Water Resources, and Natural Systems). An analysis of existing enforcement effectiveness should establish the requirements for additional enforcement needs.~~

- ~~• Staffing: Provide adequate staffing to administer and enforce the programs outlined above. The county should analyze staffing needs and provide adequate staffing to meet these needs.~~
- ~~• Permits: Develop a streamlined permit process so that the applicant can readily understand what is required (in simple, straightforward language), can fill out the application without expending large amounts of time and money, and does not have to wait unacceptable periods of time. In meeting this objective, the county should pursue the following:~~
 - ~~• One stop service.~~
 - ~~• Clear permit information and instructions.~~
 - ~~• Well thought out and reasonable permit requirements.~~
 - ~~• Acceptable permit processing time.~~
 - ~~• Code flexibility when necessary to provide for a reasonable use of property while still protecting environmental values.~~
 - ~~• Review by pre-approved, private sector professionals, where appropriate, to provide choice of reviewing options for applications.~~
 - ~~• Accountability: Review and modify existing policies, regulations, and administrative processes to ensure efficiency, effective service to the community, and implementation of the environmental goals of the Comprehensive Plan. Provide a timetable for the environmental review portion of permits to ensure predictable and expeditious processing of permits.~~

Reason for deletion: This action item has been accomplished.

The Environment and Private Rights

- ~~• Develop working relationships with development, environmental protection, and property rights organizations, with a clear vision of promoting the greatest public good and environmental health.~~

Reason for deletion: This action item has been accomplished.

Natural Hazards

- ~~• Conduct a public process with affected citizens, technical experts, and decision makers to establish recommended levels of public risk for each of the identified natural hazards. In developing recommended levels of public risk for natural hazards, consider the appropriate variables affecting developments in hazardous areas. These variables may include:~~

- ~~• Specific types of risk associated with the particular hazard area.~~
- ~~• The gradation of hazards associated with a particular geo-hazard.~~
- ~~• Level of detail necessary to map hazard areas.~~
- ~~• Different levels of risk associated with different ownership classes (e.g. public ownership versus private ownership).~~
- ~~• Different levels of risk associated with different types of land uses.~~
- ~~• Mitigation measures related to specific adverse impacts of development in hazard areas.~~

~~Once a set of risk levels have been identified, propose these risk levels for adoption by the County Council as the level to which future development must be designed and appropriate locations for them.~~

- ~~• Formally establish acceptable levels of public risk for use in approving and conditioning development activity in known natural hazard areas. The established level of risk may be expressed as the potential hazard posed as determined by scientific and historical methods applicable to each specific natural hazard.~~

- ~~• Require applicants for development permits located in identified natural hazard areas to provide development plans designed to minimize the potential to exacerbate the natural hazard as well as the risk of damage to property or threats to human health and safety according to the following ordered preference:~~

- ~~• Avoid the identified hazard area if possible.~~

~~If not,~~

- ~~• Provide a qualified professional assessment of the hazard, type, frequency, potential magnitude, and adequate mitigation.~~
- ~~• Provide an engineered structural design to withstand calculated forces associated with the design event applicable to a specific natural hazard while creating no off-site impacts to adjacent property owners or natural systems.~~
- ~~• If off-site impacts are likely to occur as a result of the engineered design, provide mitigation plans for identified adverse off-site impacts to adjacent property owners and natural systems along with the above engineered structural design.~~
- ~~• In natural hazard areas where engineering solutions cannot be designed to withstand the forces expected to occur under the design event of a particular natural hazard, or off-site adverse impacts to adjacent properties or natural systems cannot be adequately mitigated, Whatcom County may deny development permits intended for permanent or seasonal human habitation.~~

Reason for deletion: This action item has been moved to Policy 11D-12.

- ~~• Review the findings and recommendations of alluvial fan hazard evaluations and make appropriate recommendations for land use and~~

~~zoning regulations to the County Council to assist in reducing the hazards posed on these fans. Whatcom County has completed or nearly completed alluvial fan evaluations of Canyon Creek, Jones Creek, and Glacier Gallop Creeks.~~

- ~~• Review the findings and recommendations of the Comprehensive Flood Hazard Management Plan (CFHMP) and make appropriate recommendations for land use and zoning regulations to the County Council to assist in the implementation of the CFHMP.~~

Reason for deletion: Moved to policies.

- ~~• Include identified natural hazard areas in areas designated for density reduction.~~

Reason for deletion: In considering any density changes, natural hazard areas are always considered.

Water Resources

- ~~• Promote and participate in efforts to protect and manage water quality and quantity through non-regulatory actions such as education, incentives, and technical/financial assistance. Particular emphasis should be placed on efforts that increase and enhance efficiency among existing programs. Programs that emphasize multiple solutions to water resource questions should receive top priority.~~

- ~~• Use processes such as the WRIA Watershed Management Planning and the Lake Whatcom Management Program to actively promote and participate in education, research, and information opportunities that better our understanding of the county's complex water resource systems. New information should be considered in the development and evaluation of management actions.~~

- ~~• Promote more efficient use of resources by supporting and/or participating in efforts of the Countywide Conservation Committee, the Whatcom Water Utilities Committee (WWUC), WRIA Watershed Management Planning, and other avenues as they may arise.~~

Reason for deletion: These items are similar to policies already included above.

- ~~• Continue identifying areas that require special protection such as wellhead protection areas, aquifers, and high-priority watersheds, and incorporate that knowledge into management actions, including dissemination of the information to the general public.~~

Reason for deletion: This item has been moved to Policy 11F-7.

- ~~• Pursue adoption and implementation of ground and/or surface water management plans and protection efforts, and integrate the plans into local comprehensive plans.~~

- ~~• Support existing and pending programs such as those directed at Lake Whatcom, the Nooksack Basin, Abbottsford/Sumas Aquifer, Blaine~~

~~Groundwater Management Area, Drayton Harbor and Portage Bay Shellfish Protection Districts, Samish Bay Watershed, Critical Aquifer Recharge Areas, WRIA Watershed Management Planning, and Wellhead Protection (Sumas, Blaine and Everson are currently under development). The level of support for these programs must be consistent with County budgeting priorities.~~

Reason for deletion: These items are similar to policies already included above.

- ~~• Support/build upon the implementation and completion of local/state Watershed Action Plans, the Lake Whatcom Management Program, and WRIA Watershed Management Planning as some of the means of addressing non-point source pollution.~~

Reason for deletion: This item has been moved to Policy 11F-8.

- ~~• Identify critical aquifer recharge areas and develop management options for review by the County Council.~~
- ~~• Develop criteria for establishing water resource protection areas, and adopt measures to protect those areas.~~
- ~~• Encourage metering of public water systems with Urban Growth Areas.~~
- ~~• Actively participate in the current process to establish a countywide water resources management body.~~

Reason for deletion: These items are similar to policies already included above.

Stormwater

- ~~• Develop a comprehensive stormwater management program designed to manage runoff from public facilities and industrial, commercial, and urban residential areas including streets and roads in compliance with NPDES requirements. Establish a stormwater management plan for rural roads. Each component of the program shall cover both new and existing developments. Emphasis should be placed on controlling stormwater through source controls and Best Management Practices. Establish a long term goal of minimal pollutant discharge into surface water resources.~~
- ~~• At a minimum, the components of this program shall include:~~
- ~~• Identification of potentially significant pollutant sources and their relationship to the drainage system and water bodies.~~
- ~~• Investigation of problem drains, including sampling.~~
- ~~• Programs for operation and maintenance of storm drains, detention systems, ditches, and culverts.~~
- ~~• A water quality response program to investigate sources of pollutants, spills, fish kills, illegal hookups, dumping, and other water quality problems. These investigations should be used to support compliance/enforcement efforts.~~

- ~~1 • Assurance of adequate local funding for the stormwater program~~
~~2 through surface water utilities, sewer charges, fees, or other revenue-~~
~~3 generating sources.~~
- ~~4 • Local coordination arrangement such as interlocal agreements, joint~~
~~5 programs, consistent standards, or regional boards or committees.~~
- ~~6 • Regulations requiring implementation of stormwater control for new~~
~~7 development.~~
- ~~8 • A public stormwater educational program aimed at residents,~~
~~9 businesses, and industries in the urban area.~~
- ~~10 • Strong inspection, compliance, and enforcement measures.~~
- ~~11 • An implementation schedule.~~
- ~~12 • Adequate design specifications and construction practices to ensure~~
~~13 minimal on-site erosion and sedimentation during and after~~
~~14 construction.~~
- ~~15 • Incorporate watershed considerations into the development of a~~
~~16 comprehensive stormwater management strategy. This should include~~
~~17 the identification of priority watersheds relative to stormwater~~
~~18 management and the application of Action Item 1 to each watershed in~~
~~19 the order of their priority.~~
- ~~20 • Review Stormwater Special Districts Standards that address runoff~~
~~21 treatment from potentially polluting surfaces for their applicability to~~
~~22 other sensitive watersheds.~~
- ~~23 • Amend subdivision, zoning, and other land use regulations and design~~
~~24 standards to require that land use activities minimize the amount of~~
~~25 impervious surface. Low impact surfacing options should be~~
~~26 encouraged wherever possible.~~
- ~~27 • Identify and implement a long term funding source to provide for~~
~~28 water resource protection services including non point source~~
~~29 identification and enforcement of applicable county regulations.~~
- ~~30 • Focus on the Lake Whatcom watershed as a high priority in developing~~
~~31 a stormwater management program. Develop a stormwater~~
~~32 management plan that achieves a uniform level of protection~~
~~33 throughout the Lake Whatcom watershed. Ensure coordination and~~
~~34 communication with the public and affected jurisdictions such as the~~
~~35 Lake Whatcom Water and Sewer District, the Sudden Valley~~
~~36 Community Association, and the City of Bellingham.~~
- ~~37 • Work with the Technical Advisory Committee and other appropriate~~
~~38 agencies in revising or developing standards necessary to ensure~~
~~39 watershed protection and then coordinate the effort within sensitive~~
~~40 watersheds for ongoing monitoring and evaluation.~~

- ~~• Develop and implement a stormwater maintenance program for the Lake Whatcom Watershed that would ensure that existing systems are adequately maintained.~~
- ~~• Ensure that existing stormwater standards are adequately enforced within Stormwater Special Districts.~~

Reason for deletion: This item has been moved to Policy 11G-12.

- ~~• Place a high priority on integrating impervious surface reduction incentives into policies, regulations, and standards for the Lake Whatcom and Lake Samish watersheds.~~

Reason for deletion: This item has been moved to Policy 11G-11.

- ~~• Prioritize project review in the Lake Whatcom, Lake Samish and Drayton Harbor watersheds. Continue to implement an administrative review process for new development projects within the Lake Whatcom, Lake Samish, and Drayton Harbor watersheds to clearly resolve potential stormwater problems prior to construction.~~

Reason for deletion: This action has already been incorporated into PDS procedures.

Natural Systems

General

- ~~• Formulate and implement a comprehensive watershed-based environmental management program to protect fish and wildlife. The program will include the remaining action items.~~

Reason for deletion: This item has been moved to Policy 11J-11.

- ~~• Formulate an administrative approach to the review of development and planning proposals that consider natural system policies.~~
- ~~• Investigate and develop programs for acquisition and restoration of important fish and wildlife habitat areas.~~
- ~~• Develop and enter into cooperative agreements with State and Federal agencies and neighboring jurisdictions for the purpose of identifying and protecting natural systems.~~

Reason for deletion: These items have been accomplished via other means.

- ~~• Identify and map important habitat corridors throughout the county.~~
- ~~• Support the development of an educational booklet which lists, describes, and characterizes the appropriate use of native vegetation to enhance natural systems in Whatcom County.~~

Reason for deletion: This action item has been accomplished.

Fish and Wildlife

- ~~Update the County fish and wildlife folio.~~
- ~~Develop an outreach program with landowners and citizens for the purpose of further identifying, understanding, and supporting stewardship of wildlife species and their habitats. This program may include open space tax incentives, cooperative arrangements, volunteer stewardship programs, site-specific management plans, conservation easements, and provision of educational materials.~~
- ~~Support the development of educational programs to reduce adverse cumulative impacts to fish and wildlife from incremental riparian vegetation removal on marine and freshwater shorelines, especially in areas of higher density development.~~
- ~~Develop geographically-based wildlife management plans for important habitat conservation areas. These plans should take into full account the unique environmental qualities of the area as well as the existing or planned surrounding land use activities and constraints. These plans should be used as a basis for both the formulation and administration of regulations that address fish and wildlife protection.~~
- ~~Amend the existing Whatcom County Development Standards to provide design standards and specifications for the passage of fish through culverts where necessary and feasible. Implement a program that corrects existing obstructions to fish passage.~~

Reason for deletion: These action items have been accomplished.

- ~~Develop and distribute educational materials to the public that describe the characteristics of healthy and viable fish and wildlife habitats.~~

Reason for deletion: This action item has been accomplished.

- ~~Identify existing and historically important fish habitats. Include a component that seeks to protect and restore these habitats and to mitigate future impacts to fish habitats.~~

Reason for deletion: This action item has been accomplished.

- ~~Determine appropriate stream and river buffer widths, based upon Best Available Science that will optimize fish and wildlife habitat and water quality.~~

Reason for deletion: This action item has been accomplished.

- ~~Coordinate the various jurisdictional interests and the responsibilities of Whatcom County.~~

Reason for deletion: This action item has been accomplished.

- 1 ~~• Amend the Whatcom County Shoreline Management Program to~~
 2 ~~protect threatened and endangered species, consistent with RCW~~
 3 ~~90.58 and Department of Ecology rules (WAC 173-26).~~

4 Reason for deletion: This action item has been accomplished.

- 5 ~~• Amend the Critical Areas regulations to protect threatened and~~
 6 ~~endangered species, consistent with RCW 36.70A.172, which calls for~~
 7 ~~giving special consideration to conservation or protection measures~~
 8 ~~necessary to preserve or enhance anadromous fisheries, and~~
 9 ~~Department of Ecology rules relating to Best Available Science (WAC~~
 10 ~~365-195, Part IX).~~

11 Reason for deletion: This action item has been accomplished.

- 12 ~~• Amend the Whatcom County Land Division Regulations approval~~
 13 ~~criteria to require subdivisions and short plats to be designed in a~~
 14 ~~manner to protect fish habitat and water quality when a fish bearing~~
 15 ~~stream or river passes through the site.~~

16 Reason for deletion: This action item has been accomplished.

- 17 ~~• Review and consider amendments to the Whatcom County~~
 18 ~~Development Standards, Stormwater Management chapter, to protect~~
 19 ~~threatened and endangered species. Review and consider amendments~~
 20 ~~to the Stormwater Management chapter consistent with the~~
 21 ~~Department of Ecology's new manual.~~

22 Reason for deletion: This action item has been accomplished.

- 23 ~~• Review and consider amendments to the Whatcom County~~
 24 ~~Development Standards, Land Clearing chapter, to protect threatened~~
 25 ~~and endangered species.~~

26 Reason for deletion: This action item has been accomplished.

- 27 ~~• Establish formal meander limits for the Nooksack River, preclude~~
 28 ~~additional development within this zone, and promote the River and~~
 29 ~~Flood property acquisition program within these areas.~~

30 Reason for deletion: This item has been moved to Policy 11J-12.

31 **Wetlands**

- 32 ~~• Consider rezoning of areas of the County that are largely comprised of~~
 33 ~~critical areas.~~
- 34 ~~• Develop a system of classifying wetlands, assigning buffers, and~~
 35 ~~addressing riparian wetlands and habitat for listed species that follows~~
 36 ~~state guidelines.~~
- 37 ~~• Incorporate Best Available Science to support criteria for buffer~~
 38 ~~reductions and mitigation.~~

39 Reason for deletion: These items have been accomplished.

- 1 ~~• Formulate a comprehensive watershed-based wetlands protection~~
- 2 ~~component of the management program that incorporates both~~
- 3 ~~regulatory and non-regulatory elements in order to protect wetlands in~~
- 4 ~~Whatcom County. This component will include the remaining action~~
- 5 ~~statements.~~
- 6 ~~• Describe, inventory, and categorize wetland systems in Whatcom~~
- 7 ~~County. Assess the functions and values of these systems as they~~
- 8 ~~relate to fish, wildlife, water quality, and water quantity.~~

9 Reason for deletion: These action items have been accomplished.

- 10 ~~• Synthesize the myriad federal, state and local regulations relating to~~
- 11 ~~wetlands into a single, unified local policy document that meets the~~
- 12 ~~intent and direction of the comprehensive plan. This document should~~
- 13 ~~be as brief and concise as possible.~~

14 Reason for deletion: This action item has been accomplished.

- 15 ~~• Develop a mitigation program that will allow for full build-out of~~
- 16 ~~designated Industrial and Commercial zoning districts. The program~~
- 17 ~~should include provisions for the creation of off-site wetland mitigation~~
- 18 ~~and for the creation and use of mitigation banking.~~

19 Reason for Change: There are other options for achieving this.

20 **Marine**

- 21 ~~• Work within the structure of County programs such as the WRIA~~
- 22 ~~Watershed Management Planning process to achieve improvements in~~
- 23 ~~land use Best Management Practices that will positively affect change~~
- 24 ~~in marine water quality.~~
- 25 ~~• Continue to develop programs that help identify potential pollution~~
- 26 ~~sources and ensure timely and science-based approaches are used in~~
- 27 ~~response to problems as they arise.~~
- 28 ~~• Develop educational tools and opportunities to raise public awareness~~
- 29 ~~of marine issues and to inform them of how they can have a positive~~
- 30 ~~impact by helping preserve these marine resources.~~
- 31 ~~• Identify areas (such as wetlands and the nearshore environment) that~~
- 32 ~~are important to shellfish habitat preservation. Also identify river and~~
- 33 ~~stream processes that adversely impact shellfish habitat. Use this~~
- 34 ~~information when making land use management and preservation~~
- 35 ~~decisions.~~
- 36 ~~• Create a tracking mechanism to document progress made toward~~
- 37 ~~improving downgraded shellfish areas. This information will be useful~~
- 38 ~~not only in helping to support an upgrade when water quality shows~~
- 39 ~~improvement, but also in helping to prevent degradation in currently~~
- 40 ~~approved shellfish areas.~~

- ~~Work with other County committees, programs, or processes, such as MRC, SRF Board, and WRIA Watershed Management Planning to address issues associated with shellfish and shellfish habitat.~~

Reason for deletion: Moved to policies Policy 11M-11 through 11M-16.