

Chapter Eleven Environment

INTRODUCTION

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

Chapter Organization

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

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

Purpose

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

Process

~~This chapter was first originally produced by the Citizens' Environmental Task Force (ETF). The ETF began its task with fourteen members from diverse backgrounds, who were selected by the County Executive in October 1993. The ETF's objectives were divided into two tasks: develop an Environmental chapter for the~~

~~1 | cComprehensive pPlan, and develop regulatory and non-regulatory tools to
2 | implement the provisions of the cComprehensive pPlan.~~

~~3 | Members of the ETF participated in the county's Visioning Process by attending
4 | town hall meetings to explain the committee's activities and to gather additional
5 | public input regarding the environment. The values and alternatives gathered
6 | through the Visioning Process are reflected in this chapter.~~

~~7 | **GMA Goals, and County-Wide Planning Policies, and Visioning Community 8 | Value Statements**~~

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

~~15 | Relative to environmental protection, Whatcom County's County-Wide Planning
16 | Policies (CWPP) give the most attention to water issues. They state, "The quality of
17 | life and economic health of Whatcom County communities depend on the
18 | maintenance of a safe and reliable water supply. All jurisdictions and water
19 | purveyors should cooperate to ensure the protection and quality of the area's water
20 | resources." ~~Five s~~Specific policies address water, promoting inter-jurisdictional
21 | cooperation in conserving, protecting, and managing the water resource, and in
22 | reducing water pollution. The CWPP also support protecting wildlife habitat and
23 | corridors, natural drainage features, and "other environmental, cultural and scenic
24 | resources."~~

~~25 | **GMA Requirements**~~

~~26 | The GMA ~~also~~ requires Whatcom County to identify and manage critical areas in
27 | such a manner as to prevent destruction of the resource base and reduce potential
28 | losses to property and human life. The GMA has identified Critical Areas to include
29 | the following areas and ecosystems:~~

- ~~30 | • Wetlands~~
- ~~31 | • ~~Areas with a critical recharging effect on aquifers used for potable
32 | water~~Critical Aquifer Recharge Areas~~
- ~~33 | • Fish and wildlife habitat conservation areas~~
- ~~34 | • Frequently flooded areas~~
- ~~35 | • Geologically hazardous areas: ~~(GMA Definition)~~~~

~~36 | **Background Sources**~~

~~37 | The background information contained in this chapter incorporates background
38 | information from the following documents:~~

- ~~39 | • ~~Whatcom County Environmental Resources Report Series: Alluvial Fan
40 | Hazard Areas. Whatcom County Planning Department, August 1992.~~~~

- 1 • ~~Whatcom County Environmental Resources Report Series: Category I~~
2 ~~Wetlands. Whatcom County Planning Department, April 1992.~~
- 3 • ~~Whatcom County Environmental Resources Report Series: Wetlands in the~~
4 ~~Nooksack River Floodplain. Whatcom County Planning Department,~~
5 ~~December 1992.~~
- 6 • ~~Whatcom County Environmental Resources Report Series: Depressional~~
7 ~~Areas in the Nooksack River Floodplain. Whatcom County Planning~~
8 ~~Department, December 1992.~~
- 9 • ~~Whatcom County Environmental Resources Report Series: Hydrologic and~~
10 ~~Fishery Resources of Whatcom County. Whatcom County Planning~~
11 ~~Department, December 1994.~~

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

14 ENVIRONMENTAL SETTING

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

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

35 Two main glacial advances are the most important to our area, the Salmon Springs
36 glaciation and the later Vashon glaciation. Each time the massive glacier advanced,
37 it dammed up the Puget lowlands to form a huge lake. As the floating ice melted,
38 sand, gravel, clay and occasional boulders would melt out of the ice and fall to the
39 sea floor. This deposit, the Bellingham Drift, covers the ground surface over a large
40 area of western Whatcom County. Each time the Ice Age glacier advanced, it also
41 compacted underlying sediments with its great weight. It created a concrete-like
42 material called "till" (also known as "hardpan") beneath it. Because the Bellingham
43 Drift consists primarily of clay and silt, it is relatively impermeable; water tends to
44 accumulate on the ground surface. Wetlands are common on the Bellingham Drift.

1
2 | On the bottom of the lake, "rock flour"~~---~~the finely ground remains of rocks
3 | pulverized by glacial action~~---~~settled out. These deposits became the familiar "blue
4 | clays" of the Puget lowland. The milky color of the Nooksack River is due to the
5 | same kind of rock flour, created by glacial activity on the slopes of Mount Baker.

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

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

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

40 | **ENVIRONMENTAL MANAGEMENT**

41 | **Introduction**

42 | General environmental goals and policies are intended to provide guidance for
43 | environmental management that will promote environmental protection and good
44 | stewardship practices through a balance of public education and involvement;

1 incentives, acquisition and voluntary programs; land use planning and regulations;
2 environmental monitoring; and intergovernmental cooperation. These goals and
3 policies are also intended to provide guidance to County government as it assists its
4 citizens in maintaining a balance between individual property rights, economic
5 development and environmental protection.

6 **GMA Requirements**

7 See Appendix C.

8 **Background Summary**

9 Development in the last 100 years has had a significant impact on the natural
10 environment in Whatcom County. At the turn of the 20th century, the areas
11 surrounding Lynden, Sumas, and Ferndale were logged, drained and converted to
12 agricultural land. In the intervening years, many of the remaining forests were
13 logged, many streams re-routed and channelized, and much of the native
14 vegetation removed and replaced with a wide variety of introduced vegetative
15 types. Roads now crisscross most areas, with homes, farms, businesses, and
16 industri~~es~~y scattered throughout the county.

17 **Issue, Goals, and Policies**

18 There are designated ~~many~~ lands in Whatcom County that can still accommodate
19 extensive development. ~~The Whatcom e~~County also has areas that are sensitive to
20 human activity (wetlands, streams, lakes, marine shorelines) and lands that can
21 pose a hazard to the community (floodplains and unstable slopes). In these ~~These~~
22 are the areas ~~where~~ development must be carefully planned or limited to maintain
23 environmental quality and public safety. This can be done through the creation and
24 implementation of goals and policies that seek to reduce hazards and prevent
25 adverse environmental impacts.

26 **Community and Environmental Protection**

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

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

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

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

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

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

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

17 Policy 11A-4: Manage designated Environmentally Critical Areas (ECAs) as
 18 needed, to minimize or protect against environmental
 19 degradation and reduce the potential for losses to property and
 20 human life.

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

23 Policy 11A-6: ~~Aim to meet or exceed Adopt in accordance with~~ national, state,
 24 and regional ~~regulations the required~~ air quality standards. ~~Work~~
 25 ~~with the Northwest Clean Air Agency to ensure compliance with~~
 26 ~~applicable air quality standards. Develop and implement~~
 27 ~~programs to monitor and assure compliance with those~~
 28 ~~standards.~~

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

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

34 Policy 11A-8: Coordinate efforts with property owners, citizen groups, and
 35 governmental and non-governmental agencies in furthering
 36 Whatcom County's environmental goals and policies.

37 Policy 11A-9: Cooperate with state and federal agencies and neighboring
 38 jurisdictions to identify and protect threatened and endangered
 39 fish and wildlife species and their habitats.

40 Policy 11A-10: Support acquisition, conservation easements, open space, and
 41 other such programs to protect high-value natural areas as
 42 identified through the GMA planning process, the Natural

- 1 Heritage Plan, the state Priority Habitats and Species (PHS)
 2 program, the Lake Whatcom Management Program, and other
 3 sources.
- 4 Policy 11A-11: Designate high-value open space and natural areas for
 5 acquisition, conservation easements, open space and other such
 6 programs to protect these natural areas upon request or
 7 consent of the property owner.
- 8 Policy 11A-12: Broadly inform the citizens of the county of the locations of
 9 potential development constraints associated with natural
 10 conditions. Information should include known natural hazards,
 11 and an assessment of the potential danger to both the property
 12 owner and the public.

13 Administration and Regulation

14 There are currently a multitude of regulations and administrative processes at the
 15 federal, state and local level that together have become excessive and difficult to
 16 understand. Conflicting regulations and complicated administrative processes can
 17 create undue hardship on community members and result in reduced levels of
 18 environmental protection. Regulatory inspection and enforcement of environmental
 19 regulations are currently inconsistent and lack effectiveness. The combination of
 20 complex regulations and inadequate enforcement have led to a lack of
 21 administrative predictability, widespread violations, and ultimately to environmental
 22 deterioration.

23 **Goal 11B:** Simplify and harmonize regulations to address ~~Ease the~~
 24 ~~burden of excessive and~~ confusing regulations; **in**
 25 **instances when they are clearly identified, relating to the**
 26 **identification, delineation, and protection of**
 27 **environmental features.**

28 Policy: 11B-1: Develop, as a primary component of a comprehensive
 29 environmental management program, non-regulatory measures
 30 that include voluntary activity, education, incentives,
 31 restoration, acquisition, mitigation, and intergovernmental
 32 coordination.

33 Policy 11B-2: Provide incentives for good stewardship of the land through the
 34 use of non-regulatory and innovative land use management
 35 techniques.

36 Policy 11B-3: Support education as an important tool in developing public
 37 appreciation for the value of natural systems and provide the
 38 public with informational materials and presentations relating to
 39 natural system functions, regulations, and issues.

40 Policy 11B-4: Promote cooperation and coordination among involved
 41 government agencies when multiple agencies have jurisdiction
 42 over aspects of a single project.

- 1 Policy 11B-5: Process the environmental review of building and development
2 | permit applications within an established time-frame that is
3 | predictable and expeditious.
- 4 | Policy 11B-6: Provide clear, timely, appropriate, and understandable direction
5 | to citizens, developers, and property owners.
- 6 | Policy 11B-7: ~~Simplify~~ Keep regulations as simple as possible and establish
7 | maintain effective inspection, compliance, and enforcement
8 | measures.
- 9 Policy 11B-8: Recognize the policies of the Whatcom County Shoreline
10 | Management Program as constituting a “Shoreline Element” of
11 | this plan. The shoreline program regulations and policies shall
12 | be considered to be consistent with this plan ~~until such time as~~
13 | ~~any necessary amendments are made.~~

14 **The Environment and Property Rights**

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

29 **Goal 11C:** **In implementing ~~Whatcom County~~ environmental**
30 | **policies, provide for protection of private property rights**
31 | **and, economic opportunities, and plan appropriately for**
32 | **growth.**

33 Policy 11C-1: Actively pursue voluntary and cooperative efforts that advance
34 | Whatcom County's goals in a mutually beneficial manner.

35 | Policy 11C-2: ~~Review current comprehensive~~ When adopting new
36 | environmental protection programs, ~~to ensure that they~~
37 | consider multiple economic parameters including development
38 | objectives and impacts and the economic benefits of the natural
39 | environment as both a resource and an amenity.

40 | Policy 11C-3: Emphasize an approach to environmental protection ~~by that~~
41 | encouraging the use of conservation easements, open space
42 | taxation, land acquisition, purchase/transfer of development
43 | rights, and other mechanisms ~~to that~~ assist affected property

1 owners. Consider mechanisms to compensate affected property
 2 owners in the event that the regulations implementing these
 3 Environmental Goals and Policies ~~prohibit or significantly restrict~~
 4 ~~the use of property as otherwise permitted by law~~ constitute a
 5 “taking.”

6 Climate Change

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

- 23 • More precipitation falls as rain rather than snowfall in the Cascades due to an
 24 increased snow-line elevation
- 25 • Decreased (winter) mountain snowpack and earlier (spring) snowmelt
- 26 • Higher winter streamflow in rivers that depend on snowmelt
- 27 • Higher winter streamflow in rain-fed river basins if winter precipitation
 28 increases in the future as projected
- 29 • Earlier peak (spring) streamflow in rivers that depend on snowmelt
- 30 • Lower summer streamflow in rivers and streams
- 31 • Decreased water in summer for irrigation, fish, human consumption and
 32 recreational use (more drought-like conditions)

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

43 In 2007, Whatcom County completed a Climate Protection and Energy Conservation
 44 Action Plan that laid out specific actions and targets for reducing greenhouse gas

1 emissions and increasing energy conservation efforts in response to potential
 2 climate change.

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

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

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

15 1. Study the resilience of its natural and built environments
 16 to the potential impacts of climate change;

17 2. Identify the relative vulnerability of these sectors to
 18 climate change; and

19 3. Examine the adaptive capacity of these sectors to cope
 20 with or mitigate climate change and take advantage of
 21 any beneficial opportunities.

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

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

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

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

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

35 NATURAL HAZARDS

36 Introduction

37 The location, climate, and geology of Whatcom County combine to create many
 38 natural hazards to people and their developments. Earthquakes, volcanoes,
 39 landslides, and flooding ~~streams and rivers~~ are some of the major natural hazards
 40 found in our region. Additionally, old mines are scattered around the county that

1 could be dangerous to the community. Natural Hazards goals and policies are
 2 intended to provide guidance to county government as it assists its citizens in
 3 effectively managing natural hazards in a manner ~~which~~that minimizes the danger
 4 to each member of this community, while continuing to provide for economic
 5 opportunities.

6 **Background Summary**

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

8 **Landslide Hazards** – The geologically recent retreat of glaciers from the Whatcom
 9 County landscape, ~~succeed by contemporaneous geomorphic processes of erosion,~~
 10 ~~sediment transport, deposition, isostatic rebound and tectonic uplift,~~ has left many
 11 hillsides over-steepened and susceptible to naturally occurring and human-
 12 triggered slope failure landslides and erosionearth movements. Several large, well-
 13 known landslides are presently active exist in Whatcom County, such as the Swift
 14 Creek Slide on Sumas Mountain and the Darrington Slide located in the upper Jones
 15 Creek Watershed. In addition, numerous large-scale, pre-historic slope failure
 16 deposits have been mapped by past workers and are readily identified in more
 17 recently available lidar imagery. Various slope failure processes contribute to the
 18 mosaic of landslide hazards present in the County the large slide on Slide Mountain
 19 south of Maple Falls. These larger land slides affect significant areas with and the
 20 potential exists for a multitude of impacts ranging from periodic small- to large-
 21 scale rockfall and slides, as well as the potential for massive debris slides and
 22 avalanches, destructive debris flows, and deep-seated earthflows, slumps and
 23 slides. deposits. Numerous smaller These landslides processes act on both the
 24 large- and small-scale, and though much less catastrophic in nature, smaller
 25 landslides occur more frequently and pose a continually hazard to County residents
 26 and infrastructurealso exist in the county, affecting smaller areas. In addition, the
 27 presence of eCertain types of geologic conditions and formations are common
 28 culprits in the occurrence of landslides, namely the Chuckanut Formation and the
 29 Darrington Phyllite, but are also frequently observed in unconsolidated glacial
 30 sediments, in the presence of day-lighting groundwater seams and springs, on
 31 slopes in excess of 35 percent, along coastal bluffs, and in areas of fluvial
 32 erosionare susceptible to land sliding under certain conditions. In the 1970s, a
 33 portion of Interstate 5 south of Bellingham collapsed where the freeway crossed
 34 portions of unstable Chuckanut Formation.

35 Reason for Change: Updated due to updated knowledge.

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

1 **Flood Hazards** – Heavy winter rains and a transient snowpack combined with the
2 steep and sometimes unstable slopes of Whatcom County's foothills, create
3 conditions ideal for flooding and debris flows along many of our rivers and streams.
4 The Nooksack River floodplain alone covers 38,000 acres in Whatcom County. In
5 1989 and 1990, the Nooksack River overflowed and flooded lowland Whatcom
6 County causing millions of dollars of damage. During some extreme floods, the
7 Nooksack River overflows near Everson and adversely impacts residents along
8 Johnson Creek in Sumas, and in the Abbotsford area of British Columbia. It is
9 predicted that climate change will exacerbate flooding, due to increased tides and
10 changes in rainfall patterns. Significant damage may result from ~~these such~~ floods.
11 In 1991, Whatcom County formed a county-wide Flood Control Zone District to
12 address the major flooding issues in the county.

13 **Volcanic Hazards** – The presence of Mt. Baker is an asset to our region. Its
14 10,778-foot peak is one of the dominant features of Whatcom County's landscape.
15 However, Mt. Baker is also considered one of the most potentially active volcanoes
16 in the Cascade Range, and of the six major volcanoes in the range, Mt. Baker is
17 considered by geologists to be very hazardous during and after an eruption. ~~The~~
18 ~~frequency of Mt. Baker volcanic events averages once every 200 years. The last~~
19 ~~recorded significant event was about 200 years ago.~~ Pyroclastic flows, ash flows,
20 and especially volcanic mudflows, ~~(also called known as lahars,)~~ are believed to be
21 the greatest dangers to human life and development in Whatcom County. Geologic
22 evidence indicates that an eruption on Mt. Baker caused a major ~~mudflow-lahar~~
23 about ~~6,000-6,600~~ years ago ~~which that~~ inundated the Middle Fork Nooksack Valley
24 from its headwaters downstream past the confluence with the North Fork at
25 Welcome. The same ~~mudflow, or-lahar,~~ is now known to have been over 300 feet
26 deep in the upper reaches of the Middle Fork extended as far east-west as Nugent's
27 Corner, ~~and likely traveled to the Puget Sound~~. A major ~~mudflow-lahar~~ along the
28 Nooksack would divert the river from its channel and cause mass flooding.
29 Fortunately, volcanic eruptions are infrequent with periods of hundreds and
30 thousands of years between events, but this infrequency also makes forecasting a
31 volcanic eruption extremely difficult. However, a major eruption of Mt. Baker would
32 pose a serious threat to human life and property. The deeply weathered nature of
33 the rocks forming Mt. Baker may also fail, triggering a mudflow that would travel
34 rapidly down the stream channels ringing the volcano and result in damage similar
35 to that from a volcanic eruption trigger. Mapping over the past decade of other
36 Cascade volcanoes has demonstrated massive mudflows extending from the
37 volcanoes to Puget Sound, from Mount Rainier and Glacier Peak.

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

40 **Earthquake Hazards** – Whatcom County lies within the influence of the
41 convergent plate margin between the Pacific and North American Plate termed the
42 Cascadia Subduction Zone. Regionally-extensive and damaging, a major
43 earthquakes, termed mega-thrusts, are possible when stress generated between
44 the subducting Pacific Plate and over-riding North American Plate is released. fault
45 area off the coast of western North America. The Cascadia subduction zone has the
46 potential for A mega-thrust earthquake is capable of generating an earthquake of

1 magnitude ~~9, eight~~ or greater, and research has indicated an approximate
 2 recurrence interval of earthquakes— every 500-600 years. Associated with the
 3 stresses generated at the convergent plate margin are shallow, crustal faults that
 4 are mapped. This type of earthquake is called a great interplate earthquake.
 5 throughout Whatcom County. Earthquake activity on these fault systems is much
 6 more frequent than that observed at the Cascadia Subduction Zone, and the has
 7 recently experienced much smaller interplate earthquakes near Deming area is
 8 considered one, fortunately with little damage to property. Deming is one of the
 9 most seismically active areas in Washington. Recent research has shown that these
 10 crustal faults are capable of generating a magnitude 7 earthquake with an average
 11 recurrence interval of These types occur more frequently (30 to 50 years) than the
 12 great interplate earthquakes. While all buildings are susceptible to damage from
 13 seismic-shaking earthquakes, structures built on peat soils, and large areas of non-
 14 structural fill, or liquefiable soils are prone to more severe shaking during an
 15 earthquake. If the shaking is strong enough, or of sufficient duration, structures
 16 may collapse or become damaged due to building fatigue, ground
 17 settlement/liquefaction, and/or lateral spreading. In addition to seismic hazards
 18 posed by the Cascadia Subduction Zone, a significant mega-thrust earthquake has
 19 the potential to generate a large and destructive tsunami that has the potential to
 20 affect most low-bank areas of the County.

21 Reason for Change: Updated due to updated knowledge.

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

29 **Issues, Goals, and Policies**

30 **Landslides** – Siting human development on or adjacent to known landslide hazard
 31 areas can create health and safety risks for humans and their property. ~~on and~~
 32 ~~around these hazards, especially during~~ The risks can be elevated due to extreme
 33 weather events and earthquakes, ~~but may also occur with little or no warning. or~~
 34 ~~in the case of the Swift Creek Landslide~~ Sumas Mountain, the release of asbestos-
 35 laden sediment poses an additional risk to public health. Development activity can
 36 ~~also~~ de-stabilize naturally unstable slopes and impact natural systems. However,
 37 Predicting the exact timing, location, or extent of a damaging landslide is difficult,
 38 and in particular areas of the County landslide hazards are not possible to
 39 completely mitigate or avoid. In some circumstances, the development of upland
 40 properties may place While upslope landowners may develop their properties with
 41 little or no on-site impacts, downslope neighbors and natural systems may be
 42 placed at risk from rockfall or landslides as a result of the upslope land
 43 development. A similar relationship holds true for development at the toe of a
 44 potentially unstable slope. In either event, development in proximity to landslide

1 | hazards must proceed in consideration of potential impacts in order to ensure life
 2 | safety and preserve and protect public and private infrastructure.

3 | Reason for Change: Updated due to updated knowledge.

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

10 | **Flooding** – Floodwaters from the Nooksack River can damage rural homes,
 11 | agricultural areas, businesses, and industries in the small cities situated along the
 12 | river, fish and wildlife habitat and other natural systems, and disrupt
 13 | transportation and utility corridors. Storm tides can flood homes and roads along
 14 | low, exposed marine shorelines in the Birch Bay, Sandy Point, Point Roberts, and
 15 | Gooseberry Point areas. Homes along Lake Whatcom, Lake Samish, and Cain/Reed
 16 | Lakes have also been impacted by flooding during extreme storm events.

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

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

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

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

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

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

41 | **Goal 11D:** **Minimize potential loss of life, damage to property, the**
 42 | **expenditure of public funds, and degradation of natural**
 43 | **systems resulting from development in hazardous areas**

1 such as floodplains, landslide-prone areas, seismic
 2 hazards areas, volcanic impact areas, abandoned mine
 3 locations, potentially dangerous alluvial fans, and other
 4 known natural hazards by advocating the use of land
 5 acquisition, open space taxation, conservation
 6 easements, growth planning, regulations, and other
 7 options to discourage, or minimize development, or
 8 prohibit inappropriate development, in such areas.

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

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

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

17 Policy 11D-3: Broadly inform the citizens of the county of the locations of
 18 known natural hazards, and the potential for adverse impacts of
 19 such natural hazards to the health, safety, and welfare of people
 20 and their property.

21 Policy 11D-4: ~~Formally e~~Establish acceptable levels of public risk for
 22 development in known natural hazard areas based upon the
 23 nature of the natural hazard, and levels of public risk, and
 24 ~~establish~~ maintain regulatory criteria for approving,
 25 disapproving, conditioning, or mitigating development activity.

26 Policy 11D-5: Allow ~~all~~permitted uses that do not require human habitation ~~as~~
 27 so long as probable adverse off-site impacts to other properties
 28 or natural systems (those impacts resulting from the interaction
 29 of the natural hazard and the proposed development) are
 30 minimized or mitigated. Probable adverse impacts should be
 31 prevented or avoided in habitats of ~~S~~state ~~sensitive~~ or federally
 32 listed sensitive plant and animal species.

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

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

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

41 Policy 11D-~~87~~: Maintain ~~Develop~~ a comprehensive program of regulatory and
 42 non-regulatory mechanisms to achieve Natural Hazard goals and
 43 policies. This program should include such mechanisms as

1 education, tax incentives, zoning, land-use regulations,
 2 conservation easements, purchase of development rights,
 3 transfer of development rights, and public acquisition.

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

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

9 ~~Policy 11D-109: To address the causes of flooding and avoid expensive and~~
 10 ~~maintenance-intensive bank protection measures, the County~~
 11 ~~shall~~should prioritize its floodplain property acquisition program
 12 ~~and add an emphasis of~~and emphasize restoring river
 13 ~~connectivity to historic side channels and floodplain areas. This~~
 14 ~~approach addresses the causes of flooding in contrast to~~
 15 ~~expensive and maintenance-intensive bank protection measures.~~

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

17 Policy 11D-11: Require applicants for development permits located in natural
 18 hazard areas to provide development plans designed to
 19 minimize the potential to exacerbate the natural hazard as well
 20 as the risk of damage to property or threats to human health
 21 and safety. In natural hazard areas where engineering solutions
 22 cannot be designed to withstand the forces expected to occur
 23 under the design event of a particular natural hazard, or off-site
 24 adverse impacts to adjacent properties or natural systems
 25 cannot be adequately mitigated, Whatcom County may deny
 26 development permits intended for permanent or seasonal
 27 human habitation.

28 Policy 11D-132: Consider conducting a public process with affected citizens,
 29 technical experts, and decision-makers to establish
 30 recommended levels of public risk for each of the identified
 31 natural hazards. In developing recommended levels of public
 32 risk for natural hazards, consider the appropriate variables
 33 affecting developments in hazardous areas. These variables may
 34 include:

- 35 • Specific types of risk associated with the particular hazard
 36 area.
- 37 • The gradation of hazards associated with a particular geo-
 38 hazard.
- 39 • Level of detail necessary to map hazard areas.
- 40 • Different levels of risk associated with different ownership
 41 classes (e.g. public ownership versus private ownership).
- 42 • Different levels of risk associated with different types of
 43 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.

Policy 11D-143: Formally Consider establishing 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.

Policy 11D-154: 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.

Policy 11D-165: 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 Change: Policies 9-15, above, were moved from the Action Items section which is being deleted.

WATER RESOURCES

Introduction

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

Background Summary

Whatcom County has 16 major freshwater lakes, 3,012 miles of rivers and streams, over 37,000 acres of wetlands, 134 miles of marine shoreline, and aquifers

Whatcom County Comprehensive Plan 11- 17

1 containing an undetermined amount of groundwater. These water resources serve
2 multiple uses including providing a source of drinking water for the people of
3 Whatcom County. Surface water sources such as Lake Whatcom, the Nooksack
4 River, and Lake Samish provide water to more than half the county residents with
5 the remainder relying on groundwater either from individual wells or from about
6 300 public water systems. Agriculture relies on both ground and surface water for
7 irrigation, drinking water for livestock, and facility wash down. Businesses and
8 industries may also require water, sometimes in substantial quantities, ~~from~~ non-
9 potable ~~as well as~~ and potable supplies. Water is also essential to meet many of
10 what are referred to as "in-stream" uses, such as ~~for~~ recreation, shellfish growing
11 and harvesting, ~~habitat for~~ fish and wildlife habitat, aesthetics, and other uses and
12 benefits.

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

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

27 Whatcom County government has a major role in helping to maintain these benefits
28 through its many responsibilities and programs, particularly in the areas of health,
29 safety, land use, and development. The intent of the following goals and policies is
30 to provide guidance to Whatcom County government as it assists its citizens in
31 effectively managing our water resources in a manner that ensures that the
32 benefits of those resources are maintained far into the future. The water resource
33 section focuses primarily on groundwater and surface water management. Surface
34 water management relates generally to watershed protection and
35 stormwater/drainage systems. However, some policy direction may indirectly be
36 provided for areas such as wetlands, estuaries, streams, and marine waterbodies
37 within the Water Resource section. Some of these areas are covered in more detail
38 in other sections within the Environment Chapter.

39 [Whatcom County Water Resource Programs](#)

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

42 [WRIA 1 Watershed Management Project](#)

43 [The WRIA 1 Watershed Management Project is the result of the 1998 Washington](#)
44 [State Watershed Management Act, which required all participating local](#)
Whatcom County Comprehensive Plan

1 [governments to address water quantity, with the option of addressing water](#)
2 [quality, instream flows, and fish habitat. The WRIA 1 Watershed Management](#)
3 [Project has brought together citizens, local governments, tribes, and state and](#)
4 [federal agencies to address these issues.](#)

5 [The framework for watershed management in the state is based on geographic](#)
6 [areas known as Water Resource Inventory Areas \(WRIAs\). WRIA 1 includes the](#)
7 [Nooksack River basin and several adjoining smaller watersheds, such as the coastal](#)
8 [drainages of Dakota and California Creeks, as well as Lake Whatcom.](#)

9 [Watershed planning in WRIA 1 started in 1998 with the signing of a Memorandum](#)
10 [of Agreement \(MOA\) between the *Initiating Governments*. In the WRIA 1 the](#)
11 [Initiating Governments are Whatcom County, City of Bellingham, Public Utility](#)
12 [District No. 1, Lummi Nation, and Nooksack Tribe \(the latter joining slightly later](#)
13 [through a Letter of Agreement\). The role of the Initiating Governments was to](#)
14 [review a recommended Watershed Plan and take it to their governments' councils](#)
15 [for adoption.](#)

16 **WRIA 1 Joint Board**

17 [In 1999, an Interlocal Agreement further formalized the government-to-](#)
18 [government relationship essential to the tribes' participation in the process by](#)
19 [creating a *Joint Board*. The Joint Board is comprised of the Initiating Governments,](#)
20 [including the mayor of the City of Bellingham, executive for Whatcom County,](#)
21 [manager of Public Utility District No. 1, and designated policy representatives of](#)
22 [Lummi Nation and Nooksack Tribe. **The Board manages** the project's administrative](#)
23 [functions such as contracts and budgets. Members of the Joint Board also sit on the](#)
24 [Joint Policy Boards.](#)

25 **WRIA 1 Joint Policy Boards**

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

- 31 [• Endorse programs/actions to forward to Legislative Bodies, as applicable](#)
- 32 [• Provide WRIA 1 programs policy direction](#)
- 33 [• Meet and discuss watershed and salmon program topics as joint policy](#)
34 [boards with decision-making of each policy board retained.](#)

35 **Local Integrating Organization (LIO)**

36 [The Whatcom Local Integrating Organization \(LIO\) is a function of the WRIA 1](#)
37 [Watershed Joint Board and WRIA 1 Salmon Recovery Board \(Joint Policy Boards\).](#)
38 [Local integrating organizations are designated by the Puget Sound Partnership. The](#)
39 [two WRIA 1 Boards accepted the function of the Whatcom LIO in October 2010](#)
40 [under the integrated program structure, and was officially recognized by the Puget](#)
41 [Sound Partnership's Leadership Council in November 2010. The purpose of the](#)

1 Whatcom LIO is to coordinate implementation of Puget Sound Action Agenda
2 priorities that are consistent with or complement local priorities. One of its functions
3 is to provide a local update to the Action Agenda for Puget Sound. Local updates
4 are intended to identify local priorities in the form of near-term actions (NTAs),
5 which are priority actions with measurable outcomes that can be implemented in
6 the next two years and that align with strategies in the Action Agenda for Puget
7 Sound.

8 **WRIA 1 Watershed Management Plan**

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

- 17 • **Water Quantity** – To assess water supply and use, and develop strategies
18 to meet current and future needs. The strategies should retain or provide
19 adequate amounts of water to protect and restore fish habitat, provide water
20 for future out-of-stream-uses, and ensure that adequate water supplies are
21 available for agriculture, energy production, and population and economic
22 growth under the requirements of the state’s Growth Management Act.
- 23 • **Water Quality** – To ensure that the quality of our water is sufficient for
24 current and future uses, including restoring and protecting water quality to
25 meet the needs of salmon and shellfish, contact recreational uses, cultural
26 uses, protection of wildlife, providing affordable, safe domestic water
27 supplies, and other beneficial uses. The initial objectives of the water quality
28 management strategy will be to meet the water quality standards.
- 29 • **Instream Flow** – To supply water in sufficient quantities to restore salmon,
30 steelhead, and trout populations to healthy and harvestable levels and
31 improve habitats on which fish rely.
- 32 • **Fish Habitat** – To protect or enhance fish habitat in the management area
33 and to restore salmon, steelhead, and trout populations to healthy and
34 harvestable levels and improve habitats on which fish rely.

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

41 Lower Nooksack Strategy Objectives:

- 42 • Develop and implement a process for negotiating settlement of water rights
43 on the Mainstem Nooksack River.

- 1 • [Update and verify the Lower Nooksack River sub-basin water budget and](#)
2 [develop a groundwater model.](#)
- 3 • [Determine out-of-stream water user needs:](#)
 - 4 ○ [Public water system needs determined by updated the Whatcom](#)
5 [County Coordinated Water System Plan \(CWSP\).](#)
 - 6 ○ [Other out-of-stream user needs \(e.g., agriculture, private domestic](#)
7 [wells, industrial, etc.\) determined through a regional water supply](#)
8 [planning process.](#)
- 9 • [Continue and, if appropriate, enhance targeted streamflow and water quality](#)
10 [sampling.](#)
- 11 • [Advance work on tools that foster water resource allocations consistent with](#)
12 [long-term economic and environmental land-use goals for implementation in](#)
13 [five years.](#)

14 [Lake Whatcom Watershed Management](#)

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

17 [Lake Whatcom is large multi-purpose reservoir that is the source of drinking water](#)
18 [for the City of Bellingham, Lake Whatcom Water and Sewer District, several other](#)
19 [smaller water districts/associations, and about 250 homes that draw water directly](#)
20 [from the lake. All told, the lake provides water to about half the population of](#)
21 [Whatcom County.](#)

22 [Lake Whatcom is a multiple use lake and watershed. In addition to providing water](#)
23 [for drinking, commercial and industrial uses, the lake is used for boating,](#)
24 [swimming, and fishing. The majority of the watershed is forested, mainly](#)
25 [surrounding the large southernmost portion of the lake. Other land uses include](#)
26 [residential development \(approximately 5,0300 homes are located within the](#)
27 [watershed\), limited agriculture and commercial development, parks, and other](#)
28 [public facilities. The on-going management challenge is trying to determine the](#)
29 [extent to which these practices can occur while maintaining safe, clean drinking](#)
30 [water. The challenge is further complicated by possible requirements related to the](#)
31 [Endangered Species Act, tribal water rights, and the potential impact these issues](#)
32 [may have on how the City's diversion from the Nooksack River is operated.](#)

33 [The City of Bellingham and Lake Whatcom Water and Sewer District are responsible](#)
34 [for ensuring drinking water standards are met for their customers. To date water](#)
35 [supplies have consistently met standards. The ability to continue to economically](#)
36 [meet drinking water standards requires maintaining source water that requires](#)
37 [minimal treatment. For this reason the City of Bellingham maintains an on-going](#)
38 [source water-monitoring program. Other agencies including Western Washington](#)
39 [University, Department of Natural Resources, Department of Fish and Wildlife,](#)
40 [Department of Ecology, Lake Whatcom Water and Sewer District, and Whatcom](#)
41 [County, have also conducted monitoring, studies, and/or evaluations of the lake](#)
42 [and watershed.](#)

1 ~~Lake Whatcom is the drinking water source for approximately half of Whatcom~~
2 ~~County. Recent s~~Studies on Lake Whatcom conducted over a number of years
3 indicate water quality in the lake has declined. ~~Oxygen levels in Lake Whatcom are~~
4 ~~declining to lower levels, and are declining faster than in the past.~~ In ~~1997~~1998,
5 the Washington State Department of Ecology listed Lake Whatcom as an impaired
6 water body and placed Lake Whatcom on the Federal Clean Water Act 303(d) list
7 because of low oxygen levels in the Lake and high bacteria levels in streams that
8 flow into the Lake. The 303(d) listing requires the establishment of a Total
9 Maximum Daily Loads (TMDLs) ~~that designates loading capacity of the lake such~~
10 ~~that there will be no measurable change in oxygen levels from natural lake~~
11 ~~conditions. The TMDL goals will require a variety of planning, pollution prevention,~~
12 ~~pollution reduction and technical approaches. Meeting the TMDL goals will be~~
13 ~~required in order to stabilize water quality in Lake Whatcom. The Department of~~
14 ~~Ecology issued the "Lake Whatcom Watershed Total Phosphorus and Bacteria Total~~
15 ~~Maximum Daily Loads: Volume 1, Water Quality Study Findings" in 2008. This study~~
16 ~~documented that Lake Whatcom is impaired for dissolved oxygen due to~~
17 ~~phosphorus loading and that streams flowing into Lake Whatcom do not meet fecal~~
18 ~~coliform bacteria standards. Loading capacities for total phosphorus and bacteria~~
19 ~~reduction targets were set forth in this document. In 2013 The Department of~~
20 ~~Ecology issued a draft "Lake Whatcom Watershed Total Phosphorus and Bacteria~~
21 ~~Total Maximum Daily Loads: Volume 2, Water Quality Improvement Report and~~
22 ~~Implementation Strategy." in 2013. This report identifies how much phosphorus can~~
23 ~~be discharged to the Lake and identifies how the bacteria load should be allocated~~
24 ~~between the County and City of Bellingham, in order to meet water quality~~
25 ~~standards.~~

26 A significant cause of declining oxygen levels has been from residential
27 development in the watershed. Past development permitted by the City of
28 Bellingham and Whatcom County has led to increased phosphorus loading into the
29 lake, which stimulates algae growth. Bacteria that consume the dying algae deplete
30 the dissolved oxygen, leading to in turn has led to lower oxygen levels in the lake.
31 Past poorly managed forest practices may have led to significant increases in
32 phosphorus loading to the lake.

33 In November/December 1992, a joint resolution was passed by the Bellingham City
34 Council, Whatcom County Council, and the Lake Whatcom Water and Sewer District
35 (formerly Water District 10) Commissioners, which reaffirmed this position with six
36 general goal statements and a set of specific goal statements in various categories.
37 The specific goal statements for urbanization were the following:

- 38 • Prevent water quality degradation associated with development within the
39 watershed.
- 40 • Review and recommend changes in zoning and development potential that
41 are compatible with a drinking-water reservoir environment.
- 42 • In addition to zoning identify and promote other actions to minimize potential
43 for increased development in the watershed (i.e. land trust, development
44 rights, cost incentives, etc.).

- 1 • Develop specific standards which reduce the impacts of urbanization, such as
- 2 minimal lot clearing; clustered development to reduce infrastructure;
- 3 collection and treatment of stormwater before entering the lake.
- 4 • Develop appropriate interlocal agreements with governing agencies to
- 5 prohibit the potential for additional development once an agreed upon level is
- 6 set.

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

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

20 The watershed contains four developed areas: the City of Bellingham, which
21 straddles the upper portion of the northern-most basin of the lake; Geneva, which
22 is immediately south and east of Bellingham's city limits and is part of the city's
23 urban growth area; Hillside, which is immediately north and east of Bellingham's
24 city limits and is also part of the city's urban growth areas; and the Sudden Valley
25 Rural Community. In addition, it includes a variety of other zones, including
26 resource, rural, and residential rural zones. ~~Over~~ Outside the Bellingham City limits,
27 approximately 70%75% of the watershed is in Forestry zoning and more than
28 75%73% of the current land use is forestry.

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

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

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

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

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

~~There are still state forest lands in the Lake Whatcom watershed. In 2004, the Department of Natural Resources (DNR) Board on Natural Resources adopted the Lake Whatcom Landscape Plan. This plan provides additional protections on state managed lands within the Lake Whatcom watershed. The plan provides additional protections on streams and potentially unstable slopes not normally included in forest practices in Washington State. If the DNR exchanges land from the watershed the protections provided by the plan would not be applicable to the new 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. But 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 Protection Overlay District, Stormwater Special District, and Water Resource Special Management Area requirements. Under the provisions of these special districts, potential impacts from impervious surfaces, stormwater runoff, and clearing activities are required to be addressed either on-site or through a community-wide process.

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

A variety of agencies, organizations, and individuals play a role in managing and protecting Lake Whatcom. In an effort to coordinate efforts of these various players, in 1990, the City of Bellingham, Whatcom County, and Water District 10 (now known as the Lake Whatcom Water and Sewer District) began meeting to develop a joint management strategy for the Lake Whatcom watershed. The resulting Lake Whatcom Management Program guides actions to protect Lake

1 [Whatcom as a long-term supply of drinking water for the City of Bellingham and](#)
2 [portions of Whatcom County. The program emphasizes protection over treatment in](#)
3 [managing Lake Whatcom and its watershed.](#)

4 [The structure of the Lake Whatcom Management Program includes legislative](#)
5 [bodies, a management team, an interjurisdictional coordinating team, agency staff,](#)
6 [and advisory committees.](#)

7 [The Lake Whatcom Watershed Management Program website](#)
8 [\(<http://www.lakewhatcom.whatcomcounty.org/resources>\) contains the management](#)
9 [plans, reports, and work programs, as well as the jurisdictions' pertinent](#)
10 [regulations and brochures on the different programs aimed at the various efforts to](#)
11 [improve water quality.](#)

12 **Groundwater Protection & Management**

13 [Groundwater is contained in aquifers, which are subterranean layers of porous rock](#)
14 [or soil. Most aquifers are replenished by rainwater, though some may contain water](#)
15 [trapped during glacial periods. Aquifers are often integrally linked with surface](#)
16 [water systems and are essential for meeting in-stream and out-of-stream water](#)
17 [needs such as for drinking water, agriculture, and industry. Whatcom County](#)
18 [residents rely heavily on groundwater for drinking water, agriculture, and](#)
19 [commercial and industrial needs. Groundwater also plays an important role in](#)
20 [maintaining stream flows.](#)

21 [Many studies have been conducted related to groundwater quality in Whatcom](#)
22 [County documenting water quality issues such as exceedances of standards for](#)
23 [nitrate, ethylene dibromide \(EDB\) and 1,2-dichloropropane \(1,2-D\), pesticides, iron](#)
24 [and other agricultural-related contaminants, particularly in the northern portion of](#)
25 [the County. In general, groundwater in Whatcom County is very vulnerable to](#)
26 [contamination because much of the County's groundwater lies within a shallow](#)
27 [unconfined aquifer. Activities that occur on the surface of the ground directly affect](#)
28 [groundwater quality. Shallow wells that draw water from unconfined water table](#)
29 [aquifers are at highest risk.](#)

30 [Whatcom County's Critical Areas Regulations protect Critical Aquifer Recharge Areas](#)
31 [\(CARAs\) during the development process, by precluding certain uses in CARAs](#)
32 [and/or requiring certain precautions be taken in handling certain chemicals.](#)

33 **Flood Hazard Management**

34 [A comprehensive approach to flood hazard management planning provides for a](#)
35 [better understanding of the river and floodplain system and ensures that flooding](#)
36 [problems are not simply transferred to another location within the basin, but are](#)
37 [addressed in a comprehensive, basinwide manner. This approach directs future](#)
38 [flood hazard management expenditures in the most efficient and cost effective](#)
39 [manner.](#)

40 [Whatcom County Public Works coordinates with the Flood Control Zone District](#)
41 [Advisory Committee \(FCZDAC\) to identify and characterize flooding problems and](#)
42 [provide recommendations for achieving consistent long-term flood hazard reduction](#)
43 [strategies. Some activities typically involved in developing a Comprehensive Flood](#)

1 Hazard Management Plan (CFHMP) include data collection, hydraulic modeling,
2 alternatives analysis, floodplain mapping, and meander limit identification. In
3 addition to the technical components in comprehensive flood planning, extensive
4 coordination with the public and other agencies is required throughout the planning
5 process.

6 Other County flood management programs include:

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

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

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

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

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

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

29 **Technical Assistance** – Provide technical assistance regarding drainage and
30 flood issues to private citizens and businesses located along the many water bodies
31 within Whatcom County.

32 **Organization**

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

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

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

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

10 **Pertinent Documents**

11 **Lower Nooksack River Comprehensive Flood Hazard Management Plan** 12 **(CFHMP)**

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

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

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

21 **Stormwater Management**

22 Stormwater runoff occurs when precipitation from rain or snowmelt flows over the
23 land surface. The addition of roads, driveways, parking lots, rooftops and other
24 surfaces that prevent water from soaking into the ground to our landscape greatly
25 increases the runoff volume created during storms. This runoff is swiftly carried to
26 our local streams, lakes, wetlands and rivers and can cause flooding and erosion.
27 Stormwater runoff also picks up and carries with it many different pollutants that
28 are found on paved surfaces such as sediment, nitrogen, phosphorus, bacteria, oil
29 and grease, trash, pesticides and metals.

30 **County Stormwater Management Programs**

31 **National Pollutant Discharge and Elimination System (NPDES) Phase II** 32 **Permit**

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

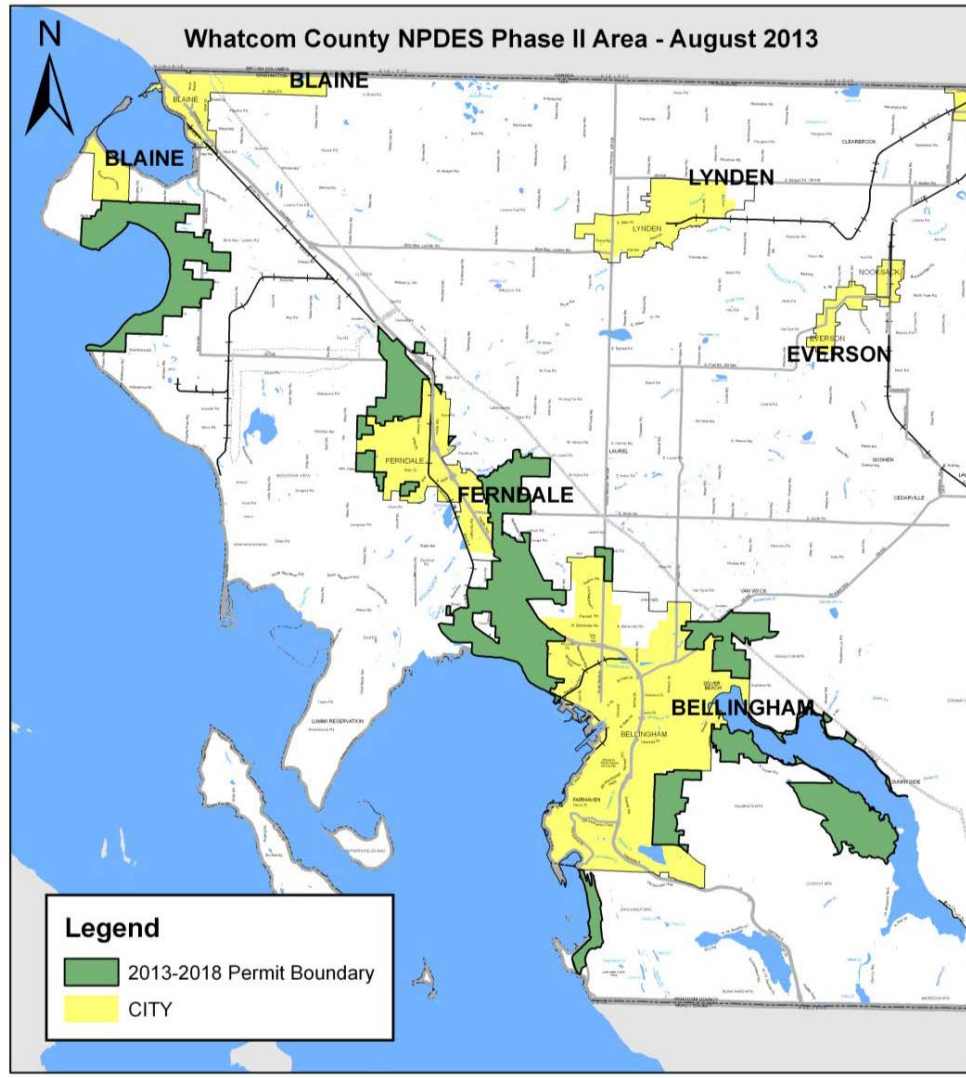
1 In February of 2007, the Washington State Department of Ecology issued Whatcom
2 County's Phase II Municipal Stormwater Permit. This permit regulates discharges
3 from Small Municipal Separate Storm Sewers, and is part of the National Pollutant
4 Discharge and Elimination System (NPDES) and State Waste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

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

- 11 • Bellingham Urban Growth Area
- 12 • Sudden Valley
- 13 • Portions of the Hillsdale and Emerald Lake area
- 14 • Portions along North Shore Drive on Lake Whatcom and Lake Whatcom
15 Boulevard
- 16 • Ferndale Urban Growth Area
- 17 • Portions along Chuckanut Drive and Chuckanut Bay
- 18 • Birch Bay Urban Growth Area (Beginning August 1, 2013)
- 19 • The entire Lake Whatcom watershed is subject to illicit discharge detection
20 and elimination requirements of the Permit.

21 Jurisdictions are allowed to discharge runoff into water bodies of the State (such as
22 rivers, lakes, and streams) as long as they implement programs that protect water
23 quality by reducing pollutants to the maximum extent possible through
24 requirements of the NPDES Phase II Permit. Those requirements are reported and
25 submitted to the Department of Ecology through the Stormwater Management
26 Program (SWMP) and the Annual Compliance Report.

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



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

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

4 Everyone wants clean water to support healthy drinking water, safe recreational
 5 uses, quality water for irrigation and livestock, healthy fish, and shellfish that are
 6 safe to consume. Currently, many creeks in Whatcom County do not meet water
 7 quality standards for fecal coliform bacteria. Fecal coliform bacteria are found in the
 8 intestinal tract of warm-blooded animals and when found in creeks are an indicator
 9 of human or animal waste in the water. The higher the bacteria level, the greater
 10 the public health risk to people drinking, wading, fishing, or consuming shellfish.
 11 The Pollution Identification and Correction (PIC) Program has been created to help
 12 implement community solutions to clean water.

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

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

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

15 Marine Resources Management

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

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

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

35 Shellfish Recovery

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

1 [Our ability to grow and harvest shellfish that is safe for human consumption is](#)
2 [directly linked to surface water quality and the influence it has on marine waters.](#)
3 [The primary measure of water quality for shellfish harvesting is bacterial](#)
4 [contamination associated with human sewage and animal wastes. Potential sources](#)
5 [of fecal bacteria include municipal sewage treatment plants, on-site sewage](#)
6 [systems, boat waste, farm animals, pets, and wildlife. Since 1995, valuable](#)
7 [shellfish beds in Portage Bay and Drayton Harbor have been downgraded \(harvest](#)
8 [prohibited\) due to non-point pollution impacting recreational, tribal, and commercial](#)
9 [harvesting. In 2014, Portage Bay was identified as a threatened Shellfish Growing](#)
10 [Area by the Washington Department of Health.](#) (Washington Department of Health,
11 2014)

12 **Shellfish Advisory Boards**

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

17 **Shellfish Recovery Plans**

18 [Shellfish Recovery Plans have been created for each of three districts. The plans](#)
19 [outline the primary sources of bacteria and actions to improve water quality.](#)

- 20 • [Drayton Harbor Shellfish Recovery Plan \(2007\)](#)
- 21 • [Portage Bay Shellfish Recovery Plan \(2014\), Portage Bay Initial Closure](#)
22 [Response Strategy \(1998\)](#)
- 23 • [Birch Bay Initial Closure Response Strategy \(2009\)](#)

24 **Pertinent Documents**

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

26 [This document outlines the MRC's mission, vision, and values, their goals and](#)
27 [objectives, and strategies for achieving them.](#)

28 **Shoreline Management Program**

29 [The State Legislature passed the Washington State Shoreline Management Act](#)
30 [\(SMA\) in June 1971. The SMA was overwhelmingly passed by public initiative in](#)
31 [1972. Under the SMA, each county and city was required to prepare a shoreline](#)
32 ["master program" in accordance with the shoreline guidelines issued by the State](#)
33 [Department of Ecology in 1972.](#)

34 [The Whatcom County Shoreline Management Program \(SMP\), WCC Title 23, is the](#)
35 [document that implements the goals and policies of the SMA at the local level. It](#)
36 [was adopted in 1976 in accordance with RCW 90.58. The goals and policies of the](#)
37 [Whatcom County Shoreline Management Program also constitute the shoreline](#)
38 [component of the Whatcom County Comprehensive Plan.](#)

1 Under the provisions of the SMA, all development along shorelines of the state is
2 required to comply with the provisions of local shoreline master programs. The
3 Whatcom County Shoreline Management Program works with other chapters of the
4 Whatcom County Code to protect and preserve saltwater and freshwater shorelines
5 throughout the county by managing natural resources and directing development
6 and land use suitable for the shoreline environment.

7 The Whatcom County Shoreline Management Program jurisdiction includes:

- 8 • More than 130 miles of marine shoreline
- 9 • More than 60 miles of lake shoreline
- 10 • More than 220 miles of stream channels
- 11 • All wetlands and floodways associated with the above shorelines, together
12 with all upland areas within 200-feet of the Ordinary High Water Mark
13 (OHWM).

14 Whatcom County and the Washington State Department of Ecology (DOE) share
15 joint authority and responsibility of the Whatcom County SMP. Whatcom County
16 Planning and Development Services is the primary agency responsible for
17 implementation of the Whatcom County Shoreline Management Program.

18 **Issues, Goals, and Policies**

19 **Watershed Planning and Management**

20 **General**

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

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

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

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

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

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

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

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

Reason for Change: The two above policies were combined.

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

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

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

Policy 11E-~~44~~: Actively promote and participate in education, research, and information opportunities which~~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.

- 1 | Policy 11E-~~35~~: Pursue the most effective methods for protecting water quantity
 2 | and quality, through both regulatory (e.g. zoning, enforcement,
 3 | fines) and non-regulatory approaches (education, incentives,
 4 | and technical/financial assistance). Emphasis should be placed
 5 | on non-regulatory approaches where possible and effective.
- 6 | Policy 11E-~~96~~: Track the development of policies and regulations at the local,
 7 | state, and federal level. Provide input to those regulations and
 8 | policies as necessary to ensure that the interests of Whatcom
 9 | County are considered.
- 10 | Policy ~~11F~~11E-67: In conjunction with all jurisdictions, develop and adopt
 11 | programs to protect water quality and quantity within
 12 | watersheds, aquifers, and marine water-bodies ~~that~~which cross
 13 | jurisdictional boundaries.
- 14 | Policy 11E-~~118~~: Promote awareness and participation in management and
 15 | protection efforts by individual citizens and the community as a
 16 | whole.

17 **Surface Water and Groundwater**

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

24 Reason for Change: Background information is now provided in the section
 25 "Background Summary."

26 **Goal 11F: Protect and enhance Whatcom County's surface water**
 27 **and groundwater quality and quantity for current and**
 28 **future generations.**

29 Policy 11F-1: Manage surface water systems, where appropriate, on a
 30 watershed basis.

31 Policy 11F-2: In conjunction with the public and appropriate local, State, and
 32 Federal jurisdictions, define and identify and develop
 33 management strategies for watershed basins and subbasins
 34 which-that may require special protection. These areas may
 35 include aquifers, critical aquifer recharge areas as defined under
 36 the Growth Management Act, Groundwater Management Areas,
 37 wellhead protection areas, and high priority watersheds such as
 38 those specified under WAC 400 (Local Planning and
 39 Management of Non-point Source Pollution), WRIA Watershed
 40 Management Planning, and under legislative policy direction
 41 (e.g. Nooksack Basin, Lake Whatcom, Lake Samish and Drayton
 42 Harbor).

~~Policy 11F-7: 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.~~

~~Policy 11F-3: In conjunction with the public and appropriate local, State, Tribal, and Federal jurisdictions, develop management strategies for those areas requiring special protection. Management efforts should consider both water quality and quantity. Water quality efforts should help reduce the likelihood that potential contaminant sources will pollute water supplies. Water quantity efforts should include consideration and protection of recharge areas as appropriate and potential effects on stream flow.~~

Reason for Change: The above three policies were similar, so combined into one.

Policy 11F-4~~3~~: Support the ~~completion and~~ implementation of local ~~and~~ state Watershed ~~Action Management Plans, the Lower Nooksack Strategy,~~ the Lake Whatcom Management Program, NPDES Phase II Permitting, and the WRIA Watershed Management Projects ~~as some of the means of addressing non-point source pollution.~~

Policy 11F-5~~4~~: Pursue the adoption and implementation of ground and/or surface water management plans and ~~their~~ integration ~~e the plans~~ into local comprehensive plans. Designate the Lake Whatcom and Lake Samish Watersheds as a high priority in this effort.

Stormwater and Drainage

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

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

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

- 1 **Goal 11G: Protect water resources and natural drainage systems by**
 2 **controlling the quality and quantity of stormwater runoff.**
- 3 Policy 11G-1: Manage stormwater runoff to minimize surface water quality and
 4 quantity impacts and downstream impacts on channel
 5 morphology, property owners, and aquatic ~~species and~~ habitats.
- 6 Policy 11G-2: Maintain or enhance, when appropriate, natural drainage
 7 systems and natural water storage sites in order to better
 8 protect water quality, moderate water quantity, minimize
 9 environmental degradation, and reduce public costs.
- 10 Policy 11G-3: Limit the alteration of natural drainage systems and natural
 11 water storage sites without acceptable mitigating measures.
 12 Such measures should not significantly degrade water quality or
 13 fish and wildlife habitat, and should not increase hazards to the
 14 community.
- 15 Policy 11G-4: Support the use by resource industries, such as agriculture,
 16 forestry, and mineral resource extraction, of management
 17 practices that minimize erosion and sedimentation, and
 18 significantly reduce pollutants.
- 19 Policy 11G-5: Evaluate the role of watersheds in the maintenance of water
 20 quality and quantity and determine what cumulative impacts
 21 development activity may have on watershed hydrology.
- 22 Policy 11G-6: Develop specific stormwater management programs for each
 23 drainage basin within the county's jurisdiction ~~which that~~ may be
 24 impacted by urban levels of development. Recognize the Lake
 25 Whatcom Watershed, Lake Samish, and Drayton Harbor as high
 26 priorities in this effort. Coordinate efforts with the Lake
 27 Whatcom ~~Management Committee Policy Group program~~, the
 28 various shellfish protection districts, and other watershed
 29 management ~~plans entities~~.
- 30 Policy 11G-7: Establish, as a high priority, a stormwater maintenance program
 31 ~~which that as~~ ensures that stormwater systems are adequately
 32 maintained and function at or near design capacity.
- 33 Policy 11G-8: Encourage the use of low impact development strategies.
 34 Minimize the amount of impervious surface whenever
 35 practicable by using natural engineering design methods such as
 36 the use of ~~open, grassed street swales rain gardens instead of~~
 37 curbs and gutters. Where feasible, encourage alternate
 38 surfacing options and other techniques associated with low
 39 impact development (see Glossary).
- 40 Policy 11G-9: Develop and administer stormwater management standards as
 41 required by the NPDES Phase II Permit.

1 Policy 11G-10: Develop and administer regulations and incentives such that
2 there is no net loss of ecological functions and values of
3 regulated wetlands and fish and wildlife habitats.

4 Policy 11G-11: Place a high priority on integrating impervious surface reduction
5 incentives into policies, regulations, and standards for the Lake
6 Whatcom and Lake Samish watersheds.

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

9 Policy 11G-12: Develop and implement comprehensive stormwater
10 management programs and strategies designed to address
11 runoff from all private and public developments and facilities
12 within regulated and sensitive watersheds.

13 1. Implement the Western Washington Phase II Municipal
14 Stormwater Permit as part of the National Pollutant
15 Discharge Elimination System (NPDES) Program.
16 Incorporate watershed considerations into the
17 development of a comprehensive stormwater
18 management strategy for designated areas.

19 2. Review Stormwater Special Districts Standards,
20 Watershed Protection Districts, and other related codes
21 that address runoff treatment from potentially polluting
22 surfaces for their applicability to other sensitive
23 watersheds with the Technical Advisory Committee and
24 other appropriate agencies. Coordinate efforts for
25 ongoing monitoring and evaluation within the sensitive
26 watersheds and NPDES areas.

27 3. Amend subdivision, zoning, and other land use
28 regulations and design standards to require that land use
29 activities minimize the amount of impervious surface.

30 4. Identify and implement a long-term funding source to
31 provide for water resource protection services including
32 non-point source identification and enforcement of
33 applicable county regulations.

34 5. Focus on the Lake Whatcom watershed as a high priority
35 in developing a stormwater management program.
36 Develop a stormwater management plan that achieves a
37 uniform level of protection throughout the Lake Whatcom
38 watershed. Ensure coordination and communication with
39 the public and affected jurisdictions such as the Lake
40 Whatcom Water and Sewer District, the Sudden Valley
41 Community Association, and the City of Bellingham.

42 4.6. Ensure that existing stormwater standards are
43 adequately enforced within Stormwater Special Districts,
44 Watershed Protection Districts, and the NPDES areas.

1
2 Develop a comprehensive stormwater management program
3 designed to manage runoff from public facilities and industrial,
4 commercial, and urban residential areas including streets and
5 roads in compliance with NPDES requirements. Establish a
6 stormwater management plan for rural roads. Each component
7 of the program shall cover both new and existing developments.
8 Emphasis should be placed on controlling stormwater through
9 source controls and Best Management Practices. Establish a long
10 term goal of minimal pollutant discharge into surface water
11 resources.

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

- 13 • Identification of potentially significant pollutant sources
14 and their relationship to the drainage system and water
15 bodies.
- 16 • Investigation of problem drains, including sampling.
- 17 • Programs for operation and maintenance of storm drains,
18 detention systems, ditches, and culverts.
- 19 • A water quality response program to investigate sources
20 of pollutants, spills, fish kills, illegal hookups, dumping,
21 and other water quality problems. These investigations
22 should be used to support compliance/enforcement
23 efforts.
- 24 • Assurance of adequate local funding for the stormwater
25 program through surface water utilities, sewer charges,
26 fees, or other revenue-generating sources.
- 27 • Local coordination arrangement such as interlocal
28 agreements, joint programs, consistent standards, or
29 regional boards or committees.
- 30 • Regulations requiring implementation of stormwater
31 control for new development.
- 32 • A public stormwater educational program aimed at
33 residents, businesses, and industries in the urban area.
- 34 • Strong inspection, compliance, and enforcement
35 measures.
- 36 • An implementation schedule.
- 37 • Adequate design specifications and construction practices
38 to ensure minimal on-site erosion and sedimentation
39 during and after construction.

40 3. Incorporate watershed considerations into the development of a
41 comprehensive stormwater management strategy. This should

- 1 include the identification of priority watersheds relative to
- 2 stormwater management and the application of Action Item 1 to
- 3 each watershed in the order of their priority.
- 4 ~~4. Review Stormwater Special Districts Standards that address~~
- 5 ~~runoff treatment from potentially polluting surfaces for their~~
- 6 ~~applicability to other sensitive watersheds.~~
- 7 ~~5. Amend subdivision, zoning, and other land use regulations and~~
- 8 ~~design standards to require that land use activities minimize the~~
- 9 ~~amount of impervious surface. Low impact surfacing options~~
- 10 ~~should be encouraged wherever possible.~~
- 11 ~~6. Identify and implement a long-term funding source to provide~~
- 12 ~~for water resource protection services including non-point~~
- 13 ~~source identification and enforcement of applicable county~~
- 14 ~~regulations.~~
- 15 ~~7. Focus on the Lake Whatcom watershed as a high priority in~~
- 16 ~~developing a stormwater management program. Develop a~~
- 17 ~~stormwater management plan that achieves a uniform level of~~
- 18 ~~protection throughout the Lake Whatcom watershed. Ensure~~
- 19 ~~coordination and communication with the public and affected~~
- 20 ~~jurisdictions such as the Lake Whatcom Water and Sewer~~
- 21 ~~District, the Sudden Valley Community Association, and the City~~
- 22 ~~of Bellingham.~~
- 23 ~~8. Work with the Technical Advisory Committee and other~~
- 24 ~~appropriate agencies in revising or developing standards~~
- 25 ~~necessary to ensure watershed protection and then coordinate~~
- 26 ~~the effort within sensitive watersheds for ongoing monitoring~~
- 27 ~~and evaluation.~~
- 28 ~~9. Develop and implement a stormwater maintenance program for~~
- 29 ~~the Lake Whatcom Watershed that would ensure that existing~~
- 30 ~~systems are adequately maintained.~~
- 31 ~~10.7. Ensure that existing stormwater standards are adequately~~
- 32 ~~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.

35 **Water Conservation**

36 **Goal 11-H: Policy 11E-4: Support water conservation,**

37 **reclamation, and reuse measures and education as a**

38 **means to helping ensure sufficient water supplies in the**

39 **future.**

40 Policy ~~11E~~**11H-17**: Support and assist water users in the development of cost-

41 effective means of improving efficiency of water use.

42

1 | Policy 11EH-82: Support efforts to establish and protect sustainable water
 2 | supplies to meet existing and future demands for water in the
 3 | county.

4 | Policy 11EH-123: Encourage water purveyors to meter water use to promote
 5 | conservation.

6 | Lake Whatcom Watershed

7 | **Goal 2MM11-1: Prioritize the Lake Whatcom ~~watershed~~area as an area in**
 8 | **which to minimize development, repair existing**
 9 | **stormwater problems, (specifically for phosphorus), and**
 10 | **ensure forestry practices do not negatively impact water**
 11 | **quality. Provide sufficient funding and support to be**
 12 | **successful.**

13 | Policy 11-I 2MM-1: Work with property owners to find acceptable development
 14 | solutions at lower overall densities than the present zoning
 15 | allows.

16 | Policy 11-I 2MM-2: Develop a storm drainage utility district or other funding
 17 | mechanism to deal with the unique problems of development in
 18 | a drinking water watershed.

19 | Policy 11-I 2MM-3: Recognize that all users of Lake Whatcom water have an
 20 | interest in the resource and should share in the cost of its
 21 | protection.

22 | Policy 11-I 2MM-4: Work cooperatively with the City and Lake Whatcom Water and
 23 | Sewer District~~Water District 10~~ to identify, review, and, as
 24 | appropriate, recommend changes to existing monitoring
 25 | programs that will address the needs of the various
 26 | jurisdictions. Place a particular focus on the information needed
 27 | to evaluate the impacts of additional development in the
 28 | watershed. Include an analysis of the diversion from the Middle
 29 | Fork of the Nooksack. Coordinate effort with the Lake Whatcom
 30 | Management Committee process.

31 | Policy 11-I 2MM-5: Evaluate and pursue, as appropriate, the use of incentives to
 32 | encourage voluntary lot consolidation, transfer or purchase of
 33 | development rights, current use taxation, and participation in
 34 | open space conservation programs.

35 | Policy 11-I 2MM-6: Do not allow density bonuses within the Lake Whatcom
 36 | Watershed.

37 | Policy 11-I 2MM-7: Work cooperatively with the City and the Lake Whatcom Water
 38 | and Sewer District~~Water District 10~~ to develop benchmarks to
 39 | determine the effectiveness of management options; when
 40 | goals have been achieved; or when additional actions are
 41 | necessary.

- 1 | Policy [11-I 2MM-8](#): Continue to develop and refine structural and non-structural
 2 | best management practices (BMPs), both voluntary and
 3 | required, to minimize development impacts within the Lake
 4 | Whatcom watershed.
- 5 | Policy [11-I 2MM-9](#): Work to keep ~~state-owned forest lands~~~~Whatcom County Forest~~
 6 | ~~Board and Forest Purchase lands~~ within the Lake Whatcom
 7 | watershed in public ownership, and support managing forestry
 8 | on ~~thesesaid~~ lands in a manner that minimizes sediment and
 9 | phosphorus yields from streams.
- 10 | Policy [11-I 2MM-10](#): Encourage the location of public services such as schools,
 11 | libraries, [parks/open space](#) and post offices, within Rural
 12 | Communities that would likely reduce the vehicle miles traveled
 13 | within the watershed.

14 | Reason for change: This change was recommended by the County Health
 15 | Department.

16 | [Policy 11-I 2MM-11](#): Continue to work with Bellingham and Lake Whatcom
 17 | Water and Sewer District to protect and manage the Lake
 18 | Whatcom watershed in accordance with the 1998 jointly
 19 | adopted interlocal agreement. Focus on continued
 20 | implementation of the 5-Year Work Plans of the Lake Whatcom
 21 | Management Program. In addition, work with the affected
 22 | jurisdictions and secure funding for programs.

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

24 | [Policy 11-I 2MM-12](#) Review and modify (as needed) the current development review
 25 | process for projects in the Lake Whatcom Watershed to ensure
 26 | coordination with other jurisdictions.

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

28 | [Policy 11-I 2MM-13](#) The existence of sewer lines in the Rural and Rural Forestry
 29 | comprehensive plan designations will not be utilized to justify
 30 | rezoning property in the Lake Whatcom watershed to allow
 31 | higher density land uses.

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

33 |
 34 | Note: Policies 11-I-14 through 21 were moved from Chapter 2.

35 | Policy [11-I 2BB-14](#): Facilitate meeting the unique needs of Sudden Valley due
 36 | to its location within the Lake Whatcom Watershed.

37 | Policy [11-I 2BB-15](#): Recognize the existing parcelization and the commitment
 38 | for development of the remaining multi-family parcels in Sudden
 39 | Valley.

- 1 | Policy [11-I-2BB-16](#): Work with the Community Association towards
2 | achievement of the density reduction target of 1,400 lots within
3 | Sudden Valley.
- 4 | Policy [11-I-2BB-17](#): If the county acquires lots through tax foreclosure,
5 | consider selling them as non-buildable lots.
- 6 | Policy [11-I-2BB-18](#): Support Lake Whatcom Water and Sewer District's effort
7 | to maintain adequate sewer capacity and control stormwater
8 | run-off in keeping with appropriate environmental controls and
9 | the Sudden Valley Community Association's density reduction
10 | goal.
- 11 | Policy [11-I-2BB-21](#): Work with all parties to maintain, and appropriately plan
12 | for infrastructure, public services, and stormwater retention so
13 | that Sudden Valley can develop to its appropriate potential.

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

15 | NATURAL SYSTEMS

16 | Introduction

17 | "Natural systems" refers to the complex biological ecosystem that has
18 | ~~grown~~developed from the geologic setting of Whatcom County. It includes fish and
19 | wildlife, as well as diverse vegetation that has adapted to a variety of physical and
20 | climatic conditions ([Map 2511-2](#), [Map 2611-3](#)). Natural Systems goals and
21 | policies are intended to provide guidance to county government as it assists citizens
22 | to effectively manage and enhance these natural systems, and ensures that the
23 | benefits of these systems are maintained far into the future.

24 | Background Summary

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

- 32 | • wetlands, lakes, and streams~~;~~
- 33 | • nearshore, inter~~-~~tidal, ~~and~~estuarines habitats~~;~~ and marine habitats
34 | including, but not limited to, kelp and eelgrass beds~~;~~
- 35 | • riparian areas and other travel corridors~~;~~
- 36 | • snags and downed logs~~;~~
- 37 | • forested habitats in a variety of successional stages~~;~~
- 38 | • caves, cliffs, and talus slopes~~;~~
- 39 | • grasslands and cultivated fields~~;~~
- 40 | • thickets and fence rows~~;~~

1 | **Aquatic habitats** include rivers, streams, ponds, lakes, and their riparian borders.
2 | Together, these habitats are essential to Whatcom County's fish and wildlife.
3 | Twenty-six species of fish, including twelve economically important stocks of
4 | salmon and trout, inhabit fresh water in Whatcom County for all or part of their
5 | life cycles. Healthy flowing streams and rivers, as well as off-channel wetland
6 | habitats, are essential to the survival of the majority of these fish. Wetland ponds,
7 | especially beaver ponds, provide optimal habitats for rearing and overwintering of
8 | young fish, particularly Coho salmon and cutthroat trout juveniles.

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

14 | **Issues, Goals, and Policies**

15 | **General – Natural Systems**

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

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

43 | Finally, the cultural value of functioning habitats, including wetlands and the fish
44 | and wildlife they harbor, has often been ignored in land use decisions. The

- 1 | gathering of fish, game, and other natural resources forms a central aspect of many
 2 | cultures in this region. Also, the mere presence of these natural resources
 3 | constitutes a community amenity that is a substantial part of our local economic
 4 | base.
- 5 | **Goal 11H: Protect and enhance natural systems, which provide**
 6 | **economic, ecological, aesthetic, and cultural benefit.**
- 7 | Policy 11H-1: Define and identify habitats and habitat features important to
 8 | fish and wildlife.
- 9 | Policy 11H-2: Develop and adopt programs ~~which-that~~ protect habitats ~~that~~
 10 | ~~are~~ essential to the conservation of species that have been
 11 | identified as endangered, threatened, or sensitive by the state
 12 | or federal government. Specifically, these programs should
 13 | maintain and encourage restoration of habitat conditions for
 14 | ~~threatened-listed~~ species.
- 15 | Policy 11H-3: Develop and adopt programs ~~which-that~~ provide incentives for
 16 | the protection of environmentally fragile areas or critical wildlife
 17 | habitats.
- 18 | Policy 11H-4: Where feasible, incorporate fish and wildlife habitats into public
 19 | capital improvement projects, and consider for incorporation
 20 | into a mitigation banking program.
- 21 | Policy 11H-5: Provide measures to mitigate negative water quality and
 22 | quantity impacts from both public and private alterations of
 23 | natural drainage systems.
- 24 | Policy 11H-6: Consider sensitive fish, shellfish, and wildlife species and their
 25 | habitats when establishing zoning densities and patterns.
- 26 | Policy 11H-7: Promote voluntary fish and wildlife habitat enhancement
 27 | projects through educational and incentive programs. These
 28 | projects, which can be done by individuals, organizations, and
 29 | businesses, should buffer and expand fish and wildlife habitat.
- 30 | Policy 11H-8: Give careful consideration to the siting of industrial, commercial,
 31 | residential, and other land use designations when located near
 32 | important marine habitats.
- 33 | Policy 11H-9: Protect, retain, and enhance the beneficial uses and functions of
 34 | streams and rivers. Define and identify the beneficial uses and
 35 | functions of streams and rivers, ~~which-including~~ wildlife and
 36 | fisheries habitat, water quality, open space, aesthetics, and
 37 | recreation.
- 38 | Policy 11H-10: Protect and enhance natural systems when flood control
 39 | measures are ~~utilized~~used.
- 40 | Policy 11H-11: Regulate the operation of river gravel extraction activities in
 41 | such a manner so as to provide long-term protection of fish and
 42 | wildlife habitat and water quality.

- 1 | Policy 11H-12: ~~Support~~ Ensure that design and development of residential and
 2 | industrial development ~~that~~ minimizes disturbance to rivers,
 3 | streams, and functioning riparian areas.
- 4 | Policy 11H-13: Evaluate the full value of the fishery, ~~—~~ including its cultural and
 5 | economic value ~~—~~ in land use decisions that may impact that
 6 | fishery. Unavoidable impacts to an individual habitat or fishery
 7 | should be mitigated.

8 **Native Fish and Wildlife Populations and Habitat**

9 Optimum habitat for Pacific Northwest salmon and other fish is one that resembles
 10 the riparian landscape of pre-settlement times: braided streams wandering freely
 11 through nearly continuous forest; trees overhanging and partly fallen into streams;
 12 stream beds with abundant logs, step waterfalls, pools, and cutbanks, and
 13 vegetated marine and estuarine communities. In most cases, it is not realistic to
 14 return to that state. However, measures can be taken to retain or regain those
 15 features ~~which that~~ provide the minimum requirements of a viable fishery.

16 The best habitat for native wildlife includes native plants, ~~which that have evolved~~
 17 ~~and occur naturally in the county.~~ Native plants are more closely matched to local
 18 soils, climate, and wildlife. They provide the right kinds of food, shelter, and
 19 diversity needed by wildlife. Native plants frequently need less watering, spraying,
 20 pruning, fertilizing, ~~and or~~ other maintenance than do exotic or imported plants.
 21 Loss of native vegetation through conversion to ornamental vegetation and non-
 22 native species often results in loss of wildlife habitat, increased competition to
 23 native wildlife from introduced species such as starlings, and increased
 24 maintenance needs. Loss of native vegetation also can occur through invasions
 25 such as the spread of *Spartina*, which can drastically displace important native
 26 eelgrass communities.

27 **Salmon Recovery Program**

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

36 In the Nooksack basin, it is clear that abundances of several salmonid stocks have
 37 diminished substantially from historical levels. The declines in local salmonid stocks,
 38 especially Chinook salmon, have had profound economic, cultural and social
 39 impacts on the greater WRIA 1 community. Direct impacts include reduced jobs and
 40 income for commercial fisherman, severe curtailment of tribal and subsistence
 41 catch, and loss of tourism associated with recreational fishing. In addition, ESA
 42 listings impose constraints on the activities of local and tribal governments,
 43 businesses, the agricultural community, and citizens, who must seek to avoid or
 44 minimize take of listed species. Nonetheless, salmon remain an integral part of the

1 natural and social landscape of Whatcom County and the Nooksack River
2 watershed. Recent watershed recovery planning and restoration efforts by federal,
3 state, local and tribal governments, non-profit organizations, businesses, and
4 private citizens demonstrate a commitment to salmon recovery in WRIA 1.

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

8 **WRIA 1 Salmon Recovery Strategy**

9 The ultimate goal for salmon recovery in WRIA 1 is to recover self-sustaining
10 salmonid runs to harvestable levels through the restoration of healthy rivers and
11 natural stream, river, estuarine, and nearshore marine processes, careful use of
12 hatcheries, and responsible harvest, and with the active participation and support
13 of local landowners, businesses, and the larger community. The purpose of the
14 WRIA 1 Salmonid Recovery Plan is to identify the actions necessary to recover
15 WRIA 1 salmonid populations, especially listed species, and to outline the
16 framework for implementation of recommended actions that have been agreed to
17 by local, state, tribal, and federal governments and stakeholders in WRIA 1. In the
18 near term, the objectives are to:

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

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

24 (3) Facilitate recovery of WRIA 1 bull trout and steelhead by implementing
25 actions with mutual benefit to both early chinook, and bull trout and
26 steelhead and by removing fish passage barriers in presumed bull trout and
27 steelhead spawning and rearing habitats in the upper Nooksack River
28 watershed; and

29 ~~(1)~~(4) Address other salmonid populations by (a) protecting and restoring
30 WRIA 1 salmonid habitats and habitat-forming processes through
31 regulatory and incentive based programs; and (b) encouraging and
32 supporting voluntary actions that benefit other WRIA 1 salmonid
33 populations without diverting attention from early chinook recovery.

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

38 **Salmon Recovery Board (SRB)**

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

1 [The WRIA 1 Salmonid Recovery Plan \(2005\)](#), a chapter of the Puget Sound Salmon
 2 [Recovery Plan](#), guides restoration in the Nooksack River and adjacent watersheds.
 3 [This plan was developed in partnership with Nooksack Tribe, Lummi Nation,](#)
 4 [Washington Department of Fish and Wildlife, Bellingham, and the small cities of](#)
 5 [Whatcom County. Chinook salmon populations \(listed as threatened with extinction](#)
 6 [under the Federal Endangered Species Act\) are prioritized, yet the plan also](#)
 7 [provides the template for recovery of threatened steelhead and bull trout and the](#)
 8 [other salmon and trout populations native to Whatcom County.](#)

9 [The salmon plan was developed in parallel with the WRIA 1 Watershed Management](#)
 10 [Plan. Salmon habitat is intricately linked to watershed management; salmon](#)
 11 [recovery will be most successful when fish habitat objectives are carefully](#)
 12 [coordinated with watershed management objectives. Integrating salmon recovery](#)
 13 [with flood hazard management and restoring fish passage under County roads are](#)
 14 [two primary areas of focus.](#)

15 **Goal 11J: Protect and enhance natural systems that support native**
 16 **fish and wildlife populations and habitat.**

17 Policy 11J-1: Strongly discourage any activity that might cause significant
 18 degradation of the fishery resource or habitat.

19 Policy 11J-2: Support the protection and enhancement of significant fish
 20 spawning and rearing habitat, food resources, refugia (shelter),
 21 and travel passages.

22 Policy 11J-3: [When possible,](#) establish non-regulatory mechanisms and
 23 incentives for development that accommodates the habitat
 24 needs of fish and wildlife and encourages good stewardship
 25 practices.

26 Policy 11J-4: Support protection and enhancement of fish and wildlife habitat
 27 through site design in new development.

28 Policy 11J-5: Native vegetation and soils on stream banks and shorelines
 29 should be disturbed as little as possible. In situations where re-
 30 vegetation is necessary to restore stream bank or shoreline
 31 stability and provide shading, site-specific native plants should
 32 be used. Retention of vegetated riparian areas on all lake and
 33 marine shorelines should also be encouraged.

34 Policy 11J-6: [Discourage shoreline armoring. Instead, Encourage](#) natural or
 35 bio-engineering solutions such as planting native vegetation,
 36 engineered log jams/LWD, and beach nourishment along
 37 eroding banks to address stream [and shoreline](#) bank erosion
 38 problems. Riparian buffers should be replanted with suitable
 39 native vegetation as a part of all bank stabilization projects.

40 Policy 11J-7: Encourage native vegetation and soils retention and plantings
 41 [which that](#) provide or maintain the beneficial uses and functions
 42 of streams, rivers, lakes, and marine shorelines.

1 Policy 11J-8: Maintain and encourage restoration of habitat functions for
2 threatened and endangered fish species.

3 Policy 11J-9: Use Best Available Science to inform the creation of regulations
4 to mitigate adverse impacts of development adjacent to rivers,
5 streams, and marine shorelines.

6 Policy 11J-10: Encourage landowners to protect surface water quality with filter
7 strips or other appropriate water cleansing mechanisms installed
8 between lawns, landscaping, livestock pens, or agricultural fields
9 and waterbodies.

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

12 Policy 11J-11: Formulate and implement~~Consider developing a comprehensive~~
13 watershed/landscape-based environmental management
14 program to protect fish and wildlife. The program will~~should~~
15 include the following:

- 16 1. Formulate an administrative approach to the review of
17 development and planning proposals that consider natural
18 system policies.
- 19 2. Investigate and develop programs for acquisition and
20 restoration of important fish and wildlife habitat areas.
- 21 3. Develop and enter into cooperative agreements with State
22 and Federal agencies and neighboring jurisdictions for the
23 purpose of identifying and protecting natural systems.
- 24 4. Identify and map important habitat corridors throughout the
25 county.
- 26 ~~4-5.~~ Support the development of an educational booklet
27 materials which lists, describes, and characterizes the
28 appropriate use of native vegetation to enhance natural
29 systems in Whatcom County.

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

32 Policy 11J-12: ~~E~~Consider establishing formal meander limits for the Nooksack
33 River, precluding additional development within this zone, and
34 promote the River and Flood property acquisition program
35 within these areas.

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

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

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

40 Policy 11J-14: Actively participate in and support WRIA 1 Salmon Recovery
41 efforts to return self-sustaining salmonid runs to harvestable
42 levels through the restoration of healthy rivers, marine

shorelines, and natural processes, careful use of hatcheries, and responsible harvest.

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

5 Wetlands

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

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

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

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

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

27 | Policy 11K-3: Biological functions of wetlands are complex and interwoven.
28 Evaluate the full range of potential and immediate economic
29 | impacts in land-use decisions relating to wetlands, including
30 fisheries, wildlife, recreation, farmlands, sustainable resources,
31 air and water quality, flood control, real estate, cultural
32 attributes, and other entities.

33 Policy 11K-4: Encourage land development that avoids or mitigates wetland
34 | impacts. Impacts to important wetlands should be contingent
35 upon full mitigation measures that equitably compensate for
36 | wetlands impacts, on a case—by—case basis. Strongly
37 discourage alteration of land that results in the degradation of
38 significant wetlands.

39 Policy 11K-5: Property rights and public services are an essential component
40 of our political and economic system. Where such rights and
41 public services are significantly compromised by the goal of
42 wetland preservation, adverse wetland impacts may be
43 permitted through standardized mitigation. This may include

- 1 avoidance, impact minimization, restoration, enhancement,
 2 creation, or off-site compensation for loss of wetland functions
 3 in accordance with mitigation sequencing.
- 4 Policy 11K-6: Recognize beneficial wetland uses, functions, and values.
 5 Support protection of fish and wildlife habitat, water quality,
 6 plant diversity, flood attenuation and low-flow contribution, and
 7 water storage through planning, acquisition, incentive programs,
 8 and mitigation.
- 9 Policy 11K-7: Development proposals–applications should be assessed on a
 10 case-by-case basis so that marginal wetlands are not preserved
 11 at the expense of upland areas with higher habitat value.

12 Marine Habitat

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

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

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

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

33 **Goal 11L: Protect and enhance marine resources in Whatcom** 34 **County.**

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

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

- 1 ▪ Coordination of scientific data.
- 2 ▪ Successful public education and outreach efforts.
- 3 ▪ The establishment of a regional system of Marine Protected
- 4 Areas (MPA's).

5 **Shellfish Habitat**

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

13 ~~Our ability to grow and harvest shellfish that is safe for human consumption is~~
14 ~~directly linked to surface water quality and the influence it has on marine waters.~~
15 ~~The primary measure of water quality for shellfish harvesting is bacterial~~
16 ~~contamination associated with human sewage and animal wastes. Potential sources~~
17 ~~of fecal bacteria include municipal sewage treatment plants, on-site sewage~~
18 ~~systems, boatwaste, farm animals, pets, and wildlife. Since 1995, valuable shellfish~~
19 ~~beds in Portage Bay and Drayton Harbor have been downgraded (harvest~~
20 ~~prohibited) due to non-point pollution impacting recreational, tribal, and commercial~~
21 ~~harvesting. In In July 20032014, Birch Portage Bay was added identified as a~~
22 ~~threatened Shellfish Growing Area by the Washington Department of Healthto the~~
23 ~~Washington State list of threatened shellfish harvesting areas. (Washington~~
24 ~~Department of Health, 2014)~~

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

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

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

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

36 Reason for Change: Suggestion by Dept. of Ecology.

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

41 Policy 11M-4: Improve knowledge of the importance of protecting, preserving,
42 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 discharging~~
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 MRCMarine
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.

Environmental Management

Community Protection and Environmental Preservation

- 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.
- 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.

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

Environmental Management Program Development

A. Regulatory Action

- 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:
 - Whatcom County Code
 - Title 16 Environment
 - Critical Areas Regulations
 - SEPA Regulations
 - Agriculture Nutrient Management Plan
 - Title 17 Flood Damage Prevention
 - Flood Hazard Management
 - Title 20 Zoning
 - Water Resource Protection Overlay Districts
 - Stormwater Special Districts
 - Water Resource Special Management Areas
 - Clearing Regulations
 - Title 21 Land Division Regulations

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

7 Reason for deletion: This action has been accomplished.

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

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

17 ~~Because standards only provide the technical guidance for~~

18 ~~implementation of those activities allowed by regulatory authority, the~~

19 ~~development of these standards must follow both comprehensive plan~~

20 ~~and regulatory development.~~

21 Reason for deletion: This action has been accomplished.

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

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

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

31 Reason for deletion: This has been largely accomplished through the adoption of

32 the Critical Areas Regulations, WCC Chapter 17 (Flood Damage Prevention), and

33 the Comprehensive Flood Hazard Management Plan. Additionally, it has been

34 included to Policy 11D-11.

35 ~~B. Non-regulatory Action~~

- 36 ~~• Develop a comprehensive and streamlined system of permitting and~~
- 37 ~~approval of building and land development projects which incorporates~~
- 38 ~~environmental protection. All effort should be made to make the~~
- 39 ~~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.~~

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

4 ~~• Ensure that existing stormwater standards are adequately enforced~~
5 ~~within Stormwater Special Districts.~~

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

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

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

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

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

18 **Natural Systems**

19 **General**

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

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

24 ~~• Formulate an administrative approach to the review of development~~
25 ~~and planning proposals that consider natural system policies.~~

26 ~~• Investigate and develop programs for acquisition and restoration of~~
27 ~~important fish and wildlife habitat areas.~~

28 ~~• Develop and enter into cooperative agreements with State and Federal~~
29 ~~agencies and neighboring jurisdictions for the purpose of identifying~~
30 ~~and protecting natural systems.~~

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

32 ~~• Identify and map important habitat corridors throughout the county.~~

33 ~~• Support the development of an educational booklet which lists,~~
34 ~~describes, and characterizes the appropriate use of native vegetation~~
35 ~~to enhance natural systems in Whatcom County.~~

36 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.