Town of Index
Shoreline Master Program

2019 Comprehensive Update and Periodic Review Amendment

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TOWN OF INDEX
SHORELINE MASTER PROGRAM

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1. Introduction to the Index Shoreline Master Program

1.1 The Washington State Shoreline Management Act

1.1.1 Purpose
The goal of the Washington State Shoreline Management Act (SMA) is “to prevent the inherent harm in an uncoordinated and piecemeal development of the state’s shorelines,” and the Act recognizes that “shorelines are among the most valuable and fragile” of the state’s resources per RCW 90.58.

The primary purpose of the Act is to provide for the management and protection of the state’s shoreline resources by planning for their reasonable and appropriate use. The Shoreline Management Act establishes a balance of authority between local and state government; cities and counties are the primary regulators of development along their shorelines. However, the state (through the Department of Ecology) has authority to review and approve local master programs and shoreline development permit decisions.

Ecology also reviews shoreline development permit decisions and must approve, condition or deny shoreline variances and shoreline conditional use permits following their approval by local government. All proposed uses and development occurring within shoreline jurisdictions must conform to chapter 90.58 RCW, and the Shoreline Management Act, and this Master Program.

1.1.2 Legislative Findings and Washington Shoreline Management Act Policies
According to the Revised Code of Washington (RCW) 90.58.020, the Washington State Legislature reached the following conclusions justifying its adoption of the Washington Shoreline Management Act: the shorelines of the state are among the most valuable and fragile of the state’s natural resources and that there is great concern throughout the state relating to their utilization, protection, restoration, and preservation.

In addition, the legislature determined that the ever-increasing pressures of additional uses are being placed on the shorelines, necessitating increased coordination in the management and development of the shorelines of the state. The legislature further found that much of the shorelines of the state and adjacent uplands are held in private ownership and that unrestricted construction on the privately owned or publicly owned shorelines of the state was not in the best public interest. These ownership and use conditions lead to the need for coordinated planning in order to protect the public interest associated with the shorelines of the state which, at the same time, shall be consistent with public interest.

It is the policy of the state to provide for the management of the shorelines of the state by planning for and fostering all reasonable and appropriate uses. This policy is designed to ensure the development of these shorelines in a manner that, while allowing for limited reduction of rights of the public in navigable water, will promote and enhance the public interest. This policy is intended to protect against adverse effects to the public health, the land and its vegetation and wildlife, and the water of the state and its aquatic life, while generally protecting public rights of navigation and its associated activities.

1.1.3 Statewide Application of the Shoreline Management Act
The Shoreline Management Act applies to more than 20,000 miles of shorelines found in the state. This includes 2,300 miles of lake shores, 16,000 miles of streams, and 2,400 miles of marine shores.
Shorelines are defined as:

i. All marine waters;
ii. Streams with a mean annual flow of 20 cubic feet per second or greater;
iii. Lakes 20 acres or larger;
iv. Upland areas called “shorelands” which are 200 feet landward from the edge of these waters; and
v. The following areas when they are associated with one of the above;
vi. Wetlands and river deltas; and
vii. Some or all of the 100 year floodplain, including all wetlands within the entire floodplain.

The Shoreline Management Act differentiates between “shorelines,” “shorelines of the state,” and “shorelines of statewide significance.” “Shorelines of the state” is the term used to include both “shorelines” and “shorelines of statewide significance.” “Shorelines” and “shorelines of statewide significance” are described below.

1.1.4 Shorelines of Statewide Significance

The Shoreline Management Act defines “shorelines” to mean all of the waters of the state, including reservoirs, and their associated shorelands, together with the lands underlying them. Not included in this definition are shorelines of statewide significance, shorelines on streams having a mean annual flow of less than twenty cubic feet per second or shorelines on lakes less than twenty acres in size.

The Shoreline Management Act designates certain shoreline areas as “shorelines of statewide significance.” West of the Cascade Mountains, the shorelines that are so designated are defined as “natural rivers or segments thereof” that have a mean annual flow of one thousand (1,000) cubic feet per second (cfs) or more and the shorelands associated with those waters (RCW 90.58.030).

The legislature identified and designated the waters possessing these levels of flow as shorelines of statewide significance in WAC 173-18.

The North Fork Skykomish River in the Index area has a mean annual flow equal to or greater than 1000 cfs and is therefore designated as a “shoreline of statewide significance.”

1.2 Shoreline Jurisdiction within the Town of Index

Shoreline jurisdiction within the Town of Index is focused on the North Fork Skykomish River, two small unnamed tributaries and all lands that are located within 200 feet of the floodway edge or ordinary high water mark (OHWM) whichever is further landward, and the wetlands found in those areas.

For management purposes, under the Shoreline Master Program, the shoreline is divided into distinct shoreline environments for which specific allowed uses and activities are identified, and specific development standards are established.

These environments are determined based on the findings of the Shoreline Inventory and Characterization Study, Appendix C.
1.3 Purpose of the Shoreline Master Program
The Shoreline Management Act defines a Master Program as a “comprehensive use plan for a described area.” The shoreline planning process differs from the more traditional planning process in that the emphasis is on protecting the shoreline environment through management of uses, rather than trying to maximize development potential.

The purposes of the Shoreline Master Program are:
   i. To carry out the responsibilities imposed on the Town of Index by the Washington State Shoreline Management Act (RCW 90.58).
   ii. To promote the public health, safety, and general welfare by providing a guide and regulation for the future development of the shoreline resources within the Town of Index.
   iii. To further by adoption the policies of RCW 90.58 and the goals of this Master Program, both described in this document.

1.4 The Town’s Role in Implementation of the Shoreline Management Act
In order to protect the public interest in the preservation of the shorelines of the state, the Shoreline Management Act establishes a planning program coordinated between the state and local jurisdictions to address the types and effects of development occurring along the state’s shorelines. By law, the Town is responsible for the following:
   i. Development of an inventory of the natural characteristics and land use patterns along shorelines regulated by the Act. This inventory provides the foundation for development of a system that classifies the shoreline into distinct environments. These environments provide the framework for implementing shoreline policies and regulatory measures.
   ii. Preparation of a “master program” to determine the future of the shorelines. These “master programs” contain the policies and regulations that direct development and use of shorelines along rivers and larger streams, along lakes over 20 acres, and along marine waterfronts.
   iii. The future of the shorelines is defined through the goals developed for the following land and water use elements (at a minimum):
      a. Economic development
      b. Public access
      c. Circulation
      d. Recreation
      e. Shoreline use
      f. Conservation
      g. Historical/cultural protection
      h. Floodplain management
   iv. Master program regulations are developed and adopted, as appropriate, for various types of shoreline development, including the following:
      a. Forest management
      b. Commercial development
      c. Boat launch
      d. Outdoor advertising and signs
      e. Residential development
      f. Utilities
      g. Water-related industries
      h. Shoreline modifications (Bulkheads, breakwaters, jetties and groins)
      i. Landfills
j. Solid waste disposal  
k. Dredging  
l. Shoreline protection  
m. Road and railroad design  
n. Piers  
o. Recreation  
p. Development of a permit system to further the goals and policies of both the Act and the Master Program.  
v. Administrative provisions for all proposed development shall ensure permit procedures and enforcement are conducted in a manner consistent with relevant constitutional limitations on regulation of private property per WAC 173-26-186(5) and WAC 191(2)(a)(iii)(A).

1.5 The Shoreline Master Program and the Town of Index Comprehensive Plan

In addition to compliance with the provisions of the Shoreline Management Act of 1971, the Index Shoreline Master Program must be consistent with local plans and policy documents, specifically, the Town of Index 2015 Comprehensive Plan. The Town’s Shoreline Master Program must also be consistent with the regulations developed by the Town to implement its plans, such as the zoning code, as well as regulations relating to building construction and safety.

Shoreline management is most effective and efficient when accomplished within the context of comprehensive planning. The Growth Management Act defines shoreline master program policies as a part of the local comprehensive Plan:

For shorelines of the state, the goals and policies of the Shoreline Management Act as set forth in RCW 90.58.020 are added as one of the goals of this chapter as set forth in RCW 36.70A.020.

The goals and policies of a shoreline master program for a county or city approved under chapter 90.58 RCW shall be considered an element of the county or city’s comprehensive plan.

All other portions of the shoreline master program for a county or city adopted under chapter 90.58 RCW, including use regulations, shall be considered a part of the county or city’s development regulations. (RCW 36.70A.480(1))

Towns and Cities that plan under the Growth Management Act are required, under RCW 36.70A, to ensure that there is mutual and internal consistency between the comprehensive plan elements and implementing development regulations (including master programs). This requirement also requires consistency between the shoreline master program and the future land use plan, specifically demonstrating that there is consistency regarding the:

i. Ability of physical aspects of the plan to coexist on the available land.  
ii. Ability of the plan to provide that adequate public facilities are available when the impacts of development occur (concurrency). (RCW 365-195-500)

In addition, the Growth Management Act also calls for coordination and consistency of comprehensive plans among local jurisdictions:

. . . The comprehensive plan of each county or city that is adopted pursuant to (… the Growth Management Act) shall be coordinated with, and consistent with, the comprehensive plans adopted
pursuant to chapter (Growth Management plans) of other counties or cities with which the county or city has, in part, common borders or related regional issues. (RCW 36.70A.100)

1.6 The Town of Index Shoreline Master Program History of Use

The Town of Index adopted the Snohomish County Shoreline Master Program in 1974: this is the plan which the Town continued to apply prior to the 2019 comprehensive update. This initial plan was developed by Snohomish County in conjunction with the Town of Index prior to 1990.

During the writing and implementation of the SMP, the background and support for the 1974 SMP was derived from “older science” which was limited in scope and reach and truly applicable designations. As understood through cursory research of the Snohomish County Master Program, the overall plan was developed prior to the “listing” of several species of fish which are now listed (and present in local waters) under the existing Endangered Species Act. Updating of the Master Plan and Program provide an opportunity to protect the shoreline areas of the Town of Index under the most recent accepted science and planning components.

The Shoreline Master Plan Program, which has been in use since 1974, was adopted by the Town directly from the Snohomish County plan “as is”: there is an unknown legacy as to participation by the citizens of the area in this adoption and a minimal compilation of related material at the State Dept. of Ecology.

As part of the 2019 comprehensive update for the Town of Index Shoreline Master Program:

The Town of Index called for participants for a shoreline planning group, mailed and emailed notices to possible stakeholders and interested parties, and began meeting in the late months of 2009.

The Town of Index shoreline planning group met nine times between 2009 and 2010, working on aspects of the plan, discussing issues and concerns relevant to the community as a whole and researching the existing plan and existing impacts on the community.

A meeting was held on October 9th, 2010 which was open to all; specially aimed at encouraging council and planning commission to attend for background education and to address current questions and concerns.

The Town Council passed Ordinance #447 on January 5, 2015, adopting the Shoreline Master Program. The Master Program was forwarded to the Department of Ecology for their review and comment.

1.7 How the Shoreline Master Program is Used

The Town of Index Shoreline Master Program is both a planning and regulatory document which provides a guideline for achieving goals and policies focused on the shorelines of the Town: establishing regulations for development occurring specifically in that area defined as “within 200 feet of the Ordinary High Water Mark as well as the regulated floodplain and critical areas and buffers found within 200 feet of the OHWM.”

The shoreline development regulations are contained within the Shoreline Master Program and have
been reviewed for consistency with other development regulations found in the Index Municipal Code.

When regulations or planning documents provide conflict of outcomes, the most restrictive regulations shall apply to the shoreline areas of the Town of Index.

In order to preserve and enhance the shorelines of the Town, it is important that all development proposals relating to the shoreline area be evaluated in terms of the Town’s Shoreline Master Program and that the Town Council be consulted for final review and approval or denial decision.

The Town Council provides the action and final review for all shoreline-related actions (including holding hearings and making final determinations). The Town of Index Planning Commission and staff for the Town of Index provide the study and research component of the process assisting the Council in gathering information used in making its determination.

Findings by these reviews will determine if a development is exempt from shoreline permits or requires a Shoreline Conditional Use Permit or Shoreline Variance application.

The Shoreline Management Act (SMA) defines for local jurisdictions the content and goals which should be represented in the Shoreline Master Program developed by each community. Within these guidelines, each community shall develop the specific regulations appropriate to that community. Under the SMA, all shorelines of the state meeting the criteria established locally receive a given shoreline environmental designation. The purpose of the shoreline designation system is to ensure that all land use, development, or other activity occurring within the designated shoreline jurisdiction is appropriate for that area and provides consideration for the special requirements of that environment.

Index has designated three shoreline environments:
  i. Town of Index Shoreline Upland
  ii. Town of Index Urban Conservancy
  iii. Town of Index Armored Bank

Within the Town of Index, all proposals must comply with the policies and regulations established by the Washington State Shoreline Management Act and as expressed through this local Shoreline Master Program adopted by the Town of Index.

1.8 How the Shoreline Master Program is Applied to Development
The Index Shoreline Master Program attempts to address the range of uses that may be proposed for action or development within the shoreline area. This SMP review process attempts to ensure the shoreline area is protected from possible activities and uses which would be inappropriate or could create negative conditions or uses within the ecological system of the shoreline, or which may cause degradation of the shoreline area.

The Shoreline Master Program attempts to provide guidelines for regulatory decision making: defining the community’s considerations of all types of use or activity, establishing parameters within which development may occur, or provide information as to what types of development are unacceptable within the Town’s shoreline jurisdiction. The SMP shall discuss which use or activity may be considered with restrictions, mitigation, or constraints, in each environment.

Descriptions and maps of shoreline environments within the jurisdiction of the Shoreline Management
Program are presented in Chapter 2 – Shoreline Environment Designations.

The Shoreline Master Program is designed to address regulation of all development and define what type of development conditions may be needed or what other permits are required (i.e., Substantial Development Permit, Shoreline Conditional Use Permit or a Shoreline Variance).

Additional review under the State Environmental Policy Act (SEPA) may also be required.

1.9 Town of Index Shoreline Master Program Guidelines

Review of proposed and potential development is necessary in order to assess the probable unwanted or damaging effects of the proposal on the river ecology, the nearby properties or general shoreline aesthetics which are determined to be in need of protection.

In the Shoreline Management Plan, a project which is determined to be allowed or typical does not require a permit while a project determined to be a “substantial development” within any designation or environment will require a Shoreline Substantial Development Permit.

Approving a proposed development under a Shoreline Variance, a Substantial Development Approval or a Conditional Use Approval shall define how the project will comply with applicable regulations in the Shoreline Master Program.

Based on the State’s requirements for the Shoreline Master Plan, it is possible some developments could require a Conditional Use Permit or a Shoreline Variance Approval even when they do not meet the definition of a “substantial development.”

“Substantial development” is any “development” of which the total cost or fair market value exceeds seven thousand forty-seven dollars ($7,047), or any development that materially interferes with the normal public use of the water or shorelines of the state. Under the Shoreline Management Act, some types of development are exempt from the requirement to apply for and receive a permit before beginning work. These exemptions are discussed in Chapter 9 – Administration.

A project which is exempt from permit requirements must still comply with all applicable regulations in the Town’s Shoreline Master Program as well as all other regulatory guidance, including Title 14 (Permit Processing) and Title 15.08 (Flood Plain Management) of the Index Municipal Code, state critical areas regulations, and other laws related to development conditions which may apply within the shoreline jurisdiction.

The Mayor of the Town of Index and the Town Council are responsible for enforcing and implementing the Shoreline Master Program. Town of Index staff and the Mayor are allowed to help an applicant identify if a project is classified as an exempt development or a substantial development, determine what permits are necessary or if a project is exempt from permit requirements. The Mayor or staff may also help to identify which regulations would fall within state critical areas regulations, require FEMA review for flood elevation and what aspects of the Shoreline Master Program will apply to the proposed project.

The Town Clerk can provide information on the permit application process and how the SMP process relates to, and can coordinate with, the State Environmental Policy Act (SEPA) process.
1.10 Compliance with Other Programs, Rules and Requirements

In addition to required compliance with the provisions of the State Shoreline Management Act, the Index Shoreline Master Program must be consistent with all other local plans and policy documents. The SMP, the Index Comprehensive Plan and Flood Plain Management shall not create areas with conflicting regulatory authority.

Appendices of this document include incorporated ordinances included in the document to meet State of Washington Shoreline Master Program Guidelines (WAC 173-26).

The Town’s Shoreline Master Program must also be consistent with the regulations developed by the Town to implement its various regulatory plans: the Comprehensive Plan, the Growth Management Act documents, any zoning code, grading and drainage development rules, all regulations relating to building construction and safety, and the Flood Plain Management Ordinance codified as IMC 15.08 (Ordinance 343 §1.2, 1999), Appendix D.

The Town of Index Shoreline Master Program must comply with:

Permit revision approval criteria of WAC 173-27-100, and
Requirements for Federal Projects applicable to the Federal Coastal Zone Management Act per WAC 173-27-060.

Submitting a proposal for a shoreline development approval of an ‘Exempt Shoreline Project’ does not exempt an applicant from complying with all other local, county, state, regional, or federal statutes or regulations which may also be applicable to such development or use.

Examples of activities that may require permits, review, or approval from other agencies are listed. Some of the activities listed are unlikely to occur within the Town of Index Shoreline jurisdiction:

- In water work (rip rap, bank stabilization or fill)
- Clearing or grading at the top of bank or within wetland designated areas
- Clearing or grading on slopes
- Development of gas or oil

The following list of permits is provided as additional information about regulatory requirements which exist for various land use activities that may occur in the Index area.

<table>
<thead>
<tr>
<th>Agency</th>
<th>Authority/Jurisdiction</th>
<th>Types of Activity Requiring Permit</th>
<th>Permit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Army Corps of Engineers</td>
<td>Sect. 404 of Clean Waters Act &lt;br&gt;Jurisdiction extends to Ordinary High Water Mark of all waters of the U.S. and includes all adjacent wetlands</td>
<td>Discharge of dredged materials, fills, grading, ditch sidecasting, groins, road fills, beach nourishment, riprap, jetties, etc.</td>
<td>Section 404 Permit &lt;br&gt;(Some limited activities are covered by nationwide general permits)</td>
</tr>
</tbody>
</table>
### Federal Emergency Management Agency (FEMA)

| CFR 44, Part 60 | All construction within and uses of the floodplain must meet the standard established in the Index Flood Plain Management Ordinance (#343 §1.2). | Review for compliance with FEMA guidelines is conducted through enforcement of the Index Flood Plain Management Ordinance. |

- This ordinance applies to the areas designated as flood zones on FEMA’s Federal Insurance Rate Map. The adopted FEMA ordinance enables Town residents to acquire federal flood insurance and permits Index to be eligible to receive Federal Flood Disaster Funds.

### Washington State Department of Natural Resources (DNR)

| RCW 79.09 | Forest activities relating to growing, harvesting or processing timber, road construction and maintenance, brush clearing, slash disposal | Forest Practice Approval |

- Waterbodies near forest activities

### Washington State Department of Fish and Wildlife (DFW)

| RCW 75.20.100-160 | Work, construction, development, or other activities that will use, divert, obstruct, or change the natural flow or bed of any fresh or salt water in the state. | Hydraulic Project Approval permit |

- All fresh or salt water in the state

Questions about permits, licenses, or review may be directed to the Town of Index.
2. Shoreline Environment Designations

2.1 Introduction

The State Shoreline Management Act requires that local jurisdictions categorize their shoreline area on the basis of existing development patterns, the biological and physical character of the shoreline, and the goals and aspirations of the community. The purpose of designating shoreline environments is to provide a uniform basis for applying policies and use regulations within different shoreline areas.

The Town of Index has designated three shoreline environments: Shoreline Upland, Urban Conservancy, and Armored Bank.

Uses in each shoreline environment should be prioritized in the following order:

1. Uses that protect or restore and enhance natural areas and ecological processes and functions, particularly in those areas identified as containing or having unique geological, ecological or biological significance.

2. Water-enjoyment uses - those uses that facilitate public access to the shoreline as a primary characteristic of the use; or a use that provides for public recreational use or aesthetic enjoyment of the shoreline for a substantial number of people as a general characteristic of the use and which, through location, design, and operation, ensures the public's ability to enjoy the physical and aesthetic qualities of the shoreline.
   a. In order to qualify as a water-enjoyment use, the use must be open to the general public, and the shoreline-oriented space within the project must be devoted to the specific aspects of the use that fosters shoreline enjoyment.

3. Water-dependent uses - all uses that cannot exist in a location other than waterfront and require location on the water by reason of the intrinsic nature of the operation.

4. Water-related uses - those uses or portions of a use that are not intrinsically dependent on a waterfront location but whose economic viability is dependent upon a location in the Shoreline District because:
   a. The use has a functional requirement for a waterfront location or
   b. The use supports water-dependent uses or is more convenient to customers.

5. Uses that are not water-dependent though provide a legal and open regulated public access or which provide significant ecological restoration and enhancement.

6. Non-water dependent uses: Uses that are not water-dependent, water-related or water-enjoyment as defined above, without regulated public access or ecological restoration and enhancement.

All uses in the shoreline shall comply with the Town’s land use code (IMC Title 17) and this Program.

The shoreline use table defines those uses that are permitted outright and those uses that are only permitted as a conditional use. All unclassified uses shall be considered conditional uses and shall be governed by the policies in WAC 173-26.

2.2 Shoreline Upland Environment

2.2.1 Purpose

The Shoreline Upland environment is intended to accommodate residential development, allowed commercial use, and the appurtenant structures that are consistent with the SMP and Index Municipal Code.
2.2.2 Designation Criteria
Areas designated Shoreline Upland are those that are landward of Avenue A. These are developed areas which include residential and commercial buildings, typically with legal existing access to public streets and utilities.

2.2.3 Management Policies
1. Preferred uses on upland lots within the shoreline area are to be given to those uses that complement the existing and allowed uses on adjacent waterfront lots.
2. Approved development and uses in the Shoreline Upland should:
   a. Promote uses that enhance natural upland areas and ecological processes and functions, particularly those areas or systems identified as containing or having unique geological, ecological or biological significance.
   b. Include those uses (business and public uses) which depend on being at the waterfront for the nature of the use.
   c. Include water related uses that can exist in a location other than at the waterfront, though benefit from a location near the water by reason of the intrinsic nature of the operation.
   d. Exclude, when other locations are available, non-water dependent uses which are those uses that are not water-dependent, water-related or water-enjoyment as defined above or are not regulated public access or a site used for ecological restoration and enhancement.
3. Water-related uses that preserve shoreline ecological functions and processes are preferred shoreline uses.
4. Secondary preference is given to non-water related and those uses that enhance and support uses encouraged in the Armored Bank environment.
5. The design, density and location of all allowed uses and developments should reflect physical and natural features of the shoreline and should assure no net loss of ecological functions by avoiding and minimizing adverse effects on shoreline ecology.

2.3 Urban Conservancy Environment
2.3.1 Purpose
The Urban Conservancy environment is intended to preserve and restore those shoreline areas possessing natural characteristics intolerant of high-intensity use or unique historical, cultural, or educational features. These systems require restrictions on the intensities and types of uses permitted so as to maintain the integrity of the shoreline environment.

2.3.2 Designation Criteria
Areas to be designated Urban Conservancy should meet one or more of the following criteria:
1. The shoreline is ecologically intact and therefore performing an important, irreplaceable function of ecosystem-wide process that would be damaged by human activity;
2. The shoreline is considered to represent ecosystems and geologic types that are of particular scientific and educational interest;
3. The shoreline is unable to support new development or uses without significant adverse impacts to ecological functions or risk to human safety; or
4. Such shoreline areas that include largely undisturbed portions of shoreline areas such as wetlands, estuaries, unstable bluffs, and ecologically intact shoreline habitats.
2.3.3 Management Policies

1. Any use or development which would potentially degrade the natural value or significantly alter the natural character of the shoreline area should not be allowed.

2. Limited access should be permitted for scientific, historical, educational, and low-intensity recreational purposes, provided that no significant adverse impact on the area will result.

3. The following new uses should not be allowed in the Urban Conservancy environment:
   a. Non-water-dependent commercial uses;
   b. Industrial uses;
   c. Non-water-oriented recreation; or
   d. Roads, utility corridors, and parking areas that can be located outside of Urban Conservancy-designated shorelines.

4. Single-family development may be allowed as a conditional use within the Urban Conservancy environment if the density and intensity of such use is limited as necessary to protect ecological functions and be consistent with the purpose of the environment.

5. New development or significant vegetation removal that would reduce the capability of the vegetation to perform normal ecological functions should not be allowed. The subdivision of property in such a configuration that, to achieve its intended purpose, will require significant vegetation removal or shoreline modification that adversely impacts ecological functions is not allowed.

2.4 Armored Bank Environment

2.4.1 Purpose

The Armored Bank environment is intended to protect, restore, and manage the unique characteristics and resources of those areas waterward of the Ordinary High Water Mark. Ecological functions are to be protected and restored, while allowing limited water-oriented uses.

The preference for protection of the ecological conditions of the shoreline shall be accomplished by prohibiting newly created uses which would negatively impact natural areas, by providing mitigation for negative impacts caused by the use, and by providing restoration and enhancement of natural areas where they are (or become) degraded.

2.4.2 Designation Criteria

The Armored Bank environment includes those sections of the Town of Index municipal limits (approximately 1 mile) which have legally armored rock/riprap. The majority of these areas abut public streets and roads and are found waterward of the pavement.

2.4.3 Management Policies

1. Water-dependent uses that preserve shoreline ecological functions and processes are preferred shoreline uses.

2. Secondary preference is given to water-related and water-enjoyment uses, and to those uses that enhance public access to the shoreline or include elements of shoreline restoration.

3. The design, density and location of all allowed uses and developments should reflect physical and natural features of the shoreline and should assure no net loss of ecological functions by avoiding and minimizing adverse effects on shoreline ecology.

4. Uses and development that include restoration of shoreline areas that have been degraded as a result of past activities are highly encouraged.

5. Water-enjoyment uses - those uses that facilitate public viewing and access to the shoreline as a primary characteristic of the use; or a use that provides for public recreational use or aesthetic
enjoyment of the shoreline area for a substantial number of people and which, through location, design, and operation, ensures the public's ability to enjoy the physical and aesthetic qualities of the shoreline.

6. Uses which produce “hazardous,” “chemical,” or other products or by-products which could pose a threat to water quality are prohibited.

2.5 Shoreline Environments Map

Shoreline Environment Designations

![Shoreline Environment Designations Map](image)

*Figure 1. Shoreline Environment Designations*
3. Shoreline Management Goals

3.1 Introduction
As required by the Shoreline Management Act in RCW 90.58.100, the following elements have been considered in the preparation of this Master Program for the Town of Index: Shoreline Use, Economic Development, Public Access, Recreation, Circulation, Conservation, Historical/Cultural Resources, Flood Hazard Management, and Restoration.

The Shoreline Management Act also provides that the Town of Index shall ensure policies, regulations, plans and ordinances are developed and administered on lands adjacent to the shoreline. The administration is to be implemented in a manner consistent with the goals, policies and regulations of the master program (RCW 90.58.340).

The goals and objectives established for these elements provide the basis for all policies and regulations included under the general and specific use requirements of this Master Program.

The following set of shoreline goals provide the groundwork on which the Shoreline Master Plan has been developed.

3.2 Shoreline Use Element
1. Allow for the maintenance and preservation of all existing single-family homes and the development or replacement of single-family homes within the shoreline on legally established lots that meet the Snohomish County Health District regulations for on-site septic.
2. Allow for the maintenance and preservation of all existing business uses and existing government buildings and development within the shoreline on legally established lots that meet the Snohomish County Health District regulations for on-site septic.
3. Allow only those uses, developments, and shoreline modifications that retain and protect options for future generations, unless identified benefits clearly outweigh the physical, social, environmental and economic loss. Since future competition between uses for the shoreline does not generally occur at one moment, but rather over a period of time, long-range planning and assessment is essential.
4. Ensure the land use patterns in the shoreline area continue the existing character of the Town as a residential community as well as provide protection for the shoreline environment, its habitat, and ecological functions.
5. Ensure the overall design of land use pattern regulations locate activity and development within areas of the shoreline that are compatible with the existing adjacent uses and remain sensitive to existing shoreline environments, habitat, and ecological systems.
6. Promote the best possible pattern of land and water uses while maintaining consistency of management with the Shoreline Management Act of 1971, the Town of Index Comprehensive Plan, and the Town of Index Flood Hazard Management Plan, and Index Zoning Code.
7. Establish clear and concise development guidelines which include habitat protection and mitigation requirements and options.

3.3 Economic Development Element
1. Promote healthy, orderly economic growth by encouraging economic activities that will be an asset to the local economy, which result in the optimum use of existing commercial areas for water-oriented use, and which maintain shoreline ecological functions.
2. Encourage continued use of existing water related business locations and activities which are water-dependent and water-related on the waterfront lots.
3. Provide the opportunity to support economically productive uses which are water access related activities, water related business or others which are particularly dependent on a shoreline location for their use.
4. Plan for possible economic activities which are water-related or that provide an opportunity for a substantial number of people to enjoy the shoreline (water-enjoyment).
5. Protect exiting areas of commercial use of the shoreline (ensuring commercial use and public access).
6. Allow an opportunity for non-water dependent commercial uses of the shoreline when demand for available lots is limited, and shoreline protection, restoration and enhancement or public access is provided with the approved use.

3.4 Public Access Element
1. Provide for protection of existing access opportunities and create opportunities for new and enhanced physical and visual public access of the Index shoreline.
2. Ensure there are opportunities for water-oriented recreation within the Town’s shorelines when such access and/or recreation can be reasonably accommodated without human health or safety risks, without adverse effects on shoreline functions, and consistent with private property rights.
3. Increase public access to the publicly-owned areas of the shoreline. Preserve and enhance shoreline views in all areas to the extent possible.
4. Shoreline street ends are a valuable resource for public use access and shoreline restoration. Design public access using street ends, where safe and viable, to enhance, rather than reduce, public access and to restore the ecological conditions of the shoreline.
5. Provide for public access to publicly owned shoreline areas where viable. Define those areas which are deemed inappropriate due to safety hazards, inherent security problems, environmental impacts, or conflicts with adjacent uses and define possible uses in these areas which still allow public use.
6. Public access shall be the preferred use for vacant or vacated rights-of-ways. Public rights-of-way may be used or developed for uses other than public access, provided that such uses are determined by the Town of Index to be in the public interest and share (to the extent possible) shoreline access.
7. Allow for the combined use of street ends sharing leased residential appurtenant use as well as public access where shoreline is limited.

3.5 Recreation Element
1. Provide for the preservation and enlargement of public and private recreational opportunities and recreational facilities along the shoreline, including but not limited to, parks and recreational areas, wherever appropriate.
2. Develop public and private recreation opportunities that are compatible with adjacent uses and that protect the shoreline environment.

3.6 Circulation Element
1. Maintain a transportation network that supports and enhances use of and access to the shoreline.
2. Create a shoreline network which includes non-vehicular traffic options.
3. Ensure that circulation uses permitted in shorelines areas are designed and conducted in such a manner that any interference with the public’s use of the water and shoreline is minimized, as much as is practical.
4. Encourage the creation of non-vehicular pathways and access points within the shoreline which provided circulation within the town limits to the extent possible within the shoreline area.

3.7 Conservation Element
1. Preserve and protect existing ecological functions and processes necessary to maintain shoreline resources, protect public health and safety, and preserve beneficial uses of the shoreline; restore and enhance identified degraded ecological functions and processes over time.
2. Preserve and protect shoreline conditions, within all shoreline areas, which promote access to scenic vistas, protect natural aesthetics, and which provide vital habitat areas for fisheries and wildlife protection to the extent possible.
3. Support programs that inform the public about shoreline conservation practices and identify methods by which public and private shoreline owners or community groups may encourage native, aquatic and botanical terrestrial life, and require such methods when appropriate (as mitigation) and provide incentives for such projects.
4. Restore degraded shoreline, where viable, in order to create and thereby protect habitat conditions within the shoreline which promote the natural shoreline conditions.
5. Require that no net loss of ecological functions occur as a result of legal and approved uses, allowed development, permitted shoreline modifications, any legal and continued maintenance activities or the expansion of existing uses, development or shoreline modifications.
6. Protect the ecological conditions of the shoreline by prohibiting uses that would negatively impact natural areas, by providing mitigation for negative impacts caused by an allowed use and by providing restoration and enhancement of natural areas where they are degraded.
7. Through the use of best available science (and those methods and procedures adopted by the State of Washington and the Federal Government) develop and implement development criteria, design standards, and best management practices that will ensure the long term enhancement of the unique shoreline features, natural resources, and fish and wildlife habitat.
8. Use scientific information to guide shoreline protection, enhancement and restoration activities.
9. Designate and develop areas where there is an opportunity to restore, enhance, and conserve the natural shoreline for the benefit of fish and wildlife habitat.

3.8 Historical/Cultural Resources Element
1. Identify, preserve, protect, and restore shoreline areas, buildings, and sites having historical, cultural, educational, or scientific values.
2. Protect, preserve and restore important archeological, historic, and cultural sites located in shoreline areas for educational and scientific values and enjoyment of the general public.
3. Work with State and Local agencies to define any shoreline areas that are or should be defined as historically relevant.
4. Ensure the recognition, protection, and restoration of shoreline areas that have historical and or cultural value to the Town of Index and which may create a unique “sense of place” for public facilities and recreation areas in the shoreline jurisdiction.
5. Ensure the recognition, protection, and restoration of shoreline areas that have educational or scientific values to the Town of Index.
3.9 Flood Hazard Management Element
1. Protect the Town of Index from losses and damage created by flooding.
2. Enforce required Federal and State regulations, educate landowners and provide community protection from flooding.
3. Protect shoreline resources and shoreline development and ensure public safety through land use controls and implementation of federal, state and local flood hazard programs.
4. Seek regional solutions to flooding problems through coordinated planning with state and federal agencies, other appropriate interests, and the public.
5. Ensure no flood hazard protection projects create a significant degradation of the shoreline environment. Where possible, ensure all shoreline work creates a positive environmental benefit that emphasizes long-term solutions over short-term solutions.

3.10 Restoration Element
1. Protect and improve water quality, reduce the impacts of flooding events; and preserve natural areas, vegetation, and preserve and restore habitat functions.
2. Restore degraded shoreline where viable in order to create and thereby protect habitat conditions within the shoreline which promote the natural shoreline conditions.
3. The degraded areas of the Town of Index Shoreline should be prioritized for restoration, to the extent that a net improvement to the shoreline ecosystem could be achieved without endangering homes, private lands or public buildings and property.
4. All restoration projects should benefit water quality, vegetation, and habitat and continue to provide protection and enjoyment of the public.
5. Support, to the extent possible, the scientific study of the shoreline ecosystems that will provide information to help update baseline condition information against which to judge the impact of any action; and to guide protection, restoration and enhancement activities.
6. Designate areas where there are current opportunities to restore, enhance, and conserve the natural shoreline for the benefit of fish and wildlife habitat. Update the plan occasionally and educate public and regional planners as to these opportunities.
7. Where applicable, new or expanded development and maintenance shall include environmental and physical restoration of the shoreline to comply with any relevant state and federal law.
4. Shoreline General Policies and Regulations

4.1 Introduction

Based upon the goals established in this Master Program (Chapter 3), the following policies and regulations apply to all uses, developments and activities in the shoreline area of the Town of Index, regardless of the Shoreline Master Program environment designation.

The Shoreline Area is that area within 200 feet of the Top Of Bank and those other areas defined on the Shoreline Environments Map in Chapter 2.5.

These policies and regulations provide the overall framework for the shoreline's management. These regulations are intended to be used in conjunction with the more specific use and activity policies and the regulations in the Town of Index Shoreline Master Program.

4.2 General Regulations

1. The adverse impacts of shoreline development and activities on the natural environment (including critical areas and properly functioning conditions for proposed, threatened, and endangered species, and on the built environment) shall be minimized during all phases of development (e.g., design, construction, operation, and management).

2. Shoreline developments that protect and/or contribute to the long-term restoration of habitat for proposed, threatened, and endangered species are considered consistent with the fundamental goals of this Master Program. Shoreline developments that propose to enhance critical areas, other natural characteristics, protect and enhance resources of the shoreline, and/or provide public access and recreational opportunities to the shoreline are also considered consistent with the fundamental goals of this Master Program, and should be encouraged.

3. A proposed shoreline development shall not be permitted if it may, or does, significantly impact the natural character of the shoreline, natural resources, or public recreational use of the shoreline. "Significant" is used as defined in SEPA (WAC 197-11-794).
   a. "Significant" as used in SEPA means a reasonable likelihood of more than a moderate adverse impact on environmental quality.
   b. Significance involves context and intensity (WAC 197-11-330) and does not lend itself to a formula or quantifiable test. The context may vary with the physical setting. Intensity depends on the magnitude and duration of an impact. The severity of an impact should be weighed along with the likelihood of its occurrence. An impact may be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred.
   c. WAC 197-11-330 specifies a process, including criteria and procedures, for determining whether a proposal is likely to have a significant adverse environmental impact.

4. All shoreline development and activity shall comply with applicable plans, policies, regulations, and rules of local, regional, state, and federal agencies with jurisdiction.

5. All shoreline development and activities shall be located, designed, constructed, and managed in a manner that mitigates adverse impacts to the environment. The preferred mitigation sequence (avoid, minimize, mitigate, compensate) shall follow that listed in WAC 173-26-201 (2)(e).

6. Replanting and mitigation for removal of native plants related to legal and permitted development shall require a minimum of native plantings to occupy 25% of the area between the footing (or most water-ward development point) or four (4) plants per (DBH) inch of tree removed; whichever results in a greater dedication of area to native plantings on site.
7. All shoreline development and activities shall be located, designed, constructed and managed in a manner that assures no net loss of functions and values, or habitat conditions and is consistent with other interlocking regulations.

8. All shoreline development shall be located and designed to avoid or minimize the need for new or future shoreline stabilization measures and/or flood protection: such as bank armoring, bulkheads, revetments, dikes, levees, or substantial site re-grades and dredging.

9. Where stabilization measures and works are demonstrated to be necessary, bio-stabilization techniques shall be the preferred design option unless demonstrated to be infeasible, or where other alternatives will provide less impact to the shoreline environment.

10. All shoreline development and activity shall be located, designed, constructed, operated, and managed to minimize interference with the beneficial natural shoreline processes such as water circulation, sand and gravel movement, erosion, and accretion in order to ensure no net loss of shoreline ecological function and shall recognize the primacy of preserving the natural character (where it exists) of the North Fork Skykomish so there is no net loss of ecological functions.

11. As a condition of approval of any shoreline development which requires mitigation, the Town shall require periodic monitoring of at least three, and up to five, years from the date of completed development, to ensure the success of any shoreline on site mitigation.

12. Where provisions of this Master Program conflict with each other or with other laws, ordinances or programs, the more restrictive of the provisions shall apply.

13. The Town of Index does not adopt “lead agency status” for any work waterward of the Ordinary High Water Mark. Such work and related permitting is regulated by other agencies. The following uses are prohibited in all shoreline environments:
   A. Mining;
   B. Landfill;
   C. Forest harvesting; and
   D. Industrial development.

14. Ordinance 192 §1, 1982, prohibits the “commercial use” of herbicides, fertilizers, pesticides, or other chemicals. The use of these chemicals within the shoreline area would only be permitted with the approval of other State and Federal agencies for the control of invasive vegetation or pests of the enhancement of native vegetation. Applicant would submit plans demonstrating the methods to be used to prevent these chemical applications and resultant leachate from entering adjacent water bodies.

15. The size of any new proposal for shoreline development and the intensity of the use shall be compatible with the surrounding environment and uses. The Town of Index may prescribe operation intensity, landscaping, and screening standards to ensure compatibility with the character and features of the surrounding area. These underlying prescriptions shall be found in the Town of Index Zoning Code and Land Use Codes effective at the time of completed application.

16. Shoreline developments shall minimize any potential or defined land use conflicts to properties adjacent to, upstream, and downstream of the proposed site.

17. In reviewing shoreline permit applications, the Town of Index shall consider potential and current public use of the shoreline prior to final approval as well as cumulative impacts from developments coinciding with the allowed uses. Commercial business and multi-use properties shall be encouraged to supply public access points.
4.3 Aesthetics

4.3.1 Regulations
1. Shoreline development shall be designed and located to be aesthetically compatible with the other buildings in that area.
2. The applicant for a new shoreline development must indicate in the application the effect that the proposed development may have upon the scenic public views at the proposed site.
3. Specifically, the applicant must state in the shoreline application what steps have been taken in the design of the proposed development to minimize interference with existing scenic views enjoyed by the public.
4. If required through the permitting or review process, the applicant shall provide a landscape plan that provides suitable screening but does not block scenic views.
5. All new lighting shall be properly directed or shielded to avoid off-site glare and impacts to fisheries. All replaced or additional lighting shall be advised to meet the same criteria.

4.4 Air Quality

4.4.1 Regulations
1. All projects shall identify any emissions from the proposed development that may result in degradation of shoreline air quality. Emissions reviewed shall include any compounds, chemicals, pollutants, odors, fugitive dust, or vehicle exhaust that will be released into the air.
2. All applications shall indicate in what quantity emissions will be released into the air and how these emissions will be controlled or eliminated.

4.5 Noise

4.5.1 Regulations
1. Noise levels shall not interfere with the typical and regular enjoyment of the shoreline. Any noise emanating from an ongoing shoreline use or activity shall be muffled so as to not interfere with the designated use of adjoining properties. This determination shall take into consideration ambient noise levels, intermittent beat, frequency, and shrillness.
2. Ambient noise levels shall be a factor in evaluating a shoreline permit application. Shoreline developments that would increase noise levels to the extent that the designated use of the shoreline would be disrupted shall be prohibited. Regulations for and specific maximum environment noise levels can be found in WAC 173-60-040.

4.6 Plants and Animals

4.6.1 Regulations
1. The Shoreline Master Plan strives to protect and restore anadromous fish and the related necessary resources which are in the North Fork Skykomish River system, to the extent possible.
2. Shoreline development and activity shall be located and conducted in a manner that minimizes impacts to existing ecological values and natural resources of the area, conserves properly functioning conditions, and in a manner which preserves a no net loss of ecological functions.
3. Allowed Shoreline development and activities shall be scheduled seasonally to protect biological productivity and minimize interference with fish resources including anadromous fish migration, spawning, and rearing activity. This is to be achieved by flowing prescribed seasonal recommendations, issued and approved biological opinions.
4. Projects shall be designed to avoid the removal of trees in shorelines (wherever practicable) and to minimize the removal of other woody vegetation. Where riparian vegetation is removed,
measures to mitigate the loss of the functions related to the vegetation shall follow (at a minimum) the prescriptive guidelines of the Town of Index Shoreline Master Plan in order to assure no net loss.

5. All shoreline activities and development projects shall minimize impacts to natural features of the shoreline as much as possible.

6. Shoreline development and activity shall maintain the unconstrained upstream and downstream migration of both adult and juvenile anadromous and resident fish (where applicable).

4.7 Public Health

4.7.1 Regulations

1. All shoreline developments shall be located, constructed, and operated so as not to be a hazard to public health and safety.

2. All new, remodeled, or replaced shoreline development will meet the requirements for sanitation as set by the Snohomish County Health District and the State of Washington.

4.8 Historical and Cultural Resources

4.8.1 Applicability

Historic and cultural resources are documented for the Town of Index in several local sources of historical information. Historical locations, cultural sites or related conditions in Town of Index would be best described as single-family homes in excess of 100 years old, as well as Town Hall and related buildings. There are currently no buildings or sites on the Washington State or Federal registers within the shoreline. Cultural sites related to early inhabitants in Town are unknown and unaccounted for at this time. Research continues on both a local and county level.

The Town of Index is responsible for issuing permits which regulate areas which may include historical or cultural artifacts. Available information at: Town Hall, (360) 793-2488, and SHPO (State Historical Preservation Office/The Department of Archaeology and Historic Preservation (360) 586-3065.

4.8.2 Regulations

1. Wherever possible, public or private developments shall be prevented from destroying or destructively altering potential or recognizable sites having historic, cultural, scientific, or educational value as identified by the appropriate authorities.

2. Permits issued in areas documented to contain archaeological resources require site inspection or evaluation by a professional archaeologist in coordination with affected Indian tribes. WAC 173-26-221(1)(c)(ii).

3. All shoreline permits shall contain provisions that require developers to immediately stop work and notify the Town of Index and the State of Washington if any items of archaeological interest are uncovered during excavation. In such cases, there should be notification to the office of Archaeology and Historic Preservation and any/all affected Indian tribes if archaeological resources are uncovered during excavation.

4. Where archaeological or historic sites have been identified, public access shall be required, provided the development is consistent with the provisions for public access and provided further it is determined that public access to the site will not damage or reduce the cultural value of the site.
4.9 Water
4.9.1 Regulations
1. Shoreline development and activities are required to ensure and maintain “no net loss of ecological functions.”
2. Shoreline development and activity shall avoid any alteration of river currents or floodway paths.
3. Shoreline development and activity shall minimize impacts to geohydraulic processes, surface water drainage, and groundwater recharge.
4. All practicable measures shall be taken to protect water bodies and wetlands from all sources of pollution, including, but not limited to sedimentation and siltation, petrochemical use and spillage, discharges from failing on-site septic systems, and storage of wastes and spoils.
5. Where chemical fertilizer, herbicide, or pesticide use is necessary for protecting existing natural vegetation or establishing new vegetation in shoreline areas as part of an erosion control or mitigation plan, the use of time release fertilizer and herbicides shall be preferred over liquid or concentrate application. No commercial application of herbicides is allowed within the Town of Index: IMC 8.12 Dangerous Agricultural Chemicals.
6. The release of oil, chemical, or hazardous materials onto or into the water is prohibited within the State of Washington. Equipment for the transportation, storage, handling, or application of such materials shall be maintained in a safe and leak-proof condition. If there is evidence of leakage, the further use of construction in shoreline areas, vehicle refueling and vehicle maintenance shall occur outside of shoreline areas.
7. The bulk storage of oil, fuel, chemical, or hazardous materials, on either a temporary or a permanent basis, shall be prohibited, except for uses allowed under the underlying residential uses of a lot and with the approval of the Dept. of Ecology and the Snohomish County Health District.

4.10 Environmentally Sensitive Areas – General Conditions
The following policies and regulations must be factored into decisions regarding all environmentally sensitive area planning and all development within the Town's shoreline jurisdiction. Environmentally sensitive areas are those lands especially vulnerable to development because of fragile biophysical characteristics and/or important resource values.

The SMP has defined protection of wetlands: when a wetland is both in and out of the shoreline designated area the regulatory authority shall fall to the SMP.

Environmentally sensitive areas include but are not limited to:
• Wetlands
• Fish breeding, rearing, or feeding areas
• Wildlife habitat areas
• Floodplains and floodways
• Unstable slopes
• Aquifer Recharge areas

4.10.1 Policies
1. Unique, rare, and fragile natural and man-made features as scenic vistas, and wildlife habitats should be preserved and protected to the extent possible without infringement on private property rights.
2. The diversity of aquatic life, wildlife, and habitat within the shoreline should be enhanced to the extent possible without infringement on private property rights.

3. Conserve and maintain all designated open spaces for ecological reasons and for educational and recreational purposes.

4. Recognize that the interest and concern of the public is essential to the improvement of the environment and sponsor and support public information programs to that end to the extent possible. Encourage other groups and entities to provide similar support within the Town of Index.

5. The level of public access should be appropriate for the degree of fragility of the geological and biological characteristics of the shoreline (e.g., wetlands, spawning areas).

6. The level of public access should be appropriate for the degree of hazard found at any public access point. Access within the Town of Index in public areas may often be limited to visual opportunities as physical access along the top of bank in riprap areas is both dangerous and possibly destructive to the bank armor.

7. Intensive development of shoreline areas that are identified as hazardous or environmentally sensitive to development should be discouraged.

8. Intensive development of shoreline areas which have been identified as Urban Conservancy should be discouraged.

4.10.2 Regulations

1. All shoreline uses and activities shall be developed and managed to protect and/or “not adversely affect” those natural features which are valuable. Shoreline Policies shall facilitate the appropriate intensity of human use in these areas:
   a) Wetlands, including but not limited to marshes, bogs, and swamps;
   b) Fish and wildlife habitats, including streams, migratory routes, and spawning areas;
   c) Natural or man-made scenic vistas or features;
   d) Floodplains and Floodways;
   e) Geologically hazardous areas, including erosion, landslide, steep slope and seismic hazard areas; and
   f) Ground water (aquifer) recharge areas.

2. The standards of the SMP shall regulate any wetlands or wetland buffers which are found within the Town of Index shoreline jurisdiction.

3. The commercial use of herbicides and pesticides within the Town of Index is prohibited by IMC 8.12 Dangerous Agricultural Chemicals. Additionally, the personal use of herbicides and pesticides for the control of vegetation or pests in the buffers of the North Fork Skykomish, streams, and wetland areas shall be PROHIBITED, except where no reasonable alternatives exist and it is demonstrated that such activity is in the public interest (permitted application regulations shall then apply in all cases of approved use).

4. Mechanical removal of noxious weeds shall be timed and carried out in a manner to minimize any disruption of wildlife or habitat (please seek assistance from the Town of Index, the Dept of Fish and Wildlife and/or a private consultant knowledgeable of the restrictions).

4.11 Environmentally Sensitive Areas – Geologically Hazardous Areas and Steep Slopes

4.11.1 Applicability

"Geologically Hazardous Areas" are areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to siting residential, commercial, or industrial development consistent with public health or safety concerns. Geologically hazardous areas are defined
by WAC 365-190-120 and include "landslide hazard areas", "steep slopes" and "erosion hazard areas."

4.11.2 Policies

1. All designated critical area ecosystems provide a level of ecological function and values which are beneficial to the public welfare. Such functions should be preserved and protected to prevent their continued loss and degradation.

2. Protection of steep slopes, highly erodible soils and other areas of geological significance should be designated and protected with adequate buffers and setbacks to any land disturbing activities. Steep slope areas, if found in the floodplain or adjacent to the shoreline or within the buffers of a wetland, shall receive the highest level of protection afforded by these other regulations.

3. Protection should always be provided to areas of exceptional resource value such as:
   - Documented or potential habitat for an endangered, threatened, or sensitive species.
   - Diverse habitat areas exhibiting a mixture of conditions.

4. All activities that could adversely affect valuable ecosystems within the Geologically Hazardous area should be controlled to prevent adverse impacts to the habitat’s functions and values.

5. No Geologically Hazardous area alteration should be authorized unless it can be shown that the impact is both unavoidable and necessary and that resultant impacts are offset through the deliberate restoration, creation, or enhancement of those remaining critical areas.

6. All restoration, creation, and enhancement projects should result in no net loss of critical area acreage or function, habitat values or adversely impact areas designated as habitat for protected and threatened species.

7. Applicants should develop comprehensive mitigation plans to ensure long-term success of the any required restoration, creation, or enhancement projects. Such plans should provide for sufficient monitoring and contingencies to ensure mitigation success.

8. Applicants should demonstrate sufficient scientific expertise, supervisory capability, and financial resources to complete and monitor the mitigation project.

9. Proposals for restoration, creation, or enhancement should be coordinated with appropriate resource agencies to ensure adequate design and consistency with other regulatory requirements.

4.11.3 Regulations

1. The following uses are prohibited:
   a. Uses that cause foreseeable risk from geological conditions during the life of the development; and
   b. Uses that require structural shoreline stabilization over the life of the development.
      Exceptions are allowed where stabilization is needed to protect allowed uses where no alternative locations are available, and no net loss of ecological functions will result.

2. Construction activity within or adjacent to a geological hazardous area shall not result in or increase slope instability. Development proposals on sites containing a geologically hazardous area shall meet the following requirements:
   a. A geotechnical report shall be required when any activity is proposed for a site which is identified by the mayor or his designee as a geologically hazardous area as defined by WAC 365-190-120. The geotechnical report shall be prepared by a qualified professional and contain (at a minimum):
      a. Soils and erosion rates;
      b. Drainage;
c. Vegetation management options;

d. Recommended setback to avoid need for building bulkhead during life of project;

e. Evaluation and statement on the stability and safety of any structure; and

f. Evaluation and statement on the stability of the underlying site.

b. Structures proposed within geological hazardous areas shall be engineered resistant to geological threats through incorporation of pile foundations or other appropriate design and construction measures.

c. There shall be no removal of any vegetation from any geologically hazardous areas or their buffers except for the limited plant removal necessary for surveying purposes, or the removal of diseased or hazardous trees.

d. A minimum buffer shall be established at a horizontal distance of twenty-five (25) feet from the top, toe, and along all sides of slopes forty percent (40%) or steeper. The buffer may be extended beyond these limits as required to mitigate landslide and erosion hazards, or as otherwise necessary to protect the public health, safety and welfare, based upon information contained in the geotechnical report. Existing native vegetation within the critical area or its buffer shall be maintained, except as provided above for the removal of trees that have been determined to be hazardous by the town of Index.

e. Small features such as slopes of forty percent (40%) and steeper with a vertical elevation change of up to ten (10) feet may be exempted from the provisions of this section, as would slopes in which a geotechnical report concludes that the provisions are unnecessary to protect adjoining structures from damage.

4.12 Environmentally Sensitive Areas – Wetlands

4.12.1 Applicability

Wetlands are characterized by periodic saturation or inundation by water during the growing season. The structure of forested wetlands is characterized by tall broadleaf deciduous trees such as alder, cottonwood and willow and/or conifers such as spruce, cedar, shore pine and white pine. The structure of herbaceous wetlands is generally characterized by a mix of emergent grasses or grass-like plants, cattails, sedges and rushes.

“Natural wetland and riparian areas are biologically diverse and complex ecosystems that contain more plant, mammal, bird, and amphibian species than the surrounding upland areas” (Snohomish County Draft BAS, p. 87). Natural wetlands within the Town of Index Shoreline jurisdiction, are mapped or discussed as assumed to location only.

Within the Town of Index Shoreline area, the wetlands have become disconnected from the river system and are mostly isolated from the natural conditions which would have existed decades ago. In areas outside of the Town’s jurisdiction this habitat condition is more extensive; wetlands and riparian areas occur as large habitat patches within Snohomish County.

Forested wetlands, within the Town of Index jurisdiction, most often occur adjacent to patches of undisturbed vegetation within the lowland-conifer forest. Vegetation is typically second growth conifers mixed with alder and cottonwood. Common shrub areas found within the shoreline as well as in and near wetlands include willow, dogwood, salmonberry, Indian plum, and ninebark.
Threatened or endangered species found in the localized Skykomish Basin include the bald eagle, Chinook salmon, marbled murrelet, and possibly grizzly bear (eastern extents).

The following policies and regulations are part of the decision process regarding all environmentally sensitive areas when planning and development activities are undertaken within the Town’s shoreline jurisdiction.

Classification and scoring of wetlands shall occur pursuant to the rating system and criteria contained in the most current version of the Wetland Rating System for Western Washington. In the event of conflict between the Wetland Rating System for Western Washington and the Town of Index Municipal Code, the more restrictive shall govern.

Any conflicts between the SMP and Town of Index Municipal Code shall be resolved in favor of the regulation that is most protective of the ecological functions.

Wetland buffers within the Shoreline Environment shall be in compliance with Guidance for Small Cities: Western Washington Version (Publication No. 10-06-002) or as revised.

4.12.2 Policies

1. Wetland ecosystems should be preserved and protected to prevent their continued loss and degradation which limits habitat opportunities and alters flood volume storage. Wetland ecosystems serve many important ecological and environmental functions, which are beneficial to the public welfare. Such functions include flood storage and conveyance, erosion control, sediment control, fish production, fish and wildlife habitat, recreation, water quality protection, water supply, education, and scientific research.

2. Prior to any approval for development, re-development or alteration to existing land use, wetland areas should be identified.

3. The greatest protection should be provided to wetlands of exceptional resource value, which are defined as those wetlands that include rare, sensitive, or irreplaceable systems such as:
   a. Documented or potential habitat for an endangered, threatened, or sensitive species.
   b. Wetlands of high conservation value as determined by the Washington State Natural Heritage Program.
   c. Significant habitat for fish or aquatic species as determined by the appropriate state resource agency.
   d. Diverse wetlands exhibiting a high mixture of wetland classes and subclasses as defined in the US Fish and Wildlife Service classification system.
   e. Mature forested swamp communities.
   f. Sphagnum bogs or fens.

4. A wetland buffer of adequate width (Wetland Rating System for Western Washington – 2014 Update or as revised) should be maintained between a wetland and the adjacent development to protect the functions and integrity of the wetland. Development in the wetland buffer shall, when the wetland is associated with the shoreline area, be regulated by the SMP.

5. The width of the established buffer zone should be based upon the functions and sensitivity of the wetland, the characteristics of the existing buffer, and the potential impacts associated with the adjacent land use. Wetland buffers shall be established using the Washington State Wetland Rating System for Western Washington – 2014 Update or as revised and Guidance for Small Cities: Western Washington Version (Publication No. 10-06-002) as revised.

6. Wetland buffers are adopted as follows:
7. All activities that could potentially adversely affect wetland ecosystems should be controlled both within the wetland and the buffer zone to prevent adverse impacts to the wetland functions.

8. No wetland alteration should be authorized unless it can be shown that the impact is both unavoidable and necessary and that resultant impacts are offset through the deliberate restoration, creation, or enhancement of wetlands.

9. Wetland restoration, creation, and enhancement projects should result in no-net loss of wetland acreage and functions. Where feasible, wetland quality should be improved.

10. Wetlands which are “unavoidably” impacted by activities of a temporary nature should be restored immediately upon project completion.

11. In-kind replacement of functional wetland values is preferred. Where in-kind replacement is not feasible or practical due to the characteristics of the existing wetland, substitute ecological resources of equal or greater value should be provided.

12. On-site replacement of wetlands is preferred. Where on-site replacement of a wetland is not feasible or practical due to characteristics of the existing location, replacement should occur within the same watershed and in as close proximity to the original wetland as possible. When neither process is viable for an approved and allowed proposal mitigation shall be proposed in order to provide significant enhancement of valuable critical areas functions and values. Mitigation criteria may need to be reviewed by agencies other than the Town of Index. The nearest Wetland Mitigation Bank is located on the Snohomish River south of Monroe. Credits from a certified mitigation bank may be used to compensate for unavoidable impacts.

13. Where possible, wetland restoration, creation, and enhancement projects should be completed prior to any wetland alteration. In all other cases, replacement shall be completed prior to any use or occupancy of the activity or development.

14. Applicants should develop comprehensive mitigation plans to ensure long-term success of the wetland restoration, creation, or enhancement project. Such plans should provide for sufficient monitoring and contingencies to ensure wetland persistence. As part of the process the applicant shall demonstrate sufficient scientific expertise, supervisory capability, and financial resources to complete and monitor the mitigation project.

15. Proposals for restoration, creation, or enhancement should be coordinated with appropriate resource agencies to ensure adequate design and consistency with other regulatory requirements.

16. Activities should be prevented in wetland buffer zones except where such activities have no adverse impacts on wetland ecosystem functions.

17. Wetland buffer zones should be retained in their natural condition unless re-vegetation is necessary to improve or restore the buffer.

18. Wetland education programs should be developed to increase awareness of the importance of wetlands and to inform the citizenry of protective wetland regulations. The Town of Index

<table>
<thead>
<tr>
<th>Wetland Category</th>
<th>Buffer Width (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rating: 3-4</td>
</tr>
<tr>
<td>Category I wetlands</td>
<td>75</td>
</tr>
<tr>
<td>Category II wetlands</td>
<td>75</td>
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<tr>
<td>Category III wetlands</td>
<td>60</td>
</tr>
<tr>
<td>Category IV wetlands</td>
<td>40</td>
</tr>
</tbody>
</table>

Figure 2. Table of Wetland Buffer Requirements for Western Washington
should distribute wetland education materials to schools, landowners, and developers and prospective development project administrators as feasible.

4.12.3 Regulations
1. Development and use proposed to be located within wetlands or their buffers which are located within the Shoreline Planning area shall be regulated per the regulations of the Shoreline Master Plan.
2. Wetland mitigation sequencing shall be conducted such that no occupancy of the project or development takes place prior to complete mitigation and restoration has been approved. Compensatory mitigation shall be done in accordance with the standards found in Guidance for Small Cities: Western Washington Version (Publication No. 10-06-002) or as revised. Mitigation requirements are adopted as follows:

<table>
<thead>
<tr>
<th>Type of Wetland</th>
<th>Creation or Re-establishment</th>
<th>Rehabilitation</th>
<th>Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category I: Mature Forested</td>
<td>6:1</td>
<td>12:1</td>
<td>24:1</td>
</tr>
<tr>
<td>Category I: Based on Functions</td>
<td>4:1</td>
<td>8:1</td>
<td>16:1</td>
</tr>
<tr>
<td>Category II</td>
<td>3:1</td>
<td>6:1</td>
<td>12:1</td>
</tr>
<tr>
<td>Category III</td>
<td>2:1</td>
<td>4:1</td>
<td>8:1</td>
</tr>
<tr>
<td>Category IV</td>
<td>1:5:1</td>
<td>3:1</td>
<td>6:1</td>
</tr>
</tbody>
</table>

Figure 3. Table of Wetland Mitigation Requirements

3. Identification of wetlands and delineation of their boundaries pursuant to this Chapter shall be done in accordance with the approved federal wetland delineation manual and applicable regional supplement.

4.13 Public Access
4.13.1 Applicability
Public access includes the ability of the general public to reach, touch, and enjoy the water’s edge, to travel on the waters of the state, and to view the water and the shoreline from adjacent locations. Public access provisions below apply to all Washington State Shoreline Master Program Guidelines, Chapter 173-26 WAC 65 of 100 shorelines of the state unless stated otherwise.

4.13.2 Policies
1. Promote and enhance the public interest with regard to rights to access waters held in public trust by the state while protecting private property rights and public safety.
2. Protect the rights of navigation and retain the space necessary for water-dependent uses.
3. To the greatest extent feasible, and consistent with the overall best interest of the state and the people generally, protect the public’s opportunity to enjoy the physical and aesthetic qualities of shorelines of the state, including views of the water.
4. Regulate the design, construction, and operation of permitted uses in the shorelines of the state to minimize, insofar as practical, interference with the public’s use of the water.
5. Shoreline access planning should be integrated with other relevant comprehensive plan elements, especially transportation and recreation. The planning process shall also comply with all relevant constitutional and other legal limitations that protect private property rights.
6. Shoreline planning may also justify more flexible off-site or special area public access provisions in the master program. Public participation requirements in WAC 173-26-201(3)(b)(i) apply to public access planning. At a minimum, public access planning should result in public access requirements for “non-private” shoreline permits.

7. Public Access planning should increase the amount and diversity of public access to the state's shorelines consistent with the existing shoreline character, property rights, public rights under the Public Trust Doctrine, and public safety. The SMP identifies shoreline access opportunities and circulation options for pedestrians, including disabled persons, bicycles, and vehicles consistent with other comprehensive plan elements.

8. All new permitted development should require public access points except:
   a. Where the local government provides more effective public access through a public access planning process described in WAC 173-26-221 (4)(c).
   b. Where it is demonstrated to be infeasible due to reasons of incompatible uses, safety, security, or impact to the shoreline environment or due to constitutional or other legal limitations that may be applicable. In determining the infeasibility, undesirability, or incompatibility of public access in a given situation, local governments shall consider alternate methods of providing public access, such as off-site improvements, viewing platforms, separation of uses through site planning and design, and restricting hours of public access.
   c. For individual single-family residences which are not part of a development planned or include less than four parcels in the development proposal.

9. All new commercial development within shoreline jurisdiction shall provide for public visual and physical access to the shoreline. Where on-site public access is appropriate, commercial development shall dedicate, improve, and provide maintenance for a pedestrian easement that provides area sufficient to ensure safe and usable access to and along the shoreline for the general public.

10. Assure that public access improvements do not result in a net loss of shoreline ecological functions at any location.

4.14 Vegetation Conservation
Vegetation conservation includes activities which protect and restore vegetation along or near shorelines that contribute to the ecological functions of the area. Vegetation conservation provisions include the prevention or restriction of plant clearing and earth grading, vegetation restoration, and the control of invasive weeds and non-native species.

As with all master program provisions, vegetation conservation provisions apply even to those shoreline uses and developments that are exempt from the requirement to obtain a permit (i.e. residential development). Like other master program provisions, vegetation conservation standards do not apply retroactively to existing uses and structures.

The intent of vegetation conservation is to protect and restore the ecological functions and ecosystem-wide processes performed by vegetation along shorelines. Vegetation conservation should also be undertaken to protect human safety and property, to increase the stability of and coastal bluffs, to reduce the need for structural shoreline stabilization measures, to improve the visual and aesthetic qualities of the shoreline, to protect plant and animal species and their habitats, and to enhance shoreline uses.

Current scientific evidence indicates that the length, width, and species composition of a shoreline
vegetation community contribute substantively to aquatic ecological functions. Likewise, the biota within the aquatic environment is essential to ecological functions of the adjacent upland vegetation. The ability of vegetated areas to provide critical ecological functions diminishes as the length and width of the vegetated area along shorelines is reduced. When shoreline vegetation is removed, the narrower the area of remaining vegetation, the greater the risk that the functions will not be performed.

4.14.1 Policies
1. Native plant communities within and bordering shorelines, wetlands, lakes, creeks, and side channels should be protected and maintained to minimize damage to the ecology and environment of the shoreline area.
2. Restoration of degraded shorelines due to natural or manmade causes should, wherever feasible, use soil bioengineering techniques to minimize the processes of erosion, sedimentation, and flooding.
3. Aquatic weed management should involve usage of native plant materials wherever possible in soil bioengineering applications and habitat restoration activities. Where active removal or destruction of aquatic vegetation is necessary, it should be done only to the extent necessary to allow water-dependent activities to continue. Removal or modification of aquatic vegetation should be conducted in a manner that minimizes adverse impacts to native plant communities and/or salmonid habitat and should include appropriate handling or disposal of weed materials and attached sediments.
4. The design and use of naturally regenerating systems for prevention and control of beach erosion should be encouraged where:
   a. The length and configuration of the beach will accommodate such systems;
   b. Such protection is a reasonable solution to the needs of the specific site; and
   c. Beach restoration/enhancement will accomplish the following objectives:
      d. Recreate or enhance natural shoreline conditions and habitat;
      e. Reverse otherwise erosional conditions; and
      f. Enhance access to the shore, especially to public shores.
5. The following BMPs should be incorporated in vegetation management activities:
   a. Avoid use of herbicides, fertilizers, insecticides, and fungicides along banks of streams, drainage channels, and shores of the North Fork Skykomish River (and other water bodies within the Town) as well as in the water.
   b. Limit the amount of lawn and garden watering so that there is no surface runoff.
   c. Dispose of grass clippings, leaves, or twigs properly; do not sweep these materials into the street, into a body of water, or near a storm drain.

4.14.2 Regulations
1. All unique and fragile shorelines shall be protected from degradation caused by the modifications of the land surface within the shoreline area and/or the adjacent uplands.
2. Restoration of any shoreline or streambank that has been disturbed or degraded shall use noninvasive native plant materials with a diversity and type similar to that which most recently occurred on-site.
3. Stabilization of exposed erosion-prone surfaces along shorelines of lakes, streams, side channels, and wetlands shall, wherever feasible, utilize soil bioengineering techniques.
4. Aquatic vegetation control shall only occur when native plant communities and associated habitats are threatened or where an existing water dependent use is restricted by the presence of weeds. Aquatic vegetation control shall occur in compliance with all other applicable laws and
standards.

5. The control of aquatic vegetation by derooting, rotovating or other methods which disturb the bottom sediment or benthos shall be considered development for which a shoreline substantial development permit is required.

6. The application of herbicides or pesticides in lakes, rivers, streams, wetlands, or ditches requires a permit from the Washington Department of Ecology and may require preparation of a SEPA checklist for review by other agencies. The individual(s) involved must obtain a pesticide applicator license from the Washington State Department of Agriculture.
5. Shoreline Use Policies and Regulations

5.1 Introduction
Specific shoreline use provisions are more detailed than those listed in General Policies and Regulations. Specific shoreline use policies and regulations apply to specific use categories and provide a greater level of detail in addressing shoreline uses and their impacts.

Specific Shoreline Use policies establish the shoreline management principles that apply to each use category and serve as a bridge between the various elements in the Shoreline Master Program goals in Chapter 3 and the use regulations that follow.

5.2 Aquaculture
5.2.1 Regulations
Aquaculture, including lagoon aquaculture, is prohibited within the Town of Index shoreline jurisdiction.

5.3 Boating Facilities
5.3.1 Policies
1. Boating facilities can have a significant impact on riverine habitat and river mechanics; for this reason, the impacts of boat facilities should be reviewed thoroughly before boating facilities are formally permitted in the Shoreline jurisdiction.
2. A specific well-maintained and situated public and community boating facility is preferred over individual private facilities, spread along the river edge in more than one location.
3. A new boating facility (access, storage, public use area) may be allowed in the Shoreline. When allowed, such facilities should be designed to also accommodate public access and enjoyment of the shoreline location within the same general area. Depending on the scale of the facility, public access should include walkways, viewpoints, restroom facilities, and other recreational uses (design and infrastructure will likely be a joint private/public venture).

5.3.2 Regulations
1. Boat storage should not be considered a water-oriented use. Only boat launch areas, ramps, and access routes, associated with a dry boat storage facility, are to be considered a water-oriented use.
2. Extended moorage is prohibited.
3. Boating facilities, as defined in this section, shall require a Shoreline Conditional Use Permit, unless otherwise specified.
4. The Town of Index shall require the following information in its review and evaluation of boating facility proposals which affect landward portions within the shoreline:
   a. A description of the existing shoreline features and uses;
   b. A description of the geo-hydraulic processes at the site including, accretion/erosion characteristics, flood levels, and surface drainage;
   c. A description of biological resources and habitats in the upland and aquatic environments;
   d. An estimate of the area of surface water to be appropriated;
   e. A description of any shore defense works or shoreline stabilization and flood protection proposed as part of the project; and
   f. Other information determined by the Shoreline Administrator to be relevant to the protection of the shoreline habitat and any endangered species present.
5. A new boating facility may be permitted only if:
   a. It can be demonstrated that the facility will not adversely impact critical fish or wildlife
      habitat areas; associated wetlands; or properly functioning conditions for proposed,
      threatened or endangered species;
   b. Adequate mitigation measures ensure there is no net loss of the existing functions or
      values of riparian habitat as a result of the facility.
6. Boathouses are prohibited in the Town of Index shoreline jurisdiction.

5.4 Commercial Development

5.4.1 Applicability
1. Commercial uses in the shoreline jurisdiction include water-dependent uses developed for the
   purpose of commerce including boating-related activities, recreational use sites, hotels, motels,
   or any other type of overnight or transient housing, or camping facilities.
2. Overnight transient housing as a Bed and Breakfast is considered a residential development
   when owned by a local individual residing in the Town of Index for their primary residence.
3. Overnight transitional housing, when the owner of the structure does not make the Town of
   Index their primary residence is a commercial use of the shoreline and regulated as such.

5.4.2 Policies
1. Priority of any commercial development should be given to water-dependent and water-
   enjoyment uses. This includes restaurants that provide a view of the river to customers; visitor
   rental units which provide shoreline enjoyment; and buildings that have a river’s edge focus
   with public access to the waterfront.
2. Non-water-oriented commercial development may be permitted with a Conditional Use Permit
   when no other alternative is available.
3. Over-the-water commercial development shall be prohibited.
4. New commercial development on shorelines should be encouraged to locate in areas with
   existing development and amenities.
5. Commercial development should be required to provide physical or visual access to the
   shoreline or other opportunities for the public to enjoy shorelines of statewide significance.
6. Site plans for commercial developments shall include multiple use concepts such as open space
   and recreation to the extent possible and reasonable.
7. Commercial development in the shoreline jurisdiction should include native landscaping to
   enhance the shoreline area.

5.4.3 Regulations
1. Over-water construction is prohibited, provided this prohibition does not preclude the
   development of boat launch area and other river access facilities that are consistent with the
   intent of this Master Program, approved by all agencies with jurisdiction and necessary for the
   operation of an associated commercial use.
2. Alternatives to conventional storm water treatment, such as use of pervious materials, shall be
   considered an alternative in order to minimize impacts due to runoff and the need for storm
   water treatment. The Town shall refer to the Ecology Storm Water Manual as adopted in Index
   Municipal Code to deal with surface and storm runoff and non-point source pollution
3. All “new” commercial development and re-development within the Armored Bank and Upland
   Conservancy Environments shall provide for public visual and/or physical access to the
   shoreline. Where on-site public access is appropriate, commercial development shall provide for
a pedestrian easement that provides area sufficient to ensure safe and usable access to and along the shoreline for the general public.

4. Dedicated Public access easements, when provided, shall be a minimum of fifteen (15) feet in width and shall comply with the public access standards contained in this Master Program (see the policies and regulations in the Public Access section). Offsite public access could be provided either through a payment in lieu agreement with the Town or through the purchase of land or an easement at a location appropriate to provide the access deemed necessary when required.

5. All commercial loading and service areas shall be located on the upland side of the commercial activity or provisions shall be made to visually and physically screen the loading and service areas from the shoreline.

6. Commercial development shall be designed and maintained in a neat and orderly manner, consistent with the character and features of the surrounding area while insuring protection of the shoreline environment.

7. All commercial development within the shoreline jurisdiction shall assure no net loss of ecological functions.

5.5 Landfill

5.5.1 Regulations

1. Landfill is prohibited within the Town of Index shoreline jurisdiction.

5.6 Recreational Development

5.6.1 Applicability

Recreational development provides opportunities for residents and visitors alike to play or relax, or participate in sports, photography, or fishing and take active or passive enjoyment of the habitat around them. This section applies to both publicly and privately-owned shoreline facilities intended for use by the public or a private club, group, association, or individual.

5.6.2 Policies

1. The Town of Index should seek to provide diverse water-dependent and water-related recreation opportunities that are convenient and suitable for the community and that preserve shoreline resources and do not result in a net loss of ecological functions.

2. The Town should plan for shoreline recreation facilities to serve projected growth and level of service standards, in accordance with the Snohomish County and Town of Index Comprehensive Plan.

3. Recreational uses in shoreline areas should be located where the uses would not result in adverse effects on shoreline functions and processes, and/or neighboring uses.

4. The Town should encourage cooperation among public agencies, Tribes, non-profit groups and private landowners and developers to increase and diversify recreational opportunities.

5. Coordination of local, state, and federal plans for recreation should be encouraged.

6. Shoreline recreational developments should be consistent with all adopted park, recreation, and open space plans.

7. Potential recreation sites have been identified in the inventory. These areas when not publicly held are identified and should be acquired and incorporated into the public park and open space system whenever possible. The location and design of shoreline recreational developments should relate to local population characteristics, density and special activity demands. Incorporation of flood-prone areas into this designation should be a priority of acquisition.

8. The linkage of shoreline parks, recreation areas, and public access points in a linear system, such
as hiking paths and bicycle paths should be encouraged.

9. Recreational developments should be located and designed to preserve, enhance, or create scenic views and vistas.

10. The unique conditions of the Town of Index Shoreline preclude the use of motorized recreational equipment within the river system. The Town of Index SMP restricts all motorized use within the shoreline designated areas.

11. All recreational developments should make adequate provisions for:
   a. Vehicular and pedestrian access, both on-site and off-site.
   b. Proper water, solid waste, and sewage disposal methods.
   c. Security and fire protection for the use itself and for any use-related impacts to adjacent private property.
   d. Prevention of trespass onto adjacent privately-owned properties.

5.6.3 Regulations

1. Public water-oriented recreational development is a preferred shoreline use and shall be allowed when consistent with underlying zoning pursuant to IMC Title 17 and this Program, and the Shoreline Management Act.

2. Public recreational development shall provide for non-motorized public access to the shoreline (e.g., pedestrian and/or bicycle paths), unless such access is infeasible due to public health and safety considerations.

3. The removal of on-site native vegetation shall be limited to the minimum necessary for the development of picnic areas, selected views, or other permitted structures or facilities. Any removal of vegetation shall comply with the regulations for vegetation conservation and all other provisions of this program.

4. Signs indicating the public’s right of access to “designated” shoreline areas shall be installed and maintained in conspicuous locations at recreational points of access and entrances.

5. All temporary and/or permanent impacts to the shoreline buffer required for development of recreational facilities shall meet standards of mitigation, as specified by this Program so as to result in no net loss of ecological functions.

6. Trails:
   a. Trails shall be a permitted use within all shoreline environments.
   b. Trails shall be designed and located to avoid and minimize impacts to sensitive areas.

7. Temporary Recreational Uses: Temporary recreational uses and activities include uses that occur within the shoreline for two weeks of time or less, and do not require any grading, fill, or installation of structures with foundations or other in-ground supports.
   a. Approved temporary recreational uses and activity that occur in active recreation areas shall not require a Shoreline Substantial Development Permit or other shoreline permit under this Program.
   b. Temporary recreational activities shall be sited to avoid short term or long-term impacts to ecological functions within Shoreline Jurisdiction.

8. Maintenance, repair and reconstruction to public and approved private park and public use facilities shall be allowed when best management practices are implemented to avoid and/or minimize impacts to shoreline ecological functions, and when consistent with all other provisions of this Program. Allowed maintenance and repair shall include:
   a. Maintenance, repair and reconstruction of existing paths, parking lots, picnic sheds, buildings, decks, fencing, furniture and other associated park facilities;
   b. Resurfacing in-kind of previous improvements including trails and parks maintenance access corridors;
c. Maintenance of seasonal beach areas;
d. Fine grading, rotor-tilling, or other surface smoothing activities in established lawn and landscaping areas with no material import or export;
e. Maintenance of established landscaping;
f. Soft-surface trail maintenance using non-mineral, untreated surfacing only; and
g. Transport, set up, and removal of temporary recreational use structures such as tents, booths, stages, movie screen, exhibits, and other temporary event equipment.

9. Special and unique habitat conditions in the shoreline resource area, or fragile habitat conditions, such as wetlands and wetland buffers, shall not be used for designated recreational activity.

10. IMC Chapter 8.12 prohibits the “commercial use” of herbicides, fertilizers, pesticides, or other chemicals. The use of these chemicals within the shoreline area for a recreational facility would only be permitted with the approval of other State and Federal agencies for the control of invasive vegetation or pests of the enhancement of native vegetation. Applicants shall submit plans demonstrating the methods to be used to prevent these chemical applications and resultant leachate from entering adjacent water bodies.

11. Native vegetation buffer strips and, if possible, shade trees shall be required between rivers, streams or wetlands and all designated recreation uses. When conflict between related codes includes the Shoreline Master Plan, the more strict regulations shall determine the width necessary for buffer strips for wetland and related buffers. Buffers shall not be less than thirty-five (35) feet wide, measured on a horizontal plane, perpendicular to the floodway edge.

12. Impacts to private property shall not result from public uses and recreational facilities.

13. No recreational buildings or structures shall be built, except (if permitted by others) over the water (structures such as bridges and viewing platforms). Such uses may be permitted as a shoreline conditional use when allowed by agencies with jurisdiction.

14. Proposals for recreational development shall include adequate facilities for parking, water, on-site or off-site sewage, and garbage disposal.

15. Recreational development must achieve no net loss of ecological processes and functions. WAC 173-26-241(3)(i).

5.7 Residential Development
Town of Index development has significantly impacted the shoreline through extensive modification over more than 90% of the shoreline bank. Shoreline modification references the physical alteration of the shoreline’s natural condition.

Development refers to one or more buildings, structures, lots, parcels, or portions of parcels that are used, or intended to be used, to provide a place of business or abode for human beings.

Residential development includes single-family residences, duplexes, other detached dwellings, multifamily residences, apartments, townhouses, mobile home parks, other similar group housing, condominiums, subdivisions, planned unit developments, and short subdivisions (as would be allowed by Index Municipal Code (IMC and related zoning).

Residential development also includes accessory uses and structures such as garages, sheds, tennis courts, swimming pools, parking areas, fences, cabanas, saunas, and guest cottages.

1. Residential development refers to one or more buildings, structures, lots, or parcels, that are designated to be used to provide a home for human beings. Residential development includes
single family residences, duplexes, and possibly other multifamily residences as would be allowed by Snohomish County Health District, IMC and related zoning.

2. Residential development includes those regular and necessary uses and structures such as garages, sheds, parking areas, fences, and “out buildings.”

3. Residential development does not include multi-unit hotels or motels.

4. Overnight transient housing as a Bed and Breakfast is considered a residential development when owned by a local individual residing in the Town of Index for their primary residence.

5. Overnight transitional housing, when the owner of the structure does not make the Town of Index their primary residence is a commercial use of the shoreline and regulated as such.

6. A multi-unit structure, engaged in full time transient rentals, is a commercial business and regulated as such. Camping facilities are not a residential use.

7. A Shoreline Substantial Development permit is not required for construction of a single family residence by an owner, lessee, or contract purchaser for his own use or the use of his family. However, such construction and all normal appurtenant structures must otherwise conform to this Master Program and all other codes and regulations.

8. In addition, when applicable, all residential development is subject to the Shoreline Variance and Shoreline Conditional Use requirements of this Master Program. For example, a Shoreline Variance will be required for any residential development that proposes to locate within the shoreline environment setbacks established in policies chapter of this Master Program or the related IMC for critical areas.

9. Uses and facilities associated with residential development, which are identified as separate use activities in this Master Program, such as clearing and grading and landfill, are subject to the regulations established for those uses.

10. Clearing and grading may be exempted from the Shoreline Substantial Development Permit (SSDP) requirement, provided it is associated with a legal permitted exempt single family residence and the following conditions are met:
   a. The clearing and grading activity is confined to the construction site and grading does not exceed a total 250 cubic yards.
   b. All clearing and grading meets the required setbacks for the shoreline environment, the riparian protection setbacks and all other regulated buffers and setbacks as may affect the location.

5.7.1 Policies

1. Existing single-family residences and their appurtenant structures should be allowed to continue in all environments when consistent with IMC Title 17 (Zoning) and the Comprehensive Plan. Single-family homes are noted as a “Low Intensity Land Use" including, but not limited to, low density single-family residential with adequate sewer and stormwater retention/detention/biofiltration facilities, passive recreation, open space, or forest management land uses.

2. New and replacement or repair of residential development should be designed to preserve existing shoreline vegetation, control erosion, protect water quality using best management practices, and to utilize low impact development techniques where appropriate.

3. In accordance with the Public Access requirements in the Public Access Chapter, multi-family residential developments of two or more dwelling units per project proposal should provide dedicated and improved public access to the shoreline (the public access maybe limited to the use of the landowner and/or habitants).

4. Residential development and accessory uses are prohibited over the water.

5. New subdivision development should not be encouraged. Such development, if approved, shall
cluster dwelling units in order to preserve natural features, minimize physical impacts, and provide for public access to the shoreline.

6. In all new planned residential development joint use shoreline facilities shall be encouraged where possible.

7. Accessory site development should be designed and located to blend into the site as much as possible. Accessory uses and structures should be located landward of the principal residence when feasible.

8. Residential development should apply best management practices in developing surface and stormwater facilities. The development shall refer to the Ecology Storm Water Manual as adopted in to deal with runoff and non-point source pollution.

5.7.2 Regulations

1. Residential development shall achieve no net loss of ecological function.

2. Single-family residential use shall be consistent with underlying zoning and development standards (IMC Title 17).

3. Multi-family residential development and mixed-use development with a residential component shall be allowed in the shoreline where consistent with underlying zoning designation (IMC Title 17) and the development is consistent with this Program.

4. New residential development shall be discouraged in the natural areas of the shoreline adjacent to the North Fork Skykomish River.

5. New residential development, including all accessory structures shall be prohibited in, on, or over water.

6. As mandated by the RCW 90.58.320, no shoreline permit may be issued for any new or expanded building or structure of more than thirty five (35) feet above average grade level on shorelines, except where overriding considerations of the public interest will be served.

7. Residential development is prohibited water-ward of the OHWM.

8. Residential development, within setbacks of Shoreline or Critical Area Buffers shall adhere to each shoreline environment designation regulation for mitigation. Riparian setbacks are specified for each shoreline environment designation in the Policies Chapter.

9. Residential development shall assure no net loss of ecological functions and provide that information in a prepared and documented format with the application.

10. New residential development shall not be approved on any lot when a geotechnical analysis demonstrates that flood control or shoreline protection measures are necessary to create a usable residential lot or site area. Residential development shall be located and designed to avoid the need for structural shore defense and flood protection works in the foreseeable future (refer to Floodway Conditions found in guidance for Armoring).

11. If wetlands or other environmentally sensitive areas are located on the development site, clustering of permitted buildings shall be required in order to avoid these areas to the extent possible. Clustering shall be in accordance with the IMC Title 17.

12. Storm drainage and treatment facilities shall be required for proposals creating new impervious surface development or activities creating redevelopment. Drainage facilities shall be separate from sewage disposal facilities and shall meet Snohomish County Health District laws. Drainage systems shall include provisions to prevent the direct entry of uncontrolled and untreated surface water runoff into any receiving waters. The Town of Index shall refer to the Ecology Storm Water Manual as adopted in IMC 14.04 for details addressing runoff.

13. Any permitted and allowed subdivisions and planned unit developments shall dedicate, improve, and provide maintenance provisions for a pedestrian easement that provides area sufficient to ensure usable access to and along the shoreline for all residents of the
development and (to the extent possible) the general public. When required, public access
easements shall be a minimum of ten (10) feet in width and shall comply with the public access
standards contained in this Master Program (see Public Access).

5.8 Signage
The Town of Index Town Council shall determine and set (though the Zoning Ordinances) the type and
extent of signage allowed or required based on the Shoreline Master Plan as well as State and Federal
Requirements. All signage shall be placed within the applicant’s property and face those areas in which
human activities will take place (this may require a sign facing in more than one direction in some
areas).

5.8.1 Policies
1. Signs should be designed and placed so they are compatible with the natural surroundings of
the shoreline environment and adjacent land and water uses.

5.8.2 Regulations
Signs within the Town of Index are subject to the requirements and standards specified in IMC 14.04. In
addition, the following sign requirements shall apply to signs within shoreline jurisdiction.

1. Signs shall not be allowed in, or over water on road, bridge, or railroad crossings except as
necessary for safety and direction; or related and necessary as part of a water dependent use.
2. The following types of signs are permitted in all upland shoreline environments (e.g., excluding
all areas water-ward of the ordinary high water mark in the shoreline environment):
   a. Navigational signs, highway and railroad signs necessary for operation, safety, and
direction.
   b. Public information signs directly relating to an allowed local shoreline activity.
   c. Off-premise, free standing signs for community identification, information, or
directional purposes.
   d. Signs with "changing messages," as long as the information is limited to time
temperature-date or public messages.
   e. National, site, and institutional flags for temporary decorations customary for special
holidays and similar events of a public nature.
   f. The U.S. and Washington State flags.

5.9 Stormwater Management Facilities
5.9.1 Applicability
Stormwater management facilities are utilities that retain, detain, clean and convey stormwater run-off.
Private storm-water control facilities (single-family and commercial) shall comply with the regulations
found in those sections of the adopted stormwater manual.

5.9.2 Policies
1. Stormwater conveyance facilities should utilize existing transportation and utility sites, rights-of-
way and corridors, whenever possible. Joint use of rights-of-way and corridors should be
encouraged.
2. Stormwater facilities should be prohibited within the riparian management areas, wetlands, and
other critical areas (except single-family homes as needed).
3. New stormwater facilities shall be located so as not to require any shoreline protection works.
4. New stormwater facilities should provide a net benefit to fish and wildlife habitat in the area as compared to leaving the riparian management zone undisturbed.
5. Stormwater facilities located in the shoreland area should be maintained only to the degree necessary to ensure the capacity and function of the facility including the removal of nonnative invasive plant species.
6. Any stormwater facility shall be planted with native vegetation.
7. Low impact development techniques that allow for a greater amount of stormwater to infiltrate into the soil should be encouraged to reduce stormwater run-off for all new or redevelopment projects.

5.9.3 Regulations
1. In the Shoreline Upland and Armored Bank environments, stormwater management facilities shall be permitted when consistent with the provisions of this Master Program and the underlying zoning. Stormwater facilities shall be permitted when related to an existing single-family home, a proposed new single-family home, or a development proposed which meets the criteria of the Shoreline Master Plan.
2. Design of a formal installation for a stormwater management facility shall be prepared by a licensed civil engineer and include the following:
   a. Description of the proposed stormwater facilities;
   b. Reasons why the stormwater facility requires a shoreline location;
   c. Narrative of alternative locations considered and reasons for their elimination;
   d. Identification of any possibility for locating the proposed stormwater facility at another existing site or within an existing stormwater facility;
   e. Location of other stormwater facilities in the vicinity of the proposed project and any plans to provide for consolidation of area-wide stormwater facilities that would reduce demand on shoreline locations;
   f. Plans for reclamation of areas disturbed during construction;
   g. Plans temporary sediment and erosion control during construction and operation;
   h. A mitigation and monitoring plan per the requirements of the following sections contained in this chapter, Environmental Impact and Environmental Impacts: Plants and Animals.
3. New stormwater facilities shall be located so as not to require any shoreline protection works.
4. Stormwater facilities shall not be located in the riparian management zone to the extent feasible.
5. Stormwater facility development shall include public access to the shoreline, trail systems, and other forms of recreation, providing such uses will not unduly interfere with stormwater facility operations, endanger the public health, safety, and welfare, or create a significant and disproportionate liability for the owner.
6. Construction of stormwater facilities in shoreland areas or in adjacent wetlands shall be timed to avoid fish and wildlife migratory and spawning periods.

5.10 Transportation Facilities and Parking
Parking is the use of land for the purpose of accommodating motor vehicles, motorized equipment, or accessory units, such as trailers. Land used for this purpose is leveled, cleared, and often covered with an impermeable surface.
Transportation facilities are those structures and developments that aid in land and water surface movement of people, goods, and services. They include roads and highways, bridges and causeways, bikeways, trails, railroad facilities, and transportation terminals.

5.10.1 Policies

1. Transportation facilities, including new facilities and repair and improvement of existing facilities should be located, designed, constructed and maintained to have minimum negative impacts on shoreline resources and ensure no net loss of shoreline ecological functions.

2. New transportation facilities should be located outside of shoreline jurisdiction unless there is no reasonably feasible alternative, alignment or location or they are required to access a permitted use and then, they should be the minimum width possible.

3. New transportation facilities should be located and designed to minimize the need for shoreline protection measures, modifications to natural drainage systems, and crossing waterways.

4. Shoreline restoration and public access should be considered within the planning and funding of all new or redeveloped transportation projects.

5. Parking is not a preferred standalone shoreline use and should be allowed only to support a use approved under this Program; parking supporting a use authorized under this Program should be sited outside of Shoreline Jurisdiction or as far landward from the OHWM of the North Fork Skykomish River as is feasible.

6. Parking within any shoreline area should directly serve a permitted legal use already found on the property and should be sensitive to the adjacent shoreline area and developed properties.

7. Parking facilities in shoreline areas should be located and designed to minimize adverse impacts including those related to stormwater runoff, water quality, visual qualities, public access, and vegetation and habitat maintenance.

8. The SMP shall encourage the use of pervious materials in parking facilities.

9. Landscaping around parking areas should consist of native vegetation in order to enhance the habitat opportunities found within the shorelines area.

10. Discourage the location of parking facilities in all sensitive areas (Buffers).

11. New roads and railroads within shoreline jurisdiction should be minimized.

12. Roads and railroad locations should be planned to fit the topographical characteristics of the shoreline such that minimum alternation of natural conditions result. The number of river crossings should be minimized to the maximum extent possible.

13. Pedestrian and bicycle trails should be encouraged along the North Fork Skykomish and associated streams and wetlands to the maximum extent feasible.

14. When existing transportation corridors are abandoned, they should be reused for water dependent use, created vegetated areas or public access.

15. Joint use of transportation corridors within shoreline jurisdiction for roads, utilities, and motorized forms of transportation should be encouraged.

5.10.2 Regulations

1. Transportation regulations shall apply to any use or development where transportation infrastructure is or is proposed to be a primary land use, including new or expanded roadways and parking facilities.

2. New transportation facilities may be located within shoreline jurisdiction only when alternative locations are not feasible, and if permitted, they should be designed to minimize impacts to ecological functions; mitigation shall be provided consistent with this Program and IMC Title 17 (as incorporated).
3. Parking as a standalone use shall not be allowed in any shoreline environment.
4. Parking or loading facilities necessary to support an authorized shoreline use may be allowed in shoreline areas only when:
   a. They are allowed by the underlying zoning;
   b. The applicant can demonstrate that no other alternative location is feasible to serve the primary use of the site; and
   c. The facility will not result in a net loss of ecological functions.
5. The following road and parking lot maintenance and repair activities are permitted provided that best management practices are implemented to avoid and/or minimize impacts to shoreline ecological functions and provided that activities are otherwise consistent with this program:
   a. Maintenance of existing roads, sidewalks, and parking lots provided that no work occurs outside of previously improved areas; and
   b. Resurfacing in-kind of previous improvements.
6. Parking for specific approved land use activities within the Town of Index is subject to the requirements and standards set forth in the Index Municipal Code IMC 14.04.
7. In addition, the following parking requirements shall apply to all new developments within shoreline jurisdiction.
8. The location of parking areas in or near sensitive areas shall be avoided to the extent possible. Parking in shoreline areas must directly serve an approved shoreline use. Parking areas within shoreline jurisdiction shall be designed and landscaped to minimize adverse impacts upon adjacent shorelines and abutting properties.
9. The landscaping around parking areas shall consist of native vegetation, to be planted within one (1) year after completion of construction and provide an effective “visual” screening three (3) years after planting. Adequate screening or landscaping for parking lots shall consist of one or more of the following:
   a. A strip 5 feet wide landscaped with trees, shrubs, and groundcover.
   b. A building or fully enclosed structure (slated chain link fence) when not obscuring view of the shoreline from areas adjacent to streets, walkways and right of ways in the area.
   c. A strip of land not less than 2.5 feet in width that is occupied by a continuous wall, fence, plant material, or combination of both; which shall be at least 2.5 feet high at time of installation; while not creating a visual block to the shoreline at any time in the future.
   d. The plant material used shall be a mix of deciduous to evergreen (2:1) and spaced not more than 1.5 feet on center, or not more than 3 feet apart if vegetation has a wider branching habit. If the plant material is used in conjunction with a wall or fence meeting the minimum height requirements, then said material may be of any kind and spacing. The requirement for screening may be waived by the Administrator, where screening would obstruct a significant view from public property or public roadway.
10. All landscaping shall be designed to provide meaningful biofiltration functions for runoff from the parking area.
11. Alternatives to conventional storm water treatment, such as use of pervious materials, shall be considered in order to minimize impacts due to runoff and the need for storm water treatment. The Town shall refer to the Ecology Storm Water Manual as adopted in IMC.
12. All landscaping must be maintained in a neat and orderly manner. In no event shall such landscape areas be used for the storage of materials or parking of automobiles, or recreational or other vehicles.
13. Parking facilities shall not be permitted over the water.
14. Transportation facilities and services shall utilize existing transportation corridors wherever possible, provided the shoreline is not adversely impacted and the development is otherwise consistent with this Master Program.
15. Transportation and primary utility facilities shall be required to make joint use of rights-of-way and to consolidate river crossings.
16. The Town shall maintain its current transportation plans under the Comprehensive plan.
17. Landfills related to transportation uses are not allowed in the shoreline.
18. New roads or road expansion in the shoreline environment should be a last option as other alternatives must be explored outside of the shoreline environment.
19. All bridges must be built high enough to allow the passage of debris and provide a required clearance above the floodway to be determined.
20. Bridge abutments and necessary approach fills shall be located landward of the floodway, except bridge piers may be permitted in a water body as a shoreline conditional use.
21. All transportation-related development shall be designed and located where they will have the least possible adverse effect on unique or fragile shoreline features, will not result in a net loss of shoreline ecological functions, or adversely impact existing or planned water dependent uses. WAC 173-26-241(3)(k).
22. Circulation system plans shall include systems for pedestrian, bicycle, and public transportation where appropriate.
23. Private and Public use parking is permitted as a development activity related to a legal residential development. Parking MAY be permitted within all designated shoreline areas; the following additional requirements shall apply.
   a. Parking, as a primary use, shall be prohibited within the Armored Bank jurisdiction and discouraged within 75 feet of the top of the bank throughout the shoreline area.
   b. Parking or storage of recreational vehicles or travel trailers, as a primary use, shall be prohibited in all shoreline environment jurisdictions within 75 feet of the top of bank (except within the public right of way).
   c. Parking shall be located on the landward side of all new development unless no option is available and the parking is contained within a permitted structure. Where there is no available land area on the landward side of the development, parking shall extend no closer to the shoreline than a permitted structure and mitigation will be required as for a structure.
   d. Parking shall be a permitted use when consistent with the provisions of this Master Program.
   e. No single use commercial long-term parking or storage is allowed within the shoreline planning area.
   f. All parking enclosures and screening will comply with all Flood regulations.

5.11 Utilities
Utilities transmit, carry, store, process, or dispose of electric power, oil, gas, water, sewage, communications, and the like. Primary utilities include substations, pump stations, treatment plants, sanitary sewer outfalls, electrical transmission lines greater than 55,000 volts, water, sewer or storm drainage mains greater than eight (8) inches in diameter, gas and petroleum transmission lines, and submarine telecommunications cables.

Accessory utilities include local public water, electric, natural gas distribution, public sewer collection, cable and telephone service and appurtenances.
5.11.1 Policies

1. The design and location of utility facilities shall provide for no net loss of shoreline ecological functions.
2. New utility production and processing facilities, such as power plants and sewage treatment plants or parts of such facilities that are non-water oriented should not be located in shoreline areas unless there is no feasible alternative location.
3. Utility transmission facilities should be located outside of shoreline areas, to the maximum extent feasible.
4. Utility installation or maintenance projects in shorelines should restore areas to pre-project configuration, replanted with native species and shall provide maintenance care until the newly planted vegetation is established.
5. Maintenance, repair, and reconstruction of existing utility infrastructure should be allowed when consistent with best management practices to minimize impacts to ecological functions and restore areas of temporary impact.
6. Utilities should utilize existing transportation and utility sites, rights-of-way and corridors, whenever possible. Joint use of rights-of-way and corridors should be encouraged.
7. Unless no other feasible alternative exists, placement of new utilities should be prohibited in the shoreline jurisdiction, wetlands and other critical areas and there shall be no net loss of ecological functions or significant impacts to other shoreline resources or values.
8. New utility facilities should be located so as not to require shoreline protection works.
9. Whenever possible, utilities should be placed underground or alongside or under bridges (joint use).
10. Solid waste disposal activities and facilities should be prohibited in shoreline areas.
11. Where they do exist, utility services routed through shoreline areas shall not be a sole justification for more intense development.
12. Utility facilities shall be a permitted use when associated with a development that is consistent with the provisions of this Master Program. Otherwise, utility facilities may be permitted as a Shoreline Conditional Use when consistent with the provisions of this Master Program.

5.11.2 Regulations

1. New utility facilities shall be located outside of shoreline jurisdiction whenever feasible. When located within shoreline jurisdiction, utility facilities shall result in no net loss of shoreline ecological functions.
2. Utility facilities shall be designed and located as follows:
   a. Above ground generating facilities, switching complexes, pumping stations, treatment plants, storage tanks, and substations shall be located outside of Shoreline Jurisdiction unless the developer can show the need for a shoreline location;
   b. Utility transmission facilities shall be located in existing rights-of-way and cross shoreline jurisdiction by the most direct route feasible, unless an alternative route would result in less impact on shoreline ecological functions;
   c. Utility facilities shall not parallel a water body unless located in an existing improved transportation or utility corridor, and provided that underground facilities do not adversely impact hyporheic exchange;
   d. Underground utility lines shall be maintained in the existing locations or completely buried under the riverbed in all river or stream crossings, where possible.
   e. Underground stormwater utilities shall be designed to minimize need for additional future stormwater facilities and discharge points and shall be designed to allow for
immediate or future use of treated stormwater for ecological restoration projects wherever feasible.

3. Upon completion of utility installation or maintenance projects within shorelines, the shoreline area and stream banks shall be restored to pre-project configuration, replanted and provided with maintenance care until the newly planted vegetation is established. Plantings shall be comprised of native species appropriate for conditions in the temporary area(s) of impact, with landscaping completed consistent with the requirements of this Program.

4. Utility maintenance, repair, and reconstruction.
   a. Activities qualifying as normal maintenance and/or repair of existing utility facilities and access corridors shall not be considered development. However, normal maintenance and/or repair activities shall be completed consistent with the requirements of this Program.
   b. Repair and reconstruction of existing utility facilities not qualifying as normal maintenance and/or repair shall include any activity meeting the definition of development, including but not limited to activities requiring excavation, grading, fill, or construction of buildings or other structures.
   c. Permitted public utility maintenance activities:
      i. Maintenance, repair and reconstruction of utilities and associated infrastructure provided that no work shall occur outside of previously improved areas and the activities are consistent with all standards of this Program.
      ii. Maintenance of outfalls & outlet structures; permitted as normal maintenance and repair when occurring within existing outfall and outlet structures.
   d. The following stormwater system maintenance activities shall be permitted when best management practices are implemented to avoid and/or minimize impacts to shoreline ecological functions, and when consistent with all other provisions of this Program:
      i. Maintenance, cleaning, and reconstruction of existing stormwater infrastructure, including ditches, catch basins, stormwater ponds, bioswales, conveyance pipe, and outfall pipes and structures (provided infrastructure is not part of a stream or wetland).
      ii. Maintenance and replacement of previously installed rock check dams within ditches or stormwater ponds.
      iii. Maintenance and replacement of previously installed outfall pipe energy dissipaters or rock splash pads.
   e. The following public water utility maintenance activities shall be permitted when best management practices are implemented to avoid and/or minimize impacts to shoreline ecological functions, and when consistent with all other provisions of this Program: maintenance and reconstruction of water system pipe, valves, hydrants, meters, appurtenances, and associated infrastructure provided that no work occurs outside of previously improved area.
   f. Maintenance and repair to existing energy and communications utility facilities shall be permitted when best management practices are implemented to avoid and/or minimize impacts to shoreline ecological functions, and when consistent with all other provisions of this Program.

5. Applications for the installation of utility facilities shall include the following:
   a. Description of the proposed facilities.
   b. Reasons why the utility facility requires a shoreline location.
   c. Alternative locations considered and reasons for their elimination.
   d. Identification of any possibility for locating the proposed facility at another existing
utility facility site or within an existing utility right-of-way.

   e. Location of other utility facilities in the vicinity of the proposed project and any plans to include the other types of utilities in the project.
   
   f. Plans for reclamation of areas disturbed both during construction and following decommissioning and/or completion of the useful life of the utility.
   
   g. Plans for control of erosion and turbidity during construction and operation.

6. Utility development shall, through coordination with local government agencies, provide for compatible, multiple use of sites and rights-of-way.

7. Utility development shall include public access to the shoreline, trail systems, and other forms of recreation, providing such uses will not unduly interfere with utility operations, endanger the public health, safety, and welfare, or create a significant and disproportionate liability for the owner.

8. Proposals for new utility corridors or river crossings shall fully substantiate the infeasibility of existing routes.

9. Existing utility facilities within shoreline jurisdiction shall be phased out or rehabilitated whenever possible.

10. The following major utility facilities, which are not essentially water-dependent, may be permitted as a shoreline conditional use if it can be shown that no reasonable alternative exists.
    
    a. Water system treatment plants;
    
    b. Sewage system line, interceptors, pump stations, and treatment plants for legal developments within the shoreline.
    
    c. Utilities which include: Electrical energy generating plants and related substations, transmission lines, and cables as well as sites for Petroleum and gas pipelines and their components shall not be allowed in the Urban Conservancy Shoreline area.

11. New solid or bio waste disposal sites or facilities are prohibited in the shoreline.

12. New utility lines including electricity, communications, and fuel lines shall be located underground, outside of the floodway areas. Existing above ground lines shall be moved underground during normal replacement processes to the extent feasible.

13. Transmission and distribution facilities shall cross areas of shoreline jurisdiction by the shortest most direct route feasible, unless such route would cause significant environmental damage.

14. Utility facilities, requiring withdrawal of water from streams or rivers, shall be located only where state and federal law permits and where minimum flows, as established by the Washington State Department of Fish and Wildlife, can be maintained without impact to the environment of the residential nature of the area.

15. Utility developments shall be located and designated so as to avoid the use of any structural or artificial shore modification works.

16. Water lines shall be completely buried under the riverbed in all river crossings except where such lines may be affixed to a bridge structure and except for appropriate water or sewage treatment plant intake pipes or outfalls.

17. All underwater pipelines transporting liquids intrinsically harmful to aquatic life or potentially injurious to water quality are prohibited.

18. Construction of utilities underwater or in adjacent wetlands shall be timed to avoid fish and wildlife migratory and spawning periods.

19. Design, location and maintenance of utilities required to assure no net loss of ecological functions. WAC 173-26-241(3)(l).

5.12 Unclassified Uses and Activities

Uses that are not classified or set forth herein may only be authorized as conditional uses.
providing the applicant can demonstrate that the criteria set forth in the SMP are met.

Unclassified uses approved as conditional uses should also remain consistent with the policies of this program and RCW 90.58.020.

In the event that a proposed shoreline use or activity is not identified or classified in this Master Program, the following regulation shall apply.

5.12.1 Regulations
1. All uses and activities proposed in the Shoreline jurisdiction that are not classified by provisions in this Master Program shall require, at a minimum, a Shoreline Conditional Use Permit in all designation areas.

6. Shoreline Modification Policies and Regulations
6.1 Structural Stabilization
6.1.1 General Provisions
1. Structural shoreline stabilization shall only be permitted consistent with this section and incorporated requirements of the IMC, the State of Washington and any regulations per the Federal Government.
2. Alternative bank stabilization should be encouraged in all locations when viable. Where allowed, and where capable of providing adequate protection, stabilization measures should use non-structural or bio-engineered shoreline stabilization techniques.
3. New development that would require shoreline stabilization which causes significant adverse impacts to adjacent or down-current properties and shoreline areas is prohibited.
4. All shoreline uses and developments should be located and designed to prevent the need for new or increased shoreline protection structures (e.g., riprap). New development shall be located and designed to avoid the need for future shoreline stabilization to the extent feasible. Subdivision, lot line alteration or boundary line adjustments shall be regulated to assure that lots created will not require shoreline stabilization in order for reasonable development to occur.
5. The Town should discourage new uses, the creation of new lots or the construction of new development where it would be reasonably foreseeable that the development or use would require new or increased structural bank stabilization.
6. The need for new or increased structural shoreline stabilization (not meeting the definition of maintenance) shall be demonstrated by a geotechnical analysis, which includes, at a minimum, 
   a. Documentation that the structure is in danger from shoreline erosion caused by currents or waves.
   b. The geotechnical analysis should evaluate on-site drainage issues and address drainage problems away from the shoreline edge.
   c. The increased shoreline stabilization shall be required to meet the regulations for mitigation and adherence to local, state and federal law.
7. Geotechnical reports pursuant to this section that address the need to prevent potential damage to an existing primary structure shall address the necessity for shoreline stabilization by estimating time frames and rates of erosion and report on the urgency associated with the specific situation. As a general matter, hard armoring solutions should not be authorized except when a report confirms that there is a significant possibility that a primary structure will be damaged within three years as a result of shoreline erosion in the absence of such hard armoring measures, or where waiting until the need for armoring is so great that it would
foreclose on the opportunity to utilize measures that avoid or minimize impacts to ecological functions. Where the geotechnical report confirms a need to prevent potential damage to a primary structure, but the need is not as immediate as the three (3) years, that report may still be used to justify more immediate authorization to protect against erosion using soft shore stabilization measures.

8. In conjunction with any stabilization project, shoreline vegetation shall be protected to the extent possible and/or restored along or near shorelines in compliance with regulations of the SMP and the IMC in order to protect and restore the ecological functions and ecosystem-wide processes and to protect human safety and property.

9. Shoreline stabilization may be allowed for environmental restoration or if the regulators determine there will be a net increase in desired shoreline ecological functions.

10. Public access is required as part of publicly financed shoreline erosion control measures.

6.1.2 Policies: Maintenance of Existing Shoreline Stabilization

1. Maintenance of existing “riprap,” “bank armor,” and other “in-water hard armor work” is regulated through the Dept. of Fish and Wildlife, Army Corp of Engineers and the Federal Government in addition to the Town of Index.

2. Maintenance of existing bank armor is considered compatible with the Shoreline Master Program as an allowed activity; mitigation shall be conducted as reasonable following the outline for restoration in the SMP as well as all mitigation required by agencies with regulating authority through the Joint Aquatic Resources Permit process.

3. Existing commercial and single-family residential developments are permitted to apply for and conduct maintenance and repair work on existing armor banks.

4. Proposals to repair existing shoreline stabilization structures should include measures to enhance the existing conditions for fish and wildlife, shoreline vegetation, water quality, and sediment transport (meeting criteria and Best Available Science at the time of the proposal).

6.1.3 Regulations: Maintenance of Existing Shoreline Stabilization

1. An existing shoreline stabilization structure may be repaired or replaced if there is a demonstrated need to protect an existing legally established primary structure or use from erosion, provided that:
   a. The repair or replacement is designed, located, sized, and constructed to limit any loss of ecological functions.
   b. The repair or replacement structure does not encroach waterward of the existing structure.
   c. Existing structures should be considered for removal as part of the replacement measure unless documented that less ecological impact could occur by retaining the structure in place.
   d. Bioengineereed methods or soft stabilization measures that provide restoration of shoreline ecological functions may be permitted waterward of the OHWM.

2. For purposes of this section, "replacement" means the construction of a new structure to perform a shoreline stabilization function of an existing structure that can no longer adequately serve its purpose. Any additions to or increases in size of existing shoreline stabilization measures shall be considered new structures.

6.1.4 Policies: New Shoreline Stabilization

1. New armoring is regulated by the State of Washington and the Federal Government.
2. New armoring should be discouraged within the shoreline environment of the Town of Index in all locations.
3. Installation of armor banking for a new single family home requires a Shoreline Conditional Use Permit and must meet all regulations enforced by the State of Washington and the Federal Government.
4. New permanent shoreline stabilization structures should be prohibited except in cases where an existing structure is in imminent danger (due to erosion or bank failure) and where associated with public recreational access facilities.

6.1.5 Regulations: New Shoreline Stabilization
1. New shoreline stabilization structures are prohibited except in cases where there is a demonstrated threat to an existing legally established primary structure due to erosion caused by natural processes, and only as a conditional use. All new and maintenance stabilization shall use bioengineering or soft shore armoring techniques wherever feasible. New stabilization shall be required to provide mitigation/enhancement to the shoreline in regard to the outlines provided in the SMP.
2. Shoreline stabilization structures shall be limited to the minimum size necessary.
3. New commercial development in areas of the shoreline which require new armor banking, as a necessity for development, shall not be allowed.

6.2 Fill, Excavation, Ditching, Clearing and Grading
6.2.1 Applicability
Clearing and grading are any activities associated with developing property for commercial, industrial, residential, or public use. Clearing involves the removal of any existing vegetation or minor alteration of topsoil. Grading involves the physical alteration of the earth's surface by either excavation or filling. Both activities may be accomplished with equipment as well as work which is done by hand.

Grading may be permitted as a Shoreline Conditional Use when associated with an approved development permit which is consistent with the provisions of the Shoreline Master Plan and other related regulations.

6.2.2 Policies
1. Clearing and grading activities should only be allowed in association with an allowed (permitted) shoreline development that is consistent with the provisions of this Master Program and meets the criteria for protection of habitat. Minor home gardening work is not considered grading or clearing unless the activity involves the removal of native vegetation within 25 feet of the top of bank.
2. Clearing and grading activities should be limited to the minimum necessary to accommodate the shoreline development or a landscape scheme developed (and approved) in conjunction with an allowed and permitted shoreline development.
3. Clearing and grading should not be permitted within shoreline environment setbacks, unless there is a verified plan which ensures no negative impacts to the shoreline will be incurred and fish and wildlife habitat will not be degraded.
4. Best management practices should be used during clearing and grading to control erosion.
5. For extensive clearing and grading proposals, a plan addressing vegetation species removal, re-vegetation, irrigation, erosion and sedimentation control, and other methods of riparian corridor protection is to be required as a minimum. Grading within the Flood Prone and FEMA
regulated areas will require additional planning documentation. Detail of allowed volumes is listed in the related environmental and development codes or regulated via IMC.

6. Developments that could disrupt gravel bars or other areas of accretion related to the channel shall be carefully evaluated and disturbance of any kind only allowed when such disruption would not reduce shoreline ecological function; where there is a demonstrated public benefit; and where the Department of Fish and Wildlife determines there would be no significant impact to the fisheries resource.

7. Developments that alter the topography of the shoreline shall be carefully evaluated to determine if flood events will increase in frequency or severity either upstream or downstream of the site. Topography alteration, landward of the top of bank (within the water adjacent shoreline) might include the soils placed on site for raising homes within the floodplain, back fill and grading related to new development and re-development within the shoreline and construction or reconstruction for roadways and utilities.

8. Developments that alter the topography of the water adjacent shoreline and the upland shoreline shall be carefully evaluated to determine if such alteration would impact natural habitat forming processes and reduce ecological functions. Mitigation shall be required for projects that would otherwise reduce ecological functions. Projects waterward of the top of bank, which might affect habitat forming functions, would be regulated by the State of Washington and the Federal Government.

9. Fill, excavation, ditching, clearing and grading in shoreline jurisdiction should be allowed only in association with a legal permitted use and where allowed should be the minimum necessary to accommodate the proposed use.

10. Shoreline fill, excavation, ditching, clearing and grading should be designed and located so there will be no significant degradation of water quality, no alteration of surface water drainage, flood water storage, or conveyance capacity and no further negative impacts to the channel which would pose a hazard to adjacent property or natural resources.

6.2.3 Regulations

1. Clearing and grading activities shall only be allowed in association with a permitted shoreline development. All clearing and grading activities shall be limited to the minimum necessary.

2. Clearing and grading within shoreline environment setbacks shall comply with the special requirements for Riparian Management Zone (see following). Surfaces cleared of vegetation and not developed must be replanted as soon as possible. Within two (2) years the vegetative cover must be fully reestablished.

3. Outside of the Armored Bank Environment, normal non-destructive pruning and trimming of vegetation for maintenance purposes shall be permitted.

4. Clearing invasive non-native shoreline vegetation listed on the Washington State or Snohomish County Noxious Weed List is permitted in shoreline locations, provided a notice and plan are provided to the Town of Index, handheld equipment is used and permanent native vegetation is promptly reestablished in the disturbed area.

5. All shoreline development and activity shall use effective measures to minimize increases in surface water run off that may result from clearing and grading activity. The applicant must include in their proposal all methods that will be used to control, treat, and release runoff so that receiving water quality, shore properties and features shall not be adversely affected. Such measures may include but are not limited to dikes, berms, catch basins or settling ponds, installation and maintenance of oil/water separators, grassy swales interceptor drains, and landscaped buffers.

6. Stabilization of exposed erosion affected surfaces, along shorelines, shall utilize soil
bioengineering techniques. Clearing of vegetation within the riparian management zone is regulated as follows:

a. For water-oriented uses, clearing shall be limited to the minimum necessary for the successful operation of an allowed and permitted use, subject to the additional clearing and grading requirements of this section and the provisions of this Master Program as well as IMC.

b. For non-water-oriented uses, clearing is permitted for river access provided: the clearing and access meets the requirements for public access as set forth in the Public Access section.

c. Clearing for development purposes may be permitted upon approval of a plan, by the Town of Index Council and/or approval by the administrator. The landscape plan shall include:
   
   i. A map illustrating the distribution of existing plant communities in the area proposed for clearing (size of existing trees in diameter at breast height (DBH)). The map shall be accompanied by a description of the vegetative condition of the site, including species, plant density, and any natural or man-made disturbances. Include an inventory of vegetation overhanging the river as well as a determination of how much shade is created by standing trees, during midday at midsummer. Trees which shade the river during midday at midsummer should be retained to the extent possible.
   
   ii. Replanting and mitigation for removal of native plants related to legal and permitted development shall require an appropriate number native plantings to occupy 25% of the area between the footing (or most water ward development point) and the shoreline edge or four (4) plants per (DBH) inch of tree removed; whichever results in a greater dedication of area to native plantings on site.
   
   iii. Any pathways or non-vegetated portions must be noted. In all cases where clearing may be approved, exposed soils shall be immediately developed or re-vegetated with native plants to prevent erosion.
   
   iv. The plan shall include planting and soil specifications, success standards, and a contingency plan (which may be a template provided by the Town of Index or the State of Washington).

7. The purposes for maintaining a riparian management zone are to preserve the natural character of the shoreline, to protect the functions and values of critical areas, to conserve properly functioning conditions, and to enhance the recreational experience for the public using the river and adjacent lands. In order to maintain existing riparian corridors, the Town of Index shall limit and regulate the cutting, trimming, and clearing of vegetation within shoreline environment setbacks, as follows:

   a. Regulation in regard to the Shorelines of Statewide Significance, protect these purposes in more detail and establishes the riparian management zone as a primary means of complying with the priorities for shorelines of statewide significance.

8. All filling, excavation, ditching, clearing and grading activities in the shoreline shall comply with the provisions of IMC (Best Management Practices for Construction and Site Development) and IMC (Storm Drainage) and this SMP Program.

9. Fill, excavation, ditching, clearing and grading may be allowed in the shoreline only in association with a legal permitted use. Where allowed, the activity shall be the minimum necessary to accommodate the development.

10. All fill activities within floodway areas shall comply with IMC and all Floodplain Regulations. Typically this will only be allowed when associated with a restoration project.
11. Development that involves fill, excavation, ditching, clearing and grading within the shoreline jurisdiction shall obtain a Shoreline Substantial Development permit or Shoreline Conditional Use Permit unless exempted by RCW 90.58.030. All approved CUPs must comply with WAC 173-27-160.

12. Fill shall be permitted only where it can be demonstrated the proposed action will not:
   a. Result in significant ecological damage to water quality, fish, and/or wildlife habitat; or
   b. Adversely alter natural drainage and circulation patterns, currents, creek/river flows or significantly reduce floodwater capacities or inhibit channel migration.

13. Filling, and/or excavation waterward of the OHWM may be allowed when necessary to support the following:
   a. Water-dependent use;
   b. Publicly sponsored ecological restoration or enhancement projects;
   c. Town approved restoration and mitigation projects that involve removal of shoreline armoring or shoreline vegetation enhancement;
   d. Bio-engineered shoreline stabilization projects, including bio-engineered shoreline stabilization associated with private residential developments; and
   e. Publicly sponsored non-restoration projects that provide public access or improve access to the shoreline for a substantial number of people.

14. Before the Town of Index can permit any filling, excavation, clearing or grading activities, the applicant must demonstrate all of the following:
   a. Alternatives to filling, excavation, clearing and grading are infeasible;
   b. Normal surface water movement and drainage patterns shall be maintained to the maximum extent feasible;
   c. Fill materials shall not adversely affect water quality or aquatic life;
   d. Fill shall allow surface water penetration into the ground where such conditions existed prior to the fill;
   e. The filling, excavation, clearing or grading shall be timed to minimize damage to shoreline ecological functions and processes and aquatic life;
   f. Fill within the one hundred-year (100-year) floodplain shall not reduce the floodplain water storage capacity, inhibit channel migration, or in any way increase flood hazard or endanger public safety;
   g. Fill, excavation, ditching, clearing or grading shall not be located where structural shore stabilization will be required to maintain materials placed or removed. Disturbed areas shall be immediately stabilized and re-vegetated, as applicable;
   h. A temporary erosion and sediment control (TESC) plan shall be designed, site specific, for all proposed: filling, excavation, clearing and grading activities;
   i. Unavoidable impacts of filling, excavation, clearing and/or grading shall be mitigated as required by this Program and WAC 173-26-201(2).

15. Topping of trees is prohibited.

16. Trimming of vegetation may be permitted within the riparian management zone, provided that:
   a. This provision is not interpreted to allow general clearing of vegetation;
   b. Trimming is not detrimental to the riparian functions and values nor adversely affects noted protected species use or sighting;
   c. The loss of native vegetation within the shoreline environment is mitigated to the extent called for or available on or off site.

17. Mitigation and restoration minimums:
   a. A list of native plants that are adapted to riparian conditions will be provided by the Town of Index, in consultation with appropriate local and state agencies. The
Washington Department of Fish and Wildlife can also provide a list of species that benefit riparian habitat areas.

b. At the time of planting, shrubs must be a minimum of eighteen (18) inches high.

c. At the time of planting, deciduous trees must be at least two (2) inches in caliper as measured one (1) foot above grade, and coniferous trees must be at least five (5) feet in height.

d. The applicant shall replace any unhealthy or dead vegetation planted consistent with an approved landscape plan within the five (5) year “monitoring period”.

e. The Town may require a performance bond as a condition of permit approval, to ensure compliance with the riparian management zone regulations.

18. Those projects which are found likely to affect (or be affected by) flood events shall require review and may need an engineer to review and design development conditions in order to ensure no adverse effects will result from the proposal.

19. An erosion and sedimentation control plan shall be submitted with all permit applications that involve the removal of vegetation, the stockpiling of earth or other materials, or any activity that could result in shoreline erosion and assumed or noted siltation of the North Fork Skykomish and any streams or associated wetlands.

a. The proponent shall incorporate all known, available and reasonable methods of erosion prevention, control and treatment (Surface Water Protection Plan/SWPP) into the erosion and sedimentation control plan for each project. The permit approval shall define all measures applicable for erosion and sedimentation control for projects in shoreline area.

b. Temporary and emergency control drainage measures, such as silt curtains, berms, and stormwater catch basins, shall be utilized during construction to prevent shoreline erosion and siltation of the North Fork Skykomish or other water bodies or wetlands.

c. All debris, overburden, and other waste materials from construction shall be disposed of in such manner as to prevent their entry into the North Fork Skykomish or other water bodies or wetlands.

d. Disposal site for excess soils and other materials resulting from the development project, shall be identified and site approved before permit issuance prior to the initiation of work on site.

20. Clearing and Grading Environment Specific Regulation

a. Clearing and grading shall be a permitted activity when associated with a development that is consistent with the provisions of this Master Program and meets the criteria for protection of habitat.

b. Clearing and grading may be permitted as a Shoreline Conditional Use when associated with an approved development which is consistent with the provisions of this Master Program and meets the criteria for protection of the Riparian Management Zone and Armored Bank Environment.

21. Clearing and Grading in the Riparian Management Zone

a. A riparian management zone is the area within the shoreline environment setback. These setbacks are measured landward from the ordinary high water mark (OHWM) or floodway, whichever is more inclusive, and are 25’ in the Armored Bank and Shoreline Upland environments and 35’ in the Urban Conservancy environment.
6.3 Dredging and Dredge Material Disposal

6.3.1 Policies
1. Dredging and dredge material disposal should be prohibited except when associated with an approved and adopted watershed management plan, surface water management plan, restoration plan, and/or flood hazard reduction plan and approval from the agency with jurisdiction.

6.3.2 Regulations
1. Dredging waterward of the OHWM shall only be allowed as a conditional use and only when necessary to support the following:
   a. A publicly sponsored ecological restoration or enhancement project that improves shoreline ecological functions and processes benefiting water quality and/or fish and wildlife habitat;
   b. A Town-approved restoration and mitigation project that involves removal of structural shoreline armoring and/or shoreline vegetation enhancement; or
   c. A bio-engineered shoreline stabilization project, including bio-engineered shoreline stabilization associated with private residential developments or public project.

6.4 Instream Structures

6.4.1 Regulations
1. Water-dependent instream structures are conditionally permitted within the Armored Bank and Urban Conservancy shoreline environments of the Town of Index shoreline jurisdiction.

6.5 Overwater Structures

6.5.1 Boat Launch Ramps & Locations
1. Boat launch ramps shall be designated and cited on stable shoreline areas where water depths are adequate to eliminate or minimize the need for channel and bank maintenance activities.
2. Boat launches may be permitted provided any necessary grading is not harmful to affected resources, create adverse impacts to downstream conditions, and any accessory facilities are located out of the floodway.
3. Where boat ramps are permitted, parking and shuttle areas shall not be located within the valuable shoreline area.
4. Boat launch ramps may be permitted on stable non-erosional banks where the need for shore stabilization structures is minimized.
5. Boat launch sites that are open to the public shall have adequate restroom facilities operated and maintained in compliance with Snohomish County Health District regulations.
6. Boat launch sites may only be permitted with the approval of a Joint Aquatic Resources Permit from all agencies with jurisdiction.

6.5.2. Piers and Docks
1. Piers and docks are prohibited in the Shoreline of the North Fork Skykomish River within the Town of Index jurisdiction.

6.5.3 Dry Boat Storage
1. Dry boat storage shall not be considered a water-oriented use and should be located in a more appropriate shoreline environment.
2. Only water-dependent aspects of dry-boat storage may be permitted within shoreline environment setbacks.

6.5.4 Marinas
   1. Marinas are prohibited in the Town of Index shoreline jurisdiction.

6.5.5 Overwater Residences
   1. New overwater residences and floating homes are prohibited in the Town of Index shoreline jurisdiction.

6.6 Mining
6.6.1 Regulations
   1. Mining is prohibited within the Town of Index shoreline jurisdiction.
7. Flood Hazard Policies and Regulations

7.1 Introduction
The following provisions apply to actions taken to reduce flood damage or hazard and to those uses, development, and shoreline modifications that may increase flood hazards.

Flood hazard reduction measures may consist of nonstructural measures, such as setbacks, land use controls, wetland restoration, dike removal, use relocation, biotechnical measures, and storm water management programs. Flood hazard reduction may also include structural measures, such as dikes, levees, revetments, floodwalls, channel realignment, and elevation of structures when consistent with the National Flood Insurance Program.

Additional relevant critical area provisions are in WAC 173-26-221.

Flooding of rivers, streams, and other shorelines is a natural process. The process can be affected by factors and land uses occurring throughout the watershed. Studies have determined that many past land use practices have disrupted hydrological processes and increased the rate and volume of runoff, thereby exacerbating flood hazards and reducing ecological functions.

7.2 Basin Conditions
The watershed includes land in Snohomish County and King County. In Snohomish County, it includes the cities of Everett, Monroe, Lake Stevens, Marysville, Snohomish, Sultan, Gold Bar, Index, and the Snohomish and Tulalip Tribes. Land use within the Snohomish basin is 75% forestry, 17% rural, 5% agriculture, and 4% urban (Pentec 1999).

Existing conditions in the Snohomish Basin are documented in the WRIA 7 Salmon Conservation Plan, Snohomish River Basin Conditions and Issues Report, the 2001 Land Cover Analysis Report, Snohomish Basin Ecological Analysis for Salmon Conservation, the Comprehensive Plan 10-year Update DEIS, the Department of Ecology 303d list and the Big River Survey.

7.3 Flood and Channel Migration
The floodplain of the Snohomish River is widest from its delta in Port Susan to its confluence with the Skykomish River. The river within this portion of the floodplain has a relatively low gradient and has been confined by dikes and channelization. The mainstem of the Skykomish River from its confluence to the City of Gold Bar also has a wide floodplain, and a significantly higher gradient.

The high gradient and sediment load have resulted in a river with a dynamic channel and a wide channel migration zone between Sultan and Gold Bar, called the “braided reach.” The entire floodplain is the area within which the river channel migrated over thousands of years. The area within which the channel is likely to migrate within 100 years is called the Channel Migration Zone (CMZ).

Within the Town of Index, the floodplain and channel migration functions are constrained or limited by residential development, roadways and bridges, and the Burlington Northern Railroad bridge. The advancement of a channel migration zone is limited by the constant maintenance and repair of the existing armored bank which prevents and alters natural system gains and loss preventing migration of the channel throughout the shoreline area.
7.4 Principles
A time frame of one hundred years has been chosen as the base of study for flood related impacts and changes in local conditions. Aerial photos, maps and field evidence can be used to evaluate movement in this time frame.

Flood hazard reduction measures are most effective when integrated into comprehensive strategies that recognize the natural hydrogeological and biological processes of water bodies. Over the long term, the most effective means of flood hazard reduction is to prevent or remove development in flood-prone areas, to manage storm water within the flood plain, and to maintain or restore river and stream system's natural hydrological and geomorphological processes.

Structural flood hazard reduction measures, such as diking, even if effective in reducing inundation in a portion of the watershed, can intensify flooding elsewhere. Moreover, structural flood hazard reduction measures can damage ecological functions crucial to fish and wildlife species, bank stability, and water quality.

When structures are necessary, they shall be accomplished in a manner that assures no net loss of ecological functions and ecosystem-wide processes.

New development and shoreline modifications that could result in future significant adverse impacts to private or public improvements and/or result in a net loss of ecological functions associated with the rivers and streams should be limited.

New development which is likely to result in the need to armor banks or undertake shoreline modifications should be limited in the future to protect the development.

The SMP shall implement the following principles:

Integrate the master program flood hazard reduction provisions with other regulations and programs, including (if applicable):

Storm Water Management Plan;
Floodplain Regulations, as provided for in Chapter 86.16 RCW;
Comprehensive Plan;
National Flood Insurance Program.

Base shoreline master program flood hazard reduction provisions on applicable watershed management plans, comprehensive flood hazard management plans, and other comprehensive planning efforts, provided those measures are consistent with the Shoreline Management Act and this chapter.

Where feasible, give preference to nonstructural flood hazard reduction measures over structural measures.

Assure that flood hazard protection measures do not result in a net loss of ecological functions
associated with the rivers and streams.

Plan for and facilitate returning river and stream corridors to more natural hydrological conditions where possible without adverse effects to any legally established development.

Recognize that seasonal flooding is an essential natural process. New development and alterations to sites shall be limited if they are impacted by these typical seasonal events.

When evaluating alternate flood control measures, consider the removal or relocation of structures in flood-prone areas.

Plan for and facilitate development which will contribute to natural restoration of off channel hydrological processes. Restore channel area to a more natural state where feasible and appropriate.

**7.5 Standards**

Development in flood plains should not significantly or cumulatively increase flood hazard or be inconsistent with a flood hazard management plan adopted pursuant to chapter 86.12 RCW.

New development or new uses in the shoreline jurisdiction, including the subdivision of land, should not be established when it would be reasonably foreseeable that the development or use would require new or increased structural flood hazard reduction measures within the channel migration zone or floodway.

Structural flood hazard reduction measures shall be consistent with the adopted comprehensive flood hazard management plan approved by the Department of Ecology that evaluates cumulative impacts to the watershed system.

Place new structural flood hazard reduction measures landward of associated wetlands, and designated vegetation conservation areas, except for actions that increase ecological functions, such as wetland restoration.

Require that new structural public flood hazard reduction measures, such as dikes and levees, dedicate and improve public access pathways unless public access improvements could cause unavoidable health or safety hazards to the public, inherent and unavoidable security problems, unacceptable and unmitigable significant ecological impacts, unavoidable conflict with the proposed use, or a cost that is disproportionate and unreasonable to the total long-term cost of the development.

**7.6 Policies**

The following policies and regulations must be factored into decisions regarding all flood management planning and development within that portion of the “floodplain” that falls within The Town of Index shoreline jurisdiction (within 200 feet of OHWM).

Floodplain management involves actions taken with the primary purpose of preventing or mitigating damage due to flooding.

Floodplain management may involve planning and zoning in order to plan and control new development. Goals of the planning should reduce risks to human life and property or prevent
development from contributing to the severity of flooding.

Floodplain management can also address the physical design elements of developments in order to reduce flood damage and the future or ongoing construction of flood controls, such as dikes, dams, engineered floodways, and bioengineering.

The Town of Index Flood Damage Prevention Code (Ord. 343 § 1.1, 1999), as codified in Chapter 15.08 IMC of the Index Municipal Code, is herein incorporated into this master program (Appendix C).

Any conflicts between the incorporated ordinances and the SMP are resolved in favor of the regulation that is most protective of the ecological functions.

1. Flood management planning should be undertaken in a coordinated manner among affected property owners and public agencies and should consider the entire river system. This planning should consider off-site impacts such as erosion, accretion, and/or flood damage that might occur if new shore protection structures are constructed. All floodplain planning should ensure the review of recent State and Federal Guidelines, Regulations and pending court rulings prior to adoption of restrictive or protective ordinance.

2. Repair and maintenance of existing structural flood control is accepted as a reasonable practice within the Town of Index jurisdiction due to the age of the existing structures, the Town’s general reliance on a well maintained “riprap” system for protection of streets, utilities and homes, and the rights of all landowners to maintain their property.

3. Non-structural control solutions are preferred by the State of Washington and the Departments and Regulators with authority over “in-water and over-water work.” Non-structural controls should always be considered prior to the repair or replacement of existing riprap armor. Non-structural flood control devices should be used wherever possible when control devices are needed. Non-structural controls include such actions as prohibiting or limiting development in areas that are historically flooded or creating opportunities for limiting any increases in peak flow runoff from new upland development. New structural solutions to reduce shoreline damage are typically allowed only after it is demonstrated that non-structural solutions would not be able to reduce the damage foreseen to legal and allowed developments.

4. Substantial stream channel modification, realignment, and straightening is discouraged as a means of flood protection throughout the State of Washington.

5. The Town of Index supports the protection and preservation of the aquatic environment and the habitat attributes it provides, and advocates balancing these interests with the Town’s intention to ensure protection of life and property from damage caused by flooding.

6. Development, re-development and major improvements should be avoided in those areas which have a reasonable prediction of adverse impacts from flooding.

7.7 Regulations

1. Development and uses proposed within the floodplain shall be regulated and meet the requirements of Chapter 15.08 IMC. This review shall utilize the following information during its review of proposed projects and programs.
   a. River channel hydraulics and floodway characteristics up and downstream from the project area as established by State and Federal agencies.
   b. Existing shoreline stabilization and flood protection works within the area.
   c. Physical, geological, and soil characteristics of the area.
d. Biological resources and predicted impact to riverine ecology, including fish, vegetation, and animal habitat.

e. Predicted impact upon area shore and hydraulic processes, adjacent properties, and shoreline and water uses; and,

f. Analysis of alternative flood protection measures, both non-structural and structural.

g. Mapped potential Channel Migration Zone (CMZ) information for the North Fork Skykomish River from State and Federal agencies

2. The Town shall require engineered design of flood protection work where proposed projects are indicated as having a possible interference with normal river geohydraulic processes, off-site impacts, or adverse effects to shoreline resources and uses. Non-structural methods of flood protection shall be preferred over structural solutions, when the relocation of existing shoreline development is not feasible.

3. Flood protection measures shall be planned and constructed based on the Town of Index Flood Control Management Plan, and in accordance with the National Flood Insurance Program and the Town’s Flood Damage Prevention Code, Chapter 15.08 IMC. All flood protection measures must assure no net loss of ecological functions.

4. Projects proposed in the floodplain must assure no potential adverse impacts to the floodplain, shoreline environment or critical areas.

5. Where possible, public access shall be integrated into the design of publicly financed flood management facilities.

6. The removal of gravel for flood management purposes shall be consistent with an adopted flood hazard reduction plan and with this chapter and allowed only after a biological and geomorphological study shows that extraction has a long-term benefit to flood hazard reduction, does not result in a net loss of ecological functions, and is part of a comprehensive flood management solution.
8. Shoreline Use and Modification Tables

8.1 Shoreline Use Table

Legend
A = Allowed
CU = May be allowed as a Conditional Use
Blank = Not Allowed

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</tbody>
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Figure 4. Table of Shoreline Use Permissions Matrix

1. Commercial use in the shoreline jurisdiction will be water-dependent.
8.2 Shoreline Modification Table

Legend
A = Allowed
CU = May be allowed as a Conditional Use
Blank = Not Allowed

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<thead>
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<tr>
<td>Boat Launch Ramps</td>
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<td>Docks and Piers</td>
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<td>Overwater Residences</td>
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Figure 5. Table of Shoreline Modifications Permissions Matrix

8.3 Development Standards

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<td>Buffer</td>
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<td>Building Height Limit</td>
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<td>35’</td>
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<td>Commercial 1</td>
<td>See IMC 7.24.040</td>
<td>See IMC 17.24.040</td>
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<tr>
<td>Lot Coverage 2</td>
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<td>60%</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Figure 6. Table of Development Standards

1. 17.16.070 Maximum lot coverage Sixty (60) percent of any building site

2. 17.24.010 Commercial uses are permitted throughout the town of Index and in combination with other land uses; provided, that the goals of the town of Index comprehensive plan are met. (Ord. 370 § 3.3 (part), 2004). Lot coverage is equivalent to impervious surface coverage.
9. Administration

9.1 Introduction

1. Unless specifically exempted by statute, all proposed uses and development occurring within shoreline jurisdiction must conform to chapter 90.58 RCW, the Shoreline Management Act and this master program whether or not a permit is required. Administrative provisions are to ensure permit procedures and enforcement are conducted in a manner consistent with relevant constitutional limitations on regulation of private property in accordance with WAC 173-26-186(5) and WAC 191(2)(a)(iii)(A).

2. Shoreline substantial development, conditional use and variances are subject to town council review, including a public hearing and final decision.

3. When applicable, all residential development is subject to the Shoreline Variance and Shoreline Conditional Use requirements of this Master Program. For example, a Shoreline Variance will be required for any residential development that proposes to locate within the shoreline environment setbacks established in this Master Program and defined in the Index Municipal Code. A Shoreline Substantial Development Permit is not required for construction of a single family residence by an owner, lessee, or contract purchaser for his own use or the use of his family. However, such construction and all normal appurtenant structures must otherwise conform to this Master Program. Non-residential development within the same lot may fall under additional review and regulation.

9.2 Exclusions from the Shoreline Management Act

Pursuant to WAC 173-27-045, certain developments are not subject to the Shoreline Management Act as follows:

1. Projects consistent with an environmental excellence program agreement pursuant to RCW 90.58.045 and RCW 43.21K.

2. Projects authorized through the Energy Facility Site Evaluation Council process, pursuant to Chapter 80.50 RCW.

9.3 Exclusions from Local Permit Review

Pursuant to WAC 173-27-044, requirements to obtain a substantial development permit, conditional use permit, variance, letter of exemption or other review to implement the Shoreline Management Act do not apply to the following:

1. Remedial actions. Pursuant to RCW 90.58.355, any person conducting a remedial action at a facility pursuant to a consent decree, order or agreed order issued pursuant to Chapter 70.105D RCW, or the Department of Ecology when it conducts a remedial action under Chapter 70.105D RCW.

2. Boatyard improvements to meet NPDES permit requirements. Pursuant to RCW 90.58.355, any person installing site improvements for stormwater treatment in an existing boatyard facility to meet requirements of a national pollutant discharge elimination system stormwater general permit.

3. WSDOT facility maintenance and safety improvements. Pursuant to RCW 90.58.356, Washington State Department of Transportation projects and activities meeting the conditions of RCW 90.58.356 are not required to obtain a substantial development permit, conditional use permit, variance, letter of exemption or other local review.
9.4 Shoreline Substantial Development Permit Exemptions

9.4.1 Application and Interpretation of Exemptions

Under the SMA, certain types of developments are exempt from substantial development permit (SDP) requirements (WAC 173-27-040(2)).

1. Exemptions shall be narrowly construed: only those developments that meet the precise terms of one or more of the listed exemptions may be granted exemption from the substantial development permit process.

2. An exemption from the substantial development permit process is not an exemption from compliance with the act or this master program, nor from any other regulatory requirements. To be authorized, all uses and developments must be consistent with the policies and provisions of this master program and the Shoreline Management Act. A development or use that is listed as a conditional use pursuant to the provisions of the master program, or is an unlisted (unclassified) use, must obtain a conditional use permit even though the development or use does not require a substantial development permit. When a development or use is proposed that does not comply with the bulk, dimensional and performance standards of the master program, such development or use can only be authorized by approval of a variance.

3. The burden of proof that a development or use is exempt from the permit process is on the applicant.

4. If any part of a proposed development is not eligible for exemption, then a substantial development permit is required for the entire proposed development project.

5. Local governments may attach conditions to the approval of exempted developments and/or uses as necessary to assure consistency of the project with the act and the local master program.

9.4.2 Exemptions

The following developments shall not require substantial development permits (WAC 173-27-040). Some of the items listed below are prohibited in the Index shoreline jurisdiction. Not all exemptions are listed, only those that reflect allowed uses and modifications provided for by this SMP.

Note: EXEMPTION FROM SUBSTANTIAL DEVELOPMENT PERMIT REQUIREMENTS DOES NOT CONSTITUTE EXEMPTION FROM THE POLICIES AND USE REGULATIONS OF THE SHORELINE MANAGEMENT ACT; THE PROVISIONS OF THIS MASTER PROGRAM; AND OTHER APPLICABLE TOWN, STATE OR FEDERAL PERMIT REQUIREMENTS.

1. Any development of which the total cost or fair market value, whichever is higher, does not exceed the substantial development threshold of $7,047 or as adjusted by the state OFM, if such development does not materially interfere with the normal public use of the water or shorelines of the state. For the purposes of determining whether a permit is required, the total cost or fair market value of the development shall be determined based on the value of any donated, contributed, or found labor, equipment or materials (see WAC 173-27-040(2)(a) for adjustments to dollar threshold);

2. Normal maintenance or repair of existing structure or developments, including damage by accident, fire, or elements. "Normal maintenance" includes those usual acts to prevent a decline, lapse, or cessation from a lawfully established condition. "Normal repair" means to restore a development to a state comparable to its original condition, including, but not limited to, its size, shape, configuration, location, and external appearance, within a reasonable period after decay or partial destruction except where repair causes substantial adverse effects to
shoreline resource or environment. Replacement of a structure or development may be authorized as repair where such replacement is the common method of repair for the type of structure or development and the replacement structure or development is comparable to the original structure or development including, but not limited to its size, shape, configuration, location, and external appearance and the replacement does not cause substantial adverse effects to shoreline resources or environment;

3. Construction of the normal protective bulkhead common to single family residences. A "normal protective" bulkhead is constructed at or near the ordinary high water mark to protect a single family residence and is for protecting land from erosion. Where an existing bulkhead is being replaced, it shall be constructed no further waterward of the existing bulkhead than is necessary for construction of new footings.

4. Emergency construction necessary to protect property from damage by the elements. An "emergency" is an unanticipated and imminent threat to public health, safety, or the environment which requires immediate action within a time too short to allow full compliance with the Act or this Master Program. Emergency construction does not include development of new protective structures where none previously existed. Where new protective structures are deemed by the administrator to be the appropriate means to address the emergency situation, upon abatement of the emergency situation, the new structure shall be removed and any permit which would have been required, absent an emergency (pursuant to Chapter 90.58 RCW, the applicable WAC, and this master program), obtained. All emergency construction shall be consistent with the policies of Chapter 90.58 RCW and this master program. As a general matter, flooding or other seasonal events that can be anticipated and may occur but are not imminent are not an emergency.

5. Construction by an owner, lessee, or contract purchaser of a single family residence for his or her own use or for the use of his or her family, which residence does not exceed a height of thirty-five (35) feet above average grade level and meets all requirements of the state agency or local government having jurisdiction thereof. “Single family residence” means a detached dwelling designed for and occupied by one family including those structures and developments within a contiguous ownership which are a normal appurtenance. An “appurtenance” is necessarily connected to the use and enjoyment of a single family residence and is located landward of the ordinary high water mark and the perimeter of a wetland. On a statewide basis, normal appurtenances include a garage, deck, driveway, utilities, fences, installation of a septic tank and drain field, and grading which does not exceed two hundred fifty (250) cubic yards and which does not involve placement of fill in any wetland or waterward of the ordinary high water mark. Local circumstances may dictate additional interpretations of normal appurtenances which shall be set forth and regulated within the applicable master program. Construction authorized under this exemption shall be located landward of the ordinary high water mark.

6. The marking of property lines or corners on state owned lands, when such marking does not significantly interfere with the normal public use of the surface water.

7. Operation and maintenance of any system of dikes, ditches, drains, or other facilities existing on June 4, 1975, which were created, developed, or utilized primarily as part of an agricultural drainage or diking system.

8. Site exploration and investigation activities that are prerequisite to preparation of an application for development authorized under this chapter, if:
   a. The activity does not interfere with the normal public use of the surface waters;
   b. The activity will have no significant adverse impact on the environment, including, but not limited to, fish, wildlife, fish or wildlife habitat, water quality, and aesthetic values;
   c. The activity does not involve the installation of any structure, and upon completion of
the activity, the vegetation and land configuration of the site are restored to conditions existing before the activity;

d. A private entity seeking development authorization under this section first posts a performance bond or provides other evidence of financial responsibility to the local jurisdiction to ensure that the site is restored to preexisting conditions; and
e. The activity is not subject to the permit requirements of RCW 90.58.550.

9. The process of removing or controlling aquatic noxious weeds, as defined in RCW 17.26.020, through the use of an herbicide or other treatment methods applicable to weed control that are recommended by a final environmental impact statement published by the Department of Agriculture or the Department of Ecology jointly with other state agencies under Chapter 43.21C.RCW.

10. Watershed restoration projects as defined herein. Local government shall review the projects for consistency with the shoreline master program in an expeditious manner and shall issue its decision along with any conditions within forty-five (45) days of receiving a complete application form from the applicant. No fee may be charged for accepting and processing applications for watershed restoration projects as used in this section.

a. “Watershed restoration project” means a public or private project authorized by the sponsor of a watershed restoration plan that implements the plan or a part of the plan and consists of one or more of the following activities:

i. A project that involves less than ten (10) miles of stream reach, in which less than twenty-five (25) cubic yards of sand, gravel, or soil is removed, imported, disturbed or discharged, and in which no existing vegetation is removed except as minimally necessary to facilitate additional plantings;

ii. A project for the restoration of an eroded or unstable stream bank that employs the principles of bioengineering, including limited use of rock as a stabilization only at the toe of the bank, and with primary emphasis on using native vegetation to control the erosive forces of flowing water; or

iii. A project primarily designed to improve fish and wildlife habitat, remove or reduce impediments to migration of fish, or enhance the fisher resource available for use by all of the citizens of the state, provided that any structure, other than a bridge or culvert or instream habitat enhancement structure associated with the project, is less than two hundred (200) square feet in floor area and is located above the ordinary high water mark of the stream.

b. “Watershed restoration plan” mean a plan, developed or sponsored by the department of fish and wildlife, the department of ecology, the department of natural resources, the department of transportation, a federally recognized Indian tribe acting within and pursuant to its authority, a city, a county, or a conservation district that provides a general program and implementation measures or actions for the preservation, restoration, re-creation, or enhancement of the natural resources, character, and ecology of a stream, stream segment, drainage area, or watershed for which agency and public review has been conducted pursuant to chapter 43.21C RCW, the State Environmental Policy Act;

11. A public or private project, the primary purpose of which is to improve fish or wildlife habitat or fish passage, when all of the following apply:

a. The project has been approved in writing by the department of fish and wildlife as necessary for the improvement of the habitat or passage and appropriately designed and sited to accomplish the intended purpose;

b. The project has received hydraulic project approval by the department of fish and
wildlife pursuant to chapter 75.20 RCW; and

The local government has determined that the project is consistent with the local shoreline master program. The local government shall make such determination in a timely manner and provide it by letter to the project proponent.

See WAC 173-27-040(2)(p) for requirements of fish habitat enhancement projects to be consistent with this shoreline master program.

12. The external or internal retrofitting of an existing structure with the exclusive purpose of compliance with the Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12101 et seq.) or to otherwise provide physical access to the structure by individuals with disabilities.

Before determining that a proposal is exempt, the Administrator may conduct a site inspection to ensure that the proposal meets the exemption criteria. The exemption granted may be conditioned to ensure that the activity is consistent with the Master Program and the Shoreline Management Act.

Whenever a development falls within the exemption criteria outlined in this Program and the development is subject to a U.S. Army Corps of Engineers Section 10 or Section 404 Permit, the Administrator shall prepare a Statement of Exemption, and transmit a copy to the applicant and the Washington State Department of Ecology. Exempt development as defined herein shall not require a substantial development permit, but may require a conditional use permit, variance and/or a Statement of Exemption.

9.5 Variance Procedures

9.5.1 Criteria

1. Shoreline Variance permits are issued to allow a proposed project to deviate from the Shoreline Master Plans dimensional standards (e.g., setback, height, or lot coverage requirements). State law is strict about the standards which are allowed for a variance.

2. A variance proposal must meet variance criteria found in state rule and be consistent with other environment and use requirements. WAC 173-27-170

3. Variances can only be granted where there are "extraordinary or unique" circumstances relating to the property such that the strict implementation of the master program will impose unnecessary hardships on the applicant or thwart the policies of the SMA.

4. Applicants should not assume they have a right to a variance.

5. Approval under the variance procedure is a special exception from the regulations for which a justifiable need and extraordinary circumstances must be demonstrated. It is intended to assure fair treatment of someone with special property circumstances (not personal circumstances) and not to grant special privilege. The burden of proof is on the applicant.

6. Local governments cannot use a variance to approve a use which is prohibited by State Law of the local regulations.

7. Local planners must consider the cumulative effects over time, of granting additional permits for like actions in a given shoreline area.

8. A variance may be required even if the proposed use is otherwise exempt.

9. Local government staff must prepare a written analysis of how proposal complies with variance criteria (this is provided to the State when the application is submitted to the State of Washington, Department of Ecology, for concurrence).

10. Once a shoreline variance is approved by the agency (Town of Index) the application and findings are sent to Ecology at the end of the local appeal period. Ecology must either approve, deny or condition every variance within 30 days of receiving a complete permit application.
Ecology encourages local governments to contact shoreline permit review staff early in the process of approving a conditional use permit if difficulties are anticipated.

11. The most common variances are for residential setbacks (e.g. for a house, deck, or stairs to be located closer to the water than normally allowed). The types of circumstances that typically justify granting the variance include that the lot was legally created prior adoption of the SMP; or a common setback line was established prior to adoption of the SMP; or the slope of the lot requires placing the building closer to have the least overall shoreline impact.

12. Criteria for shoreline variance
A. The applicant must show that:
   i. The strict application of the bulk, dimensional or performance standards set forth in the applicable master program precludes, or significantly interferes with, reasonable use of the property;
   ii. The hardship described in the Shoreline Master Plan Variance subsection is specifically related to the property and is the result of unique conditions such as irregular lot shape, size, or natural features and the application of the master program, and not, for example, from deed restrictions or the applicant’s own actions.
   iii. The design of the project is compatible with other authorized uses within the area and with uses planned for the area under the comprehensive plan and shoreline master program and will not cause adverse impacts to the shoreline environment;
   iv. The variance will not constitute a grant of special privilege not enjoyed by the other properties in the area;
   v. The variance requested is the minimum necessary to afford relief; and
   vi. The public interest will suffer no substantial detrimental effect.

B. The criteria for allowing a shoreline variances for developments proposed below the Ordinary High Water Mark (these proposal will not be fully regulated by the Town of Index) or in wetlands is the same but may result in a more strict interpretation. In addition to demonstrating the criteria described above applicants must also show:

   That the strict application of the bulk, dimensional or performance standards set forth in the applicable master program precludes all reasonable use of the property;

   That the public rights of navigation and use of the shorelines will not be adversely affected.

Variances must also meet criteria in WAC 173-27-140 which apply to all development.

C. The "unnecessary hardship" of the criteria recognizes all regulations may cause some degree of hardship and discomfort in their application.

D. Variances should only be granted where the specific facts of the case indicate that the hardship is unnecessary when considering the purposes (policy basis) for which the specific standards were originally adopted.

E. Note that the shoreline jurisdiction area is not a setback requirement from which a variance can be issued. If a use is prohibited within a shoreline environment designation but allowed by the applicable zoning regulations, a variance cannot be used to reduce the 200 foot setback necessary to place the use where it is outside of SMA jurisdiction.
9.5.2 Cumulative Impacts
For all variance applications, consideration shall be given under the variance permit review process to the cumulative impact over time of granting additional permits for like actions in the area.

Determine if comparable developments were granted variances in the area where similar circumstances exist, the total of the developments must also be consistent with the SMA and must not produce substantial adverse effects to the shoreline environment.

If a significant number of variances are granted from the same provisions of the master program in similar circumstances it may be time to consider amending the master program.

Rule: WAC 173-27-170

9.6 Conditional Use Permit Procedures
1. A conditional use permit may be approved only upon a finding that:
   a. No reasonable alternative conforming use is practical; and the proposed use will be at least as consistent with the policies and provisions of the act and the master program and as compatible with the uses in the area as the preexisting use. In addition, conditions may be attached to the permit to assure compliance with the master program and to assure that the use will not become a nuisance or a hazard.
   b. Pre-existing Use
      i. If a shoreline development predates the SMA or a local SMP ("pre-existing uses") is consistent with the SMP, permits are only required if new substantial development is proposed. When the use consists of ongoing development activities, such as a gravel mine, the project requires an "active" (unexpired) shoreline substantial development permit throughout the life of the project. If the use of a pre-existing development is proposed to be changed the new use must be consistent with the SMP. If the proposed use is a conditional use in the master program then a conditional use permit is required whether or not new development is required to establish the use.
   c. Approved conditional use permits must comply with WAC 173-27-160, as follows. The purpose of a conditional use permit is to provide a system within the master program which allows flexibility in the application of use regulations in a manner consistent with the policies of RCW 90.58.020. In authorizing a conditional use, special conditions may be attached to the permit by local government or the department to prevent undesirable effects of the proposed use and/or to assure consistency of the project with the act and the local master program.
      i. Uses which are classified or set forth in the applicable master program as conditional uses may be authorized provided that the applicant demonstrates all of the following:
         1. That the proposed use is consistent with the policies of RCW 90.58.020 and the master program;
         2. (b) That the proposed use will not interfere with the normal public use of public shorelines;
         3. (c) That the proposed use of the site and design of the project is
compatible with other authorized uses within the area and with uses planned for the area under the comprehensive plan and shoreline master program;

4. (d) That the proposed use will cause no significant adverse effects to the shoreline environment in which it is to be located; and

5. (e) That the public interest suffers no substantial detrimental effect.

ii. In the granting of all conditional use permits, consideration shall be given to the cumulative impact of additional requests for like actions in the area. For example, if conditional use permits were granted for other developments in the area where similar circumstances exist, the total of the conditional uses shall also remain consistent with the policies of RCW 90.58.020 and shall not produce substantial adverse effects to the shoreline environment.

iii. Other uses which are not classified or set forth in the applicable master program may be authorized as conditional uses provided the applicant can demonstrate consistency with the requirements of this section and the requirements for conditional uses contained in the master program.

iv. Uses which are specifically prohibited by the master program may not be authorized pursuant to either subsection (1) or (2) of this section.

9.7 Nonconforming Development
9.7.1 Nonconforming Uses

A. Applicability.

A non-conforming use is a use or development proposal that was lawfully constructed or established but does not conform to present Shoreline Management Plan (SMP) requirements. These "grandfathered" developments may continue as long as they are not enlarged, intensified, increased, or altered in a way that increases the nonconformity. State rules for non-conforming uses (WAC 173-27-080) apply unless local governments have adopted different master program provisions.

B. Enlarging or expanding a nonconforming use:

A non-conforming use may be enlarged or expanded under very limited circumstances.

Nonconforming single-family residences that are located landward of the ordinary high water mark may be enlarged or expanded in conformance with the other applicable bulk and dimensional standards through the addition of space to the main structure or by the addition of normal appurtenances upon approval of a conditional use permit.

It is sometimes important to distinguish between a nonconforming structure with a conforming use and a nonconforming use. If a house is located in an environment that allows residential use but is closer to the water than the environment designation allows, it may be expanded as long as the expansion does not further intrude on the setback. A further intrusion may be authorized by a variance if the criteria can be met. Expansion of a structure that houses a nonconforming use cannot be authorized by these provisions or by variance.

If an existing use conforms with SMP use regulations but does not conform with SMP setback, height, or density requirements the use may be enlarged or expanded if the extent of non-conformity is not increased.
C. Approved variances. A structure for which a variance has been issued shall be considered a legal nonconforming structure and the requirements of this section shall apply as they apply to preexisting nonconformities.

D. Moving a nonconforming structure. A nonconforming structure which is moved any distance must be brought into conformance with the applicable master program and the act.

   i. Determining the age of a development

      a. Determining exactly when a development, such as a bulkhead, was initially built, can be a difficult task. While technically it is the applicant which must prove compliance with the regulation, the practical situation is that usually the local government must look into this to be sure of the situation.

      b. Evidence such as assessor's records, recorded deeds or other documents, historical photos, other permit records (e.g. building, HPA, short or long plat, etc.) or testimony from contractors, neighbors, officials, etc.) can be crucial in proving the date of construction or initial use.

E. Non-Conforming Uses and Conditional Use Permit

The criteria for allowing a Conditional Use Permit (CUP) in 173-27- (1604) prohibits approval of prohibited uses through a CUP. The purpose of the nonconforming use rule is to provide reasonable use of a legally existing non-conforming buildings when no more conforming use can be practically expected to make use of the structure. This is a very limited exception under very limited circumstances but is necessary to assure that regulations do not either overly compromise policy in order to accommodate some particular situation or overregulate and result in a "taking" of private property.

9.7.2. Abandoned Uses

Nonconforming uses are considered abandoned if they are discontinued for more than twelve consecutive months or for twelve months during any two year period. The "grandfathered" rights expire regardless of the owner's intent to abandon or not. Any subsequent use must conform to the requirements of the SMA and SMP.

Similarly, a nonconforming use may not be changed to another nonconforming use or moved any distance within the shorelines of the state.

If a nonconforming use is damaged to an extent not exceeding 75% replacement cost of the original structure, it may be reconstructed to those configurations existing immediately prior to the time the structure was damaged, so long as:

   A. The applicant applies for permits needed to restore the development within six months of the date the damage occurred;

   B. All permits are obtained; and

   C. The restoration is completed within two years of permit issuance.

9.7.3 Substandard Lots

A pre-existing lot or parcel that is substandard with respect to lot size or density requirements (of the underlying zoning and development codes) may be developed providing it meets the other requirements of the SMA and SMP.

A reasonable use of the property should be allowed based on the characteristics of the site. Easing of standards other than lot size or density, for example building setbacks, would require a variance permit. Typical situations of nonconforming developments are an old boat repair yard or industrial warehouse.
located in a conservancy environment, or a residence encroaching within established SMP setbacks.

9.7.4 Change of Use  
Changing uses of nonconforming structures requires a CUP. A structure which is being or has been used for a nonconforming use may be used for a different nonconforming use only upon the approval of a conditional use permit.

9.8 Categorical Exemptions  
SEPA categorical exemptions are not identical to the substantial development permit exemptions granted under the SMA.

Many small projects may be exempt from both SEPA and the SMA’s permit requirements, but this is not always true. These same projects may have regulatory restrictions under other permit approvals (Sanitation, Endangered Species, and Flood permitting).

The Town of Index should demonstrate compliance with SEPA by attaching a statement of categorical exemption to the permit submittal package. See RCW 43.21C and WAC 197-11-305 and 197-11-800.

9.9 Permit Process  
Submittal of a proposed action which requires a Town of Index Shoreline Substantial Development Permit, Shoreline Variance, or a Conditional Use approval will require review and approval by the Town Council (per Index Municipal Code, Chapter 14.14 IMC).

Based on the applicant’s submitted project definition, a Conditional Use Permit or Variance approval may be possible to issue without a Substantial Development Permit in some cases.

The Council will hold a public hearing on the proposals as required by IMC 14.14.

The findings (from the hearing) may include approval, approval with conditions, or denial of the application as presented. Any finding or decision can be appealed to the Index Town Council for final review and decision.

Any further appeals to a final Town of Index Council decision go to the State Shoreline Hearings Board.

All proposals which result in a finding or decision with approval as a Conditional Use or Variance will then require final approval by the State of Washington Department of Ecology (with a waiting and posting period additional to the previous periods).

A description of exempt projects, and shoreline application procedures and criteria, are discussed in this chapter.

“Development,” defined under the Shoreline Management Act, is:
Any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or other structures. This definition of development does not include dismantling or removing structures if there is no other associated development or redevelopment.
This definition indicates that the “development” regulated by the Shoreline Management Act includes
not only those activities that most people recognize as “development” (for example, improving a road
surface or building a structure), but also those activities that citizens may do around their own home
(for example, grading an area of riverfront to enhance their personal view of the river).

At the time of an initial development or permit inquiry or when a permit application is submitted, the
Town Clerk will advise and inform the applicant (to the extent possible) of all possible regulations and
statutes that may also be applicable to the proposal. The clerk will also make the applicant aware that
other jurisdictions or application requirements may be needed as the proposal is reviewed and better
defined.

The clerk will make it clear the final responsibility for complying with all statutes and regulations shall
rest with the applicant. The Town of Index will offer a pre-application meeting between the staff and
applicant at the applicant’s request.

Large proposals (commercial projects or projects involving working on the shoreline bank or within the
OHWM) require a mandatory preliminary meeting which includes invitation to all affected agencies
asking for early participation.

The pre-application meeting will provide an opportunity for information gathering about the proposal,
discuss the various regulations which may affect the proposal, and assess what questions need to be
answered in order to move forward with an application submittal.

Discussion at this meeting should include:
- Applicant explanation of the proposal in as finite detail as possible
- An explanation of the Town of Index process for review of projects within the Shoreline
- Projects connection with other applicable policies and regulations
- Expected timeline
- Presentation of available information (maps, studies, guidelines and other contacts)
- Exploration of possible mitigation (if determined mitigation MAY be needed)
- Suggestions of modifications to the project which would create a more shoreline oriented
  proposal (if possible).

Activities which may be proposed or occur within the regulated shoreline area: non-project actions (fairs
and festivities); picnics; sales and bonfires; disposal; spilling or releasing of regulated or hazardous waste
products; the commercial use of pesticides; or any activities within related wetlands may require
additional permits, review, or approvals which have not been specifically identified here.

In approving shoreline area development, the Town of Index shall ensure all new development will
maintain, enhance, or restore desirable shoreline features while ensuring no net loss of ecological
functions. To this end, the Town of Index Ordinances may prescribe project dimensions, location,
intensity of use, screening, and mitigation when determined to provide a higher level of protection then
adopted shoreline regulations.

In approving shoreline developments, the Town of Index shall consider the possibility of short and long
term adverse environmental impacts, as well as cumulative impacts.

The possibility of cumulative adverse impacts from all development (particularly the preferential effect
of allowing one development, which could generate or attract additional development) shall be assessed with each proposal. The Town shall identify possible significant short term, long term, and cumulative adverse environmental impacts and any project lacking appropriate mitigation shall be determined to be a sufficient reason for permit denial.

Permit exemption letters must be prepared for projects requiring Federal Rivers & Harbors Act §10 permits and/or Federal Clean Water Act §404 permits.

9.10 Washington State Department of Ecology Review
All shoreline permits acted upon locally, including those denied, shall be filed with the Department of Ecology after all local permit administrative appeals or reconsideration periods are complete and the permit documents are amended to incorporate any resulting changes. The Town will mail the permit using return receipt requested mail to the Department of Ecology regional office and the Office of the Attorney General. Projects that require both conditional use permits and/or variances shall be mailed simultaneously with any substantial development permits for the project. Ecology has final authority on all shoreline conditional use permits and shoreline variances approved by the Town, and filing shall be pursuant to the following procedures.

1. The permit and documentation of the final local decision will be mailed together with the complete permit application; a findings and conclusions letter; a permit data form (cover sheet); and applicable SEPA documents.

2. Consistent with RCW 90.58.140(6), the state’s Shorelines Hearings Board twenty-one (21) day appeal period starts with the day of filing, which is defined below:

3. For projects that only require a substantial development permit: the date that Ecology receives the Town’s decision.

4. For a conditional use permit or variance: the date that Ecology’s decision on the conditional use permit or variance is transmitted to the applicant and the Town.

5. For substantial development permits simultaneously mailed with a conditional use permit or variance to Ecology: the date that Ecology’s decision on the conditional use permit or variance is transmitted to the applicant and the Town.

9.11 Local Appeals
1. Refer to local appeals provisions in IMC Title 17.52.100.

9.12 Appeal to the State Shorelines Hearings Board
Any person aggrieved by the granting or denying of a substantial development permit, variance, or conditional use permit, or by the rescinding of a permit pursuant to the provisions of this Master Program, may seek review from the State of Washington Shorelines Hearing Board by filing a request for the same within thirty (30) days of the date of filing and by concurrently filing copies of such request with the Department of Ecology and the Attorney General's office. State Hearings Board regulations are provided in RCW 90.58.180 and Chapter 461-08 WAC. A copy of such appeal notice shall also be filed with the Index Town Shoreline Administrator.
9.13 Enforcement and Penalties
1. Refer to land use enforcement provisions in IMC Title 17.52.120.

9.14 Master Program Review
The Town will track all shoreline permits and exemption activities to evaluate whether the Master Program is achieving not net loss. A no net loss report shall be prepared every eight (8) years as part of the Town’s Shoreline Master Program periodic review or Comprehensive Plan Amendment process. Amendments to this Master Program shall be made as are necessary to reflect changing local circumstances, new information or improved data, changes to the Town’s Comprehensive Plan and development regulations, and changes in State statutes and rules. Any changes in the 100-year floodplain boundaries as defined and adopted by FEMA should be incorporated into the Index shoreline jurisdiction maps. This review process shall be consistent with the requirements of WAC 173-19 or its successor and shall include a local citizen involvement effort and public hearing to obtain the views and comments of the public.

During the Master Program review, the cumulative effects of all project review actions in shoreline areas will be evaluated.

9.15 Amendments to the Master Program
Any amendments to this Master Program shall be made in accordance with WAC 173-26, using either the standard local process or the optional joint review process. Proposed amendments shall be reviewed by the Town Council, which may hold at least one (1) public hearing before making a determination. Amendments to the Master Program, as provided by law, are subject to Ecology final approval, and become effective 14 days from the Department of Ecology’s written notice of final action.

9.16 Severability
If any provision of this Master Program, or its application to any person or legal entity or parcel of land or circumstances, is held invalid, the remainder of the Master Program, or the application of the provisions to other persons or legal entities or parcels of land or circumstances, shall not be affected.

9.17 Conflict of Provisions
Should a conflict occur between the provisions of this SMP or between this SMP and the laws, regulations, codes or rules promulgated by any other authority having jurisdiction within the Town, the most restrictive requirement shall be applied, except when constrained by federal or state law, or where specifically provided otherwise in this SMP.
10. Definitions

10.1 Purpose

A. The purpose of this chapter is to define the words and terms used in this Program. Definitions denoted with (1) are from the existing Town of Index municipal code. Definitions denoted with (2) are from WAC 173-26, -22, or -27 or RCW 90.58.020. Definitions denoted with (3) are derived from other sources or represent the best professional judgment of the authors.

10.2 Unlisted Words and Phrases

A. The definition of any word or phrase not listed in this SMP which is in question when administering this regulation shall be defined from one of the following sources which are incorporated herein by reference. Said sources shall be utilized by finding the desired definition from source number one, but if it is not available there, then source number two may be used and so on. The sources are as follows:
   I. Town development regulations;
   II. Any Town resolution, ordinance, code or regulations;
   III. Any statute or regulation of the state of Washington (i.e., the most applicable);
   IV. Legal definitions from case law or a law dictionary; and
   V. The common dictionary.

10.3 Definitions

1. **Abandon** – To terminate the use of a structure by an affirmative act, such as changing to a new use; or to cease, terminate, or vacate a use or structure through non-action for a period exceeding six months.
2. **Accessory use** – A use, activity, structure or part of a structure which is subordinate and incidental to the main activity or structure on the subject property.
3. **Accessory structure** – A detached, subordinate structure, the use of which is clearly incidental and related to that of the principal structure or use of the land, and which is located on the same lot or adjacent lot as that of the principal structure consistent with this Program.
5. **Alteration** – Any human activity that results or is likely to result in an impact upon the existing condition of a shoreline, including but not limited to grading, filling, dredging, ditching, draining, channelizing, applying herbicides or pesticides or any hazardous substance, discharging pollutants except stormwater, grazing domestic animals, paving, constructing, applying gravel, modifying for surface water management purposes, and other human activity that results or is likely to result in an impact to existent hydrology, fish or wildlife, or fish or wildlife habitat. Alterations do not include walking, fishing, or any other passive recreation or other similar activities.
6. **Amendment** – A revision, update, addition, deletion, and/or re-enactment to the Index SMP.
7. **Appurtenance** – A structure or development which is necessarily connected to the use and enjoyment of a single-family residence. “Normal appurtenance” means a garage, boat house, deck, driveway, utilities, and fences, and grading which does not exceed 250 cubic yards (WAC 173-14-040 (1)(g) or its successor). Appurtenances must be landward of the ordinary high water mark (OHWM).
8. **Aquaculture** – The culture or farming of fish, shellfish, or other aquatic plants and animals. Aquaculture does not include the harvest of wild geoduck associated with the state managed wildstock geoduck fishery.
9. **Armoring** – The practice of using physical structures to protect shorelines from coastal erosion.
10. **Associated wetlands** – Those wetlands which are in proximity to and either influence or are influenced by tidal waters or a lake or stream subject to the Shoreline Management Act.

11. **Best management practices** – The physical, structural, and/or managerial practices that have been approved by Town of Index, and that when used singly or in combination, provide the most effective means of preventing or reducing pollution of water or other undesirable effects.

12. **Bioengineering** – Project designs or construction methods which use live woody vegetation or a combination of live woody vegetation and specially developed natural or synthetic materials to establish a complex root grid within the existing bank which is resistant to erosion, provides bank stability, and maintains a healthy riparian environment with habitat features important to fish life. Use of wood structures or limited use of clean angular rock may be allowable to provide stability for establishment of the vegetation.

13. **Boating facilities** – Backshore and foreshore facilities, dry storage and wet storage uses, all boat launch ramps (natural and built), any covered moorage developed in the shoreline area, development created for the use or storage of “boats” which may include kayaks, rafts canoes and other “boats.”

14. **Channel Migration Zone** – The area along a river within which the channel(s) can be reasonably predicted to migrate over time as a result of natural and normally occurring hydrological and related processes when considered with the characteristics of the river and its surroundings.

15. **Clearing** – The limbing, pruning, trimming, topping, cutting or removal of vegetation or other organic plant matter by physical, mechanical, chemical, or any other means.

16. **Commercial use** – An occupation, employment or enterprise that is carried on for profit by the owner, lessee or licensee in a building which serves dual purpose.

17. **Commercial development** – An occupation, employment or enterprise that is carried on for profit by the owner, lessee or licensee as the sole use of the building, land or site.

18. **Compatible** – Those uses or activities capable of existing together or in the vicinity of one another without disharmony or without generating effects or impacts which are disruptive to the normal use and enjoyment of surrounding property.

19. **Conservation** – The prudent management of rivers, streams, wetlands, wildlife and other environmental resources in order to preserve and protect them. This includes the careful use of natural resources to prevent depletion or harm to the environment.

20. **Conditional use** – A use, development, or substantial development which is classified as a conditional use or is not classified within the master program.


22. **Dangerous agricultural chemicals** – Herbicides and pesticides as used in IMC 8.12.

23. **Development** – Any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or other structures. This definition of development does not include dismantling or removing structures if there is no other associated development or redevelopment.

24. **Development regulations** – The controls placed on development or land uses by a county or Town, including, but not limited to, zoning ordinances, critical areas ordinances, all portions of a shoreline master program other than goals and policies approved or adopted under chapter 90.58 RCW, planned unit development ordinances, subdivision ordinances, and binding site plan ordinances together with any amendments thereto.

25. **Development standards** – Regulations including but not limited to, setbacks, landscaping, screening, height, site coverage, signs, building layout, drainage, parking and site design and related features of land use.

26. **Dredging** – The removal of material from the bottom of a stream, river or other water body.

27. **Functions** – The processes or attributes provided by areas of the landscape (e.g., wetlands,
rivers, streams, and riparian areas) including, but not limited to, habitat diversity and food chain support for fish and wildlife, groundwater recharge and discharge, high primary productivity, low flow stream water contribution, sediment stabilization and erosion control, storm and floodwater attenuation and flood peak desynchronization, and water quality enhancement through biofiltration and retention of sediments, nutrients, and toxicants. These beneficial roles are not listed in order of priority. These are also referred to as ecological functions or shoreline functions; see WAC 173-26-200(2)(c).

28. **Excavation** – The mechanical removal of earth material.

29. **Exempt development** – Those uses, developments or activities which are not required to obtain a substantial development permit under RCW 90.58.030(3)(e) and WAC 173-27-040, but which must otherwise comply with applicable provisions of the Act and this Master Program.

30. **Feasible** – When an action, such as a development project, mitigation, or preservation requirement, meets all of the following conditions:
   a. The action can be accomplished with technologies and methods that have been used in the past in similar circumstances, or studies or tests have demonstrated in similar circumstances that such approaches are currently available and likely to achieve the intended results;
   b. The action provides a reasonable likelihood of achieving its intended purpose; and
   c. The action does not physically preclude achieving the project's primary intended legal use.

31. **Fill** – The addition of soil, sand, rock, gravel, sediment, earth retaining structure, or other earthen material to an area waterward of the OHWM, in wetlands, or on shorelands in a manner that raises the elevation or creates dry land.

32. **Fill material** – Any solid or semi-solid material, including rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mining or other excavation activities, and materials used to create any structure or infrastructure, that when placed, changes the grade or elevation of the receiving site.

33. **Flood hazard reduction activities** – Actions taken to reduce flood damage or hazards, which may consist of nonstructural or indirect measures, such as setbacks, land use controls, wetland restoration, dike removal, use relocation, bioengineering measures, and storm water management programs; and of structural measures, such as dikes, levees, and floodwalls intended to contain flow within the channel, channel realignment, and elevation of structures consistent with the National Flood Insurance Program.

34. **Floodplain** – The total land area adjoining a river, stream, watercourse, or lake subject to inundation by the base flood.

35. **Floodway** – The area, as identified in a master program, that has been established in effective Federal Emergency Management Agency Flood Insurance Rate Maps (FIRM) or floodway maps. The floodway does not include lands that can reasonably be expected to be protected from flood waters by flood control devices maintained by or maintained under license from the federal government, the state, or a political subdivision of the state.

36. **Forest harvest** – The work or business of felling and trimming trees, including various uses of felled material or transporting the logs to a mill.

37. **Geotechnical report or Geotechnical analysis** – A scientific study or evaluation conducted by a qualified expert that includes a description of the ground and surface hydrology and geology, the affected land form and its susceptibility to mass wasting, erosion, and other geologic hazards or processes, conclusions and recommendations regarding the effect of the proposed development on geologic conditions, the adequacy of the site to be developed, the impacts of the proposed development, alternative approaches to the proposed development, and
measures to mitigate potential site-specific and cumulative geological and hydrological impacts of the proposed development, including the potential adverse impacts to adjacent and down-current properties. Geotechnical reports shall conform to accepted technical standards and must be prepared by qualified professional engineers or geologists who have professional expertise about the regional and local shoreline geology and processes.

38. **Grade** – The vertical elevation of the ground surface.

39. **Guidelines** – Those standards adopted by the Department of Ecology to implement the policy of chapter 90.58 RCW for regulation of use of the shorelines of the state prior to adoption of master programs. Such standards shall also provide criteria for local governments and the department in developing and amending master programs.

40. **Habitat improvement** – Any actions taken to intentionally improve the overall processes, functions and values of critical habitats, including wetland, stream and aquatic habitats. Such actions may or may not be in conjunction with a specific development proposal and include, but are not limited to, restoration, creation, enhancement, preservation, acquisition, maintenance and monitoring.

41. **Hearings Board** – The State Shorelines Hearings Board established by the Shoreline Management Act of 1971.

42. **Height** – Measured from average grade level to the highest point of a structure, provided that television antennas, chimneys, and similar appurtenances shall not be used in calculating height, except where such appurtenances obstruct the view of the shoreline of a substantial number of residences on areas adjoining such shorelines, or the applicable master program specifically requires that such appurtenances be included; provided further that temporary construction equipment is excluded from this calculation.

43. **Impervious surface** – A hard surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development or that causes water to run off the surface in greater quantities or at an increased rate of flow compared to natural conditions prior to development. Common impervious surfaces may include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled macadam or other surfaces which similarly impede the natural infiltration of stormwater. Impervious surfaces do not include surface created through proven low impact development techniques.

44. **Industrial development** – Used to describe a specific business activity as well as a more generic business (e.g., consumer durables). In this context, industrial development denotes those business which produce commodities on a scale exceeding what would typify a “cottage” business.

45. **Institutional use** – A use serving a public or quasi-public function for the community, such as Town Hall, the fire station, or a museum.

46. **Instream structure** – A manmade structure within a stream waterward of the ordinary high-water mark that either causes or has the potential to cause water impoundment or the diversion, obstruction, or modification of water flow. Instream structures may include those for hydroelectric generation, irrigation, water supply, flood control, transportation, utility service transmission, fish habitat enhancement, or other purpose.

47. **Landfill** – A place to dispose of refuse and other waste material by burying it and covering it over with soil, even as a method of filling in or extending usable land.

48. **Lot** – A physically separate and distinct parcel of property, which has been created pursuant to the provisions of these regulations; a fractional part of divided lands having fixed boundaries, being of sufficient area and dimension to meet minimum zoning requirements for width and area. The term shall include tracts or parcels.
49. **Master Program** – The comprehensive shoreline master program for the Town of Index, including the use regulations together with maps, diagrams, charts or other descriptive material and text.

50. **May** – The action is acceptable, provided it conforms to the provisions of WAC 173-26 and this Program.

51. **Mining** – The process or industry of excavation and obtaining rock, minerals of other materials from the earth.

52. **Mitigation** – Individual actions that may include a combination of the following measures, listed in order of preference:
   a. Avoiding an impact altogether by not taking a certain action or parts of actions;
   b. Minimizing impacts by limiting the degree or magnitude of an action and its implementation;
   c. Rectifying impacts by repairing, rehabilitating, or restoring the affected environment;
   d. Reducing or eliminating an impact over time by preservation and maintenance operations during the life of the action;
   e. Compensating for an impact by replacing or providing substitute resources or environments; and
   f. Monitoring the mitigation and taking remedial action when necessary.

53. **Must** – A mandate; the action is required.

54. **Native shoreline vegetation** – Vegetation composed of plant species, other than noxious weeds, which are indigenous to Pacific Northwest lowlands and that reasonably could have been expected to naturally occur on the site.

55. **No net loss** – A standard intended to ensure that shoreline development or uses, whether permitted or exempt, are located and designed to avoid loss or degradation of shoreline ecological functions. The standard is met when proposed uses or developments are in compliance with the provisions of this master program. In cases where unavoidable loss results from allowed uses or developments, the standard is met through appropriate mitigation, consistent with the provisions of this master program.

56. **Nonconformance** – Any use, improvement or structure established in conformance with the rules and regulations in effect at the time of establishment that no longer conforms to the range of uses permitted in the site's current zone or to the current development standards of these regulations due to the change in the code or its application to the subject property.

57. **Non-water-oriented use** – Any use that does not meet the definition of a water-dependent, water-related, or water-enjoyment use. Examples include professional offices, automobile sales or repair shops, mini-storage facilities, department stores, and gas stations.

58. **Normal maintenance or repair** – Interior and exterior repairs and incidental alterations, including but not limited to painting, roof repair and replacement, plumbing, wiring and electrical systems, mechanical equipment replacement and weatherization. Incidental alterations may include construction of nonbearing walls or partitions.

59. **Ordinary High Water Mark (OHWM)** – That mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that condition exists on June 1, 1971, as it may naturally change thereafter, or as it may change hereafter in accordance with permits issued by the Town or the Department of Ecology. On a site-specific basis, the Department of Ecology has the final authority on determining where the ordinary high water mark is located.

60. **Permanent structure** – A structure constructed with the intention to remain for an indefinite period of time.
61. **Permit** – Any substantial development, variance, conditional use permit, or revision authorized under chapter 90.58 RCW.

62. **Planning Director** – The Mayor of the Town of Index or his/her designee.

63. **Preferred shoreline use** – Identified in the Act as a use that is unique to or dependent upon a shoreline location. Water-dependent, water-related, and water-enjoyment uses are preferred shoreline uses. Single-family residential development is also a preferred use.

64. **Prohibited** – Those developments and uses viewed as inconsistent with the definition, policies or intent of the shoreline environment designation. For the purposes of this program, these uses are not considered appropriate and are not allowed, including by Conditional Use or Variance.

65. **Provisions** – Policies, regulations, standards, guidelines, criteria, or environment designations.

66. **Public access** – The public’s ability to view, get to and/or use the State’s public waters, the water/land interface and associated public shoreline area. It includes physical access that is either lateral (areas paralleling the shore) or perpendicular (an easement or public corridor to the shore), and/or visual access facilitated by scenic roads and overlooks, viewing towers and other public sites or facilities.

67. **Primary structure** – The structure associated with the principal use of the property. If more than one structure is associated with the principal use of the property, the one with the highest assessed value shall be considered the primary structure.

68. **Recreational development** – Development that serves commercial or noncommercial recreational uses on public or private land.

69. **Restoration** – The reestablishment or upgrading of impaired ecological processes or functions. This may be accomplished through measures including, but not limited to, re-vegetation, removal of intrusive shoreline structures and removal or treatment of toxic materials. Restoration does not imply a requirement for returning the shoreline area to aboriginal or pre-European settlement conditions.

70. **Riprap** – Broken stone placed on shoulders, banks, slopes, or other such places to protect them from erosion.

71. **Sediment** – Material settled from suspension in a liquid medium.

72. **Setback** – The required minimum horizontal distance between the building line and the related front, side or rear property line.

73. **Shall** – A mandate; the action must be done.

74. **Shoreline armoring or Structural shoreline armoring** – Bulkheads, riprap and similar hard structures installed along the shore to stabilize the bank and prevent erosion. See Shoreline stabilization.

75. **Shorelands or Shoreland areas** – Those lands extending landward for two hundred feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward two hundred feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and river waters which are subject to the provisions of this chapter; the same to be designated as to location by the Department of Ecology.

76. **Shorelines** – All of the water areas of the state, including reservoirs, and their associated shorelands, together with the lands underlying them; except
   a. Shorelines of statewide significance;
   b. Shorelines on segments of streams upstream of a point where the mean annual flow is twenty cubic feet per second or less and the wetlands associated with such upstream segments; and
   c. Shorelines on lakes less than twenty acres in size and wetlands associated with such small lakes.
77. **Shorelines of the state** – The total of all ‘shorelines’ within the Town of Index.

78. **Shoreline buffer** – The critical areas buffers assigned to shorelines of the state, including the North Fork Skykomish River. Buffers include an area contiguous to and required for protection of critical areas and shorelines.

79. **Shoreline stabilization** – Actions taken to prevent or mitigate erosion impacts to property, dwellings, businesses, or structures caused by natural shoreline processes such as currents, floods, tides, wind or wave action. Shoreline stabilization includes structural armoring approaches such as bulkheads and revetments, nonstructural approaches such as bio-engineering, and enlargement of existing structures.

80. **Should** – The particular action is required unless there is a demonstrated, compelling reason, based on policy of the Shoreline Management Act and this Program, against taking the action.

81. **Soft-shore bank stabilization** – See Bioengineering.

82. **Substantial development** – Any development with a total cost or fair market value of seven thousand forty-seven dollars ($7,047.00) or more that requires a shoreline substantial development permit. The threshold total cost or fair market value of $7,047.00 is set by the state office of financial management and may be adjusted in the future pursuant to SMA requirements, as defined in RCW 90.58.030(3)(e) as now or hereafter amended.

83. **Town** – The Town of Index.

84. **Transportation facility** – A facility whose primary purpose is the movement and circulation of people, goods, and services. This includes but is not limited to public roads, rails, parking areas, non-motorized travel corridors, trails, and similar features. It does not include driveways that are appurtenant to single family sites.

85. **Use** – The activity taking place within the building or property under jurisdictional review.

86. **Utilities** – Facilities which produce, store, collect, treat, carry, discharge, or transmit electric power, water, storm drainage, gas, sewage, reclaimed water, communications, or other public services. Accessory utility facilities are those associated with delivery of such public services to support individual uses and developments, such as distribution or service lines.

87. **Variance, shoreline** – A type of shoreline permit intended to grant relief from the specific bulk, dimensional, or performance standards set forth in this Program and not a means to vary a use of the shoreline.

88. **Vegetation conservation** – Activities to protect, enhance or and native vegetation along or near shorelines to minimize habitat loss, infestations of invasive plants, and erosion and flooding and therefore contribute to the ecological functions of shoreline areas.

89. **Water-dependent use** – A use or portion of a use which requires direct contact with the water and which cannot exist in any other location and are dependent on the water by reason of the intrinsic nature of the operation. Ferry terminals, public fishing piers, and marinas are examples of water-dependent uses. Residential development is not a water-dependent use but is a preferred use of shorelines of the state.

90. **Water enjoyment use** – A use that provides for recreation involving the water or facilitates public access to the shoreline as the primary characteristic of the use, or a use which provides for aesthetic enjoyment of the shoreline for a substantial number of people as a general characteristic of the use and, through location, design and operation assures the public’s ability to enjoy the physical and aesthetic qualities of the shoreline. To qualify as water enjoyment, a use must be open to the general public and the waterward side of the project must be devoted to provisions that accommodate public enjoyment, and the project must meet the Shoreline Master Program public access requirements. Some examples of primary water-enjoyment uses include viewing towers, parks, and educational/scientific reserves. General water-enjoyment uses may include but are not limited to restaurants, museums, aquariums, scientific/ecological
reserves, resorts and mixed-use commercial, provided that such uses conform to the above water-enjoyment specifications and the provisions of the master program.

91. **Water-oriented use** – Any water-dependent, water-related, or water enjoyment use.

92. **Water-related use** – A use or portion of a use which is not intrinsically dependent on a waterfront location but whose economic viability is dependent upon a waterfront location because:
   
   a. The use has a functional requirement for a waterfront location such as the arrival or shipment of materials by water or the need for large quantities of water; or
   
   b. The use provides a necessary service supportive of the water-dependent uses and the proximity of the use to its customers makes its services less expensive and/or more convenient.

Examples of water-related uses may include warehousing of goods transported by water, seafood processing plants, hydroelectric generating plants, gravel storage when transported by barge, oil refineries where transport is by tanker and log storage.

93. **Water quality** – The physical chemical, aesthetic, and biological characteristics of water.

94. **Wetlands** – Those areas, designated in accordance with the Washington State Wetland Identification and Delineation Manual (1997), that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. The Town of Index has a map showing the approximate location and extent of wetlands. However, the map is only a guide, and will be updated as wetlands become better known. The exact location of a wetland’s boundary shall be determined in accordance with the above-stated manual as required by RCW 36.70A.175.
Appendix A. Shoreline Characterization Study

A.1 Background
This study was presented to the Department of Ecology in compliance with DOE Grant #G1000068.

The Shoreline Master Program will provide, in conjunction with the following ordinances, mandates, and regulations, a means for planning and management of the shoreline area within the Town of Index:

- Endangered Species Act
- Town of Index Flood Hazard Ordinances
- Town of Index Comprehensive Plan
- Town of Index Zoning Ordinance
- Town of Index and Snohomish County Natural Hazard Mitigation Plan
- Snohomish County Watershed Planning
- Growth Management Act
- Washington State Water Pollution Control Act
- Washington State Salmon Recovery Planning
- Federal Clean Water Act (401 & 404)
- National Pollutant Discharge Elimination System (NPDES)

The State of Washington Shoreline Guidelines require individual SMPs to protect the shoreline natural resources by protecting the ecological functions necessary to sustain those natural resources. SMP’s must also ensure “no net loss” of shoreline ecological functions.

This report provides a summary of existing conditions that will form the baseline from which the Town may measure “no net loss” of ecological functions during the review and approval of development permits and for use in long-term planning.

This SMP includes a set of maps, which define and describe the shoreline within the Town of Index’s jurisdiction in a visual format to accompany the written document.

The Town of Index regulates activities related to shoreline management with the following municipal codes:

- Title 17, Zoning, Building & Land Use
- Title 16, Environment, SEPA
- Title 15, Floodplain
- Title 14, Permit Processing
- Title 8, Health and Safety
- Public Services (Sanitation)

The Town of Index has shoreline jurisdiction of approximately one mile on the north bank of the North Fork Skykomish River at river miles 0.97 to 1.12.

The central assumption to this characterization approach is to define the health of aquatic resources, which are dependent upon an overall intact watershed process. Scientific studies have shown that watershed processes interact with landscape features, climate, and each other, to produce the structure
and functions of the aquatic ecosystems which society is interested in protecting. Research indicates that protection, management, and regulatory activities can be successful if incorporated with an understanding of the overall watershed process.

The purpose of the Shoreline Management Act (SMA) is for the “protection against adverse effects to the public health, the land, and its vegetation and wildlife, and the waters of the state and their aquatic life, while protecting generally public rights of navigation and corollary rights incidental thereto.” Shoreline Guidelines require that individual shoreline master programs (SMP’s) protect and sustain the natural resources of shorelines by safeguarding necessary ecological functions.

The Shoreline Master Plan Toolbox Guidelines identify three main steps in characterizing shorelines:

1. Identify the ecosystem-wide processes and functions.

2. Assess the ecosystem-wide processes to determine which ecological functions are present within the jurisdiction and identify which functions are healthy, which have been significantly altered or adversely impacted, and which functions may have previously existed and are now missing.

3. Identify specific measures necessary to protect or restore processes and functions. Characterization may be accomplished by using an existing regional environmental management plan, available scientific and technical information, and/or a characterization approach that is greater in scope or complexity. (WAC 173-26-201(3)). Shoreline ecological functions analyzed in the characterization can include, but are not limited to, hydrologic functions, shoreline vegetation, hyporheic functions, and habitat. Characterization of these functions is tailored to the type of shoreline: rivers, lakes, marine, associated wetlands and floodplains.

The overall condition of the shoreline is determined by the following ecosystem processes and functions:

- Distribution, diversity and complexity of the shoreline environments
- Spatial and temporal connectivity within the shoreline area and other critical areas
- Physical framework of the aquatic system within the shoreline and related shoreline area
- Timing, volume, and distribution of woody debris within the channel
- Distribution, diversity and complexity of the watersheds and shoreline environments
- Spatial and temporal connectivity within and between watersheds and shorelines
- Physical framework of the aquatic system
- Timing, volume, and distribution of woody debris
- Water quality
- Sediment regime
- Range of flow variability
- Species composition and structural diversity of plant communities (WAC 173-26-201(3)(d))

A.2 Location and Population
The Town of Index is located along the north bank of the North Fork Skykomish River approximately seven miles east of Gold Bar, Washington and close to the southeastern border of Snohomish County. The Town is situated between river miles 0.97 to 1.12.
Index is surrounded by the Cascade Mountain Range on all sides and has a total land area of 0.2 square miles (0.7 km²).

**A. Existing Population**
The 2010 US census for the Town of Index shows a population of is 165 persons with 71% residing within the Shoreline jurisdictional area.

**B. Future Population**
In the population study completed in 2012, Snohomish County anticipated that, by the year 2025, the County population would increase from 217,700 to 351,400 persons with a target range for Index to be an additional 48 people.

The Town of Index Comprehensive Plan anticipates that most of the future population will be accommodated within the existing housing stock (temporary, rental and vacation) with some growth coming from new development. Less than 10 lots within the designated shoreline are vacant buildable lots.

**A.3 Future Land Use**
The Snohomish County General Policy Plan contains the goals, policies and future land use designations, and is used as reference for the Town of Index. The County-adopted Future Land Use Map maintains a predominance of Urban Low Density Residential in UGAs and Rural Residential and Resource lands outside of UGAs.

The Town of Index Shoreline jurisdiction area is the north shoreline of the North Fork Skykomish River from the western to eastern limits of the Towns limits (approximately ten blocks or about one mile) found approximately one mile east of the confluence with the South Fork Skykomish River (River Mile (RM) 0.97). See Map Town of Index Jurisdiction.

Future Land Use maps and information are provided by Snohomish County.

**A.4 Physiography**

**A. Topography**
The general topography of Snohomish County is a landscape of highly variable land forms ranging from rolling lowlands at sea-level (adjacent to Puget Sound) to plateaus and river valleys, and then on to peaks as high as 10,541 feet (Glacier Peak) in the Cascade Mountains along the eastern edge of the County.

Western Snohomish County generally consists of a series of glacially formed plateaus bisected by major rivers that drain from the Cascade Mountains into Puget Sound (Jones and Stokes 2004). The Town of Index lies at the base of the Cascade Foothills at about 520 feet elevation.

The topography of the Town of Index creates a variable map from the river edge of the main channel and the adjacent development to the elevations within the “Town Wall” system which are approximately 900’ above sea level.

Map Topo shows topographic relief of the area.
B. Drainage Patterns

All land within Snohomish County drains from east to west, except for some streams in WRIAs 8 and 9. The flows go to the Puget Sound through four major river systems and smaller coastal streams that are part of five Water Resource Inventory Areas (WRIAs) identified by Washington State.

The headwaters of the Skykomish River originate within the boundaries of the Mount Baker-Snoqualmie National Forest. The Skykomish/Snohomish River watershed (WRIA 7) is the largest river system in the County; together draining 1,856 square miles of the southeastern and central portions of Snohomish and northern King County into Possession Sound near Everett.

Typically, within the Town of Index, the drainage is from east to west along the main development portion of town including the river system itself.

The North Fork Skykomish is part of the Skykomish system which is within the Snohomish River watershed (WRIA 7).

Map East County shows the drainage patterns.

C. Geology

The geology of western Snohomish County consists of bedrock overlain by glacial sediments left by the advance and retreat of glaciers. More recently sand and gravel deposits (alluvium) were laid down by modern rivers.

Much of the geology of Snohomish County and the Puget Sound was formed by the advance and retreat of glaciers south from British Columbia beginning in the Pleistocene era and ending 13,500 to 15,000 years ago. During the last period of glaciation, the Vashon Glacier deposited large quantities of rock and sediment in compositions called advance outwash, glacial till, and recessional outwash.

Bedrock consisting of older sedimentary, volcanic and intrusive–igneous rocks underlies the glacial sediments and is commonly found near the surface in the eastern portion of the county (Jones and Stokes 2004).

Studies in this type of riverine environment have indicated that main channel and tributary water quality can deteriorate when development build-out is attained, in part due to increases of added sediment and phosphorous loads from sheet flow through developed areas.

Map SOILS, Erodible shows erodible geology in the east county area.

The Town of Index is primarily defined as containing soils from the Tokul-Pastik series (moderately deep, well-drained soils on till plains and terraces).

See General Soil Map of Snohomish County, WA, US Department of Agriculture Soil Conservation Service for more detailed information.

 Portions of this area also include soils from the Puget-Sultan-Pilchuck series that are nearly level, poorly to well-drained soils found on floodplains. These soils were formed in alluvium,
from sediments laid down by rivers. Most of the rivers in this basin, as well as those that fall within this shoreline jurisdiction, are in this category.

In some areas the Alderwood-Everett and Tokul-Pastik soil types overlay Vashon Till, with a very dense, cohesive and unstored mixture of sand, silt, clay, and gravel compacted under the weight of glacial ice. The glacial till acts as an infiltration barrier that can result in a seasonally high water table and lateral subsurface flows atop the till layer. Where the till layer intersects or is near steep slopes, water flowing atop the till layer can create erosion and landslide problems (Jones and Stokes 2004).

Soil types are described in Appendix Snohomish County Soil Survey, and shown on Map “SOILS, Local.”

A.5 Climate
The Town of Index, as in the County overall, has a typically mild maritime- influenced climate with cool, wet winters and mild summers. Precipitation is strongly influenced by the Cascade Mountains and is therefore highly variable, ranging from sixty inches to more than 135 inches per year. See Maps.

A.6 Data Collection and Assessment

A. Literature and Map Inventory
Based on the inventory requirements of WAC 197-26-201(3)(c), the Town of Index collected documents and data that show or characterize existing conditions within the regulated shoreline area of the Town of Index (approximately one mile of the north bank of the North Fork Skykomish River) between RM 1 and 2.

The Town of Index attempted to collect all relevant material that could provide information or background for assessment of historical and existing conditions within the shoreline area. Documents reviewed also provided data and discussion addressing indicators which could be used in determining the relative health of ecological functions as described in WAC 173-26-201(3)(d)(i)(C). The information collected is further described in the bibliography and related tables, and visually defined on a series of maps.

All the collected data is available in several formats for review and use by the public. All inventory materials are found on CD-ROM and in Appendices A, B, and C.

B. Jurisdiction
The definition of the jurisdictional shoreline is set by the Town of Index incorporated limits and the equivalent GMA jurisdiction.

See Town of Index jurisdictional map.

C. Shoreline Planning Segments
Shoreline planning segments were established and defined by the Town of Index. Segments relate to the shoreline’s linear landscape, establishing contiguous sections, which contain similar environmental conditions or use history.

Complete data is not available, consistently and uniformly, for all of the defined indicators or for all
the segments that are within the Town of Index jurisdictional area. The Town has attempted to
provide as complete and detailed an account as possible using local information combined with the
relevant agency and published data that has been collected.
See segment definition in Maps

The Planning and Inventory segments are defined throughout this SMP document as segments A
through E. The discussion for characterization will, generally, refer to the one mile of shoreline as a
single unit (though some of the collected data collected is based on a system wide assessment over
more than nine miles of river both up- and downflow from the Town of Index).

The North Fork Skykomish River is defined, throughout all the reviewed documents, based on the
conditions as they appeared and were measured within the general area of the Town of Index; both
up- and downriver (a general area of over nine miles). Specific details in the characterization may
not strictly apply to any one area found along the north bank of the river within the Town’s one mile
of jurisdiction. The general assessments, most collected by others over a wide span of time, may
not accurately assess all conditions as they are found today within the Town’s jurisdiction.

The Town of Index has added anecdotal details, where that detail is viable, available, and relevant.
The Town review has determined the published assessments and characterizations are adequate
enough to complete the SMP.

The assessment attempts to clearly define the Town’s boundaries, shoreline structures, habitat and
use of the channel and shoreline, and conditions of existing vegetation and any associated critical
areas. There are no lakes or marine environments within the Town of Index jurisdiction. The small
streams and wetlands, which coincide with the SMP area, have been categorized and defined to the
extent possible with the materials available.

Rivers and Streams · Existing EDT (Ecosystem Diagnosis and Treatment) model reaches were created
by Snohomish County Surface Water Management Department. These are based on confinement,
gradient, and other channel characteristics.

D. Data Collection
Town of Index Council members, Planning Commission members, volunteers, and staff reviewed air
photos and inventory maps for each planning segment, adding data that could be additionally
verified in order to establish the planning area, the segments, and to address the existing conditions.

E. Restoration Opportunities
The Town of Index SMP planning group (still in process) is creating a list of restoration project types.
The types will be based on existing planning issues, ownership, and viability in regards to funding.

The condition or value of an area can be determined by estimating the degree to which a function is
intact or impaired. This can be done either quantitatively (measuring a number or amount) or
qualitatively (ranking from low to high using a variety of measurements or estimates, including the
best professional judgment of the person doing the ranking).

The manner in which an area is managed can affect the extent and costs of damages
that regional processes cause, as well as the ability for habitats and people to recover from an event
A.7 Management and Planning
A.7.1 Watershed Planning
The Town of Index is a partner in the regional salmon recovery planning initiative known as the “Shared Strategy for Puget Sound”. The Shared Strategy initiative includes fourteen watershed salmon recovery planning groups, federal, state, and local governments, as well as private business and interest groups.

The goal of the Shared Strategy is to create a regional salmon recovery plan that builds from the individual plans of the fourteen Puget Sound Watersheds.” Snohomish County is the lead entity for the planning efforts in the Stillaguamish (WRIA 5) and Snohomish (WRIA 7) Basins.

A.7.2 Endangered Species Act
There are eleven federal and state listed threatened and endangered wildlife species known or presumed to be within Snohomish County. They include the orca whale, spotted owl, grey wolf, grizzly bear, Oregon spotted frog, sandhill crane, bald eagle, marbled murrelet, bull trout, and Chinook salmon.

Within the Town of Index, wildlife species that have been identified include the spotted owl, bald eagle, bull trout, and Chinook salmon (Puget Sound). The most commonly seen species are the ESA listed fish species and the bald eagle. Bald eagles are predominantly found along the shore of the North Fork Skykomish in the late fall and winter when salmon migration is active within the river system.

A.7.3 Riparian Management
A riparian management zone is the area within the shoreline environment setback. These setbacks are measured landward from the ordinary high water mark (OHWM) or floodway, whichever is more inclusive, and are as follows:

<table>
<thead>
<tr>
<th>Town of Index Urban Residential</th>
<th>10 feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town of Index Undeveloped Shoreline</td>
<td>20 feet</td>
</tr>
<tr>
<td>Town of Index Armored Bank</td>
<td>10 feet</td>
</tr>
<tr>
<td>Natural</td>
<td>50 feet</td>
</tr>
</tbody>
</table>

The purposes of maintaining a riparian management zone are to preserve the natural character of the shoreline, to protect the functions and values of critical areas, to conserve properly functioning conditions, and to enhance the recreational experience for the public using the river and adjacent lands.

The Jurisdictional Map shows general conditions
The Critical Areas Map shows buffers

A.7.4 Clean Water Act
The Clean Water Act (CWA) establishes the riparian management zone as a federal act, passed in 1972, that contains provisions to restore and maintain the quality of the primary means of complying with the nation’s water. Section 303(d) establishes the Total Maximum Daily Load (TMDL) program. The 303(d) list is a list of water bodies that do not meet state water quality standards. The National Pollutant Discharge Elimination System (NPDES) is a national program that administers permits under the CWA and enforces its pretreatment requirements. The Town priorities for the shorelines of Index have no current NPDES permits for discharges from the stormwater system into waterbodies.
The Town of Index jurisdiction has no waterways which appear as a listing on the CWA’s 303(d) list, though up river less than two miles, there is a small stream with a listing noted in the 2008 maps.

Map 303 listing map shows 1998 CWA 303(d) Listings statewide significance.

A.7.5 Hazard Mitigation
Under the direction of the Federal Disaster Mitigation Act of 2000, the Town of Index has prepared a Hazard Mitigation Plan, which identifies hazards and prioritizes actions to increase public safety and reduce the potential effects of natural hazards in compliance with the local agencies. Hazards include floods, earthquakes, landslides, wildfires, volcanoes, tsunamis, and severe weather. The most recent update to the Hazard Mitigation Plan was submitted to the County and the State of Washington in 2015.

Snohomish County has several plans and programs designed to prevent flood damage and address hazards from flooding. The Town of Index has prepared flood prevention plans for many years and participates in the FIRM rating program.

The Town of Index works with Snohomish County to regulate the Flood Hazard Permit system and requires flood elevation certificates for all new and remodeled structures within the floodplain area.

Many areas within the designated shoreline jurisdiction are also within the 100 year floodplain although floodplain areas are located outside of the typical 200 foot shoreline regulatory area within the west portion of the Town of Index. All these areas are subject to the plans, programs and requirements set for the floodplain through the local, State and Federal governments. The SMA requires flood hazard planning to be integrated into local shoreline master programs.

The FEMA/FIRM maps are included for both existing current FIRM ratings and the new proposed floodplain maps still waiting for final adoption.

A.7.6 GMA Compliance
The Town of Index is required by the GMA to update its critical areas regulations. Best available science for the protection of the functions and values of critical areas must be used to develop the updated critical areas regulations. Critical areas include: 1) wetlands, 2) areas with critical recharging effects on aquifers used for drinking water, 3) fish and wildlife habitat conservation areas, 4) frequently flooded areas, and 5) geologically hazardous areas.

Under state law, critical areas within shoreline jurisdiction are protected under the requirements of the local Shoreline Management Master Program (SMMP). The local jurisdiction’s SMMP is required to provide protection for critical areas equivalent to what is contained in its critical areas regulations.

Jurisdictional Map

The Town has identified critical areas within the shoreline jurisdiction (see Critical Areas map)

The Segment Definition map includes information about areas, which may be susceptible to surface erosion, armored banks and other detailed shoreline data.

Within the eastern portion, the shoreline may include riparian areas associated with small tributaries and areas of existing and historic wetlands (Segment Definition maps).
Aquifer recharge areas lie mostly outside of the Town’s shoreline (Aquifer Recharge map).

The Town of Index has prepared an update to its comprehensive plan in the Winter of 2011, which will be required to include the final SMA.

The Town of Index Shoreline Management Master Program will be placed in the Comprehensive Plan as an element of the plan.

The GMA requires that all elements of the comprehensive plan be internally consistent.

A.7.7 Salmon Recovery Efforts and Shoreline Management
The listing of Chinook salmon as threatened under the federal endangered species act has resulted in efforts to characterize and assess the state of habitat and other ecological features important to the survival of salmonids throughout Washington, Idaho and Oregon.

The salmon recovery efforts in Snohomish County have been conducted through the governing entities of the watershed and water resource inventory area (WRIA) planning groups and by Snohomish County Public Works Surface Water Management Division.

The National Marine Fisheries Service (NMFS 1996) and several of the watershed studies have identified environmental factors important for salmonid survival, and have developed indicators and thresholds to evaluate the conditions at the local level. While these indicators and thresholds were developed for evaluation of habitat for anadromous salmonids, they also provide a general assessment of the shoreline ecological functions and were in the assessment for the Town of Index.

A.8 Assessment
A.8.1 Definition of Indicators Used in Habitat Assessment
The characterization of ecological functions within the Town of Index shoreline jurisdiction has been evaluated by referencing the Snohomish County review of the North Fork System, review of the Abigail Hook document as it applies to this activity, collection of data from historical maps and studies, and the review of collected data from the USFS and WSDFW studies, maps and documents as available. The Town of Index has also collected (and continues to collect) agency data.

Salmonid habitat information was classified and defined using guidelines developed by the National Marine Fisheries Service (NMFS 1996), and presented as classified by Snohomish County and by using references from other salmon conservation documents (noted in bibliography).

The resulting information in this SMA provides a summary of the indicators, discussion of thresholds, and an assessment of the documented data sources which characterize the shoreline functions as “healthy,” “adversely impacted” or “missing” as required by the Shoreline Guidelines in WAC 173-26-201(1).

In general, the term “healthy” corresponds to “properly functioning conditions” as defined by NMFS and used in many existing planning documents. “Properly functioning conditions” means that the physical, chemical, and biological aspects of the watershed ecosystems will sustain healthy salmonid populations. Properly functioning conditions generally define a range of values for several measurable criteria rather
than specific, absolute values.

A.8.2 Relationship of Indicators to Ecological Functions
Specific studies to definitively determine the health of each function have not been conducted within the Town of Index jurisdictional area.

It is not likely that any definitive study would be done for this reach of the Skykomish system in the near future due to its limited size (one mile of shoreline) and location (low population and medium to low overall habitat ratings) within the watershed.

This planning document uses the findings which are discussed and assessed (by others for areas including this section by typically reviewing over three to five miles of the system). The Town of Index has collected information from various sources and has determined the available information provides an adequate assessment of the health and functions found in the jurisdictional shoreline segments.

The relevant indicators are described below in relation to general ecological functions. The thresholds for what is considered “healthy”, “adversely impacted” and “missing” are found in

A. Indicator: Development of Pools, Riffles, and Gravel Bars
Pools, riffles and gravel bars are important in-stream habitat features for aquatic species, especially salmonids. Large pools are required by salmon during rearing, spawning, and migration. They provide refuge from velocity, storm events and temperature changes. Channelization of the river due to armoring or diking, or other shoreline hardening, removal of large woody debris and other modifications limit channel forming functions that produce pools, riffles and gravel bars (Haas et al. 2003; Montgomery and Buffington 1997).

B. Indicator: Recruitment and Transport of Woody and Organic Debris
Large woody debris (LWD) is generally meant to describe fallen riparian wood pieces that exhibit large size and are found in complex wood jams. LWD jams play an important part in creating channel features such as pools, and attenuating flow energy. It is also an important factor in the habitat complexity required by aquatic species (Harmon et al. 1986; Bisson et al. 1987; Leinkaemper and Swanson 1987; Andrus et al. 1988; Bilby and Ward 1989; Robison and Beschta 1990; Bilby and Ward 1991; Fausch and Northcote 1991; Montgomery et al. 1995; Beechie and Sibley 1997; Bilby and Bisson 1998).

Frequency of LWD is an indicator of how well eco-system wide processes are functioning. Fifty pieces of LWD per kilometer (1.62 miles) is considered “properly functioning” conditions by the National Marine Fisheries Service.

On average, the majority of LWD is recruited to water from forests growing within 45 meters (150ft) of water bodies. Thus, the amount and quality of shoreline vegetation is also an indicator of the health of this function. Large logs, imbedded and located in the high intertidal nearshore, alter nearshore wave and tidal patterns and alter deposition patterns of organic litter, or beach wrack and sediments, which support a variety of terrestrial and aquatic insects.

Armoring of shorelines is also an indicator as to the general health of the shoreline. Hardened shorelines along rivers slow the movement of channels which, in turn, prevent the input of larger woody debris (Gorton et al. 1992). This loss of LWD, slowing of water, and alteration of
C. Indicator: Water Quality
The State Clean Water Act establishes minimum standards for water quality to protect a variety of uses from consumption to recreation to habitat.

1. Removing excessive nutrients and toxics
Water bodies and segments of water bodies that do not meet minimum standards for clean water are placed on the “303d” list. The number of segments on the 303d list indicates whether shoreline functions that remove excessive nutrients and toxics are healthy or not. Nitrogen loading and consequent reduction in water quality that result in algae blooms and eutrophication of estuarine lagoons can be primarily attributed (70-90%) to upland residential development and the use of pesticides and herbicides (Lee and Olson, 1985).

2. Maintenance of water temperatures
The State Clean Water Act establishes minimum standards for temperature necessary to protect habitat functions. The number of segments on the 303d list indicates whether or not ecosystem-wide processes and functions that maintain water temperatures are healthy. The removal of riparian vegetation has resulted in stream temperature increases of 2-10°C in June through August in the Pacific Northwest (Beschta et al. 1978).

Conversely, the winter stream temperatures are thought to fluctuate significantly lower than normal as well, due to the loss of over story protection. These studies generally support the findings of Brown and Krygier (1970) that for summer periods when stream flow is normally low and air temperatures are high, loss of riparian vegetation results in larger diurnal temperature variations and elevated monthly and annual temperatures.

Riparian areas also create and modify “microclimates” of terrestrial soils and upper nearshore sediment areas by reducing temperatures of soils and thereby reducing desiccation rates of soils/plants and marine benthic and epibenthic organisms. Riparian vegetation contributes organic debris (leaf litter and large woody debris (LWD), increasing the habitat structure of the shoreline. The loss of riparian vegetation results in greater temperature extremes, both higher and lower in terrestrial soils and marine sediments. In addition, the loss of riparian vegetation from the nearshore results in a decrease of organic debris and associated biota.

These conditions, where defined, result in a poorly functioning natural resource area.

3. Stabilization of banks and sediment
On rivers, sediment transported from upland areas adjacent to the channel determines the persistence of channel features such as pools, riffles, and gravel bars.

The concentration of fine sediments above 12% in the substrate impact embryo survival and emergence success in Chinook salmon (SIRC 2005). Shoreline armoring creates impacts to the natural sediment processes function.

Bank stability is important to both human safety and habitat for aquatic species. On rivers, bank instability contributes fine sediment to the channel. Bank erosion above
a natural background level can also indicate hydrologic or sediment conditions that are out of balance.

Bank instability can be caused by land use activities such as lot grading and clearing and from removal of riparian vegetation. Bare banks and open soils reduce the ability of the shoreline bank to withstand erosive forces which then disrupt flow patterns and create sediment deposit. Bridges and channel crossings can result in altered flow volumes due to constriction or channel alteration which then cause scouring of the channel bed and banks.

On rivers and streams, the National Marine Fisheries Service considers bank instability of less than 10% to be properly functioning, between 10-20% to be “At Risk” and more than 20% to be “Not Properly Functioning.”

Eroding armored banks indicate areas where sediment processes are adversely impacted or missing. Intact vegetated buffers have been shown to provide invaluable slope stability through mechanical means via root and stem systems and uptake of soil moisture expire via evapotranspiration. Over time this condition promotes a self-perpetuating, efficient and permanent erosion control system (Menahshe 1993).

### D. Indicator: Shoreline Vegetation
Shoreline vegetation, adjacent to water bodies, provide many important functions. Shoreline vegetation can create shade to keep stream temperatures cool, filter pollutants from run-off, and provide large woody debris and organic litter that serve as sources of food and forage for many species. Shoreline vegetation improves bank stability by attenuating current energy, and provides space for migration, shelter, and nesting for birds and terrestrial animals. Dead and fallen trees become large woody debris and provide space for hiding and forage for fish, insects and amphibians.

### E. Indicator: Habitat and Conditions for Reproduction, Nesting, Forage, Hiding
Habitat elements important to a variety of aquatic and terrestrial species include shoreline vegetation, large woody debris, sediment size and type, instream habitat features (pools, riffles, gravel bars) and water temperature and quality. Terrestrial insects are significant in juvenile salmonids diet. A healthy riparian vegetated bank, along a shoreline, is necessary habitat for these insects. Alteration in wildlife abundance and variety is often due to human disturbance in naturally functioning riparian systems which then create a mosaic of habitat patches (Greco 1999). Riparian habitats provide large mammals (e.g. opossum, beaver, fox, mink, otter, elk, and deer) with an abundance of prey and carrion, creating a productive and varied plant community.

Natural impacts to habitat conditions can also be related to reduced winter snow accumulations, early spring green-up, aquatic habitat and species transportation corridors (Raedeke et al. 1988).

Aquatic species such as otter, beaver, nutria, muskrat, and mink are most affected by changes in size and composition of riparian areas (Raedeke 1988). In general, streams with more
complex substrates and velocities contain a more diverse invertebrate population (Karr 1997).

Vegetated riparian zones deliver organic matter and invertebrate prey to the near shore (Simenstad and Cordell 2000) and create complex structure that is important for fish (e.g. refuge and spawning) and wildlife (e.g. bird nesting and roosting).

In natural conditions, wildlife species abundance and diversity are higher in riparian-wetland habitat than in other habitat types because these areas provide:
- A diversity of habitat, including structural features and plant species;
- Edge habitat where two or more types of habitat adjoin;
- Varied food sources; and
- A predictable water source (Kauffman, et al., 2001; O’Connell et al., 2000).

A.8.3 Discovery and Findings

A. Development of Pools and Riffles

Significant data gap

Throughout the WIRA 7 system of the North Fork Skykomish there has been a loss of channel complexity, cover, bank stability, as well as pool presence; especially in the mainstem rivers

LWD debris presence is critical to creating pools and collecting and retaining sediment and gravels.

Typically LWD is mostly absent in the lower four to five miles of the mainstem of the North Fork Skykomish river. The overall lack of LWD debris and channelization of the river has resulted in alteration of all associated channel conditions including pools, riffles and gravel bars (Haring, 2002).

Anecdotal info: in 2010/2011 flooding several LWD piles have been created along the south bank of the North Fork Skykomish downflow of the railroad bridge. These LWD piles rest on a gravel bar with a topography which is above most of the channel height; retention of these piles will be an interesting observation in the next major floods.

Based on the overall WRIA 7 Limiting Factors Report: 10% of shoreline segments within the North Fork System have healthy pool conditions, 8% are adversely impacted, pool conditions are missing in 16%, and pool conditions in 65% are unknown. (Snohomish County 2006)

The Index area falls within the un-mapped 65% “missing conditions” reported in this 2006 study. Local assessment indicates that pools are mostly missing due to scour and flooding events which have created a wide flowing armored bank channel within the Town of Index jurisdiction.

Stated in documents related to fish survival conditions within the Skykomish system; Including the mainstem Skykomish segments (located between the cities of Sultan and Goldbar), do have multiple channels and in most years have the opportunity to provide excellent spawning riffles for Chinook.

In the upper North Fork Skykomish area channel complexity is good due to the relatively steep gradient and high sediment load, which cause the channels in this segment to shift rapidly,
eroding banks and cutting new channels (Haring, 2002).

Within the Town of Index, impacts related to eroding banks and flood impacts are continually altered through the maintenance of the armor bank; this work limits the opportunity for creation of channel complexity and lessens the development of pools and riffles within this reach of the river. Throughout the basin, there is a lack of instream large woody debris integral to routing of water and channel and pool forming processes. This has altered pool areas and frequencies, and limited channel complexity. Also affecting channel complexity and resulting conditions are the armoring and channel modifications which have confined the channel, reducing or eliminating channel migration. (Pentec 1999, US Army Corps of Engineers 2001, Haas and Collins 2001, SIRC 2005).

B. Recruitment of Large Woody Debris

Data gap

Recruitment/transport of woody and organic debris

LWD is generally meant to describe fallen riparian wood pieces that exhibit both large size and are found in complex wood jams. Much of the historical LWD was removed from the lower Skykomish River to improve navigation in the late 1800s/early 1900s (Haas and Collins 2001).

LWD recruitment potential can be severely impaired due to the presence of riprap, bank armor, dikes, and levees, which prevent the channel from shifting and recruiting LWD, and by a general lack of woody riparian vegetation in riparian buffers which is available to be recruited.

LWD presence is also poor along streams in areas with active forest management, due to stream cleanout and past harvest of riparian trees (Haring 2002).

Based on salmon conservation plans, between 4-14% of planning segments in the Snohomish River Basin are rated as “healthy”. The majority of the study segments were rated as adversely impacted (13-19%) or missing (60-62%). The condition of LWD functions and processes in 13% of the segments is unknown. LWD recruitment, within the Town of Index jurisdiction is severely limited due to the steep armored bank found on more than 80% of the shoreline area. Recruitment on the south side (within the County jurisdiction may be rated as healthier at times in the river flood cycle).

The Index area appears to fall within the 60-62% “missing conditions”. Local assessment indicates that LWD is very transitory. Major flood events often deposit LWD piles in the channel (but not within the jurisdiction) as the flood recedes; then the following flood dislodges the LWD and sweeps the channel clean. Significant areas of LWD are mostly missing due to repeated scour and flooding events.

Throughout the basin, there is a lack of instream large woody debris integral to routing of water, channel, and pool forming processes. This has altered pool areas and frequencies, and limited channel complexity. The lack of LWD is attributed to clearing of riparian vegetation and removal of large woody debris jams from the channels for navigation, safety and flood protection purposes (Haas and Collins 2001, US Army Corps of Engineers 2001).
Typically, the Index SMA has conditions within the shoreline area which qualify this segment as “adversely impacted” in regards LWD and LWD recruitment.

C. Water Quality

“The flow of water, sediment, nutrients and materials into and through shorelines are the driving processes that determine the health of the overall system. Modifying or interrupting these ecosystem-wide processes may affect smaller scale processes (such as bank storage, hyporheic and overbank flows) and ecologic functions that occur within shoreline jurisdiction” (Department of Ecology website)

The following is a general description of alterations to watershed processes system-wide, which may affect water quality.

Water is delivered to rivers and streams as rain or snow. Precipitation that falls on upland areas also percolates into the ground and is captured in aquifers located beneath the broad floodplain of the Skykomish River.

Historically, the channels of the Skykomish River have migrated or meandered across the floodplain creating diverse habitats and plant communities. Large wetlands in the floodplains filtered water and moderated flow velocities. (Pentec 1999, US Army Corps of Engineers 2001, Haas and Collins 2001).

Adverse impacts, due to human populations, development, and related impacts, have altered the volumes and load of some discharged pollutants which negatively affect water quality in the North Fork Skykomish River. Historically it is assumed that untreated wastes may have been dumped directly into the river from mills, small industry and residential sites.

Septic systems may affect water quality in the basin though no studies or tests have been conducted to provide sufficient data in this section of the system. Modern septic systems associated with renovations and new homes are likely to improve conditions in some areas.

Direct flows of surface water drainage (from culverts and sheet flow) into the river may contribute pollutants into the system; the increase of non-point source pollutants have recently become recognized as a major concern.

The most significant changes affecting the flow of water and channel morphology in the WDFW culvert data base are due to the result of forestry activities in the upper watershed, loss of large woody debris throughout the system, and diking/armoring in the mainstem sub-basins.

Forestry activities have reduced forest cover in the upper watersheds, resulting in an increase of peak flows and channelization of the lower mainstems of the system.

Rivers have become disconnected from their floodplain and adjacent wetlands due to armoring and flood control. This disconnection then reduces the overall function of the floodplain to moderate the velocity of flows. Historically, large wetlands in the floodplain of the lower mainstems moderated flows and, provided recharge to aquifers. Now within the system-wide area many fragile or unique areas, such as wetlands and floodplains, have been filled. Within the Town of Index, the western floodplain has been isolated from the channel with
Sediment Delivery and Routing
Sediment is delivered to rivers and streams in the upper basins by both natural and human mechanisms including run-off from logged areas, landslides, and bank erosion. Sediment is transported in river segments with steeper gradients, and finally deposited in the lower gradient portions of the rivers within the channel, or upland, during flooding.

Sediment delivered at higher levels than the natural background level can cause changes in channel location, flooding, width, and alterations to pools and riffles that in turn affect the vegetation pattern and the habitat characteristics necessary to support aquatic and terrestrial species.

Within the county-wide system, channelization, bank armoring, and diking of the lower mainstem rivers have reduced the frequency of overbank flows, and subsequently reduced the deposition and distribution of sediment across the floodplain. Excess sediment threatens salmonid survival (SIRC 2005), in some lowland tributaries to the Skykomish River (Haring 2002).

Nutrients and toxics delivery and routing are attributed to run-off from residential activities and failing septic systems. These are assumed to contribute to higher levels of fecal coliform bacteria, phosphorus, and nitrogen into rivers and streams in Snohomish County (SWM 2000a). No detailed study of pathogens has been conducted.

Riparian vegetation and wetlands capture or slow the entry of pollutants into waterbodies. Logging and clearing of riparian vegetation and filling of wetland areas have further exacerbated water quality problems throughout the County. Water quality is the poorest where the greatest alterations to forest cover, channel complexity, riparian vegetation, and wetlands have occurred.

Peak Flows
The Snohomish Basin Ecological Analysis for Salmon Conservation analyzed forest cover, road density and impervious surface to determine hydrologic status of sub-basins in WRIA 7. Based on this analysis, 51% of sub-basins have healthy hydrologic regimes for peak flows, 24% are adversely impacted and 24% are missing.

In the Skykomish basin, hydrologic flow regimes are healthy in 90% of the sub-basins. In the Snohomish basin, only 26% of sub-basins have healthy functions, and in the Snoqualmie basin 32% of sub-basins have healthy functions.

Peak flows within the Town of Index jurisdiction significantly impact portions of the Town’s population, and bank loss and other damage have occurred in past decades.

Low Flows
The Snohomish Basin has naturally low flows in the summer which impact salmonid productivity (Pentec 1999). Potential low instream flow has been identified as a factor impacting aquatic habitat in the following Snohomish County waters: Pilchuck River, mainstem Skykomish and tributaries, Olney Creek, May Creek and the Wallace River (Draft Initial Watershed Assessment...
Groundwater in the lower basin is relatively shallow and connected to surface water in the basin. This means that groundwater withdrawals and other land uses that affect aquifer water levels have the potential to affect peak and low flows. Since impervious areas reduce aquifer recharge, land uses with high impervious surface areas are likely to result in reduced flows in rivers and streams in the basin (Department of Ecology in-stream strategy).

Floodplain Connectivity
The Snohomish basin’s river system has been largely disconnected from the related floodplain by dikes, bank armoring, levees and other flood control structures and bank modifications.

The Skykomish River’s “braided reach” remains a dynamic area where channels shift rapidly within the floodplain, eroding banks and cutting new channels. Within the Town of Index Shoreline area, channel migration has been impacted by bank hardening which protects the structures and developments located within the floodplain. At this time, the natural floodplain functions are largely disconnected and lacking the important channel and habitat forming functions.

Human impacts to the system (logging and channel clearing) in the 1960’s and 1970’s resulted in a straightened channel with increased hydraulic energy. The river is currently in a stage of recovery—wood and sediments sediment are being stored, creating logjams and splitting the mainstem river into multiple channels. Logjams and multiple channel configurations reduce hydraulic energy and promote the deposition of additional wood and sediments.. In this way, a feedback loop is created where logjams, sediment deposition and split flow conditions leads to more logjams, sediment deposition, and split flow conditions. Science and studies expect the river will expand its active channel width (where left in a natural condition) and will occupy a broader range of the valley floor in the next fifty years.

See Floodplain Maps

Removing excessive nutrients and toxics
Fecal coliform bacteria and low levels of dissolved oxygen are the primary causes of water quality problems in the Skykomish River watershed. In 1998, eleven river and stream segments did not meet state water quality standards for fecal coliform bacteria, eight segments did not meet requirements for dissolved oxygen, and three segments did not meet requirements for pH.

Segments with high bacteria counts within the North Fork Skykomish

Dissolved oxygen is a problem in the urbanized areas. Probable sources of pollutants include urban runoff, industrial and commercial runoff, removal of riparian vegetation, animal access, and septic systems. Based on the 2004/2005 proposed 303d list prepared by the Washington State Department of Ecology, an additional thirteen river and stream segments have nutrient or toxic water quality problems.

The North Fork Skykomish is not on the 303d list at this time.
Tributaries east of the town are found on the list.

See 303d Map

**Ongoing Habitat Improvement Opportunities**

Planting along the river bank and shoreline can lessen negative impacts from nutrients and toxins related to stormwater runoff. Preservation of existing vegetation should be a priority. Residential attention to shoreline edges and increased vegetation will inhibit unfiltered surface water runoff.

Modernization of septic systems and adequate maintenance of the systems can result in fewer negative impacts to water quality within the Skykomish system.

The Town of Index has Ordinance # 192, prohibits the “commercial use” of herbicides, fertilizers, pesticides, or other chemicals. The use of these chemicals within the shoreline area for a recreational facility would only be permitted with the approval of other state and federal agencies for the control of invasive vegetation or pests, or for the enhancement of native vegetation. An applicant would be required to submit plans demonstrating the methods to be used to prevent these chemical applications and resultant leachate from entering adjacent water bodies.

**Maintenance of water temperatures**

In 1998, seven stream and river segments in the Skykomish system did not meet state water quality standards for temperature and were placed on the 303d list. This included the mainstem of the Skykomish (though not the North Fork).

Based on the 2004/05 proposed 303d list, an additional four segments were found to not meet state water quality standards for temperature in the Skykomish River.

See Table- 303d listings

Revegetation of riparian areas may lower temperatures and reduce nutrients and bacteria (SWM 2000a) when enhanced and protected along tributaries of the main channels. Preservation of existing vegetation should be a priority.

**Stabilization of banks and sediment**

The sediment regime found throughout most of the sub-basin is considered a data gap.

The Index area is a data gap.

High sediment levels, exceeding 12% fines, are found in many tributaries to the Snohomish River Basin and its related rivers. Sediment regimes and deposition patterns throughout the system have been altered by legal and illegal clearing and development.
**Bank Stability**
Bank instability contributes fine sediment to the channel. Bank erosion above a natural background level can also indicate hydrologic or sediment conditions that are out of balance. Snohomish County Surface Water Management surveyed the Skykomish mainstem river in 2004. Many areas were found to be impacted or even adversely impacted. Land use activities causing instability in the basin are not documented, but likely result from clearing of riparian vegetation, diking, and channelization that alter flow patterns in the basin.

The Town of Index area is more than 90% armored bank, which could, if not maintained, continue to deposit material into the channel and increase sediment loading, adding to the destabilization of the bank as it is found at this time.

Vegetating the shoreline, within the armored bank or replacing the armored bank, may lessen the negative impacts of bank instability. Preservation of existing vegetation should be a priority. Bank Armoring map shows the extent of armored banks within the Town of Index.

**Definition of Flow and In Stream Flow (WDFW 2003 data)**
Seasonal fluctuations are common, often with more water, higher levels, and faster flows in the winter or spring months, and less water, lower levels, and slower flows in the summer and fall months. Flows also vary from place to place along the stream. At : at narrow points of the channel the water may be fast moving, whereas at a wide point in the stream the same amount of water may move quite slowly. In this document, the amount of water found in a stream at any given time is referred to as “stream flow.”

The term “instream flow” is used to identify a specific stream flow (typically measured in cubic feet per second, or cfs) at a specific location for a defined time, typically following seasonal variations. An instream flow is a state water right; it has a priority date and must be satisfied before junior rights can legally be exercised.

Instream flows are usually based on estimates of the stream flow needed to protect and preserve instream resources and values, such as fish, wildlife and recreation. Instream flows are typically adopted through a state rule. Once defined, an “instream flow” is used for water management decisions, including regulatory decisions regarding whether additional water can be appropriated for future uses.

Long-term studies indicate that stream flows in the Snohomish, Snoqualmie and Skykomish Rivers have declined in recent decades (normalized to precipitation). (Gersib (2003). This study evaluated baseflows at three stations in the basin for the period 1963-1997.

The study found that baseflows appear to have declined at all three gauges, with a 15-20% decline in mean baseflows at the Snohomish gauge. The magnitude of declines in the Skykomish and Snoqualmie Rivers add to about the same magnitude as the decline in the Snohomish River.

**D. Shoreline Vegetation**
Early settlement patterns and logging have altered the dominant vegetation found throughout
the basin. The vegetation found within the SMA jurisdiction of the Town of Index has been highly urbanized due to the time span of use and the population residing within the shoreline areas.

Lawns and landscaping are found on over 30% of the shoreline area while street right-of-ways affect at least half of the shoreline.

Over 90% of the shoreline is armored. The majority of the riparian zone is heavily armored, devoid of trees, and is most often dominated by clumps of “managed” vegetation such as (willow, scrub, shrub vegetation, and volunteer trees) and heavily armored.

Less than 20% of the Town of Index areas reviewed within the segments have healthy riparian conditions. Shoreline vegetation is adversely impacted in 10% of shoreline segments. Within 65% of the segments, the vegetation is missing.

Shoreline vegetation is shown on Maps

In a WRIA 7 Limiting Factors Report, the shoreline segments along Little Pilchuck Creek and the upper reaches of the Sultan River are the only segments that have riparian vegetation with tree stands of the density, width, and size considered to be healthy (Haring, 2002).

Planting vegetation within the shoreline where possible and along the armored bank where reasonable may help create a high level of habitat condition. Preservation of existing vegetation should be a priority.

Logjam accumulation and extensive gravel bar development has occurred in the project reach and is at least partially responsible for causing the development of the side channel that washed out local roadways the roadway. (Snohomish County 3 / 2009)

Long range planning for development and re-development within the Town of Index must address this projected outcome when assessing long term goals beyond thirty years.

The most western portion of Towns jurisdiction has several private lots which contain larger (in excess of 10” Diameter at Breast Height (DBH)) native tree species at the shoreline, (many within the OHWM of the channel.). The eastern edge of the Town’s jurisdiction has recently benefited from an in-stream island, which is heavily dominated by 4” to 6” volunteer alder and other native species of trees.

Segment Definition maps show vegetation cover

**Forest Cover**

Total forest cover in the Town of Index jurisdiction is approximately 13%. Within the Skykomish basin total forest cover is the highest at 60%, followed by 54% in the Snoqualmie River sub-basins and 29% in the Snohomish sub-basins (Purser et al. 2003).

See map Vegetable

**E. Habitat Conditions for Life Cycle Functions**

Habitat elements important to a variety of aquatic and terrestrial species include riparian vegetation, large woody debris, sediment size and type, and water temperature and quality.
Sediment, water quality, and temperature conditions are addressed previously.

According to WDFW Priority Habitat & Species data, the lower mainstem Skykomish basin has over 2,000 acres of priority habitat area. Within the Snohomish basin, most Chinook spawn in the Skykomish and Snoqualmie mainstems, and the Lower Sultan, Upper South Fork Skykomish, Lower Tolt, and Raging Rivers, although they also use smaller streams with sufficient water flow such as Bridal Veil Creek and Cherry Creek.

Protection for all side channels and smaller streams related to the Town of Index floodplain and shoreline should be protected from negative impacts.

A.9 Summary of Ecological Conditions

Ecosystem-wide processes and ecological functions which have been altered in the overall basin include: water flow levels, LWD recruitment and transport, water quantity, water quality and habitat conditions. There are many factors that contribute to these altered conditions, both man-made and natural.

Channelization of the Skykomish River for flood control purposes has limited or eliminated the ability of the river to move within its channel and has reduced habitat complexity in the floodplain and estuary (based on SWM and Pentec 1999, Haring 2002). Channelization within the North Fork Skykomish River, within the Town of Index jurisdiction, has severely limited the complexity of the channel, eliminated floodplain connectivity, and reduced bank edge habitat conditions throughout most of the regulated shoreline.

The overall basin has low flows in the summer partially due to the presence of a shallow aquifer. Flows in the North Fork Skykomish, within the Town of Index jurisdiction, are without a site-specific study at this time. The Town of Index does not undertake actions or uses of the river system that alter or affect the flows of the river. Up flow or Down-river activities (water use and diversion) may adversely affect the overall habitat of the system and may noticeably impact the Index area over a period of time; specifically in regards to habitat conditions.

Clearing of riparian vegetation throughout the basin for residential, agricultural and forestry uses has resulted in a lack of LWD available for recruitment. The lack of instream LWD, in turn, affects the ability of the system to form pools, riffles, gravel bars and other geomorphic features. Clearing of riparian vegetation also contributes to water quality problems, as there is insufficient vegetation to filter run-off before it enters the river in many places. Within the Town of Index jurisdiction, the recruitment of LWD is negligible.

Recent channel migration zone studies indicate the river system is in a state of recovery from past human intervention and is occupying a wider area of the valley floor (in the areas where banks are not channelized through armoring) than it has in recent decades. The frequency of avulsion and other erosion related events is expected to increase in the decades ahead. Studies indicate that the expected trend will continue and the river will widen and occupy more of the valley floor over time.

Therefore, it is believed that the future behavior of the North Fork Skykomish River will not resemble the behavior exhibited over the past several decades; management strategies should consider this behavioral change. (H.W. Lochner, Inc.)

The Town of Index relies heavily on bankside armoring for protection of more than one-third of the
housing stock, paved streets and utilities. Channel migration does not enter into any Town planning policies due to the implications of such loss.

Water quality within the Town of Index jurisdiction (related to surface flows and stormwater) does not appear to be a threat to the public or habitat. The Town of Index has no municipal waste water system and the economy and geography of the area are likely to prevent the development of such a system. River bank loss and instability (in addition to affects of channel migration) means that the continued loss of bank, and the adverse impacts of such, will be followed by the repair and maintenance of those banks and the possible water quality impacts that activity may have at the time.

“Wildlife habitat contains several essential elements: areas for breeding, shelter, and foraging for food and water. Some of the more important areas that provide these elements include aquatic areas, riparian areas (upland areas adjacent to aquatic areas) and old growth forests. (Snohomish County BAS ).”

The following is a description of habitat types found within the Town of Index SMA jurisdiction. Data, definitions, and text are adapted from habitat types and associated species described in “Wildlife-Habitat Relationship in Oregon and Washington” (O'Neill et al. 2000), from relevant Snohomish County documents and maps, and from descriptions in various anecdotal information.

Text describing where these habitat types are found in the Town of Index jurisdiction are shown on the land cover maps and maps indicating fish usage as produced by Snohomish County.

All habitat types described in the overview are found in the habitat(s) of the watershed of the Snohomish Basin (WIRA 7), with residential areas and lowland forest habitats being the predominant habitat type found in the Town of Index jurisdiction altered by clearing and development predominant habitat type found in the Index jurisdiction.

In addition to the birds, mammals, amphibians and reptiles listed earlier, the Skykomish system supports five species of Pacific salmon, two species of native char (bull trout and Dolly Varden), two species of anadromous trout (cutthroat and steelhead), and other resident fish.

Within the County-wide count of the basin area, shoreline habitat is important for 312 species of plants, 149 species of invertebrates, 112 stocks of anadromous salmonids, four species of resident fish, and ninety species of 90 terrestrial vertebrates.

This general habitat can support a variety of aquatic species including five species of pacific salmon, two species of native char (bull trout and Dolly Varden), and several species of anadromous salmonids and non-salmonids (Pacific lamprey and sturgeon), including resident and sea– run cutthroat and steelhead.

Within the County there are twenty-nine species of twenty nine amphibians, sixteen species of reptiles, seventy-eight species of mammals, and two hundred thirty species of birds associated with wetland habitat types found within shoreline jurisdictions. (Matrixes for Wildlife-Habitat Relationships in Oregon and Washington).

A.10 Shoreline Modifications
Freshwater habitats include rivers, streams, and lakes, and adjacent riparian areas.
Riparian areas adjacent to waterbodies provide cover, forage, and shade for both terrestrial and aquatic species. Habitat structures and features are also located waterward of the ordinary high water mark in freshwater aquatic areas. River habitat elements provide cover, forage, and breeding areas for aquatic species, including large woody debris jams, riffles, pools and glides.

Shoreline modifications generally are undertaken for bank protection and flood protection. Stabilization of the shoreline protects homes, businesses and landmass. Shoreline modifications can include riprap, dikes, jetties, groins, levees, floodwalls and other in- or over-water structures. Modification can also include development actions such as clearing and grading and vegetation removal. Shoreline modifications are noted in WAC 173-26-231(1).

Shoreline modifications within the Town of Index jurisdiction include riprap and bank armoring, vegetation maintenance and removal, residential development, and maintenance.

Conditions and processes throughout the upper portion of the North Fork Skykomish system (specifically within the Town limits) have been significantly modified over the last one hundred years.

Increased storm water run off due to development, land clearing and logging take place within the private and commercial ownerships in the area.

Alterations of stormwater conditions are due to man-made structures such as roads, and natural events such as landslides

Within the Town of Index the major modifications include: increased storm water runoff, and input of sediment and other pollutants into the North Fork Skykomish, from direct run off from streets and areas of development.

Armored banks providing protection of homes, roads and other development are intended to stabilize the shoreline and minimize erosion due to bank loss over time.

The center of Town includes two over water structures (Wes Smith Bridge and Railroad Bridge)

Armored shorelines have been stated to create less desirable habitat conditions for native fish, including salmon that use the system for rearing and migration.

Armoring eliminates and displaces shoreline vegetation that has been determined to be critical for fish and other wildlife. Armoring also displaces available water refugia and foraging habitat for juvenile salmonids.

Armoring in the Town of Index has altered the slope, configuration, and/or substrate composition of the shoreline by obstructing upland sediment supply. Studies indicate that armoring may increase erosion and bank loss on down-river and neighboring properties, which are lacking armoring, or become impacted due to the channelization.

Artificial shorelines appear to also alter natural predator-prey interactions and create favorable conditions for predator fish species. Juvenile salmon require sufficient cover, such as brush piles, rootwads, and undercut banks, to avoid predators. Artificial shoreline structures, in place of natural cover, may result in an increased likelihood for predation.
Studies indicate that valuable spawning areas may become degraded due to scoured streambed material, fine sediment related to erosion from developed sites, and surface water runoff from impervious surface that is transported into the river.

Upland sensitive wildlife species occurring in the area include peregrine falcons, osprey, and bald eagle (See map priority species).

Although these species may roost or nest away from the shoreline, they use the shoreline areas to forage. Bald eagle nesting or roosting sites are noted on the WDFW PHS documents Maps are made available by the State

Bald eagles have a large home range and likely use the shoreline for perching and foraging opportunities. Presence of over-water structures serve as obstacles to shoreline access and clear views of potential prey. The area adjacent to the North Fork Skykomish River, within Town of Index, is mostly developed. Shoreline modifications can eliminate potential roosting and nesting habitat for osprey, bald eagles, and other birds of prey along and directly adjacent to the shoreline.

According to aerial photograph analysis, approximately 90% of the shoreline parcels within the Town of Index contain structures with a building setback of less than twenty feet.

Development patterns that include structures close to a shoreline can negatively affect the shoreline and water quality. Development located on sloped terrain can contribute to erosion and developed area stormwater runoff, which deposits sediments, pollutants, and excess nutrients into adjacent waters.

A vegetated buffer area less than fifty feet in length is of limited effectiveness in removing sediments and nutrients. Stormwater from driveways and roads can contain high levels of petrochemicals from fuel and lubricants.

If the area between buildings is devoted to lawn, fertilizers, pesticides and herbicides can be washed into the water system by rainfall.

Human activity along a shoreline, particularly when associated with over-water structures, can disturb fish and wildlife species that use shoreline habitat for cover, foraging, and/or nesting areas (Brazner, 1997).

Flow action and water level fluctuations, together with the proximity of structures close to the shoreline edge have led to the need for shoreline stabilization on most properties, resulting in continuous hard armoring. Hard armoring prevents the recruitment of native sediments in the river system.

Armoring removes the natural vegetated environment which absorbs and dissipates flow energy at the shoreline edge. Armoring also reflects wave energy at the shoreline, creating a high-energy environment which can result in gradient and substrate features that are less favorable for spawning and rearing habitat (Kahler, 2000).

A.11 Shoreline Ecosystem Conditions
In Snohomish County, analysis of the ecosystem-wide processes and functions for rivers and streams
have been conducted and summarized for all of the basins through WRIA planning and salmon recovery documents.

The analysis in these documents, as it applies to the requirements of the Town of Index Shoreline Management Act update, is summarized and presented.

A description of the methodology, ecological functions and the indicators used to characterize river and stream shorelines is found under Methodology.

Characterization of Ecosystem-Wide Processes and Ecological Functions have been condensed for relevance to the Town of Index jurisdiction.

For this report, existing data, studies and analysis were reviewed which generally characterized the ecosystem-wide processes and ecological functions at a watershed level.

A.12 References

Snohomish County PDS provided the primary outline of the inventory and characterization

Additional information as reviewed by the town and information contained in this report or included in the data supporting the SMP are

- North Fork Skykomish River Study (A. Hook),
- Jones and Stokes (2004),
- Town of Index Anecdotal Information,
- Adger 2005,
- Lindenmeyer and Tambiah 2005,
- Haring 2002,
- Snohomish County 2006 Snohomish County BAS,
- Matrixes for Wildlife-Habitat Relationships in Oregon and Washington,
- Draft Initial Watershed Assessment WRIA 7 Snohomish River Watershed, March 1995,
- Gersib 2003,
- Snohomish County 3 / 2009,
- Kahler 2000,
- Brazner 1997,
• H.W. Lochner Inc. 3/2009,
• Menashe 1993
• Greco 1999
• Raedeke et al. 1988
• Kauffman, et al., 2001;
• O’Connell et al., 2000
• Simenstad and Cordell 2000
• Haring 2002
• SIRC 2005
• Greco 1999
• Raedeke et al. 1988
• Simenstad and Cordell 2000
• Kauffman, et al., 2001; O’Connell et al., 2000
• Haring 2002
• Karr 1997
• Menashe 1993
• SIRC 2005
• H.W. Lochner, Inc. 3/2009

Louise Lindgren and David Camron, & The Index Historical Society Burkstaller Book “ ” as well as several rock climbing books.

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Acknowledgements

This document is produced through cooperation and input of various individuals, environmental documents, and assistance from experts in the field of Shoreline Management and the Science of the region.

Guidance for this document is provided through the Dept. of Ecology, Washington State Dept. of Fish and Wildlife and Snohomish County PDS and SWM.

Additionally, assistance and information was garnered from the Puget Sound Partnership, representatives from various state and local agencies, Washington State watershed groups, Washington State University and conservation groups, and private individuals making their studies and information available to the Town of Index.

Those providing a Key Role in the process include:

- Town of Index Shoreline Planning Group:
- Town of Index Planning Commission:
- Town of Index Town Council, Mayor and Staff
- Puget Sound Partnership
- People for Puget Sound
- Snoqualmie Watershed Forum
- Washington State University
- Tulalip Tribes
- Department of Ecology
- Snohomish County
- North Cascades Organization

Salmonid Data

Federal: Puget Sound ESA listings provide link

State: Candidate species (http://wdfw.wa.gov/wlm/diversity/soc/soc.htm) Several populations of Chinook salmon spawn in the North Fork Skykomish River. The status within the overall system ranges from relatively robust, although below recovery goals, to nearly extinct.
Most species are currently below the abundance level needed to meet “recovered” conditions. Threats to recovery include (see Puget Sound Salmon Recovery Plan) loss 

Loss of rearing habitat, loss 

Loss of mainstem side channel habitat, and change 

Change in hydrograph (increased frequency and higher level of high flows and lower level of low flows) due to higher than natural percentage of land that is non-permeable surface. 

Populations of summer steelhead in the Skykomish River basin include native fish in the North Fork Skykomish River and hatchery fish produced at Reiter Ponds Hatchery. 

Releases of hatchery summer steelhead smolts into the main-stem Skykomish River have been substantial since Reiter Ponds Hatchery began production in 1975. Releases in the North Fork Skykomish River have generally been 20,000–30,000 smolts/year, whereas releases in the South Fork Skykomish River ceased after 1992. Because hatchery steelhead are given adipose fin clips as juveniles, an adult fish with an adipose fin is considered to be from natural production. 

Steelhead redds in the upper North Fork Skykomish River index reach have averaged 78 redds (range 21 to 159) during 1988 through 1996, with 75 or fewer redds observed between 1993 and 1996 (WDFW 1997a). 

Puget Sound Chinook populations were formerly identified in the Salmon and Steelhead Stock Inventory (WDF et al. 1993). These; 

Puget Sound chinook populations are classified, according to their migration timing, as spring, summer, or fall Chinookchinook, but specific return timing toward their natal streams, entry into freshwater, and spawning periods varies significantly within each of these ‘races’. 

Fall Chinook are native to the North Fork Skykomish, as are bull trout, Chinook, and both winter and summer run Steelhead. 

Shorelines of Statewide Significance 

The SMA provides a special set of policies for larger and more regionally important water bodies identified as “shorelines of statewide significance.” In addition to the goals and policies of the SMA, seven additional policy directives give priority and preferences to uses which: 

1) recognize and protect the state-wide interest over local interest; 2) preserve the natural character of the shoreline; 

3) result in long-term over short-term benefit; 4) protect the resource and ecology of the shoreline; 5) increase public access to publicly owned areas of the shorelines; 

6) increase recreational opportunities for the public in the shoreline; and
7) provide for any other element as defined in RCW 90.58.100 deemed appropriate or necessary 
(RCW 90.58.020).

Criteria defining Shorelines of Statewide Significance in Snohomish County are found in RCW 90.50.030 
and include those areas of Puget Sound and the Strait of Juan de Fuca and adjacent salt waters north to 
the Canadian line and lying seaward from the line of extreme low tide. Also included are; lakes, whether natural, artificial, or a combination thereof, with a surface acreage of 1,000 acres or more measured at the ordinary high water mark; natural rivers or segments where the mean annual flow is measured at 1,000 cubic feet per second or more; and shorelands associated with these areas.

Important Background info

Upper Skykomish River Flood Insurance Study Technical Support Data Notebook 9/29/2010 Snohomish County Public Works RC 1532, UPI # 06-0150

LOCHNER Route Feasibility Study Snohomish County, Washington March 30, 2009

FEMA Firm Rate Study (2009)

SOUTH FORK SKYKOMISH RIVER SUMMER STEELHEAD – (BRIEFING) 2008

FEDERAL REGISTER redd count statistics

http://www.federalregister.gov/articles/1999/11/01/99-28295/endangered-and-threatened-wildlife-

Abbagail Hook 2006

The recent history of floodplain dynamics in the North Fork Skykomish River, Washington

Skykomish River Watershed Habitat Conditions

SUMMARY OF SHORELINE ECOLOGICAL FUNCTIONS AND CONDITIONS IN SNOHOMISH COUNTY FEBRUARY 2006

Flora of the Wild Sky Wilderness, Philip Zalesky

King County May 2010 Climate Change Impacts on River Flooding: State-of-the-Science and Evidence of Local Impacts

COMPREHENSIVE MANAGEMENT PLAN FOR PUGET SOUND CHINOOK:

HARVEST MANAGEMENT COMPONENT Puget Sound Indian Tribes and And The Washington Department of Fish and Wildlife March 1,

WDFW Low Flow Survey 2004

RESTORATION

http://www.co.snohomish.wa.us/documents/Departments/Public_Works/surfacewatermanagement/snohomishsalmonplanfinal/appendixefinal.pdf
Index – Thumbnail History, By Louise Lindgren, September 04, 2009

WIRA 7 / Basin characterization

Snohomish County Alternative Mitigation Pilot, Final Report,

August 3, 2008,

produced cooperatively by:

- Washington Governor’s Office of Regulatory Assistance
- Washington Department of Fish and Wildlife
- Washington Department of Ecology
- Army Corps of Engineers
- Snohomish County
- City of Everett

- Skykomish Chinook
- Skykomish Coho
- Skykomish Fall Chum


Chinook Skykomish Chinook 07 Puget Sound North Not Rated Depressed
Chum Skykomish Fall Chum 07 Puget Sound North Healthy Healthy
Coho Skykomish Coho 07 Puget Sound North Healthy Healthy

http://wdfw.wa.gov/mapping/salmonscape/

1. HeraldNet.com - Local news: Skykomish River claims another home

Jan 21, 2011 ... Mary Lindeberger home on the North Fork Skykomish River above Index in 2009. ... out there that were built prior to the flood-hazard regulations going into effect." ... Snohomish manager finalist for Shoreline job ... www.heraldnet.com/article/20110121/NEWS01/701219891
Appendix B. Shoreline Mitigation and Cumulative Impact Study

B.1 Mitigation

B.1.1 Purpose

Assure no net loss of shoreline ecological function due to permitted development activities. Review each proposal which includes possible negative impacts to shoreline, or the Shoreline Management areas (wetlands, floodplain streams as noted), using the cumulative assessment guidelines.

B.1.2 Procedure for Assessment

Avoid, Minimize, Mitigate and Compensate

- Avoid the impact altogether by not taking certain actions, or parts of an action, that will clearly have negative effects on the shoreline environment;
- Minimize negative impacts: limit the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts;
- Rectify the impact by repairing, rehabilitating, or restoring the affected environment;
- Reduce or eliminate the impact over time by preservation and maintenance operations;
- Compensate for the impact by replacing, enhancing, or providing substitute resources or environments; and
- Monitor the impact and the compensation projects and take appropriate corrective measures when needed to assure success.

All shoreline development and activity shall be located, designed, constructed, and managed in a manner that mitigates adverse impacts to the environment. The preferred mitigation sequence (avoid, minimize, mitigate, compensate) shall follow that listed in WAC 173-26-201 (2)(e) http://apps.leg.wa.gov/wac/default.aspx?cite=173-26-201

B.1.3 Mitigation Plans

Mitigation plans, submitted with proposed development plans, shall include at a minimum:

1. Planting and soil specifications for all proposed planting areas (suggestions: adding compost, top soil or similar soil enhancements (review State of Washington Soil Amendment Guidelines), define plants with both the common and Latin name as well as the height/size to be installed. All planted mitigation species within the shoreline area will be on the local “native” plant lists for this portion of Region 9.

2. Include the designated success standards (standards developed as part of the Shoreline Master Plan or Town of Index Critical Areas Regulations whichever is more restrictive) that apply to the site.

3. Define the due date of the “Annual Monitoring Report”, to be prepared by property owner or assigned. The report is to be provided to the Town of Index documenting the survival of all species planted and assuring no new negative impacts have been created in the shoreline area. Monitoring is to be conducted for five (5) years minimum. The involvement with other agencies may extend the monitoring period. Failure to meet stated goals will extend the monitoring period until success is achieved.

4. A proposed contingency plan is required for all mitigation plans. Failure occurring in years one to five shall be replaced of reassessed using the contingency plan. That contingency plan may include replacement as well as redesign. Consultation with available agencies is recommended.
The Town of Index has determined only those projects which are adjacent to the North Fork Skykomish, or the related wetland or stream areas, shall be required to conduct Shoreline Mitigation activities as guided by the SMP.

The remaining portions of the Shoreline may be subject to State or local regulations and buffer standards and other commensurate mitigation.

Where Town of Index Municipal Code or other regulations (including Shoreline Master Plan designations) overlap, the more strict code shall be enforced.

B.1.4 Single-Family Required Mitigation

Single Family Home, required Mitigation Plans shall include:

1. Replacement/mitigation for all site disturbance between the footing of the primary building and the top of bank.
2. Removal of native trees within the shoreline area shall be replaced with 4 large native shrubs (or tree) per inch of DBH (diameter at breast height) for tree removed. Native shrubs shall be replaced 1 for 1.
3. 25% of the lot area, between the footing of the primary structure and the top of bank, shall be planted with native vegetation at 1 stem per sq ft.
4. Per the State and Federal Guidelines, grass is discouraged in the area between the footing and top of bank. Native trees and shrubs, which provide erosion protection and shoreline stabilization, are encouraged (this information is available at Town Hall, through the State of Washington Shoreline Web Site and other sources).

B.1.5 Commercial and Other Required Mitigation

Commercial and other proposals, required Mitigation Plans shall include:

1. Replacement / mitigation for all site disturbance between the footing of the primary building and the top of bank.
2. Removal of native trees within the shoreline area shall be replaced with 4 large native shrubs (or tree) per inch of DBH (diameter at breast height) for tree removed. Native shrubs shall be replaced 1 for 1.
3. 25% of the lot area, between the footing of the primary structure and the top of bank, shall be planted with native vegetation (1 stem per sq ft).
4. Per the State and Federal Guidelines, grass is discouraged in the area between the footing and top of bank. Native trees and shrubs, which provide erosion protection and shoreline stabilization, are encouraged (this information is available at Town Hall, through the State of Washington Shoreline Web Site and other sources).
5. Written inventory of the existing shoreline environment including the physical, chemical, and biological elements; provide an assessment of their condition.
6. A discussion of the project’s proposed minimization and proposed impacts and the effect on the ecological functions which have been deemed necessary to support existing shoreline resources.
7. A discussion of any federal, state, or local special management recommendations which have been developed for wetland or species or habitats located on the site.
8. A discussion of measures undertaken to preserve existing habitat conditions.

Projects which have been deemed to include significant impacts to the site and/or the habitat or environment of the Shoreline, and as such require additional mitigation compliance (i.e. State or Federal
intercession) may be required to supply additional information prior to approval for mitigation or development.

**B.2 Cumulative Impacts**
Environmental damage often occurs incrementally from a variety of small sources. It is only by analyzing the effects of these sources together that the full environmental consequences of a project become known.

**B.2.1 Timeframe**
Time frame of this assessment is limited to no greater than 50 years and targeted at 20 years.

**B.2.2 Current Status**
The Town of Index and Snohomish County collaborated to create the Inventory and Characterization for this update of the Shoreline Master Plan. Reference this Chapter when detailed information on the shoreline area is necessary.

**B.2.3 Historical Context**
The history of the North Fork and main-stem of the Skykomish River plays a significant part in the history of the Skykomish Valley. For the Town of Index the historical relationship of the Town, its residents and development in regards to the river has been one of controlling the negative impacts of the river on the community. Floods over time had damaged or removed bridges, homes and caused the loss of significant portions of the land. The Town has responded by armoring the banks, primarily the limits of the work has been financial not design or planning.

In 2014 over 90% of the shoreline within the Town of Index is armored as heavily as the landowners (both private and public) can afford. The Town of Index has identified both public and private areas that are in need of repair and maintenance, though no new sections of armoring have been proposed for decades.

Each landowner at the Armored Bank has the responsibility to maintain the existing armor to the best of their abilities. Should private land be left un-maintained such that it would cause the loss of public road and ownerships the Town or other agency may need to address the possible dangers and take remedial action.

Continued maintenance of the shore armor is inevitable at this time. The impact of this maintenance on the river system is not likely to create new significant negative impacts to the Shoreline Area or the river system. What negative impacts exist at this time will continue.

**B.2.4 Foreseeable Actions**
Town of Index updated Comprehensive Plan (dated June, 2015) projects or plans for the following changes in the planning period of 2014 to 2017.

Snohomish County plans for an additional 10 persons to live within the boundaries of the Town of Index by the year 2020 which may require the addition of 2 housing units.

Changes in the FEMA regulated floodplain will, if adopted as planned, remove about 12 housing units from the FEMA designated flood hazard area.
Development of light industry, large business or increased commercial space has not been anticipated by Snohomish County planning or Town of Index planning procedures.

Replacement of Town, County or Burlington Northern Railroad infrastructure is possible within the next 20 years. The Town of Index may need to maintain or repair sections of armored bank, install flood control features or replace waterline in the floodplain. The Wes Smith vehicle bridge into the Town of Index is less than 20 years old at this time. The bridge did undergo damage in its first flood event and while major repairs are not expected, future flood damage may require work in the river and related shoreline. Burlington Northern Railroad has an older railroad bridge across the North Fork Skykomish River. Past reviews have indicated that both bridges constrict the channel at the crossings and if repairs were undertaken this feature should be eliminated. This work would require significant in water and shoreline work.

B.3 Shoreline Potential Development Considerations
The Washington State Shoreline Management Act requires shoreline master programs to regulate any new or potential development in a manner which can equivocally state “no net loss of shoreline ecological functions” occurs as a consequence of the development.

There are varieties of possible negative immediate impacts (through new development, change of use or redevelopment) that can occur within the Shoreline areas of the Town of Index. Some of these proposals will create immediate impacts that can be anticipated, reviewed and assessed. Such a determination can allow the possible impacts to be “addressed” through avoidance and mitigation.

Cumulative impacts are specifically different in nature from immediate impacts and may be found to create a non-mitigatable condition within the shoreline area. Individually each project may not result in the determination of a “significant impact” while the combination of similar actions or physically related actions, may lead to the determination of a significant cumulative impact to the ecosystem over time.

Example: the creation of a small area of impervious surface on a single lot may have only a negligible impact on the environment. While the creation of numerous areas of impervious surface may, in total, result in a significant change throughout a watershed over time and this could lead to system wide negative impacts, such as water quality degradation, increased peak storm flows, channel erosion, decreased vegetation and habitat areas, increased local temperatures. Mitigating for this seemingly small impact becomes more important as the development activity in a watershed increases.

The Washington State Shoreline Guidelines state, “to ensure no net loss of ecological functions and protection of other shoreline functions and/or uses, master programs shall contain policies, programs, and regulations that address adverse cumulative impacts and fairly allocate the burden of addressing cumulative impacts.”

Evaluation of such cumulative impacts should consider:
(i) current circumstances affecting the shorelines and relevant natural processes;
(ii) reasonably foreseeable future development and use of the shoreline; and
(iii) beneficial effects of any established regulatory programs under other local, state, and federal
The Town of Index has a variety of regulatory authorities overseeing all proposals which may include: the Town of Index (Index Municipal Code), State and Federal agencies (example: Hydraulic Project Approval for all work conducted within the ordinary high water line, DOE (Clean Water Act (CWA)), the Army Corp. of Engineers, the Federal Endangered Species Act (ESA) and National Pollution Discharge and Elimination System (NPDES) etc.... Snohomish County provides assistance with regulations at the request of the Town of Index; therefore the county only enforces those regulations which are supported by the Town of Index ordinances.

The Town of Index has prepared and updated the Town of Index Comprehensive Plan (currently under review 2015).

The Town of Index relies heavily on the State Environmental Policy Act (SEPA) for many review procedures (including business licenses). Currently the Town of Index supports its Shoreline Review Procedure with the original Snohomish County Shoreline Act planning documents and the Town of Index SEPA process and Critical Areas Ordinance.

The State Environmental Protection Act (SEPA) requires an assessment of environmental impacts for all development and some non-action projects.

The Shoreline review assessment, with review of cumulative impacts, is intended to address the possible overall affects of various projects rather than isolated or individual impacts at specific locations. The review of all potential impacts can help in identifying needed and meaningful mitigation. The adverse side of this review is the possible denial of a project or proposal.

A1 Applicant may seek redress for findings by the Town of Index in support of the Shoreline Master Plan though the State of Washington. Applicant has:
Rights for Hearing with the Dept. of Ecology /Shoreline Hearings Board Dept of Fish and Wildlife and/or Army Corp of Engineers

A. Reasonable Expected Development:
Assumption for review can only anticipate that type of development which is reasonably expected (based on history, exiting use, and known trends) and this includes:

• New Homes on Vacant Land
• Replacement of Existing Homes within the Shoreline
• Repair and Maintenance of Existing Homes within the Shoreline
• Addition of Garages and Appurtenant Structures within the Shoreline
• Change of use of existing buildings (from homes to business)
• Removal of existing buildings.

The review shall include all reasonable details which could take place and the habitat functions that would be at risk due to this development and known at this time.

An attempt has also been made to provide possible mitigation proposals and describe how developments in these areas might provide offsets based on the proposed policies and regulations as set in the Shoreline Master Program.
B.4 Regulation
The Town of Index Shoreline is adjacent to the North Fork Skykomish which is designated as a Wild and Scenic River and a Shoreline of the State. The shoreline area is regulated (in part) by the Critical Areas Ordinance for the Town of Index along with regulations of other agencies many related to that point which is defined as the ordinary high water mark. This river section provides habitat to several ESA listed species (and regulated by State & Federal agencies).

B.5 Assessment
Based on review undertaken by the Town of Index and Snohomish County for the Shoreline Master Plan, the Town has determined the possible “New Impacts” from future development are limited due to the extent of existing development area within the shoreline area.

Continued use of existing structures and re-development is assumed to provide the majority of impacts which will take place within the next 20 to 50 years.

The replacement of existing buildings with more valuable and structurally sound units is expected over time. With any measurable change in size or impact these replacement structures will be required to meet new regulations and building codes and will trigger review and compliance requirements not provided by the existing structures and uses.

Site specific impacts will always need to be addressed on a case-by-case basis during future project reviews for all shoreline sites.

The following detailed review outline is assumed to assess possible impacts within the “reasonably foreseeable future”, for possible re-development and development proposals which could be located within the shoreline area and would be regulated by the SMP (Shoreline Master Program).

This review also attempts to assess possible impacts from actions undertaken without permit or approval, as well as actions that are caused by unregulated activities and the continued use of allowed/legal development exempt from permitting.

The SMP guidelines state, “…recognize that methods of determining reasonably foreseeable future development may vary according to local circumstances, including demographic and economic characteristics and the nature and extent of local shorelines”.

All development within the shoreline, at this time (2014), is either residential or small business and all are situated within older buildings using public water and on site septic systems. Many of the Armored Bank developments are “built out” to the extent of lot coverage allowed, such that “replacement” development would never increase the square footage area of development or the conditions related to those impacts.

Snohomish County and the BNRR (Burlington Northern Rail Road) include ownership areas within the Town of Index Shoreline, as history has indicated, these areas are out of the regulatory authority of the Town of Index when proposals are undertaken and governed by those agencies in their status as Lead Agency for those lands. This SMP does not
assume to take guidance or assessment for activities and changes undertaken by those agencies.

B.5.1 Public Lands in the Shoreline Area
There are large portions of the Index Shoreline area (60%) which are immediately adjacent to public right of ways (Ave. A and public street ends). These areas are publicly owned and either maintained as streets, provide storm water outfalls or currently are undeveloped street ends. The use within these areas has no foreseeable change short of a major flood loss which would require work in response to the damage.

Avenue A, paved street adjacent to the top of bank throughout much of town it unlikely to undergo any significant change short of a major flood loss which would require work in response to the damage to protect the street and access to homes.

Use of street ends has long been a discussion item within the Town of Index, though most street ends are not physically situated to provide reasonable or safe access. Most if not all uses of these areas will continue as they are at this time without significant change.

The cumulative impacts of the ongoing and projected use of Public Lands does not appear to create a measurable new impact to the shoreline over time.

B.5.2 Vacant Lots in the Shoreline Area
Immediately adjacent to the river, the Armored Bank designation, there are fewer than six (6) vacant single lots; it is possible these lots may not be viably built on due to other regulations. Development of these lots could require septic systems located off site and area of allowed development, based on total lot size, would be limited to “Sixty (60) percent of any building site including primary and secondary structures. (Ord. 370 § 3.3 (part), 2004)”.

The Town of Index Municipal code requires a setback of twenty (20) feet from the property edge/front, five (5) feet from property edge/back, and five (5) feet from side of property. (IMC 17.16.050)

The Health District regulations require all building(s) shall be set back from all parts of septic systems in conformance with current Snohomish County health department regulations. (Ord. 383 (part), 2005; Ord. 370 § 3.1 (part), 2004) (typically 30 feet).

Within the general Shoreline area, there are an additional ten (10) lots (also vacant at this time) which may have issues regulating growth potential in addition to Shoreline regulations. Most of these locations have a street between the lot and the shoreline, all can be served by Town water and all would need to comply with Snohomish County Health District regulations for on site septic (systems typically requiring a square foot area dedicated to sanitation in excess of that currently available on the parcel).

These lots would also be restricted by municipal codes: “lot coverage would be limited to Sixty (60) percent of any building site including primary and secondary structures. (Ord. 370 § 3.3 (part), 2004)”.

The Town of Index Municipal code requires a setback of twenty (20) feet from the property edge/front, five (5) feet from property edge/back, and five (5) feet from side of property. (IMC 17.16.050)

The Health District regulations require all building(s) shall be set back from all parts of septic systems in conformance with current Snohomish County health department regulations. (Ord. 383 (part), 2005;
While development of these ten lots is possible, and the economics of building in the Town of Index will likely improve over the decades, the regulations applied to each lot will limit development in many ways and the various regulatory restrictions, which would be applied, have been developed to provide protection for the environment in a number of ways.

The cumulative impacts of the possible new development within the shoreline area should not create substantial negative impacts to the environment when regulations are applied and followed. The Town of Index will have a responsibility to ensure that new development adhere to all regulations and that all illegal development be stopped and abated as quickly as possible.

B.5.3 Replacement of Existing Uses
There is an assumption that some homes will be replaced or remodeled within this review period. Replacement development includes possible increase in footprint, increase of building values, and possible change in use.

All development would be regulated under the code in place at the time which should continue to focus on preservation and enhancement of the local shoreline habitat and values. The existing building codes and Health District regulation would continue to limit any development which posed a threat to health and safety.

Based on the existing municipal code all development would also be restricted by municipal codes: “lot coverage would be limited to Sixty (60) percent of any building site including primary and secondary structures. (Ord. 370 § 3.3 (part), 2004)”. The Town of Index Municipal code requires a setback of twenty (20) feet from the property edge/front and back, and five (5) feet from side of property.

Health District regulations requires all Building(s) shall be set back from all parts of septic systems in conformance with current Snohomish County health department regulations. (Ord. 383 (part), 2005; Ord. 370 § 3.1 (part), 2004) (typically 30 feet).

While redevelopment will likely take place over the decades ahead, the regulations applied to each lot will limit development in many ways and the various regulatory restrictions, which would be applied, have been developed to provide protection for the environment in a number of ways.

The cumulative impacts of redevelopment within the shoreline area should not create substantial negative impacts to the environment when regulations are applied and followed. The Town of Index will have a responsibility to ensure that development adhere to all regulations and that all illegal development be stopped and abated as quickly as possible.

B.6 Resource List and General Assessment
Development within the Town of Index Shoreline Area may affect the following resource areas.

B.6.1 North Fork Skykomish
A. North Fork Skykomish Shoreline Management Area includes Urban Shore Edge Residential
Armored Bank Undeveloped Shoreline
Undeveloped Natural Shoreline edge, typically within the floodplain Urban Upland
Residential and Commercial Development and Public Ownership

Historical Context: The Town of Index was established in 1898 and for several decades had a population exceeding 1,500 people with a wide range of business (hotels, gas stations, a hospital etc.). Streets were muddy in the winter and dusty in the summer. The river was narrower than we find it today with a bridge crossing in approximately the same place. Pre development, the area was a forested riparian corridor.

Over the decades, the conditions in the Town improved from both an environmental and health standard, the population declined and the Town began to fortify the banks of the Skykomish to prevent loss from flood. The current bank armoring is significant in size and length, and armoring protects many hundreds of thousands of dollars worth of homes and businesses. Within the last decade funding for bank armor maintenance has decreased and the Town and residents are all aware that bank armoring is in need of repairs. There is no reason to believe, other than for a total lack of funding, that any portion of the armored bank would be allowed to diminish in size and quality.

Health and Conditions: The North Fork Skykomish is not on the 303d list. Water quality along these upper reaches of the river is believed to be reasonably good. The most danger posed by the Town of Index to the health of the river would be related to failed or poorly operating septic systems that would allow effluent to leach into the river. Downstream the populations along the river greatly exceed that of the Town of Index, significantly limiting the single impact development in the Town may pose on the overall health of the river.

Direct Impacts: Direct impacts to the North Fork Skykomish River due to development within the Shoreline will be related to unregulated development and uncontrolled growth.

Protection of the environment, through existing and future regulations, should ensure that direct impacts are limited or nonexistent.

Indirect Impacts: Development within the shoreline may lead to more use and human impact to the shoreline over time. New homes, replaced homes and business development could cause more people to want to be near the river and use the shoreline through their day-to-day life. Human use of any environmental resource typically can lead to degradation over time. It will be important that the Municipal Code and other regulations control and direct all development with the goal of environmental preservation and enhancement in order to limit the possible negative indirect impacts.

Outcome and Precautions: The Town of Index has been populated for over 100 years by residential and business settlement. The use of the area prior to the platting in 1898 is unknown but it is assumed there were some summer encampments in the general area. Impacts to the shoreline do not appear to be documented until the platting in 1898 or the years previous. The outcome of the continued use of this approximately 1 lineal mile of river front should not lead to the degradation of the environment greater than typically found in areas of human population.

Precautions should include: following the guidance of the Shoreline Management Plan, and compliance with residential building codes and enforcement of regulations which ensure the protection of the
environment from human sewage and garbage.

The maintenance of the armored bank is assumed to continue through time.

**B.6.2 Flood Hazard and Wetlands**

**B. Flood Hazard Area includes:**

- Wetland Areas
- Residential Development and Public Ownership

**Historical Context:** The Town of Index was established in 1898 and for several decades had a population exceeding 1,500 people with a wide range of business (hotels, gas stations, a hospital etc..). Streets were muddy in the winter and dusty in the summer. The river was narrower than we find it today with a bridge crossing in approximately the same place. The incorporated Town areas include areas that meet the criteria for floodplain, flood hazard areas, and pockets of wetlands that are separated from the river system by development. Pre development, the area was a forested riparian corridor.

**Health and Conditions:** The most danger posed by the Town of Index to the health of the floodplain and wetland areas would be related to failed or poorly operating septic systems which would allow effluent to leach into the river.

**Direct Impacts:** Direct impacts to the North Fork Skykomish River due to development within the floodplain and flood hazard areas would mostly be related to unregulated development and uncontrolled growth in the flood prone areas. Development in the floodplain, legal or not, poses a risk of altering natural flows and creating dangerous down river conditions for other properties. Adherence to existing and future regulations should ensure that direct impacts are limited or nonexistent.

**Indirect Impacts:** Development within the floodplain may lead to more use and human impact over time. New homes, replaced homes and business development could cause negative impacts to the floodplain. It will be important that all development be in compliance with Federal State and Municipal Code and any other regulations that protect the floodplain from any possible negative indirect impacts.

**Outcome and Precautions:** The Town of Index has been populated for over 100 years by residential and business settlement. The areas of the floodplain that include homes and business have been in place throughout that time. A few homes have been lost over the last 100 years; significant damage to buildings has been rare. Damage to interiors and possessions are more common. Compliance with FEMA elevations for new development and redevelopment should limit negative impacts related to building in the floodplain. Preservation of wetlands and wetland buffers from negative impacts will ensure that adequate flood plain area remain for flood storage during large events.

Precautions should include following the guidance of the Shoreline Management Plan, FEMA elevation requirements, and compliance with residential building codes and enforcement of regulations which insure the protection of the environment from human sewage and garbage. All future development should be held to a standard that ensures the protection of the environment and protects the shoreline from ecological degradation as well as unsafe conditions that adversely affect other areas of the shoreline or the community at large.
B.6.3 Tributaries
C. Small Tributaries and Drainages
ESA listed waterways

Historical Context: The Town of Index was established in 1898 and for several decades had a population exceeding 1,500 people with a wide range of business (hotels, gas stations, a hospital etc.). Water was available from a single spring source in the early 1900’s, prior to that the local springs and streams provided drinking water. In 2014 there is one significant tributary which begins in the center of town (about 6th street) and flows beyond Town limits to the west before joining the bank width of the North Fork Skykomish. There are a number of small seeps and springs that contribute to this system in the wetter periods of the year. Pre development, the area was a forested riparian corridor.

Health and Conditions: The main tributary has been called Cripple Creek for over 20 years. Various small projects have been conducted in and adjacent to the stream in that time; primarily funded by special projects for fish enhancement or vegetation control. Currently Cripple Creek suffers from silt-laden conditions in the area at the Burlington Northern Railroad crossing west of 5th street; this has been an ongoing problem for decades. Downstream of the culvert the stream widens and has been excavated over the decades at times to ensure flows to the west and prevent related flooding in portions of Town.

Direct Impacts: Direct impacts to the Cripple Creek from development are unlikely due to the physical topography that exists between the building lots and the creek itself, separating the creek from areas of development. Negative impacts from a Burlington Northern Railroad spill or action on the tracks would be possible due to the proximity of the two. It might be possible that failing septic system could affect water quality though unofficial testing in 2011 did not find such results. Future development and redevelopment would need to adhere to sanitation codes and development regulations limiting the possible negative impacts to the creek or its habitat areas.

Indirect Impacts: Indirect impacts to the Cripple Creek, from development and ongoing uses within the shoreline areas, is unlikely due to the physical topography that exists between the building lots and the creek itself, separating the creek from areas of development.

Outcome and Precautions: The Town of Index has been populated for over 100 years by residential and business settlement. The areas of development that include homes and business have been in place throughout that time. While the creek is impacted by all activities on the BNRR tracks, few residential activities affect the creek itself.

Precautions should include: following the guidance of the Shoreline Management Plan, the Critical Areas Ordinance and compliance with residential building codes and enforcement of regulations which ensure the protection of the environment from human sewage and garbage.

B.6.4 Historical and Archaeological Resources
D. Historical and Archaeological Resources are undefined at this time.
No identified Historical or Archeological resources have been identified in the shoreline or SMP area. All excavation approvals should include a reminder of the State Code (http://app.leg.wa.gov/rcw/default.aspx?cite=27.53&full=true) RCW 27.53.

B.6.5 Threatened and Endangered Species

E. Threatened & Endangered Species

The North Fork Skykomish and related tributaries are noted to include the presence of ESA listed species of fish.

Historical Context: The Town of Index was established in 1898 and for several decades had a population exceeding 1,500 people with a wide range of business (hotels, gas stations, a hospital etc.). Mining and logging were a primary economy of the area though fishing was both a source of sustenance and recreation and attracted some tourism over the years. Fishing is still a popular past time and recreation in the area attracting tourism activities throughout the river system. Pre development, the area was a forested riparian corridor.

Health and Conditions: The North Fork Skykomish is not on the 303d list. Water quality along these upper reaches of the river is believed to be reasonably good. The most danger posed by the Town of Index to the health of the river would be related to failed or poorly operating septic systems that would allow effluent to leach into the river. Downstream the populations along the river greatly exceed that of the Town of Index, significantly limiting the single impact development in the Town may pose on the overall health of the river. Working in the river for bank maintenance and armoring is regulated for the protection of the species found in the river.

Direct Impacts: Direct impacts to the North Fork Skykomish River and the listed species, due to development, would mostly be related to unregulated development and uncontrolled growth along the river edge and in the flood prone areas. Adherence to existing and future regulations should insure that direct impacts are limited or nonexistent.

Indirect Impacts: Development may lead to more use and human impact over time. Uncontrolled development could cause negative impacts to the quality of habitat available to ESA listed species in the area. It will be important that all development comply with Federal State and Municipal Code and any other regulations that protect the floodplain from any possible negative indirect impacts.

Outcome and Precautions: The Town of Index has been populated for over 100 years by residential and business settlement. The areas that include homes and business have been in place throughout that time. Development and environmental regulations seek to prevent and mitigate any possible negative impacts on ESA listed species, the Town of Index is charged with the responsibility of enforcement of these regulations. Precautions should include following the guidance of the Shoreline Management Plan, compliance with environmental and residential building codes and enforcement of regulations that ensure the protection of the environment from human sewage and garbage.

All future development should be held to a standard that ensures the protection of the environment and
protects the shoreline from ecological degradation as well as unsafe conditions that adversely affect other areas of the shoreline or the community at large.

B.6.6 Community

Historical Context: The Town of Index was established in 1898 and for several decades had a population exceeding 1,500 people with a wide range of business (hotels, gas stations, a hospital etc.). Pre development, the area was a forested riparian corridor.

The current bank armoring is significant in size and length, and armoring protects many hundreds of thousands of dollars worth of homes and business. Within the last decade funding for bank armor maintenance has decreased and the Town and residents are all aware that bank armoring is in need of repairs. There is no reason to believe, other than due to a total lack of funding, that any portion of the armored bank would be allowed to diminish in size and quality. Pre development, the area was a forested riparian corridor.

Health and Conditions: The North Fork Skykomish is not on the 303d list. Water quality along these upper reaches of the river is believed to be reasonably good. There are no known environmental conditions that pose an adverse effect on the community’s health. Persons living in the Town of Index typically believe that they live in a healthy and safe environment. The community has been constrained in a small area of the upper river valley due to topography; it is unlikely the overall development patterns within the Town itself will change in the next few decades.

Direct Impacts: Direct impacts to the North Fork Skykomish River, due to regulated or unregulated development, or uncontrolled growth could pose future health hazards in a variety of ways. Protection of the environment, through existing and future regulations, should ensure that direct impacts are limited or nonexistent.

Indirect Impacts: Development within the shoreline may lead to more use and human impact over time. New homes, replaced homes, and business development could cause more people to want to be near the river and use the shoreline through their day to day life. Human use of any environmental resource typically can lead to degradation over time. It will be important that the Municipal Code and other regulations control and direct all development with the goal of environmental preservation and enhancement in order to limit the possible negative indirect impacts.

Outcome and Precautions: The Town of Index has been populated for over 100 years by residential and business settlement. The use of the area prior to the platting in 1898 is unknown but it is assumed there were likely some summer encampments in the general area.

The Town of Index is located in a single census tract with a population listed in 2010 as 178 on some studies and 180 on others.

The land mass includes approximately 1 lineal mile of river front with a width of about 1,700 l.f.

About 1/3 of the town land mass is developed in 2014. Due to the topography of the area, it is unlikely additional development will take place in the areas to the north (comprised of steep slopes and clay soils) or increased development along the shore edge.

Added or new regulation that would affect existing homes or redevelopment of existing homes could have a negative effect on the community by limiting the housing stock available.
Limitations imposed on the maintenance and protection of the armored bank could have a negative
effect on the community by limiting the sense of security the armoring provides.

**B.6.7 Watershed and Water Quality**

**G. Watershed and Water Quality:**

The Town of Index is within the WIRA 7 watershed and the Skykomish Basin. The Sub basin is typically
defined as the “Upper Skykomish or North Fork Skykomish” basin.

The North Fork Skykomish is not on the 303d list. Water quality along these upper reaches of the river is
believed to be reasonably good. The most danger posed by the Town of Index to the health of the river
would be related to failed or poorly operating septic systems which could allow effluent to leach into
the river. Downstream the populations along the river greatly exceed that of the Town of Index,
significantly limiting the single impact development in the Town may pose on the overall health of the
river.

While wetlands within the Town limits have not been mapped and defined, the areas are not currently
developed and any proposed new development would require a level of review that would add
protections as required by law.

The WIRA 7 watershed is very large and the North Fork Skokomish is but a tributary in the system which
eventually becomes the Snohomish River Basin.

Historical Context: The Town of Index was established in 1898 and for several decades had a population
exceeding 1,500 people with a wide range of business (hotels, gas stations, a hospital etc.). Mining and
logging were a primary economy of the area though fishing was both a source of sustenance and
recreation and attracted some tourism over the years. The watershed has long been the headwaters of
one of the most important basins in the Puget Sound area and the primary basin for this area of
Snohomish County. Pre development, the area was a forested riparian corridor.

Health and Conditions: The North Fork Skykomish is not on the 303d list. Water quality along these
upper reaches of the river is believed to be reasonably good. There are no known environmental
conditions that pose an adverse effect on the community’s health.

Direct Impacts: Direct impacts to the watershed and water quality, due to development, related to
unregulated development and uncontrolled growth, could pose future health hazards in a variety of
ways. Protection of the environment, through existing and future regulations, should ensure that direct
impacts are limited or nonexistent.

Indirect Impacts: Permitted development within the shoreline may lead to more use and human impact
over time. New homes, replaced homes and business development could cause more people to want to
be near the river and use the shoreline through their day-to- day life. Human use of any environmental
resource typically can lead to degradation over time. It will be important that the Municipal Code and
other regulations control and direct all development with the goal of environmental preservation and
enhancement in order to limit the possible negative indirect impacts.

Outcome and Precautions: The Town of Index has been populated for over 100 years by residential and
business settlement. The use of the area prior to the platting in 1898 is unknown but it is assumed there were likely some summer encampments in the general area.

The Town of Index is located in a single census tract with a population listed in 2010 as 178 on some studies and 180 on others.

Human use of this river mile into the next decades is inevitable without an event which would cause the loss of a substantial number of homes and limit the safety currently accepted within the community.

All future development should be held to a standard that ensures the protection of the environment and protects the shoreline from ecological degradation as well as unsafe conditions that adversely affect other areas of the shoreline or the community at large.
Appendix C. Shoreline Inventory

C.1 Introduction

The goals, policies and regulations found in the Master Program, were defined as the Town conducted an inventory and assessment of natural and built conditions along the shoreline within the Town’s jurisdictional boundaries in concert with the inclusion of studies conducted by state, county and other local jurisdictions.

The Town’s shoreline area is divided into segments, A through E which include the area from the eastern limit of the Town of Index plat to the western limit. These shoreline segments are further identified in the Shoreline Characterization Report.

Segments were defined primarily due to the geographic and land-use issues which an area shares in common.

Segments are described addressing: location, land use, shoreline environment, at risk areas, and the general potential for future development and restoration as well as the environmental issues found in the area.

The segment descriptions make up a portion of the final Shoreline Inventory and will be included in the components of the Shoreline Characterization portion of this plan. This component identifies conditions and provides an analysis of conditions found (during review planning period of 2011) and attempts to evaluate the details of the natural and built environment which define the existing ecological health within the shoreline jurisdiction area.

This characterization also identifies areas with potential for development, those which would best be designated as areas of conservation or restoration, as well as define the extent of public use and public development.

See Chapters on Shoreline Characterization for review of the issues associated with the Town’s shoreline.

C.2 Segments

A  Eastern town limits (10th) to 8th street,
B  8th to 5th street
C  5th to Crescent,
D  Crescent to 2nd street and
E  2nd street to the town Western limits (beyond 1st street).

C.3 Study Area

As defined in the State Shoreline Management Act, the Town’s shoreline jurisdiction includes only those areas within the Town limits which are 200 feet landward of the floodway or ordinary high water mark of waters that are designated as “shorelines of statewide significance” or “shorelines of the state” or their “associated wetlands.”

The North Fork Skykomish River is designated as “Shoreline of the State” meeting the criteria of a mean annual flow upstream of the Town of Index which is equal to or greater than 20 cfs., as well as a “Wild and Scenic River” designation as set by the State and Federal governments.
The Town encompasses approximately 135 acres, with a developed area of about 43 acres.

The Town of Index is found 1 mile north of U.S. Highway 2 (US 2) 7 miles east of the Town of Gold Bar and within a main corridor of the Burlington Northern Santa Fe (BNSF) Railroad which bisects the town at 5th street. The Town of Index is located 1.5 miles east of the confluence of the North and South Forks of the North Fork Skykomish River. (River mile 1.2 to 2.2)

The Town of Index is set between the “Index Town Wall” a sheer granite wall over 500 feet in elevation and the westward flowing North Fork Skykomish River.

This area is within the North Fork Skykomish River Watershed (also the Snohomish River Basin) under the Water Resource Inventory Area (WRIA) 7.

The Town of Index adopted a Zoning Policy and Comprehensive Plan designation which establish the town limits as an area of cottage & home based business with a general commercial business area around 5th between Ave A and Index Ave (this area is also the Index School area).

The Town’s urban growth area (UGA) is that area defined as the Town of Index town limits and does not include other areas which fall within the regulation of Snohomish County, USFS, Washington State Parks and DNR.

The Index Shoreline Characterization study area includes only land currently within the Town’s jurisdiction (the Town’s GMA planning area)

The Town of Index has developed five segments within its Shoreline Environment. These segments include areas which have been grouped based on their location, existing land use, geography and ecological function primarily related to salmonid habitat including, streambank vegetation, potential spawning areas, and possible off-channel habitat.

C.4 Segment A
8th to Eastern limits of the Town of Index Plat

This segment is residential with 1 home within the Armored Bank designation on the river side of Avenue A. All other homes (six) are located on the north side of Avenue A without direct impact to the top of bank. Portions of these lots are within the Upland Shoreline designation.

This segment includes some undeveloped lots allowing up to 2 or 3 new homes to be fully built out if septic systems were permitted by the Snohomish County Health District. None of these homes would be on the river edge itself as they will be on the north side of Avenue A.

This segment includes 1 partially undeveloped street and a rough alley which provides back yard access to two homes.

As in all areas of the Town of Index: redevelopment, remodel and reasonable upgrades to homes are allowed and would be incorporated into an allowed use.

New development would not likely require new streets or major utility extensions.
As in all areas of the Town of Index: redevelopment, remodel and reasonable upgrades to homes are allowed and would be incorporated into an allowed use.

 Portions of this area may include mapped FEMA floodplain depending on the maps in adoption at the time of review.

 There is no reasonable or designated public access in this area; though the pavement for Avenue A does go to the top of bank (this is a high steep rip rap bank). (8th street dead ends into the rip rap bank and 9th street dead ends at the river’s edge due to the historical bank loss).

 The area is not typically used recreationally by swimmers or boaters for access: fisher people do use the high bank area at some times of the year.

 There is a culvert outfall for storm water from within the inner street and development section east of 9th street.

 Each home, including the Armored Bank structures includes septic systems. Compliance with Snohomish County Health District for each systems location is unknown.

 C.5 Segment B
 5th to 8th

 This segment is a mix of commercial, public/government sites and residential homes located on both sides of Avenue A; including areas with structures on the river which are at or near the top of bank. Eight Homes are located within the Armored Bank designation, three buildings related to public uses are also in this designation, one private non-residential building, twelve homes, the Town Hall and detached meeting room, and the Index Store are within the outer edges of the Upland Shoreline and separated from the river by Avenue A.

 This segment includes some undeveloped lots. Therefore this segment has the capability to allow up to three or four new homes to be fully built out if septic systems were permitted by the Snohomish County Health District. New development would typically be considered on the north side of Avenue A, with one new home possible on the Armored Bank side of the Avenue A in a vacant lot area. New development would not likely require new streets or major utility extensions in this area.

 As in all areas of the Town of Index: redevelopment, remodel and reasonable upgrades to homes are allowed and would be incorporated into an allowed use. Portions of the shore edge will fall within the FEMA floodplain. There is no designated public access in this area. There are legal street ends (8th street end, legal access at the Fire Hall near 6th and a stormwater easement at 7th).

 Public access to the river is common along the east side of the Wes Smith Bridge and through the Index Historical Society Museum property; these are not municipally designated access points.

 The area between 6th and 8th is not typically used recreationally by swimmers or boaters for access due to the steep bank and private ownerships. This area has private homes at the top of bank limiting public access between 6th and 8th.
Flooding is rare in this area though shoreline impacts due to high water are common west of the bridge and within the un-armored area of the shoreline (between 5th and just west of 7th).

Significant development includes:

The historical buildings of the Historical Society and the Index Fire District #28 building are located within the Armored Bank designation in this segment.

There is a culvert outfall for storm water from within the inner street system and related developments at 6th, 7th, 8th and 9th streets.

Septic systems are installed for each of the structures; compliance with Snohomish County Health District for each systems location is unknown.

**C.6 Segment C**

**Crescent to 5th**

This area is consumed by Railroad tracks and BNRR ownership, Town Park, one commercial/residential ownership, the Wes Smith bridge and the related right of ways.

Utilities in this area include the main transformer switch for the Public Utility District for the Town and a vault for the telephone company.

New development should not require new streets or utility extensions. The only residential commercial structure in this area has undergone generic remodeling without FEMA upgrades or changes in the on site septic system.

This area includes lands within the floodplain as mapped by FEMA.

Development potential in this area would be highly restricted due to ownerships, access and right of way issues.

New development would not likely require new streets or utility extensions in this area. As in all areas of the Town of Index: redevelopment, remodel and reasonable upgrades to homes are allowed and would be incorporated into an allowed use.

Additions and change of use to the business property would need to be further reviewed prior to approvals for development.

No new single homes are likely in this area.

The area has been used recreationally by fisher people, swimmers and boaters as an un-designated access. No area is formally designated as public access. The commercial business in this segment allows “customer” boating access and launching from its property just east of the railroad bridge.

This area is significantly impacted by waterways, floodplain and other environmental conditions. Significant development includes:

The BNRR, should they decided to redo, realign or change their existing configuration would proceed at
their own pace with some input from the Town of Index.

FRONTIER has a utility vault located adjacent to the BNRR ownership within the Shoreline outside of the Floodplain.

Snohomish County completed the Index Wes Smith Bridge in 1999 and there is no reason to believe that any major changes are proposed for this area short of a response to disastrous flood impact.

While the Town Park falls within the 200 foot Shoreline area, it does not have connectivity to the river at any point.

The “River House”, a commercial development, is found on the east side of the BNRR Bridge. The only septic system within this portion of the shoreline is that related to the “River house”.

C.7 Segment D
2nd to Crescent

Top of Bank/OHWM incorporates more then ½ the length of this area adjacent to Avenue A (a rip rap armor bank) only two homes are found on the top of bank in this segment.

Two homes are within the Armored Bank designation.

New development should not require new streets. Avenue A and existing alley allow access to most homes from two locations. New development may require increased utility services. Most recently built home in this area is more than 10 years in age; remodeling has taken place to several homes in this segment.

This section includes a recently raised home for flood elevation.

There is a mobile home set up (for recreational use) on one lot in this area.

This segment has the capability to allow up to 2 or 3 new homes to be fully built out if septic systems were permitted by the Snohomish County Health District. None of these would be located on the river edge: they will be on the north side of Avenue A.

This area is in the FEMA floodplain and floodway and floods on a regular basis.

As in all areas of the Town of Index: redevelopment, remodel and reasonable upgrades to homes are allowed and would be incorporated in to an allowed use.

There is no designated public access.

The area has been used recreationally by fisher people, swimmers and boaters as an un-designated access all along Avenue A where the street is adjacent to the top of bank.

This area has a housing density which may be at or near the capacity of the area.

Septic systems are present in this area for each of the residential units: the Armored Bank and Upland Shoreline homes include septics which may or may not be compliant with Snohomish County regulations. The mobile home does not have a septic system.
C.8 Segment E  
Western Limits to 2nd Street  

Most undeveloped shoreline within the Town of Index: mostly natural shoreline along the edge of the Skykomish River. Three existing homes are within the Armored Bank designation.

Transportation in this area is provided by Avenue A with connecting driveways and parking on and off street.

New development in this area may require increased utility installation: most recent development (residential) is approximately 5 years in age. This section includes a recently raised home for flood elevation.

This area is in the FEMA floodplain and floodway and floods on a regular basis. As in all areas of the Town of Index: redevelopment, remodel and reasonable upgrades to homes are allowed and would be incorporated in to an allowed use.

There is no designated public access though there is a public street end at 1st which is sixty feet in width and placed between two residential lots. Aside from residential use of the shoreline this area may include some recreational uses: swimmers (crossing private property discourages public use), boaters, and fisher people.

This area is significantly impacted for all future development by the restrictions related to waterways, floodplain and other environmental conditions.

Septic systems are present in this area for each of the five residential units, one unit on the east side of 1st may or may not have a septic or cesspool system on site, two abandoned structures (most westerly lots) may or may not have cesspools most westerly lot and never has had Index Water Service.

C.9 Existing Non-Residential Conditions  
1. A residential and commercial building are located on the river, east of 5th and Avenue A (currently called “River House”) which is a recreational business dependent, in part, to river access. Parking for this development is within the Town right of ways and streets (existing impervious surface). The septic system is located in the Shoreline and floodplain. (SEGMENT C)

2. The Pickett Museum (a 501 organization) owns two buildings (east of 5th and Avenue A which abut the Snohomish County ownership for the Wes Smith Bridge. These are small non-residential buildings with surrounding lot area, landscaping and a private river access point. This development is not water dependent. The septic is located in the Shoreline and Floodplain. The lot includes impervious parking area within the Shoreline. (SEGMENT C)

3. The Index Store is a commercial establishment which houses the US Post Office. This building is located on the outer edge of the Shoreline designation. The area includes impervious surface within the Shoreline for parking. The building and septic are located outside of the Shoreline area and floodplain. (SEGMENT C)

4. The Town of Index owns two buildings on the north side of Avenue A east of 5th which fall
within the outer edge of the 200 foot Shoreline area. There is no parking assigned to the Town buildings; all parking is in the street (existing impervious surface). The septic is located north of the buildings, outside the Shoreline or floodplain. (SEGMENT B)

5. The District 28/Town of Index Fire Department building is located on the north bank of the North Fork Skykomish River. The building, while experiencing minor flood issues, is not within the floodplain (in the 2011 FEMA FIRM maps) of the river though fully within the Shoreline. Parking has been designated for the building off the street in front of the building within the Shoreline on existing impervious surface. The septic system is located within the Shoreline. (SEGMENT B)

6. The Town of Index owns a small shed in the public right of way of 8th street at top of bank on the street end. Fully within the Shoreline, placed at the top of bank and setback about 20 feet.

In general the Shoreline Areas are developed with single family homes: 13 include a detached garage: two have detached garages on the river edge, 9 have the garages located outside of the Shoreline with 1 including an attached garage within the shoreline environment.

3000 lineal feet of roadway are found immediately adjacent to the Shoreline/OHWM of the river.

C.10 Existing Shoreline Modifications
The Town of Index shoreline includes more than 3,000 lineal feet of riprap, and in-water structures which are adjacent to streets or residential lots (total length of shoreline within the jurisdiction is 4,200 lf).

Maintenance and repairs of these in water structures are expected to be continued for bank and residential protection by the Town and the landowners.

The Wes Smith Bridge (Snohomish County Bridge) and the BNRR track bridge and related abutments are also within the Shoreline and developed and maintained by these other ownership entities (over 60 feet in width each).

C.11 Existing and Potential Public Access Sites
The Town of Index has limited access points due mostly to unsafe access and ease of access.

Viewing points have been established along the top of bank within the western portion of town and from an undeveloped street which serves as garden space at 3rd. Avenue A between 8th and the eastern limits is adjacent to the top of bank providing view areas from the street and right of way.

Undeveloped areas, within private ownership, are found within the shoreline area though not proposed for public access at this time. The Town would like to acquire undeveloped lots in the future to limit development in the flood plain and shoreline and provide public access where reasonable.

No formal publicly owned access points, for river and shoreline users, exist at this time.

Five street ends come to the top of bank/OHWM at the river edge (the remaining streets fall within the
County bridge area; the railroad abutment or contiguous ownerships which do not provide street access to the top of bank).

9th, viewing corridor from Avenue A
8th, street end extends south of Avenue A about 60 feet to the top of bank (60 feet wide, includes areas currently used by private landowners)
4th, viewing corridor from Avenue A 3rd, viewing corridor from Avenue A 2nd viewing corridor from Avenue A
1st street end extends south of Avenue A about 100 feet to the top of bank (60 feet wide, includes areas currently used by private landowners)

C.12 Critical Areas and Special Status Species
As required by the State, a Shoreline Characterization Report is to contain all available information in regards to critical areas, special status species and other critical and sensitive designations.

These areas include: Flood Zones, frequently flooded areas, stream, wetland, and steep slopes. Species habitat information was obtained from DFW, Priority species Map and the Snohomish County Folio.

Special status species are those listed or proposed for listing under the State or Federal Endangered Species Act, identified as state Priority Species or Species of Concern by WDFW, or the U.S. Fish and Wildlife Service (USFWS).

The following special species may occur within the area and have been cited on one or more lists in regards to a presence in the North Fork or Main channel of the Skykomish system:

- Bull Trout (Salvelinus confluentus)
- Chinook Salmon (Oncorhynchus tshawytscha)
- Long-eared Myotis (Bat) (Myotis evotis)
- Long-legged Myotis (Bat) (Myotis volans)
- Olive-sided Flycatcher (Contopus cooperi)
- Pacific Lamprey (Lampetria tridentata)
- Peregrine Falcon (Falco peregrinus)
- River Lamprey (Lampetria ayresi)
- Western Gray Squirrel (Sciurus griseus)
- Western Toad (Bufo boreas), and
- Wintering bald eagles (Haliaeetus leucocephalus)
C.13 Flood Hazard Information
The western half of the Town of Index (over 20 acres) is cited by the FEMA and FIRM rating system as located within the FEMA designated Floodplain (in 2011). The proposed new FIRM maps include the addition of lots on the river’s edge within the eastern side of the Town of Index (Segments D and E) which are not currently included in the flood plain

Ex. Floodplain maps (FIRM) 1,177,520 SF/27+ ACRES TOTAL FLOOD PLAIN

Proposed DRAFT FIRM updated map
624,356 SF / 14.7 ACRES (WEST SIDE OF TOWN AND RR TRACKS AREA +
143,500 SF / 3.3 ACRES = TOTAL FLOOD PLAIN 18 ACRES

C.14 Channel Migration Zone
As defined per Dept. of Ecology:
The channel migration zone (CMZ) refers to the geographic area where a stream or river has been and will be susceptible to channel erosion and/or channel occupation. CMZ delineations help reduce risks to
human communities by guiding development in and along river systems away from areas at risk of channel erosion. CMZ delineations can also provide guidance in reducing degradation and loss of critical aquatic and riparian habitats, helping assure that the river landscape is not permanently degraded or disconnected from the river by development. Because alluvial channels are rarely static through time, rivers and streams naturally migrate within their valleys. Channels respond with horizontal movement (lateral migration, avulsion, channel widening, channel narrowing) and vertical movement (incision and aggradation) depending on site-specific circumstances and watershed conditions. Human landscape disturbance can exaggerate or constrain channel migration by affecting local and watershed processes of flooding, erosion, and deposition.

Channel migration is not limited to areas of flood inundation and can advance into landscape features above the 100-year flood water surface elevation. The time period used in the CMZ analysis is usually pre-determined by the local jurisdiction in an effort to comply with specific ordinances.

C.15 Riparian Management Zone
The purpose of a riparian management zone is to preserve and protect the natural character of riverine system as well as the existing resources found on that shoreline. Shoreline regulations are aimed to protect natural conditions, provide recreational open space where possible and enhance wildlife habitat conditions to the extent possible.

The Town of Index shoreline has been limited for habitat quality and quantity of native vegetation over the decades with the development of the Town beginning in 1898 and then continued use of the majority of the shoreline area as single-family home sites, some small commercial uses and a specific areas of designated recreation use. Additionally, the two bridges crossing the North Fork Skykomish within the Town of Index are significant impacts to the river habitat system and ecology.

The most frequent human use of the channel and banks are by fisher people, kayakers and other boaters who use the river access points wherever they are available to them.

Retaining any areas of natural vegetation is primarily a concern for conservation aspects of the plan. Typically the most beneficial areas for conservation and restoration would be found out of the Town's jurisdictional control (treed islands within the channel) or on private lots which are undeveloped (on the western edge of town).
Appendix D. Flood Plain Management

15.08.010 Statutory authorization.
The Legislature of the State of Washington has delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety and general welfare of its citizenry. Therefore, the council of the town of Index, Washington, does ordain as follows in this chapter. (Ord. 343 § 1.1, 1999).

15.08.020 Findings of fact.
(A) The flood hazard areas of the town of Index are subject to periodic inundation which results in loss of life and property, health, and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

(B) These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities and, when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage also contribute to the flood loss. (Ord. 343 § 1.2, 1999).

15.08.030 Statement of purpose.
This chapter is intended to put the town in compliance with the flood plain management standards and regulations of the National Flood Insurance Program (NFIP). The enactment of the ordinance codified in this chapter is recommended, as it includes standards and provisions that encourage sound flood plain management and may allow property owners to obtain flood insurance at a more affordable rate. It is the purpose of this chapter to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

(A) Protect human life and health;

(B) Minimize expenditure of public money and costly flood control projects;

(C) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

(D) Minimize prolonged business interruptions;

(E) Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard;

(F) Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;

(G) Ensure that potential buyers are notified that property is in an area of special flood hazard; and

(H) Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions. (Ord. 343 § 1.3, 1999).
15.08.040 Methods of reducing flood losses.
In order to accomplish its purposes, this chapter includes methods and provisions for:

(A) Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;

(B) Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

(C) Controlling the alteration of natural flood plains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;

(D) Controlling filling, grading, dredging, and other development which may increase flood damage; and

(E) Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas. (Ord. 343 § 1.4, 1999).

15.08.050 Definitions.
Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application.

(A) “Appeal” means a request for a review of the Snohomish County department of planning and community development’s interpretation of any provision of this chapter or a request for a variance.

(B) “Area of shallow flooding” means a designated AO or AH Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.

(C) “Area of special flood hazard” means the land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year. Designation on maps always includes the letters A or V.

(D) “Base flood” means the flood having a one percent chance of being equalled or exceeded in any given year. Also referred to as the “100-year flood.” Designation on maps always includes the letters A or V.

(E) “Basement” means any area of the building having its floor subgrade (below ground level) on all sides.

(F) “Breakaway wall” means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

(G) “Critical facility” means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to schools, nursing homes, hospitals, police, fire and emergency response installations, installations which produce, use or store hazardous materials or hazardous waste.
(H) “Development” means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials located within the area of special flood hazard.

(I) “Elevated building” means, for insurance purposes, a nonbasement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.

(J) “Flood” or “flooding” means a general and temporary condition of partial or complete inundation of normally dry land areas from:

1. The overflow of inland or tidal waters; and/or
2. The unusual and rapid accumulation of runoff of surface waters from any source.

(K) “Flood Insurance Rate Map (FIRM)” means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

(L) “Flood insurance study” means the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation of the base flood.

(M) “Floodway” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

(N) “Lowest floor” means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building’s lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of Section 15.08.170(A)(2).

(O) “Manufactured home” means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term “manufactured home” does not include a “recreational vehicle.”

(P) “New construction” means structures for which the “start of construction” commenced on or after the effective date of the ordinance codified in this chapter.

(Q) “Recreational vehicle” means a vehicle which is:

1. Built on a single chassis;
2. Four hundred (400) square feet or less when measured at the largest horizontal projection;
3. Designed to be self-propelled or permanently towable by a light duty truck; and
(4) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

(R) “Start of construction” includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within one hundred eighty (180) days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

(S) “Structure” means a walled and roofed building including a gas or liquid storage tank that is principally above ground.

(T) “Substantial damage” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed fifty (50) percent of the market value of the structure before the damage occurred.

(U) “Substantial improvement” means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure either:

1. Before the improvement or repair is started; or

2. If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition, “substantial improvement” is considered to occur when the first alteration of any wall, ceiling, floor or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

The term does not, however, include either:

1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or

2. Any alteration of a “historic structure”; provided, that the alteration will not preclude the structure’s continued designation as a “historic structure.”

(V) “Variance” means a grant of relief from the requirements of this chapter which permits construction in a manner that would otherwise be prohibited by this chapter.

(W) “Water dependent” means a structure for commerce or industry which cannot exist in any other
location and is dependent on the water by reason of the intrinsic nature of its operations. (Ord. 343 § 2, 1999).

15.08.060 Lands to which this chapter applies.
This chapter shall apply to all areas of special flood hazards within the jurisdiction of the town of Index. (Ord. 343 § 3.1, 1999).

15.08.070 Basis for establishing areas of special flood hazard.
The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled “The Flood Insurance Study for the Town of Index,” dated January 30, 1988, as amended, with an accompanying Flood Insurance Rate Map (FIRM), as amended, are hereby adopted by reference and declared to be a part of this chapter. The Flood Insurance Study is on file at the Index Town Hall. The best available information for flood hazard area identification as outlined in Section 15.08.130(B) shall be the basis for regulation until a new FIRM is issued which incorporates the data utilized under Section 15.08.130(B). (Ord. 343 § 3.2, 1999).

15.08.080 Abrogation and greater restrictions.
This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this chapter and another ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail. (Ord. 343 § 3.4, 1999).

15.08.090 Interpretation.
In the interpretation and application of this chapter, all provisions shall be:

(A) Considered as minimum requirements;

(B) Liberally construed in favor of the governing body; and

(C) Deemed neither to limit nor repeal any other powers granted under state statutes. (Ord. 343 § 3.5, 1999).

15.08.100 Warning and disclaimer of liability.
The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This chapter does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This chapter shall not create liability on the part of the town of Index, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this chapter or any administrative decision lawfully made thereunder. (Ord. 343 § 3.6, 1999).

15.08.110 Establishment of a development permit.
(A) Development Permit Required. A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 15.08.070. The permit shall be for all structures, including manufactured homes, as set forth in Section 15.08.050, and for all development including fill and other activities, also as set forth in Section 15.08.050.
(B) Application for Development Permit. Application for a development permit shall be made on forms furnished by the Snohomish County department of planning and community development and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required:

1. Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures;
2. Elevation in relation to mean sea level to which any structure has been floodproofed;
3. Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in Section 15.08.170(B);
4. Description of the extent to which a watercourse will be altered or relocated as a result of proposed development; and
5. A fee in the amount of seventy-five dollars ($75.00) for each flood hazard permit request shall be paid to the town of Index at the time an application is presented. (Ord. 423, 2011; Ord. 343 § 4.1, 1999).

15.08.120 Designation of the town of Index.
The town of Index is hereby appointed to administer and implement this chapter by granting or denying development permit applications in accordance with its provisions. (Ord. 343 § 4.2, 1999).

15.08.130 Duties and responsibilities of the town of Index.
Duties of the town of Index shall include, but not be limited to:

(A) Permit Review.

1. Review all development permits to determine that the permit requirements of this chapter have been satisfied;
2. Review all development permits to determine that all necessary permits have been obtained from those Federal, State or local governmental agencies from which prior approval is required;
3. Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of Section 15.08.180 (A) are met.

(B) Use of Other Base Flood Data. When base flood data has not been provided in accordance with Section 15.08.070, Basis for establishing areas of special flood hazard, the Snohomish County department of planning and community development shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state or other source, in order to administer Sections 15.08.170 and 15.08.180.

(C) Information to be Obtained and Maintained.

1. Obtain and record the actual elevation (in relation to mean sea level) of the lowest floor (including
basement) of all new or substantially improved structures, and whether or not the structure contains a basement.

(2) For all new or substantially improved floodproofed structures:

(a) Verify and record the actual elevation (in relation to mean sea level); and

(b) Maintain the floodproofing certifications required in Section 15.08.110(B)(3).

(3) Maintain for public inspection all records pertaining to the provisions of this, with copies available at the Index Town Hall.

(D) Alteration of Watercourses.

(1) Notify adjacent communities and the Department of Ecology prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration.

(2) Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.

(E) Interpretation of Firm Boundaries. Make interpretations, where needed, as to exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 15.08.140. (Ord. 343 § 4.3, 1999).

15.08.140 Variance procedure – Appeal board.
(A) The Index town council, as established by the town of Index, shall hear and decide appeals and requests for variances from the requirements of this chapter.

(B) The Index town council shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the town of Index in the enforcement or administration of this chapter.

(C) Those aggrieved by the decision of the Index town council, or any taxpayer, may appeal such decision to the Evergreen District Court.

(D) In passing upon such applications, the Index town council shall consider all technical evaluations, all relevant factors, standards specified in other sections of this chapter, and:

(1) The danger that materials may be swept onto other lands to the injury of others;

(2) The danger to life and property due to flooding or erosion damage;

(3) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

(4) The importance of the services provided by the proposed facility to the community;
5. The necessity to the facility of a waterfront location, where applicable;

6. The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;

7. The compatibility of the proposed use with existing and anticipated development;

8. The relationship of the proposed use to the comprehensive plan and flood plain management program for that area;

9. The safety of access to the property in times of flood for ordinary and emergency vehicles;

10. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and

11. The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems and streets and bridges.

E. Upon consideration of the factors of subsection (D) of this section and the purposes of this chapter, the town council may attach such conditions to the granting of variances as it deems necessary to further the purposes of this chapter.

F. The town of Index shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request. (Ord. 343 § 4.4-1, 1999).

15.08.150 Conditions for variances.

A. Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items in Section 15.08.140(D)(1) through (11) have been fully considered. As the lot size increases the technical justification required for issuing the variance increases.

B. Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in the remainder of this section.

C. Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.

D. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

E. Variances shall only be issued upon:

1. A showing of good and sufficient cause;
(2) A determination that failure to grant the variance would result in exceptional hardship to the applicant;

(3) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

(F) Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevations should be quite rare.

(G) Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of flood proofing than watertight or dry-floodproofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except subsection (A) of this section, and otherwise complies with Sections 15.08.160(A) and (B).

(H) Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation. (Ord. 343 § 4.4-2, 1999).

15.08.160 Flood hazard protection – General standards.
In all areas of special flood hazards, the following standards are required:

(A) Anchoring.

(1) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.

(2) All manufactured homes must likewise be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (reference FEMA’s “Manufactured Home Installation in Flood Hazard Areas” guidebook for additional techniques).

(B) Construction Materials and Methods.

(1) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(2) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

(3) Electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
(C) Utilities.

(1) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;

(2) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(D) Subdivision Proposals.

(1) All subdivision proposals shall be consistent with the need to minimize flood damage;

(2) All subdivision proposals shall have public utilities and facilities such as gas, electrical, and water systems located and constructed to minimize flood damage;

(3) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and

(4) Where base flood elevation data has not been provided or is not available from another source, base flood elevation data shall be provided for subdivision proposals and other proposed developments which contain at least fifty (50) lots or five (5) acres (whichever is less).

(E) Review of Building Permits. Where elevation data is not available either through the Flood Insurance Study or from another authoritative source (Section 15.08.130(B)), applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two feet above grade in these zones may result in higher insurance rates. (Ord. 343 § 5.1, 1999).

15.08.170 Flood hazard protection – Specific standards.
In all areas of special flood hazards where base flood elevation data has been provided as set forth in Section 15.08.070, Basis for establishing areas of special flood hazard, or Section 15.08.130(B), Use of Other Base Flood Data, the following provisions are required:

(A) Residential Construction.

(1) New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to a minimum of one foot above the base flood elevation.

(2) Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:

(a) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
(b) The bottom of all openings shall be no higher than one foot above grade.

(c) Openings may be equipped with screens, louvers, or other coverings or devices; provided, that they permit the automatic entry and exit of floodwaters.

(B) Nonresidential Construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:

(1) Be floodproofed so that below one foot above the base flood level the structure is watertight with walls substantially impermeable to the passage of water;

(2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;

(3) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in Section 15.08.130(C)(2);

(4) Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described in subsection (A)(2) of this section;

(5) Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g., a building floodproofed to the base flood level will be rated as one foot below).

(C) Manufactured Homes. All manufactured homes to be placed or substantially improved on sites:

(1) Outside of a manufactured home park or subdivision;

(2) In a new manufactured home park or subdivision;

(3) In an expansion to an existing manufactured home park or subdivision; or

(4) In an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage as the result of a flood; shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one foot above the base flood elevation and be securely anchored to an adequately designed foundation system to resist flotation, collapse and lateral movement.

(D) Recreational Vehicles. Recreational vehicles placed on sites within zones A1-30, AH and AE on the community’s FIRM either:

(1) Be on the site for fewer than one hundred eighty (180) consecutive days;

(2) Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site
only by quick disconnect type utilities and security devices, and has no permanently attached additions; and

(3) Meet the requirements of subsection (C) of this section and the elevation and anchoring requirements for manufactured homes. (Ord. 343 § 5.2, 1999).

15.08.180 Floodways.
Located within areas of special flood hazard established in Section 15.08.070 are areas designed as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

(A) Prohibit encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional engineer or architect is provided demonstrating through hydrologic analysis performed in accordance with standard engineering practice that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

(B) Construction or reconstruction of residential structures is prohibited within designated floodways, except for:

(1) Repairs, reconstruction, or improvements to a structure which do not increase the ground floor area; and

(2) Repairs, reconstruction, or improvements to a structure, the cost of which does not exceed fifty (50) percent of the market value of the structure either:

(a) Before the repair or reconstruction is started, or

(b) If the structure has been damaged and is being restored, before the damage occurred.

Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or to structures identified as historic places shall not be included in the fifty (50) percent.

(C) If subsection (A) of this section is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Sections 15.08.160 through 15.08.210. (Ord. 343 § 5.3, 1999).

15.08.190 Encroachments.
The cumulative effect of any proposed development, where combined with all other existing and anticipated development, shall not increase the water surface elevation of the base flood more than one foot at any point. (Ord. 343 § 5.4, 1999).

15.08.200 Standards for shallow flooding areas (AO zones).
Shallow flooding areas appear on FIRMs as AO zones with depth designations. The base flood depths in these zones range from one (1) to three (3) feet above ground where a clearly defined channel does not exist, or where the path of flooding is unpredictable and where velocity flow may be evident. Such
flooding is usually characterized as sheet flow. In these areas, the following provisions apply:

(A) New construction and substantial improvements of residential structures and manufactured homes within AO zones shall have the lowest floor (including basement) elevated above the highest grade adjacent to the building, one foot or more above the depth number specified in feet on the FIRM (at least two (2) feet if no depth number is specified).

(B) New construction and substantial improvements of nonresidential structures within AO zones shall either:

(1) Have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, one (1) foot or more above the depth number specified on the FIRM (at least two (2) feet if no depth number is specified); or

(2) Together with attendant utility and sanitary facilities, be completely floodproofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. If this method is used, compliance shall be certified by a registered professional engineer or architect as in Section 15.08.170(C).

(C) Require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.

(D) Recreational vehicles placed on sites within AO zones on the community’s FIRM either:

(1) Be on the site for fewer than one hundred eighty (180) consecutive days;

(2) Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or

(3) Meet the requirements of this section and the elevation and anchoring requirements for manufactured homes. (Ord. 343 § 5.5, 1999).

15.08.210 Critical facility.
Construction of new critical facilities shall be, to the extent possible, located outside the limits of the special flood hazard area (SFHA) (100-year floodplain). Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated to three feet or more above the level of the base flood elevation (100-year) at the site. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into flood waters. Access routes elevated to or above the level of the base flood elevation shall be provided to all critical facilities to the extent possible. (Ord. 343 § 5.6, 1999).

15.08.220 Penalties for noncompliance.
No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this chapter and other applicable regulations. Violation of the provisions of this chapter by failure to comply with any of its requirements (including violations of conditions and
safeguards established in connection with conditions) shall constitute a misdemeanor. Any person who violates this chapter or fails to comply with any of its requirements shall upon conviction thereof be fined not more than one hundred dollars ($100.00) for each violation, and in addition shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent the town of Index from taking such other lawful action as is necessary to prevent or remedy any violation. (Ord. 343 § 3.3, 1999).

15.08.230 Severability.
If any section, clause, sentence, or phrase of this chapter is held to be invalid or unconstitutional by any court of competent jurisdiction, then said holding shall in no way affect the validity of the remaining portions of this chapter. (Ord. 437 § 1, 2013).