Cumulative Impacts Analysis:
Town of Concrete Shoreline Master Program Master Program
(August 27, 2012)

Introduction
The Shoreline Management Act guidelines require local governments to address cumulative impacts in the development of shoreline master programs. The guiding principle or goal in developing the Town’s master program is that it will result in “no net loss” of shoreline ecological functions. The goal of “no net loss” requires that adopted policies and regulations do not result in cumulative impacts that degrade shoreline ecological function beyond the baseline conditions established in the Shoreline Inventory and Characterization completed in December 2011.

While some project specific impacts are direct and can be addressed through mitigation measures that avoid or minimize impacts, other impacts are cumulative in nature. Individually a project or action may not generate an impact that compromises ecological functions, however the composite of additional similar projects or actions over time may lead to significant impacts and result in a loss of shoreline ecological functions. For example, the creation of a small area of impervious surface in a previously forested shoreline environment may be negligible and mitigated through application of appropriate technology, however, clearing and creation of numerous areas of impervious surfaces of a similar magnitude may lead to significant impacts to water quality, peak flows, channel erosion, decreased riparian vegetation and associated degradation of fish and wildlife habitat. It is these impacts that this analysis is intended to address.

The guidelines (WAC 173-26-186) state that: “To ensure no net loss of ecological 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 impacts should consider:
   (i) current circumstances affecting the shoreline and relevant natural processes;
   (ii) reasonably foreseeable future development and use of the shoreline; and
   (iii) beneficial effects or any established regulatory programs under other local, state and federal laws.”

Current Circumstances Affecting the Shoreline
Current circumstances affecting the shoreline are documented under the Shoreline Inventory and Characterization which establishes the existing baseline of the Town’s shoreline ecological functions. As described in the Inventory, five planning segments were identified within the study area boundaries. The planning segments were identified based on distinct geographic boundaries, similar shoreline characteristics, land use patterns and comprehensive plan and zonings designations. The five planning segments are delineated on the aerial photograph below and further described by segment in the
discussion that follows. Individual photographs of the segments depicting shoreline conditions within each segment are included in the inventory as Attachment B.

1. **The Lake Shannon Segment** is located north (upstream) of the Lower Baker River Dam and extends north to the City’s municipal boundary. Lake Shannon is a reservoir created by the Lower Baker River Dam. While the reservoir is characterized as a lake it is an impoundment of the Baker River. The Lake Shannon Segment constitutes approximately 880 linear feet of shoreline and a shoreline jurisdictional area of approximately 17.77 acres. The shoreline is lacustrine in character. The lake level rises and falls seasonally and in conjunction with rainfall/snow melt events and through operation of the Baker River Dams. Comprehensive plan and zoning designations are public lands/open space. The only significant development is associated with the Lower Baker Dam including the log boom and surface fish collector.

2. **The Baker River Canyon Segment** is located south (downstream) of the Lower Baker Dam and extends south to and including the Thompson Bridge. The right (west) bank of the segment is riverine and relatively natural in character while the left (east bank) includes the Lower Baker powerhouse and powerhouse access road. The Baker River Canyon Segment constitutes approximately 2,860 linear
feet of shoreline and a jurisdictional area of approximately 43 acres. Comprehensive plan and zoning designations are public lands/open space along the right bank and public lands/open space and industrial along the left bank.

3. The Baker River Channel Segment is located south (downstream of the Thompson Bridge and extends southward past the SR-20 Bridge. The left (east) bank continues on to the confluence with the Skagit River while the right (west) bank ends at the City’s municipal boundary approximately 350 feet north of the confluence. The segment is riverine in character and is maintained as a conveyance channel. Both banks are armored with rock. The right bank is generally undeveloped while the left bank has been subject to structural development. The area from the Thompson Bridge south to SR-20 is utilized by Puget Sound Energy in conjunction with Baker River Hydropower Facilities. Shoreline jurisdiction within this segment includes areas of designated floodway and contiguous floodplain. The Baker River Channel Segment consists of approximately 2,420 linear feet of shoreline and a jurisdictional area of approximately 36.7 acres. Comprehensive plan and zoning designations consist of public lands along the right bank and industrial along the left bank.

4. The Upper Skagit River Segment extends from the Baker/Skagit confluence upstream (east) to the City’s eastern municipal boundary. The shoreline itself is riverine and relatively natural in character, however, portions of the floodway and contiguous floodplain have been subject to residential and commercial development. The segment includes the two existing public shoreline access areas in the City. Shoreline jurisdiction within this segment includes areas of designated floodway and contiguous floodplain. The segment consists of 1100 linear feet of shoreline and 16.7 acres. Comprehensive plan and zoning designations are public lands, commercial, light industrial, and residential.

5. The Lower Skagit River Segment is located approximately .5 miles downstream from the Baker/Skagit confluence. The shoreline is riverine in character and exists in a natural condition that provides a full suite of riparian functions including a side channel which may be a remnant of the Little Baker River. Shoreline jurisdiction within this segment includes areas of designated floodway and contiguous floodplain. The segment includes a shoreline area of 1540 linear feet and an area of 23.3 acres. There is no development within the shoreline area. The comprehensive plan and zonings designation is open space.

The table on the following page compares the five planning segments in terms of size, shoreline type and condition, comprehensive plan and zoning designation, and existing land use. The discussion following the table addresses current circumstances affecting the shoreline and relevant natural processes by planning segment. The discussion includes foreseeable impacts over time. Because the Town’s shorelines are all riverine in character the natural processes discussed will be based on the riparian functions outlined in the inventory; water quality, bank stabilization, shade and temperature, microclimate, wildlife habitat, instream habitat, productivity, storage and conveyance. These natural
processes or shoreline ecological functions are discussed in detail under subsection 3.3 of the Inventory. It is assumed that foreseeable future impacts will be based on existing local regulations including, but not limited to, comprehensive plan/zoning designations and the Town’s proposed Shoreline Master Program and other adopted local, state and federal regulations.

Table 1: Comparison Summary of Planning Segments

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<tr>
<th>Segment</th>
<th>Size</th>
<th>Condition</th>
<th>Comp/Zoning</th>
<th>Land Use</th>
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<tr>
<td>1. Lk. Shannon</td>
<td>880-lf</td>
<td>Lake (Reservoir)</td>
<td>Open Space</td>
<td>Hydropower</td>
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<td></td>
<td>17.7-acres</td>
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<td></td>
<td>Open Space</td>
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<td>2. Baker Canyon</td>
<td>2,860-lf</td>
<td>River Natural/Altered</td>
<td>Open space</td>
<td>Residential</td>
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<tr>
<td></td>
<td>43-acres</td>
<td></td>
<td>Residential Industrial</td>
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<td>3. Baker Channel</td>
<td>2,420-lf</td>
<td>River Channelized Armored</td>
<td>Public lands</td>
<td>Public Lands</td>
</tr>
<tr>
<td></td>
<td>36.7-acres</td>
<td></td>
<td>Industrial Comm/Lt.Ind.</td>
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<td>4. Upper Skagit</td>
<td>1,100-lf</td>
<td>River Natural shoreline</td>
<td>Public lands</td>
<td>Public lands</td>
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<tr>
<td></td>
<td>16.7-acres</td>
<td>Developed floodway-Floodplain</td>
<td>Residential Commercial Light Industrial</td>
<td></td>
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<tr>
<td>5. Lower Skagit</td>
<td>1,540-lf</td>
<td>River Natural Shoreline</td>
<td>Open space</td>
<td>Open space</td>
</tr>
<tr>
<td></td>
<td>23.3-acres</td>
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<tr>
<td>Total Shoreline Area</td>
<td>8,800-lf</td>
<td>122.4-acres</td>
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Segment 1 (Lake Shannon) – Current and foreseeable circumstances affecting shorelines and natural processes in Segment 1 consist primarily of the continued operation of the Baker River Hydroelectric Project. Puget Sound Energy (PSE) operates both the upper and lower Baker Developments located in Whatcom and Skagit Counties respectively. The Lower Baker Dam is located within the Town’s municipal boundaries. PSE received a 50 year operating license from the Federal Energy Regulatory Commission (FERC No. 2150) on October 17, 2008.

The new license resulted from years of collaborative studies and negotiated agreements between PSE and 23 other parties including governmental entities, Indian tribes, fisheries interests and environmental organizations. While historically, the development of the hydroelectric project has resulted in significant impairment of all shoreline/riparian functions within the segment, the conditions of the existing licensed project are reflected in the existing baseline of the Town’s shoreline Inventory. In addition a number of mitigation measures are reflected in the settlement agreement including improved fish passage systems for moving adult salmon upstream and juvenile salmon downstream, increased flood storage and enhanced recreational facilities and shoreline stabilization on Lake Shannon. Based on the terms of the approved 50 year license and the open space comprehensive plan/zoning designation, no impacts beyond the baseline established in the inventory are anticipated in the foreseeable future.

It is noteworthy that while Segment 1 is an impoundment or reservoir associated with the Lower Baker Dam, it rated second in total points relative to riparian functions in the inventory. Aside from the Dam itself and log boom there is no development with the
shoreline area. The entire segment is proposed for designation as an Urban Conservancy Shoreline Environment.

Segment 2 (Baker River Canyon) - Current and foreseeable circumstances affecting shorelines and natural processes in Segment 2 consist primarily of the continued operation of the Baker River Hydroelectric Project along the left bank and the a mix of open space and residential designated lands on the right bank.

The Lower Baker Powerhouse and powerhouse access road are located along the left bank below a steep slope. The slope has a history of failure which has been addressed, in part, through drainage improvements associated with construction of the new powerhouse authorized pursuant to relicensing. The entire left bank has been modified with rock armor. Two PSE employee residences are located near the top of bank west of the Baker River Road. Reasonably foreseeable future development along the left bank will be limited to ongoing hydroelectric generation activities as authorized through the FERC relicensing process and shoreline permits issued by the Town. Potential construction phase impacts will be addressed through application of best management practices. Based on the permitted status of proposed improvements to hydroelectric facilities no impacts beyond the baseline established in the inventory are anticipated in the foreseeable future. It is possible that improved drainage along the steep slope will result in a net improvement in water quality by reducing sedimentation and associated turbidity in the receiving waters of the Baker and Skagit Rivers. The entire left bank is proposed for designation as a High Intensity Shoreline Environment.

The right bank consists of a steep undeveloped natural rocky shoreline with a three strata assemblage of native vegetation. The area from the Lower Baker Dam south to the municipal boundary is designated as open space on the Land Use and Zoning Map. No development exists in this area and no development is proposed. It is possible, however that maintenance of the Lower Baker Dam may require disturbance of the area within approximately 200 feet of the Dam. This portion of the right bank is proposed for designation as a Natural Shoreline Environment.
The southern portion of the right bank; from the municipal boundary south to the Thompson Bridge is similar in character to the northern portion, however it is designated as Residential on the Land Use and Zoning Map. The Residential designation is applied in recognition of the presence of a residential area along the top of bank near the landward extent of shoreline jurisdiction. It is unlikely that residential development will occur along the steep slope on this portion of the right bank. This portion of the right bank is proposed for designation as an Urban Conservancy Shoreline Environment.

Overall, no impacts beyond the baseline established in the inventory, with the possible exception of maintenance of the Lower Baker Dam, are anticipated along either portion of the right bank of Segment 2.

Segment 3 (Baker River Channel) - Current and foreseeable circumstances affecting shorelines and natural processes in Segment 3 consist of the continued operation of the Baker River Hydroelectric Project including the administrative offices, visitors center and construction storage yards extending to the SR-20 Bridge. Undeveloped lands extend along the left bank to a point 200 feet from the Skagit River which is the border between Segments 3 and 4. The right bank consists of a steep slope bordering Downtown Concrete and undeveloped lands utilized historically for gravel mining along the right bank south to the municipal boundary. The segment has been channelized and armored for conveyance purposes and includes areas of floodway/floodplain adjacent to the channel.

Licensed and permitted improvements to fish collection facilities, visitors center and administrative offices have been constructed or are underway. Construction yards or laydown areas are present adjacent to the SR-20 Bridge. These activities have been reviewed in conjunction with FERC relicensing and shoreline permit requirements and are being conducted consistent with best management practices. The riverbank is armored with rock. Provided that construction activities continue to be managed appropriately, proposed improvements to hydroelectric facilities will not impact shoreline ecological functions beyond the baseline established in the inventory. The area is designated as
industrial on the Land Use and Zoning Map and is proposed to be designated as a High Intensity Shoreline Environment.

The area south of the SR-20 Bridge includes a mix of undeveloped land, unimproved shoreline access road and a hotel/motel at the landward extent of shoreline jurisdiction. The area is utilized for unstructured recreational activities and is subject to occasional unauthorized dumping of debris. The hotel/motel provides unimproved accommodations for campers and recreational vehicles. The riverbank is armored with rock. The area is designated as Commercial Light Industrial and Public Land on the Land Use and Zoning Map. Unrestricted recreational and commercial use of the area generates aesthetic impacts which may also indicate concerns relating to public health and safety. The regulatory status of the hotel/motel is unknown. Review to assure compliance with the Town’s land use regulations is recommended. In addition ongoing maintenance activities associated with SR-20 may affect shoreline and natural processes on a temporary basis.

Segment 4 (Upper Skagit) Current and foreseeable circumstances affecting shorelines and natural processes in Segment 4 consist of continued operation and maintenance of SR-20, a small area of built residential development north of SR-20 and land contiguous to the Skagit River owned by the Washington State Department of Fish and Wildlife (WDFW). The segment also includes the majority of the area occupied by the hotel/motel discussed under Segment 3. It is considered unlikely that maintenance activities associated with SR-20 will affect shoreline processes and functions. Similarly residential build out in the floodplain north of SR-20 is complete and no new development is anticipated. The issues documented in association with the hotel/motel under Segment 3 are more pronounced in Segment 4 because the majority of the developed area and area utilized for camping and RV use is present in this segment.

The portion of the Segment owned by WDFW is of particular interest in that it represents the only direct public access to the Skagit and Baker Rivers within the Town boundaries. Access to the Skagit River is provided from a parking lot located near the eastern Town boundary south of SR-20. While parking, information and interpretive signs are provided,
the stairway to the Skagit River shoreline is in disrepair and in need of replacement. Its current status represents a threat to public health and safety. Similarly, a primitive boat launch ramp located on the left bank of the Baker River near the confluence with the Skagit is in need of substantial improvements to make it serviceable. While portions of the WDFW property are located in the floodway, making structural improvements challenging, improvements of a temporary nature could be installed on a seasonal basis and removed during flood season. Alternatively, structural improvements, if needed, could be located upland of the floodway. Segment 4 is proposed for designation as an Urban Conservancy Shoreline Environment.

Segment 5 (Lower Skagit) - Current and foreseeable circumstances affecting shorelines and natural processes in Segment 5 consist of small triangular shaped existing residential area of floodplain located approximately .2 miles from the Skagit River. The remainder of the segment is an intact riverine environment consisting of a floodway/floodplain with side channel habitat flanked by a mature forested hillside.

The residential portion of the segment is very small in size (< .5 acres) and is included in shoreline jurisdiction by virtue of its location in a contiguous floodplain within 200 feet of the FEMA designated floodway. There is little potential for residential development at this location. The area within shoreline jurisdiction comprises a portion of one (1) residential lot. The residential portion of the segment is proposed for designation as an Urban Conservancy Shoreline Environment.

The riverine area located further downstream includes a side channel that may be associated with the historic course of the Little Baker River. The absence of development and Open Space designation on the Land Use and Zoning Map indicate little potential for future development. It should be recognized, however, that the property along this portion of the segment is in private ownership and may be subject to a re-designation request in the future. The lower (riverine) portion of the segment is proposed as a Natural Shoreline Environment.
Summary of Current Circumstances and Foreseeable Impacts

Current circumstances and foreseeable impacts affecting the Town’s shoreline areas are listed below in order of magnitude:

- **Hydropower** - Continued management of the Baker River for hydroelectric generation is the most significant circumstance affecting the Town’s shorelines within each planning segment. While PSE has obtained a license to continue operating the Baker River Project(s) and shoreline permits to undertake specified developments, management of the River for hydropower has an impact on all shoreline/riparian functions. It should be recognized, that many of these impacts have been addressed and mitigated through the settlement agreement pursuant to re-licensing. Hydropower development including ongoing operation and maintenance activities is recognized in the existing baseline conditions as documented in the Shoreline Inventory and Characterization.

- **Commercial Development** – Existing lands within Segments 3 and 4 that are designated Commercial Light Industrial on the Town’s Land Use and Zoning Map are currently being utilized for commercial purposes and may be subject to expanded development and use over time. Expanded development and use would be expected to comply with regulations effective at the time of application including the adopted Shoreline Master Program. The regulatory status of the existing hotel/motel and RV site is unknown. It is recommended that development and use of these facilities be assessed and addressed under existing and proposed regulations.

- **Residential Development** – Existing residential development is limited to two homes and an existing undeveloped parcel in Segment 2, two existing homes in Segment 4 and one existing home in Segment 5. Under the existing Land Use and Zoning Designation Map there is no additional land within shoreline jurisdiction available for subdivision.

- **Public Lands and Open Space** - Public Lands and Open Space Land Use and Zoning Designations are applied to the predominance of the Town’s shorelines. While the Public Lands designation provides for may uses including structures
which provide public benefit, most lands so designated are located along steep slopes or within the floodway and are unlikely candidates for structural development. The Open Space designation which dominates Segments 1, 2 and 5 are applied to areas which are not suitable for extensive development. Little existing impact was documented within areas designated as Public Lands and Open Space and little by way of foreseeable impacts are anticipated in the future. It is important to note that land use re-designation requests can be filed by property owners on an annual basis.

**Other Regulatory Program Which Benefit the Towns Shorelines**

Aside from the SMA there are several other State regulatory programs which relate directly to the City’s Shorelines. These programs include the Growth Management Act (GMA) State Hydraulic Code, State Environmental Policy Act (SEPA), Watershed Planning Act, Water Resources Act, Salmon Recovery Act as well as tribal agreements and associated case law. State agencies that play a primary role in shoreline management are:

Washington State Department of Ecology (WDOE) – Plays a primary role in the development and review of critical area regulations relating to wetlands by providing technical assistance to local governments pursuant to the GMA. WDOE plays a particularly critical role in shoreline management by reviewing all projects that require a shoreline permit. The department maintains specific authority over Shoreline Conditional Use Permits and Shoreline Variances. The department also plays a role in the review of federal permits. WDOE plays a significant role in Clean Water Act review by providing water quality certification under Section 401 of the Act.

Washington State Department of Fish and Wildlife (WDFW) – Plays a primary role in the development and review of critical area regulations relating to fish and wildlife species and habitats by providing technical assistance to local governments pursuant to the Growth Management Act. WDFW is responsible for administering the State Hydraulic Code. A Hydraulic Project Approval is required for all projects within or over the ordinary high water line of Waters of the State.

Washington State Department of Natural Resources (WDNR) – Plays a proprietary role in the management and use of state owned aquatic lands. WDNR is responsible for the administration of the State Aquatic Lands Program. In addition WDNR is also responsible for administering the State Forest Practice Act.

Local or state governments may act as lead agency under the State Environmental Policy Act (SEPA). SEPA requires disclosure of potential impacts associated with proposed project (and non-project) actions. The lead agency under SEPA is generally the agency with permit authority. WDOE oversees and coordinates SEPA review.

Federal regulations that may play a significant role in the management of the City’s shorelines include the Clean Water Act (CWA), Rivers and Harbors Acts, Endangered
Species Act (ESA) and National Environmental Policy Act (NEPA). Federal agencies that may play a significant role in shoreline management are:

U. S. Army Corps of Engineers (USACE) – Is responsible for implementation of the regulatory element of the Clean Water Act contained under Section 404 which regulates the discharge of dredged or fill material into waters of the U.S. including wetlands. The USACE administers a system of individual and nationwide permits with oversight authority provided by the U. S. Environmental Protection Agency (USEPA). In addition the USACE is responsible for implementation of Section 10 of the federal Rivers and Harbors Appropriation Act of 1899 which regulates activities that may affect navigation of “navigable” waters. Navigable waters include the portion of the Skagit River that falls within the municipal boundaries of the City of Concrete.

U.S. Fish and Wildlife and National Marine Fisheries Services (USFWS/NMFS) – The Services provide “consultation” under Section 7 of the Endangered Species Act. Consultation is required when an activity with the potential to affect federally listed species is proposed that requires a federal permit, relies upon federal funds or is located on Federal lands. Activities requiring a Section 404 permit under the Clean Water Act or a Section 10 Permit under the Rivers and Harbors Act may also require consultation.

NEPA is a federal environmental review process which requires the disclosure of potential impacts associated with proposed project (and non-project) actions. The implementing agency under NEPA is generally the federal agency issuing a permit or approval.

Over 158 miles of the Skagit River and its tributaries, upstream of the pipeline crossing at Sedro Woolley are federally designated as “Wild and Scenic Rivers” (WSR). The WSR designation identifies the Skagit River as “recreational” indicating that portions are accessible by road, may have some shoreline development and may have a history of impoundment or diversion. While the WSR designation is not a regulatory program, the designation applies to approximately 58 miles of the Skagit River including the portions of the river within the municipal boundaries of Concrete. The WSR designation and its associated programs are administered by the Mount Baker/Snoqualmie District of the U.S. Forest Service. (Skagit Wild and Scenic River Management Plan, 1983)

The Federal Emergency Management Agency (FEMA) is responsible for administration of the National Flood Insurance Program (NFIP). FEMA has promulgated regulatory guidance and map resources relating to management of special flood hazard areas. Local governments, including the City of Concrete, must adopt flood regulations as a condition of participation in the NFIP.

**Shoreline Ecological Functions at Risk From Cumulative Impacts**

Shoreline/riparian or shoreline ecological functions within the Town are closely linked to the existence of native vegetation communities. Preservation of native vegetation helps protect ecological functions, reduces flood damage and provides valuable open space areas for citizens.
The following table summarizes riparian functions by planning segment. Numerical values are attributed to the level of function, with 5 representing a high functional level and 1 a low level. A full suite of riparian functions, based on a three strata native plant community and intact mature forest canopy, functioning at the highest level would score 40 points.

Table 4: Summary Table of Riparian Function Impairment by Planning Segment

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While Segment 1 consists of the reservoir above the Lower Baker Dam known as Lake Shannon, riparian functions within the segment rank relatively high with a total score of 24 points. The contributing basin is managed, in large, as federal forest and park lands. Many of the tributaries to the lake include forested riparian zones which promote water quality and productivity. The shoreline of the lake itself is bordered by a mixed forest. Although sand bars are present during low lake levels, the banks are relatively stable. Because the lake bottom was logged prior to construction of the Lower Baker Dam there is an abundance of in-stream habitat suitable for a variety of fish species. The lake plays a valuable storage function during storm events by holding floodwaters before release to the Skagit River and its associated floodplain.

Segments 2 and 3 received total scores of 18 points. Segment 2 extends from the Lower Baker Dam to and including the Thompson Bridge while Segment 3 extends from the Thompson Bridge to a point approximately 0.25 miles south of the SR-20 (Lowell Peterson) Bridge. Although the segments received identical total overall scores they differ significantly. The left (east) banks of both segments are dominated by hydropower related facilities operated by PSE and a mix of other predominantly private ownerships. Management of the segment for hydropower contributes to low to moderate scores for all riparian functions. The absence of riparian plant communities over a portion of the segment in combination with bank hardening to protect infrastructure improvements and areas developed with impervious surfaces limit riparian functions. Overall, segments 2 and 3 are managed for conveyance purposes in conjunction with the Lower Baker Dam. The right bank of segment 3 consists of an area utilized historically for mineral extraction, processing and stockpiling. A network of unimproved access roads is also present within the shoreline area of segment 3. The primary distinction between the left and right banks is that the left bank is managed for hydropower while the right bank is managed for a mix of land uses including open space and public lands.

Segment 4 received a total score of 21 points. Riparian functions are provided by a three strata native plant community that includes a mixed forest canopy. The riparian plant community broadens from the City boundary in the east to the mouth of the Baker River in the west. Shoreline jurisdiction in the segment extends landward from the OHWM and
includes the FEMA designated floodway and 200 feet of the contiguous floodplain. While native vegetation is present contiguous to the OHWM, commercial, transportation and residential development impairs riparian water quality, microclimate, wildlife habitat, and conveyance and storage functions within the adjacent floodway and floodplain.

Segment 5 ranked the highest of the segments for riparian functions scoring a total of 32 points. The segment exhibits diverse topography ranging from floodway/floodplain to a steep but stable (> 30%) slope. The floodway/floodplain portion is dominated by alder and cottonwood transitioning to a dominance of cedar and fir along the upland slope. The segment also includes a side channel which provides for conveyance and storage of floodwaters as well as off channel habitat which provides refugia for juvenile salmonids during flood events. The side channel appears to be the mouth of the little Baker River which, because of its high potential for salmon habitat restoration, has been the subject of study for many years. Overall segment 5 is a relatively undisturbed shoreline which has retained its natural character.

Impairment of shoreline functions can be demonstrated based on the current state of aquatic resource science. It is important to recognize, however, that impairment requires an understanding of the historic context in which development and its associated impacts has occurred and the societal benefits derived from the activities that resulted in impairment. For example, while hydropower development has resulted in significant impacts to fisheries resources, it has also provided our communities with relatively low cost electric power. Similarly resource extraction activities provided the economic basis for establishment of a viable frontier community.

Because segments 1 and 2 consist of areas previously developed for hydropower generation and areas of very steep slopes unlikely to be developed, little by way of cumulative development-generated impacts are anticipated. By contrast segments 3 and 4 consist of a mix of public and private ownerships and land use designations that may support a variety of uses and developments. Vegetation removal as well as exempt and permitted shoreline development may have a cumulative impact on shoreline/riparian functions. The Town’s critical area regulations and shoreline master program will represent the primary tools for limiting impacts. Instream impacts will be limited, although not entirely avoided, through the application of other aquatic resources management strategies including the State hydraulic code, Corps of Engineers regulatory program and the Skagit Wild and Scenic River Management Plan. Lofty goals and regulations alone, however will not protect shoreline functions. Only a genuine commitment to conserve the Town’s Shorelines of Statewide Significance for the Citizens of Concrete and the State of Washington will prevent a net loss of shoreline ecological functions.