Appendix D
Cumulative Impacts Analysis

The preparation of a Shoreline Master Program requires an assessment of cumulative impacts of development. This is to assure that such development results in no net loss of shoreline ecological functions. So, the process of preparing the Master Program must evaluate and consider cumulative impacts of reasonably foreseeable future development on shoreline ecological functions and other shoreline functions fostered by the policy goals of the Shoreline Management Act. To ensure no net loss of ecological functions and protection of other shoreline functions and/or uses, master program shall contain policies, programs, and regulations that address adverse cumulative impacts and fairly allocate the burden of addressing cumulative impacts among development opportunities. Evaluation of such cumulative impacts should consider:

1. Current circumstances affecting the shorelines and relevant natural processes;
2. Reasonably foreseeable future development and use of the shoreline; and
3. Beneficial effects of any established regulatory programs under other local, state, and federal laws.

The regulations state that the 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.

Current Circumstances

The land and water uses within the Lynnwood Shoreline jurisdiction are long established and stable. There are a number of factors causing stress to the natural environment within the jurisdiction. A listing of the stressors follows.

**Railroad roadbed with shoreline armoring** – Construction of the railroad roadbed has removed an area of riparian vegetation and prevents natural beach material nourishment by preventing bluff erosion.

**Wastewater treatment plant** – Construction of the Lynnwood wastewater treatment plant resulted in the loss of riparian vegetation, the placement of a natural stream channel in a pipe for about the last four hundred feet of downstream length, and paving over of any adjacent wetland area associated with the natural stream in the downstream area. Urban stormwater runoff is combined with the natural stream runoff and is untreated before discharge to the beach.

**Wastewater treatment plant outfall** – The treated effluent from the wastewater treatment plant is discharged from an outfall pipeline which extends 1,125 feet into Puget Sound (as measured from the west face of the railroad embankment). Effluent discharge takes place at a depth of 85 to 120 feet (through a diffuser which is the last 240 feet of the outfall line). This diffuser helps to mix the
effluent within the receiving water. The treated effluent and its discharge meet all federal and state laws and standards. Although listed here as a stressor, any real impact on the natural environment is likely to be minimal. And, the discharge is a well regulated and permitted use.

Old wooden pilings – There are about a dozen old wooden pilings protruding from the Lynnwood beach. Historical photos give evidence that the pilings are the last remnants of a dock. It is unknown whether the pilings are treated wood or natural wood. It is possible that the pilings are a small and relatively localized stressor in the beach environment. These pilings are located on private property.

Over water structures – There are currently no over water structures in the Lynnwood jurisdiction. The proposed regulations do allow docks, piers, and floating platforms. If constructed, these over water structures could be stressors in the shoreline environment.

Ecological functions – Appendix C, the shoreline characterization of the SMP, provides a more complete description of the current ecological functioning of the Lynnwood shoreline than will be provided in this appendix. The reader is encouraged to read that appendix prior to reading this cumulative impacts analysis. For those who don’t wish to take the time to read that appendix, a brief summary of the current ecological functioning is presented in this appendix.

The natural conditions, and ecological functioning of the Lynnwood shoreline has been much altered by human habitation and use. Much of the native riparian vegetation of Lynnwood’s shoreline area has been removed. Removal of this riparian vegetation has occurred as a result of the construction of the City’s wastewater treatment plant within the narrow bluff ravine leading to the shoreline, and through the construction of a two-track railroad line along the toe of the coastal bluff. The riparian vegetation that remains is located on the steep slopes of the shoreline bluff. The flat upland areas of the shoreline bluff have been developed for single-family residential use. Even this diminished riparian vegetation provides for wildlife habitat. Eagles are regularly observed using tall Firs in this area as perches.

The small stream located in the ravine has been substantially altered in character with the construction of the treatment plant. The lower section of the stream is located in a pipe that runs around and under the treatment plant. The pipe passes under the railroad tracks and the stream water discharges onto the beach. There are no records or observations to indicate that the stream is habitat to salmonid fish, or other species. So, this stream does not appear to be a significant element in the current ecological functioning of the shoreline. Any wetlands associated with this small stream have long since been paved or built over.

The location of the railroad roadbed along the toe of the coastal bluff has virtually stopped the natural erosion of the bluff that would be occurring through tide and
wave action. The stoppage of erosion is starving the beach of natural material which would be being deposited. As a consequence, the nature and composition of the beach has changed from the time pre-dating human habitation and use of the shoreline. The shoreline is now characterized as a sandy-rocky beach. The composition has likely changed plant and animal populations which in turn may have changed other species use of the aquatic environment. These shifts in aquatic plant and animal species over time have not been studied in the Lynnwood shoreline environment.

Sketchy information is available on marine plant life within the Lynnwood shoreline. It is reported that the Eelgrass beds in this area are patchy. Even so, these beds provide aquatic habitat for fish.

In summary, the ecological functioning of the Lynnwood shoreline has been altered but it continues to provide habitat for wildlife and fish. While the ecological system in operation within the Lynnwood shoreline area has been altered through human habitation, the system now in operation does appear to stable in not in process of further decline. This summary and understanding of the current ecological functioning (the baseline) now permits analysis of any impacts that may be likely to occur through future development.

**Shoreline Use Stability**

The City of Lynnwood’s ownership of the wastewater treatment plant site and the Burlington North Santa Fe’s ownership of the railroad track right-of-way are very key factors that contribute to Lynnwood’s stable use of the shoreline. Each entity will own its respective land for the foreseeable future. So, this stability factor will continue into the foreseeable future.

**Foreseeable Future Development**

The current circumstances within Lynnwood’s shoreline jurisdiction indicate there is little chance for any substantial changes to the established pattern of development and use. The foreseeable future development opportunities are limited both by local circumstances and by deliberate regulation to limit development opportunities. A listing of foreseeable development follows.

**Aquaculture** – This is an allowed use in the proposed development regulations. It is possible that someone may initiate this use. It is not possible to predict the likelihood of this happening.

**Floats and boat moorings** – These are permissible uses. Again, it is not possible to predict the likelihood of this happening.

**Pedestrian access** – There is no good location for allowing pedestrian access to the beach from within City property. Safety considerations prevent public access
within the fenced grounds of the wastewater treatment plant. Gaining legal access across the railroad tracks is also problematic. The “most feasible” location for providing pedestrian access within the immediate vicinity of the Lynnwood shoreline is from within the property adjacent and to the north of the treatment plant. If access were to be provided from within this property, and legal access across the railroad obtained, the outlet to the beach would occur within Lynnwood’s shoreline jurisdiction. Although this is technically feasible it is not thought to be likely in the foreseeable future.

**Piers and docks** – These are conditionally permitted uses under the proposed regulations. Although conditionally permitted, it is not likely that either of these structures would be constructed, as there is no legal access across the railroad to the upland area.

**Railroad expansion or relocation** – There is no indication that the railroad intends to either expand the number of tracks or to relocate the existing tracks. Still it is possible that either action could take place within the foreseeable future. Even if such expansion were to take place in the future it is not known whether such impacts would result in a net loss in ecological functioning. The starvation of beach material replenishment would not increase because it is now virtually zero. It is even possible that such expansion could have a net positive impact on ecological functioning by including beach rebuilding along the whole shoreline of Browns Bay.

**Wastewater treatment plant expansion or alteration** – This use will continue into the foreseeable future. While there is no current plan to expand the plant it is likely that at some point it may become necessary. The most likely area of expansion would be to the east and southeast of the plant, an area well outside the shoreline jurisdiction. There is a current need for a vehicle turnaround at the west end of the plant. The only feasible way of constructing such a turnaround would be to acquire an easement on the property to the north of the plant. There are no current plans to pursue this development action.

**Beneficial Effects of Regulations**

This section discusses the beneficial effect of current regulations, and the beneficial effects of the new shoreline regulations.

**Current regulations** – The shoreline area is currently regulated by the Lynnwood Comprehensive Plan and Zoning Ordinance. The Comprehensive Plan land use map designation for the Lynnwood shoreline area is Public Facilities. The Plan states that the purpose of the Public Facilities land use designation is to provide land area for public and semi-public uses and facilities. All current uses within the shoreline area are consistent with the Comprehensive Plan. This regulatory document has a beneficial effect.
The Official Zoning Map of Lynnwood designates the shoreline area as the P-1, Public zone. This zone allows a number of uses that are in the realm of public or semi-public uses. Some of these uses would not be appropriate for the Lynnwood shoreline area. City ownership and use of a significant part of the shoreline area nullifies any possible negative impact that could occur due to inclusion of these uses inappropriate to the shoreline area in the permitted uses of the P-1 zone. As the new shoreline use regulations will overlay and take precedence over the underlying zoning regulations, any possible negative impacts will be eliminated. Future amendments to the zoning code relating to the public zone will also address this issue. This regulatory document has a beneficial effect.

The Lynnwood wastewater treatment plant operates under federal and state regulations (US Army Corps of Engineers, Section 404 permit; Washington Departments of Ecology, Section 401 permit and Fish and Wildlife, HPA permit). Compliance with these regulations assures safe operation of the plant, and it assures that air and water discharges from the plant meet all applicable federal and state standards. This is a current regulatory program having a beneficial effect on the shoreline environment.

New regulations - All foreseeable future development is to be regulated by either a Substantial Development Permit or Conditional Use Permit, or both. For such uses to be approved they will have to be judged to not cause a net ecological function loss. In summary, this is the beneficial effect of the new regulations. A discussion of how the new regulations will address the cumulative impacts of the foreseeable future developments described below follows.

Aquaculture - Section 5, Specific Shoreline Uses, lists aquaculture as a permitted use in the Aquatic Environment designation. The use is not further regulated by the SMP. The likelihood of any future use of the Lynnwood shoreline is unknown. Commercial aquaculture use would be regulated by the appropriate state agency.

Floats and boat moorings - Section 5, Specific Shoreline Uses, lists recreational floats and boat mooring buoys as permitted uses in the Aquatic Environment designation. These uses are regulated by policies and regulations contained in part C of Section 5 (see pages 28-31 of the SMP). The beneficial effect of these policies and regulations is to assure that there is no net loss of ecological functioning. The regulations address near shore marine aquatic habitat ecological functions including potential eelgrass habitat.

Pedestrian access - The section on Foreseeable Future Development discusses the real and on-going difficulties of providing pedestrian access to the beach through Lynnwood jurisdiction. As the conclusion is that this will not be a future development in the foreseeable future, there is no need to list the use as a regulated use or to provide regulations for the use.
Piers and docks – Section 5, Specific Shoreline Uses, lists piers and docks as uses in both the High-Intensity Environment Designation and Aquatic Environment Designation. Each use requires a Substantial Development Permit and a Conditional Use Permit within each of the environment designations. These uses are regulated by policies and regulations contained in part C of Section 5 (see pages 28-31 of the SMP). The beneficial effect of these policies and regulations is to assure that there is no net loss of ecological functioning. Regulations focus on limiting over water structures and impacts to shorelines immediately upland from the ordinary high water mark. Ecological functions that are benefited include near shore riparian habitat and near shore marine aquatic habitat.

Railroad expansion or relocation – Section 5, Specific Shoreline Uses, lists railroad as a use in the High-Intensity Environment Designation. The use requires a Special Development Permit and Conditional Use Permit. Any expansion or relocation of the railroad would be regulated under the policies and regulations set forth in Section 4, General Policies and Regulations; and in Section 6, Policies and Regulations for Shoreline Modification Activities. As the railroad use is not a list use in the Aquatic Environment Designation, it would require an amendment of the SMP to allow this use in Aquatic. The beneficial effect of these policies and regulations is to assure that there is no net loss of ecological functioning. Section 4 and Section 6 policies and regulations would benefit and protect remaining shoreline riparian habitat.

Wastewater treatment plant expansion or alteration – Section 5, Specific Shoreline Uses, lists sewage treatment facilities as a use in the High-Intensity Environment Designation. The use requires issuance of a Special Development Permit and a Conditional Use Permit. A sewage treatment facility is not permitted in the Aquatic Environment Designation, but the effluent discharge line as allowed in this environment as part of the approval of the SDP/CUP for the treatment plant. Any expansion or alteration of the treatment plant would be regulated under part D of Section 5 (see page 31), and under policies and regulations set forth in Section 4, General Policies and Regulations; and in Section 6, Policies and Regulations for Shoreline Modification Activities. The beneficial effect of these policies and regulations is to assure that there is no net loss of ecological functioning. Referenced regulations would benefit water quality functions and remaining shoreline riparian habitat.

**Cumulative Impacts Conclusion**

All foreseeable future uses within the Lynnwood shoreline area are covered by policies and regulations contained within the Shoreline Master Program, or are otherwise regulated by local, state, and federal regulations. Assessment of the specific impact
permitted uses will have on ecological functions will be a part of the review and regulation process. Assessment of specific negative impacts will require mitigation, and may also take into account what other restoration efforts are making on the localized ecological system. It is the conclusion of this cumulative impacts analysis that there will be adequate policies and regulations in place, with the adoption of the Lynnwood Shoreline Master Program, to assure that the cumulative impacts of foreseeable future development will not cause a net loss in ecological function within Lynnwood shoreline jurisdiction.