

Chapter 8 Mitigation and No Net Loss

*Note: The policies and regulations in this section provide a framework for ensuring that impacts of shoreline use and development are mitigated to achieve no net loss. State rules in WAC 173-26-186(8) state: “Local master programs shall include regulations and mitigation standards ensuring that each permitted development **will not cause a net loss** of ecological functions of the shoreline... local government shall design and implement such regulations and mitigation standards in a manner consistent with all relevant constitutional and other legal limitations on the regulation of private property.” It is important to note that the policies and regulations of the Program as a whole are structured to help achieve the no net loss requirement. This section outlines actions that apply to individual development projects. The County has prepared a draft shoreline restoration plan that will also help improve ecological functions such that there is a net gain overall. The County has also prepared a draft approach and strategy (see Exhibit B) to track the effects of shoreline development on a programmatic scale to ensure that the no net loss requirement is met.*

8.1 Applicability

No net loss means the maintenance of the aggregate total of the County's shoreline ecological functions over time. The no net loss standard requires that the impacts of shoreline use and/or development, whether permitted or exempt from permit requirements, be identified and mitigated on a project-by-project basis, so that as development occurs shoreline functions stay the same. No net loss also requires that the County and other entities implement restoration projects to improve ecological functions and processes since there may be some development impacts that cannot be fully mitigated.

Mitigation means measures taken to avoid, minimize, lessen, and/or compensate for adverse impacts of a development project. Mitigation, as defined in Chapter 11, includes the following steps in order of preference: (1) avoiding an impact altogether by not developing a project or parts of a project; (2) minimizing impacts by limiting the extent or magnitude of a project; (3) rectifying impacts by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating an impact over time by preservation and maintenance operations during the life of the project; (5) compensating for an impact by replacing or providing substitute resources or habitats; and (6) monitoring the mitigation and taking remedial action when necessary.

8.2 Policies

1. This Program should be implemented in a manner that achieves no net loss of shoreline ecological functions. In assessing the potential for new uses and developments to contribute to net loss of ecological functions, all of the following factors shall be taken into account:
 - a. The functions and processes at risk at each proposed development site; and
 - b. The effects that development could likely have on downstream, down-gradient, or down-drift resources; and
 - c. The cumulative effects that development would have when added to other past, present, and reasonably foreseeable future development; and
 - d. The likely effectiveness of proposed compensatory mitigation measures designed to offset adverse impacts of a given development action and/or use; and

- e. The ability of any unmitigated development impacts to be offset through voluntary restoration actions.
2. Development proponents should seek the least environmentally damaging, practicable alternatives for site design, construction, and maintenance. Uses and developments that cause the future ecological condition to become worse than the current condition should be discouraged.
3. The County should work cooperatively with shoreline property owners and with other local, state, federal, and Tribal resource management agencies to monitor the effects of development and track gains and losses in ecological functions using a set of specific environmental indicators. Specific indicators that should be measured on frequent and regular basis at least once every five years and compared to 2012 baseline levels include:
 - a. Percent of mapped feeder bluffs with armoring (percent classified as modified);
 - b. Status of salmon stocks;
 - c. Status of shellfish beds (frequency of closures);
 - d. Length of stream bordered by/confined by levees, excluding setback levees;
 - e. Number of overwater structures per mile of shore and number of overwater structures per mile of sediment transport zone;
 - f. Number of tidal barriers;
 - g. Percent of aquatic area supporting submerged aquatic vegetation (kelp);
 - h. Percent closed canopy forest within two hundred (200) feet of the ordinary high water line;
 - i. Percent impervious surface within two hundred (200) feet of the ordinary high water mark; and
 - j. Area of undeveloped floodplains/channel migration zone.
4. The County should use the checklist in Exhibit B to track new development proposals against the list of indicators in Section 8.2.3. Changes in indicators should be tracked and monitored at the shoreline reach and watershed scales.
5. The County should work with other local, state, and federal regulatory agencies and resource management agencies to ensure that efforts to mitigate adverse impacts and restore degraded areas are successful and achieve beneficial ecological outcomes. This includes assisting applicants/proponents in planning, designing, and implementing projects to be consistent with the Program and working cooperatively with stakeholders to implement restoration projects that improve conditions overall.

8.3 Regulations – General Mitigation Requirements

1. Proponents of new shoreline use and development, including preferred uses and uses that are exempt from permit requirements, shall employ all reasonable measures to mitigate adverse impacts on shoreline functions and processes. Impacts can be mitigated if mitigation measures would not result in an extraordinary hardship and denial of reasonable use of the property.

2. Mitigation shall include the following actions in order of priority (referred to as the mitigation sequence):
 - a. Avoiding the impact altogether by not taking a certain action or parts of an action;
 - b. Minimizing impacts by limiting the degree or magnitude of the action and its implementation by adhering to the dimensional requirements, performance standards and design criteria in this Program and using other technologies or steps, as needed, to avoid or reduce impacts;
 - c. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
 - d. Reducing or eliminating the impact over time by preservation and maintenance operations;
 - e. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and
 - f. Monitoring the impact and the compensation projects and taking appropriate corrective measures.
3. The Administrator shall first determine whether identified impacts have been avoided and secondly minimized. Unless otherwise stated, development proposals that do not fully conform to the dimensional requirements, performance standards, and/or design criteria in this Program shall require compensatory mitigation to ensure no net loss at the project scale. The Administrator shall require compensatory mitigation for development proposals that:
 - a. Do not fully conform to one or more of the dimensional requirements, performance standards, and/or design criteria in this Program; or
 - b. Require a variance or conditional use permit; or
 - c. Result in measureable damage, loss and/or displacement of a wetland, aquatic habitat conservation area, terrestrial habitat conservation area, flood storage or conveyance area, or critical aquifer recharge area; or
 - d. Result in measureable damage, loss and/or displacement of kelp beds, eelgrass beds, spawning and holding areas for forage fish, such as herring, smelt and sand lance; subsistence, commercial and recreational shellfish beds; mudflats; intertidal habitats with vascular plants; and areas with which priority species have a primary association.
4. Compensatory mitigation measures shall occur in the vicinity of the impact or at an alternative location within the same watershed or appropriate section of marine shoreline (e.g., reach or drift cell) that provides greater and more sustainable ecological benefits. When determining whether offsite mitigation provides greater and more sustainable benefits, the Administrator shall consider limiting factors, critical habitat needs, and other factors identified by the locally adopted shoreline restoration plan [insert date of adoption or resolution number], or an approved watershed or comprehensive resource management plan. The Administrator may also approve use of alternative mitigation practices such as in-lieu fee programs, mitigation banks, and other similar approaches provided they have been approved and sanctioned by the appropriate state, federal, and tribal authorities.

5. To prevent cumulative impacts that could lead to a net loss of ecological functions, the Administrator shall consider the following factors when assessing whether individual development proposals are consistent with this Program:
 - a. Current ecological functions and human factors influencing shoreline natural processes; and
 - b. Reasonably foreseeable future use and development of the shoreline; and
 - c. Beneficial effects of any established regulatory programs under other local, state, and federal laws; and
 - d. Mitigation measures implemented in conjunction with the proposed project to avoid, reduce, and/or compensate for adverse impacts.
6. The Administrator shall prohibit any use or development that will result in unmitigated cumulative impacts.
7. When compensatory mitigation is required pursuant to this Program, all of the following shall apply:
 - a. The quality and quantity of the replaced, enhanced, or substituted resources shall be the same or better than the affected resources; and
 - b. The mitigation site and associated vegetative planting shall be nurtured and maintained in perpetuity such that healthy native plant communities grow and mature over time; and
 - c. The mitigation shall be informed by pertinent scientific and technical studies, including but not limited to the Shoreline Inventory and Characterization Report, the Shoreline Restoration Plan, and other background studies prepared in support of this Program; and
 - d. The mitigation shall replace the functions as quickly as possible following the impacts; and
 - e. Mitigation activity shall be monitored and maintained to ensure that it achieves its intended functions and values; and
 - f. The mitigation site will be protected through a conservation easement or similar mechanism to ensure that it is maintained and protected in perpetuity; and
 - g. The Administrator shall require the applicant/proponent to post a bond or provide other financial surety equal to one hundred and fifty percent (150%) of the estimated cost of the mitigation to ensure the mitigation is carried out successfully. The bond/surety shall be refunded to the applicant/proponent upon completion of the mitigation activity and any required monitoring.
8. Compensatory mitigation plans shall be prepared by qualified professionals with education, training and experience in the applicable field:
 - a. Wetland mitigation plans shall be prepared by a qualified professional who is educated/trained in wetland biology or a closely related field, and has demonstrated experience in mitigation plan design, implementation, and monitoring. The overall goal of any such mitigation plan shall be no net loss of wetland functions, acreage, and values.

- b. Mitigation plans for impacts to aquatic and wildlife habitat conservation areas shall be prepared by a qualified professional with education/training in wildlife biology or a closely related field, and professional experience in habitat mitigation plan design, implementation, and monitoring. Where this plan is required for the protection of eagle habitat, the eagle habitat management plan shall normally be prepared by the Washington State Department of Fish and Wildlife, as required under the Bald Eagle Management Rules. The Washington Department of Fish and Wildlife Priority Habitat and Species Management Recommendations, dated May 1991 or as thereafter amended, may serve as guidance for preparing mitigation plans to protect wildlife habitat conservation areas.
 - c. Mitigation plans for geologically hazardous areas shall be prepared by a qualified professional who is either a geologist and a geotechnical engineer, a geotechnical engineer, or a civil engineer licensed in the State of Washington, who is knowledgeable of regional geologic conditions and who has professional experience in landslide and/or seismic hazard evaluation, mitigation plan design, implementation, and monitoring.
 - d. Mitigation plans for development within frequently flooded areas shall be prepared by a civil engineer licensed in the State of Washington.
 - e. Mitigation plans for impacts to critical aquifer recharge areas shall be prepared by a person(s) with professional experience in mitigation plan design, implementation, and monitoring, hydrogeologic assessment, and professional experience in hydrogeology or a related field. The person(s) shall also be knowledgeable in the effect of the proposed development on groundwater quality and quantity.
9. The applicant shall pay for or reimburse the County for the costs incurred in the review of a mitigation plan and for any costs incurred by the County to engage technical consultants or staff for review and interpretation of data and findings submitted by or on behalf of the proponent. Mitigation plan review and technical assistance fees are required under Chapter 5.100 Clallam County Code, as now or hereafter amended.
 10. When there is a conflict between the findings of a special report and the findings of the Administrator in review of the special report, the applicant or affected party may appeal such decisions of the Administrator pursuant to the procedures in this section and Chapter 26.10 Clallam County Consolidated Development Permit Process Code.

8.4 Regulations – Compensatory Mitigation Plan Contents

1. Compensatory mitigation plans required by this Program shall include the following information:
 - a. Baseline Information: A written assessment and accompanying maps of the following:
 - i. Impacted critical area including, at a minimum, existing wetland/stream acreage; vegetative, fauna and hydrologic characteristics; soil and substrate conditions; and topographic elevations.
 - ii. Mitigation site, if different from the impacted site, including at a minimum: existing acreage; vegetative, faunal and hydrologic conditions; relationship within watershed and to existing water bodies; soil and substrate conditions; topographic elevations; existing and proposed adjacent site conditions; buffers; and ownership.

- b. Environmental Goals and Objectives: The mitigation plan shall identify goals and objectives and include:
 - i. The purposes of the compensation measures including a description of site selection criteria, identification of compensation goals, identification of target evaluation species and resource functions, dates for beginning and completion, and a complete description of the structure and functional relationships sought. The goals and objectives shall be related to the functions and values of the original critical area or, if out-of-kind, the type of critical area to be emulated.
 - ii. A review of the available literature and/or experience to date in restoring or creating the type of critical area proposed. An analysis of the likelihood of success of the compensation project at duplicating the original resource shall be provided based on the experiences of comparable projects, if any. An analysis of the likelihood of persistence of the created or restored resources shall be provided based on such factors as surface and groundwater supply and flow patterns, dynamics of the ecosystem, sediment or pollutant influx and/or erosion, periodic flooding and drought, presence of invasive flora or fauna, potential human or animal disturbance, and previous comparable projects, if any.
- c. Performance Standards: Specific and measureable criteria shall be provided for evaluating whether or not the goals and objectives of the mitigation plan are being achieved at various stages in the project and for beginning remedial action or contingency measures. Such criteria may include water quality standards, survival rates of planted vegetation, in-stream habitat conditions, species abundance and diversity targets, habitat diversity indices, or other ecological, geological, or hydrological criteria.
- d. Detailed Construction Plans: Written specifications and descriptions of compensation techniques shall be provided, including the proposed construction sequence; grading and excavation details; erosion and sediment control features needed for construction and long-term operation; a planting plan specifying plant species, quantities, locations, size, spacing, and density; source of plant materials, propagules, or seeds; water and nutrient requirements for planting; where appropriate, measures to protect plants from predation; substrate stockpiling techniques and planting instructions; descriptions of water control structures and water-level maintenance practices needed to achieve the necessary hydroperiod characteristics; etc. These written specifications shall be accompanied by detailed site diagrams, scaled cross-sectional drawings, topographic maps showing slope percentage and final grade elevations, and any other drawings appropriate to show construction techniques or anticipated final outcome. The plan shall provide for elevations which are appropriate for the desired habitat type(s) and which provide sufficient tidal prism and circulation data.
- e. Monitoring Program: A program outlining the approach for monitoring construction of the compensation project and for assessing a completed project shall be provided. Monitoring may include, but is not limited to:
 - i. Establishing vegetation plots to track plant establishment/survival, and changes in plant species composition and density over time;
 - ii. Using photo stations to evaluate vegetation community response;
 - iii. Measuring physical parameters such as wetland size, stream dimensions, channel characteristics, buffer width;

- iv. Monitoring shallow groundwater levels to document hydrologic regimes/hydroperiods;
 - v. Sampling surface and subsurface waters to determine pollutant loading and changes from the natural variability of background conditions (pH, nutrients, heavy metals);
 - vi. Measuring base flow rates and stormwater runoff to model and evaluate water quality predictions, if appropriate;
 - vii. Measuring sedimentation rates, if applicable; and
 - viii. Sampling fish and wildlife populations to determine habitat utilization, species abundance and diversity.
- f. **Monitoring and Reporting:** Following construction, a monitoring report shall be submitted annually, at a minimum, documenting milestones, successes, problems, and contingency actions of the compensation project. The compensation project shall be monitored for a period necessary to establish that performance standards have been met, but not for a period less than three (3) years. Mitigation projects that are intended to establish forested conditions (e.g., forested wetland or forested riparian area) shall be monitored for up to fifteen (15) years with a minimum of seven (7) years.
- g. **Contingency Plan:** Identification of potential courses of action, and any corrective measures, to be taken when monitoring or evaluation indicates project performance standards are not being met.
- h. **Performance Bonds and Demonstration of Competence:** A demonstration of financial resources, administrative, supervisory, and technical competence and scientific expertise of sufficient standing to successfully execute the compensation project shall be provided. A compensation project manager shall be named, and the qualifications of each team member involved in preparing the mitigation plan and implementing and supervising the project shall be provided, including educational background and areas of expertise, training and experience with comparable projects. In addition, bonds ensuring fulfillment of the compensation project, monitoring program, and any contingency measures shall be posted in the amount of one hundred and fifty percent (150%) of the expected cost of compensation. The bond shall be held until monitoring indicates that the performance standards have been achieved and the site is fulfilling its intended goals as defined in the mitigation plan. The Administrator may release portions of the bond at specific performance milestones provided the site is meeting the milestone objectives. Administration costs incurred by Clallam County that are associated with bond administration and/or enforcement shall be paid for by the applicant.
- i. Additional information as specified in Sections 8.5 through 8.8, as applicable.

8.5 Regulations – Wetland Mitigation Plans

1. The overall goal of a wetland mitigation plan shall be no net loss of wetland functions, acreage, and values.
2. To achieve no net loss, wetland impacts shall be replaced according to the minimum area ratios shown in Table 8-1. The Administrator may increase the ratios by twenty-five percent (25%) when there is a high likelihood that the proposed mitigation will be unsuccessful in fully replacing the wetland functions and values lost at the impact site. The Administrator

shall solicit input from the Department of Ecology and the U.S. Army Corps of Engineers when assessing the likelihood of mitigation success.

Table 8-1. Wetland Mitigation Ratios

Type of Mitigation Activity	Minimum Replacement Ratio (area of replacement to area of impact)
Wetland restoration	1.5:1
Wetland creation	2:1
Wetland enhancement	3:1
Wetland preservation	8:1

3. Those persons proposing or required to compensate for wetland impacts shall show that the compensation project is associated with an activity or development otherwise permitted and that the restored, created, or enhanced wetland will be preserved in perpetuity by accomplishing the following:
 - a. Demonstrate sufficient scientific expertise, supervisory capability, and financial resources to carry out the project;
 - b. Demonstrate the capability for monitoring the site and to make corrections during this period if the project fails to meet projected goals; and
 - c. Protect and manage or provide for the protection and management of the compensation area to avoid further development or degradation.

8.6 Regulations – Aquatic and Wildlife Habitat Conservation Areas Mitigation Plans

1. Mitigation plans for impacts to terrestrial habitat conservation areas shall be addressed in a habitat management plan pursuant to Section 7.11.
2. Mitigation plans for impacts to aquatic habitat conservation areas shall include the following information in addition to the information listed in Section 8.4:
 - a. Description of buffer zones needed to protect the species/habitat;
 - b. Measures for preserving and/or restoring critically important habitat elements including plants and other features;
 - c. Limits on access to habitat areas, if needed;
 - d. Seasonal restrictions on construction activities;
 - e. Establishment of phased development requirements and/or a timetable for periodic review of the plan; and

- f. Other information the Administrator determines is necessary to address the expected impacts of development.

8.7 Regulations – Frequently Flooded Areas Mitigation Plans

1. Mitigation plans for development within frequently flooded areas shall include the following information in addition to the information listed in Section 8.4:
 - a. Potential that materials may be swept during flooding onto other lands to the detriment of others;
 - b. Actual danger to life and property if flooding or erosion occurs;
 - c. Susceptibility of the proposed development and its contents to flood damage;
 - d. Availability of alternative locations for the proposed use which are not subject to flood or erosion damage;
 - e. Relationship of the proposed use to the comprehensive plan and floodplain management program for that area;
 - f. Safety of access to the property in times of flood for ordinary and emergency vehicles;
 - g. Expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action at the site;
 - h. Costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities;
 - i. Location and extent of storage area for floodwater which will be displaced by the proposed development; and
 - j. The risk to public and private property and public health, safety and welfare due to rising of water levels, shifting of stream channels (including related erosion) as well as costs to individuals and the general public for items which are not insured such as loss of productivity due to closed roads, risk to emergency response workers, loss of uninsured property (cars, landscaping, etc.) and habitat damage as a result of loss of riparian zones and floodplain function.

8.8 Regulations – Critical Aquifer Recharge Areas Mitigation Plans

1. Mitigation plans for impacts to critical aquifer recharge areas shall include the following information in addition to the information listed in Section 8.4:
 - a. Geologic setting and soils information for the site and surrounding area;
 - b. Water quality data, including pH, temperature, dissolved oxygen, conductivity, nitrates, and bacteria;
 - c. Location and depth of perched water tables;
 - d. Recharge potential of facility site (permeability/transmissivity);
 - e. Hydrologic budget;

- f. Local groundwater flow, direction and gradient;
- g. Location, depth, and other water quality data on the three shallowest wells or springs located within one thousand (1,000) feet of the site;
- h. Impacts on wellhead protection areas located within the development proposal;
- i. Surface water locations within one thousand (1,000) feet of the site;
- j. Discussion of the effects of the proposed project on groundwater quality and quantity;
- k. Recommendations on appropriate mitigation, if any, to assure that there shall be no measurable exceedence of minimum state groundwater quality standards or measurable reduction in available quantity of groundwater;
- l. Emergency management plan; and
- m. Contaminant release detection.

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