Chapter 8
Shoreline Modification Policies and Regulations

8-1 Introduction

At times, shoreline modifications may create adverse impacts on shorelines by altering the natural character, resources, and ecology of the shoreline. Shoreline modifications are generally related to construction of a physical element such as a dike, breakwater, dredged basin, or fill, but they can include other actions such as clearing, grading, application of chemicals, or significant vegetation removal. Shoreline modifications are usually undertaken in support of or in preparation for a shoreline use; for example, dredging (shoreline modification) to allow for a marina (boating facility use). All shoreline uses and activities, even those that are exempt from the requirement to obtain a shoreline substantial development permit, and regardless of the Shoreline Environment in which they are undertaken, must conform to all of the applicable policies and regulations listed in this SMP. For example, a residential development project that included docks and roads would need to comply with the policies and regulations related to docks and roads as well as those related to residential development.

Shoreline Modification Policies and Regulations cover the following areas:

- Section 8-5 General Provisions
- Section 8-10 Clearing and Grading
- Section 8-15 Dredging and Dredge Material Disposal
- Section 8-20 Fill
- Section 8-25 Flood Hazard Management Facilities
- Section 8-30 Shoreline Stabilization
- Section 8-35 Vegetation Conservation

8-5 General Provisions

8-5-010. Applicability: The provisions of this section apply to all shoreline modifications within shoreline areas.

8-5-020 Policies

1. All shoreline modifications should be in support of an allowed shoreline use that is in conformance with the provisions of this master program. Modifications should not be allowed when there is no other use of the lot.
2. Shoreline modifications should cause as few environmental impacts as possible and should be limited in size and number.
3. The type of shoreline and the surrounding environmental conditions should be considered in determining whether a proposed shoreline modification is appropriate.
4. Projects that include shoreline modifications should contribute to enhancement of shoreline ecological functions, when possible.
5. As shoreline modifications are allowed to occur, measures to protect and restore ecological functions should be implemented.
6. Preference shall be given for those types of shoreline modifications that have a lesser impact on ecological functions. For example, planting vegetation that will stabilize the shoreline is preferred rather than a concrete bulkhead.

8-5-030. Regulations

1. All shoreline modification activities not in support of a conforming allowed use are prohibited, unless it can be demonstrated that such activities are necessary and in the public interest for the maintenance or enhancement of shoreline ecological functions.
2. Shoreline modifications shall result in no net loss of shoreline ecological functions.
3. Only shoreline modifications that are appropriate to the specific type of shoreline and environmental conditions shall be allowed. (See Table 9.3, Use-Related Development Standards)

4. Where a shoreline modification is authorized, the method that has the least impact on ecological function while achieving the purpose of the modification shall be used.
5. Shoreline modifications for non-water-dependent uses shall be allowed only if the net effect of the project over the whole site is to improve the ecological condition of the shoreline (i.e. another portion of the shoreline on the project site shall be ecologically enhanced to compensate for the shoreline modification).
6. Ecological impacts of shoreline modifications shall be mitigated to ensure no net loss of shoreline ecological functions. Mitigation measures shall be applied in the following sequence of steps listed in order of priority, with A. of this subsection being top priority:
    A. Avoiding the impact altogether by not taking a certain action or parts of an action;
    B. Minimizing impacts to the greatest extent possible by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts;
    C. Mitigating 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 degraded shorelines, or providing substitute resources or environments; and
    F. Monitoring the mitigation actions and taking appropriate corrective measures.

    In determining appropriate mitigation measures, lower priority measures shall be applied only where higher priority measures are determined to be infeasible or inapplicable. Mitigation shall be in compliance with Appendix A, Mitigation, as well as any specific mitigation standards required by the appropriate section of this SMP.
7. All shoreline modification activities must conform to the General Provisions (see Chapter 6) and the provisions for the appropriate Environment Designation (see Chapter 9) in this master program.

8-10. Clearing and Grading

8-10-010. Applicability: Clearing and grading are activities associated with developing property for a particular use. Specifically, "clearing" means the destruction, uprooting, scraping, or removal of vegetative ground cover, shrubs, and trees. "Grading" means the physical manipulation of the earth's surface and/or surface drainage pattern without significantly adding or removing on-site materials. "Fill" means placement of dry fill on existing dry or wet areas and is addressed later in this chapter.

Clearing and grading are regulated because they may increase erosion, siltation, runoff, and flooding, change drainage patterns; reduce flood storage capacity; and damage habitat. All clearing and grading within areas under shoreline jurisdiction, even that which does not require a permit, must be consistent with the Shoreline Management Act, the State rules implementing the Act, and the goals, policies, and regulations of this Master Program. The Vegetation Conservation provisions later in this chapter have direct application to clearing and grading proposals.

8-10-020. Policies

1. Clearing and grading activities should only be allowed in association with an allowed shoreline use.
2. Clearing and grading in shoreline areas should be limited to the minimum necessary to accommodate permitted shoreline development.
3. Clearing and grading should be prohibited in required shoreline buffers, except for a 4'-wide path to provide access to a dock and reasonable access by property owners with disabilities.
4. All clearing and grading activities should be designed and conducted to minimize sedimentation and impacts to shoreline ecological functions, including wildlife habitat functions and water quality. Negative environmental and shoreline impacts of clearing and grading should be avoided or minimized through proper site planning, construction timing and practices, vegetative stabilization or

(where required) soft structural stabilization, use of erosion and drainage control methods, and by adequate maintenance.

5. For all clearing and grading proposals, a plan addressing species removal, re-vegetation, irrigation, erosion and sedimentation control, and other plans for protecting shoreline resources from harm should be required.
6. Cleared and disturbed sites remaining after completion of construction should be promptly re-stabilized, and should be replanted as soon as is practical with primarily native, self-sustaining plantings. Within the buffer, only native plants should be planted. If weather conditions preclude planting immediately after the completion of construction, replanting shall occur no later than the next planting season.
7. Restoration of disturbed areas is difficult in the Moses Lake area, due to the dry climate and abundant weed seeds. Avoiding disturbance is more effective and economical than restoration.

8-10-030. Regulations

1. Since restoration is more difficult than avoiding the impact in the first place, all clearing and grading activities shall be limited to the minimum necessary for the intended development. The Vegetation Management provisions later in this chapter apply to all clearing and grading activities.
2. Clearing and Grading Plan
    a. A clearing and grading plan shall be required for all development within shoreline jurisdiction, whether a shoreline permit is required or the project is exempt from a shoreline substantial development permit.
    b. The clearing and grading plan shall address species removal, replanting, irrigation, erosion and sedimentation control, and plans for protecting shoreline resources from harm.
    c. The plan must be approved by the City before any clearing or grading takes place.
3. No clearing and grading activities shall take place unless associated with an approved shoreline development. Clearing and grading shall be addressed in the permit or exemption for the shoreline use or activity with which it is associated. No clearing or grading shall take place before the permit or exemption is issued.
4. Immediately upon completion of the construction or maintenance activity, remaining cleared areas shall be restored to their pre-project condition, using compatible, self-sustaining vegetation.
    a. If weather conditions at the time of year do not permit immediate restoration, replanting shall be completed during the next planting season.
    b. A planting plan shall be submitted to the City for review and approval. If necessary, a temporary sterile certified weed-free cover crop (e.g., a sterile non-persistent member of the grass family such sterile Triticale, barley, or oats) shall be planted to prevent erosion during the establishment period; said cover crop shall be maintained until the permanent vegetation is sufficiently established to prevent erosion.
    c. Replanted areas shall be maintained in accordance with the City's landscape maintenance requirements (MLMC Chapter 18.57.090). In the case of transportation, utility, or other capital facility construction, the agency or developer constructing or maintaining the facility shall also be responsible for maintaining the vegetation until it is established.
5. All shoreline areas disturbed by transportation, utility, or other facility maintenance shall be restored to their pre-project condition, using compatible vegetation, immediately upon completion of maintenance activity. The permit application submittal shall identify the size, location, and species of plants that will be used. The agency or developer maintaining the facility shall also be responsible for maintaining the vegetation until it is established.
6. Clearing by hand-held equipment of invasive non-native vegetation on the State Noxious Weed List is permitted in shoreline areas provided the disturbed area is promptly replanted with vegetation from the recommended list.

7. All shoreline development and activity shall use effective measures to minimize increases in surface water runoff and sedimentation that may result from clearing and grading activity, in compliance with the Eastern Washington Stormwater Manual. With the required clearing and grading plan submittal, the applicant must include in the proposal the methods that will be used to control, treat, and release runoff so that receiving water quality and 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.
8. Soil stabilization associated with clearing and grading shall, whenever feasible, use bioengineering or other soft stabilization techniques.
9. Any significant placement of materials from off of the site, or substantial creation or raising of dry upland, shall be considered filling and shall comply with the fill provisions of Chapter 8, Modification Activities.
10. Before any clearing or grading takes place on a site, sediment control measures such as silt fences, sand bags, or other approved measures shall be in place to protect the lake, shoreline, and any wetlands from sedimentation during construction. Sediment control measures shall be inspected after every runoff event and at least once per month and shall be maintained when necessary to ensure proper functioning.

8-15. Dredging and Dredge Material Disposal

8-15-010. Applicability: Dredging is the removal or displacement of earth or sediments such as gravel, sand, mud, silt, and/or other materials or debris from any water body or associated shoreline or wetland. Dredging is stringently regulated, since uncoordinated, piecemeal dredging in one area of the lake can have serious impacts on other areas. Dredging is normally done for specific purposes such as constructing or maintaining navigation channels, or marinas, for installing pipelines or cable crossings, or for dike or drainage system repair and maintenance. Dredge material disposal is the depositing of dredge materials on land or into water bodies for the purposes of either creating new lands or disposing of the by-products of dredging. Dredge material disposal within shoreline jurisdiction is also subject to the filling provisions found later in this chapter.

8-15-020. Policies

1. New development should be sited and designed to avoid or, if that is not possible, to minimize the need for new and maintenance dredging.
2. Dredging and dredge material disposal should be located and conducted in a manner that minimizes damage to existing ecological functions and processes, including those in the area to be dredged, at the dredge material disposal site, and in other parts of the watershed. Impacts that cannot be avoided should be mitigated in a manner that assures no net loss of shoreline ecological functions.
3. Dredging of bottom materials for the primary purpose of obtaining material for fill or other purposes should be prohibited, except when the material is necessary for the restoration of ecological functions.
4. Dredging operations should be planned and conducted to minimize interference with water and shoreline uses, properties, and values.
5. Dredging for the purpose of establishing, expanding, or relocating or reconfiguring navigation channels and basins should be allowed where necessary for assuring safe and efficient accommodation of existing navigational uses, and then only when significant ecological impacts are minimized and when mitigation is provided.
6. Maintenance dredging of established navigation channels and basins should be restricted to maintaining previously dredged and/or existing authorized location, depth, and width.
7. Dredge material disposal in water bodies should be discouraged, except for habitat improvement or where depositing dredge material on land would be more detrimental to shoreline resources than deposition in water areas.

8. Where dredge material has suitable organic and physical properties, dredging operations should be encouraged to recycle dredged material for beneficial use in enhancement of beaches that provide public access, habitat creation or restoration, aggregate, or clean cover material at a landfill.
9. All sediment management and dredging should be carried out in a coordinated, well-planned manner.
10. Sediment management and dredging should be planned and conducted to optimize ecological function, while accommodating recreational navigation where possible.
11. Dredging should improve fish and wildlife habitat.
12. Dredging should not result in increased shoreline erosion.
13. Dredging should not impact benthic macroinvertebrates, which are important forage for the lake's fish and migrating birds.
14. Dredging should not result in reduction of the area of existing native emergent vegetation, such as bulrush, or area where bulrush should be able to occur but have been removed.

8-15-030. Regulations–Dredging

1. Dredging shall only be permitted as part of the implementation of the Sediment Management element of the Restoration Plan (Chapter 11 of this Shoreline Master Program). The City shall require and use the following information in its review of shoreline dredging and dredge material disposal proposals:
    a. A description of the purpose of the proposed dredging and analysis of compliance with the policies and regulations of this SMP.
    b. A detailed description of the existing physical character, shoreline geomorphology, and biological resources provided by the area proposed to be dredged, including:
        1. A site plan map outlining the perimeter of the proposed dredge area. The map must also include the existing bathymetry (water depths that indicate the topography below the OHWM) and have data points at a minimum of 2' depth increments.
        2. A critical areas report.
        3. A mitigation plan if necessary to address any identified adverse impacts on ecological functions or processes.
        4. Information on stability of areas adjacent to proposed dredging and spoils disposal areas.
    c. A detailed description of the physical, chemical, and biological characteristics of the dredge material to be removed, including:
        1. Physical analysis of material to be dredged (material composition and amount, grain size, organic material present, source of material, etc.
        2. Chemical analysis of material to be dredged (volatile solids, chemical oxygen demand (COD), grease and oil content; mercury, lead, and zinc content, etc.
        3. Biological analysis of material to be dredged.
    d. A description of the method of materials removal, including facilities for settlement and movement.
    e. Dredging procedure, including the length of time it will take to complete dredging, method of dredging, and amount of materials removed.
    f. Frequency and quantity of project maintenance dredging.
    g. Detailed plans for dredge spoil disposal, including specific land disposal sites and relevant information on the disposal site, including but not limited to:
        1. Dredge material disposal area.
        2. Physical characteristics including location, topography, existing drainage patterns, surface and ground water.

3. Size and capacity of disposal site.
4. Means of transportation to the disposal site.
5. Proposed dewatering and stabilization of dredged material.
6. Methods of controlling erosion and sedimentation.
7. Future use of the site and conformance with land use policies and regulations.
8. Total estimated initial dredge volume.
9. Plan for disposal of maintenance spoils for at least a 20-year period, if applicable.
10. Hydraulic modeling studies sufficient to identify existing geohydraulic patterns and probable effects of dredging.

2. In evaluating permit applications for any dredging project, the Planning Commission shall consider the need for and adverse effects of the initial dredging, subsequent maintenance dredging, and dredge disposal. Dredging and dredge material disposal shall only be permitted where it is demonstrated that the proposed actions will not:
   a. Result in significant and/or on-going damage to water quality, fish, or other biological elements;
   b. Adversely alter natural drainage and circulation patterns, or significantly reduce flood storage capacities;
   c. Affect slope stability; or
   d. Otherwise damage shoreline or aquatic resources.
3. Proposals for dredging and dredge disposal shall include all feasible mitigation measures to protect fish and wildlife habitat and minimize adverse impacts such as turbidity; release of nutrients, heavy metals, sulfides, organic materials, or toxic substances; dissolved oxygen depletion; or disruption of food chains.
4. Dredging waterward of the ordinary high water mark shall be permitted only:
   a. For navigation or navigational access;
   b. In conjunction with a water-dependent use of water bodies or adjacent shorelands;
   c. As part of the Sediment Management element in the Restoration Plan (Chapter 11) that has been developed by the City, Moses Lake Irrigation and Rehabilitation District, Washington Department of Fish and Wildlife, and other stakeholders and entities, and has been accepted by the Washington Department of Fish and Wildlife or other agency with jurisdiction;
   d. To improve water quality;
   e. In conjunction with a bridge or a navigational channel or structure for which there is a documented public need and where other feasible sites or routes do not exist; or
   f. To improve water flow and/or manage flooding only when consistent with an approved flood and/or stormwater comprehensive management plan.
5. When dredging is permitted, the dredging shall be the minimum necessary to accommodate the proposed use.
6. Any impacts of dredging that cannot be avoided shall be mitigated in a manner that assures no net loss of shoreline ecological functions.
7. Dredging shall use techniques that cause the minimum dispersal and broadcast of bottom material.
8. Dredging for the primary purpose of obtaining material for fill is prohibited, except when the material is necessary for the restoration of ecological functions. When allowed, the site where the fill is to be placed must be located waterward of the ordinary high-water mark. The project must be associated with a significant habitat enhancement project.
9. Dredging upland of the ordinary high water mark to construct canals or basins for boat moorage or launching, water ski landings, swimming holes, and similar uses is prohibited.

8-15-040. Regulations–Dredge Material Disposal

1. Disposal of dredged materials shall be accomplished at approved contained upland sites.
2. Depositing dredge materials in water areas shall be allowed only by conditional use permit, and only for improving fish and wildlife habitat as part of the sediment management element of the Restoration Plan in Chapter 11 of this Shoreline Master Program.
3. Land disposal sites shall be replanted as soon as feasible, and in no case later than the next planting season, in order to retard wind and water erosion and to restore the wildlife habitat value of the site. Vegetation from the recommended list (see Chapter 14) or other species authorized by the City shall be used. Native plants are preferred. Plants that may compromise shoreline values shall be prohibited. The permit application submittal shall identify the size, location, and species of plants that will be used. The agency or developer responsible for the land disposal shall also be responsible for maintaining the vegetation until it is established.
4. Proposals for disposal in shoreline areas must show that the site will ultimately be suitable for a use permitted by this master program.

8-20. Fill

8-20-010. Applicability: Fill is the addition of soil, sand, rock, gravel, sediment, earth retaining structure, or other material to an area waterward of the ordinary high water mark, in wetlands, or on shorelands in a manner that raises the elevation or creates dry land. Fill does not include sanitary landfills for the disposal of solid waste, which are prohibited in shoreline jurisdiction except for temporary trash receptacles at commercial and public park developments.

8-20-020. Policies

1. Fills waterward of the ordinary high water mark should be allowed only when necessary to facilitate water-dependent and/or public access uses that are consistent with this master program.
2. Shoreline fills should be designed and located so that there will be no significant damage to existing ecological systems or natural resources, and no alteration of local currents, surface water drainage, or flood waters that would result in a hazard to adjacent life, property, or natural resource systems.
3. In evaluating fill projects, such factors as potential and current public use of the shoreline and water surface area, navigation, water flow and drainage, water quality, and habitat should be considered and protected to the maximum extent feasible.
4. The perimeter of any fill should be designed to avoid or eliminate erosion and sedimentation impacts, both during initial fill activities and over time. Natural-appearing and self-sustaining control methods are preferred over structural methods.
5. Where permitted, fills should be the minimum necessary to provide for the proposed use and should be permitted only when they are part of a specific development proposal that is permitted by this master program. Placing fill in water bodies or wetlands to create usable land should be prohibited.

8-20-030. Regulations

1. The City shall require and use the following information in its review of fill proposals:
    a. Proposed use of the fill area.
    b. Physical, chemical, and biological characteristics of the fill material.
    c. Source of the fill material.
    d. Method of placement and compaction.
    e. Location of fill relative to existing drainage patterns and wetlands.
    f. Location of the fill perimeter relative to the ordinary high water mark.
    g. Perimeter erosion control or stabilization measures.
    h. Type of surfacing and runoff control devices.

2. Fill waterward of the ordinary high water mark or in wetlands shall only be permitted as a conditional use, and only for one of the following purposes. Fill in wetlands must comply with the wetlands provisions in Chapter 6 of this SMP.
    a. In conjunction with a water-dependent or public use permitted by this master program.
    b. In conjunction with a bridge or navigational structure for which there is a demonstrated public need (based on the City's *Comprehensive Plan*) and where no feasible upland sites, design solutions, or routes exist.
    c. As part of an approved beach restoration project.
    d. For fisheries, aquaculture, or wildlife enhancement projects.
3. Pier or pile support shall be utilized whenever feasible in preference to filling. Fills for approved road development in floodways or wetlands shall be permitted only if pile or pier supports are proven infeasible.
4. Fills are prohibited in floodplains except where it can be clearly demonstrated that the geohydraulic characteristics and floodplain storage capacity will not be altered to cause increased flood hazard or other damage to life or property. Fills are prohibited in floodways, except when approved by conditional use permit and where required in conjunction with a proposed water-dependent or other use, as specified in Regulation 2 above.
5. Fills shall be permitted only when it is demonstrated that the proposed action will not:
    a. Result in significant damage to water quality or fish and wildlife habitat;
    b. Adversely affect natural drainage and circulation patterns or significantly reduce flood water capacities;
    c. Affect slope stability; or
    d. Otherwise damage shoreline or aquatic resources.
6. Fills shall be allowed only as part of a specific proposal for a use or activity that is permitted by this master program.

<u>8-20-040. Regulations–Design and Construction</u>

1. Where fills are permitted, the fills shall be the minimum necessary to accommodate the proposed use.
2. Fills shall be designed, constructed, and maintained to prevent, minimize, and control all material movement, erosion, and sedimentation from the affected area. Perimeters of permitted fill projects shall be designed and constructed with silt curtains, vegetated buffer areas, or other methods, and shall be adequately sloped to prevent erosion and sedimentation both during initial fill activities and afterwards. Such containment practices shall occur during the first growing season following completion of the fill. The design shall incorporate natural-appearing and self-sustaining control methods unless they can be demonstrated to be infeasible due to existing environmental conditions such as currents and weather.
3. Fill materials shall be sand, gravel, rock, soil, or similar materials. Use of polluted dredge spoils, solid waste, and sanitary landfill materials is prohibited.
4. Fills shall be designed to allow surface water penetration into ground water supplies where such conditions existed prior to fill. Fills shall not be permitted in aquifer recharge areas if they would have the effect of preventing percolation of the water.
5. The timing of fill construction shall be regulated to result in no net loss of shoreline ecological functions, including water quality and aquatic life.
6. Fill on dry land shall not result in substantial changes to patterns of surface water drainage from the project site and onto adjacent properties; within shoreline areas; into aquatic areas; or onto steep slopes or other erosion hazard areas.

8-25. Flood Hazard Management

8-25-010. Applicability: Flood hazard management projects are those actions taken with the primary purpose of preventing or minimizing damage caused by flooding.

8-25-020. Policies

1. Construction should not be allowed in flood hazard areas.

8-25-030. Regulations

1. All flood hazard management projects shall comply with Moses Lake Municipal Code 18.53, Flood Hazard Areas and with the General Regulations for Frequently Flooded Areas.
2. Environment-specific regulations: flood hazard management projects shall comply with the environment-specific requirements in Chapter 9.

8-30. Shoreline Stabilization

8-30-010-A. Applicability: Shoreline stabilization includes actions taken primarily to address erosion impacts to upland property and improvements caused by current, wake, or wave action. Those actions include structural, nonstructural, and vegetative methods.

8-30-010-B. Structural stabilization may be "hard" or "soft." "Hard" structural stabilization measures refer to those with solid, hard surfaces, such as concrete bulkheads, which deflect rather than absorb wave energy, while "soft" stabilization, such as biotechnical stabilization, which employs plant materials, rolled erosion control and soil engineering fabrics, and similar structural materials to absorb wave energy and restore the function of a natural shoreline. Generally, the harder the stabilization measure, the greater the impact on shoreline processes, including sediment transport, geomorphology, and biological functions. Hard shoreline stabilization methods also result in vegetation removal and damage to near-shore habitat and shoreline corridors.

8-30-010-C. Human use of the shoreline has typically led to hardening of the shoreline for various reasons, including reduction of erosion, providing useful space at the shore, or providing access to docks. The impacts of hardening any one property may be minimal, but cumulatively the impact of shoreline hardening is significant. Hard structures, especially vertical walls, often create conditions that lead to the failure of the structure. Over time, the substrate of the shoreline coarsens and scours down to bedrock. The footings of the bulkhead are exposed, leading to undermining and failure.

8-30-010-D. The following methods of shoreline stabilization are organized from "biotechnical" to "hard structural". The use of biotechnical stabilization is required, unless this design method has been found technically not feasible by a qualified expert such as a soil bioengineering practitioner.

1. Biotechnical or Soil Bioengineering:

- biotechnical measures as described above

2. "Hard Structural"
    a. riprap
    b. retaining walls (sheet piling, concrete, etc.)
    c. bulkheads (sheet piling, concrete, etc.)

8-30-010-E. Non-structural methods include building setbacks, ground water management, and planning and regulatory measures to avoid the need for structural stabilization.

8-30-010-F. Vegetative methods include re-vegetation and vegetation enhancement. In addition, vegetation is often used as part of structural stabilization methods; it is always part of biotechnical stabilization. For the purposes of this section, vegetative methods are considered to include only re-vegetation and vegetation enhancement.

Note: Additional regulations for bulkheads and riprap are found in a separate section, below. Bulkheads and riprap must meet the provisions of both sections.

8-30-020. Policies

1. Stabilization measures should be designed, located, and constructed primarily to prevent damage to existing development.
2. No structural stabilization measures should be allowed for a vacant lot.
3. New development should be located and designed to eliminate the need for future shoreline stabilization.
4. Shoreline vegetation, both on the bank and in the water, is very effective at stabilizing shorelines. For this reason, property owners are strongly encouraged to protect existing shoreline vegetation and restore it where it has been removed. Preserving and restoring shoreline vegetation should be the preferred method of shoreline stabilization.
5. Structural solutions to shoreline erosion should be allowed only if non-structural and vegetative methods would not be able to reduce existing or ongoing damage. The "softest" structural stabilization that will be effective should be used.
6. Public projects should be models of good shoreline stabilization design and implementation.
7. Shoreline stabilization shall not be allowed for new uses if it would cause a net loss of shoreline ecological functions on the site, within the city, or within the watershed; or if it would cause significant ecological impacts to adjacent properties or shoreline areas. Those impacts include accelerated erosion of adjacent properties caused by the stabilization measures.

8-30-030. Regulations

1. New structural stabilization measures shall not be allowed except to protect or support an existing or approved use, or for the restoration of ecological functions, or for hazardous substance remediation projects pursuant to RCW 70.105D, when non-structural or vegetative methods are not feasible or are not sufficient. New or enlarged "hard" stabilization methods shall not be allowed unless there is conclusive evidence, documented by a geotechnical analysis, that the primary structure or water dependent use is in danger from shoreline erosion caused by current or waves, and that the proposed "hard" stabilization measure is the least impacting method that will protect the structure. Use of shoreline stabilization measures to create usable land is prohibited.
2. New non-water-dependent uses, including single-family residences, that includes structural shoreline stabilization shall not be allowed unless all of the following conditions apply:
    a. The need to protect the use from destruction due to erosion caused by natural processes, such as currents and waves, is demonstrated through a geotechnical report.
    b. The erosion is not being caused by upland conditions, such as drainage and the loss of vegetation.
    c. Non-structural measures (such as placing the use farther from the shoreline), vegetative methods, or installing on-site drainage improvements, are not feasible or not sufficient.
    d. The stabilization will not cause significant ecological impacts to any species or habitat.
3. Creation of new lots that will require shoreline stabilization in order for development to occur shall not be allowed.
4. New uses in areas above unstable slopes and moderately unstable slopes shall be set back sufficiently to ensure that shoreline stabilization will not be needed during the life of the structure, as demonstrated by a geotechnical analysis.
5. Where structural shoreline stabilization measures are demonstrated to be necessary, the size of the stabilization measures shall be limited to the minimum necessary. Stabilization measures used shall be designed to minimize harm to ecological functions. Lost functions shall be mitigated to ensure no net loss of shoreline ecological functions. Soft approaches shall be used unless demonstrated by a geotechnical report to be insufficient to protect the primary structure or structures.
6. Shoreline stabilization measures shall be designed to restore, as much as possible, the ecological functions of the shoreline.
7. Where stabilization is necessary to alleviate erosion caused by removal of vegetation, vegetative

stabilization measures shall be the only stabilization measures allowed.

8. Publicly financed or subsidized shoreline erosion control measures shall not restrict appropriate public access to the shoreline, except where such access is determined to be infeasible because of incompatible uses, safety, security, or harm to ecological functions. Where feasible, ecological restoration and public access improvements shall be incorporated into the project.
9. All applicable federal, state, and local permits shall be obtained and complied with in the construction of shoreline stabilization measures. All permits must be issued before any stabilization work takes place.
10. Enlarging or replacing an existing stabilization structure shall be evaluated the same as a new stabilization structure.
11. Where geotechnical reports are required that address the need to prevent potential damage to a primary structure, the following apply:
    a. The geotechnical report 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.
    b. Hard armoring solutions shall not be authorized except when the geotechnical report confirms that there is a significant possibility that the 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 is that immediate would foreclose the opportunity to use measures that avoid impacts on ecological functions.
    c. Where a geotechnical report confirms a need to prevent potential damage to a primary structure, but the need is not as immediate as three years, the report may still be used to justify more immediate authorization to protect against erosion using soft measures.
    d. The geotechnical report shall be prepared by a qualified professional engineer or geologist who has professional expertise about the regional and local shoreline geology and processes.

8-30-040. Bulkheads and Riprap

8-30-050. Applicability:

1. A bulkhead is a type of hard structural shoreline stabilization measure. Bulkheads are walls, constructed parallel to the shoreline and in contact with the water, whose primary purpose is to contain and prevent the loss of soil caused by erosion or wave action. A bulkhead-like structure used as part of the structure of a cantilevered dock is not regulated as a bulkhead as long as the width is no more than what is required to stabilize the dock.
2. Riprap is a layer, facing, or mound of stone placed on a slope.
3. Exemption: Certain bulkheads are exempt from the requirement to obtain a shoreline substantial development permit. However, all bulkheads must comply with the Shoreline Management Act, the rules implementing the Act, and this Master Program.

8-30-060. Policies

1. A bulkhead or riprap are not preferred methods of stabilizing the shoreline, because bulkheads and riprap significantly degrade fish and wildlife habitat by the removal of shoreline vegetation, increase erosion on neighboring properties, and change the natural sedimentation process.
2. Cumulative impacts of bulkheads and riprap should be considered, since over time and as more shoreline is lost to bulkheading and riprap, the resulting loss of habitat may have long-term impacts on fish populations as well as to the overall ecological value of the lake.
3. Most areas along Moses Lake can be adequately stabilized using softer, more natural means, such as vegetation enhancement, rather than a bulkhead or riprap.
4. If the purpose is not stabilization, a retaining wall, set back from shoreline vegetation, should be used rather than a bulkhead at the water's edge. (Retaining walls for purposes other than shoreline stabilization must comply with the setback and buffering requirements under the heading

"Environmental Impacts and Water Quality" in Chapter 6 of this SMP.)

5. Because a bulkhead or riprap on one property can accelerate erosion on adjacent properties, the impacts of a proposed bulkhead or riprap on adjacent properties should be analyzed and considered before the bulkhead or riprap is approved.
6. A bulkhead should be allowed only for shoreline stabilization, and only if all more ecologically-sound measures are proven infeasible.
7. Property owners are encouraged to remove existing bulkheads and restore the shoreline to a more natural state. As an incentive, such projects should be considered to be watershed restoration projects and therefore processed without a fee charged for the shoreline permit.

8-30-070. Regulations

1. All shoreline stabilization policies and regulations apply.
2. New or enlarged or replacement bulkheads or riprap for an existing principal structure or use, including residences, shall not be allowed unless there is conclusive evidence, documented by a geotechnical analysis, that the principal structure is in danger from shoreline erosion caused by currents or waves. Normal sloughing, or shoreline erosion itself, without a scientific or geotechnical analysis, is not demonstration of need. The geotechnical analysis shall evaluate on-site drainage issues and address drainage problems away from the shoreline edge before considering structural shoreline stabilization. The project design and analysis shall also evaluate vegetation enhancement and biotechnical stabilization as a means of reducing undesirable erosion. The geotechnical analysis shall demonstrate that the stabilization measure chosen is the softest means that will be sufficient to achieve stabilization. The geotechnical analysis shall evaluate impacts to neighboring properties caused by the proposed stabilization.

8-35. Vegetation Conservation

8-35-010. Applicability:

1. Vegetation conservation includes activities to prevent the loss of plant communities that contribute to the ecological functioning of shoreline areas. The intent of vegetation conservation is to provide habitat, improve water quality, reduce destructive erosion, sedimentation, and flooding; and accomplish other functions performed by plant communities along shorelines. Vegetation conservation deals with the protection of existing diverse plant communities along the shorelines, aquatic weed control, and the restoration of altered shorelines by reestablishing natural plant communities as a dynamic system that stabilizes the land from the effects of erosion.
2. Vegetation conservation provisions are important for several reasons, including water quality, habitat, and shoreline stabilization. Shoreline vegetation improves water quality by removing excess nutrients and toxic compounds, and removing or stabilizing sediments. Habitat functions of shoreline vegetation include shade, recruitment of vegetative debris (fine and woody), refuge, and food production. Shoreline vegetation, especially woody plants with large root systems above the ordinary high water mark and emergent plants such as bulrushes, can be very effective at stabilizing the shoreline and preventing erosion. An additional reason that vegetation conservation provisions are important is that the Shoreline Management Act sets preferences for shorelines of statewide significance, such as Moses Lake. Those preferences include preserving the natural character, resources and ecology of the shoreline.
3. Vegetation conservation provisions apply even to those uses that are exempt from the requirement to obtain any sort of shoreline permit.

8-35-020. Policies

1. Natural plant communities within and bordering shorelines should be protected and maintained to ensure no net loss of shoreline ecological functions.
2. Natural shoreline vegetation should be maintained and enhanced to reduce the hazard of bank failures and accelerated erosion. Vegetation removal that is likely to result in soil erosion severe enough to create the need for structural shoreline stabilization measures should be prohibited.

3. Shoreline vegetation degraded by natural or manmade causes should be restored wherever feasible.
4. Non-structural and "soft" methods of shoreline stabilization, such as vegetation enhancement and soil bioengineering, are preferred to hard structures to arrest the processes of erosion, sedimentation, and flooding.
5. Removal of vegetation should be limited to the minimum necessary to reasonably accommodate the permitted use or activity.
6. The physical and aesthetic qualities of the natural shoreline should be maintained and enhanced.
7. Preference should be given to preserving and enhancing natural vegetation closest to the ordinary high water mark.
8. Aquatic weed management should stress prevention first.

8-35-030. Regulations

1. Development shall be located away from shorelines where the Erosion Hazard has been identified as "Very High" or the Shoreline Exposure Range is shown as greater than ten (10) meters in the *Shoreline Inventory and Characterization*.
2. Restoration of any shoreline that has been disturbed or degraded shall use plant materials from the recommended list (see Chapter 14) or other species approved by the City, with a diversity and type similar to or better than that which originally occurred on the site. Questions about appropriate diversity and type shall be directed to agencies with jurisdiction, such as the departments of Ecology and Fish and Wildlife.
3. Stabilization of erosion-prone surfaces along shorelines shall utilize vegetative, non-structural means wherever possible.
4. Vegetation removal that would be likely to result in significant soil erosion or the need for structural shoreline stabilization measures is prohibited. This does not preclude the removal of noxious weeds, provided the disturbed area is promptly replanted with vegetation from the recommended list or if the site will fully re-vegetate on in its own within three growing seasons.
5. Topping of trees shall be prohibited in all cases.
6. Removal of noxious weeds in environmentally sensitive areas shall be timed and carried out in a manner that minimizes any disruption of wildlife or habitat.
7. Within the required shoreline buffer specified in Chapter 9, Table 2, no disturbance is allowed, with the following exceptions:
    a. Removal of noxious weeds.
    b. With the approval of the Community Development Department, removal of weeds and planting of approved beneficial species. Before any work is done, the landowner shall submit a plan to the Community Development Department.
    c. Creation of a path no wider than 5' which provides access to an approved dock.
    d. Removal of vegetation damaged or destroyed by a natural occurrence.
8. Permits issued for projects in ecologically degraded areas shall include a condition that appropriate shoreline vegetation shall be planted or enhanced, to contribute to the restoration of ecological processes and functions.
9. Emergent plants such as bulrushes absorb wave energy and protect the shoreline from erosion. These plants shall be preserved to the greatest extent possible and shall not be removed, uprooted, trimmed, or burned. Limited removal may be allowed for access, such as immediately adjacent to a dock, subject to local, state, and federal regulations.
10. Significant vegetation removal is a shoreline modification which is regulated and requires a shoreline permit. Significant vegetation removal is defined as the removal or alteration of trees, shrubs, and/or ground cover by clearing, grading, cutting, burning, chemical means, or other activity that causes significant ecological impacts to functions provided by such vegetation. The removal of invasive or noxious weeds does not constitute significant vegetation removal. Tree pruning, not including tree

topping, where it does not affect ecological functions, does not constitute significant vegetation removal.