



# **Floodplain Management and the Endangered Species Act Checklist for Programmatic Compliance**

April, 2010



**FEMA** Region 10



**Community Checklist**  
for the  
**National Flood Insurance Program**  
and the  
**Endangered Species Act**

**Produced by FEMA - Region 10**  
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It was prepared with the advice and assistance of a special advisory committee that included representatives from:

- City of Auburn
- City of Carnation
- City of Everett
- Jefferson County
- King County
- City of Lacey
- Lummi Nation
- City of Monroe
- National Marine Fisheries Service
- Pierce County
- San Juan County
- Snohomish County
- City of Tukwila
- Washington State Department of Ecology
- Whatcom County

While some comments were not incorporated, the reviews of each agency in a common endeavor to make this a useful regulatory tool are appreciated.

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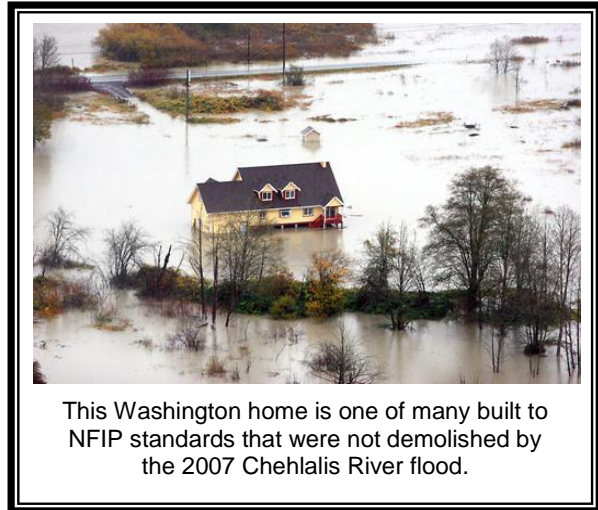


## National Flood Insurance Program

The National Flood Insurance Program (NFIP) was created in 1968 as a way to offer an alternative to disaster assistance for properties subject to flood damage. In return for federally supported flood insurance, local governments had to agree to regulate development in their floodplains in accordance with the Program's criteria. Since 1979, the program has been administered by the Federal Emergency Management Agency (FEMA).

The NFIP has proven very effective as a way to shift the cost of flood damage from taxpayers to insurance policy holders. It has also steered development away from floodplains and set construction standards for development that is allowed.

As an insurance driven program, the NFIP is funded by insurance premiums, not tax dollars. The program is focused on protecting all new and substantially improved buildings. It sets minimum floodplain management standards that protect new buildings. As a result, buildings in the floodplain that meet the NFIP standards suffer 80% less flood damage than buildings constructed before the requirements went into effect. Under the floodway concept, the NFIP prevents development from substantially increasing flood damage on other properties.



However, while the minimum requirements of the NFIP protect the public health, safety, and welfare of the community by protecting buildings from the 100-year, or 1% chance flood, the program was not intended to address other floodplain management concerns, such as riparian habitat. Local ordinances that only address protecting insurable buildings may not protect natural and beneficial floodplain functions. Regulations that just meet the minimum NFIP requirements do not protect property from greater than 100-year floods and floods that occur outside the mapped Special Flood Hazard Area.

While buildings can be built to minimize 100-year flood damage, people may still be exposed to flood hazards, especially residents of floodprone homes who cannot get out in time (see box). Accordingly, it is a good practice (and FEMA recommends) that communities consider the NFIP as a starting point, and adopt higher regulatory standards that better meet local needs.

In 2008, the National Marine Fisheries Service issued a Biological Opinion. That opinion noted that continued implementation of the NFIP in the Puget Sound adversely affects the habitat of certain threatened and endangered species.

**River rescue:** In 1988, a home was constructed in the floodplain fringe of the Carbon River. It met all of the construction standards of the NFIP. When the Carbon River started to flood in 2007, the family tried to drive to high ground. Their van got stuck in waters that were too fast and deep for the Sheriff Department's river rescue team. A Coast Guard helicopter had to come to the rescue, hovering over the van and winching each person up, one at a time. In order to prevent such situations from occurring, Pierce County amended its floodway mapping standard to account for deep and fast moving water – a standard that exceeds the NFIP minimum requirement adopted to protect lives and reduce public expenses.

## The Biological Opinion

A background on how floodplain development can affect habitat is included in Appendix C of the NFIP ESA Model Ordinance. On September 22, 2008, the National Marine Fisheries Service (NMFS) issued a Biological Opinion that required changes to the implementation of the National Flood Insurance Program in order to meet the requirements of the Endangered Species Act (ESA) in the Puget Sound watershed.

FEMA offers two ways to meet this ESA requirement:

1. Prohibit all development in the floodway and other areas as specified by the RPA.
2. Enact regulations that allow development that meet the criteria specified in the Biological Opinion by either:
  - a. Adopting the Model Ordinance, or
  - b. Enforcing the same requirements in other ordinances, such as the growth management, zoning, or critical areas regulations.

If a community chooses not to enact regulations under the two options described above, then a third option of showing compliance with ESA on a permit by permit basis will be required. This will typically involve requiring applicants for floodplain development permits to develop in the Special Flood Hazard Area to submit permit applications to the National Marine Fisheries Service. If option 3 is chosen, NFIP communities must ensure that permit applicants have demonstrated compliance with ESA before issuing a floodplain development permit.

Option 2 is generally preferred by most communities. Option 2.b. may be an easier route for those cities and counties that have critical area and shoreline management regulations. For those communities, this checklist can be used to identify if they need to amend their existing regulations to meet the Biological Opinion's criteria. If the checklist shows that additional regulations need to be adopted, language from the noted section in the Model Ordinance can be used.

It should be noted that the NFIP regulations (44 CFR 60.3(a) (2)) require participating communities "to assure that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law." Under options 2.a. and b, NFIP communities must ensure that permit applicants meet the criteria established in the Biological Opinion. If option 3 is chosen, NFIP communities must ensure that permit applicants have consulted with NMFS and received approval before issuing a floodplain development permit when necessary.

## Biological Opinion Checklist

A community may choose to demonstrate that their local ordinances, processes, and written procedures meet or exceed the performance standards set forth in the Biological Opinion Reasonable and Prudent Alternative elements 2 and 3 and Appendix 4 in addition to the performance standards of the minimum NFIP program.

The community must show where its regulations, processes, and procedures meet the minimum criteria for the NFIP (44 CFR 59 – 60) and the Endangered Species Act (as clarified by the Biological Opinion, RPA elements 2 and 3 and Appendix 4). The checklist for the NFIP requirements starts on page 6.

This checklist is for the ESA/Biological Opinion criteria. The requirements are abbreviated here. The full requirements are in the Biological Opinion pages that are included in Appendix D of the NFIP ESA Model Ordinance.

The recommended regulatory language is in the noted sections of the NFIP ESA Model Ordinance. If the community already has adopted the provision, the ordinance section or other regulatory reference should be entered in the third column. If the community’s regulations do not fulfill the provision, the noted language in the NFIP ESA Model Ordinance can be used.

If a community believes that their ordinances, processes, and written procedures meet the no adverse affect standard of the Reasonable and Prudent Alternative, yet do not meet the specific performance criteria as set forth in that Reasonable and Prudent Alternative, then the community may submit their language to FEMA along with any background documentation (i.e. best available science) for FEMA to review. FEMA will conduct a review of the documentation and provide technical assistance or a concurrence letter to the community once the review is complete.

Biological Opinion Provision	ESA Reference	Model Ordinance Section	Community Regulations Reference
<p><b>1. Activities Affected</b></p> <p>All “development” in the areas affected must comply with these provisions. The BiOp added the last two phrases to the NFIP definition of “development:”</p> <p style="padding-left: 40px;">any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, storage of equipment or materials, subdivision of land, <u>removal of substantial amounts of vegetation, or alteration of natural site characteristics.</u></p>	<p>App. 4, footnote 23</p>	<p>2. Definitions</p>	
<p><b>2. Mapping Criteria</b></p> <p>a. In addition to the Special Flood Hazard Area (SFHA) and floodway on the community’s Flood Insurance Rate Map, the following areas are delineated (communitywide or permit by permit).</p>			

1) Riparian habitat zone (RHZ), using dimensions from the May 14, 2009, errata letter	RPA 3.A, App. 4, Section 1, 5/14/09 Errata letter page 6	3.4.C	
2) Channel migration zone (CMZ) plus 50 feet,	RPA 3.A, App. 4, Section 1	3.4.D	
b. New mapping must consider future conditions and the cumulative effects from future land-use change.	RPA 2.C	3.5.E	
c. Communities are encouraged to consider identifying and evaluating the risk of flooding behind 100-year levees based on future conditions and cumulative effects	RPA 2 D		
<b>3. Administrative Procedures</b>			
a. The application for a permit to develop in the affected area must include the elevations of the 10-, 50-, and 100-year floods, where such data are available	App. 4, Section 3.4	4.2.A.3	
b. The applicant must record a Notice on Title that the property contains land within the RHZ and/or 100-year floodplain before a permit may be issued.	App. 4, Section 3.9	5.1.G	
c. Communities that permit development outside the protected area must track the projects for which they issue floodplain development permits, including effects to flood storage and fish habitat and mitigation provided.	App. 4, Section 4	4.5.F, 4.5.G	
<b>4. General Development Standards</b>			
a. If a lot has a buildable site out of the Special Flood Hazard Area, all new structures shall be located there, when feasible. If the lot is fully in the floodplain, structures must be located to have the least impact on salmon.	App. 4, Sections 3.1 and 3.11	5.2.A	
b. Stormwater and drainage features shall incorporate low impact development techniques that mimic pre-development hydrologic conditions, when technically feasible.	RPA 3.A.3.B and 4.A	5.2.B.1	

c. Creation of new impervious surfaces shall not exceed 10 percent of the surface area of the portion of the lot in the floodplain unless mitigation is provided.	App. 4, Section 3.6	5.2.B.2	
d. Any loss of floodplain storage shall be avoided, rectified or compensated for. Any compensation off site must be in a priority floodplain restoration area identified in the associated ESU Recovery Plan for listed species.	RPA 3.A.3.b, App. 4, Section 2	7.6	
e. Uses that are not permitted in the Protected Area unless shown not to adversely affect water quality, habitat, etc., include septic tanks and drain fields, dumping of any materials, hazardous or sanitary waste landfills; receiving areas for toxic or hazardous waste or other contaminants.	App. 4, Section 1	5.3	
<b>5. Habitat Protection Standards</b>			
a. Any improvements or repairs to existing structures that result in a greater than 10 percent increase of the structure footprint must mitigate for any adverse effects.	RPA 3.A.4	7.2.B	
b. Removal of native vegetation must leave 65 percent of the surface area of the portion of the property in the floodplain in an undeveloped state.	App. 4, Section 3.7	7.4	
c. The community must prohibit development in the floodway, RHZ, and CMZ plus 50 feet or demonstrate that any proposed development in the area does not adversely affect water quality, water quantity, flood volumes, flood velocities, spawning substrate, and/or floodplain refugia for listed salmonids.	RPA 3.A.2, App. 4, Section 1, 4	7.7 7.8	
d. Any development outside the Protected Area must mitigate for adverse indirect effects on stormwater, riparian vegetation, bank stability, channel migration, hyporheic zone, wetland and large woody debris functions such that equivalent or better salmon habitat protection is provided	App. 4, Section 3	7.7 7.8	
e. In the SFHA outside the Protected Area, require zoning to maintain a low density of floodplain development	App. 4, Section 3.2	Credited by the CRS, (431LD.b)	
f. All structures must be set back at least 15 feet from the Protected Area and sited as close to the SFHA boundary as possible	App. 4, Section 3.3	5.2.A	

g. The proposed action must be designed and located so that new structural flood protection is not needed	App. 4, Section 3.8	4.2.E	
h. New road crossings over streams are prohibited outside the Protected Area	App. 4, Section 3.10	7.8.A.3 Note 1.	
i. All bank stabilization measures requiring armoring of the streambank or shoreline shall utilize bioengineering per the Integrated Streambank Protection Guidelines 2003 (for riverine shorelines) or the State Shorelines Guidelines on bank stabilization (2003) (for estuarine and marine shorelines).	App. 4, Section 3	4.2.F Commentary	

Note 1. While new stream crossings are prohibited in areas outside the protected area, if an applicant provides approval for the stream crossing as a result of another federal process (Sec 4d, 7 or 10) then it is allowable,

## NFIP Ordinance Checklist

For more information on this checklist, contact the FEMA Regional Office.

The “A – E” columns are based on the data provided on the community’s Flood Insurance Rate Map:

- A = Flood Hazard Boundary Map
- B = Flood Insurance Rate Map without elevation
- C = Flood Insurance Rate Map with base flood elevations
- D = Flood Insurance Rate Map with floodways
- E = Flood Insurance Rate Map with floodways and V zones

Blacked out sections are not applicable.

### Riverine Communities

CRITERIA & MODEL ORDINANCE REFERENCE	A	B	C	D	E	FEDERAL REGULATION REFERENCE
<p><b>MODEL ORDINANCE 3.2.A</b></p> <p><b>BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD</b></p> <p>The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled “The Flood Insurance Study for (<i>community name</i>) “ dated (____), (20__), and any revisions thereto*, with an accompanying Flood Insurance Rate Map (FIRM), and any revisions thereto*, are hereby adopted by reference and declared to be a part of this ordinance. The Flood Insurance Study and the FIRM are on file at (<i>community address</i>). The best available information for flood hazard area identification as outlined in Sections 3.2, 3.3, and 3.5 shall be the basis for regulation until a new FIRM is issued that incorporates data utilized under Sections 3.3.F and 3.5.</p> <p><i>* In some communities, the phrase “and any revisions thereto” is not considered legally binding and should not be adopted.</i></p>						<p>44 CFR 60.3(c)(1)d)(2)</p>
<p><b>MODEL ORDINANCE 4.1</b></p> <p><b>DEVELOPMENT PERMIT REQUIRED</b></p> <p>A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 3.2. The permit shall be for all structures including manufactured homes, as set forth in the “Definitions,” and for all development including fill and other activities, also as set forth in the “Definitions.”</p>						<p>44 CFR 60.3(b)(1)</p>

<p><b>MODEL ORDINANCE 4.2.F, 4.5.B, 4.7.A.3</b></p> <p><b>PERMIT REVIEW</b></p> <p>Review all development permits to determine that all necessary permits have been obtained from those Federal, State, or local governmental agencies from which prior approval is required.</p>					<p>44 CFR 60.3(a)(2)</p>
<p><b>MODEL ORDINANCE 3.3.F</b></p> <p><b>USE OF OTHER BASE FLOOD DATA</b></p> <p>When base flood elevation data has not been provided (in A or V Zones) in accordance with Section 3.2, the (<i>Local Administrator</i>) shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a Federal, State or other source, in order to administer Sections 6, and 7.5.</p>					<p>44 CFR 60.3(b)(4)</p>
<p><b>MODEL ORDINANCE 4.2.C, 4.5.F, 4.7.A.1</b></p> <p><b>INFORMATION TO BE OBTAINED AND MAINTAINED</b></p> <p>(1) Where base flood elevation data is provided through the Flood Insurance Study, FIRM, or required as in Section 3.3, obtain and record the actual (as-built) elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.</p> <p>(2) For all new or substantially improved floodproofed nonresidential structures where base flood elevation data is provided through the FIS, FIRM, or as required in Section 3.3:</p> <ul style="list-style-type: none"> <li>(i) Obtain and record the elevation (in relation to mean sea level) to which the structure was floodproofed,</li> <li>(ii) Maintain the floodproofing certifications required in Sections 4.2.D, 6.3.D.</li> </ul> <p>(3) Maintain for public inspection all records pertaining to the provision of this ordinance.</p>					<p>44 CFR 60.3(b)(5)(i)</p> <p>44 CFR 60.3(b)(5)(ii)</p> <p>44 CFR 60.3(b)(5)(iii)</p>
<p><b>MODEL ORDINANCE 7.9.B</b></p> <p><b>ALTERATION OF WATERCOURSES</b></p> <p>Notify adjacent communities and the Department of Ecology prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration.</p>					<p>44 CFR 60.3(b)(6)</p>

<p><b>MODEL ORDINANCE 7.9.C</b></p> <p>ALTERATION OF WATERCOURSES</p> <p>Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.</p>						<p>44 CFR 60.3(b)(6)</p>
<p><b>MODEL ORDINANCE 6.2.C</b></p> <p>ANCHORING</p> <p>All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.</p>						<p>44 CFR 60.3(a)(3)(i)</p>
<p><b>MODEL ORDINANCE 6.4.B</b></p> <p>ANCHORING</p> <p>All manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors. <i>For more detailed information, refer to guidebook, FEMA-85, "Manufactured Home Installation in Flood Hazard Areas."</i></p>						<p>44 CFR 60.3(b)(8)</p>
<p><b>MODEL ORDINANCE 6.2.D</b></p> <p>CONSTRUCTION MATERIALS AND METHODS</p> <p>All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.</p>						<p>44 CFR 60.3(a)(3)(ii)</p>
<p><b>MODEL ORDINANCE 6.2 – 6.6</b></p> <p>CONSTRUCTION MATERIALS AND METHODS</p> <p>All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.</p>						<p>44 CFR 60.3(a)(3)(iii)</p>
<p><b>MODEL ORDINANCE 6.2.E</b></p> <p>CONSTRUCTION MATERIALS AND METHODS</p> <p>Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.</p>						<p>44 CFR 60.3(a)(3)(iv)</p>
<p><b>MODEL ORDINANCE 6.7</b></p> <p>UTILITIES</p> <p>(1) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems;</p>						<p>44 CFR 60.3(a)(5)  WAC 173-160-171</p>

<p>(2) Water wells shall be located on high ground that is not in the floodway*</p> <p>(3) New and replacement sanitary sewerage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters; and</p> <p>(4) Onsite waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.</p> <p><i>* FEMA endorses the more restrictive WA floodway standard identified in WAC 173-160-171</i></p>					<p>44 CFR 60.3(a)(6)(i)</p> <p>44 CFR 60.3(a)(6)(ii)</p>
<p><b>MODEL ORDINANCE 5.1</b></p> <p><b>SUBDIVISION PROPOSALS</b></p> <p>(1) All subdivision proposals shall be consistent with the need to minimize flood damage;</p> <p>(2) All subdivision proposals shall have public utilities and facilities, such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage;</p> <p>(3) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage;</p> <p>Section 3.5.C – (4) Where base flood elevation data has not been provided or is not available from another authorized source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or 5 acres (whichever is less).</p>					<p>44 CFR 60.3(a)(4)(b)(3)</p> <p>44 CFR 60.3(a)(4)(i)</p> <p>44 CFR 60.3(a)(4)(iii)</p> <p>44 CFR 60.3(b)(3)</p>
<p><b>MODEL ORDINANCE 6.2</b></p> <p><b>RESIDENTIAL CONSTRUCTION</b></p> <p>(1) New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot or more* above the base flood elevation (BFE).</p> <p><i>* Minimum standards require the lowest floor to be elevated “to or above” the BFE; however, adding an additional foot of freeboard increases safety and reduces insurance premiums and its adoption is strongly encouraged by FEMA. This note applies throughout the model ordinance.</i></p> <p>(2) Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:</p>					<p>44 CFR 60.3(c)(2)</p> <p>44 CFR 60.3(c)(5)</p>

<p>(i) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.</p> <p>(ii) The bottom of all openings shall be no higher than one foot above grade.</p> <p>(iii) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.</p>				
<p><b>MODEL ORDINANCE 6.3</b></p> <p><b>NONRESIDENTIAL CONSTRUCTION</b></p> <p>New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot or more above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:</p> <p>(1) Be floodproofed so that below one foot or more above the base flood level of the structure is watertight with walls substantially impermeable to the passage of water;</p> <p>(2) Have structural components capable of resisting hydrostatic and hydrodynamic loads including the effects of buoyancy</p> <p>(3) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in Sections 4.2.D, 4.6, 4.7.A.1;</p> <p>(4) Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described in 6.2;</p>				<p><i>44 CFR 60.3(c)(3)(i)</i></p> <p><i>44 CFR 60.3(c)(3)(ii)</i></p> <p><i>44 CFR 60.3(c)(4)(i)</i></p> <p><i>44 CFR 60.3(c)(5)</i></p>
<p><b>MODEL ORDINANCE 6.4</b></p> <p><b>MANUFACTURED HOMES</b></p> <p>(1) All manufactured homes to be placed or substantially improved on sites shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one foot or more above the base flood elevation and be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement*.</p> <p>* If this phrase is applied to all manufactured homes in the floodplain, then the remaining verbiage is not necessary to adopt. – <i>It's applied to all manufactured homes in the NFIP-ESA Model</i></p>				<p><i>44 CFR 60.3(c)(6)</i></p>

<p>This applies to manufactured homes:</p> <ul style="list-style-type: none"> <li>(i) Outside of a manufactured home park or subdivision,</li> <li>(ii) In a new manufactured home park or subdivision,</li> <li>(iii) In an expansion to an existing manufactured home park or subdivision, or</li> <li>(iv) In an existing manufactured home park or subdivision on a site which a manufactured home has incurred “substantial damage” as the result of a flood; and</li> </ul> <p>(2) Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision that are not subject to the above manufactured home provisions be elevated so that either:</p> <ul style="list-style-type: none"> <li>(i) The lowest floor of the manufactured home is elevated one foot or more above the base flood elevation, or</li> <li>(ii) The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.</li> </ul>				<p><i>44 CFR 60.3(c)(6)(i)</i></p> <p><i>44 CFR 60.3(c)(6)(ii)</i></p> <p><i>44 CFR 60.3(c)(6)(iii)</i></p> <p><i>44 CFR 60.3(c)(6)(iv)</i></p> <p><i>44 CFR 60.3(c)(12)</i></p> <p><i>44 CFR 60.3(c)(12)(i)</i></p> <p><i>44 CFR 60.3(c)(12)(ii)</i></p>
<p><b>MODEL ORDINANCE 6.5</b></p> <p><b>RECREATIONAL VEHICLES</b></p> <p>Recreational vehicles placed on sites are required to either:</p> <ul style="list-style-type: none"> <li>(i) Be on the site for fewer than 180 consecutive days, (or)</li> <li>(ii) Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or</li> <li>(iii) Meet the requirements of 6.4 above and the elevation and anchoring requirements for manufactured homes.</li> </ul>				<p><i>44 CFR 60.3(c)(14)(i-iii)</i></p>
<p><b>MODEL ORDINANCE 3.5, 7.5.B</b></p> <p><b>AE AND A1-30 ZONES WITH BASE FLOOD ELEVATIONS BUT NO FLOODWAYS</b></p> <p>In areas with base flood elevations (but a regulatory floodway has not been designated), no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community’s FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.</p>				<p><i>44 CFR 60.3(c)(10)</i></p>



**Communities with Shallow Flooding**

CRITERIA & MODEL ORDINANCE REFERENCE	A	B	C	D	E	FEDERAL REGULATION REFERENCE
<p><b>MODEL ORDINANCE 3.3.B, plus others, as noted</b>  <b>STANDARDS FOR SHALLOW FLOODING AREAS (AO ZONES)</b></p> <p>Section 6.2 – (1) New construction and substantial improvements of residential structures and manufactured homes within AO zones shall have the lowest floor (including basement) elevated above the highest adjacent grade to the structure, one foot or more above the depth number specified in feet on the community’s FIRM (at least two feet above the highest adjacent grade to the structure if no depth number is specified).</p> <p>Section 6.3 – (2) New construction and substantial improvements of nonresidential structures within AO zones shall either:</p> <ul style="list-style-type: none"> <li>(i) Have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, one foot or more above the depth number specified on the FIRM (at least two feet if no depth number is specified); or</li> <li>(ii) Together with attendant utility and sanitary facilities, be completely flood proofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. If this method is used, compliance shall be certified by a registered professional engineer, or architect as in sections 4.2.D, 4.6, 4.7.A.1.</li> </ul> <p>Sections 5.1.E, 5.2.C – (3) Require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.</p> <p>Section 6.5 – (4) Recreational vehicles placed on sites within AO Zones on the community’s FIRM either:</p> <ul style="list-style-type: none"> <li>(i) Be on the site for fewer than 180 consecutive days, or</li> <li>(ii) Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or</li> <li>(iii) Meet the requirements of 5.5(1) and 5.5(3) above and the anchoring requirements for manufactured homes (Section 6.4.B).</li> </ul>						<p>44 CFR 60.3(c)(7)</p> <p>44 CFR 60.3(c)(8)</p> <p>44 CFR 60.3(c)(8)(ii)</p> <p>44 CFR 60.3(c)(11)</p>

**Communities with Coastal Velocity (V) Zones**

CRITERIA & MODEL ORDINANCE REFERENCE	E	FEDERAL REGULATION REFERENCE
<p><b>MODEL ORDINANCE 6.2.G, plus others, as noted</b></p> <p>COASTAL HIGH HAZARD AREAS</p> <p>Located within areas of special flood hazard established in Section 3.2 are Coastal High Hazard Areas, designated as Zones V1-30, VE and/or V. These areas have special flood hazards associated with high velocity waters from surges and, therefore, in addition to meeting all provisions in this ordinance, the following provisions shall also apply:</p> <p>1) All new construction and substantial improvements in Zones V1-30 and VE (V if base flood elevation data is available) on the community’s FIRM shall be elevated on pilings and columns so that:</p> <ul style="list-style-type: none"> <li>i) The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated one foot or more above the base flood level; and</li> <li>ii) The pile or column foundation and structure attached thereto is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Wind and water loading values shall each have a one percent chance of being equaled or exceeded in any given year (100-year mean recurrence interval).</li> </ul> <p>A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the provisions of Section 6.2.G.6.</p> <p>Sections 4.2.C, 4.7.A.1 – 2) Obtain the elevation (in relation to mean sea level) of the bottom of the lowest structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures in Zones V1-30, VE, and V on the community’s FIRM and whether or not such structures contain a basement. The (<i>Local Administrator</i>) shall maintain a record of all such information.</p> <p>Section 6.2.G.4 – 3) All new construction within Zones V1-30, VE, and V on the community’s FIRM shall be located landward of the reach of mean high tide.</p> <p>Breakaway walls are not in the Model Ordinance. There is a note in the commentary that they are allowed and a reference to Technical Bulletin 9-99. 4) Provide that all new construction and substantial improvements within Zones V1-30, VE, and V on the community’s FIRM have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. For the purposes of this section, a breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local or State</p>		<p><i>OPTIONAL PROVISION</i></p> <p>44 CFR 60.3(e)(4)</p> <p>44 CFR 60.3(e)(4)(i)</p> <p>44 CFR 60.3(e)(4)(ii)</p> <p>44 CFR 60.3(e)(2)</p> <p>44 CFR 60.3(e)(3)</p> <p>44 CFR 60.3(e)(5)</p> <p>44 CFR 60.3(e)(5)(i)</p>

<p>codes) may be permitted only if a registered professional engineer or architect certifies that the design proposed meets the following conditions:</p> <ul style="list-style-type: none"> <li>i) Breakaway wall collapse shall result from water load less than that which would occur during the base flood; and</li> <li>ii) The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and non-structural). Maximum wind and water loading values to be used in this determination shall each have a one percent chance of being equaled or exceeded in any given year (100-year mean recurrence interval).</li> </ul> <p>If breakaway walls are utilized, such enclosed space shall be useable solely for parking of vehicles, building access, or storage. Such space shall not be used for human habitation.</p> <p>Section 6.2.G.5 – 5) Prohibit the use of fill for structural support of buildings within Zones V1-30, VE, and V on the community’s FIRM.</p> <p>Section 5.5 – 6) Prohibit man-made alteration of sand dunes within Zones V1-30, VE, and V on the community’s FIRM which would increase potential flood damage.</p> <p>Sections 6.4. 6.2.G – 7) All manufactured homes to be placed or substantially improved within Zones V1-30, V, and VE on the community's FIRM on sites:</p> <ul style="list-style-type: none"> <li>i) Outside of a manufactured home park or subdivision,</li> <li>ii) In a new manufactured home park or subdivision,</li> <li>iii) In an expansion to an existing manufactured home park or subdivision, or</li> <li>iv) In an existing manufactured home park or subdivision on which a manufactured home has incurred “substantial damage” as the result of a flood;</li> </ul> <p>shall meet the standards of paragraphs (1) through (6) of this section and manufactured homes placed or substantially improved on other sites in an existing manufactured home park or subdivision within Zones V1-30, V, and VE on the FIRM shall meet the requirements of Section 6.4.</p> <p>Section 6.5 – 8) Recreational vehicles placed on sites within Zones V1-30, V, and VE on the community’s FIRM either:</p> <ul style="list-style-type: none"> <li>i) Be on the site for fewer than 180 consecutive days, or</li> <li>ii) Be fully licensed and ready for highway use, on its wheels or jacking system, attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or</li> <li>iii) Meet the requirements of Section 4.1 and paragraphs 1) through 6) of this section.</li> </ul>	<p><i>44 CFR 60.3(e)(6)</i></p> <p><i>44 CFR 60.3(e)(7)</i></p> <p><i>44 CFR 60.3(e)(8)(i-iv)</i></p> <p><i>44 CFR 60.3(e)(9)(i-iii)</i></p>
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**Definitions**

<p align="center"><b>CRITERIA &amp; MODEL ORDINANCE REFERENCE</b></p>	<p align="center"><b>INCLUDED IN ORD:</b></p>		<p align="center"><b>FEDERAL REGULATION REFERENCE</b> <i>44 CFR 59.1</i></p>
	<p align="center">Yes</p>	<p align="center">No</p>	
<p><b>AREA OF SPECIAL FLOOD HAZARD:</b> is the land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year. Designation on maps always includes the letters A or V.</p> <p><b>BASE FLOOD:</b> the flood having a 1% chance of being equaled or exceeded in any given year (also referred to as the “100-year flood”). Designated on Flood Insurance Rate Maps by the letters A or V.</p> <p><b>BASEMENT:</b> means any area of the building having its floor sub-grade (below ground level) on all sides.</p> <p><b>CRITICAL FACILITY:</b> means a facility for which even a slight chance of flooding might be too great. Critical facilities include (but are not limited to) schools, nursing homes, hospitals, police, fire and emergency response installations, and installations which produce, use, or store hazardous materials or hazardous waste.</p> <p><b>DEVELOPMENT:</b> means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials located within the area of special flood hazard.</p> <p><b>FLOOD or FLOODING:</b> means a general and temporary condition of partial or complete inundation of normally dry land areas from:</p> <ol style="list-style-type: none"> <li>1) The overflow of inland or tidal waters and/or</li> <li>2) The unusual and rapid accumulation of runoff of surface waters from any source.</li> </ol> <p><b>FLOOD INSURANCE RATE MAP (FIRM):</b> means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.</p> <p><b>FLOOD INSURANCE STUDY (FIS):</b> means the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Insurance Rate Maps, and the water surface elevation of the base flood.</p> <p><b>FLOODWAY:</b> means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.</p> <p><b>LOWEST FLOOR:</b> means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or</p>			

<p>storage in an area other than a basement area, is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this ordinance found at Section 6.2.F, (i.e. provided there are adequate flood ventilation openings).</p> <p><b>MANUFACTURED HOME:</b> means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include a "recreational vehicle."</p> <p><b>MANUFACTURED HOME PARK OR SUBDIVISION:</b> means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.</p> <p><b>NEW CONSTRUCTION:</b> means structures for which the "start of construction" commenced on or after the effective date of this ordinance.</p> <p><b>RECREATIONAL VEHICLE:</b> means a vehicle,</p> <ol style="list-style-type: none"> <li>1) Built on a single chassis;</li> <li>2) 400 square feet or less when measured at the largest horizontal projection;</li> <li>3) Designed to be self-propelled or permanently towable by a light duty truck; and</li> <li>4) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.</li> </ol> <p><b>START OF CONSTRUCTION:</b> includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.</p> <p><b>STRUCTURE:</b> a walled and roofed building, including a gas or liquid storage tank that is principally above ground.</p>			
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<p><b>SUBSTANTIAL DAMAGE:</b> means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.</p> <p><b>SUBSTANTIAL IMPROVEMENT:</b> means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either:</p> <ol style="list-style-type: none"> <li>1) Before the improvement or repair is started; or</li> <li>2) If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition “substantial improvement” is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.</li> </ol> <p>The term can exclude:</p> <ol style="list-style-type: none"> <li>1) Any project for improvement of a structure to correct pre-cited existing violations of state or local health, sanitary, or safety code specifications which have been previously identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or</li> <li>2) Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.</li> </ol> <p><b>VARIANCE:</b> means a grant of relief from the requirements of this ordinance that permits construction in a manner that would otherwise be prohibited by this ordinance.</p>			
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## Submittal Procedures

A community wishing to use the Washington NFIP-ESA Checklist demonstrate compliance with the performance standards of the NFIP Biological Opinion, should submit package to:

FEMA Region X  
Mitigation Division  
NFIP/ESA Compliance  
130 228<sup>th</sup> Street SW  
Bothell, Washington 98021

Included in the package should be:

- An annotated copy of the checklist identifying the appropriate ordinance, processes, or written procedures in column
- A copy of any of the referenced sections of ordinances, processes, or written procedures
- A copy of any supporting documentation referenced in the submittal materials (i.e. Best Available Science).
- A copy of any maps to support the documentation (GIS files are preferred).

For more information please visit our website at:

[www.fema.gov/regionx/nfipesa.shtm](http://www.fema.gov/regionx/nfipesa.shtm)