Regulatory Work Group Staff Report

Date: January 14, 2010

Subject: Recommendations of the Regulatory Work Group

Background

At its June 18, 2009 meeting, the Flood Authority authorized a work group consisting of the Board Advisory Committee and representatives from the Basin jurisdictions' planning and building departments. The work group was tasked to develop findings and options for building and land use regulations to achieve flood damage reduction. The work group was asked to undertake the following steps:

1. Evaluate regulatory approaches to development in the floodplain from the perspective of:
    a. Risk to proposed structures,
    b. Risk to existing structures and properties,
    c. Ecological risks (including habitat, water quality, and wetland impacts), and
    d. Emergency management costs.

2. Review local jurisdictions' options for credit from the Community Rating System (CRS)[1] to reduce flood insurance premiums under Activity 430, Higher Regulatory Standards.

3. Develop findings and options for presentation to the Flood Authority, including:
    a. Best management practices and/or model regulations for local jurisdictions to consider, and

[1] Acronyms used in this document are explained on the last page.

b. Pros and cons of various practices and approaches.

Ann Root of ESA Adolfson facilitated three meetings of the Regulatory Work Group.

The first meeting was held on September 2, 2009 and was attended by: Brian Shea, Ryan Harriman, and Mike Ferry, Grays Harbor County; Bob Johnson and Fred Chapman, Lewis County; Mike Kain, Thurston County; Don Terry, Chehalis Tribe and the City of Oakville; LG Nelson, City of Centralia; Bob Nacht, City of Chehalis; Loren Hiner, City of Montesano; and Chris Hempelman, Department of Ecology. The work group discussed regulations that impact flooding, brainstormed possible recommendations, and developed the inventory of existing regulations in the basin.

The second meeting was held on October 26, 2009 and was attended by: Mike Ferry, Grays Harbor County; Bob Johnson, Lewis County; Mark Swartout, Thurston County; Glen Connelly, Chehalis Tribe; Don Terry, Chehalis Tribe and City of Oakville; LG Nelson, City of Centralia; Bob Nacht, City of Chehalis; Loren Hiner, City of Montesano; and Chris Hempelman, Department of Ecology. The work group discussed a draft list of recommended regulations.

The third meeting was held on November 17, 2009 and was attended by: Mike Ferry, Brian Shea, and Ryan Harriman, Grays Harbor County; Bob Johnson and Fred Chapman, Lewis County; Tim Rubert, Thurston County; Glen Connelly, Chehalis Tribe; Don Terry, Chehalis Tribe and City of Oakville; LG Nelson, City of Centralia; Bob Nacht, City of Chehalis; and Loren Hiner, City of Montesano. The work group reviewed and finalized their recommendations and findings.

Approach

The work group determined that all jurisdictions in the Flood Authority meet state flood regulation requirements as well as the minimum requirements of the National Flood Insurance Program (NFIP). Thus, the work group focused on developing recommendations that basin jurisdictions could use to improve their regulations beyond minimum state and national requirements.

The work group based their recommendations on concepts presented in FEMA's Community Rating System (CRS). The CRS gives discounts on flood insurance to citizens of communities that implement regulations that go beyond the minimum NFIP requirements. Lewis County, Thurston County, Centralia, and Chehalis are members of the CRS and currently receive credit for higher regulatory standards. They may receive greater discounts by implementing the recommendations contained herein. Every 500 points a community earns can result in up to a 5 percent reduction in annual premiums. Other communities in the basin are not members of the CRS but would provide greater protection to citizens and structures in the floodplain by adopting these recommendations. Those jurisdictions not already participating in the CRS program could become members to provide their constituents lower insurance premiums. The work group also used the No Adverse Impacts guide book developed by the Association of State Floodplain Managers and their own ideas to develop recommendations.

The work group discussed whether the recommendations should be presented as a model ordinance to be adopted by member jurisdictions or whether they should be

presented as best management practices or guidelines. The term “model” ordinance implied to work group members that the provisions of the ordinance are minimum requirements that must be adopted by all jurisdictions. Model ordinance was also considered to imply that any jurisdiction not adopting the ordinance exactly as written would not be in compliance. The recommendations presented here are steps beyond the minimum requirements and are intended to provide more protection for life and property than the existing flood related regulations.

The work group decided to present their recommendations as best management practices or guidelines to allow each community the opportunity to select recommendations suited to their jurisdictions and to fit the modifications into their existing ordinances in a manner they feel is most appropriate. The work group divided the recommendations into two categories—basic and “ideal”. The basic recommendations are those that the work group feels all jurisdictions in the basin should adopt. The “ideal” recommendations are those that the work group thinks all jurisdictions in the basin should consider and work towards if practical for the conditions in their jurisdictions.

Basic Recommendations

The work group identified 16 basic recommendations. Each addresses certain risks, and has advantages and disadvantages to its implementation.

<u>Recommendation 1 - Require that all new residential structures in the floodplain (Special Flood Hazard Area) be built 2 feet above the base flood elevation (freeboard).</u>

Currently, regulations in the basin allow residential structures in the floodplain to be built anywhere from base flood elevation (BFE) (the minimum NFIP requirement) to 2 feet above BFE. Requiring all new residential structures in the floodplain to be built 2 feet above the BFE would address risk to new structures by adding a margin of safety against risks that are not yet known and possible future changes in flood elevations due to increased peak flood flows caused by changes in land use or climate.

Risks addressed:

- Risk to new structures
- Emergency management costs

Advantages to implementing this recommendation include a reduction of flood damages, provision of a measure of safety against future changes to the BFE, and lower flood insurance rates for property owners. The disadvantage is that additional material and building costs, though minimal, would be required.

Jurisdictions that adopt this recommendation would receive CRS credit up to 200 points.

<u>Recommendation 2 - Require that all new commercial or industrial structures in the floodplain be built 1 foot or more above the BFE or be floodproofed so that areas located 1 foot above the BFE or lower are watertight</u>.

Requiring all commercial or industrial structures in the floodplain to be built 1 foot above BFE or be floodproofed would address risk to new structures by adding a margin of

safety against risks that are not yet known and possible future flood increases. To be considered floodproofed, a structure must be built so that all areas located 1 foot above BFE or lower are watertight (NFIP Technical Bulletin 3).

Risks addressed:

- Risk to new structures
- Emergency management costs

As with recommendation 1, advantages include a reduction of flood damages, the minimal cost of elevating new structures an additional foot, a measure of safety against uncertain future changes to BFE, and lower flood insurance rates for property owners. The disadvantage is that additional material and building costs, though minimal, would be required.

Jurisdictions that adopt this recommendation would receive CRS credit up to 100 points.

<u>Recommendation 3 - Require that buildings in the floodplain have an approved foundation (per the requirements of NFIP Technical Bulletin 11-01).</u>

Requiring that foundations be approved would address risk to new structures by ensuring that parts of the building likely to flood would sustain minimal damage in a flood event.

Risk addressed:

- Risk to new structures

This change would reduce flood damages, but would require additional material and building cost for new construction.

Jurisdictions that adopt this recommendation would receive CRS credit up to 35 points.

<u>Recommendation 4 - Adopt regulations that limit enclosures below the BFE to discourage finishing elevated areas.</u>

Prohibiting first floor enclosures in the floodplain would discourage finishing areas below the BFE and storing valuables and hazardous materials below BFE. This would address risk to new structures and elevated structures by ensuring that parts of the building likely to flood would sustain minimal damage in a flood event. It would also address ecological risk by limiting hazardous materials in potentially flooded areas

Risk addressed:

- Risk to new structures
- Ecological risk

This change would reduce flood damages, but would require enforcement to insure that an elevated area is not enclosed in the future.

Jurisdictions that adopt this recommendation would receive CRS credit up to 300 points.

<u>Recommendation 5 - Require a lower threshold for substantial improvements.</u>

When improvements or damage repair on an existing structure hit a certain threshold (usually 50 percent), it is considered a substantial improvement. After passing this threshold, the structure must comply with current regulatory standards. Lowering the threshold at which a structure triggers this regulation would address risk of flood damage to existing structures that have been damaged by flooding in the past.

Risk addressed:

- Risk to existing structures and property

This approach would lead to reduced flood damages by bring buildings up to code sooner and would allow property owners access to insurance money to be used as match for a grant to comply with code requirements. However, this recommendation would require additional permit review effort. In the past, lowering the threshold below 50 percent would have conflicted with FEMA's Increased Cost of Compliance criteria. However, recent changes in CRS Requirements and FEMA's interpretation of the Increased Cost of Compliance criteria allow a lower threshold provided the ordinance applies the rule to all damages regardless of cause (i.e., fire, wind, earthquake, as well as flood).

Jurisdictions that adopt this recommendation would receive CRS credit up to 90 points.

<u>Recommendation 6 - Require that substantial improvements be counted cumulatively within a specific time period such as 10 years.</u>

Jurisdictions could also count improvements (recommendation 5) cumulatively. More structures would trigger the regulation and be updated to meet current regulatory standards. The regulatory work group recommends a time period of 10 years. Another option, in use by Grays Harbor County, counts cumulative improvements from the adoption of the regulation.

Risk addressed:

- Risk to existing structures and property

This approach would lead to reduced flood damages, but would require additional permit review effort and record keeping.

Jurisdictions that adopt this recommendation would receive CRS credit up to 110 points.

Recommendation 7 – Limitations on critical facilities in the floodplain.

A critical facility is any property that, if flooded, would result in severe consequences to public health and safety. Critical facilities include: structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic, or water-reactive materials; hospitals, nursing homes, and housing that contains occupants who may not be sufficiently mobile to avoid death or injury during a flood; police stations, fire stations, vehicle and equipment storage facilities, and emergency operations centers that are needed for flood response activities before, during and after a flood; and public and private utility facilities that are vital to maintaining or restoring normal services to flooded areas before, during, and after a flood.

The work group recommends that basin jurisdictions require that new critical facilities be located outside the floodplain, OR where there is no feasible alternative, require that:

- The lowest floor be elevated 3 feet or more above the BFE,
- The foundation be floodproofed,
- No toxic substance will be displaced or released into floodwaters,
- Access routes be elevated to or above the BFE.

Risks addressed:

- Risk to new structures
- Risk to existing structures and property
- Risk to health and safety
- Ecological risks
- Emergency management costs

This recommendation would reduce damage to vital public facilities, improve emergency response, ensure facilities will be operable during and after flood emergencies, and reduce pollution of floodwaters by hazardous substances. Disadvantages of this recommendation include a need for additional design and construction costs and a possible need for additional area for critical facilities.

Jurisdictions that adopt this recommendation would receive CRS credit up to 100 points

Recommendation 9 - Adopt subdivision and development regulations that avoid or minimize development in floodplains.

The work group recommends that basin jurisdictions adopt subdivision and development regulations that avoid or minimize development in floodplains. Examples include:

- Density transfers,
- Transfers of development rights,
- Bonuses for avoiding the floodplain,
- Open space subdivision design,
- Planned unit developments,
- Cluster development,
- Greenway and setback rules,
- Open space ratio credits for open space in the floodplain.

Risks addressed:

- Risk to new structures

- Risk to existing structures and property
- Ecological risks

The advantage of this recommendation is that it reduces impact to existing developments and the ecosystem. Disadvantages include land use implications and potentially reduced tax revenue because open space areas are taxed at a lower level if the total value of improvement is reduced.

Jurisdictions that adopt this recommendation would receive CRS credit between 100 and 700 points.

Recommendation 10 - Adopt low density zoning in the floodplain.

Adopting low density zoning in the floodplain reduces the number of structures in the floodplain and maintains flood storage capacity.

Risk addressed:
- Risk to new structures

This approach would reduce flood damage, maintain flood storage capacity, and protect natural and beneficial floodplain functions. Disadvantages include potential changes to existing land use patterns and problems with compliance with GMA requirements.

Jurisdictions that adopt this recommendation would receive CRS credit based on the number of residences allowed per acre, up to 600 points.

Recommendation 11 - Adopt the current version of the Department of Ecology's Stormwater Manual.

In adopting the current version of the Department of Ecology's Stormwater Manual, codes should specify the current version of the manual as opposed to a specific date to allow an automatic update when new manuals are issued.

Risks addressed:
- Risk to existing structures and property
- Risk to new structures
- Ecological risks

Advantages include reduction in downstream storm peaks, slower surface water runoff and reduced downstream storm peaks, reduced pollution of flood water, and reduced public costs from flooding. However, this potentially would require larger detention and treatment facilities.

Jurisdictions that adopt this recommendation would receive CRS credit up to 115 points.

Recommendation 12 - Include floodplain protection in the Critical Areas Regulations or adopt floodplain regulations as part of the Critical Areas Regulations.

Risk addressed:
- Ecological risks

This approach recognizes that floodplains provide natural and beneficial functions. If regulation of floodplains falls under Critical Area Regulations, reasonable use exemptions and permits will apply. This approach would have land use implications.

Jurisdictions that adopt this recommendation may receive CRS credit up to 40 points.

Recommendation 13 - Adopt wetland and stream buffers that protect the natural and beneficial functions of wetlands and streams.

Buffer widths should be based on best available science and the type and intensity of human activity in the area and be consistent with the recommendations of the Departments of Ecology and Fish and Wildlife.

Risks addressed:

- Ecological risks
- Risk to new structures
- Risk to existing structures and property

This approach would reduce flood damage, maintain flood storage capacity, and provide natural and beneficial functions. It would have land use implications. This regulation is already required by the Growth Management Act.

Jurisdictions that adopt this recommendation may receive CRS credit up to 40 points.

Recommendation 14 - Restrict activities allowed in wetland and stream buffers to those that do not increase impervious surfaces.

Risks addressed:

- Risk to new structures
- Risk to existing structures and property
- Ecological risk

Advantages to this approach are that it would reduce flood damage, minimize the increase in runoff/flood peaks, maintain flood storage capacity, and protect natural and beneficial functions. The disadvantage is that it would have land use implications.

Recommendation 15 - When Shoreline Management Programs are updated, incorporate Shoreline Management Program guidelines for flood hazards.

Risks addressed:

- Risk to new structures
- Risk to existing structures and property
- Ecological risks

This approach would provide natural and beneficial functions and maintain flood storage capacity.

Recommendation 16 - Include “associated wetlands” as part of the shoreline management zone.

Associated wetlands are those wetlands that are in proximity to rivers or streams that are subject to the Shoreline Management Act and either influence or are influenced by such waters. Factors used to determine proximity and influence include but are not limited to: location contiguous to a shoreline waterbody, presence of a surface connection including through a culvert, location in part or whole within the 100 year floodplain of a shoreline, periodic inundation, and/or hydraulic continuity.

Including associated wetlands as part of the shoreline management zone would address ecological risk by protect natural and beneficial functions and maintaining flood storage capacity.

Risk addressed:

- Ecological risks

This approach would have land use implications.

Jurisdictions should be eligible for more CRS credits for open space, buffers, etc.

“Ideal” Recommendations

The regulatory work group has identified five recommendations that would provide greater benefits to citizens and structures in the basin, but that may not be acceptable for some jurisdictions. The work group still recommends these regulatory changes, but acknowledges that they are ideals. “Ideal” recommendations may be implemented in some jurisdictions but not in others. Jurisdictions could also take smaller steps toward these recommendations over time.

“Ideal” Recommendation 1 - Require compensatory storage for fill in the floodplain. Consider a 1:1 or 1.5:1 requirement for storage.

Risks addressed:

- Risk to new structures
- Risk to existing structures and property

This approach would offset the loss of flood storage capacity and reduce downstream impacts. However, it would require additional design and construction costs as well as additional land area to implement. Compensatory storage may be effective in all situations, but may work on specific sites.

The City of Centralia has included this requirement in its latest floodplain management regulations.

Jurisdictions that adopt this recommendation would receive CRS credit up to 80 points.

"Ideal" Recommendation 2 - Adopt a zero-rise policy in the floodplain.

A zero-rise policy would mandate that development proposals and alterations shall not reduce the effective base flood storage volume or conveyance capacity of the floodplain.

Risks addressed:
- Risk to new structures
- Risk to existing structures and property

This approach would reduce the impacts of lost conveyance capacity on structures upstream of a project and would reduce downstream impacts by requiring the mitigation of lost floodplain storage. However, it would require additional design and construction costs as well as additional land area to implement. It would also require additional regulatory review.

No jurisdictions in the Chehalis River basin have adopted this requirement. King County includes this in its floodplain regulations as a conveyance standard.

Jurisdictions that adopt this recommendation would receive CRS credit up to 200 points.

"Ideal" Recommendation 3 - Restrict development in the floodplain, requiring all development proposals to acquire a special permit or reasonable use exception.

Risks addressed:
- Risk to new structures
- Risk to existing structures and property
- Ecological risk

The review associated with a special permit or reasonable use exemption allows jurisdictions to more specifically regulate the type and location of development in the floodplain. This approach would maintain flood storage capacity, but would require additional regulatory review and additional cost to developers.

Thurston County and the Chehalis Tribe use this approach to managing development in the floodplain.

"Ideal" Recommendation 4 - Require new streets in the floodplain to be at or above base flood elevation

Risks addressed:
- Health and safety
- Emergency management costs
- Reduced risk to utilities located within the public right-of-way

It would allow emergency vehicle access during flood events. Disadvantages include additional construction costs and the possibility that roads could act as dikes unless properly designed to allow water to pass through. This recommendation may be less feasible in rural areas.

Jurisdictions that adopt this recommendation would receive CRS credit up to 100 points.

"Ideal" Recommendation 5 - Prohibit the storage of hazardous materials in the floodplain or require that such materials be stored above the flood protection elevation for residential structures.

Risks addressed:

- Health and safety
- Ecological risk
- Emergency management costs

The advantage this approach provides is reduction of pollution of floodwaters. The disadvantage is that it would be difficult to enforce.

Lewis County prohibits storage of hazardous materials in the floodplain and Thurston County requires that they be stored 2 feet above BFE.

Next Steps

The regulatory work group will present these recommendations at the January 21, 2010 work session for Flood Authority review and discussion. The recommendations will then become part of the revised Comprehensive Flood Hazard Management Plan.

The Flood Authority can recommend these regulatory changes to its member jurisdictions. Member jurisdictions should carefully consider these changes when they update their regulations. When a sustainable governance structure, such as a Flood Control District or Flood Control Zone District, is formed, it will have a greater ability to encourage member jurisdictions to adopt recommended regulations.

Acronyms

The following acronyms were used in this document.

BFE	base flood elevation
CRS	Community Rating System
FEMA	Federal Emergency Management Agency
NFIP	National Flood Insurance Program