

# Memorandum

20 August 2010

<b>To</b>	Lane County Planning Commission & Board of Commissioners
<b>From</b>	
<b>SUBJECT</b>	
	<b>Floodplain Ordinance Review Technical Advisory Committee</b>
	<b>TECHNICAL AND POLICY RATIONAL FOR PROPOSED AMENDMENTS TO THE LANE COUNTY FLOODPLAIN ORDINANCE<sup>1</sup></b>

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## INTRODUCTION

The purpose of this memorandum is to provide the technical rationale for the proposed amendments to the Lane County's Floodplain regulations. The purpose of the Lane County Floodplain Combining Zones is to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas.<sup>2</sup> The proposed amendments are all consistent with the stated purpose and will better support the intent of the ordinance.

Lane Code Chapter 10.271 is the floodplain regulations applicable within the urban growth boundary areas of Lane County's small cities. Lane Code Chapter 16.244 is applicable outside of an urban growth boundary and governed by the Rural Comprehensive Plan. The amendments discussed throughout this memorandum are identical for both LC 16.244 and LC 10.271. Therefore, for the sake simplicity, future references to the proposed amendments will only cite applicable sections within LC16.244.

The Lane County Floodplain Combining Zone does not address water quality or public health; rather its intent is to protect property from flood damage and limit the impact of development on flood levels. The Lane Code includes a Floodplain Combining Zone, which requires development within a floodplain or flood hazard area to use designs and materials to minimize flood damage.<sup>3</sup> The Code includes specific regulations for development within a floodway and the process for acquiring a variance. The ordinance, as well as the proposed amendments, apply to all identified areas of flood hazard within Lane County, and overlay the regulations of the underlying zone.

## TAC Mission and Charge

In late 2009, The Lane County Board of Commissioners appointed a Technical Advisory Committee (TAC) to assist the Lane Management Division (LMD) staff in drafting proposed

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<sup>1</sup> Floodplain Combining Zone (/FP-RCP) Rural Comprehensive Plan, Lane Code, 16.244, p. 1

<sup>2</sup> Development in the Special hazard Area, Lane County Public Works Department, August 2009, Land Management Division, P.

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<sup>3</sup> The Federal Insurance Administration (FIA) determined flood hazard areas for unincorporated Lane County.

revisions to the existing floodplain ordinance and preparing a new drinking water protection overlay ordinance. The objective of the TAC was to help LMD construct ordinances that would protect water quality, promote human health and safety and protect property, while providing reasonable limitations and exceptions to the code where necessary to protect private property rights. In its deliberations, the TAC reviewed various practices in other jurisdictions, model ordinances prepared by the Oregon Department of Environmental Quality and other agencies, a recent study by the University of Oregon and other technical and scientific sources from agencies, a threat identification document prepared by LMD, and the relevant literature. References are cited in the documents prepared by the TAC. The Land Management Division is responsible for the final language that is presented to the Board of Commissioners. The TAC is not a stakeholder committee and the recommendations are not intended to reflect the views of stakeholders.

The members of TAC are:

<b>Member</b>	<b>Affiliation</b>
Amy Chinitz	Springfield Utility Board (SUB)
Jacqueline Fern	Oregon Department of Environmental Quality (DEQ)
Denise Kalakay	Lane Council of Governments (LCOG)
Joe Moll	McKenzie River Trust
Karl Morgenstern	Eugene Water and Electric Board (EWEB)
Bob Parker	University of Oregon Community Service Center
Larry Six	McKenzie Watershed Council
Eve Montanaro	Middle Fork Willamette Watershed Council

Membership on the TAC does not necessarily imply formal endorsement of the proposed ordinances by the agencies and organizations represented, although the objectives of the ordinances are consistent with the mission and goals

## **BACKGROUND**

### **Floodplains as Valued Community Assets**

The value of floodplains lies in the functions that they perform within the floodplain environment. Floodplain natural resources include the soils, nutrients, water quality and quantity, and diverse species of plants and animals that exist in the areas between the water's edge and the higher ground adjoining flood-prone areas. These can be considered as natural "infrastructure."<sup>4</sup> Flooding is extremely important to the maintenance of floodplain ecosystems, and may be the primary reason for their biological richness. Floodwaters carry nutrient-rich sediments and trigger chemical processes that cause beneficial changes in the soil, which contribute to a fertile environment for vegetation.<sup>5</sup>

<sup>4</sup> Protecting Floodplain Resources: A guidebook for Communities, Federal Interagency Floodplain Management Task Force, June 1996, FEMA, P. 5

<sup>5</sup> Ibid, p. 7

Floodplains provide a wide variety of ecosystem services to humans and the quality of these services depend on the degree and quality to which the ecosystem is functioning.<sup>6</sup> When streams and wetlands are in their natural state, they absorb significant amounts of rainwater, snowmelt, and runoff before flooding occurs.<sup>7</sup> The upper reaches of a stream are important for reducing the intensity and frequency of floods; helping to protect property values of residents located near or on the floodplain.<sup>8</sup>

## **The National Flood Insurance Program (NFIP)**

As part of the County's involvement in the National Flood Insurance Program's Community Rating System (CRS), the County is evaluating its current floodplain ordinances to determine if changes to the rules are needed to help promote life safety and prevent property damage. The National Flood Insurance Program (NFIP) was created by Congress in 1968 to provide federally backed flood insurance coverage, because flood insurance was generally unavailable from private insurance companies. The NFIP is also intended to reduce future flood losses by identifying floodprone areas and ensuring that new development in these areas is adequately protected from flood damage.

To participate in the National Flood Insurance Program (NFIP), a community must adopt and enforce a floodplain management ordinance that regulates development in the community's floodplain.<sup>9</sup> The management of the NFIP in a community consists of a partnership between the Federal government and the local community.<sup>10</sup> NFIP's Community Rating System (CRS) recognizes community floodplain management efforts that go beyond the minimal requirements of the NFIP by reducing flood insurance premiums for the community's property owners. Through their floodplain management ordinances, communities adopt the NFIP design performance standards for new and substantially improved buildings located in floodprone areas identified on the Federal Insurance Administration's Flood Insurance Rate Maps (FIRMs).<sup>11</sup> As a participant in the NFIP, Lane County adopted and enforces floodplain management ordinances aimed at reducing the likelihood of future flood damage to new construction within Special Flood Hazard Areas (SFHA).<sup>12</sup>

The CRS recognizes 18 floodplain management activities divided into four categories which include flood preparedness series, flood damage reduction, public information, mapping and regulations.<sup>13</sup> In turn, communities are rewarded for their efforts through reduced flood insurance premiums for the citizens of that community.<sup>14</sup> On March 3, 2008, LMD submitted a

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<sup>6</sup> "Where Rivers are Born: The scientific imperative for defending small streams and wetlands." American Rivers and Sierra Club, September 2003, p. 5

<sup>7</sup> Ibid, p. 10

<sup>8</sup> "Where Rivers are Born: The scientific imperative for defending small streams and wetlands." American Rivers and Sierra Club, September 2003, p. 6

<sup>9</sup> NFIP Guidebook, Floodplain Management, Produced by FEMA Region 10, 4<sup>th</sup> Edition, October 2002. P. 15

<sup>10</sup> Ibid, p. 21

<sup>11</sup> "Non-residential floodproofing for Buildings Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program, FEMA Technical Bulletin 3-93, p. 15

<sup>12</sup> Ibid, p. 21

<sup>13</sup> Ibid, p. 23

<sup>14</sup> Ibid, p. 43

CRS application and accompanying documentation to FEMA for formal review. After a lengthy application review and verification process, Lane County received official notification of admission into the CRS on July 2, 2009.<sup>15</sup>

### **Pending Litigation**

The Audubon Society of Portland, Northwest Environmental Defense Center and other environmental groups sued FEMA in 2009 over its issuance of flood insurance in Oregon. The suit said the agency encourages floodplain development by providing coverage without considering the effect on fish listed under the Endangered Species Act. As a result, FEMA is required to seek review and comment on its Oregon flood insurance program from federal fisheries biologists with the National Oceanic and Atmospheric Administration. The settlement could have a strong impact on decreasing the ease at which developments located near and on floodplains can occur.<sup>16</sup>

The TAC cannot predict exactly how this will affect national regulations on floodplain development, but we believe that this lawsuit is indicative of broader coordination issues related to the NFIP. Adoption of the proposed amendments to the County floodplain ordinance will move Lane County in the right direction in the case of a probable federal mandate.

### **Lane County Flooding**

In the aftermath of the Willamette Valley Flood of 1996, residents of Lane County now realize that flooding poses a serious risk to human and ecosystem health and that by engaging in smart land use practices, determinate floods can be either avoided or the damage to property mitigated. In the 1996 floods, the combination of record-breaking rain, warm temperatures, and a deep snowpack led to severe flooding throughout northern sections of the state.<sup>17</sup> Severity of the flood can be attributed to a significant increase in development along the river systems as well as significant increase in logging in the local watersheds, which increases runoff as well as debris jams in the river systems.<sup>18</sup>

Approximately 200 square miles of land falls within the regulated floodplain in Lane County and more than 11,000 individual parcels are partially or entirely located within the floodplain. Statewide, Lane County has more river miles of floodplain than any other county and ongoing development along these rivers continues to displace natural areas that have historically functioned to store and transport flood waters.<sup>19</sup>

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<sup>15</sup> Additional information on the Lane County floodplain management program and CRS is provided in a memorandum from Lane County Land Management/Public Works Staff to the Lane County Planning Commission dated Jun 21, 2010. [http://www.lanecounty.org/departments/pw/lmd/landuse/documents/flood\\_dwp/july%206%20lpc/lpc\\_memo\\_7\\_6\\_10.pdf](http://www.lanecounty.org/departments/pw/lmd/landuse/documents/flood_dwp/july%206%20lpc/lpc_memo_7_6_10.pdf)

<sup>16</sup> Learn, Scott, "FEMA lawsuit settlement could make building in Oregon floodplains tougher, July 14, 2010. [www.oregonlive.com/environment/index.ssf/2010/07/fema\\_lawsuit\\_settlement\\_could.html](http://www.oregonlive.com/environment/index.ssf/2010/07/fema_lawsuit_settlement_could.html)

<sup>17</sup> Global Change Master Directory, NASA, [http://gcmd.nasa.gov/records/GCMD\\_OREG\\_CLIM\\_FLOOD\\_96.html](http://gcmd.nasa.gov/records/GCMD_OREG_CLIM_FLOOD_96.html)

<sup>18</sup> The Willamette Valley Flood of 1996, The University of Oregon Electronic Universe Project, <http://zebu.uoregon.edu/1996/es202/flood.html>

<sup>19</sup> Amber Fossen, Public Information Officer, Lane County Government, <http://www.lanecounty.org>

Recently, the U.S. Army Corp of Engineers has been investing significant resources into dam repairs and improvements. The U.S. Army Corps of Engineers officials announced this summer that they will repair aging spillway gates on the Middle Fork Willamette River dams at Fall Creek, Lookout Point, Hills Creek and Dexter dams. The estimated cost for the repair work to the spillway gates on all the Willamette dams is about \$35 million. Repairs were prompted after the Corps had to perform emergency repairs to the Foster and Big Cliff dams on the Santiam River in 2008 and 2009.<sup>20</sup> The TAC recommends limiting development and restoring natural ecosystem functions.

## SUMMARY OF CPW RESEARCH

In 2009, the Eugene Water and Electric Board (EWEB) and the University of Oregon's Community Planning Workshop (CPW) conducted an analysis of development activity in the floodplain of the McKenzie River Basin and how the Lane County Development Code influenced development in the floodplain. The intent was to evaluate development patterns and trends in the floodway and 100-year floodplain in the McKenzie watershed and assess the potential impacts from development in these areas. The study area for a series of case studies conducted by CPW consisted of the following lands in the McKenzie River Watershed: lands upriver from the Hayden Bridge intake that are outside of the Eugene-Springfield Metropolitan Urban Growth Boundary (UGB) and are zoned F-2 (Impacted Forest Lands Zone).<sup>21</sup> The study area included nearly 32,000 acres in about 4,550 tax lots.

Following are key findings from the EWEB/CPW project:

- Development in floodplains poses risks to water quality because development including dwellings, septic tanks, and drainage fields, if located within the floodplain, may impact water quality by leaking untreated sewage, household chemicals, or hazardous materials into the waterway. During a flood event, entire structures and septic systems may be washed into the waterway, negatively impacting water quality and leading to further property damage. Additionally, revetments and other bank stabilizing structures can cause increased velocity, turbidity, and water levels, especially during a flood event, which increases risk to human life, property, and water quality.
- Based on analysis of the Lane County permit database, taxlots with structures within the floodplain have a significantly higher number of permits associated with them than those outside the floodplain. Structures outside the floodplain average about 3 permits, while those in the floodplain or floodway averaged more than five. Once a structure in the floodplain gains approval it can lead to multiple permit applications for development, such as additions, improvements, revetments, and erosion control measures. In addition, accessory structures are not as highly regulated as dwellings.
- CPW identified several instances where Lane County approved a dwelling in the floodplain or floodway that subsequently resulted in property owners applying for

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<sup>20</sup>Palmer, Susan, June 3, 2010, The Register Guard, <http://www.registerguard.com/csp/cms/sites/web/news/cityregion>

<sup>21</sup> McKenzie River Basin Risk Atlas, Community Planning Workshop, August 2009, P. 4

emergency permits for revetments from the Division of State Lands to protect their structure due to bank erosion. In one instance, Lane County approved a dwelling outside the floodplain in a known meander zone. The riverbank eroded and destroyed the dwelling within two years of the approval.

- One case demonstrated the ability of the code to restrict development in the floodplain. In this case, an application to build a dwelling on a 13-acre property in the floodplain was denied. The staff report recommended denial due to the potential for increased base flood elevation from the proposed development.
- Another case illustrated the inability of the code to restrict development in the floodplain. In this instance, the original owner of an 18.75-acre property proposed a dwelling away from the river after meeting with ODFW. However, a new owner built close to the river, then received approval to fill 900 cubic yards along 500 feet of shoreline to stabilize the bank. This case has implications for floodplain development and riparian modification code applications.
- The Lane County Floodplain Combining Zone does not address water quality or public health; rather its intent is to protect property from flood damage and limit the impact of development on flood levels.
- Floodplain regulations restrict buildings to at least 1 foot above the base flood elevation, but septic systems are not covered by the code. Flooding of septic systems can result in damage to the systems, or contamination of surface or ground water by washing untreated effluent out of the tanks.

## **RATIONALE FOR KEY AMENDMENTS TO THE FLOODPLAIN ORDINANCE**

This section provides technical rationale for some of the key amendments to the floodplain ordinance. We focus our review on the major elements of the proposed amendments. For each element we (1) present the current ordinance language, (2) the proposed language of the amendment, (3) an explanation of the proposed amendment, and (4) the technical rationale for the amendment.

### **Proposed Amendment: new definition of “substantial improvement”**

**Current Ordinance:** LC 16.244(3) 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 (a) before the improvement or repair is started, or (b) if the structure has been damaged, and is being restored, before the damage occurred. The term does not, however, include alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

**Proposed Language:** Any combination of repairs, reconstruction, alteration or improvements to a structure, during any five (5) year period, in which the cumulative cost equals or exceeds

twenty-five (25) percent of the “market value” as defined herein of the existing structure before “the start of construction” of the improvement. This term also includes structures which have incurred “substantial damage,” regardless of the actual repair work performed.

**Explanation:** LC 16.244- (3) – The revised substantial improvement definition is intended to limit/discourage incremental development in the floodplain. Under the current 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. Currently, work done that increases the value of a structure over 50% is considered a substantial improvement.<sup>22</sup> The new ordinance would limit substantial improvement to a 25% improvement of the overall structure. In addition, the new language would remove the phrase, “The term (substantial Improvement) does not, however, include alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.”

**Rationale:** Any substantially improved structure must be brought into compliance with the NFIP requirements for new construction; in other words, it must be elevated (or flood proofed if it is a non-residential structure) to the flood protection elevation. When a structure is substantially improved, it is considered a new “post-FIRM” structure, and actuarial flood insurance rates would apply based on the lowest floor elevation of the structure.<sup>23</sup> The definition, as revised, ensures that major improvements are consistent with the intent of the ordinance and are treated similarly to new construction.

With respect to limiting the cumulative cost to 25% rather than 50%, a 50% improvement is a very substantial improvement; especially on a multimillion dollar home. Because the long-term goal of the ordinance is to eventually bring all properties up to standard; a 25% limit on substantial improvement is a more reasonable threshold that avoids improvements that will limit private investment in hazardous areas. Moreover, a 25% limit on substantial improvement better fits the definition of ‘improvement’ as opposed to ‘rebuilding’ and will also ultimately aid homeowners in reducing risk of flood damage to their properties.

### **Proposed Amendment: Siting of critical facilities restrictions in the floodplain**

**Current Ordinance:** Critical facilities are not referenced in the existing Lane County Flood Plain ordinance.

**Proposed Language:** LC 16.244(9)(c) - Construction of new critical facilities shall be prohibited within the 500 year floodplain. Substantial improvements of critical facilities may be permissible but improved facilities must be elevated on fill at least one foot above the elevation of the 500-year flood. Access routes above the 500-year flood level must be provided for substantially improved critical facilities.

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<sup>22</sup> Development in the Special hazard Area, Lane County Public Works Department, August 2009, Land Management Division, P. 2

<sup>23</sup> Protecting Floodplain Resources: A guidebook for Communities, Federal Interagency Floodplain Management Task Force, June 1996, FEMA, p. 33

According to LC 16.244, a critical facility is one that is:

“Critical for the health and welfare of the population and is especially important following a hazard event. Examples include hospitals, nursing homes police stations, fire stations, and public and private utility facilities that are vital to maintaining or restoring normal services to flooded areas...Critical facilities also include those facilities that if damaged or inundated during a flood event have the potential to create further detrimental risks to the health of the population and the environment. These include all landfills, dumps, waste treatment facilities and also any industrial facilities that produce, use or store hazardous materials.”<sup>24</sup>

**Explanation:** The significant proposed change is that critical facilities must be sited outside the 500 year floodplain.

**Rationale:** The rationale for this proposed amendment is straightforward: facilities that provide key public services should not be built in areas where they will be damaged or rendered inoperable during flood events. Not only does this provision ensure that such facilities will not be impacted during flood events, it ensures that investments in critical facilities will not be compromised by flood damage. Moreover, the federal government sets a higher standard: under Executive Order 11988, Floodplain Management, Federal agencies funding and/or permitting critical facilities are required to avoid the 0.2% (500-year) floodplain or protect the facilities to the 0.2% chance flood level.<sup>25</sup>

**Proposed Amendment: Create additional restrictions on development in the floodway**

**Current Ordinance:** For the purposes of LC 16.244, development is defined in LC 16.090, and shall include dredging, paving, and drilling operations and the storage of equipment and materials.

**Proposed Language:** For the purposes of LC 16.244, development 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. Development does not include:

- A. Signs, markers, aids, etc. placed by a public agency to serve the public
- B. Driveways, parking lots, or other open space use areas where no alteration of topography occurs;
- C. Minor repairs or improvements to existing structures provided that the alterations do not increase the size or intensity of use, and do not constitute repair of substantial damage, or substantial improvement as defined in this ordinance;
- D. Customary dredging associated with routine channel maintenance consistent with State or Federal laws and permits;

<sup>24</sup> Floodplain Combining Zone (/FP-RCP) Rural Comprehensive Plan, Lane Code, 16.244, p. 4

<sup>25</sup> [http://www.fema.gov/plan/prevent/floodplain/nfipkeywords/critical\\_facility.shtm](http://www.fema.gov/plan/prevent/floodplain/nfipkeywords/critical_facility.shtm)

E. Replacement of utility facilities necessary to serve established and permitted uses.

LC 16.244(9)(d)(i) - Development within the floodway is prohibited for most uses unless this standard would deny any reasonable use of the property. In addition, applications for development outside of the regulated floodway shall be reviewed as ministerial land use applications. Applications for development within the regulated floodway shall be filed with the Department pursuant to LC 14.050.

**Explanation:** The Planning Director must approve all proposed developments within a flood hazard area. Floodway development is prohibited unless a registered professional engineer certifies that the development will not increase flood levels during a base flood (16.244(8)(d)(v)(aa)).<sup>26</sup>

**Rationale:** The primary rationale for this provision is to preclude development in the floodway—the channel of water conveyance during flood events—that would impair the conveyance of floodwaters.

In general, development and urbanization in a floodplain permanently impair the functioning of riparian areas.<sup>27</sup> The 2009 CPW study concluded that development in floodplains poses risks to water quality because development including dwellings, septic tanks, and drainage fields, if located within the floodplain, may impact water quality by leaking untreated sewage, household chemicals, or hazardous materials into the waterway. During a flood event, entire structures and septic systems may be washed into the waterway, negatively impacting water quality and leading to further property damage. Additionally, revetments and other bank stabilizing structures can cause increased velocity, turbidity, and water levels, especially during a flood event, which increases risk to human life, property, and water quality.

Based on analysis of the Lane County permit database, CPW found that tax lots with structures within the floodplain have a significantly higher number of additional permits associated with them than those outside the floodplain. Structures outside the floodplain average about three permits, while those in the floodplain or floodway averaged more than five. Once a structure in the floodplain gains approval it can lead to multiple permit applications for development, such as additions, improvements, revetments, and erosion control measures. In addition, accessory structures are not as highly regulated as dwellings.<sup>28</sup> The CPW study identified 70 structures within the floodway in the McKenzie River basin study area.<sup>29</sup>

One case demonstrated the ability of the current code to restrict development in the floodplain. In this case, an application to build a dwelling on a 13-acre property in the floodplain

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<sup>26</sup> EWEB Source Water Protection Project: Best Management Practices and Model Ordinance Review, Community Planning Workshop, June 2009, p. 9

<sup>27</sup> Riparian Areas: Functions and Strategies for Management, National Academy Press, 2002, p. 12

<sup>28</sup> EWEB Source Water protection Project: Land Use Decision Analysis, Final Report, Community Planning Workshop, September 2009, p. 32

<sup>29</sup> McKenzie River Basin Risk Atlas, Community Planning Workshop, August 2009, P. 18

was denied. The staff report recommended denial due to the potential for increased base flood elevation from the proposed development.<sup>30</sup>

In terms of regulating development for ensuring riparian protection, Northeast Ohio is working to establish strict regulations for development in floodplain areas. The Northeast Ohio Regional Storm Water Ordinance, “Controlling Riparian Setbacks and Wetlands Setbacks” has begun the process of community natural resources protection. This model ordinance, which is currently being review by local communities, includes the establishment of naturally vegetated riparian setbacks for all streams, including headwater streams (drainage areas less than ½ square mile with a defined bed and bank) and all wetlands, including isolated wetlands that are not found within or abutting the riparian setback.<sup>31</sup>

In the Northwest, King County Washington developed a comprehensive floodplain management program in 2006.<sup>32</sup> In the face of repetitive flood losses and lawsuits related to the biological impacts of development in the special flood hazard zone, the County adopted the Flood Hazard Management Plan which presents a 10-year action plan to mitigate the impacts of flooding in King County. The County also has a highly restrictive floodplain ordinance. Similar to the proposed amendment to the Lane County Code, King County Code Title 21A.24.260 prohibits new residential development in areas within the mapped FEMA floodway. Moreover, the King County Code places significant restrictions on “substantial improvements” to existing development within floodways.

In fact, the State of Washington prohibits residential development in floodways by statute:

“Washington’s floodplain management law at Chapter 86.16 RCW exceeds the minimum National Flood Insurance Program standards by prohibiting new residences or substantial improvements of existing residences in the State’s floodways.”<sup>33</sup>

Moreover, this provision has been upheld in several court cases that challenged various aspects of the prohibition.<sup>34</sup>

### **Proposed Amendment: Restrictions on land divisions**

**Current Ordinance:** LC 16.244(9) Land divisions must be consistent with shoreland values as identified in the Coastal Resources Management Plan, not adversely impact water quality, and not increase hazard to life or property. (b) For lands outside urban or urbanizable areas or lands developed or committed to development, the above criterion, plus the following:(i) There is a need which cannot adequately be accommodated on non-shoreland locations. (ii) There is a lack of suitable shoreland locations within urban or urbanizable areas or within areas developed or committed to development.

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<sup>30</sup> EWEB Source Water protection Project: Land Use Decision Analysis, Final Report, Community Planning Workshop, September 2009

<sup>31</sup> Northeast Ohio Regional Storm Water Ordinance, [http://www.noaca.org/storm\\_water.html](http://www.noaca.org/storm_water.html).

<sup>32</sup> <http://www.kingcounty.gov/environment/waterandland/flooding.aspx>

<sup>33</sup> <http://www.ecy.wa.gov/programs/sea/floods/archive-news/news-arc11.html>

<sup>34</sup> Ibid.

**Proposed Language:** LC 16.244(9)(d)(vi) - Land divisions are prohibited unless a development site is identified outside of the floodway. “Land divisions for residential purposes are prohibited if the resulting lots or parcels do not have a demonstrable developable area located outside of the Floodway that is of sufficient size to accommodate a dwelling, septic system, and parking area.”

**Explanation:** The proposed amendment will restrict creation of new taxlots that do not have buildable areas outside the floodway. In short, this amendment will prohibit land divisions that would result in sites where the only buildable area is in the floodway

**Rationale:** This amendment would prevent land divisions that require development in the floodway thereby preventing potential loss of property from flood damage and avoiding unsafe conditions for property owners. It complements the previous provision that prohibits most development in the floodway.

The County has allowed such development in the past. Since 2000 the county approved eight permits for development in the floodway within the McKenzie River Basin study area.<sup>35</sup>

### **Proposed Amendment: Required Septic System Setbacks from the Flood Hazard Area (SFHAs)**

**Current Ordinance:** LC 16.244(9)(e) Individual sewerage facilities shall be located to avoid impairment to them or contamination from them during flooding.

**Proposed Language:** LC 16.244(9)(e) Whenever feasible, all new and replacement septic systems (including drainfields) must be setback a minimum of 25 feet from the SFHA. Where a suitable septic location outside of the SFHA does not exist, new and replacement systems must be designed to minimize or eliminate infiltration of flood waters into the system and be situated as far away as practicable from the flood source.

**Explanation:** This amendment requires that septic systems be setback from the floodplain where feasible or fitted with appropriate backflow devices.

**Rationale:** The primary rationale for this amendment is to keep septic systems out of the flood hazard area where they may be damaged during a flood event or release untreated sewage into the waterway.

Through case study analysis, CPW found that Floodplain regulations restrict buildings to at least 1 foot above the base flood elevation, but septic systems are not covered by the code.<sup>36</sup> The McKenzie River basin, upriver from the Hayden Bridge intake facility, has approximately 4,000 septic systems and eight larger community septic systems. According to the Environmental Protection Agency (EPA), up to a quarter of septic systems fail within their lifetime, meaning

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<sup>35</sup> Ibid, p. 24

<sup>36</sup> Ibid, p. 33

that the contents of the septic tanks are released into the surrounding soils which may leach into nearby water bodies.

The Oregon Department of Environmental Quality (DEQ) establishes the standards for siting of septic systems. DEQ has explicit standards for the distance between septic systems and residential wells.<sup>37</sup> However, the Lane County Development Code only addresses septic systems on the tax lot level, which omits proximity of a landowner's septic system from a neighbor's well or vice versa. In addition, cumulative impacts of high septic system densities are not addressed. In addition, under the Lane County code, existing floodplain regulations only restrict development that affects drainage above ground by mandating that the ground floor must be at least 1 foot above the base flood elevation. Since septic systems occur below ground, they are not regulated by the floodplain requirement, which creates substantial risk of contaminants entering the river.<sup>38</sup>

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<sup>37</sup> EWEB Source Water protection Project: Land Use Decision Analysis, Final Report, Community Planning Workshop, September 2009, p. 34

<sup>38</sup> EWEB Source Water protection Project: Land Use Decision Analysis, Final Report, Community Planning Workshop, September 2009, p. 33