

Water Quality Protected Waterways - Staff Response to Topics Raised by Planning Commission and Public Testimony to January 15, 2008

Topic/Issue	Staff Response
<b>Ordinance</b>	
I. How the Proposal Affects Property	
<p>A. <u>Existing</u> Development: structures; remodels; uses including landscape maintenance; exclusions; nonconforming uses - transferability to new owner; what constitutes a “substantial structure?”</p>	<p>Development and uses within the /WQ management area that existed prior to the effective date of the /WQ ordinance fall into one of three categories:</p> <p>1) <b>Permitted uses</b> – these are uses allowed outright by the /WQ ordinance [see subsection 9.4780(2)(a) through (i)] and are OK to remain and be maintained. Examples of /WQ permitted uses include: <i>accessory structures</i> – like a green house or play house - not greater than 120 square feet in area; slatted deck not greater than 120 square feet with no impervious materials; <i>composting bin</i>; and <i>maintenance activities</i> associated with permitted uses. See <b>Illustration #4</b>.</p> <p>2) <b>Legal non-conforming uses</b> – these are existing uses that were legally allowed and established prior to the effective date of the /WQ ordinance, but would not be permitted as a new use under /WQ, unless approved as either a “use subject to standards review” or as an “adjustment.” See subsection 9.4778(3)(d) last sentence. These uses are allowed to remain and be maintained unless the use status is changed, at which time the area it occupied is subject to the /WQ requirements. Examples of legal nonconforming uses are existing <i>buildings/structures</i>, concrete patios, <i>lawns</i>, <i>fences</i> within 20 feet of Top of High Bank. See <b>Illustration #4</b>.</p> <p>3) <b>Excluded uses</b> – these uses might otherwise be considered legal non-conforming uses, but because of their importance to the already developed lot (i.e. dwellings, buildings, structures, paved streets, paved driveways, paved parking lots) there is a need to guarantee that they could be replaced or rebuilt upon to ensure a viable and useful lot. Therefore, these uses are “excluded” from the /WQ management area regulations which means they could be torn down and replaced with any permitted use allowed in the underlying base zone. Subsection 9.4778(3) specifically defines these uses as “developed areas” and they are “...those within the footprint of a legally constructed:</p> <ul style="list-style-type: none"> <li>(a) Building or other substantial structure constructed on a concrete foundation;</li> <li>(b) Permanent dwelling (including manufactured dwelling) constructed without a concrete foundation;</li> <li>(c) Permanent deck or patio that is attached to a structure listed in either (a) or (b) above; or</li> <li>(d) Paved parking area, street, driveway, bike path, or pedestrian path.”</li> </ul> <p>➤ <b>Staff will clarify the definition of “substantial structure” prior to the March 10 Planning Commission deliberations.</b></p> <p>See <b>Illustration #4</b></p>
<p>B. <u>New</u> Development: expansions; new structures; takings; flexibility</p>	<p>New development within the /WQ management area would be a use that does not already exist prior to the effective date of the /WQ ordinance [except for “prior approved development” see subsection 9.4780(2)(i)] and therefore a new development proposal would be required to comply with the /WQ regulations. For new development proposals, the /WQ area can create constraints for locating and building structures and in partitioning new lots.</p> <p><b>Permitted</b> uses in the /WQ area. New development or activities are allowed outright but may be subject to clear and objective standards such as requiring that activities which entail removing invasive, non-native species and cause soil to be exposed, there is standard for replanting the area within 15 days of disturbance.</p>

	<p><b>Uses Subject to Standards Review</b> in the /WQ area. See subsection 9.4780(3)(a) through (h). A Type II land use procedure is required and owners must meet approval criteria and are subject to specific development standards. These uses may be necessary for viable use of a property but typically have greater water quality risk potential. The development standards (Section 9.4790) are established to minimize the risk to water quality function. <b>Illustration #2</b> shows an example of a channel realignment to accommodate a proposed development, which is a use subject to standards review. By realigning the waterway and maintaining the same /WQ width footprint, the lot area becomes more accessible and developable. Mitigating impacts to water quality function is required. See <b>Illustration #2</b>.</p> <p><b>Adjustments</b>                  Due to a variety of factors, the /WQ area can create lot development constraints especially when lot size is relatively small, or the location of the /WQ area on the lot creates access and development constraints, or the extent of the /WQ area is proportionately greater on one lot than another. In some situations, the entire width of the /WQ area is located on lot. For these circumstances, the /WQ regulations provide adjustment provisions to reduce the setback area as follows:</p> <p>&gt;<i>Adjustment for 33% Lot Impact.</i> When /WQ impacts more than 33% of lot area, /WQ contains the following provisions:</p> <ul style="list-style-type: none"> <li>• Lot Size is 6,000 square feet or less, see 9.4778(2), city will automatically relocate the setback such that /WQ impact area is reduced to 33% of the lot, provided the reduction for a 25 setback is not more than 10 feet and not more than 15 feet for a 40 foot setback. Owner must initiate the process, no application, no fee.</li> </ul> <p>➤ <i>Staff will recommend ordinance revisions to modify Section 9.4778(2) such that the setback relocation limit will be changed to “not more than to the Top of High Bank” similar to the adjustment for lots between 6,000 sq ft and 13,000 sq ft in Section 9.8030(25)(a).</i></p> <ul style="list-style-type: none"> <li>• Lot size is &gt;6,000 square feet and less than 13,000 square feet, see 9.8030(25)(a). Requires a Type II land use procedure, application preparation and fee. The distinction between this adjustment and the first is that larger lots have greater potential to enable lot development and, therefore, some discretion is involved. This adjustment enables the setback to be adjusted to not less than the Top of High Bank. See <b>Illustration #1</b> for application of this adjustment.</li> </ul> <p>&gt;<i>Adjustments for Setback Distances, Uses, and Development Standards.</i> Subsection 9.8030(25)(b) enables owners to apply for an adjustment to setbacks, uses and standards, regardless of lot area impact, if necessary to allow a proposed use. Requires a Type II land use procedure, application preparation, fee, and mitigation for impacts to water quality function. Under this provision, the reduction is limited to not more than 10 feet for a 25 setback and not more than 15 feet for a 40 foot setback. See <b>Illustration #3</b> for an example of adjusting the setback to enable the partition of a large lot.</p>
<p>C. 9.4778 (4) exempts areas isolated by streets or sound walls. Are other types of walls included? Is the presence of any portion of a street or wall sufficient, or must the stream be inaccessible? Is there not a potential water quality function for</p>	<p>For an area to be exempt under Section 9.4778(4), it must be on the landward side of an existing structure, developed (improved) street or sound wall and thus separated from the waterway. The water quality benefits to a waterway of a pervious area separated from the waterway by a structure, developed street (i.e. curb/gutter) or a sound wall (i.e. masonry with substantial foundation) is quite limited. While there are still some benefits of limiting development and retaining pervious surfaces behind these barriers which have substantial foundations (including</p>

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<p>areas with walls or streets if foundations or sub-bases are shallow? (PC)</p>	<p>infiltration of runoff and groundwater recharge), the surface filtration of runoff no longer occurs and, since the structure, street or sound wall is already constructed, the physical impact of these structures already exists and no further physical protection of the stream bank is provided by not developing in the isolated area behind these structures.</p>
<p>D. Relevance of requiring native plants for a water quality ordinance</p>	<p>Ordinance provisions requiring the use of native plants were included because native plants are well adapted to the region and more tolerant of fluctuations in environmental conditions, thus more likely to be viable in the long term which is important for retaining water quality functionality. However, some non-native species are well adapted to the environment and provide water quality function (for example, turf grass can be effective in filtering surface runoff). Native plants have the added benefit of requiring fewer chemicals (pesticides and fertilizers). Similar provisions requiring the use of native plants in a water quality buffer area are included in the City of Gresham’s Development Code and the City of Springfield’s Development Code, provided as an attachment to this staff response.</p> <p>➤ <i>Staff is considering revisions to the ordinance related to native plants, and will provide any recommended changes to the ordinance prior to the March 10 Planning Commission deliberations.</i></p>
<p>E. Constraints to restoring waterways/wetlands? (PC)</p>	<p>1) <b>Permitted Uses</b> The ordinance allows outright certain restoration activities such as removing invasive plants, planting native plants, removing fill and refuse, and enhancement and restoration authorized by a federal or state permit (Sections 9.4780(2)(a), (b), and (g)). These uses may be subject to clear and objective standards such as requiring that, for activities which entail removing invasive non-native species and cause soil to be exposed, there is standard for replanting the area within 15 days of disturbance. Certain public water quality improvement projects identified in an approved plan are also allowed outright, subject to a certification that specific water quality protective standards have been met.</p> <p>2) <b>Uses Subject to Standards</b> Private water quality improvements such as stabilizing stream banks and reconfiguring channels to improve stability, are allowed subject to certain development standards. A Type II land use procedure is required.</p>
<p>F. Process for approval of stream restoration projects including flood terracing and bank stabilization</p>	<p>See response listed under <b>IE</b>.</p>
<p>G. Could a landowner create a new stream meander or detention pond in order to construct improvements in an original management area on constricted lots? (PC)</p>	<p>See response listed under <b>IB. Uses Subject to Standards – Illustration #2.</b></p>
<p>H. Examples of proposed development, building expansions, or patio construction and how the exceptions and adjustments process works (PC)</p>	<p>See response listed under <b>IA. Permitted Uses, Legal Nonconforming Uses, Exclusions – Illustration #4.</b></p>
<p>I. Why is the “33% adjustment” limited to lots less than 13,000 square feet in area?</p>	<p>This adjustment was modeled after Goal 5 (however the Goal 5 provision sets an upper limit of 10,000 square feet). In general, the “33% adjustment” provision has an upper lot size limit because larger lots have more opportunities and flexibility to locate and achieve new development than smaller lots.</p>

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<p>J.9.4778 (2) (d) specifies that the reduced setback for small lots shall be parallel to the original boundary. Standards for /WQ Water Quality Overlay Zone Adjustment (9.8030) (25) allows for "buffer-width averaging" when reducing the setback. Why are the two types of setback reduction not available in all circumstances? (PC)</p>	<p>Agree. Recommend modifying ordinance.</p> <p>➤ <b><i>Staff will recommend modifying Section 9.8030(25)(a) and 9.4778(2) to enable buffer averaging under all circumstances where buffer width reduction is permitted.</i></b></p>
<p>K. Allowances for directional boring for utility work which does not cause above-ground disturbance</p>	<p>➤ <b><i>Staff is considering revisions to the ordinance related to allowances for directional boring where no disturbance to the WQ management area occurs and will provide any recommended changes to the ordinance prior to the March 10 Planning Commission deliberations.</i></b></p>
<p>L. Allowances for programmatic approaches to permitting</p>	<p>➤ <b><i>Staff is considering revisions to the ordinance related to programmatic approaches to permitting for recurring activities by a public entity, and will provide any recommended changes to the ordinance prior to the March 10 Planning Commission deliberations.</i></b></p>
<p>II. Definitions</p>	
<p>A. Waterway – How is a waterway defined? Significance of water quality waterways - how were they determined and what is the rationale for the criteria used? How often does water have to be in it to be a waterway? What verification process, including field checks, was used to ensure that the waterways of interest exist and function as waterways? (PC)</p>	<p>Identifying Water Quality Protected Waterways involved the following process:</p> <p>1) Waterway Defined: A natural or artificial water body that provides a storm conveyance and water quality function within the larger watershed system, has discernible streambed and side banks, and carries water either periodically or continuously. Roadside ditches that primarily provide road drainage and ponded areas not having a drainage function are not included in this definition.</p> <p>2) Water Quality Function: Waterway provides a water quality function if it has an earthen bottom and side slopes that are vegetated.</p> <p>3) Waterways of Concern. The proposed water quality protected waterways are significant because they form the drainage system network that discharges urban runoff into downstream waterways identified by the State Department of Environmental Quality as not being in compliance with State water quality standards, also known as 303(d) listed waterways. As a Phase I NPDES Permit jurisdiction, Eugene is responsible for reducing stormwater pollution to the maximum extent practicable. As a Designated Management Agency, Eugene is responsible for complying with the Upper Willamette River Total Maximum Daily Load (TMDL). One of the City’s water quality management actions is to apply waterside protections to open waterways where there is a water quality concern. Waterways of concern were identified using the following criteria:</p> <ul style="list-style-type: none"> <li>▪ 303(d) listed waterway,</li> <li>▪ Tributary that drains into a 303(d) waterways, and</li> <li>▪ A Headwater Stream – defined as at least 500 feet in length and provides a minimum drainage area of 10 acres.</li> </ul> <p>Mapping the water quality protected waterways began with the City’s stormwater drainage system infrastructure facilities data, a GIS-based data set known as DOPEN. This data base was also relied on and ultimately refined as part of the City’s Goal 5 inventory and adoption process. Over the years and as part of this process, refinements to</p>

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	<p>DOPEN were made using 2004 aerial photography and 2 foot contour information, along with field visits to ensure quality control so that now the City has relative high confidence level for the presence and location of waterways. Where direct access to private property was not possible or where forested areas blocked visibility when using aerial photography, the confidence in these areas is less certain.</p>
<p>B. Headwater Stream (PC)</p>	<p>The term “Headwater Stream” is currently defined in the Eugene Code Section 9.0500.</p> <p>➤ <i>Staff is considering simplifying the definition for Headwater Stream for purposes of this proposal, and will provide any recommended changes to the ordinance prior to the March 10 Planning Commission deliberations. It is not expected that simplifying the definition will substantively change the set of waterways identified for water quality protection.</i></p>
<p>C. Substantial Structure (e.g. does this include satellite dishes?)</p>	<p>➤ <i>See IA. Staff will clarify the definition of “substantial structure” prior to the March 10 Planning Commission deliberations.</i></p>
<p>D. The ordinance makes a distinction between the waterway, its channel and the management area. What is the difference between the channel and waterway? What is the difference between the channel and the area between opposite high banks? (PC)</p>	<p>The waterway is the area within the channel where water is present during low flow conditions.</p> <p>The channel is the area between the Tops-of-High-Bank on each side of the waterway. It provides conveyance and flood containment during higher flow conditions. When the channel is at its maximum capacity, it is termed bank-full.</p> <p>The Water Quality Management Area is comprised of the protected waterway, its channel including the bed, stream-banks and top-of-high banks, and the applicable setback measured 25 feet landward from top of high bank for non-headwater streams and 40 feet landward from the centerline of headwater streams.</p> <p>➤ <i>Staff will recommend modifications to Section 9.4778(1) to clarify the use of these terms.</i></p>
<p>III. Challenges to Map</p>	
<p>A. Waterways - what is the process for disputing the presence, location, or designation of a water quality protected waterway?</p>	<p>Section 9.4786 establishes procedures for challenging the accuracy of the map including the location or alignment of the waterway, the classification of the waterway as either a 303(d) waterway, a tributary to the 303(d) waterway, or a headwater stream, and the designation of an area or lot as affected by the Water Quality Management Area. The process for correcting the map is a Type II land use procedure.</p>
<p>B. Setback Measurement Point (Top-of-High-Bank) - How confident is the city in the setback demarcation; what is a property owner’s recourse if they want to dispute the demarcation?</p>	<p>The setback measurement points were derived as follows:</p> <ul style="list-style-type: none"> <li>• Stream Centerline for Headwater Streams – the City’s DOPEN data was used as the source for this measurement point. As described previously, the City now has relatively high confidence in the overall data but where access was not possible or forested areas blocked viewing through aerial photos, the confidence level is lower.</li> <li>• Top-of-High-Bank (THB) for Non-Headwater Streams – the City relied on 2004 aerial photos and 2 foot contour information to locate and digitize the THB. Some field checking was conducted. The City has high confidence in the demarcation where channels are fairly large and deep where the landform is well represented by the contour information. Where waterways are relatively narrow and shallow, the confidence level is lower.</li> </ul> <p>Property owners will be able to either accept the location of the THB and proceed with development plans or they</p>

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	can choose to challenge the location through the Administrative Rule process.
<b>Map and Related Data</b>	
<b>IV. Waterways</b>	
A. Presence/location of certain waterways - field-tested?	Refer to <b>II.A</b>
B. Changes: clean-up; owner initiated	<p>➤ <i>Staff will be recommending map corrections (and related ordinance changes, where necessary) prior to the March 10 Planning Commission deliberations, that fall into two categories:</i></p> <p><i>1) Those that do not require a site visit (e.g. minor map clean-up, map corrections to demonstrate consistency with established policy in the Royal Node Special Area Zone and the West Eugene Wetlands Plan boundary and to eliminate overlaps with Goal 5 Water Resources Conservation Overlay Zone).</i></p> <p><i>2) Those that require staff site visits (e.g. parcels where property owners have indicated that: no waterway exists, the waterway is shown incorrectly on the city's maps; or the waterway is actually a roadside ditch).</i></p>
C. Miles of waterways draining to pipes and then to 303(d) waterways vs. miles of waterways that drain into 303(d) waterways (PC).	<p>The non-headwater “tributary streams” all flow directly into 303(d) waterways, except where they are crossed by streets and other infrastructure and in those cases culverts are typically installed. There are approximately 12.6 miles of tributaries that drain directly into 303(d) waterways.</p> <p>Headwater Streams are located in the South Hills and except for the stream where Amazon Creek begins at Martin Street and for the Willow Creek system, all of the remaining headwater streams, including those already protected by Goal 5, are connected to downstream 303(d) waterways by extensive pipe systems. See “Waterways Recommended for Water Quality Protection” map. There are approximately 3.0 miles of Headwater Streams proposed for water quality protection and all of those are connected by pipes.</p>
D. Provide map showing relationship of Headwater Streams to the major piped system and receiving waterways (PC)	See “Waterways Recommended for Water Quality Protection” map, attached to this staff memo.
<b>V. Setback Measurement Point</b>	
A. How is Top-of-High Bank (THB) determined?	See <b>III.B.</b> above.
B. Accuracy of THB, in-general; specific changes suggested	See <b>III.B.</b> above.
C. What were the challenges of using THB with Goal 5? (PC)	<p>➤ <i>Staff needs to confer with Planning and Development staff regarding the use of THB in administering the Goal 5 regulations. A response to this question will be provided to the Planning Commission prior to the March 10 deliberations.</i></p>

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<b>VI. Buildable Land Impacts</b>																																																		
A. Number of affected lots that are in the buildable lands inventory	<table border="1"> <thead> <tr> <th colspan="2">Metro Plan Designation</th> <th>Inside City Limits</th> <th>Outside City Limits</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td rowspan="4"><i>Residential</i></td> <td>Low Density</td> <td>48</td> <td>34</td> <td>82</td> </tr> <tr> <td>Medium Density</td> <td>3</td> <td>2</td> <td>5</td> </tr> <tr> <td>Heavy Density</td> <td>2</td> <td>4</td> <td>6</td> </tr> <tr> <td><b>Subtotal</b></td> <td><b>53</b></td> <td><b>40</b></td> <td><b>93</b></td> </tr> <tr> <td colspan="2"><i>Commercial</i></td> <td><b>4</b></td> <td><b>0</b></td> <td><b>4</b></td> </tr> <tr> <td rowspan="4"><i>Industrial</i></td> <td>Light Medium</td> <td>2</td> <td>13</td> <td>15</td> </tr> <tr> <td>Heavy</td> <td>4</td> <td>0</td> <td>4</td> </tr> <tr> <td>Campus</td> <td>4</td> <td>0</td> <td>4</td> </tr> <tr> <td><b>Subtotal</b></td> <td><b>10</b></td> <td><b>13</b></td> <td><b>23</b></td> </tr> <tr> <td colspan="2"><b>Total</b></td> <td><b>67</b></td> <td><b>53</b></td> <td><b>120</b></td> </tr> </tbody> </table>	Metro Plan Designation		Inside City Limits	Outside City Limits	Total	<i>Residential</i>	Low Density	48	34	82	Medium Density	3	2	5	Heavy Density	2	4	6	<b>Subtotal</b>	<b>53</b>	<b>40</b>	<b>93</b>	<i>Commercial</i>		<b>4</b>	<b>0</b>	<b>4</b>	<i>Industrial</i>	Light Medium	2	13	15	Heavy	4	0	4	Campus	4	0	4	<b>Subtotal</b>	<b>10</b>	<b>13</b>	<b>23</b>	<b>Total</b>		<b>67</b>	<b>53</b>	<b>120</b>
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B. Has staff done a field analysis to determine where there would be an adverse impact on existing businesses?	No field visit was conducted for this purpose. Adjustment and use provisions allow for existing uses to continue and certain future uses as well.																																																	
<b><i>Water Quality Considerations</i></b>																																																		
<b>VII. How does this Proposal Protect Water Quality?</b>																																																		
A. Are pollutants suspended by themselves in water, or are they sometimes adhered to sediment?	<p>Both. Stormwater pollutants are commonly divided into two groups: particulate pollutants (e.g. suspended solids), and dissolved pollutants. The dissolved versus total fraction of pollutants is highly variable from site to site and dependent on a number of different factors. Rainfall, pH, the nature and quantity of solids present and solubility of the metal element are several of the factors that influence the partitioning.</p> <p>Sediment, one of the most widely occurring pollutants in waterways throughout the country, is comprised of particles derived from rocks, biological materials or chemical precipitates and can include pavement dust and particles, atmospheric dust, natural soils, traction sand and cinders, vehicle rust particles, brake pad and tire dust and particles, trash and plant and leaf material. Many heavy metals and other trace elements are associated with sediments (Bent et al. 2001). URS Greiner/Woodward Clyde (1999) in a study for EPA on the measurement of total suspended solids (TSS) in runoff found that, although many pollutants are highly associated with particulates, the correlation between TSS and specific pollutants varies. URS also found that studies indicate that different metals are present in particulate form in different amounts and the particulate fraction of copper and zinc varies significantly, and that generally TSS may be a poor indicator of the concentration of other pollutants.</p> <p>In addition to the dynamic nature of the dissolved vs. total fraction, the variable correlation between TSS and specific pollutants, it is also the case that pollutants which may be at one time settled out can become re-suspended during high flows.</p>																																																	
B. What is the benefit to water quality of protecting seasonal streams	Seasonal or intermittent streams convey water when it rains. The streams identified for protection drain to waterways listed by the state as not meeting standards for their beneficial uses. Even though they do not flow year-round, when they do they provide important water quality functions including filtration, aeration, infiltration and groundwater recharge. If not protected, they would be at risk of impact, including loss of vegetation and loss of																																																	

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	<p>physical integrity, and a reduction in water quality functionality. While the impacts to individual small streams may not be as noticeable as impacts to larger streams, the cumulative effects of such impacts over a relatively large area and over time can be substantial.</p>
<p>C. What is the science behind the setback widths proposed</p>	<p>There is a growing body of scientific evidence that demonstrates the effectiveness of providing vegetated setback buffers along waterways for water quality purposes. For this proposal, the document <i>A Review of the Scientific Literature on Riparian Buffer Width, Extent, and Vegetation</i>, 1999, by Seth Wenger, Office of Public Service and Outreach, Institute of Ecology, University of Georgia, Athens, GA, was very useful in understanding and formulating the recommended setback widths. In the report, buffer width recommendations ranged from 30 feet to 150 feet each side of the waterway, with the caveat that the narrower width increased water quality risk. While the proposal is on the narrower end of the buffer width spectrum and represents a higher water quality risk, the benefits gained by not having two significantly different water-related regulations, Goal 5 and this proposal, in terms of administrative efficiencies outweighed the risk factors. In addition, since the original proposal of 2006, the City has adopted another complimentary water quality tool through the Stormwater Development Standards for new development and for this reason the higher water quality risk was lessened.</p> <p>See <i>Proposed Water Quality Protected Waterways, Basis for Proposals – Summary of the Science</i>, Eugene Public Works (August 15, 2006), attached to this staff response.</p>
<p>D. Is the proposal aimed at addressing existing or future pollution? (PC)</p>	<p>The proposal is primarily aimed at addressing future pollution. Without these protections, future uses and activities within and adjacent to these waterways would very likely increase pollutant loads including sediment, thermal pollution, potentially bacteria, and other urban pollutants into the waterways. The water quality mitigation requirements will help to minimize any impacts to water quality of uses within the Water Quality Management Area that are necessary for the viable use of a property.</p> <p>While the proposal is not expected to result in pollution reduction from present conditions in the short term, in the long term pollution reduction may be achieved through shading and other stream enhancements on public property and potentially on private property through restoration and enhancement activities.</p>
<p>E. How does this proposal address the specific pollutants of concern?</p>	<p>Staff relied on a body of science, which is listed in the attachment, to get an understanding of water quality setbacks, and to formulate the proposal. Water quality setbacks address the parameters of concern, with the science indicating a range of effectiveness for the various parameters, and a general water quality benefit. The proposal is aimed at addressing future pollution (i.e. holding the line on water quality and preventing additional impact from uses and activities to the pollutants of concern including turbidity, dissolved oxygen, temperature and bacteria.</p>
<p>F. Is there a way to measure the effectiveness of the proposal to reduce pollution? (PC)</p>	<p>Staff has relied on the scientific information listed in the attachment to inform the benefits and effectiveness of water quality buffers. The number of variables involved including the variability in storm events, and the location and intensity of activities in the watershed, typically precludes a direct measure of the impact (i.e. water quality benefit) of one specific program element on receiving water quality. Staff will continue to conduct water quality monitoring for stormwater runoff as well as background (ambient) water quality conditions, to assess trends in water quality conditions over time. Staff will also track quantitative surrogate measures of effectiveness - for example, the number and types of trees planted on publicly controlled parcels within the Water Quality Management Area, which could be used to determine effectiveness with respect to temperature reduction.</p>

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<p>G. Have we already accomplished with Goal 5 what is worth doing?</p>	<p>No. This proposal aims to fill gaps in protections on waterways that are important to protect for their water quality functions and values. Goal 5 protections accomplish protection on 71 of the 89.6 miles of waterways identified for water quality protection. Three miles lie within the boundaries of the West Eugene Wetlands Plan and are not identified for protection under this proposal. In light of the City's obligations as a Designated Management Agency under the Willamette TMDL, Public Works believes that the remaining 15.6 miles not protect by Goal 5 or within the WEWP area are important to protect for water quality.</p>
<p>H. Contribution of pollution from open waterways vs. piped/street system (PC)</p>	<p>A piped stormwater system, unless it includes water quality facilities along the way, provides no treatment for stormwater runoff. For example, in the downtown area where the city's stormwater system is piped and the area is built out, the City is implementing some capital projects to retrofit the system with water quality facilities that will provide some off-line treatment during low flow conditions. These systems are expensive to install, maintain, and eventually replace, and they do not replace the multiple functions and benefits of open waterways. By contrast, open waterways not only function as conveyances for stormwater runoff but provide important water quality functions including filtration, aeration, shading, infiltration and groundwater recharge. Piping these waterways would basically remove the functions that currently exist and necessitate significant infrastructure investment. Retaining these waterways but not protecting them from development and uses immediately adjacent to them will likely result in additional pollution into the receiving waterway.</p>
<p>VIII. Water Quality Function Rating System</p>	
<p>A. Relationship of Water Quality Function Rating System to TMDLs (PC)</p>	<p>The proposed water quality function rating system is provided in the attachments to this staff response. It is a rating system for characterizing water quality function condition and is intended as an element of a future Administrative Order, and is. It would be used to evaluate the impact of a proposed use and the water quality rating of proposed mitigation measures. It applies to certain Permitted Uses (Section 9.4780(2)(f), certain Uses Permitted Subject to Standards (Section 9.4780(3)) and to certain Adjustments (Section 9.8030(25)(b)). Water quality function would be determined by quantifying:</p> <ul style="list-style-type: none"> <li>▪ <i>Pollutant Filtration</i> - the extent of vegetative cover where higher coverage is more effective at trapping and filtering pollutants</li> <li>▪ <i>Erosion Prevention</i> - measures vegetative cover diversity where higher coverage and diversity is more effective at preventing erosion</li> <li>▪ <i>Streambank and Channel Stabilization</i> - measures the channel's ability to accommodate expected stream flows without exhibiting channel downcutting, erosion, and bank failure.</li> <li>▪ <i>Channel Shading</i> measures the potential for moderating water temperature</li> <li>▪ <i>Aeration</i> measures the potential for providing dissolved oxygen during low flow conditions</li> <li>▪ <i>Water Quality Management Area</i> measures the overall water quality function potential, where increasing area relates to lower water quality risk</li> </ul> <p>All of the characteristics above have a relationship to one or more of the pollutants of concern, which are the TMDL and 303(d) pollutants (including temperature, dissolved oxygen, turbidity, mercury, bacteria, arsenic). The concept of water quality mitigation is to evaluate what exists and recoup lost water quality function due to impact. Site conditions vary greatly, therefore options for mitigating lost water quality function are proposed, with the mitigation rating system providing benefits to varying degrees for TMDL and 303(d) pollutants.</p>
<p>B. 9.4782 describes the water quality function rating system. Other parts of the code rely on this system as standards for activities that may be permitted to occur within the original management area. How</p>	<p>See VIII.A for a description of the water quality function rating system.</p> <p>The intent of the water quality function rating system is to require mitigation for lost water quality function. Staff acknowledges that the current water quality condition will vary from waterway to waterway, and stream reach to</p>

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<p>do we know meeting these standards is reasonable? For example, for a site that is currently a waterway but does not have riparian vegetation or is otherwise sub-optimal, will the standard for meeting or exceeding the water quality function rating reflect current conditions? How? (PC)</p>	<p>stream reach. The rating system has built in flexibility as to how the lost function is mitigated for.</p>
<p>IX. Have Other Measures Been Considered?</p>	
<p>A. Why don't we focus on treating water before it enters the receiving waterbody (PC)? What other water quality measures are available to the community?</p>	<p>The Stormwater Management Program is comprised of complimentary elements, all aimed at protecting and improving water quality. Each element addresses a certain aspect of water quality protection. This proposal fills a gap in the program, especially in light of the Upper Willamette TMDL. Elements of the City's stormwater program include:</p> <ul style="list-style-type: none"> <li>• Stormwater Education</li> <li>• Illicit Discharge Detection and Elimination</li> <li>• Spill Response</li> <li>• Street Sweeping</li> <li>• System Maintenance</li> <li>• Stormwater Capital Improvements - including stream restoration projects, and water quality facilities in high pollutant source areas such as downtown Eugene</li> <li>• Stream Corridor Acquisition</li> <li>• Erosion Prevention and Construction Site Management</li> <li>• Stormwater Development Standards – including pollution reduction, flow controls for headwater streams; oil controls; source controls</li> </ul> <p>Treatment of runoff prior to discharging to a waterbody would not be adequate by itself to protect the physical integrity of the stream from the impacts of adjacent development and other activities. There are several local examples of development adjacent to waterways that have resulted in stream bank erosion, loss of physical integrity, and loss of water quality functions such as surface filtration and shade. In addition, the water quality function this proposal protects on these particular waterways of interest has a system-wide benefit with respect to filtration, aeration, and relative to a pipe - slowing down the runoff (due to the roughness provided by the vegetation in and adjacent to the channel). This open waterway system is already in place, and provides important water quality functions. An "end-of-pipe solution" would require capital investment and on-going inspection, maintenance and replacement to recoup the lost water quality function.</p>
<p>B. Have these alternatives been considered: reduce impervious surfaces; better stormwater drainage standards rather than setbacks as a means of providing protection; treat pollutants before discharging to receiving waters; pipe waterways to protect them from contaminants such as pesticides and fertilizers that affect open drainage systems; require property owners to maintain their own ditches on their property to control erosion;</p>	<p>See also <b>IX.A.</b> The proposed water quality protected waterways one element of a multi-faceted program that already includes incentives to reduce impervious surface area, requirements to treat stormwater runoff, and education related to the use of pesticides and fertilizers. Allowing development and activities adjacent to waterways and then expecting each property owner to stabilize their stream bank to control erosion is not realistic given local examples of degraded waterways and the limited ability of individual property owners or homeowner's associations to address significant erosion and downcutting issues.</p>

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prohibit use of store-bought fertilizers	
<b>X. Federal and State Water Quality Regulations</b>	
A. How are “beneficial” uses determined? (PC)	See DEQ public notice and Internal Management Directive concerning Use Attainability Analysis, included in the attachment, which describes the Clean Water Act provisions related to beneficial uses.
B. Is this required by the Clean Water Act?	<p>The Clean Water Act requires that municipalities reduce pollutant discharges from their municipal stormwater systems to the “maximum extent practicable.” The Code of Federal regulations governing municipal stormwater permits includes the basic requirements of a Stormwater Management Program. It is not prescriptive in that it does not dictate exactly how a municipality is to meet the regulations.</p> <p>The Clean Water Act TMDL regulations require a designated management agency (DMA) to meet certain pollutant load allocations. The TMDL regulations do not prescribe exactly how a DMA is to meet the regulations, but provides a suggested list of management strategies. The Upper Willamette TMDL Water Quality Management Plan (Chapter 14 of the TMDL) describes stream buffers as a management strategy that is effective at addressing multiple TMDL pollutants.</p>
C. Are there tools, in addition to the proposal, that the city will use to address TMDLs? (PC)	The City’s TMDL Implementation Plan is under development, but in addition to this water quality protected waterways proposal, the City’s plan is expected to include an evaluation of current shading conditions and a strategy to apply shading on publicly owned or managed property. Other elements of the TMDL Implementation Plan will be an acknowledgement of what is already being done under the municipal stormwater program and regional wastewater facility discharge permit.
<b>Equity</b>	
<b>XI. Is the Proposal Equitable?</b>	
A. Does the proposal put the entire burden for water quality protection on the affected property owners while ignoring the developed portions of the city?	The proposal is one element of a comprehensive stormwater management program. The program as a whole addresses stormwater runoff from existing developed areas and developing areas through a combination of measures. See <b>IX.A</b>
B. Is the proposal equitable with respect to public improvements vs. improvements on private property?	The proposal does make a distinction between private and public activities in that Section 9.4780(2)(f) allows certain public improvements outright, subject to certification by the city engineer or, for other public entities, from a licensed civil engineer with authority to represent the public entity that certain water quality protective standards have been met.
<b>Relationship to Existing Regulations</b>	
XII. WQ Relationship to Goal 5; How does WQ Compare to Goal 5 Regulations?	➤ <b>Staff will provide more information about the relationship between Goal 5 and this proposal, prior to the March 10 Planning Commission deliberations.</b>
XIII. Relationship to Stormwater Development Standards & Conveyance Considerations	
A. Please describe how our current stormwater standards interact with this ordinance. What portions of the standards apply to single-family homes? For example, if a house is constructed on a lot containing a management area, would the	The stormwater development standards adopted by the Eugene City Council in 2006 address the quality of runoff and, for headwater streams, the quantity of runoff, from developing sites which add or replace 1,000 square feet of impervious surface area or greater . Single family residences and duplexes on existing lots (as of the effective date of the ordinance) are exempt from the stormwater development standards. Single family residences and duplexes on lots created subsequent to the adoption of the stormwater development standards ordinance are subject to the

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<p>roof run-off be required to enter a stormwater facility prior to discharge into a protected waterway? Would any direct discharge be permitted to be conveyed to a protected waterway? For a lot with both a management area and access to an existing stormwater facility, is there a preferred design? (PC)</p>	<p>new standards and stormwater runoff from those sites must be treated prior to being discharged from the site, whether or not the discharge flows through the proposed Water Quality Management Area. The associated Stormwater Management Manual includes a range of stormwater facilities that satisfy the pollution reduction and flow control requirements including vegetated facilities (such as swales, filter strips, constructed wetlands) and structural facilities (such as infiltration basins, proprietary treatment devices).</p> <p>The proposed Water Quality Protected Waterways address the protection of the physical integrity of the waterway itself, and the water quality functionality of the stream for its system-wide benefits as well as localized benefits. Depending on site conditions (soil conditions, topography, etc), new development on a parcel adjacent to a protected waterway could address its stormwater pollution reduction and flow control requirements for site runoff by construction of vegetative stormwater management facility such as a swale, filter strip or constructed wetland within the Water Quality Management Area. Vegetative stormwater management facilities are an outright permitted use per 9.4780(2)(e). Utilizing the Water Quality Management Area for a vegetative stormwater management facility may be optimal use of space, providing treatment for runoff from the property and protecting the water quality functionality of the setback area. Discharge to a waterway would ideally be via sheet flow, or utilizing a flow spreading device.</p> <p>The stormwater development standards and the proposed /WQ Water Quality Overlay Zone are complimentary elements of a comprehensive stormwater management program.</p>
<p>B. My understanding is that vegetated waterways tend to be narrower and deeper than non-vegetated waterways. Is this generally true? If so, is there a benefit to landowners from stream-side vegetation through reduced flood risk? What about streams that may be "choked" with vegetation (as mentioned in some testimony)? (PC)</p>	<p>Vegetation in a waterway can be beneficial in terms of water filtration and slowing water velocities. It can also be detrimental if it impedes flow and causes flooding. Stream channels vary in the amount of vegetation, and the degree to which vegetation can be left alone without causing flooding problems. The ordinance includes provisions for removal of plants and vegetation under certain circumstances (Section 9.4780(2)(b)), and maintenance of waterways (Section 9.4780(2)(c)(4)) necessary to maintain stormwater conveyance and flood control capacity, or to protect water quality, as required by local policies, local, state, and federal regulations, and intergovernmental agreements.</p>

Attachments:

Supplemental Information to Staff Response to Topics Raised by Planning Commission and Public Testimony through to January 15, 2008 (February 4, 2008)