

MEMORANDUM

TO: Board of County Commissioners

FROM: Kevin Gray, Deputy Director of Public Works

CC: Bill Barron, Pete Capell, Bronson Potter, Tim Kraft, Troy Pierce, Ron Wierenga, Gordy Euler, Rod Swanson

DATE: December 26, 2008

SUBJECT: Stormwater Ordinance Update Board Requests from December 16, 2008

At the December 16, 2008 Hearing on the stormwater ordinance update, the Board of County Commissioners asked staff to clarify and offer options for rural property thresholds and to quantify increased capital costs experienced by Clark County.

The following memo provides further analysis of the rural property thresholds and a summary of cost increases from applying the Department of Ecology (DOE) guidelines to the County's capital construction projects.

Rural Property Thresholds

Commissioner Stuart requested an analysis of how using percentage-based impervious area thresholds in the rural area would compare to the current square footage, or area-based, thresholds. He also asked for an explanation of the basis of the area-based thresholds.

Thresholds are used in the proposed ordinance to determine which stormwater requirements apply to non-exempt projects. Some requirements, such as construction stormwater control, apply to nearly all development proposals, while other requirements apply at varied thresholds.

Threshold Development

Any impervious area alters runoff patterns and has the potential to adversely impact a waterway. The thresholds in the proposed ordinance reproduce those in Ecology's Stormwater Manual for Western Washington.

Ecology's thresholds are not based solely on hydrologic impacts. They are based on the feasibility and practicality of requiring a site plan and best management practices for development and redevelopment projects.

The following lists the underlying background behind threshold development:

- The 2,000 square feet of impervious and 7,000 square feet of land disturbance thresholds to apply the basic minimum requirements capture typical home projects and small commercial projects.
- The 5,000 square foot threshold for applying all of the minimum requirements except for flow control is based on the quantity of runoff that can be treated by a typical water quality BMP alone, such as a swale.
- The 10,000 square foot threshold for flow control requirements is based on the feasibility of engineering and operating flow control structures in stormwater facilities.
- The threshold for converting native vegetation to lawn or pasture is derived from hydrologic models which show that converting 0.75 acres (approx. 32,000 square feet) of native vegetation to lawn increases runoff equivalent to converting 10,000 square feet of vegetation to impervious area.

Option 1: Implement Area-Based Thresholds

With the area-based thresholds currently proposed, most development projects will trigger some type of submittal during the development review process.

A benefit is that county review can assure that development proposals meet the county's stated intent to protect surface water quality (proposed ordinance section 40.380.010).

Another benefit is that area-based thresholds are easy to interpret and to apply.

A drawback is that submittals and development review can add time and cost to projects. However, the burden to project proponents and the County may be reduced by developing a simplified review process that is dovetailed with grading and building permits for large projects, and by retaining code language that simplifies the stormwater review process for rural landowners who may avoid engineering by using dispersion and infiltration.

Option 2: Implement Percentage-Based Thresholds

A threshold system based on a property's percentage impervious surface is feasible but has not been pursued by the county or other jurisdictions. A percentage-based impervious threshold would provide relief from stormwater regulations primarily for single-family projects and additions on rural properties.

Any method to establish alternative thresholds for minimum requirements would need to consider both the amount of impervious area (runoff generated) and site-specific characteristics that control whether runoff discharges to a water of the state, a critical area, or a storm sewer. The location of the impervious surface is just as critical as the amount of impervious surface. Simply put, a driveway, building or other impervious area that drains directly to the county's stormwater system or a surface stream or pond can harm the environment, regardless of the size of the property upon which it sits.

Scientific literature from watershed studies indicates that water quality and habitat degradation are observable at about 5% impervious area in a watershed. This could serve as a percentage threshold for individual development sites in order to minimize the cumulative impacts of development.

In this scenario, Section 40.380.020.4 would read:

For rural properties, new development and re-development that adds or replaces impervious area of more than 5% of a site shall comply with minimum requirements #1 through #10 for the new and replaced impervious surface. New development and re-development that adds or replaces impervious area of less than 5% of a site shall comply with minimum requirements #1 through #5, if the impervious surface is 1) set-back at least 200 feet from waters of the state and critical areas; and 2) does not generate runoff in channelized flow or discharge directly or indirectly to the county's storm sewer system; and 3) is not located in and does not discharge to steep slopes or mapped geohazard areas, else minimum requirements #1-10 apply.

A benefit of this approach is that some rural development projects will not trigger the more stringent stormwater requirements. Another benefit is reduced administrative costs to Clark County.

Possible drawbacks of the percentage approach include:

- Thresholds are lowered for some rural properties. For example, 5% of a 3-acre parcel is about 6,500 square feet, which is lower than the proposed 10,000 square foot area-based threshold that triggers flow control BMPs. Raising the threshold to 10% will provide rural property owners with more flexibility, but may not provide appropriate protection for receiving water bodies.
- Proposed percentage threshold and related best management practices may be complex and will involve site-specific evaluation of vegetation, slope, drainage patterns, soils, and geologic hazard areas.
- The approach would eliminate county review of stormwater measures for many development projects and poses a risk of stormwater runoff degrading streams and wetlands.

- The percentage-based threshold has not been proposed to Ecology, and compliance with the NPDES permit requirements is unknown. The approach is unique in the state and may benefit from further review and public input.

County Capital Cost Impacts

Stormwater costs for projects developed under the current ordinance comprise 15-20% of the total project costs. While stormwater costs can vary widely from project to project, they increase to 30-40% of total project costs under the proposed ordinance. Right-of-way acquisition represents a large portion, depending on available property for facility location.

Projects that can infiltrate stormwater are likely to see little difference in costs between the design methods.

Example Projects

The table below compares the costs of managing stormwater under three different standards for three completed capital projects.

Note: Most County projects currently are designed to the more stringent Department of Ecology (DOE) standards to comply with associated State and Federal permit requirements. As a result, Clark County has already experienced the cost increases for our roads and parks construction over the past several years.

Project	Design Standard	SW Capital Costs	SW Right-of-way Costs	Total SW Costs	% of Total Project Costs	% Change from Current Ord.
NE 119th Street	Current (old) Ordinance	2,569,826	456,000	3,025,826	20%	
	Proposed (new) Ordinance	3,262,052	770,000	4,032,052	25%	25%
	DOE Manual	4,410,858	1,498,000	5,908,858	33%	65%
Ward Road	Current (old) Ordinance	358,683	302,000	660,683	9%	
	Proposed (new) Ordinance*	372,506	424,655	797,161	11%	22%
	DOE Manual*	372,506	424,655	797,161	11%	22%
<i>* Proposed Ordinance = DOE, due to allowable "Pasture" designation, which is a rare situation.</i>						
NE 99th Street	Current (old) Ordinance	574,775	140,000	714,775	25%	
	Proposed (new) Ordinance*	824,775	140,000	964,775	30%	20%
	DOE Manual*	824,775	140,000	964,775	30%	20%

** Proposed Ordinance = DOE, due to infiltration. Costs higher than Current Ordinance due to swale width limitations.*

Stormwater cost increases on roadway projects range from 20% to 25% under the proposed ordinance and from 20% to 65% under the 2005 DOE Manual, depending on the project location. Parks projects experience similar increases.

Please call me at 397-6118, extension 5358 with any questions you may have.