

# King County Surface Water Design Manual Update Advisory Group Meeting



May 29<sup>th</sup>, 2014

# Background

- The project objective is to update the King County Surface Water Design Manual (KCSWDM) to achieve equivalency with Ecology's 2012 Stormwater Management Manual for Western Washington (SMMWW) as required by the 2013-2018 NPDES Phase 1 Municipal Stormwater Permit.
- The project is partially supported by a National Estuary Program watershed protection and restoration grant administered by Washington State Dept. of Ecology (ECY).
- The current KCSWDM (2009) is used by King County and numerous cities.

# Key Dates

- May 7<sup>th</sup>, 2014: KCSWDM Draft was made available to the advisor group and interested parties for review and comment.
- June 30, 2014: Submittal of KCSWDM to Ecology for equivalency review.
- January 1, 2015: Code changes submitted to KC Council.
- June 30, 2015: KCSWDM adopted by public rule.



# Authors

- **Mark Wilgus:** Chapter 1 (Drainage Review and Requirements), 5 (Flow Control Design), and Appendix C (Low Impact Project Manual).
- **David Batts:** Chapter 6 (Water Quality Design), References
- **Dale Nelson:** Chapter 3 (Hydrologic Analysis and Design)
- **Jeff Pray:** Chapter 2 (Drainage Plan Submittal) , Chapter 4 (Conveyance System Analysis and Design), Appendix A (Maintenance Requirements), Appendix D (Construction Stormwater Pollution Prevention), References



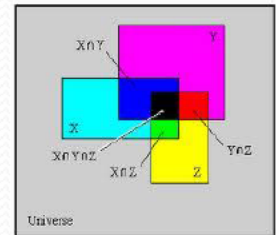
# Proposed Changes to KCSWDM

- Complete list of major changes and redlined versions of each chapter available at:  
<ftp://green.kingcounty.gov/transfer\SWDM.2015.update\>
- This presentation highlights a sub-set of the proposed changes.



# Categories of Proposed Changes

- “Enhancements”-changes to be more protective or restrictive than Ecology. These will be the focus of discussion today. We seek support for these proposals.
- “Equivalencies”-changes made to be equivalent w/Ecology.
- “Gray areas”- changes that don’t neatly fall into the prior 2 categories.



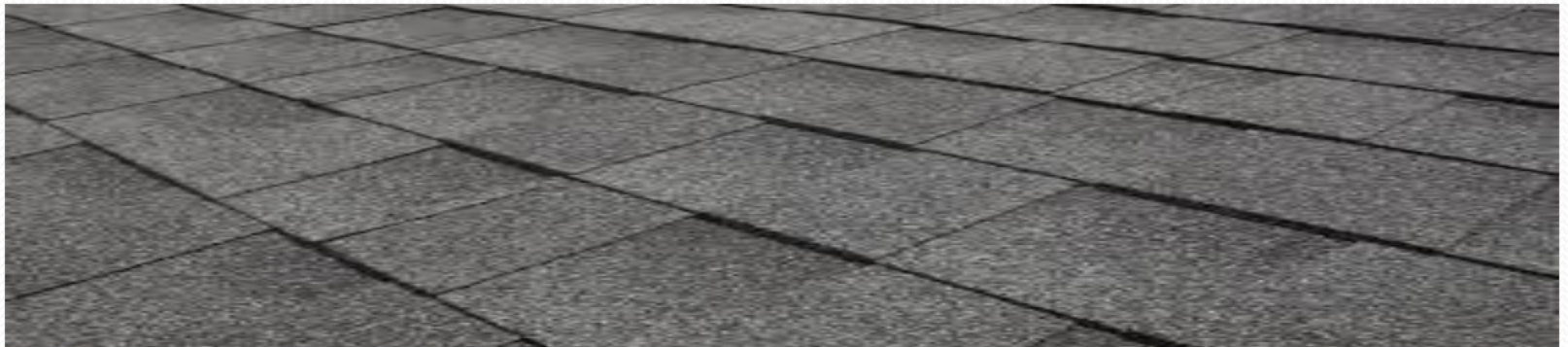
## Enhancement # 2-Hazard Areas

Requirements for discharge, infiltration facilities, open detention facilities, open conveyance facilities, and infiltrative/dispersive BMPs adjacent to Steep Slope or Landslide Hazard Areas are being strengthened.

1. Geotechnical analysis will be required if located within 200 feet of these hazard areas.
2. Minimum setback of 50 feet from these hazard areas is proposed.
3. New outfalls require tight-lining unless geotechnical analysis recommends/allows alternative system.

## Enhancement #4-Roofing is PGIS

Roofing is proposed to be considered pollution generating impervious surface (PGIS) unless roofs are composed of materials listed in the KCSWDM and have covenants that restrict use of chemicals.





# Gray Area #1-Full Dispersion on Agriculture

Full Dispersion BMP is proposed to be allowed onto pasture and cropland for agricultural properties under limited circumstances and specific design criteria.





## **Gray Area #2-Areas that are lined with underdrains are impervious surface**

New Impervious surface definition clarified to capture typically pervious areas installed w/underdrains and impermeable liners.

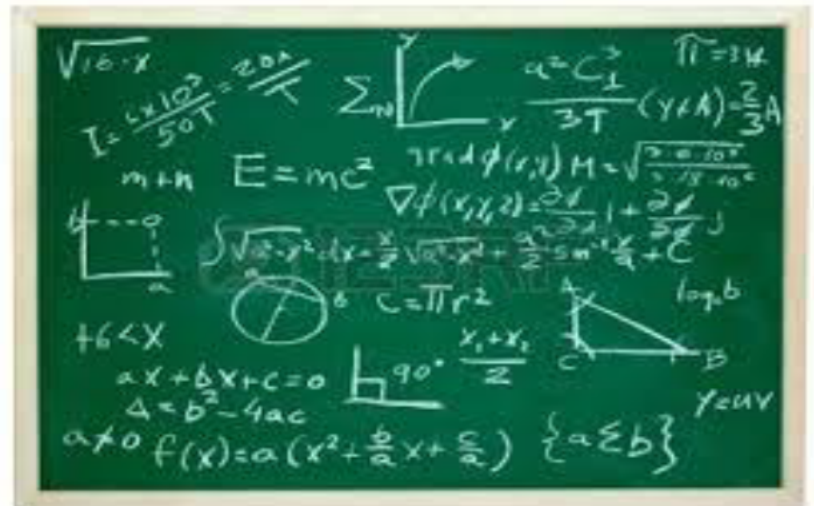
## Gray Area #3-Water quality sizing credits

Flow Control Facility Implementation/Sizing Credits:  
FC modeling credits for BMPs can be used to reduce  
required water quality facility sizes.



# Gray Area #4-Model Selection

King County is currently evaluating both MGS Flood and WWHM12 hydrology software to replace the KCRTS software.





## **Equivalency #1-Replaced impervious surface targeted on non-redevelopment projects**

Replaced impervious not fully dispersed on non-redevelopment projects is a target surface for flow control and water quality if new and replaced impervious is 5,000 SF or greater or new pervious is 35,000 SF or more.

## **Equivalency #2-FCBMPs-Maximum Feasible Approach**

- FCBMPs are required for target surfaces to maximum extent feasible using top-down BMP lists according to project type, size, and location. Infeasibility criteria, design criteria, and competing needs can be cited to make a given BMP not required.
- Minimum level of BMP implementation required as per 2009 KCSWDM does not change.
- KC is proposing a more “cafeteria” style menu than Ecology where basic dispersion, bioretention, and permeable pavements are given equal priority.

## Equivalency #3-FCBMPs-LID Performance Modeling

- Modeling is required on large rural plats and ROW projects to demonstrate compliance with the LID Performance Standard which requires duration matching to historic conditions from 8% of 2-year to 50% of 2-year storms.
- In contrast to Ecology, KC is proposing to allow BMP list alternative for short subdivisions and individual lots subject to this modeling requirement. This alternative list requires selected BMPs applied to 100% of target surfaces and 65% of site to be retained in native vegetation.

## Equivalency #4-Deleted Vegetated Roofs

Vegetated roofs are being deleted from BMP lists and do not receive FCBMP modeling credits. These BMPs are not listed on Ecology's BMP lists and modeling does not indicate that standard credits should apply.





## Equivalency #6-Added Bioretention BMP

- Bioretention added as an FCBMP for projects with 5,000 square feet or more of new and replaced impervious.
- Bioretention sized to store 1.2 inches of runoff from tributary areas (this is a reduction from 2009 KCSWDM).
- Bioretention includes an 18 inch thick engineered soil liner.
- Distinguished from rain gardens by sizing requirement (rain gardens store 0.6 inches from tributary area), engineered soils, and applicability (rain gardens allowed for projects with less than 5,000 square feet of new/replaced impervious).

# Further Question and Answer/Discussion

- Please introduce yourself and your organization prior to your question



# FINIS

