ENVIRONMENTAL SERVICES

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CLARK COUNTY
WASHINGTON

February 3, 2012

Municipal Permit Comments
WA Department of Ecology
Water Quality Program
PO Box 47696
Olympia, WA 98504-7696

Dear Ms. Graul:

RE: Stormwater Management Manual for Western Washington

Thank you for the opportunity to comment on the draft Stormwater Management Manual for Western Washington recently published by the Washington Department of Ecology (DOE). Clark County is committed to responsible stormwater management to keep our waterways clean for people, fish and wildlife. We think a properly administered Municipal Stormwater Permit is critical to achieve our stormwater program's goals. We think DOE should set program parameters and establish clear, achievable requirements that encourage permittees to use limited resources to address known problems using proven solutions. This includes manuals incorporated into the permit by reference.

Below is a summary of our broad concerns with the draft stormwater manual. We also have attached a limited number of detailed comments that address specific language and issues.

Insufficient time for review
Concurrently reviewing the draft stormwater manual along with the draft MS4 permit, LID Guidance for Local Governments, and the LID technical manual is a massive undertaking. The stormwater manual presents novel, untested concepts such as a new performance standard for flow control and new best management practices. The DOE timeline for review does not allow for critical evaluation and constructive input from municipalities that have limited resources and are unable to collectively review and comment. This will lead to new manual language that is not well vetted by NPDES permittees and the development industry, let alone other stakeholders such as state and federal agencies and environmental groups.

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Ecology should extend the manual review period through 2012 to allow for more complete input from users. The 2013 permits can be modified to reference the final manual, not a draft manual.

Status as both guidance and regulation
The manual's status as both a guidance document and a regulation imposed by NPDES permits places a significant burden on both DOE and permittees. The manual needs to have clear language to support its use as a regulatory tool, but still provide flexibility in planning and designing stormwater controls.

Unproven techniques adopted as permit requirements
While it is necessary to adopt new approaches to managing stormwater, the permit-mandated standards of the manual must be based in accepted practices. Two concerns are the use of the WWHM to apply the LID performance standard and model groundwater flow to wetlands. As guidance, these are tools that can be refined if they work or disregarded if they do not work; but as a regulation under the NPDES permit, the ability to make adjustments to the manual is lost.

There is no easy solution to this issue. Perhaps one solution is to retain the minimum requirement language in permit Appendix 1 and provide permit language on how the manual may or must be used as a design guidance to meet the NPDES permit requirements. Another solution could be to include manual elements that are truly rules as permit language and to leave the rest of the manual as a design tool where permittees have latitude to deviate within the manual's guidance and accepted science.

Lack of a cost benefit analysis and long-term BMP costs
Another question with unproven approaches is the ultimate cost of implementing them. Wetland protection standards in particular appear to be arbitrary and not founded on recent science. For example, the prohibition against restoring degraded wetlands for uses that include stormwater control if they contain breeding populations of native amphibians does not make sense given what is known in southwest Washington and the Portland, Oregon area. Such projects are counted as among the best successes for managing stormwater and improving aquatic habitat.

The lack of a cost analysis for new BMPs is a significant concern. This includes the cost of design and construction of LID practices compared to conventional treatment and infiltration BMPs, and long-term maintenance and replacement costs. Perhaps long-term maintenance and replacement costs could be included in the maintenance sections.

In summary, we recognize the incredible amount of work DOE and other participants have put into developing a highly-regarded stormwater guidance manual. However, as an NPDES permittee, Clark County has concerns about its use as a regulation.

Sincerely,

Rod Swanson
NPDES Stormwater Permit Manager

Enclosures 1

cc: Ron Wierenga
Kevin Gray
Pete Capell

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Comments on the Draft 2012 Stormwater Management Manual for Western Washington			
Manual Volume	**Section**	**Item**	**Comment**
All		Review period is too short	Ecology should have a longer comment period on such a complex and lengthy document.
		Unproven technology	While it is necessary to rely on the best available information to incorporate new technology and approaches into stormwater management, the manual should rely upon reasonably proven technology when it is included as an NPDES permit requirement. Examples of areas of concern include the use of the WWHM model for uses it was not designed for such as modeling flows down to 8 percent of the 2-year storm and wetland standards in Volume I, Appendix D.
All			If the manual is considered as a means to prove out new approaches and technology, it should not be adopted by reference in an NPDES permit where it has the force of law.
vol. I		LID	The LID approach is a paradigm shift away from the traditional roadway design practice of shedding stormwater from road surfaces and keeping water away from the roadway sub-base. The county and others have significant concerns about the potential effects of these road infrastructure changes on operations and maintenance costs, pavement longevity, pavement replacement costs, potential costs associated with failing infiltration facilities, etc. In the past, DOE has had an outside expert analyze and comment on the technical elements and cost-effectiveness of their proposed regulation changes. With this major rework of the manual and shift in how future roadway infrastructure will be constructed a similar independent outside review is recommended. One desired review product would be estimated maintenance and replacement costs for the new roadway infrastructure systems, for incorporation in local public works departmental budgets.
voI. I		Wetland guidance	Guide Sheet 1 in Appendix 1-D includes a list of wetlands not suitable as a treatment or flow control BMPs/facilities. Item #4 includes all wetlands that provide "habitat for a breeding population of native amphibian species." This requirement, excluding all wetlands from use as a treatment or flow control BMPs/facility is contrary to existing science on the population dynamics of native amphibian species in Southwest Washington and Northwest Oregon. In particular, native amphibian populations have been known to inhabit treatment and flow control BMPs/facilities within Clark County, the City of Vancouver, the City of Portland, the City of Gresham, Multnomah County, and other areas in the region (Metro Amphibian Monitoring Program, Clark County Community Amphibian Monitoring Project, City of Gresham Amphibian Monitoring Program). Furthermore, healthy populations of native amphibians are present in all of these locations within wetlands that receive discharges from numerous stormwater treatment and flow control BMPs/facilities. Native amphibian species are clearly very adaptive and have been observed to colonize newly created stormwater wetlands.
Vol. I		Wetland guidance	Placing restrictions from development of all treatment or flow control BMPs/facilities from all wetlands with known breeding populations of native amphibian species is overly burdensome. Restricting treatment BMPs/facilities from wetlands in general and restricting flow control BMPs/facilities from higher quality (Category I and II wetlands) is reasonable and should be pursued as a middle ground, especially considering native amphibian species will more than likely colonize a majority of new flow control and treatment BMPs/facilities with seasonal hydrology regardless of whether or not the BMPs/facilities are constructed in wetlands or uplands.
Vol. I		Wetland guidance	Considerable uncertainty exists in the proposed criteria for showing protection of wetland hydroperiods within riverine, slope, and lake-fringe wetlands and this places an unreasonable burden on public and private developments for demonstrating compliance with the manual.
Vol. I		Wetland guidance	The Guide Sheet 2 restriction on all stormwater BMPs/facilities from all wetlands with native amphibian species in all situations is unrealistic and not supported by best available science for the region.
Vol. I		Wetland guidance	The wetland guidance needs better supporting documentation based in science and the application of the WWHM.
Vol. I		Change from impervious area to hard surface	The change from impervious area to hard surface as a trigger may have the effect of limiting the use of permeable pavement and green roofs.
Vol. I	2.4.2	"pubic roads"	Is "public roads projects" intended to be all public roads or just those *built* by a municipality? Would this wording be clearer as - "*For road projects constructed by a public agency……..* ?"
Vol. I	2.5.7	WWHM LID standard	WWHM software, is not very robust, and it is not clear that applying this additional (8%) performance standard requirement will result in successful and reasonable project modeling and design. A new WWHM version, with the Autopond module adjusted to meet the new requirement should be tested over the full range of project types and watershed conditions to confirm that reasonable designs would result.
Vol. I	2.5		3) approved continuous runoff modeling methods indicate that the entire runoff file is infiltrated. In areas with soil types known to be suitable for infiltration, continuous runoff modeling should not be required. Usually a geotechnical investigation/soil test supports the selection of infiltration BMP and full infiltration.
Vol. I	2.5.7		To estimate 0.1 cubic feet per second increase from a development activity, the use of a single event model is more reasonable than a continuous flow model.
Vol. I	2.5		LID performance standard: WWHM results are unreliable when pre-developed discharge rates of 8% of the 2-year peak flow are used. Why match 8% of the 2-year flows? What level of protection are we attempting to achieve?
Vol. I		basin plans	Finding a way to encourage basin planning could include incentives and making the approval process for alternative methods easier. Perhaps Ecology should create a section charged solely with developing effective plans with local agencies. This section would act as an intermediary between local governments and DOE to resolve technical equivalency issues to ensure that alternative proposals comply with regulations and also make meaningful watershed improvements.
Vol. I			Even if vegetated roofs are feasible from cost point of view, their hydrological benefits are still questionable for the northwest region. Limited monitoring of green roofs in the region has shown minimum flow control benefits.
Vol. I. App F	F-1	vertical separation	A minimum 3 foot vertical separation seems too small for a bioretention facility

Manual Volume	Section	Item	Comment
	F-3		A minimum 1 foot vertical separation seems too small for permeable pavement.
Vol. I	F-4		It is highly likely that vegetated roofs will be considered to be infeasible by the development community, considering their cost ($25-$30/square-feet) and relatively low flow control benefit during wet season in our region.
Vol. 1 Glossary	Glossary 8	certified pervious surface	There may be a typo here.
Vol. 1 Glossary	Glossary 9	common plan of development	Make it clear that this does not include public long-range transportation plans.
Vol. III	2.2		The WWHM LID modeling module needs to be in place before new requirements are mandated (e.g. the new "8% of 2 year" flow control requirement). All proposed new requirements should be methodically "test-driven" in the new software to ensure that it can be used in all watershed conditions and give reasonable results. Pay special attention to any regionally-calibrated versions of the software.
Vol. III	3.3.4	Mounding	With the minimum separation between infiltration systems and groundwater at 3 feet, the potential for groundwater mounding is high. The larger-project requirement for a groundwater mounding analysis is necessary. However, since it will be required in many instances, a simple software modeling capability is needed, preferably built into the WWHM model.
Vol. III	3.3.4		3.3.4. Step 7. Given the uncertainties associated with infiltration of stormwater through soil, it seems possible that a relatively large number of constructed facilities could potentially fail this test after construction. It is very difficult to expand a stormwater facility at that point, i.e. after the surrounding area has been constructed. This requirement could be very problematic for municipal agencies to enforce. On a similar note, the high level of uncertainty associated with infiltration for stormwater disposal suggests that <u>more attention to design redundancy is needed in the manual</u>, for example, requirements for overflow pipes out of closed depressions, etc.
Vol. III.	3.3	Review	In general, the large volume of new infiltration criteria is too critical and complex to be adequately reviewed by commenter's as part of a typical manual update. The large shift in design of roadway infrastructure away from traditional pavement/road sections and drainage will have very profound consequences for public works departments (capital, operations, maintenance, pavement longevity, pavement replacement practices and costs). The current WWHM model does not yet handle the computations needed to allow reviewers to check the effects of new regulations. The cost/benefit of the new regulations cannot be determined (as has been completed in the past for previous, simpler manual updates). Since this manual update constitutes a major overhaul, a new direction for DOE, and a profound change in road pavement infrastructure, it may be wise that proposed manual be reviewed and reported on by an independent expert. The review report should provide public works agencies with the capital, maintenance and replacement cost and schedule information to be able to update (increase) their budgets.
Vol. III.	3.3.9. C		Using an impervious liner on the pond sides is contrary to the purpose of infiltrating stormwater runoff and can needlessly create a flood risk. Suggest that only an 18" thick treatment soil layer is allowed.
Vol. III	3.3.10	Mounding model analysis	The majority of development projects are greater than 1 acre in size. The size of contributory drainage area/development area is an important parameter. However, with known high groundwater should require using a computer program. Otherwise, geotechnical investigation/soil test normally provides adequate information about potential groundwater mounding problem. 2.5-3 acres seems more reasonable development size where a more detailed modeling should be required.
Vol. V	5	BMP T5.30 Full Dispersion.	Qualitatively, it seems that reasonably effective dispersion would occur at thresholds including less than 65% forested cover and 100 foot flow paths. These thresholds seem overly conservative, and incremental gains between these limits and considerably lower thresholds may be minor. The standard may be the result of limited (empirical) studies that were not later focused and refined (including possible physical testing) for use in a major state policy and regulation. In areas where vegetation has been pasture for many years, the manual should include a standard that allows for full dispersion where the site is pasture. This is especially the case where land is flat.