



proud past, promising future

CLARK COUNTY
WASHINGTON

June 16, 2011

Ms. Harriet Beale
Municipal Stormwater Permit Comments
Washington Department of Ecology
Water Quality Program
P.O. Box 47696
Olympia, WA 98504-7696

Subject: Clark County Comments on Preliminary Draft Phase I NPDES Municipal Permit

Dear Ms. Beale:

Clark County understands the difficulty Ecology faces when writing a municipal stormwater permit that considers the goal of improving water quality, state water quality law applicability to municipal stormwater, stakeholders' concerns, rulings by the Pollution Control Hearings Board and the imperative to write a permit that municipalities can fully implement given their financial and legal capabilities. These comments are submitted in the spirit of assisting Ecology to meet these needs in a balanced and legal way.

This letter summarizes Clark County's main areas of comment on the permit with specific comments in an attached table. If the county has not commented on some element of the draft language, it does not indicate agreement with the draft, but only that we have not commented at this time. Furthermore, it is difficult to address portions of a permit without the context of the complete permit language, and it is impossible to compose meaningful comments where supporting guidance documents are unavailable for review. Despite those severe limitations, the main areas of concern we are able to comment upon are:

- Use of reliable and proven approaches as required actions in an NPDES permit.
- Successful implementation of low impact development practices.
- The appropriateness of mandated watershed-scale stormwater planning.
- Creating a stable, logical and fair approach for monitoring.

Use proven approaches in the permit

One major concern is mandating extensive use of untested approaches or immature technologies to meet specific permit requirements. For example, the permit intends to "make LID the preferred and commonly-used approach to site development". This is an experiment at the public's expense to test the feasibility of LID practices, such as permeable pavement, that are only beginning to be used and developed. Manuals referenced by the permit are either draft guidance manuals or not available for review (e.g. 2012 version of the SWMMWW).

Watershed-scale stormwater planning is required but there are no examples or even guidance on how it can be successfully or affordably performed. The requirement that stormwater site

plans for even the smallest projects “preserve native vegetation and minimize impervious surfaces to the extent feasible” is an untested policy that reaches well beyond the management of municipal stormwater into forest retention on rural lands.

Low Impact Development

Low impact development should be part of a stormwater program but it needs to grow organically as the community embraces it, not as a highly prescriptive government action. Recognizing the PCHB mandate to implement LID to the extent feasible, Ecology should focus on the full use of proven technologies to provide robust results instead of broader implementation of less well developed technologies that could lead to numerous failures. Here are some examples:

Permeable Pavement and Below Pavement

The mandate to use pervious pavement (an immature technology with significant drawbacks) extensively - including on traveled roadways - is premature. As written, this strategy is inappropriate for the following reasons related to capital asset management: very high capital investment, high maintenance costs, questionable performance at best, and little or no understanding of long term maintenance and operation or life cycle costs. There are also broad technical concerns about using beneath pavement infiltration due to both interference with buried utilities and stability of the soil substrate when infiltrated runoff is added to it. Also, consider WSDOT’s stated concerns about durability and life cycle costs in the report “WSDOT Strategies Regarding Preservation of the State Road Network, A Report to the Legislature in Response to SB 6381”. Considering the maintenance and life cycle uncertainty it is difficult to see the added benefit of pervious pavements over other LID BMP’s used to manage runoff. Ecology needs to clearly demonstrate the environmental benefits of pervious pavements and provide empirical data on performance and life cycle costs before requiring their use.

The significance of mandating a shift to pervious pavement can hardly be overstated. While we support and advocate the application of permeable pavement where appropriate, we cannot advocate for the blanket mandate to apply this technology virtually everywhere. Rather, given the potential impact on billions of dollars of infrastructure throughout the state, we highly recommend that this decision be given a thorough review by experts in the field of road construction and pavement management, akin to the Independent Science Review Panel convened to review the Stormwater Management Manual for Western Washington.

Performance standard

Ecology’s proposal to provide a performance standard as an alternative to the mandated list is a good idea; however, there is no real world experience among permittees for using it to the extent that it is known to be reliable.

The assumption that LID BMPs are both feasible and AKART should be based on evidence demonstrating that they are both technically and financially feasible. If this is the case and has been demonstrated, Ecology should be able to provide the supporting documentation. Unless evidence supports the conclusion that LID BMPs are feasible, it cannot be said that the BMP’s are AKART, are required by the PCHB’s decision, or are MEP. In short, the obligation to require them should not be imposed upon permittees.

Another concern is that many of the regulated projects will be single family residences where project proponents have little to no knowledge of stormwater management, much less LID practices. To effectively implement the LID practices will require significant technical assistance for applicants to complete site plans and in the field to install the BMPs.

Watershed-Scale Stormwater Planning:

There is general agreement that watershed-based stormwater management is a reasonable and perhaps cost beneficial alternative to site-by-site application of the Western Washington Stormwater Management Manual to development projects. But there must be a clear separation between watershed-based actions conducted to improve upon requirements applied by permittees within the regulated MS4, and watershed-scale land use planning that goes beyond the scope of the permit into areas that are not physically part of the MS4 or into the realm of State Growth Management Planning.

In its 2007 ruling, the PCHB did not conclude that watershed-scale land use planning was a mandatory action under the permit, but recognized that stormwater management at the watershed scale might be a necessary component of stormwater programs. As such, it should be left to the discretion of the permittees where and when to conduct basin planning as a necessary part of their overall programs.

As written, it appears that this municipal stormwater permit will be driving regulated planning and zoning densities and urban growth area boundaries, rather than supporting and implementing our current land use laws, thereby precipitating extensive associated plan and ordinance update actions by local agencies.

Furthermore, there is no clear guidance on how the assessments should be conducted or what the scope of the assessment and expected land use actions would consequently be. At this point we question even the existence of a watershed-scale model that has the sensitivity to detect changes in receiving water quality from increases in imperviousness for a small fraction of watershed area. Using the most sophisticated models available will incur tremendous expense with highly questionable benefit. Considering that streams may already be impacted from historic forest clearing and agriculture, compliance with the minimum performance measure to "meet water quality standards" may be infeasible and should be part of a TMDL process where water quality standards are currently not being met.

The term land use action is poorly defined, limiting the county's ability to evaluate this requirement in light of our current land use planning. The permit requirements overlap land use planning far more than currently understood, if changes in zoning, density transfers for conservation efforts, and urban holding designations, will trigger assessment requirements.

Finally, requiring this analysis as part of growth management planning is unlikely to provide helpful guidance to decision makers. The planning actions listed as triggers of analysis do not quantify the extent to which any hard surfaces will be created in the areas that are being planned. Generally, growth management planning actions occur well in advance of actual development planning, so no concept of a particular development may exist at the time for analysis that would be mandated by the preliminary draft. As a result, analysis of the impacts of the planning actions will range in quality from grossly uncertain to entirely inaccurate.

Monitoring:

Clark County's comments on monitoring are directed at preliminary permit language. Our current understanding is that Ecology is working with Clark County and the Southwest Washington phase II permittees to create a locally administered status and trends monitoring program. We believe Ecology should extend this flexibility to allow permittees to complete effectiveness monitoring projects compatible with local and regional needs. Regarding the source identification and diagnostic technique library, Clark County believes this is information that should be part of Ecology's program and not an added financial burden for permittees.

Locally Managed Effectiveness Studies

Clark County believes it is imperative that the phase I permit allow permittees to conduct independent effectiveness monitoring as part of their ongoing programs. There are several reasons for this:

- It reduces the burden on Ecology to initiate the RSMP work.
- It is more efficient than the RSMP process because the permittee's material and human resources to conduct stormwater monitoring under the 2007 permit can be applied to work of interest to the municipality.
- It supports the ability of permittees to continue critical monitoring and assessment work in other areas of their stormwater programs.

Clark County should be allowed the flexibility to propose and conduct effectiveness studies not on the SWG list. The preliminary permit language limits effective studies to those on the SWG list of projects. Clark County was not a participant in the SWG process and had no input into the development and selection of prioritized effectiveness monitoring proposals. Considering this, it is possible that Clark County could identify effectiveness study proposals that are not part of the SWG list but still attempt to answer questions of regional significance.

There is already a process in place for Ecology to approve effectiveness monitoring projects under the 2007 phase I permit's Special Condition S8. That process should be modified to accommodate the proposal and approval of independent monitoring projects conducted by phase I permittees.

Time to Develop a Local Program

In reviewing the phase II permit for Eastern Washington, it becomes apparent that Ecology is allowing permittees in that region several years to develop a monitoring program for their region. The Southwest Washington permittees should be granted the same consideration and provided some amount of time under the 2012 permit to develop status and trends monitoring and effectiveness studies. Puget Sound permittees will require several years between when Stormwater Work Group began under the 2007 permit and when the programs will be fully implemented under the 2012 permits.

Additional time would allow better coordination with important local and regional resource management and monitoring stakeholders such as the Lower Columbia Fish Recovery Board and WRIA Planning Units.

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Local Resources should Stay Local

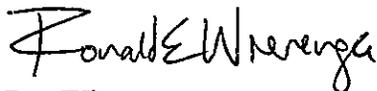
The second element of the Eastern Washington permit that differs from the Ecology approach to Southwest Washington and Clark County in particular, is the ability to create a locally managed administrative mechanism to manage funds and contract for services.

As written, Ecology is shifting resources in the form of revenue from local agencies to a statewide Ecology-managed monitoring effort. Clark County has made a significant investment over the last decade in status and trends monitoring in local streams. Currently the permit has no option to leverage or even continue this program to meet new requirements, but requires that we either add to the existing program or divert resources. Ironically, when we received the Phase I 2007 permit, with its extensive monitoring requirements, the County and other Phase I permittees unsuccessfully appealed the requirements to the PCHB. Consequently, Clark County has invested considerable money in equipment and staff to establish the prescribed program. Now Ecology proposes to discontinue that program, thereby rendering much of our investment over the past several years of questionable value for future monitoring.

The net effect of the proposal would be to take monitoring resources away from permittees, shift them to Ecology and add a layer of overhead to manage the new Ecology-administered program. Furthermore, we have considerable concerns that the potential for shifting strategies significantly every few years as Ecology revises permit requirements will lead to inconsistent data and end valuable ongoing local efforts.

Thank you for the opportunity to provide input for the development of the next NPDES permit. If you have follow-up questions, please contact Rod Swanson at 360-397-2121, extension 4581.

Sincerely,



Ron Wierenga
Clean Water Program Manager
Clark County, Washington

Attachment

cc: Kevin J. Gray, P.E., Environmental Services Director
Rod Swanson, NPDES Permit Manager
Peter Capell, P.E., Public Works Director
Marty Snell, Community Development Director
Oliver Orjiako, Community Planning Director
Christine Cook, Deputy Prosecuting Attorney

Clark County Low Impact Development and Monitoring Preliminary Draft Permit Language Comments

Attachment

Phase I Permit Language

Phase I Permit Section	Phase I Permit Page	Suggested Change or Comment	Basis
S5.C.5.iii.(1)	3	The guidance manual cited as the standard for review process is not available for comment. This makes it difficult to make a meaningful response.	
S5.C.5.iii.(1)	3	Mandatory LID that includes land use and other code changes is not appropriate.	Requirements for LID go beyond stormwater code into areas not regulated under an NPDES permit such as roof designs, road widths and frontage improvements.
S5.C.5.iii.(2)	3	Drop the requirement for a report with the third year annual report.	The report submittal with the third-year annual report (March 2015) does not appear to accomplish anything because all of the code and process revisions will have been put in place by August 2014. This information would be a step in the code revisions process, not a product of it.
S5.C.5.iii.		The cost for code revisions will be very large. There is no example of the cost to a medium or large municipality that has implemented mandatory LID. The cost to implement mandatory LID is itself a feasibility question for the permittee. Ecology should focus on LID implementation where it is currently	

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		<p>feasible under current development code.</p> <p>A more practical approach would be to require a minor code revision to mandate the use of standard LID BMPs by application of the stormwater manuals. Once this is done, actual development projects during the permit term will identify actual barriers. This could lead to the ability to complete a detailed description of the code and process changes needed to more fully implement LID.</p>	
S5.C.5.b.iv.	4	24 months is too short of a time to adopt such a major development code revision.	Under the 2007 Phase I permit, permittees needed longer than this, in some cases years, to adopt and implement manual and code revisions. As written, the permit will require extensive community education in order to successfully implement LID requirements, underscoring Ecology’s responsibility to demonstrate AKART where applicants are largely unaware of LID principles.
S5.C.5.b.iv.	4	16 months is too short of a time to draft such a major development code revision.	Public involvement for revisions to numerous codes and procedures could take a great deal of time and run into unanticipated problems and competing needs.
S5.C.5.b.v.	4	Do not include specific requirements for inspection of non-engineered LID BMPs installed for small projects where only MR 1-5 apply.	Maintenance enforcement for small project MR 5 practices such as rain gardens will be a problem. Currently, there is no requirement to inspect BMPs not built under MR 6 and 7.

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			<p>There are at least two major concerns: Authority to inspect the on-site BMPs and the work effort to inspect and enforce at the individual home scale.</p> <p>Public education to maintain these practices could be a major permit activity.</p>
S5.C5.c.	6	Drop the required watershed planning.	<p>Land use planning should not be part of a municipal stormwater permit.</p> <p>This goes beyond the intent of the PCHB to a prescriptive approach similar to an EIS for a comprehensive plan change. The PCHB did not specify mandated basin planning or watershed plans.</p> <p>Water Quality plans a more properly completed under a TMDL that goes beyond stormwater to other pollutant sources. Measurable targets should be load allocations and waste load allocations in a TMDL.</p>
S5.C5.c.1.	6	The 80 acre threshold is too small.	A UGA expansion of 80 acres is relatively small.
	6	UGA expansions in Clark County are conducted by the county. This could lead to situations where there are multiple watershed scale assessments during a comprehensive plan update.	In a county with seven UGAs for cities or towns, the requirement could lead to performing multiple assessments during a permit term. For example the Vancouver UGA includes parts of at least five drainage basins with areas between 2 and 40 square miles.
S5.C.5.c.1.	6	If this approach is applied consider using conversion the primary zoning of rural to the primary zoning of urban.	Use of total impervious area is problematic. Often, accurate empirical measurements of impervious area are lacking. Secondly, estimating impervious area

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			<p>created by land use actions is likely to be done by projecting typical TIA values for the proposed new land use area. Thirdly, with the proposed LID requirement, much of the impervious area will be only non-effective or partially effective.</p> <p>Land use planning and zoning are complex, including rural centers outside the UGA and zoning overlays. The zoning complexities could make interpretation of land use actions ambiguous and difficult in the context of the permit language. Numerous small actions in several areas of one watershed could trigger significant planning requirements.</p>
S5.C.5.c.2.	6	<p>Ecology must provide detailed guidance on what is required for watershed-scale planning before including it in a permit. The guidance should be vetted through a process similar that used to create the SWMMWW.</p> <p>Do not include watershed-scale planning in the permit until a well-defined method is available. This method should be tested and its limitations and level of effort understood.</p>	Including complex technical and public involvement requirements lacking a precedent or clear guidance is not appropriate and may lead to failure, wasted effort, and non-compliance.
S5.C.5.c.2.	6	If the watershed scale planning is done, it should include a process that could more simply lead to the no impact or no significant impact finding without a full	

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		blown analysis. This could include a checklist of topical areas where stormwater impacts could be evaluated as significant, insignificant or none are expected based on existing land use regulations (e.g. GMA and SMP) and stormwater management under the permit.	
S5.C.5.c.2.	6	Remove the requirement to use computerized water quality models.	It is unlikely that there are models the have the accuracy and precision to simulate small changes in watershed hydrology or water quality (much less beneficial use impacts) due to urbanization of a small portion of the watershed. Ecology needs to demonstrate that models have been affordably used for an analysis as detailed as this.
S5.C.5.c.2.b.	7	Ecology should clarify if this requirement will be equivalent to a basin plan under section 7 if Appendix 1.	The watershed-scale planning could have an impact on basin planning actions.
S5.C.5.c.2.c.	7	Targets are verging on TMDL waste load allocations measured by a monitoring program.	Receiving water targets as examples provided in the explanation would be difficult to link to specific stormwater actions. Trends in targets would also be very difficult to measure.
S5.C.5.c.2.c.	7	Required actions should be defined if a permittee reports a target is not met.	
S8.	General	While promoting collaborative regional monitoring efforts is a worthwhile goal and one Clark County has embraced for some time, there still needs to be consideration of the needs of individual permittees. Receiving water monitoring for the primary	

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		purpose of characterizing regional conditions is of little use to a permittee if it does not happen to be in an area of interest for their stormwater management program.	
S8.A.3.a.	8	Revise the permit to have S8.D. monitoring conclude at the end of the 2012 water year.	Permittees may have incomplete water years the first year of sampling. This would avoid collecting an entire water year of samples to make up for one incomplete water year.
S8.A.3.e.	9	Have the permittees submit one report when work is completed for each monitoring project.	Annual reporting during projects is very time consuming. Simply reporting status as progress reports should be adequate for permit compliance.
S8.C.	9	Remove Clark County from the list of permittees who pay into the collective fund.	Clark County was not one of the Puget Sound Basin permittees represented on the SWG who made the recommendation, and does not agree with it.
		Phase I permittees should be allowed the option to participate in a regionally administered program or, considering the limited number of phase I permittees and their individual circumstances, establish their own programs consistent with regional goals. The significant permit-area and authority allows phase 1 permittees to contribute to regional goals without broad participation of phase 2 permittees.	<p>Phase I permittees have the capacity to perform receiving water monitoring and effectiveness monitoring.</p> <p>Permittees have substantial investment in stormwater monitoring infrastructure that should be leveraged to perform effectiveness experiments.</p> <p>Phase I permittees have developed data management and reporting systems to manage stormwater data.</p>
		Consider ramping-up a regionally administered monitoring program as an alternative to the current proposal.	Ecology worked with Puget Sound stakeholders for several years to develop the proposed program and identify an independent entity to manage the regional program.

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			Southwest Washington permittees have had little opportunity to begin to plan a regionally administered monitoring program. They are overwhelmed with meeting current permit requirements.
		Using Ecology as the administrative entity for Southwest Washington monitoring introduces an unneeded layer of overhead.	If monitoring projects are conducted by permittees under interlocal agreements, no separate administrative entity is needed to collect funds from permittees and manage monitoring contracts. The cost of this administrative layer will be a significant diversion of funds to actually manage stormwater.
		Consider a proposal from SW Washington permittees to allow them to pursue their own approach to meeting status and trends monitoring using a set of index sites inside permit areas.	Southwest Washington permittees generally agree that a locally administered monitoring approach is most appropriate for status and trends monitoring within the permit areas.
		Consider individual effectiveness monitoring proposals from Clark County and other permittees not part of the Puget Sound SWG.	Clark County has a significant investment in state of the art monitoring equipment, training, built-up institutional knowledge, data management systems and reporting tools that should be leveraged for permit effectiveness monitoring. It is good public policy to build on the successes of the current permit.
		Consider that permittees are conducting monitoring for purposes other than the NPDES permit that can be used for status and trends if data are comparable.	

Phase I Permit Appendix 1 Language

Section	Page	Suggested Change or Comment	Basis
Sec. 2	3	<i>Effective Impervious</i> – Consider including dispersion through other vegetated surfaces besides native vegetation in allowing as non-effective.	Vegetation other than native vegetation is commonly found in rural areas of the Northern Willamette Valley Ecoregion (most of Clark County outside of the Cascade Mountains). Pasture-like fields are common, as are mixed vegetation other than native.
Sec. 2	3	<i>Hard Surfaces</i> – Adding yet another type of surface leads to confusion by the manual user.	
Sec. 3.1.	8	The first two sentences of the added paragraph are not clear. Figures 3.2 and 3.3 would apply to any development project, not just subdivisions. The second sentence includes the word “sale”. The sale of property does not create a triggering development project, it only transfers ownership. Clark County uses the term site plan review for non-subdivision development projects.	
Sec. 4.1.	13	Preserving native vegetation as a stormwater code requirement will be generally infeasible for rural area projects. For areas outside the UGA, vegetation retention should simply reference GMA regulated critical areas and Shorelines for rural residential and agricultural projects.	Rural lot sizes are large and are generally fields, brush, and sometimes forest. Enforcement in rural areas will be very difficult once plans are approved and the project is completed. The adoption of a native vegetation retention requirement will create powerful opposition to stormwater code revisions in general.
		Minimum requirements are very challenging to apply to individual residential projects in rural	

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		areas. Manuals such as the WSU rain garden manual are best used by persons who are voluntarily building a rain garden. Providing such a manual when the rain garden is mandated will require the permittee to also provide case by case technical assistance at tremendous cost.	
Sec. 4.1.	13	The stormwater manual should include a separate site plan preparation section (in Chapter 3 of Volume I of the SWMMWW) for smaller projects that only trigger MR 1 - 5.	The language in the manual is for larger development projects that produce engineered designs.
Sec. 4.2. MR 2-12.a.	19	The requirement to protect and restore stormwater LID BMPs should extend to all stormwater infiltration facilities.	Infiltration facilities must be protected from sediment. Clark County requires “sacrificial” infiltration facilities on projects using class V injection wells.
Sec. 4.2. MR 2-12.c.	19	Protecting permeable pavement may require special measures to prevent sediment from being deposited on porous pavement during adjacent construction. Maybe it should be covered during construction? What is the recourse if sediment is allowed to cover porous pavement?	It is improbable that construction projects can prevent tracking or sediment transport onto porous pavement if it is used for access roads or in development projects with post-pavement construction and earthwork.
4.5 MR 5	20	Revise the “ <i>Project Thresholds</i> ” section to be easier to follow thresholds and requirements.	The manual lists required LID BMPs, not thresholds.
		Change the name of MR 5 to Low Impact Development BMPs.	The term On-Site Stormwater Management encompasses the entire SWMMWW because BMPs are not allowed offsite.
4.5 MR 5	20	Drop the requirement to use porous pavement	Many people already use pavers to build patios,

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		for smaller projects.	<p>walks and driveways for a variety of reasons such as appearance and ease of installation.</p> <p>Porous pavement is not broadly available to individuals who build small projects and therefore should not be considered AKART.</p> <p>Municipalities may not even have requirements to use pavement on driveways. Would the permit add the requirement to pave with porous pavement instead of using gravel?</p>
4.5		Standard infiltration practices such as infiltration trenches and drywells should be included as optional LID practices for hard surfaces and landscaped areas. The project would still need to apply MR 6 as required by the permit.	The environmental outcome of runoff reduction is accomplished with equivalent or better effectiveness when traditional Class V systems are used. Depending on site conditions, cost for traditional buried infiltration facilities could be less than LID features.
4.5. MR 5	22	The performance standard is not appropriate for most projects outside the UGA that create/replace greater than 10,000 hard surfaces. These will, for the most part, be large-lot individual homes where the checklist approach (and simpler practices) is most appropriate.	It is very challenging to require engineered stormwater plans for rural home construction or agricultural building projects.
4.5.	22	Regarding city limits vs. UGA as the boundary for non-GMA counties. This might be better handled in the definitions where UGA can be defined and the alternative municipal boundary is specified if no UGA exists.	
4.5	22	Do not implement a performance standard that	This performance standard has not been tested in

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		<p>has not been used in any location.</p> <p>Perhaps a simpler standard would be a volume retention standard similar to those adopted in other parts of the country.</p>	<p>the real world. It is not AKART.</p>
4.5	23	<p>Clearly demonstrate the basis for the minimum bioretention facility areas for residential and commercial projects.</p>	
4.5.		<p>Ecology should use caution when adding stormwater functions to structural elements designed for other uses (roofs and roads). Consider that proven and effective stormwater management technologies can provide the same environmental outcome as LID alternatives.</p>	
4.5	23	<p>Green roofs should not be considered as AKART.</p>	<p>Green roofs are not widely available or used in the Pacific Northwest. Depending on many factors, green roofs may have limited value in meeting the permit objective to reduce runoff.</p>
4.7 Thresholds	28	<p>Consider dropping the 0.1 cfs (and new 0.15 cfs) increase thresholds.</p>	<p>Projects under 10,000 square feet hard surface may include permeable surfaces. All projects will use LID to the extent feasible. Any project over 10,000 square feet hard surfaces will use the WWHM.</p>
4.7	29	<p>The last item in the standard flow control requirement states that it is waived for sites that reliably infiltrate all stormwater. This should include only flows up to the 50-year pre-developed forest flows. Flows beyond the 50 year flow are not subject to the duration standard.</p>	

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4.9	31	Drop the last sentence about keeping a log of maintenance activity.	Sites are inspected annually for defects by the permittee. Any defects are already required to be repaired within specified time-frames.
8.I.A.	33	Consider planned underground utility interference for bioretention facilities.	Bioretention facilities concentrate runoff for infiltration that could interfere with planned utilities.
8.I.B.	35	Clarify whether areas subject to enhanced treatment would be infeasible for permeable pavement.	High pollutant loads to groundwater and soils might be a concern for these areas. These types of uses would also probably be poor sites for permeable pavement.
8.I.B.	35	Include consideration of life cycle costs in application of permeable pavement.	In its 2008 phase I ruling, the PCHB noted that AKART included technical and economic feasibility. Preliminary information from observations of existing installation suggests that permeable pavement has a much shorter life cycle than conventional pavement. Instead of maintenance and repair, failing permeable pavement must be replaced, greatly adding to life cycle costs.
8.I.B.	35	Consider interference with planned utility placement for feasibility.	
8.I.B.	35	<p>See WSDOT publication: WSDOT STRATEGIES REGARDING PRESERVATION OF THE STATE ROAD NETWORK, A Report to the State Legislature in Response to SB 6381.</p> <p>This assessment suggests that permeable pavement should be limited to areas with little or no vehicle traffic until the time when it is</p>	<p>“Permeable pavements by design contain a significant volume of air voids in the pavement (holes in the pavement). The necessary air voids reduce the strength of the pavement and reduce the pavement’s ability to resist loading from high traffic volumes or from truck traffic. The infiltration of water into the soil below the pavement structure reduces the soil strength, again reducing the pavement’s ability to resist</p>

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		verified that surfaces are durable.	loading from high traffic volumes or from truck traffic. For these reasons most applications of permeable pavement are on facilities with no vehicle traffic (bike lanes, pedestrian paths, sidewalks, areas of parked traffic (parking lots) or areas of very low speed, very low-volume traffic (residential streets).”
8.I.b.	35	Feasibility of native soil should be considered based on geotechnical constraints for supporting pavement.	
8.I.C.	36	Use some type of cost analysis for green roof feasibility as a stormwater BMP rather than its overall environmental benefit.	Stormwater management is only one benefit of green roofs, which for example reduce heat islands in urban areas and make buildings more energy efficient.
	36	Demonstrate that green roofs are suitable as a mandated stormwater practice in the Pacific NW, where most of the rain occurs outside of the growing season	As is the case with stormwater harvesting, green roofs may have relatively small value compared to cost in a region where most of the rainfall occurs outside of the growing season.
8.II.	36	Competing needs could include: <ul style="list-style-type: none"> • source control requirements under NPDES permits and other environmental regulations • state road standards • groundwater protection standards including state and local well head protection areas and federally designated sole source aquifer rules • financial concerns for building economical low-income housing 	

Monitoring Funding Agreement

Section	Page	Suggested Change or Comment	Basis
Background section	1	Change description of Stormwater Working Group to “a formal committee of Puget Sound area stakeholders.”	The program was entirely conducted in the Puget Sound Region and included only Puget Sound Region permittees.
Cost overruns	2	Delete the waiver for cost overruns.	If Ecology is overseeing the contracts, then Ecology should be responsible for cost overruns by contractors.
Contingency fund	2	If there are contingency funds, they should be released only after approval of permittees.	
Excess funds	2	Ecology’s timeline should be shorter than six months for return of excess funds.	Municipalities normally have 45 days to pay invoices.
	4	References to the SWG and the Regional Stormwater Monitoring Program should be referred to as the “Puget Sound Regional Stormwater Monitoring Program”.	
Ecology Tasks 2.	4	Requiring permittees to submit applications through a competitive process to win back funds contributed to Ecology under the permit is not appropriate.	Ecology should support ongoing monitoring programs established by permittees and minimize any diversion of resources away from permittees.
Ecology Tasks 2.	4	The administrative cost and tasks associated with Ecology oversight of contracting introduce significant delays in actual on-the-ground monitoring (e.g. 3 years are required for ramp-up tasks). Consider dropping the pay-in approach in favor of individual permittees performing monitoring.	The end goal of permit-related monitoring is to acquire timely, useful data on stormwater management questions. The pay-in option sacrifices timely monitoring implementation in favor of additional administrative tasks.
Contractor Tasks 1.a.ii	6	The suggested SW Washington probabilistic sampling approach makes establishing a strong	

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Section	Page	Suggested Change or Comment	Basis
(SW Wash)		'connection between in-stream conditions and stormwater inputs' difficult. Index or targeted sampling should be encouraged for this purpose.	
Contractor Tasks 1.b (SW Wash)	6	While 30 sites may be needed for a probabilistic study, that number is not needed if a different design based on index sites is used. Reduction in the number of sites by use of index sites will provide needed data with fewer sites.	
Contractor Tasks 1.b (SW Wash)	6	The proposal does not provide data at a scale or in locations pertinent to local stormwater management. It does not provide a powerful means of detecting trends, and fails to leverage robust, existing long-term trend programs.	<p>The probabilistic approach provides status information, but only at the WRIA or regional scale, and only answers questions at a broad scale, e.g. what percent of 3rd order streams are impaired?. Trend detection will be slow and have limited power.</p> <p>Permittees require information at a local scale and at selected locations to inform stormwater management. Clark County's program has 10 years of data and provides the immediate opportunity for trend detection.</p>
Contractor Tasks 1.c (SW Wash)	6	<p>Clark County has data management systems in place sufficient to handle SW Washington status and trends data.</p> <p>Ecology's EIM database and the King County benthic macroinvertebrate database are reasonable locations for the permanent storage of RSMP data. No new data management systems should be created</p>	There are sufficient existing data management platforms available. Creation of any new systems specific to NPDES monitoring data is inefficient and redundant.

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Section	Page	Suggested Change or Comment	Basis
		for SW Washington data.	
Task 1.d.	6	There is a limited need to evaluate sites in Clark County.	Clark County currently operates stream gauges at or near 7 of its 10 Index Sites.
Source Library	7	Ecology should be taking this action as a permitting agency for air and water pollution.	Ecology should have pollutant source and data information related to IDDE implementation and suggest product substitutions or bans.

Phase I Permit Explanation Document

Section	Page	Comment	Basis
General		Ecology should provide a stronger basis for permittees to be confident new requirements in the permit are available, known, and reasonable. Reasonable includes technical and economically feasible. Available means the practice is readily available to the county and end users, such as project proponents required to use it. Known means that the practice is known to work.	
Watershed-scale SW Planning	12	Clearly explain how the permit requirement addresses the PCHB ruling and previous comments on the 2005 SWMMWW that note watershed-based approaches are needed.	Watershed scale land use planning is beyond the scope of an NPDES permit, which should not include EIS-like requirements triggered by a Growth Management Act-regulated activity. If land-use planning decisions trigger an EIS for stormwater impacts, that should be part of the GMA regulations at the state level.
MR 5	7	Ecology should explain why rural residential	It is not unusual for rural residential

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Section	Page	Comment	Basis
requirements		projects are required to meet the LID performance standard while urban projects are not.	projects to create more than 5,000 square feet of hard surfaces on lots that are several acres in size. The need for an engineered stormwater design meeting the LID performance standard seems excessive in these cases.

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