

**SENT VIA ELECTRONIC MAIL**

February 3, 2012

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

**SUBJECT: City of Olympia Comments on the Draft Western Washington Phase II  
Municipal Stormwater Permit and Draft Western Washington Stormwater  
Management Manual**

We appreciate the opportunity to provide comments on the drafts of the Western Washington Phase II Municipal Stormwater Permit (Permit) and the Stormwater Management Manual for Western Washington (Manual). We have included detailed comments in enclosed table. Our more general feedback regarding implications of the draft documents is provided below.

Reconciliation with Other Local Mandates

We understand the importance of stormwater management and actively support the research and implementation of more effective techniques. Through the permit, Ecology provides guidance on mitigating stormwater impacts with new analytical and construction techniques. While these new techniques (e.g. hydrologic design, low impact development) are promising, the various implications of their implementation have not been reconciled.

The new techniques are substantial changes to the historical approach to stormwater management. In addition to defining the stormwater benefits of new techniques, Ecology needs to incorporate the implications to existing legal, financial and community realities. How will more rigorous and dispersed stormwater management systems fit into the already complex urban human landscape? To date, this body of comprehensive understanding and work has not been adequately pursued. Failure to successfully reconcile the requirements of the permit, especially low impact development, with other municipal mandates and practices would result in stormwater management failures. We recommend more municipal involvement in the analysis of urban-scale land use interactions and their reconciliation. Municipal practitioners can provide expertise on the technical, legal, and community interactions and challenges associated with urban-scale development.

Low Impact Development

Some of the requirements, especially related to low impact development, require a level of project review and inspection oversight that will exceed the availability of municipal staff. The City of Olympia has experience with the design and implementation of alternative development techniques. We understand the level of resourcing and project-specific commitment needed to effectively implement these new and challenging techniques within urban development settings.

We are not confident that the performance standards for low impact development are achievable.

Our experiences include successes when an exceptionally high level of staff and technical resources are directed at the design and construction of alternative projects, as well as technical and community failures due to the lack of resourcing. Broadly mandating these techniques may well lead to substandard project design and implementation failures. The private sector will be similarly challenged.

Most of low impact development projects require highly site-specific design, construction, and maintenance. Even relatively simple factors such as storm event volumes and associated facility sizing varies widely up and down the I-5 corridor. The implications of the permit requirements for low impact development vary considerable between jurisdictions due to soil conditions, precipitation volumes and intensities, and current levels of development. What may be readily feasible for one community may be highly unlikely for another.

We recommend additional work to define the development scenarios where low impact development can be feasibly implemented with more or less current resourcing. A checklist approach, potentially adaptable by local jurisdictions, would be helpful.

While the City supports low impact development, we are also directly responsible for minimizing and managing community and environmental risks, infrastructure failures, and public liabilities. In time, we hope that our experiences and technology will have improved to the level that we feel comfortable constructing LID systems in Olympia on a broad scale. At this point, we feel the number of unknowns associated with LID technologies poses significant risk for future failures and unexpected operational and maintenance costs.

#### Maintenance Expectations

Maintenance of stormwater systems, as presented in the permit, will become a major public and private responsibility. The resources needed to inspect and maintain facilities and pipe system maintenance are not adequately acknowledged by the draft permit. The City currently provides what we consider to be a high level of maintenance for publicly-owned systems. We are concerned about additional maintenance expectations without a tie to anticipated environmental benefits. Even the simple visual inspection of catch basins necessitates labor and equipment-intensive system cleaning. We question the need to inspect stormwater systems at the proposed increased frequency especially since the water quality benefits of the increased frequency are not likely to be appreciable.

Maintaining low impact techniques has appreciable unknowns. Feasible location of the techniques relative to the public right-of-way, maintenance needs and responsibilities, and life cycle costs are among a list of current uncertainties. We are concerned about the requirement to use these techniques without an understanding of their long-term operational needs and how those responsibilities will be fulfilled. The mandated use of these techniques by the permit raises a level of regulatory and financial uncertainty that is atypical of municipal infrastructure decision-making.

Some low impact techniques require the knowledge and support of the adjacent neighborhood members. Based on our experience, the needed level of support may be difficult to attain. Assuming high level of community participation may result in inadequately maintained facilities and subsequent unintended environmental impacts. Preferably, low impact technologies could evolve and become less dependent upon potentially unrealistic maintenance.

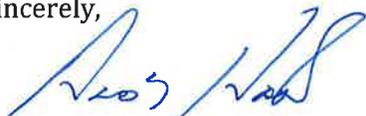
We encourage additional refinement of alternative development techniques that can be utilized within the public right-of-way, while providing manageable levels of maintenance and life cycle certainty. Permeable pavements, both concrete and asphalt, have great potential. Industry standards for their use would be very helpful to municipalities.

#### Water Quality Monitoring

Olympia, in concert with Thurston County and the cities of Lacey and Tumwater, supports a regional water quality monitoring program. The program has been in place for almost two decades. We utilize this locally generated data in our environmental decision-making processes. Given limited funding, we are unable to continue to fund our successful, existing program and also pay into the new regional status and trends monitoring program. In fact, none of the proposed monitoring sites are located within Olympia city limits. Unfortunately, the "opt-out" option provided in the draft permit is far too difficult and costly for the City to comply with individually, and we are saddened that we will lose our existing program and Olympia specific data for a generalized, regional program. We support regional collaboration for effectiveness studies.

Thank you for considering our comments. Please feel free to contact me at 360.753.8475 with any comments or questions.

Sincerely,



**ANDY HAUB, P.E.**

Planning and Engineering Manager  
Public Works Water Resources

AH/lmm

\\Calvin\pw water resources\SSW Planning & Implementation\0-Staff\Andy Haub\NPDES\NPDES Draft Comments\AH\_City Comments to NPDES Phase II Permit\_02-03-12.docx

Enclosure

cc: Rich Hoey, Interim Public Works Director  
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Comment Number	Document	Page	Line Number or Section	Comment
1	Permit App I	2	6	Provide a more thorough definition of "bituminous surface treatment."
2	Permit	80	41	"UGA" is used throughout the permit, but is not spelled out. It should be defined.
3	Permit	General		Cost benefit analyses are warranted to evaluate capital costs, life-cycle costs and potential impacts to property values and to determine the effects of both the draft permit and the 2012 SWMMWW. The cost benefit analyses should have been available for comment during the permit review cycle. We have not had the time or capacity to evaluate fully what the proposed LID requirements will mean to our rate payers. We need to evaluate the future maintenance, repair, lifecycle and failure costs associated with the use of LID techniques.
4	Permit	General		Between the draft Western Washington Phase II Municipal Stormwater General Permit, 2012 Stormwater Management Manual for Western Washington, Draft 2012 Low Impact Development Technical Guidance Manual for Puget Sound, and Integrating LID into Local Codes: A Guidebook for Local Governments there are nearly 2,000 pages to be reviewed. Additionally, several of the documents are incomplete. Given the extent of the documentation to be reviewed, the incomplete status of the documentation and the potential impact on permittees, the review period has been inadequate.
5	Permit	13	15-23	S3 should be modified to relieve permittees of the responsibility for permit compliance if another entity fails to implement those permit conditions related to the regional stormwater monitoring program.
6	Permit	22	6	A definition for "land use" needs to be provided in S5.C.3.b.iv.
7	Permit	23	21	With Class A reclaimed water increasingly available, it should be addressed as a conditionally allowable discharge for street cleaning, etc.
8	Permit	26	footnote	The section cited in Footnote 14 seems to be erroneous. It should be S5.B.3.c.ii?
9	Permit	29	23	The sections cited in S5.C.4.a seem to be erroneous. They should be S5.C.4.a (i) through(iii)?
10	Permit	29	23-26	S5.C.4.a appears to rewrite laws pertaining to vesting stormwater development requirements. If this is the intent, it should be achieved through the RCW, not the permit.
11	Permit	29, 32	20-26	The permit requires that a drainage manual equivalent to the 2012 Stormwater Management for Western Washington be adopted by December 31, 2015 and that applicable LID friendly codes and standards be adopted by December 31, 2016. Is it correct to assume that there may be a one-year window where codes and standards conflict (competing needs) with LID implementation?
12	Permit	32	19-23	The requirement to perform inspections bi-annually until 90% of lots are constructed is not realistic. There are several 10+ year old developments (particularly 3 and 4 lot plats) in Olympia that are not 90% built out. Inspections should either be limited to periods of construction based on active permits or there should be a time limit of say 5 years for the requirement.
13	Permit	37	1-6	What is the basis for requiring a 2-year inspection cycle for catch basins? The City of Olympia's catch basin inspection process currently involves cleaning the catch basins. If a grate is removed for inspection, the catch basin is cleaned. Using a "sludge judge" or similar inspection method would only add time to the process.
14	Permit	51	3	The permit's status and trends monitoring requirement will consume funds the City currently uses on its existing ambient monitoring program effectively crippling a program that has collected more than 25 years of data on ten streams within the City limits. Not a single stream monitoring location is even proposed within the Olympia city limits.
15	Permit	75	35	The definition of Illicit Discharge states: Illicit discharges include .... infiltration/ exfiltration of non-stormwater that takes place in pipe bedding. This definition is problematic. As written, each onsite sewage system within the jurisdiction would need to be reported. At the time of construction all wastewater conveyance pipes are tested, but after construction, there is no easy way to measure or test for exfiltration. Wastewater conveyances are regulated by the Department of Health. The NPDES MS4 permit is not the appropriate mechanism for regulating wastewater conveyances.
16	Permit App I	1	general	Are LID techniques required to be used in flow control exempt areas? The permit is not explicit. It is recommended that areas exempt from Minimum Requirement #7 also be exempt from Minimum Requirement #5. Would it appropriate to assume this is a justifiable "competing need"?
17	Permit App I	10	table	The City of Olympia's threshold for retrofit of redevelopment sites is currently lower than what Ecology proposes in the 2012 Manual. The City's current threshold is very difficult to achieve at times. Requiring the retrofit to implement LID techniques will make retrofitting existing sites increasingly difficult and in many cases infeasible. This may have significant impacts on redevelopment and land value.
18	Permit App I	22	19-35	The new C-SWPP element for the protection of LID BMPs does not provide sufficient necessary erosion and sediment control BMPs. For instance, the permit states "Control erosion and avoid introducing sediment from surrounding land uses onto permeable pavements." However, no BMPs specific to protecting permeable pavements (e.g. plastic, plywood or matting covers) are not provided.
19	Permit App I	22	36	The permit eliminates the "Erosivity Waiver", however, the waiver remains in the 2012 SWMMWW. Is this the intent?
20	Permit App I	24	1-4	Because the LID standards are to be implemented regionally, it would make sense for Ecology (or WSDOT) to develop the necessary standard drawings for structural road sections, overflow structures, and utility trench check dams and specifications for porous asphalt and pervious concrete.
21	Permit App I	25	36	The type of vacuum street sweepers needed to appropriately maintain permeable pavements are not readily available and are expensive to purchase and maintain. Refer to <i>APWA Reporter</i> , February 2012 edition, page 46. It has also been the City's experience that private property owners rarely adequately maintain permeable pavements.
22	Permit App I	26	28	Bioretention facilities and permeable pavements have significantly higher maintenance costs than conventional stormwater management facilities. In Olympia, property owners are expected to maintain landscaping along street frontages. As has been demonstrated in Seattle, private maintenance of bioretention facilities within the right-of-way is haphazard.
23	Permit App I	24	general	What is the basis for requiring permeable pavements when a thorough evaluation and published results of test cases for permeable/porous pavements is not complete/compiled?
24	Permit App I	24	general	Completion of a cost/benefit analysis needs to be completed to understand the cost implications of using permeable pavements.

Comment Number	Document	Page	Line Number or Section	Comment
25	Permit App I	24	general	In response "Maintenance: 1. Paving" - Permeable asphalt pavement streets will not work for the City's Least Cost Strategy (LCS) for paving. The LCS allows for the repair of pavements when they are in relatively good condition, instead of waiting until the pavement has large cracks and potholes. A pavement condition with a fair or better rating represents the least cost rehabilitation opportunity. Pavements with a poor rating indicate the likelihood of the need for costly structural repair. Permeable asphalt pavement would most likely be allowed to deteriorate to a point requiring the complete removal of the existing pavement and new permeable pavement installed. The rock gallery below the pavement will also need to be evaluated to insure it is not plugged.  The use of permeable pavement will eliminate the use of use chip seal or asphalt overlays for pavement rehabilitation/preservation on streets with permeable pavement. These types of pavement preservation treatments are not permeable. The inability to use these pavement preservation treatments will have a significant negative budgetary impact. Fewer lane miles of pavements could be repaired each year due to the need for more expensive pavement removal and replacement. The overall pavement system rating would decline unless additional revenue sources are secured to offset the increased pavement rehabilitation costs.  Normal pavement patching or pothole filling would likely be completed using standard asphalt.
26	Permit App I	24	general	In response to "Maintenance: 2. Utility installation" - It is likely the installation of utilities in new streets will require a higher level of oversight/installation standard and have potential cost implications due to the way fill is placed around utilities such as sewer and water.  The installation of utilities in a new street after it is constructed will be more difficult and costly due to the restoration required after the installation. Trenches may have a tendency to slough-in and require a wider trench width and restoration. It is unlikely that porous pavement will be readily available for the trench patch. Crews repairing a utility will likely experience these same issues.
27	Permit App I	24	general	In response to "Street Construction: 1. Cost – Cost of construction will potentially increase. Will the cost of permeable pavement and under street rock gallery be of equal or less cost than purchasing property and constructing a storm water pond? Are there substantial benefits for using permeable pavement instead of storm water ponds?
28	Permit App I	24	general	In response to "Street Construction: 2. Strength" – The design standards for streets using permeable pavement will need to be developed to insure the structural integrity of the new street section. The cost implications are unknown at this time.
29	Permit App I	24	general	In response to "Street Construction: 3. Turning at intersections" – The City's experience with permeable pavement in parking lanes indicates that turning tires cause the pavement surface to ravel. The City is concerned that permeable asphalt pavements in intersections would prematurely deteriorate and create long-term maintenance problems. Permeable pavement in intersections may not be advisable.
30	Permit App I	24	general	In response to Sidewalks - The City supports the use of permeable concrete for City constructed sidewalks where conditions are suitable for using this type of concrete.
31	Permit App I	25	36	Permeable pavements are rapidly improving, but long term durability with under pavement infiltration has not been proven regionally in till soils and high groundwater. If permeable pavements are to be mandated, standard specifications for porous asphalt and permeable concrete (mixes, aggregates, etc.) need to be established. Refer to <i>APWA Reporter</i> , February 2012 edition, page 46.
32	Permit App I	25, 26	List #1 and #2	The mandatory lists indicate full dispersion BMP T5.30 should be given the highest consideration for mitigation of roofs and other hard surfaces. As written, this could suggest that if possible, full dispersion must be achieved even if it requires significant changes to site design and lot coverage. If this is not the intent, the permit language should be amended.
33	Permit App I	26	24-25	Ecology needs to provide guidelines for a cost analysis to claim infeasibility of a vegetated roof.
34	Permit App I	37, 38	Section 8.1.A and B.	Bioretention and permeable pavement may not be feasible in fill soils. Typically, fill materials are placed and compacted over significant portions of a development. The fill areas are typically located in the lower portions of a site where stormwater facilities are located. It will be difficult to design stormwater infiltration facilities on fill materials without first doing the construction and then performing infiltration testing. It is suggested that bioretention and permeable pavement be considered infeasible on fill soils.
35	Permit App I	37	Section 8.1.A	Consideration should be given to an infeasibility criteria for bioretention facilities with underdrains that discharge directly to marine waters with deficient dissolved oxygen based on effluent nitrogen concentrations. (Refer to Davis etal 2007 and Hunt etal 2006)
36	Permit App I	37,38	33	Ecology should establish minimum setback requirements from structures for bioretention BMPs from structures. At a minimum, these should be similar to the downspout control BMPs. Relying on local setback requirements could have adverse results.
37	Permit App I	38	26-27	It is indicated that permeable pavements may be considered infeasible in drive aisles of parking lots as long as runoff is directed to pervious pavement parking spaces. However, City staff have witnessed some of the worst raveling of porous asphalt to be in parking spaces where wheels are turned by stationary vehicles and not in drive aisles.
38	Permit App I	38	26-27	If permeable pavements can be considered infeasible in drive aisles of parking lots, why is it feasible for public roadways?
39	Permit App I	38	Section 8	It is assumed that impervious pavements that employ stormwater collection and redistribution below the pavement are functionally equivalent to permeable pavements. This is mentioned in Appendix I, Section 8, but is not made explicit elsewhere. It is suggested that the equivalency be spelled out in the definitions.
40	Permit App I	38	41	It is suggested that permeable pavement be considered infeasible within the one-year groundwater travel area of a wellhead protection area.
41	Permit App I	40	28	The "competing needs" language in permit varies from the language in the 2012 SWMMWW. The 2012 SWMMWW language should include "design codes, standards and rules".
42	Permit App I	40	2	Soils meeting a California Bearing Ratio (CBR) of 5% are considered poor to fair for roadways and should not be considered suitable for residential roads. A CBR value of 7 to 10% should be the threshold.

Comment Number	Document	Page	Line Number or Section	Comment
43	Permit App I	10-11	Section and Figure 3.3	We are concerned that the new requirements for LID for redevelopment projects will make redevelopment much more difficult, which will in many cases lead to an increase in deteriorating buildings and/or push development to greenfields.
44	Permit App II	25	34-37	What is meant by "any wet-weather discharges" in the City of Olympia's requirement to sample discharges from the Taylor Wetland Stormwater Treatment Facility? Previous sampling traced the fecal coliform problem associated with this location back to an illicit discharge from recreational vehicles parked east of Sleater-Kinney Road. If we are able to confirm that the illicit discharge has been eliminated, can the requirement be waived?
45	Permit App X	5	Figure B1	What is the justification for selecting half of the monitoring sites outside of UGA (geographic permit area) boundaries? Not a single stream monitoring location is even proposed within the Olympia city limits.
46	Permit App X	2	32-34	We are very uncomfortable with the provision regarding the City's responsibility for "Cost Overruns". Since we are not responsible for overseeing the contracts for the monitoring work being done and should not be liable for cost overruns. This language in Appendix 10 seems contrary to paragraph 2, pg. 63 of the Factsheet.
47	SWMMWW Vol I	2-34	2.5.5	It is suggested that a flow chart (similar to Figure 2.4.1) be developed for implementation of Minimum Requirement #5.
48	SWMMWW Vol I	G-1		Appendix I-G is not provided with the draft (nor is it in the table of contents). The map titled "Basins Meeting the 40%/1985 Criterion" available at <a href="http://www.ecy.wa.gov/programs/wq/stormwater/flowcontrol.html">http://www.ecy.wa.gov/programs/wq/stormwater/flowcontrol.html</a> does not include Olympia. Portions of Olympia meet the 40% TIA criterion. Please include Olympia in the map.
49	SWMMWW Vol III	2-7	2.2	The updated WWHM is not available to evaluate and determine the impacts of the LID performance standard. The model should have been available for comment during the permit review cycle.
50	SWMMWW Vol III	2-7	2.2	With the updated WWHM unavailable, it is recommended that examples of what is required to achieve the LID performance standard be provided for various site development scenarios on till soils.
51	SWMMWW Vol III	3-68	3.3.4	The manual says "Conduct a preliminary surface and sub-surface characterization study (Section 3.3.5). What is meant by "preliminary"? Will groundwater monitoring throughout a wet season be required for design of a bioretention facility if existing groundwater data is not available?
52	SWMMWW Vol III	3-69	3.3.4	The Drainage Manual eliminates grain size analysis if the site has soils consolidated by glacial advance. The City of Olympia's experience is that the grain size analysis is more conservative (lower infiltration rate) than the PIT test results.
53	SWMMWW Vol III	3-102	3.3.8	The proposed one acre threshold seems arbitrary and may lead to multiple facilities to avoid the modeling requirement. When a mounding analysis is appropriate should be based on modeling results to determine facility size, infiltration rate and depth to groundwater thresholds that do not result in mounding within appropriate setbacks from sensitive structures.
54	SWMMWW Vol III	3-103	3.3.8	Does Ecology anticipate making the mounding simulation software MODRET publicly available? MODRET is currently \$600+ per license. Would MODFLOW be an acceptable option?
55	SWMMWW Vol III	3-115	3.4.2	The PIT test requirement for linear bioretention facilities (1/50 LF) seems challenging. As I understand it, a 1,000-foot road section with swales on each side would require 40 PIT tests.
56	SWMMWW Vol III	3-116	3.4.2	The PIT test requirement for permeable pavements (1/2500 SF) seems challenging. As I understand it, a 1 acre parking area would require 18 PIT tests.
57	SWMMWW Vol III	3-116	3.4.2	It is suggested that LID obligations for individual lots be recorded on the plat. This is probably the best way to document maintenance requirements, but it will be challenging to draft and enforce. It will also likely require that the proposed building footprint also be platted.
58	SWMMWW Vol III	3-117	3.4.2	In response to note, guidance for shallow interflow should definitely be part of Site Planning and Layout. Shallow interflow is not well understood and difficult to regulate.
59	SWMMWW Vol V	7-7	7.4	It is recommended that the bottom of a bioretention facility be defined as the subgrade to avoid confusion.
60	SWMMWW Vol IV	General		It is suggested that a suite of BMPs be listed for common land uses (multi-family, retail, churches, etc.) to help developers of Source Control Plans fulfill Minimum Requirement #3.
61	SWMMWW Vol V	4-50	4.6	Maintenance standards for bioretention, permeable pavements, etc. need to be provided for comment during the review period.
62	SWMMWW Vol V	5-17	5.3.1	Text and graphics for BMP T5.14 Rain Gardens, BMP T5.15 Permeable Pavement and BMP T5.30 Full Dispersion should be completed and available for comment during the review period.
63	SWMMWW Vol V	7-12	7.4	Last paragraph is incomplete.
64	SWMMWW Vol V	7-13	7.4	Provide graphic details for bioretention facilities and overflow structures. Identify the need for a safe overflow route from bioretention facilities.
65	SWMMWW Vol V	7-14	7.4	Reduce the manufactured inert content by weight for compost. 1% by weight is a very significant amount. Photos can be provided if there are questions.
66	SWMMWW Vol V	7-18	7.4	The figures cited should be completed and available for comment during the review period.