

**Department of Ecology**  
**LID Joint Advisory Committee Meeting**  
**May 26, 2011**  
**Federal Way City Hall, 9:30 am to 3:00 pm**

**Meeting Summary**

Introduction and Context – Bill Moore, Ecology

Ecology has released preliminary draft language for an informal comment period. There will be a draft permit for a formal comment period in October 2011. Ecology must reissue permit July 2012, including reissuing the existing permits for one year and at the same time issuing updated permits that go into effect in August 2013. This is the result of legislation under ESSB 1478.

Presentation: Site and Subdivision Scale Requirements Ed O'Brien, Ecology

Ecology's proposal is similar to our proposal from August 2010, except it is in the form of proposed permit language. However, we have made some tweaks and added detail.

- Key features of the site and subdivision scale proposal:
  - Proposes to eliminate the 1 acre threshold for Phase II Western Washington.
  - Appendix 1 has the most changes to implement site and subdivision scale LID
  - We propose to differentiate between "bioretention facilities" and "rain gardens." Bioretention will have more specific engineered guidance. Rain gardens are non-engineered facilities
- Minimum requirements - MR#5 On-site Stormwater Management is location of most changes, including 3 thresholds.
  - In some cases the developer can meet the performance standard or prove meeting LID by implementing LID BMPs from the mandatory list.
  - All projects qualifying for MRs 6-10 must still meet the predevelopment condition, forested or prairie, whichever is appropriate.
  - If a project qualifies for the mandatory list options, the developer can implement these BMPs and need not meet the performance standard. The BMPs are mandatory unless they are infeasible according to criteria (to be discussed).
  - Commercial properties are the only ones requiring a vegetated roof on the mandatory list, or all roof runoff can be directed to infiltrate into the ground under parking lot. Have not assigned an infeasibility cost for vegetated roofs.

Ecology is seeking input especially on question in textboxes:

- What should the soil suitability criteria be for permeable pavement? If not meeting the criteria, should there be an option for installing a treatment layer?
- What should the criteria be for competing needs? Is aesthetics a reasonable criteria, for example, for Pioneer Square? We are looking for examples to inform the criteria.

Clarifying Questions from the Joint Committee on Site and Subdivision Proposal

Q: How can a developer meet flow control on a till site where you know that there will be no infiltration? Do you build whatever LID that is feasible and then fall back to using conventional techniques to meet the performance standard in MR#7?

A: Yes.

Q: So there is no feasibility off-ramp for the performance standard, even if you can't infiltrate?

A: The developer must do everything they can on the mandatory list.

Q: Is the term "site-appropriate development principles" the same as "LID principles?"

A: Yes.

Q: Some confusion regarding the need for a professional in a small project. In MR#5 there is still the requirement for permeable pavement. Is this feasible for small projects? Isn't this the same issue as for the rain garden and the need to have engineering for a small project?

A: Does showing 1 ft to groundwater in small projects add too much to the cost? Comments on this would be helpful.

Q: Does this apply to flow control exempt projects?

A: The proposal is to apply LID to those areas for water quality treatment.

Q: The PCHB ruling refers to protecting vegetation – where is this in this proposal?

A: Achieving that depends on the two other elements: code updates and watershed-scale stormwater planning. This part of the proposal doesn't prohibit it.

Q: Is the bioretention requirement for 7.5% a percent of the total project area?

A: Yes.

Q: Will Ecology provide basic guidelines for a cost analysis of a vegetated roof? Is there a threshold for how much is too much?

A: Ecology does not propose criteria. Local governments would have to make the determination. It would just be a direct structural cost comparison. Ecology would like comments on it.

Q: If you are using the mandatory list, is there no option for a partial permeable pavement? For example, a road could have one lane impervious and runoff to the pervious bike lane.

A: Correct.

Q: Is there a difference between the project site definition and the project definition.

A: Yes. "Project site" is the disturbed area, and "site" is the legal boundary of the parcel. "Project" is the proposed development or land disturbance action.

Q: For bioretention facilities in soils with infiltration of less than 0.15 in/hr, do they still have to do bioretention but with an underdrain?

A: Rain gardens can be built with underdrain. For the question – should it be permissive or required - please comment.

Q: Does "site layout mandated by local codes" in the competing needs feasibility criteria allow a great number of exemptions?

A: Note that this applies only in areas that are already substantially developed.

Q: Regarding enhanced treatment, if bioretention is widespread in the future could you think about requiring enhanced treatment of all stormwater discharging to Puget Sound?

A: This proposal does not contemplate that as part of implementing the PCHB ruling.

Q: Where is the LID site assessment required in the proposal?

A: It is in MR#1 site planning, and is also part of the second presentation on updating local codes.

Q: Is a zero lot line development a reasonable “design” consideration for infeasibility? The competing needs language is vague and extremely broad regarding incompatibility with the existing layout or aesthetics. This could be a big loophole – need to define “aesthetics.”

A: For example, if there is greater than a 15% slope on part of the project site and the rest of the parcel won't work with the design, this could be infeasible. Please recommend revised language.

Comment: I assume that aesthetics has to do with the community vision developed in comprehensive planning for the community rather than the building.

## **Break**

### Advisory Committee Input on Site and Subdivision Proposal

- Regarding infiltration rates and feasibility criteria: I suggest you look at the need, as the infiltration rate goes down, to increase the extent of and the precision required for site assessment. Sites can work with more assessment and design. For example, a good geotechnical analysis with one winter of monitoring well assessment might be needed for the site assessment. Also, please spell out how underdrains can be best used for the greatest benefit. Regarding perm pavement, where there is no run-on, there should be no minimum infiltration rate requirement.
- In all the pieces of this proposal there is no obligation to reduce the footprint and keep vegetation. If a jurisdiction does not want to implement LID, they may do very little. We are left with the obligation for permeable pavement and rain gardens with off-ramps. Vegetation and footprint are at the heart of LID. Also have concern that the performance standard is not applied broadly. The permit should require retaining of vegetation and shrinking footprints.
- Regarding the 1.5 in/hr infiltration rate, as it gets lower, the assessment should look at it after disturbance, such as for permeable pavement. Designing to in situ rates does not account for mounding of water beneath the surface in continuous rainfall events. I would like to see a higher rate before the requirement for an underdrain. The goal is to protect resources and failure will occur with low infiltration rates.
- Please include provisions for facilities that are covered under other permits. For instance the industrial stormwater permit has different requirements, especially for treatment. Local jurisdictions do not understand treatment that is not in the manual. Waterfront facilities provide treatment, and if it's in a different manner, this LID standard should not apply.
- Regarding feasibility criteria for physical constraints, suggest adding that if groundwater is used for drinking water and is only 5 ft below, it should be protected. Infiltration may not be feasible.

- Regarding competing needs, community visions may include urban centers, but the permit should not give carte blanche for that as criteria. The proponent should look at some options to do LID in those areas, even if there are some limits.
- Regarding cost criteria, the language is too vague. The benefits considered may be broader than stormwater. If left up to the jurisdiction it will be challenging. We need Ecology guidance.
- There is room to improve how the mandatory list is integrated into the proposal. Suggest that instead of making it a choice between the performance standard or the mandatory list, it should be called a performance standard with off-ramps. This could simplify the requirement. Also concerned that some might view the performance standard as not meeting the PCHB requirements. For example, if one stormwater basin is used to meet the performance standard. This is more engineering than LID.
- Regarding the feasibility criteria: For bioretention, suggest using the term “separation area” between structures instead of “setback” which has another meaning in many zoning codes. Bioretention could be done in a setback, and should be allowed there.
- Regarding competing needs feasibility criteria: please give more detail. What constitutes the 75% of the parcel that is “substantially developed?” Does this include the street, the block, or a larger area of development?
- Road sections sit on a sub-base that must be compacted to 95%, so how can water infiltrate? Permeable pavement may not be infiltrating. Traffic counts are not as important as what is under the road.
- This proposal moves away from protecting vegetation and reducing impervious surface to moderate engineered infiltration. The original purpose was to require the most LID for a project via the performance standard. Now the performance standard is not required in the UGA. The approach shifts more to exemptions in the feasibility criteria and away from the performance standard.
- The Puget Sound basin is now down to 58% forest cover. Stable streams need 65% forest cover. We should move into the real world and shouldn't have any more greenfield development. Ecology cannot stop development, but should acknowledge a real standard for the watershed and build it into the development code. The PCHB said LID is AKART. This proposal kicks the responsibility down to the local jurisdiction. This is not best available science. Ecology could take a risk and come up with a real standard and have a real public debate. We have a lot at stake.
- My jurisdiction's roads group is concerned about the permeable pavement in terms of the life cycle costs. These costs are unknown. They want to pave travel area sections of the road and let run-on from the impervious areas drain to the permeable lanes along the side – like bike lanes. They are nervous about how it will perform in the long term. We'd like more options for roads. We are not sure how the performance standard will work, and how achievable it is.
- Because Bremerton had such high costs for CSOs, we have embraced the LID. We support moving forward on LID. We have projects underway and will learn from our mistakes. There is no perfect

plan, it won't all work. Let's get on with it, take the last round of comments, and try to implement it.

- In my jurisdiction a major project has failed, and I would hate for LID to fail because we are forcing it where it shouldn't be done. Our failure occurred in soils with infiltration rates of 0.2 and 0.3 in/hr. I suggest that if the initial test is less than 1 in/hr there should be more intensive assessment. Winter monitoring wells didn't work – we did that but they were too deep. We didn't find the interflow. When the infiltration rate is less than X, there should be more intensive assessment. From X to Y some bioretention is ok. Otherwise, require bioretention and allow underdrains. The performance std is based on infiltration, so if we can't use the mandatory list, we still can't infiltrate. We need more clarification for what to do when that happens.
- LID is always site-specific. It should not be forced where it doesn't belong. Do it right and the marketplace will embrace it.
- Regarding permeable pavement and feasibility, I recommend the Seattle manual's consideration of perm pave receiving run-on vs not receiving run-on. If not, then there should be fewer restrictions, such as less depth to groundwater.
- Need more specifics on feasibility criteria and where they apply. Also need more specific in requirements to show where permeable pavement should be used. Adding an additional filtration layer if it's a pedestrian plaza doesn't seem necessary.
- Bioretention – Regarding “may” use an underdrain, it should only be a requirement when runoff requires treatment.
- Treatment – LID was originally developed to treat stormwater. This proposal needs to recognize the treatment benefits more. A related topic is whether we need enhanced treatment for all stormwater runoff to Puget Sound.
- Amend MR#1 to refer to “LID development principles.”
- Look into the costs for vegetated roofs, but also include the whole range of benefits. Regarding utilities and competing needs, this is not always a technical problem but a perception. Recommend looking further into whether this is actually a problem before including it.
- MR#5 should require use of LID principles before allowing BMPs on small sites.

#### Public Comments on Site and Subdivision Proposal

- Is the standard Maximum Extent Practicable or AKART? Have concern about list of exemptions. A sizeable area is exempt. Forest to pasture conversion is the cause of the greatest decline in watershed health. The performance standard seems backward. Instead of starting with the big storms, the standard should be zero discharge and no net loss of forests or native vegetation. Then meet that standard. The exemptions allow stripping the forest. Would like to see a requirement to retain or replace soils.

- Concerned about the list of exemptions. Would like to see more mitigation required and limits on the types of projects that can be approved under the feasibility criteria.
- The building community has concerns about maintenance and operations of facilities. Is it a responsibility of the private developer or the public? This is a major problem. If it is the developer or home owner associations, this is a big issue. Another issue is utility placement. Utilities do not want permeable surfaces over their facilities. If this is required, it puts the developers between a rock and a hard place.
- Please clarify the distinction between bioinfiltration and rain gardens, which Ecology has said is engineering. Rain gardens are for a single family residence and has a lower standard. Do cities need to consider these as flow control facilities for maintenance under the permit?

Ecology response: Good question. Maybe no, because the downspout runoff is not now in the local government maintenance requirements, and that dispersion isn't really considered a "facility" and does not require maintenance. But it's a good question – who will track the rain garden for single family residences?

- If Ecology identifies pervious pavement, rain gardens, bioretention as flow control or water quality treatment, then these are facilities. Local governments need to ensure they function properly if they drain to the MS4. These means inspection, enforcement, maintenance. We now inspect for physical structure, not function – that is years up the road.

Ecology response: The local government does need ensure long-term maintenance for them where we rely on them under the model for flow control or treatment. Where the project does not trigger flow control or treatment, there is no maintenance requirement.

**Presentation:**

Updates of Codes, Rules & Standards – Ed O'Brien, Ecology  
Watershed Scale Requirements – Harriet Beale, Ecology

**Clarifying Questions on Code Updates and Watershed-scale Proposal**

Q: If a jurisdiction elects to consider a watershed scale plan without the trigger action, can we do it optionally?

A: Yes, Ecology would encourage advance planning for a larger area of growth. There are some projects underway funded by EPA with some state funding that can serve as pilot projects.

Q: Regarding the LID guidebook for updating local codes developed by the Puget Sound Partnership, the past focus of the PSP has been in assisting those jurisdictions that would do it voluntarily. Now we are moving forward with requiring LID. Does the guidance reflect that change?

A: Yes – the codes in would often say "may" rather than "require," but this guidebook is about how to implement requirements rather than permissive regulations. The draft will be on the PSP website on June 1.

Q: For the basin planning, more guidance is needed to draw watershed boundaries and identify triggers. Will there be guidance on appropriate targets? What are the consequences of not meeting them? These topics need more clarity.

A: The size of the watersheds is between 2 and 40 square miles, which varies with the landscape. It can't be too big for this type of analysis. Much of this information is in local government GIS layers now. We looked at a number of watersheds in urbanizing areas and most were in this range. The other option would be for Ecology to set arbitrary boundaries. Regarding the targets, the jurisdiction must meet water quality standards, and the consequence is a permit violation.

Q: How strict is the 2 to 40 square miles? We have basins of about 74 sq miles that have subbasins of 6, 25, and 27 square miles. Do we analyze those sub-basins?

A: Yes. We assume that jurisdictions will apply this to watersheds that they would normally study and regulate.

Q: Concern that the code issues are a little soft and too flexible. Does the guidebook establish basic minimum requirement thresholds? How does the local government get a clear picture of compliance?

A: The guidebook is not prescriptive, and is intended for permittees and non-permittees. It's a step by step "how to" with model ordinances and design standards. You can comment on the guidebook.

Q: What is the purpose of the basin plan?

A: We want a quantitative analysis of the effects of the land use action on water quality and hydrology. Need to use a model to predict and quantify impacts. Runoff modeling is used to predict the change with different land use actions. The local government has to show how it will do the action and meet water quality standards.

Q: Then could the target to prevent stream destabilization be to prevent the 10-year pre-development flow from recurring every 2 years?

A: It could be a target.

Q: Is there an expectation that local codes will append the PSP LID manual by reference and use them?

A: For code updates, we do not reference any other guidance besides the codes guidebook.

Comment: The Gorst watershed plan is a water quality-based land use plan for the Bremerton UGA. There is a new sewer going in, which will create growth. We need to plan for growth, and identify the areas that need to be protected. A major tenet is stormwater management and LID is a primary stormwater management tool. We will steer growth where it can best be done.

Q: Did Ecology map the past 6 years data on UGA increases?

A: We did not have the location data to evaluate, for example, whether the thresholds were met by jurisdictions in one watershed as would be required to meet a trigger.

Q: Are these cumulative changes that the local government defines for a watershed?

A: Yes.

Q: What if the area already drains to a 303(d) listed water body?

A: If the water quality is degraded, the analysis must show how it will be brought back into compliance.

Q: What are the basic checks and balances for the analysis? Who will be reviewing them, and also the remedies?

A: Ecology will not review the analyses. There is a requirement for public review. There is an opportunity to comment on recommendations for the path forward.

Q: Was the Phase I annual reporting information for 2010 on watershed plans helpful for this part of the proposal?

A: There was not a clear answer in terms of identifying where to focus the planning.

Q: Is the trigger for counties which is “and/or” supposed to be the same for cities (which says “or”)?

A: No, that was an oversight. We would like to hear from the cities on that trigger.

Q: Is someone monitoring whether we are achieving results with these permits?

A: There are 2 parts to that answer. The first part is compliance monitoring - are the permittees meeting requirements? The permit has reporting and audit mechanisms for this. The second part is – is it effective? The monitoring proposal includes status and trends and effectiveness monitoring to determine whether the permits are improved things or not.

### **Committee Input on Local Code Updates and Watershed-scale Stormwater Planning**

- Like any other proposal, the devil is in the details. There is no model available that can do this. There are only empirical analyses. Measuring impervious surface at lower levels (less than the 5-10% range) is not enough. It’s all about forest cover loss and less about impervious – the trigger and measures have to include both.
- If there is no clear obligation to reduce the footprint and protect vegetation, jurisdictions will get away with doing very little. There need to be measurable standards for vegetative cover and soil loss. Also document review, or a review board to look at 1) is the analysis adequate in terms of best science and knowledge, and 2) what are the prescriptions?
- We also need to look at how land is developed, especially stream crossings and roadways. There should be a support mechanism.
- Experience in watershed planning with pre- and post-development modeling shows that modeling does not predict the number of fish a stream can support. Mays and Booth have hard data and actual thresholds. Modeling for hydrologic parameters is not useful.
- This approach pushes too much responsibility to the jurisdictions. The code updates are too loose. While we’re not advocating prescriptive road widths, setbacks etc., this proposal seems too soft. There should be a middle ground to set a standard. Suggest no net loss of forest cover or no net new impervious surface. More easily identified and robust metric would improve this process.
- State’s Shoreline Management Act already has “no net loss” of shoreline ecological function. Jurisdictions must demonstrate how they will meet that standard.
- What about using the Puget Sound Partnership targets, like BIBI? Watershed work in WRIA 9 is coming up with some good metrics.

Ecology response: The problem for an MS4 permit is that there are many other contributors to the results of BIBI, not just stormwater discharges. It would be hard to justify using this.

- Another option is flow metrics, relying on the new research by Horner et al.
- There is an issue of vagueness. The language refers to other manuals that are not yet updated. Suggest looking at how to get the low hanging fruit as the minimum thresholds.
- Ecology should emphasize incentivizing the use of BMPs to minimize native vegetation and impervious surface. An example of the BMPs is minimum street width, but this would use the whole range of LID principles. Achieving 65/10 should be exempt from the requirements.
- Proposed thresholds for watershed scale analysis are too high. Recommend identifying priority watersheds based on intact resources and where water quality would most benefit. Standards should include no degradation of water quality.
- Concerned about the conflict between the NPDES permit structure and watershed health. All need to consider an overall watershed planning approach to encompass what we need. NMFS, EPA and PSP need to assist in achieving the watershed goals outside of the permit.
- Regarding thresholds, 80 acres is small. It is not watershed scale planning or LID. It's a land use change impacts analysis.
- This is loose and too open-ended. The process includes guidance and review for code changes, but why not for watershed planning.

Ecology response: Ecology's code changes review will not be detailed, but more a quick review.

- Is a jurisdiction supposed to take the existing condition, then model the change, and demonstrate that the change will not make it worse? Or will meet water quality standards? So, you're setting a standard and if you meet this standard, you are not degrading water quality? Do you mitigate? If you will require LID in the watershed, could that be the mitigation requirement?

Ecology response: This is intended for urbanizing areas to prevent lowering of water quality. If the codes don't really protect, for example, native vegetation, you can't meet the watershed standard. We would say that meeting these standards and the development standards does not prove that you are not impacting the watershed. This part of the proposal is not fully developed, and we are asking for comment and suggestions.

- If code changes and watershed planning is required to fill gap to meet the standards, then the code change and watershed analysis should be more rigorous and prescription, and should go through a review and approval process. This is not a watershed analysis.

### **Public Input on Local Code Updates and Watershed-scale stormwater planning**

- EPA, the Army Corps and FEMA have a common standard of no net adverse impacts. A company called Earth economics is working to quantify this cost benefit. FEMA "risk map" tools will be useful for modeling and defining watershed boundaries in GIS format.

- Confused by the integration of watershed planning into the permit. It's not clear what the goal is. We need more forest cover, wetlands, etc, but we don't know how to do this in a permit.
- This sounds like it's aimed at Phase I permittees. For a Phase 2 county the watersheds extend outside the NPDES coverage area and are a patchwork across the landscape. Also, planning departments are decimated and many Phase 2s will have just one person for all these code changes. We need funding and grants or this won't happen.
- Hard to evaluate the revised language without seeing all the documents and manuals and how they have changed.
- We need more guidance on how to delineate the watersheds, how to apply this approach. Do we start small and go big or vice versa?

### **Wrap up and Next Steps**

Bill Moore:

- June 17<sup>th</sup> is the informal comment deadline – earlier is better.
- Draft permits will be out in October 2011.
- We will do a response to comments on the comments submitted in the formal October comment period, but not this round. Response for this informal period will be the actual language in the draft permit.
- Ecology's website has an online comment form.

Adjourn