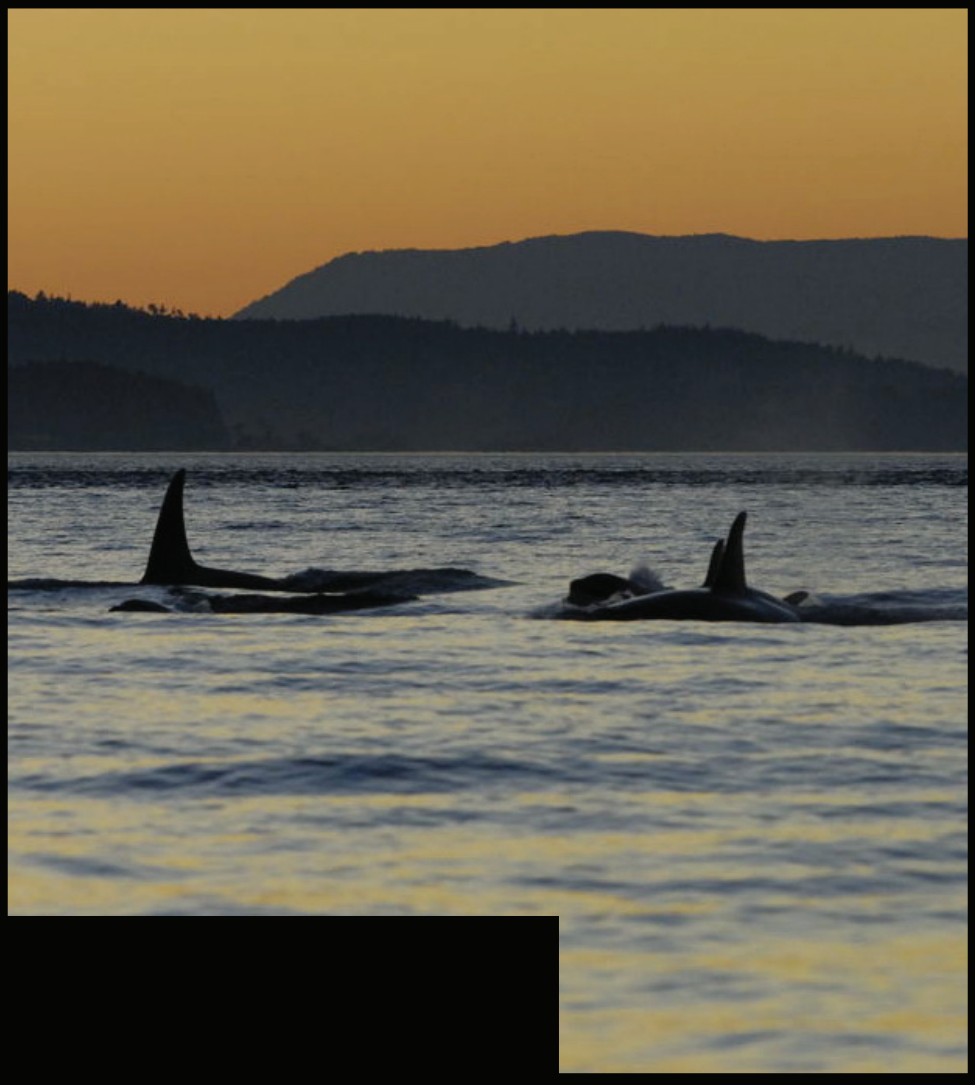
Puget Sound Partnership

SURVEY OF LOCAL GOVERNMENTS THAT PARTICIPATED IN THE 2005-2009 LID LOCAL REGULATION ASSISTANCE PROJECT

April 2010



CH2MHILL

Final Report

Survey of Local Governments that Participated in the 2005-2009 LID Local Regulation Assistance Project

Prepared for

Puget Sound Partnership

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Background

The Puget Sound Partnership (Partnership), and its predecessor, the Puget Sound Action Team (PSAT), provided technical assistance and detailed recommendations to help local governments integrate low impact development (LID) into their codes, regulations and standards as part of the LID Local Regulation Assistance Project. The Partnership provided this assistance and recommendations through its contractor, AHBL, Inc., to 36 local governments located in the Puget Sound basin over the years 2005-2009.

The 11 local governments receiving assistance in 2005 included the following:

- City of Bellingham
- Clallam County
- City of Issaquah
- Jefferson County
- Kitsap County
- City of Marysville
- City of Poulsbo
- City of Redmond
- Snohomish County
- Thurston County
- Whatcom County

The eight local governments that received assistance in 2006 included the following:

- City of Edmonds
- City of Kirkland
- City of Lacey
- Mason County
- City of Normandy Park
- City of Port Angeles
- City of Port Orchard
- City of Woodinville

The 13 local governments that received assistance in 2008 included the following:

- City of Anacortes
- City of Bremerton
- Town of Coupeville
- Town of Eatonville
- City of Everett
- City of Federal Way
- Town of Hamilton
- City of Lake Forest Park
- City of Lake Stevens
- City of Mill Creek
- City of Mukilteo
- City of Oak Harbor
- San Juan County

The four local governments that received assistance in 2009 included the following:

- Island County
- City of Kent
- City of Port Townsend
- City of Sequim

Project Overview, Objectives, Methodology, and Response Rate

In 2008, the Partnership contracted with CH2M HILL to survey the 19 local governments that participated in the 2005 and 2006 Local Regulation Assistance Project. The Partnership used the results of this survey to a) assess local government progress in adopting recommendations provided to them under this project; and b) modify and improve the LID local regulation assistance provided in 2008 and 2009. Response rate for the 2008 survey was 100 percent.

In 2010, the Partnership has contracted with CH2M HILL and ESA Adolfson to survey all 36 local governments that participated in the LID Local Regulation Assistance Project during 2005–2009 (the 19 local governments surveyed previously plus 17 additional that participated in the assistance project in 2008-09). (See Attachment A for survey questions). This report summarizes responses from the 2010 survey.

The desired outcomes of this 2010 survey are as follows:

- Documentation of each local government's progress in adopting the recommendations for regulatory changes provided through the LID Local Regulation Assistance Project
- Identification of obstacles to greater adoption of the recommendations and solutions to overcome these obstacles
- Inventory of each local government's progress toward implementing LID and the LID approach apart from regulatory changes
- Identification of obstacles to further implementation of LID projects and the LID approach and solutions to overcome these obstacles
- Recommendations to the Partnership from local government recipients to increase LID implementation in the Puget Sound region

One staff person from each government was asked the same set of questions. Surveys were conducted over the phone or by e-mail. When possible, CH2M HILL and ESA Adolfson surveyed the staff member who was the original contact during the LID Regulation Assistance Project. This report is a compilation of the results of the survey of local governments. Survey summaries, one for each of the local governments, are included in Attachment B. Contact information for survey respondents is contained in Attachment C.

Response rate for the survey was 97 percent, representing 35 of 36 local governments.

Common Themes

Survey results show a series of common themes among participants regarding both the regulatory assistance project and LID implementation. These include the following:

LID regulatory assistance from PSAT and the Partnership was helpful in starting the discussion on LID. A few of the governments have adopted the recommendations as-is, though most have not. In most cases, adoption of recommendations has been slow due to competing priorities for staff time and not from technical or political barriers such as lack of desire for

LID. The regulatory technical assistance helped start the conversation among local government staff. Once the conversation started at the staff level, more complex issues could be discussed among staff, then presented to and discussed with elected officials, and eventually the public.

Progress has been made on implementing the LID approach through other methods than regulatory changes. Many of the governments have acted to promote the use of LID through non-regulatory means. Many recipients credit the activities of non-governmental entities, such as local building associations and other non-government entities for helping to promote the LID approach within several jurisdictions. Many community groups promote a "green" or "sustainable" approach that aligns with objectives of LID.

There is a significant need to acknowledge accomplishments and share lessons learned. Each local government contact surveyed was familiar with LID and supportive of the LID approach. Most of those surveyed expressed a desire for one centralized database of LID projects throughout the Puget Sound including an inventory of lessons learned. Additional collaboration and sharing of information among local governments would be helpful.

Local governments are progressing with their own shared vision for LID: Allow, encourage, or require. The level of LID implementation within a given government can range from those that have not yet addressed barriers to implementation within their code and standards, to those that simply allow LID, actively encourage it or require LID where feasible, to those that require LID in sensitive areas. Most governments surveyed are moving forward with actively removing barriers to LID to allow greater implementation. Some governments strongly encourage LID by providing incentives. Finally, a few governments are moving to require LID, often only in targeted sensitive watersheds within the jurisdiction. Through the regulatory assistance program, conversations regarding LID internal to the local governments have produced, in general, a shared vision for their government's path forward on LID.

Local governments are anticipating LID requirements within NPDES stormwater permits. Many of the government contacts expressed understanding of the ongoing efforts to push forward with requiring LID in NPDES (National Pollutant Discharge Elimination System) permits and are, in general, embracing this shift. Many of the contacts thought that if LID was required at the state level they could more easily move LID forward at the local level, as it would create a shift in priority for staff to focus on LID regulations. While not specifically stated by those surveyed, LID requirements at the state level would help to create consistency across jurisdictions and reduce the 'load' on individual jurisdictions to be 'pioneers' in LID.

In a slow economic climate, local governments are forced to address highest-priority 'required' items first, leaving few if any resources for 'encouraged' efforts. In years past, LID implementation was slowed due to lack of staff resources. In many cases, the local government staff tasked with updating code and standards were busy with permit reviews. Now, in 2010, local governments are seeing fewer permit applications. Local governments have responded in some cases to the reduction in permit reviews by reducing staff full time equivalents (FTEs) or re-allocating staff to other activities. An opportunity is being missed to use staff time resources to promote and regulate LID.

Findings of the Survey

Survey participants were asked a series of 19 questions during the course of the interview (see Attachment A). These questions fall into five categories:

- Status of Recommendations
- Status of LID Implementation through Non-Regulatory Means
- Barriers to Implementing the Recommendations
- Barriers to Implementing LID
- Potential Solutions to the Barriers

Summaries of answers to the 19 questions are grouped below according to these five categories.

Status of Recommendations

Most of the governments that participated in the LID Local Regulation Assistance Program have not fully adopted the recommendations made by AHBL.

Those governments that have adopted changes to codes and standards recommended through the assistance program are:

- Town of Coupeville (2008 recipient) adopted portions of the recommendations and implemented changes to stormwater standards and code.
- City of Edmonds (2006 recipient) drafted Edmonds Community Development Code Chapter 18.30 with Stormwater Supplement that includes LID standards; public review in spring of 2010.
- City of Federal Way (2008 recipient) incorporated the tree retention and tree units per acre standards into their clearing and grading and tree and vegetation retention standards.
- City of Issaquah (2005 recipient) updated their stormwater regulations to include LID (approved February 2010), focused on getting water in the ground without excessive burden on developers; next step is changes to the Issaquah Municipal Code.
- City of Kirkland (2006 recipient) passed Chapter 113 (clustering) of the Zoning Code. Changes were made from the original recommendations; the city adopted the 2009 King County Surface Water Design Manual (effective 1/1/2010); City of Kirkland evaluates LID feasibility for each project in its capital improvement program.
- Kitsap County (2005 recipient) passed Ordinance 375-2007 in February 2007. This ordinance amended Kitsap County Code Chapter 12 related to LID. Recommendations provided related to the ordinance were not substantively changed. Kitsap County (and others) developed the LID Guidance Manual – A Practical Guide to LID Implementation in Kitsap County (check to see if this is exact title—if it is, then italicize) (July 1, 2009).
- City of Lacey (2006 recipient) revised zero effective drainage discharge ordinance with design criteria based on recommendations to become more enforceable; updated their stormwater manual to include LID.

- City of Marysville (2005 recipient) adopted LID into code on May 14, 2007. Marysville made only minor changes to the recommended code to make it more consistent with the city's zoning code.
- Mason County (2006 recipient) adopted LID regulations for the Allyn and Belfair Urban Growth Areas (UGAs).
- City of Mill Creek (2008 recipient) adopted the recommendations in part, including LID standard plans and details.
- City of Normandy Park (2006 recipient) adopted small site drainage manual; LID practices and BMPs are encouraged with incentives.
- City of Port Angeles (2006 recipient) adopted the planned low impact development (PLID) overlay zone into the zoning code in early 2007, providing incentives for LID use; have also made adjustments to their street profiles.
- City of Port Orchard (2006 recipient) adopted LID standards via ordinance in March 2008; PLID chapter adopted in 2009.
- City of Poulsbo (2005 recipient) adopted LID standards via ordinance.
- City of Redmond (2005 recipient) adopted the recommendations into their 2007 stormwater manual, not into the zoning code or city stormwater regulations.
- Snohomish County (2005 recipient) adopted Ordinance 06-044 in June 2006.
- Thurston County (2005 recipient) updated their stormwater management manual to include LID based on recommendations.

The governments that received assistance in 2005 and 2006 are typically further ahead than the 2008 and 2009 recipients since they have had more time to consider and implement the recommendations. Recommendations to the 2005 participating governments were delivered in March 2006. Recommendations to the 2006 participating governments were delivered in April 2007. The 2008 recipients received recommendations in December 2008. The 2009 recipients received recommendations in June 2009.

Generally speaking, more local governments have made changes to engineering standards than to actual code. Likely, this is because code changes involve a longer process for implementation than do changes to engineering standards, which may not require a public process.

Though many recommendations may not have been adopted in most jurisdictions, it is evident from the survey that the regulatory assistance program has been successful in starting the conversations regarding LID and adoption of some of the recommendations. Several local governments have progressed past the conversations and made changes to code and standards. Survey participants noted that while the implementation process has been slow, it has progressed in the right direction.

Over one-third of the 36 local governments surveyed have either adopted or adopted by reference the *LID Technical Guidance Manual for Puget Sound*, 2005, Puget Sound Partnership and Washington State University Extension. Approximately eight additional local

governments surveyed said they use this manual by reference. A few others have created their own LID manuals, such as the *LID Guidance Manual – A Practical Guide to LID Implementation in Kitsap County*. Others use the LID resources in the 2005 Ecology *Stormwater Management Manual for Western Washington* and the *2009 King County Surface Water Design Manual*. Few of the local governments don't use any LID manual as a resource.

LID Implementation through Non-Regulatory Means

Many of the governments surveyed have acted to promote the use of LID apart from efforts to update code and engineering standards to allow, encourage, or require LID. In addition, activities conducted by others such as local building associations and other non-government entities have helped promote the LID approach within several jurisdictions. Also, many community groups promote a "green" or "sustainable" approach consistent with LID.

Many of the local governments surveyed had permitted private development with LID elements. In many cases, projects have not been formally designated as,"LID projects" but have incorporated specific LID techniques that make sense for the site. This is demonstrative of a toolbox approach where LID practices have been added to the overall suite of practices that can be used to meet stormwater regulations. To name a few, a commercial development in Marysville has used rain gardens and pervious asphalt to manage stormwater. Over 20 projects incorporating LID elements have been implemented in Lacey.

Fewer LID projects have been implemented on public property compared to private property. This difference may be partly because implementation of projects on private property is financially motivated (for example, to create more lots available for purchase in a subdivision) or is driven by developers who are recognizing cost savings and responding to increased marketability of LID. However, it is more likely that this disparity is due to reduced local government capital improvement budgets and projects. Implementation of an LID project by a local government is usually through a pilot project intended to spread the word regarding benefits of LID or an opportunistic LID element in a project driven by other objectives. The City of Kirkland evaluates the feasibility and effectiveness of LID on each CIP project that is implemented.

According to the survey, LID implementation has generally been limited to new development. Retrofits of existing built areas has been challenging if it has been attempted at all. If retrofits are planned, then other non-LID requirements may be a driving factor, such as Combined Sewer Overflow (CSO) reduction requirements. By limiting the use of LID in retrofit projects, we may be slowing our impacts to Puget Sound but we are not fixing the region's stormwater problems.

Barriers to Implementation of the Recommendations

Though responses varied between survey participants, many barriers were identified by several of the governments surveyed. These barriers included:

- Available staff resources have been reduced (FTEs cut in planning departments due to economic conditions, fewer financial resources to fund staff time).
- Local government staff are directed by their leadership to address higher-priority requirements first, such as Critical Areas Ordinances, Shoreline Management Act

requirements, and NPDES compliance; all mandated items were made higher priority than LID, which is not currently a requirement.

- The recommended changes to existing or new regulations aren't as applicable in the jurisdiction (e.g., Jefferson County, where maximum impervious surface is more applicable to plats, not in the county where typical lot size is a 5-acre parcel; City of Kirkland's PLID chapter is geared toward Planned Unit Developments (PUDs), though Kirkland is generally already dense and most projects are smaller in size than 1 acre).
- Merging code changes with existing code, regulations, plans, Growth Management Act (GMA), etc. is difficult; LID topics are found in several locations within local government code.
- Significant time is required to make changes to code, as it requires several iterations and then approval by elected officials.
- Recommendations couldn't be adopted as-is due to conflicting vision among government staff (e.g., permit review, fire marshal, etc.).

Barriers to Implementation of LID and the LID Approach in General

The surveyed government contacts also commented on barriers to implementing the LID approach within their jurisdictions. Not all barriers were described by each government contact. The barriers outlined during the survey were:

- Staff time and availability to promote the LID approach are limited.
- There is a perception that LID is not proven, technology is untested, and has not been tested by time; general public and elected officials don't yet trust LID.
- General public and elected officials lack working knowledge of LID; elected officials could be advocates for LID and the general public could demand LID with increased knowledge and information.
- Information is needed on which methods will work where and under what conditions, maintenance requirements; and that LID can work and be aesthetically pleasing.
- LID is perceived as expensive compared to conventional methods.
- Construction materials for LID can be more expensive (transportation costs of pervious pavement, for example, especially in more rural areas with fewer suppliers in proximity).
- Maintenance needs and costs are unknown in some circles, lack of widespread knowledge; in some cases, maintenance staff lack adequate training and available time to maintain LID facilities.
- Planning department counter staff, permit reviewers, inspectors, and enforcement staff lack adequate training to provide guidance, review permit applications, and inspect LID facilities.
- Professional engineers struggle with signing off on plans including LID because LID is not as tested and proven as conventional stormwater management methods.

- Developers lack knowledge of LID: developers that are more knowledgeable produce better products for review (during permit review process).
- Perception that LID is difficult to implement in a built-up city, retrofits are challenging.
- If incentives for LID are granted for private property, local government would need dedicated staff to conduct initial inspection and repeated inspections to ensure systems continue to work and that incentives are still warranted.
- LID is difficult to implement via land use codes; separate LID from land use codes and instead make LID a stormwater issue that is best addressed through clear and simple stormwater requirements (more engineering than planning).
- LID is often in conflict with other perceived needs (e.g., wider roads for emergency vehicle access).
- Voluntary LID does not produce the results that mandating LID could (though strong encouragement through incentive-based programs is a viable option).

Solutions to Barriers

During the survey, each government contact was asked to brainstorm potential solutions to the barriers outlined earlier. Solutions identified were as follows:

- Staff Resources
  - Prioritize workload internally at local governments to increase staff availability to work on implementing changes to code and regulations for LID. Since staff time is allocated toward required and higher-priority tasks, require LID so staff would need to address it.
  - Generate funding internally and/or receive grants for additional staff at local governments (dedicated staff time that can't be used on other priority tasks).
- Tools
  - Developer toolkit with "off the shelf" LID designs, ready-to-use in a design and to submit for permit review. Provide tutorial on sizing, type, and applicability of different LID methods; developers could use in order to implement LID without an engineer. Could have set of methods for water quality and water quantity, or both.
  - Residential private property owner toolkit to enable homeowners to implement onsite stormwater retention without an engineer. Provide small projects checklist; could be one for new development and one for retrofitting existing development.
  - Regional source for developers (with technical information, technical assistance on questions about design, unit price lists for LID-specific materials such as amended soils).
  - Guidance on how to implement LID incentive programs (incentives work better than unfunded mandates).

- Training
  - Government staff: Planning department counter staff, permit reviewers, inspectors, those performing code enforcement, also those performing maintenance; a training certification program; could be in-person training or tutorials available on the web.
  - Developers: Design of LID to increase quality of permit applications (possible certification program); could be in-person training or tutorials available on the web.
- Education
  - Elected officials and the public: Funding for public relations and communications for educating elected officials and the public, forums and/or presentations to elected officials by regional resource in LID.
  - Developers and the public: Brochures, pamphlets, mailings illustrating the benefits provided by LID, the uses of LID, and the types of LID.
  - Developers and government staff: Demonstration that LID is not more expensive to build and maintain than conventional systems (demonstrate cost-effectiveness as compared to conventional systems, consider triple bottom line approach of social, environmental, and financial); possible matrix showing options and case studies of each.
  - All: Available information on LID facilities that have worked, that general public can visit, preferably nearby.
- Demonstration Projects
  - Funding for demonstration projects in key "high traffic" areas. More public knowledge of LID will increase demand, since local "proof" of benefit will exist. Spread the word once these projects are built; those in neighboring jurisdictions would also benefit.

Summary and Recommendations

Progress Since 2008

In 2008, the Partnership contracted with CH2M HILL to survey the 19 local governments that participated in the 2005 and 2006 Local Regulation Assistance Project. A comparison of the 2008 survey to this 2010 survey yielded the following observations about what's changed over the last two years for those 19 jurisdictions, and for LID implementation in Puget Sound:

- Stormwater and Puget Sound health are more in the public eye today than two years ago. Local governments surveyed in 2010 did not cite the lack of understanding of the link between stormwater and Puget Sound health as a barrier. While more can be done to educate, past efforts have helped. Progress has been made on a culture shift that is required regarding the environment, Puget Sound, and LID.

- Many local governments are close to implementing the recommendations in part, as it has taken time to work through the approval process internal to the local governments and to gain support of the elected officials.
- Numerous local governments have adopted the 2005 Ecology Manual and have either adopted or use by reference the *LID Technical Guidance Manual for Puget Sound*.
- Fewer local governments mentioned the need for training of their staff during the 2010 survey as compared to the 2008 survey. Either staff have taken advantage of the training opportunities offered, or they have less need for training as fewer permit applications have been generated.
- The slow economic climate means fewer new developments, and therefore fewer opportunities to implement LID. The LID approach will be most successful if it is market-driven rather than regulatory-driven. However, in a slow economic climate, demand for going above and beyond the requirements decreases.

Consultant Recommendations

The previous section of this report lists the barriers to the LID approach and potential solutions to those barriers as described by the survey participants. This section contains recommendations made by CH2M HILL and ESA Adolfson based on the results of this survey. The recommendations outlined here should be considered in addition to those solutions outlined in earlier sections of this report and those in the *Survey of Local Governments that Participated in the 2005-2009 LID Local Regulation Assistance Projects* (CH2M HILL, 2008).

The participants in the survey would benefit from the following assistance from the Partnership:

- Create a database for all LID projects and projects with LID elements that have been implemented in the Puget Sound region. Do more to advertise regional achievements and lessons learned from mistakes. Specify methods, successes and lessons learned for each project as well as contacts for more information. This on-line tool could utilize GIS and have photographs and other information. This resource could be used by governments, elected officials, developers, and the public to learn what has and has not worked for LID. An example LID Inventory in Rhode Island is accessible at the following website: http://www.uri.edu/ce/wq/RESOURCES/STORMWATER/LID_tour.htm.
- Assist local governments with evaluating the feasibility of LID practices throughout their jurisdictions. Provide staff or technical resources to utilize available data and information to assess at a fine scale (5000 square feet or smaller pixel size, depending on needs of the local government) if LID elements are feasible based on topography, soil, and other conditions. Convey this information in GIS form to local governments to assist in conducting permit reviews and educating developers and the public. Overlay with current land use and land cover, sensitive water bodies, and critical areas. Use information to make land use decisions. Roll up this information to characterize the total area in which LID is feasible across the Puget Sound region. This product could be coupled with a guideline for selecting appropriate LID BMPs for various site conditions

such as a flowchart or matrix. This would help designers and reviewers in more efficiently selecting the appropriate practices and understanding their associated anticipated performance levels.

- Educate and inform the public and elected officials that LID is not just for new developments. Address barriers to LID implementation on private property through education and by providing tools (such as toolkits) to private property owners. Educate other involved parties such as civil and site development engineers, contractors, municipal permit application plan reviewers, municipal field staff, municipal managers, and council members or commissioners. The Partnership can provide funding or technical assistance to local governments to conduct their own education programs. This could be 'incentive-based', in that technical assistance and funding is given to those who demonstrate interest and capability to conduct the education programs.

- Conduct a forum or other information/experience mechanism that would allow local governments to learn from one another. Municipal governments throughout the state are wrestling with similar barriers to implementing the LID approach. What one government is struggling with currently could be something that another government has resolved. Recognizing that jurisdictions are unique (soils, precipitation patterns, topography, density, etc.), a portion of the assistance could be more general to serve multiple governments more efficiently. The remaining assistance could be grouped according to unique conditions in each jurisdiction.

- Take additional steps to encourage a team approach to LID among local government staff. Many jurisdictions have addressed the need for LID through their planning or economic development departments by means of code or land use changes. Other jurisdictions have changed stormwater standards but have not changed code or other regulations. To successfully implement an LID approach, jurisdictions must make both code changes and changes to engineering standards. Planning departments and public works departments both have a crucial role in implementing the LID approach and must work together. The Partnership should take additional steps to stress the importance of this two-part approach. (To be eligible to participate in the LID Local Regulation Assistance Project, the Partnership required, each year of the assistance, local governments to dedicate staff from public works and planning departments, and for directors of each department to demonstrate commitment to LID and implementing recommendations received. Despite these efforts, additional steps appear to be needed to ensure that a team approach is taken across local government departments.) Local governments should take it upon themselves to conduct internal workshops with public works and planning staff to develop a common vision for LID implementation. This would help develop a common understanding and collaboration between departments. The Partnership could facilitate these meetings, providing a framework for the discussion.

- Costs of LID practices are still not widely known. Create a database for costs of various LID practices, materials and elements by region to allow for better costing of LID and promotion of the cost-savings. Increasing the awareness and knowledge of developers and permit review staff regarding LID to decrease the cost (or the perception of higher cost) of LID. This effort would streamline the permit review process and make it cheaper. In addition, one-time incentives could be given if materials used in LID

construction (such as amended soils) were purchased from local small businesses. This could potentially help the local economy.

- Develop a common rating system for LID (similar to LEED) that can serve as a unified method for setting minimum requirements for LID, evaluating levels for various incentive levels and potentially allowing for a market-based system to allow for credits for going beyond minimums.
- Spread the word that LID is more than rain gardens and biofiltration. Stress that good LID starts with minimizing land clearing and grading, and isn't as effective used as a "band-aid" after development. Educate the public that land use is directly linked to Puget Sound health. Promoting greater densities in urban areas to reduce sprawl is good LID. These messages could be shared in printed education materials, on the internet, or in workshops.
- Encourage LID as a method to address operational and maintenance concerns in the long-term. Surface stormwater facilities typical of LID are easier to inspect, repair, and replace than aging underground infrastructure, recognizing the learning curve when these facilities are first installed.
- Educate on the applicability of LID to address uncertainties associated with climate change. While the actual specific effects of climate change are not known, more frequent intense events have been experienced over the last few years. Local governments need solutions for how to address these unknown effects of climate change, especially those related to drainage and peak flows. Natural drainage systems are more resilient to these potential effects of climate change than constructed drainage systems that are often designed to a certain design flowrate or volume. Restoring natural drainage systems mitigates the potential effects of climate change.
- The benefits of training in LID around Puget Sound are evident from this survey. Work toward developing the next generation of training. Washington State University and University of Washington have both developed certification programs that have been widely popular -- work to make these certifications mean more. Ideas to increase the "value" of these certifications might include providing variances for submittal requirements for projects with "certified" LID designers versus non-certified; advertise lists of certified professionals, etc. Due to the rapid development and improvement of LID experience and technology, those who have received training more than a couple years ago may not be aware of the latest developments around the Puget Sound. Targeted update classes or forums should be provided to focus on the latest developments in LID.
- Focus on preserving or enhancing the natural elements that drive hydrologic functions (soils, native soil infiltration, vegetation, storage) rather than focus on one measurement of hydrology (runoff durations or peak flows). Track better indicators of impacts of development (summer temperature, annual volume, recharge, benthic environments).
- Increase the body of knowledge regarding interflow and evapotranspiration. Too commonly, feasibility is tied to infiltration. However, it is generally recognized that till soils do not infiltrate (vertically). LID is still feasible in these conditions through smart site design, maximization of vegetative cover (to replace lost trees), soil storage and

reestablishment and preservation of subsurface flow paths. Designers need better methods to quantify the performance of LID strategies under such conditions to mimic forested hydrologic processes.

- Require LID and retrofitting of existing developed areas. The state should define what is feasible as the local jurisdictions may simply say it's not feasible if it is difficult. Encourage Ecology to require LID as part of the NPDES Phase I and Phase II stormwater permits 'where feasible', acknowledging the challenges of implementing unfunded mandates.
- Implement a 'two-part' approach to requiring LID. Continue to encourage local governments to encourage and require LID. Require LID at the state level (see above). This would not only increase LID implementation but would also reallocate local government staff time toward LID, as it would become a priority (as a requirement). Local government staff are given direction by their leadership to address, in order, the required, the necessary, and the 'wish list'. LID has fallen on the 'wish list' for many local governments.

Managing stormwater is crucial to restoring Puget Sound. In addition to implementing regulations encouraging LID, local governments should consider the following regulations/requirements:

- Require retention of 70 percent of the forest cover and no more than 10 percent impervious area outside of UGAs; encourage larger minimum lot size.
- Require zero discharge for all sites up to the 10-year storm, potentially utilizing collection and beneficial use of rooftop runoff to help achieve zero discharge.
- Mandate retrofit of existing developed areas for treatment and flow control; appeal to state and federal government to fund the mandate.

Attachment A

Puget Sound Partnership Survey of Local Governments that Participated in the 2005-2009 LID Local Regulation Assistance Projects

CH2M HILL and ESA Adolfson have been tasked by the Puget Sound Partnership to survey the 36 local governments that participated in the LID Local Regulation Assistance Project during 2005-2009. The Partnership, and its predecessor, the Puget Sound Action Team, provided technical assistance and detailed recommendations to help the 36 local governments integrate LID into their codes, regulations and standards. The Partnership provided this assistance and recommendations through its contractor, AHBL, Inc.

You are receiving this survey because you are designated as the primary contact for a local government that received this assistance during 2005-2009. The purpose of this survey is to (1) assess local government progress in adopting the recommendations provided to them; (2) identify obstacles to greater adoption of the recommendations; and (3) identify potential solutions to overcome those obstacles.

Survey of (City/Town/County):

Local Contact Name and Title:

Location of Interview:

Interview Date:

Interviewed By:

Survey Questions

What is the Status of the Recommendations?

1. Have the recommendations been adopted? In whole or in part? Which recommendations were most useful?
2. Were the recommendations changed substantively, then either adopted or planned for adoption?
3. If the recommendations have been adopted, what has been accomplished in regard to LID implementation since the recommendations were adopted?
4. If the recommendations haven't been adopted yet, is this planned for the future? What's the schedule, if so?

What is the Status of Integrating LID through Other Means?

5. Has progress on integrating LID into your community been made through other measures and/or activities other than regulatory changes? If yes, how?
6. What are you most proud of in terms of LID implementation in your County/City? How was this accomplished? What has worked?

7. Have you adopted the LID Technical Guidance Manual for Puget Sound? If no, have you adopted another LID manual? Created your own LID manual?

What Are the Barriers to Implementing the Recommendations?

8. Is there common understanding of the recommendations internally among your staff, supervisors, other departments and elected officials?
9. Do staff who work on LID have the same shared vision for LID incorporation into regulations, activities, etc.? If so, what is that vision?
10. What internal obstacles have prevented adoption or full implementation of the recommendations?
11. What external obstacles have prevented adoption or full implementation of the recommendations? (For example, have public opinions/expectations changed since recommendations were made? Political climate changed? Other?)

What Are the Barriers to Implementing LID in General?

12. What is public opinion of LID in your jurisdiction? What are public expectations of the City/County regarding the LID? Have public opinions/expectations changed?
13. What are the opinions of elected officials, the local building association and local chambers of commerce regarding LID? What is influencing these opinions/expectations?
14. Are there other barriers to implementation of the LID approach (e.g., perception that LID will slow down development, current economic climate, etc.)?

What Are the Solutions to the Barriers Preventing Implementation?

15. What are possible solutions to address internal barriers discussed earlier?
16. What are possible solutions to address external barriers discussed earlier?
17. What is the planned path forward for LID in your jurisdiction?
18. Is there something that the state could do that would help LID move forward in your jurisdiction? What?
19. Do you collaborate with other jurisdictions on the topic of LID? Do you prefer to collaborate with other jurisdictions informally (one-on-one contacts) or formally (through workshops, conference panel discussions, etc.)?

Attachment B

City of Anacortes

2008 Recipient

Contact: Don Measamer

Interview Date: *Did not receive response to survey request; Information below gathered from Local Regulation Assistance Project materials*

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - Chapter 16.20 AMC Design and Improvement Standards
  - Chapter 16.32 AMC Road Standards
  - Chapter 16.40 AMC Planned Unit Developments
  - Chapter 17.20 AMC Zoning
  - Chapter 17.41 AMC Landscape Requirements
  - Chapter 17.46 AMC Parking
  - Chapter 17.54 AMC Land Clearing
  - Engineering and Development Standards
- Work Products:
  - Proposed code amendments to 16.32 Road Standards, language changes to 16.40 Planned Unit Developments (PUD), recommended impervious surface limitations for incorporation into 17.20 Zoning Changes, language changes for 17.41 Landscaping Requirements, 16.20 Design and Improvement Standards and 17.46 Parking, performance standards for 17.54 Land Clearing; LID Road Standards and Details, Draft LID Chapter and Draft Native Vegetation Retention Chapter, comparison of minimum parking standards

Status of Recommendations and of the LID Approach

- Anacortes has good foundation for implementing LID BMPs
- LID engineering standard drawings, LID dependent performance standards to the Clear and Grade Chapter, and other code amendments will help Anacortes move forward with LID

City of Bellingham

2005 Recipient

Contact: Renee LaCroix

Interview Date: 2/22/10

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - Title 13, Streets and Sidewalks
  - Title 15, Water and Sewers
  - Title 16, Environment
  - Title 18, Subdivisions
  - Title 20, Land Use Development
- Work Products:
  - Changes to: Chapter 20.12 Bellingham Municipal Code (BMC), General Standards (20.12.090 LID (new section)), Tile 13 Streets and Sidewalks, 13.04.070 Residential Access Streets, Title 15 water and sewers, BMC 15.16.030 storm and surface water rates language, Section 15.40 Drainage, Section 14.42, Title 16 Environment, Title 18 Subdivisions, Title 20 Land Use Development

Status of Recommendations and of the LID Approach

- Stormwater Ordinance adopted
- Title 20 (land use) changes have not moved forward
- Adopted the 2005 Ecology Stormwater Manual for Western Washington
- Implementation of numerous demonstration projects
- Elected officials and public are behind LID
- Private developers have tried LID in a few places
- LID Manual: Adopted 2005 Manual, adopted LID Technical Guidance Manual by reference

Barriers to Implementation of Recommendations and the LID Approach

- Staff turnover
- Workload, balancing other needs (since LID isn't a mandate, slips lower on the priority list than others that are)
- Communications between and needs of different city departments

- Engineers signing plans with LID are not as comfortable as they are with pipes, etc. that have been around a long time and are known and proven to work
- Tracking LID on private property is difficult. If incentives are given for LID on private property, city needs system to track and confirm that system still works and that incentives (e.g., reduced stormwater rate) are still warranted; huge workload concerns
- Maintenance needs of LID are challenging because it is different than conventional drainage

Potential Solutions to Barriers

- Dedicated staff time - Funded staff person (preferred) or consultant to push regulatory side of LID (make it happen); the Puget Sound Action Team's (PSAT) LID regulatory assistance project was great because language was actually written, however now need help getting the regulations to happen (example: Puget Sound Energy funded a 2-year staff position to create a climate action plan for city, met deadline and produced good product because of the dedicated time/resource, instead of balancing all other demands on time)
- Dedicated staff time - Funded staff person (preferred) or consultant to confirm that LID on private property is working (initial inspections, yearly follow-up inspections, etc.), anticipate 2 FTEs/year to do this in City of Bellingham
- Funding for demonstration projects in key areas with lots of "traffic", so that public get used to seeing LID, ask questions, and eventually demand LID
- Education for general public on link between stormwater/LID and Puget Sound health
- Training (certification program?) for engineers designing and/or approving designs for LID
- Maintenance manual for LID

Recommendations to the Puget Sound Partnership Regarding LID

- Funding for dedicated staff person
- Regional LID feasibility assessment (mapping exercise) to help educate on where LID would be effective

City of Bremerton

2008 Recipient

Contact: Larry Matel

Interview Date: 3/10/10

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - 11.12.080 – Design and Construction Engineering Standards and Deviations
  - 11.12.120 – Landscaping in Rights-of-Way, Easements, and Access Tracts
  - 20.12.060 – Subdivisions: General Provisions
  - 20.12.100 – Approval Criteria: Preliminary Subdivision
  - 20.12.120 – Approval Criteria: Final Subdivision
  - 20.48 – Off-Street Parking Requirements
  - 20.50 – Landscaping Requirements
  - Bremerton Zoning
  - Engineering Standards
- Work Products:
  - Recommended changes to City Code Chapters 11.12.080, 11.12.120, 20.12.060, 20.12.100, 20.12.120, 20.48, and 20.50. Suggestions for zoning changes. Road standards to incorporate LID within the Engineering Standards.
  - Additional work products: Information on 15.04 Stormwater, 15.XX Clearing and Grading, 20.58 Residential Cluster Development
  - Materials on parking survey, native tree list, maintenance of LID facilities (guidance manual on pervious pavement, rain gardens, and other LID management techniques)

Status of Recommendations and of the LID Approach

- Regulation changes are drafted and are in legal review process by City Attorney (delayed due to reduced staff time available with the current economic climate), hopefully within the next 12 months, +/-
- Draft regulations are very similar to those prepared as recommendations
- Encouragement of LID has been successful and interpretation of current regulations has allowed Bremerton to be very aggressive with LID in the private sector projects
- Concept of LID is well accepted in this community

- Leadership at the City and at Kitsap County has helped push LID, such that regulations are not seen as primary means to implement LID
- Stormwater Master Plan utilizes LID as means and method to address stormwater, LID is City policy (in Comprehensive Plan)
- Numerous LID projects constructed in both private and public sector
- LID Manual: LID Guidance Manual – A Practical Guide to LID Implementation in Kitsap County (July 1, 2009)

Barriers to Implementation of Recommendations and the LID Approach

- Most staff that work on LID have the same shared vision, however internal champion(s) of LID are still needed
- Significant past effort to introduce, train and convince staff, in good shape now
- Different perspectives on feasibility of LID (geotechnical community)

Potential Solutions to Barriers

- Maintain a 'champion', an LID advocate
- More demonstrations of success, also lessons learned

Recommendations to the Puget Sound Partnership Regarding LID

- More aggressive with respect to LID implementation
- More funding for LID

Clallam County

2005 Recipient

Contact: Carol Creasy

Interview Date: 2/22/10

Scope of Regulatory Assistance Received

- Draft grading ordinance
- Landscaping and native vegetation ordinance
- Draft stormwater management ordinance
- Planned low impact developments chapter
- Cost comparison between LID and conventional methods
- Roof downspout control standards and details
- Incentive matrix
- Road sections

Status of Recommendations and of the LID Approach

- Recommendations not adopted
- Small Project Drainage Requirements and Technical Guidance Manual (in draft form), developed by Clallam Conservation District; helps private property owners manage stormwater onsite at single family residences without an engineer
- Rainwater collection program in the works
- Specifics in recommendations may change (compromise between departments)
- Workshop for LID sponsored by green building groups of Clallam and Jefferson counties
- Political will exists, working on market demand for LID
- Plans for work group of citizens, realtors, developers, builders on LID
- LID Manual: refer to LID Technical Guidance Manual for Puget Sound

Barriers to Implementation of Recommendations and the LID Approach

- Staff time (significant demands on available time)
- Lack of LID knowledge by citizens, realtors, developers, buildings; Lack of LID knowledge by planning department counter staff and inspectors
- Perception of LID as too expensive

Potential Solutions to Barriers

- Work group of citizens, realtors, developers, builders on LID, need facilitator of process and funding for facilitator
- Mandating LID would raise it to higher priority
- Funding or public relations and communications
- Training for planning department counter staff and inspectors

Recommendations to the Puget Sound Partnership Regarding LID

- More funding, technical assistance

Town of Coupeville

2008 Recipient

Contact: Malcolm Bishop

Interview Date: 3/4/10

Scope of Regulatory Assistance Received

- Review of Town codes and standards
  - CTC 16.08.040 – Residential Zoning Districts
  - CTC 16.08.080 – Planned unit development (PUD) overlay district
  - CTC 16.12.040 – Lot area, width, and coverage standards
  - CTC 16.12.060-16.12.065 – Landscaping and Tree Conservation
  - CTC 16.12.070 – Off-street parking and loading requirements
  - CTC 16.12.080 – Community Design Standards
  - CTC 16.12.085 – Cottage housing developments
  - CTC 16.20 – Clearing and Grading
- Work Products:
  - Recommended changes to 12.12.065, 16.20, 16.08.040 – 16.08.060, 16.08.070, and 16.08.080
  - Engineering Standard Drawings (road standards featuring LID components)
  - Additional work products: Draft Native Vegetation Chapter (CTC 16.22), and additional research on 16.12.060 (Landscaping), 16.12.080 (Community Design Standards), 12.12.085 (Cottage housing developments)
  - Materials on tree species, list of potential LID incentives, and "Draft Protection of LID BMPs During Construction", outlining construction sequencing and practices for protecting pervious areas and LID practices during construction

Status of Recommendations and of the LID Approach

- Adopted many of the recommendations, though did modify (minor changes to standards and code to 'fit the town better'); most useful were street standards
- Tried pervious concrete driveway, take 'lesson learned' and apply to future projects (experience helps); library remodel incorporates LID
- Public is asking for tools to incorporate LID on their own property (Whidbey Island Conservation District is also a great resource)
- Two town staff are LID certified

- Success in taking action to clean up the stormwater – important to Coupeville
- LID Manual: Adopted the LID Technical Guidance Manual by reference

Barriers to Implementation of Recommendations and the LID Approach

- Disagreement within the town staff regarding LID (allow, encourage, or require)
- Developers were not up to speed on LID techniques
- Inspections of LID were difficult at first (with limited staff time and experience), though have gotten easier
- Not enough local examples of 'working' LID; (example: small subcontractor resisted LID until they tried it; now proud of it after-the-fact)

Potential Solutions to Barriers

- Education of developers, town staff, and the public (this has occurred and has helped; more would be better, potential shared efforts with Whidbey Island Conservation District)
- More demonstration projects to get LID in the public eye
- Get LID in the code, once it is in the code it is easier to enforce the use of LID
- When a permit applicant comes in, perform a site visit to 'working' LID site
- Have consulting engineer onboard to help

Recommendations to the Puget Sound Partnership Regarding LID

- Funding and technical assistance with additional pilot projects
- Inventory of LID projects – what's worked, what hasn't, location

Town of Eatonville

2008 Recipient

Contact: Nick Bond

Interview Date: 3/8/10

Scope of Regulatory Assistance Received

- Review of Town codes and standards
  - Chapter 16.53 EMC – BMPs for Construction and Site Development
  - Chapter 16.54 EMC – Stormwater Management and Erosion Control
  - Chapter 17.17 EMC – Planned Unit Development
  - Chapter 17.18 EMC – General Design for All Land Subdivision
  - Chapter 18.04 EMC – District Regulations
  - Chapter 18.05 EMC – Off Street Parking and Loading Requirements
  - Chapter 18.07 EMC – Landscaping Regulations
  - Engineering and Design Standards and Drawings (EDDS)
  - Stormwater Management Program, Draft Report dated January 2003
- Work Products:
  - Recommended changes to 16.53, 16.54, 18.02, 18.04.190, 17.18, 18.05, 18.07,
  - Additional work products: New Chapter – Planned Low Impact Developments (PLID) Chapter (18.04.200)
  - LID Road Standards and Details (for EDDS)
  - Materials on LID incentives, tree species, and "Draft Protection of LID BMPs During Construction", outlining construction sequencing and practices for protecting pervious areas and LID practices during construction

Status of Recommendations and of the LID Approach

- Code and standards changes currently in committee; recommendations to stormwater code and tree retention were most useful; no significant changes planned
- Have had stewardship partners implement a few rain gardens and porous concrete
- LID Manual: have adopted the 2005 Ecology Manual, use the LID Technical Guidance Manual for Puget Sound but have not officially adopted it

Barriers to Implementation of Recommendations and the LID Approach

- Currently raising awareness of LID, not 'embraced' yet

- Available staff time
- Lack of LID advocates within elected officials or the public
- Council likely won't act on stormwater until actions are mandated, citizens agree with this approach

Potential Solutions to Barriers

- Initiating fee study (stormwater utility) to incorporate incentives, current flat fee of $2.50/month for residential

Recommendations to the Puget Sound Partnership Regarding LID

- None specified

City of Edmonds

2006 Recipient

Contact: Robert Chave

Interview Date: 3/4/10

Scope of Regulatory Assistance Received

- Review of City codes and standards:
  - Review planned residential development chapter, ECDC 20.35
  - Review ROW standards, ECDC 18.80 and details
  - Review vegetation retention, street trees and landscaping, ECDC 18.85 and 20.12
  - Review density allowances and incentives, ECDC 16.20
  - Review land clearing and tree cutting, ECDC 18.45
- Memo outlining current status and potential code challenges
- Prepare native vegetation and impervious surface package for discussion

Status of Recommendations and of the LID Approach

- Recommendations not adopted as-is
- 2009 Edmonds City Council Sustainability Agenda and Sustainable Edmonds community group
- Edmonds has new stormwater management code drafted (in response to NPDES Phase II), Edmonds Community Development Code Chapter 18.30 fully re-written, also has Stormwater Supplement to this Code Chapter; public review in March of 2010
- Edmonds currently updating stormwater design standards
- LID Manual: Use LID Technical Guidance Manual for Puget Sound, not formally adopted

Barriers to Implementation of Recommendations and the LID Approach

- Staff turnover; Lack of available staff time, workload issues
- Setting priorities is difficult
- Conflicting vision between city departments

Potential Solutions to Barriers

- Need to fill open staff positions (public works director and development services director positions open as of April 2010)

- Staff training on LID techniques (coordinate with WRIA 8, USEPA grant committed approx 200 hours of staff time, developed website for LID and training ops for staff)
- Public education on LID
- Partnership road show – for both LID and for general Partnership activities - Presentations to elected officials – different audience than technical staff (mayor, council, planning commission)
- Momentum in right direction because of NPDES Phase II compliance; progress made on LID because of NPDES Phase II requirements (equivalent to 2005 Ecology Manual, etc.)

Recommendations to the Puget Sound Partnership Regarding LID

- Funding for demonstration projects
- Mapping exercise – where is LID feasible and where is it not
- Database with all LID projects in the region; would allow public and elected officials to go on 'e-tour' of LID projects to see benefits (environmental, aesthetic)

City of Everett

2008 Recipient

Contact: Jane Zimmerman

Interview Date: 3/9/10

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - Chapter 18.28 – Land Division Evaluation Criteria and Development Standards (.010, .080, .100, .140, .160)
  - Section 19.32.060 – Development Standards (Density)
  - Chapter 19.35 – Landscaping and Screening Requirements
  - Chapter 34 – Off-Street Parking and Loading
  - Design and Engineering Standards
- Work Products:
  - Draft Clearing and Grading Chapter
  - Draft Native Vegetation Retention Chapter
  - Recommended revisions to 18.28, 19.32.060, 19.35, and Chapter 34
  - LID Road Standards and Details

Status of Recommendations and of the LID Approach

- Not adopted
- New drainage codes adopted in early 2010, but were not developed around the recommendations (instead, codes were developed to be in compliance with Appendix 1 of the City's NPDES stormwater permit)
- LID implementation in Everett has not been in response to adoption of any of the recommendations
- Form and timing of modifications to City codes will likely be driven by future NPDES permit conditions
- LID has been integrated via the SEPA review process and early involvement and cooperation with developers; also Everett sponsored a series of residential rain garden workshops and is seeking grant funding to construct a retrofit/demonstration project at a City park
- LID techniques and land development strategies into the Stormwater Site Plan development process (new City of Everett Stormwater Management Manual), and

incorporation of LID techniques into the design of specific projects through cooperation with developers

- What works is having key city staff involved in the land use review process as early as possible (before formal application is made and before preliminary design) and implementing the LID measures that make technical and financial sense given site characteristics
- LID Manual: The LID Technical Guidance Manual is adopted by reference in the City's new Stormwater Management Manual

Barriers to Implementation of Recommendations and the LID Approach

- Not common understanding of the recommendations amongst staff, supervisors, and other departments, as the recommendations were mainly just circulated amongst public works stormwater staff
- Concerns that native growth vegetation retention/restoration is in conflict with GMA goals (planning department)
- concern with maintenance needs of LID BMPs (streets, O&M)
- unwillingness to step out ahead of Ecology to make time consuming regulatory changes that may not fit the approach prescribed in the next MS4 permit
- general uncertainties as to future MS4 permit requirements (PCHB rulings); Ecology LID Advisory Committees
- Neutral public opinion of LID and neutral opinion of LID from elected officials and other external stakeholders
- Current economic climate is a barrier to the LID approach

Potential Solutions to Barriers

- More certainty as to what might be required in the future – the City is reluctant to make regulatory code changes that may or may not meet future MS4 permit requirements
- Push to require LID; requirements placed into the MS4 permit get priority attention

Recommendations to the Puget Sound Partnership Regarding LID

- The State is already doing their part with the LID technical committees – essentially, better define what LID is and what municipalities need to do

City of Federal Way

2008 Recipient

Contact: Janet Shull

Interview Date: 3/11/10

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - Chapter 5 – Fire Code (International Fire Code Sections 503 and 910)
  - Chapter 20- Subdivisions (Articles III and IV)
  - Chapter 21 – Surface and Stormwater Management (Article IV)
  - Chapter 22 – Zoning (Articles XI, XII, XV, XVI, XVII)
  - Development Standards Appendix (Chapters 3 and 4)
- Work Products:
  - Suggested revisions to Chapter 20, Chapter 21, Chapter 22
  - LID Road Standards and Details
  - Materials on LID incentives, native tree species, and "Draft Protection of LID BMPs During Construction", outlining construction sequencing and practices for protecting pervious areas and LID practices during construction

Status of Recommendations and of the LID Approach

- Incorporated the 'tree units per acre' standards into clearing and grading and tree and vegetation retention standards, adopted without significant changes
- Definition of LID written into City code
- Incorporated language into City code that recommends and encourages LID techniques, specifically permeable surfacing and on-site stormwater management for streets and rights-of-way, where appropriate and with approval, encouraging LID BMPs when site and soil conditions make it feasible, and encouraging native vegetation in landscaping, allowing use of pervious pavement on private roads
- Very little LID has been implemented because of economic down turn; The tree retention standards are expected to have a big impact on subdivisions and large scale development, but there has been little to no new development proposed since new standards went into place
- Have identified specific code amendments for 2010 work program related to reduction of parking requirements, flexible road standards, increased density, and reduced building setbacks; public works and planning working together

- Internal 'green team', and participation in a Chamber of Commerce 'Green Ribbon Committee'; these groups are identifying actions that would support LID
- Currently working on incentivizing LID through development regulations
- LID Manual: have adopted the LID Technical Guidance Manual for Puget Sound

Barriers to Implementation of Recommendations and the LID Approach

- Have not identified a uniform 'vision' for LID, though public works and community development departments have worked together on an LID project
- Staff attrition and layoffs
- LID implementation is set at a lower priority than mandated work program items
- Wary to introduce new or revised regulations in this current economic climate; recent efforts to do so have been met with a lot of resistance from the development community, even if many LID implementation items could benefit the development community

Potential Solutions to Barriers

- Lack of awareness, not in the public eye; raise awareness
- 'Green Ribbon Committee' has not been as active recently
- Interest in supporting economic growth, particularly in the downtown area, has major influence on development-related actions in Federal Way; perception LID would slow growth
- Additional funding/mandates to get moving on the LID implementation
- Staff outreach and education about the economic and social as well as environmental benefits of LID (actions to build excitement around LID such as field trips with elected officials and business people, sponsoring workshops in our community, and encouraging attendance by city leaders and department heads, etc.)

Recommendations to the Puget Sound Partnership Regarding LID

- Additional grant funding or mandates to get moving on LID implementation
- Regional workshops for further collaboration (example: King County Sustainability Roundtable brown-bag series)

Town of Hamilton

2008 Recipient

Contact: Margaret Fleek (City of Burlington)

Interview Date: 3/5/10

Scope of Regulatory Assistance Received

- Review of Town codes and standards
  - Chapter 10.15 – Zoning
  - Chapter 10.54 – Off-Street Parking and Loading
  - Chapter 10.50 – Landscaping
  - Chapter 10.68.150 – Site Assessment, Plan Review
  - Geometric Design Standards
- Work Products:
  - Suggested revisions to Chapter 10.15, Chapter 10.54, 10.50, and 10.68
  - Draft Clearing and Grading Chapter
  - Draft Cottage Housing Chapter (Chapter 10.86)
  - Draft LID Chapter
  - LID Road Standards and Details
  - Materials on LID incentives, native tree species, and "Draft Protection of LID BMPs During Construction" (outlining construction sequencing and practices for protecting pervious areas and LID practices during construction), and "Maintenance of LID Facilities" (guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques)

Status of Recommendations and of the LID Approach

- Recommendations have not been adopted (Hamilton has not received funding to move out of the floodplain; code is drafted and will be modified once UGA is expanded)
- LID approach is utilized in Burlington because it is cheaper
- In Burlington, have struggled with planting / landscaping plan on LID project, what's planted is different than what is specified
- Public consciousness is up regarding the link between orca whales and Chinook salmon with stormwater and land use
- LID Manual: Have not adopted an LID manual

Barriers to Implementation of Recommendations and the LID Approach

- Recommendations received were helpful but need to be more specific to Burlington (3500 square foot lot typical in Burlington)
- Need street standards for LID in Burlington (out of public works)
- Burlington needs stormwater regulations and ordinance re-done
- Have struggled with planting / landscaping plan on LID project, what's planted is different than what is specified

Potential Solutions to Barriers

- More demonstration projects (have tried pervious pavement project, people were nervous about this)
- Landscape plan is enforceable on LID projects, not just responsibility of homeowner long-term

Recommendations to the Puget Sound Partnership Regarding LID

- Need better tracking of effectiveness of LID (demonstration projects—what's worked, what hasn't, where are these projects)
- Elected officials and local building association is behind LID if it is cost-effective (ex: reduced pond volume); more resources to refer to when making the case for LID

Island County

2009 Recipient

Contact: Brandon Sweezea

Interview Date: 3/8/10

Scope of Regulatory Assistance Received

- Review of County codes and standards
  - Title 11 Land Development Standards
  - Title 16 Planning and Subdivisions
  - Title 17 Zoning
  - Engineering Design Standards
- Work Products:
  - Recommended changes to Title 11, Title 16, and Title 17
  - Review of the existing Rural Stewardship Program and corresponding recommendations; Rural Stewardship Plan (RSP) Application
  - LID Road Standards
  - Materials on native tree species, "Draft Protection of LID BMPs During Construction" outlining construction sequencing and practices for protecting pervious areas and LID practices during construction, "Maintenance of LID facilities" as guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques, "Background on the LID Performance Standards" describing the background and general methodology behind the development of the conventional stormwater volume reduction standards, minimum native vegetation retention, and maximum impervious surface standards and modeling assumptions, "Criteria for Determining LID is Feasible", and "Frequently Asked Questions about LID".

Status of Recommendations and of the LID Approach

- Have not yet implemented recommendations, code changes are on annual docket this year
- Since 1998 public works code has had incentive-based plan for LID
- Pilot projects: small rain garden near parking lot near County offices
- local conservation district does an LID tour once per year
- Public outreach conducted by County and by local conservation district, community is interested in presentations and wants to do more themselves on their own property

- LID Manual: Use the LID Technical Guidance Manual but have not adopted it

Barriers to Implementation of Recommendations and the LID Approach

- Changes to code must be accompanied by updating of stormwater manual (done out of public works, versus code changes done out of planning)
- Still use 1998 Ecology Manual, need to update to 2005 Ecology Manual (need to update the modeling from 1998)
- Struggle with how to implement LID on the small lots in shoreline communities (various issues with these – Shorelines, CAO, etc.)
- Rural community, have had low impact stormwater management through dispersion and native vegetation (lots are typically >5 acres), so struggle with seeing relevancy of LID in a rural community
- Court decision regarding King County (native vegetation retention) had psychological impact on Island County residents, need incentives to keep natural vegetation

Potential Solutions to Barriers

- Need cost analysis of LID, and need to publish this; if developers and homeowners can cut the bottom line with LID they will use it, but need proof
- Fecal coliform is a key in Penn Cove and other places, need documentation of effectiveness of LID in controlling fecal coliform

Recommendations to the Puget Sound Partnership Regarding LID

- Assist county with presentations regarding LID to the public and elected officials (hand over materials to county staff so county staff can engage public and elected officials)
- Tools for homeowners to implement LID on their own property
- Cost analysis information demonstrating the cost-effectiveness of LID (reduction in bottom-line, in addition to environmental and social benefits)

City of Issaquah

2005 Recipient

Contact: Trish Heinonen and Kerry Ritland

Interview Date: 3/9/10

Scope of Regulatory Assistance Received

- Review of City codes and standards:
  - Title 12, Streets, Sidewalks, and Public Places
  - Title 13, Public Services
  - Title 16, Buildings and Construction
  - Title 18, Land Use Code
- Work Products: Review of City of Issaquah's Best Available Science 2004 Report and the Stormwater Infiltration Evaluation report (Golder and Associates) to identify areas where specific LID techniques would have greater applicability and benefit, new chapter built on existing Chapter 13.28, deviations for LID proposals, review of city street standards

Status of Recommendations and of the LID Approach

- No, not adopted as-is
- City staff wrote LID regulations utilizing policy-level information from the Local Regulation Assistance Project, focused on getting water into the ground without excessive burden on developers
- Code with LID requirements (in stormwater regulations) approved February 2010, no projects have come in as of yet
- Stormwater regulations updated to have LID standards in them (rather than in the planning code (Issaquah Municipal Code 18), as recommended
- Stormwater Code requires LID in all soils where LID is feasible
- Stormwater Code requires infiltration or use of LID BMPs, as opposed to detention and release, where soils are suitable, have performance-based standard rather than LID requirements across the City regardless of LID feasibility
- Voluntary and incentive means to implement LID are not feasible for attaining LID goals (and are administratively challenging, too, as they require considerable staff time), regulatory measures are most effective
- LID Manual: Reference the Low Impact Development Technical Guidance Manual for Puget Sound

Barriers to Implementation of Recommendations and the LID Approach

- Most agree that LID is good, perceptions of how LID can be accomplished and whether it is effective are different
- Project costs are the driver behind implementation of projects from the City Capital Improvement Program, LID may not pencil out on city projects (no incentives on city projects)
- LID facilities take more time and money to maintain especially while still 'new and different', maintenance budgets aren't adjusted to reflect this
- Policy staff (planners) see LID at a higher (city-wide) scale, engineers focus on implementing LID at a site scale, leads to disconnect in vision
- Differing expectations about LID amongst staff (LID as end-all solution versus it is not feasible everywhere and it must be 'interwoven' into conventional stormwater management solutions)
- Misconceptions of how LID can be used to meeting King County SWDM requirements
- LID has its place when it comes to new low density residential development, but LID cannot be used alone to meet the requirements for flow control from commercial areas in the King County SWDM. The threshold for runoff control and water quality treatment is high, LID isn't enough to achieve these requirements

Potential Solutions to Barriers

- Requiring LID makes the process of reviewing project proposals much easier and less ambiguous; Using voluntary or incentive-based means to lure projects into using LID takes too much staff time and too few developers are really interested given the fear that it will make their development proposals infeasible or take too much time to get through the permit process
- Issues with stormwater management have become too technical to allow a coherent discussion of the benefits of LID. There is a big disconnect between the vision of LID to solve all our runoff problems and the realities and practicality of LID and convincing developers to use it given stormwater management regulations under the NPDES Phase II permit.

Recommendations to the Puget Sound Partnership Regarding LID

- Encourage Ecology to be consistent between LID rules and guidance and stormwater rules and guidance
- Help simplify stormwater design manuals, write LID guidance in language that the typical developer can understand, and allowing LID to be used more widely with fewer restrictions (for example, not requiring in-depth soil and infiltration testing, a cumbersome effort, to implement a relatively simple rain garden)

Jefferson County

2005 Recipient

Contact: Stacie Hoskins

Interview Date: 3/3/10

Scope of Regulatory Assistance Received

- Preparation of Planned Low Impact Developments (PLID) chapter and incentives matrix
- Preparation of an informal brochure for the permit review counter
- Revisions to the County's grading ordinance to incorporate the Washington State Department of Ecology/Community, Trade and Economic Development technical guidance on grading
- Parking comparison and recommendations

Status of Recommendations and of the LID Approach

- Code has not been changed, though progress has been made on LID
- Adopted the 2005 Department of Ecology Manual
- Staff have received training on LID and on manual
- Developers are proposing LID to accomplish other things, so intent of PLID/clustering regulations are being met in many cases
- Clearing and grading ordinance that was provided – already required under 2005 stormwater manual – maximum impervious surface is more applicable to plats, so not as applicable in County, where typical size is 5 acre parcel
- Have offered a brochure on LID
- Workshop for LID sponsored by green building groups of Clallam and Jefferson counties
- Jefferson County is going forward with encouraging and incentivizing LID, rather than requiring LID
- LID Manual: adopted 2005 Ecology manual, refer to LID Technical Guidance Manual for Puget Sound

Barriers to Implementation of Recommendations and the LID Approach

- Staff changes and staff workload (Critical Area Ordinances, Shoreline Master Program, etc.)
- Don't have design specs for LID – no "off-the-shelf" designs, also no "off-the-shelf" processes for LID for owner/contractors or developers, need a system to encourage/allow LID without requiring an engineer

- Jefferson County is rural, 1 parcel per 5 acres or 10 acres; open space tax program (if pull out greater than 1 acre, will pay tax, so strong incentive to not convert forest to other uses (agriculture or buildings)
- Don't have a "grading system" for LID during permit review, need some way to critique permits as they come in for the extent to which they use LID
- Only two (2) clustering applications received since 2001, so not high demand
- The public wants LID, especially those along shorelines (would benefit from having prescriptive methods of how to build a rain garden, etc., without an engineer)
- Struggle with pre-1900s platted lots that are small; how do we address these? How do we bring LID onto those lots?
- Perception that since LID is new, it costs more money, and doesn't work

Potential Solutions to Barriers

- Staff time and financial resources to fund staff time
- Small projects checklist for property owner to design and implement small projects using LID with no engineer needed
- Education for citizens on what LID is, types of LID, and what will work where (have lots of owner-contractors applying for permits, fewer big developers)
- Proof to citizens that LID can work in their backyard
- Education for citizens on link between actions/activities and Puget Sound health

Recommendations to the Puget Sound Partnership Regarding LID

- If LID were required at the State level, Jefferson County would do more of it; right now, LID lower on the priority list than other mandated tasks
- Ecology could add more BMPs to the manual (more location-specific BMPs, such as those for rural areas and for varying soil types)
- Provide more funding for projects and staff time

City of Kent

2009 Recipient

Contact: Alex Murillo

Interview Date: 3/18/10

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - Title 7 Utilities
  - Title 11 Environmental Management
  - Title 12 Planning and Land Development
  - Title 15 Zoning
  - Construction Standards
- Work Products:
  - Recommended changes to Title 7, Title 11, Title 12, and Title 15
  - Cottage Housing Demonstration Project Draft Ordinance
  - Draft Clearing and Grading Chapter
  - LID Road Standards and Details
  - Materials on native tree species, "Draft Protection of LID BMPs During Construction" outlining construction sequencing and practices for protecting pervious areas and LID practices during construction, "Maintenance of LID facilities" as guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques, "Background on the LID Performance Standards" describing the background and general methodology behind the development of the conventional stormwater volume reduction standards, minimum native vegetation retention, and maximum impervious surface standards and modeling assumptions, "Criteria for Determining LID is Feasible", and "Frequently Asked Questions about LID".

Status of Recommendations and of the LID Approach

- Recommendations not adopted
- Kent has new stormwater management plan in response to NPDES Phase II (March 2010)
- Kent currently use 1998 King County Surface Water Design Manual until new Surface Water Design Manual is approved (expected summer 2010), which is planned to be equivalent to the 2005 Ecology Manual

- Kent encourages LID, but has not changed Code
- LID Manual: Use LID Technical Guidance Manual for Puget Sound, not formally adopted

Barriers to Implementation of Recommendations and the LID Approach

- Staff turnover; Lack of available staff time, workload issues
- Setting priorities is difficult
- Code changes take time, hasn't been that long since recommendations were received; NPDES Phase II is prompting changes to standards; changes to code will follow

Potential Solutions to Barriers

- Prioritize LID (by mandating at state level)
- Partnership road show – for both LID and for general Partnership activities - Presentations to elected officials – different audience than technical staff (mayor, council, planning commission)

Recommendations to the Puget Sound Partnership Regarding LID

- Funding for demonstration projects
- Database with all LID projects in the region; would allow public and elected officials to go on 'e-tour' of LID projects to see benefits (environmental, aesthetic)

City of Kirkland

2006 Recipient

Contact: Jenny Gaus and Stacey Rush

Interview Date: 3/5/10

Scope of Regulatory Assistance Received

- Review of City codes and standards:
  - Chapter 95 – Tree Management and Required Landscaping
  - Chapter 105 – Parking and Parking Areas
  - Chapter 110 – Required Public Improvements
  - Chapter 125 – Planned Unit Developments
- Public Works Standards – new standards/drawings reflecting LID objectives and thresholds (8 new standard drawings)
- Low Impact Development Standards (LID chapter to the Kirkland Municipal Code)
- LID incentives package
- Impervious surface comparison (compares established impervious surface maximum limits across all eight 2006 participant jurisdictions)
- Supplementary Information on green roofs and pervious pavement

Status of Recommendations and of the LID Approach

- Recommendations have not been fully adopted
- Process is starting but moving slowly
- Passed chapter 113 of Zoning Code (clustering), though this has changed from original recommendations
- Planned Low Impact Developments chapter is great but not as applicable to Kirkland, which has few planned unit developments, rather small lots, dense development, with most projects < 1 acre
- Adopted 2009 King County Surface Water Design Manual (effective 1/1/10)
- Require all City CIP projects to consider LID
- Pilot project as part of sidewalk project - Bioretention swales
- King County/Kirkland current project in Juanita Creek Basin, will have LID elements (grant from US Environmental Protection Agency)

- LID Manual: adopted 2009 King County Surface Water Design manual, refer to LID Technical Guidance Manual for Puget Sound

Barriers to Implementation of Recommendations and the LID Approach

- Staff time, workload (other priorities, including newly annexed area)
- In Kirkland, inspectors do all types of inspections (e.g., water, sewer, streets, stormwater); are not equipped to inspect details on soil standards and tree retention, also limited experience in inspecting LID
- LID-related items are in numerous parts of the city code (e.g., landscaping, roads, etc.), difficult, must change multiple parts, not just one
- Perception within city of higher costs of LID versus conventional (more time to review permit, more time to inspect)
- Receive questions from individual property owners on long-term maintenance of LID

Potential Solutions to Barriers

- Assistance with plan review (outside contractor or shared regional resource?)
- Outside private contractor or shared regional resource to inspect LID projects, would need to have good response time as to not slow construction
- Education of public on LID – how it works, that it works, maintenance requirements, etc. (time passes, LID projects are successful over time, the public need to see results over time, this will help culture shift
- Bring in more LID into 2005 Washington State Department of Ecology Manual
- Organize tours of existing sites – not just for city staff, but for electeds and the public
- Partnership should stress importance of stormwater in overall Puget Sound health, and should continue to share resources as they have been (continue offered trainings, programs)

Recommendations to the Puget Sound Partnership Regarding LID

- Funding for pilot projects

Kitsap County

2005 Recipient

Contact: Jeff Rowe-Hornbaker

Interview Date: 3/3/10

Scope of Regulatory Assistance Received

- Preparation of Planned Low Impact Developments Chapter
- Preparation of Cost Comparison
- Preparation of An Incentives Matrix
- Revision to Technical Deviation Language
- Revision to the Performance-Based Development Chapter to recognize LID as something that warrants PBD approval
- Preparation of a Landscaping and Native Vegetation chapter

Status of Recommendations and of the LID Approach

- Ordinance 375-2007, amending Kitsap County Code Chapter 12 relating to LID, hasn't substantively changed from recommendations (passed February 2007)
- Implemented several high-profile projects, now will monitor results (on-line tool on Kitsap County website showing locations of LID implementation)
- General acceptance of LID amongst public and elected officials
- Kitsap Board of County Commissioners held a LID Informational Workshop (Jan 2010)
- Kitsap Low Impact Development Standards Implementation Project
- Stormwater BMP Simplified Sizing Tool (March 2010)
- LID Manual: Developed the LID Guidance Manual – A Practical Guide to LID Implementation in Kitsap County (July 1, 2009)

Barriers to Implementation of Recommendations and the LID Approach

- Slow economy has limited growth, fewer opportunities for LID in new developments
- Retrofits are challenging

Potential Solutions to Barriers

- For public and elected—education materials, organized tours, presentations on LID—what's worked, what hasn't

Recommendations to the Puget Sound Partnership Regarding LID

- Continue assistance
- Additional funding for pilot projects, education

City of Lacey

2006 Recipient

Contact: Doug Christenson

Interview Date: 3/5/10

Scope of Regulatory Assistance Received

- Comprehensive review of City of Lacey codes and standards, review of residential right-of-way sections
- Detailed review and analysis of City of Lacey's Zero Effective Drainage Discharge Chapter 14.31 (Planned Low Impact Developments Chapter)
- 16.60 Planned Residential Development
- Roadway Sections and Details
- Supplemental Information on several pervious surfacing products

Status of Recommendations and of the LID Approach

- Recommendations have not been adopted
- Changes will be made to recommendations (some wording was confusing, also may be adopting less stringent requirements than what was recommended)
- Updated stormwater manual, included LID standards
- Zero effective drainage discharge ordinance in place
    - Allows LID, has some elements of LID, so developers and public can gradually ease into LID
    - Not an LID ordinance, though has some of the same benefits as an ordinance would have
    - Recently set criteria for zero effective discharge ordinance, making it more enforceable
- Approximately 20 projects have LID BMPs included, with several more in the works
- LID Manual: Developed their own, utilizing others (including LID Technical Guidance Manual for Puget Sound
- LID strongly encouraged, have to prove it is not feasible to avoid using LID

Barriers to Implementation of Recommendations and the LID Approach

- Available staff time, other priorities
- Lack of developer/builder knowledge of LID

- Perception of higher cost of LID, perception that LID hinders permit review (permit reviews take longer and require more effort, therefore more expensive)
- Lack of knowledge on part of public and elected officials that LID works and can look good
- Internal (city) agreement on LID standards, fire inspector not supportive of decreased roadway widths
- Don't allow permeable pavement in the right of way because of discomfort, working to address sources of discomfort
- As retrofits are encouraged, maintenance will become more and more of an issue

Potential Solutions to Barriers

- Funding for additional staff resources
- Education materials on effectiveness of LID and how it can enhance aesthetics (rain gardens, pervious pavement)
- Education materials on costs of LID versus conventional systems
- Training for permit reviewers on LID
- Education on using pervious pavement in the right-of-way
- Standardize materials and techniques would decrease cost and increase public demand
- Template or tutorial for developer/builder, can be either for water quantity or treatment (or both), step-by-step instructions on which techniques to use where (soils, etc.), which to use for either water quantity or treatment, and how to size them; straightforward way to make sure that calculations are done properly

Recommendations to the Puget Sound Partnership Regarding LID

- Puget Sound Partnership can continue to get the message out to public, elected officials
- Mandate LID to some extend (would increase implementation)
- Provide simplified design instructions (an easy-to-use tool to size)

City of Lake Forest Park

2008 Recipient

Contact: Stephen Bennett

Interview Date: 4/15/10

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - 16.08 – Land Clearing and Grading
  - 16.14 – Tree Protection and Replacement
  - 16.24 – Drainage
  - 17.08 – Subdivisions and Dedications
  - 17.12 Short Subdivisions
  - 18.16-18.44 - Zoning
  - 18.58 – Off-Street Parking
  - 18.62 – Screening and Landscaping
  - Road Standard Modification of King county Road Standards and Detail Drawings (2-001, 2-002, 2-003, 2-008, 2-006, 5-011, 5-013)
- Work Products:
  - Language supporting mandatory LID standards for residential projects was recommended for inclusion into 17.08, 17.12, 18.16, 18.62 (Lake Forest Park supports incentive-based approach to LID on commercial development)
  - Suggested revisions to 16.08, 16.14, 16.24, 17.08, 18.16-18.44, 18.58, and 18.62
  - Road Standards (Lake Forest Park uses King County Road Standards), modified road standards to incorporated LID
  - Materials on LID incentives, native tree species, and "Draft Protection of LID BMPs During Construction" (outlining construction sequencing and practices for protecting pervious areas and LID practices during construction)

Status of Recommendations and of the LID Approach

- Clearing and Grading recommendations were adopted in 2/11/10 in order to comply with NPDES Phase 2 permit requirements; the recommended language was revised to be more specific with regards to City of Anacortes
- Anacortes is developing code revisions and materials for public education through funding from a Coordinated Prevention Grant; Code revisions planned for early 2011

- Anacortes offers incentives for use of pervious pavement
- Latest version of King County stormwater design manual (allowing more LID solutions for stormwater design)
- City's Environmental Quality Commission and Planning Commission are very eager to see provisions adopted
- LID Manual: LID Technical Guidance Manual since it is reference to the King County Stormwater design manual

Barriers to Implementation of Recommendations and the LID Approach

- Staff time is limited

Potential Solutions to Barriers

- Additional grants to hire consultants for shepherding LID regulations through the adoption process

Recommendations to the Puget Sound Partnership Regarding LID

- Additional grants to hire consultants to assist with LID implementation (LID regulations)
- Grants for LID projects

City of Lake Stevens

2008 Recipient

Contact: Shane Oden

Interview Date: 3/5/10

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - 14.44 Supplementary Use Regulations
  - 14.48 Density and Dimensional Regulations
  - 14.56 Streets and Sidewalks
  - 14.64 Floodways, Floodplains, Drainage, and Erosion
  - 14.72 Parking
  - 14.76 Screening and Trees (Landscape Chapter)
  - 14.80 Building and Construction
  - Engineering Design and Development Standards (Draft)
- Work Products:
  - Proposed modifications to 14.44, 14.48, 14.56, 14.64, 14.72, and 14.76
  - Draft Native Vegetation Retention Chapter
  - Draft LID Chapter
  - LID Road Standards and Details
  - Additional information: Parking requirements comparison and 14.80 Building and Construction
  - Materials on LID incentives, native tree species, and "Draft Protection of LID BMPs During Construction", outlining construction sequencing and practices for protecting pervious areas and LID practices during construction, and "Maintenance of Low Impact Development Facilities" – Guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques

Status of Recommendations and of the LID Approach

- Majority of the recommendations and code amendments / additions have been completed and are ready to move forward to Council; City will also move forward with amendments/additions to grading and drainage code (goal: all adopted by September 2010)

- Minor changes have been made to the recommendations before being carried forward for adoption
- Working forward on adoption of codes and policies along with standard plans and outreach programs
- LID has been incorporated into a few capital projects
- Utilize a city flyer to encourage LID for development and redevelopment
- Integrate LID whenever possible into CIP and Comprehensive Plan
- LID Manual: Adopted the LID Technical Guidance Manual for Puget Sound

Barriers to Implementation of Recommendations and the LID Approach

- Need to develop a shared vision for LID
- Limited staff time (LID has to compete with ongoing code amendments that are of higher priority because they are required); however, LID is now a priority
- Development community lack of familiarity with designing and implementing LID (City provides information, education, and resources on LID. However, engineers and developers are still reluctant because they are more familiar developing using conventional methods of stormwater management)
- City receives comments about the higher costs associated with LID as opposed to traditional methods

Potential Solutions to Barriers

- Truth-tested evidence of the cost-effectiveness of LID to share with engineers and developers

Recommendations to the Puget Sound Partnership Regarding LID

- Assist municipalities with developing a shared vision for LID
- Provide cost modeling

City of Marysville

2005 Recipient

Contact: John Cowling

Date: 3/10/08

Scope of Regulatory Assistance Received

- Draft new chapter for regulation of LID projects
- Review existing code for conflicts with implementation of LID and identify opportunities to include LID techniques within the code framework
  - Title 12 (Streets and Sidewalks)
  - Title 14 (Water and Sewers)
  - Title 19 (Zoning)
  - Title 20 (Subdivisions)
- Work Products:
    - Review street standards and recommend LID options
    - Provide options for application in the downtown area
    - Draft LID ordinance

Status of Recommendations and of the LID Approach

- Adopted May 14, 2007
- No significant changes, only minor changes to make it more consistent with zoning code
- No one has used the code yet (residential), one development expressed interest; potential for LID use as economy rebounds
- LID has been used in commercial developments (rain gardens, pervious asphalts)
- LID Manual: Adopted the LID Technical Guidance Manual for Puget Sound

Barriers to Implementation of Recommendations and the LID Approach

- Economy is slow, so little to no development
- Much of Marysville has good soils for LID (sandy, good infiltration), so LID could save developers a lot of money in fill; not the case in higher elevations in the city, with till soils
- Public has not been active in LID implementation, no strong opinions either way, possibly because they are not as knowledgeable as they could be

- Permit reviews are going well, staff are knowledgeable and specified review deadlines are met even with LID (may change if sudden increase in LID projects, but not now)

Potential Solutions to Barriers

- Though Marysville is not experiencing these barriers, potential solutions to barriers found elsewhere include:
  - Knowledgeable staff performing permit reviews is key (training)
  - Engineer performing the design should be knowledgeable (training, tutorials on LID), reduces permit review time

Recommendations to the Puget Sound Partnership Regarding LID

- Would benefit from detailed mapping exercise Puget-Sound wide to assess feasibility of LID (based on soils, critical areas, etc.)
- Education materials for implementing LID on till soils

Mason County

2006 Recipient

Contact: Emmett Dobey

Date: 3/26/10

Scope of Regulatory Assistance Received

- Review of County codes and standards:
  - Mason County Code (MCC) 14.44 – Excavation and Grading
  - MCC 11.04 – Forest Practices Moratorium
  - Draft MCC 17.60 & 17.61 – Master Development Plans
  - MCC 16.21 – Performance Subdivisions
  - MCC 16.23 – Cluster Subdivisions
  - Title 17 – Zoning
- Work Products: Clear and Grade Ordinance, 17.31 Landscaping in the Belfair Urban Growth Area (UGA 17.17 landscaping in the Allyn UGA, Draft of 17.70 LID Chapter, Draft of 16.25 LID Subdivisions, draft of 17.60 Master Development Plans, Public Benefit tax Analysis

Status of Recommendations and of the LID Approach

- Belfair and Allyn UGAs are sensitive/critical areas, as are shellfish shorelines, LID is required in these areas; marine recovery areas are next priority
- No activity on updates to Clearing and Grading or Subdivision requirements, potential for this in the future
- Maintenance guide to be adopted (regulatory assistance provided in 2006 did not have enough maintenance guidelines/standards)
- Stormwater plans adopted in 2007, County Commissioners are supportive; currently undergoing rate study for stormwater utility
- LID Manual: use as technical reference, not adopted

Barriers to Implementation of Recommendations and the LID Approach

- Staff availability (other priorities)
- Public works will be "overseeing" LID once it is in the regulations. Inspectors and permit reviewers will need training
- Economy, no funds to implement LID, less development, political support for no new tax or fees

Potential Solutions to Barriers

- Technical assistance or funded position
- Training for permit review and inspection staff
- "Road show" on stormwater and LID, capabilities, potential benefits to Puget Sound, etc., for elected officials and public

Recommendations to the Puget Sound Partnership Regarding LID

- Partnership to give Mason County staff an LID 'roadshow' presentation
- Funding for demonstration projects
- Education, public involvement efforts

City of Mill Creek

2008 Recipient

Contact: Camille Chriest

Interview Date: 3/2/10

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - 15.12 – Grading, Excavation, and Land Filling
  - 15.14 – Surface Water Management Program
  - 16.02 – Design Standards
  - 16.04 – Plats
  - 16.12 – Planned Area Developments
  - 17.04 through 17.19 – Zoning Districts
  - 17.24 – Maintenance and Alterations of Structures and Landscaping
  - 17.25 – Native Vegetation Retention
  - 17.27 – Parking Standards and Requirements
  - 17.33 – Low Impact Developments (LID)
  - 17.34 – Design Review
  - Public Works Design and Construction Standards
- Work Products:
  - Proposed modifications to 15.12, 15.14, 16.02, 16.04, 16.12, 17.04 through 17.19, 17.24, 17.25, 17.27, 17.34
  - LID Road Standards and Details
  - Materials on LID incentives, native tree species, and "Draft Protection of LID BMPs During Construction", outlining construction sequencing and practices for protecting pervious areas and LID practices during construction, and "Maintenance of Low Impact Development Facilities" – Guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques

Status of Recommendations and of the LID Approach

- Recommendations adopted in part, most useful recommendations were the LID standard plans and details

- Recommended modifications to code and standards were modified to "encourage" LID use, though Planning Department preferred that LID be required.
- Recent refurbishment of an existing commercial development has LID techniques proposed (green roof, rain garden, rain barrels and cistern), though yet to be implemented
- The City has integrated LID practices into a public road and drainage project, including pervious sidewalk pavement and a bioretention filtration system; on separate project, used pervious pavers in a parking area adjacent to a new traffic signal
- Shared vision amongst staff to incorporate LID practices whenever site and soil conditions, as well as cost considerations, make it feasible
- LID Manual: Adopted the LID Technical Guidance Manual by reference

Barriers to Implementation of Recommendations and the LID Approach

- The recommendations were adopted but yet to be used in any projects (sluggish economy has slowed land use applications)
- Not strong public opinion regarding LID or stormwater in general, though a few citizens have expressed support of using LID techniques
- Planning Commission supported requiring LID when feasible, though City Council preferred to encourage LID where feasible; Local building association (Master Builders Association of King and Snohomish Counties) supported the Council's decision to encourage LID.
- Perception that LID techniques cost more than conventional stormwater collection and treatment

Potential Solutions to Barriers

- Currently, City Code requires all plat and binding site plan applications include a feasibility analysis of low impact development facilities
- City staff currently offer to work with potential project applicants to educate them about the option of using LID techniques when feasible
- Planned future activities: During pre-application review process, staff will encourage the use of LID techniques whenever feasible
- Planned future activities: Staff will evaluate the feasibility of using LID in City projects

Recommendations to the Puget Sound Partnership Regarding LID

- Workshops and/or panel discussions are always helpful

City of Mukilteo

2008 Recipient

Contact: Glen Pickus

Interview Date: 3/5/10

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - 13.12 Drainage Management
  - 15.16 Grading and Excavation
  - 17.56 Parking
  - 17.58 Landscaping
- Work Products:
  - Proposed modifications to 13.12, 15.6, 17.56, 17.58
  - Draft of Native Vegetation Retention Chapter (17.59)
  - LID Road Standards and Details
  - Additional information on LID Zoning Recommendations and a Parking Requirements Comparison
  - "LID Draft Chapter", a draft document that establishes critical components of a 'true' LID project for staff reference during future code amendments
  - Materials on LID incentives, native tree species, and "Draft Protection of LID BMPs During Construction", outlining construction sequencing and practices for protecting pervious areas and LID practices during construction

Status of Recommendations and of the LID Approach

- No recommendations have been adopted; will adapt according to local conditions (soils, density, etc.)
- New City Hall and Community Center have LID elements
- Supportive City Council
- Have code updates in draft form to address NPDES stormwater compliance, includes LID
- LID Manual: Have not adopted an LID Manual, use the LID Technical Guidance Manual for Puget Sound as technical resource

Barriers to Implementation of Recommendations and the LID Approach

- Lack of common understanding of the recommendations and shared vision for LID
- Staff time (have the materials they need and the support they need from elected officials and decision-makers, but are working on higher priorities)

Potential Solutions to Barriers

- Additional education materials
- Additional staff resources
- Funding for pilot projects to prove LID will work in Mukilteo

Recommendations to the Puget Sound Partnership Regarding LID

- The Puget Sound Partnership could keep track of codes, standards, and LID projects in one centralized database to help those municipalities that are behind

City of Normandy Park

2006 Recipient

Contact: John Adamson

Interview Date: 3/5/10

Scope of Regulatory Assistance Received

- Review Normandy Park codes and standards:
  - Title 10 Streets and Sidewalks
  - Title 17 Subdivisions and Plats
  - Title 18 Zoning
  - Chapter 13.20 Normandy Park Municipal Code (NPMC) – Land Clearing, Grading, and Filling
  - Chapter 18.58 NPMC – Planned Residential Development
- Work Products: Land clearing, grading and filling chapter re-write, draft changes to zoning district dimension chart, changes to Ch 18.08, site landscaping and tree retention (new landscape code), Planned Low Impact Development chapter, LID road standards

Status of Recommendations and of the LID Approach

- Recommendations not adopted
- Small site drainage manual approved 6 months ago, includes LID practices and BMPs (encouraged using incentives)
- Zoning code currently being re-done (Normandy Park City Council needs to approve before planning commission takes on zoning changes)
- Public Works initiated changes to engineering standards, started with Ecology Manual and made it more appropriate for Normandy Park (if adding greater than 500 square feed of impervious surface, now have to bring entire property up to small site drainage manual)
- Anticipate either adoption or equivalent to 2005 Washington State Department of Ecology Manual in 2008 (now using 1998 King County)
- LID Manual: Use own small site drainage manual, used various sources to develop (including LID Technical Guidance Manual for Puget Sound)

Barriers to Implementation of Recommendations and the LID Approach

- Workload, staff availability with Critical Areas Ordinances, others
- Need increased coordination, common vision with City of Des Moines, 'uphill' from Normandy Park

- Cost, or perception of cost, is barrier (don't see the benefit of the extra expense)
- Difficult to implement LID in a built-up city

Potential Solutions to Barriers

- Funding for staff time, hiring additional staff (LID is in comprehensive plan and in City CIP, but don't have the time or money to implement pilot projects and projects on city-owned property)
- Training materials for staff conducting permit reviews and inspections
- Techniques, tutorials, technical assistance to help implement LID in a built-up city with very little (if any) new development
- Partnership presentation to public and elected officials on LID, stormwater, and the link to Puget Sound health (class was excellent, but would be helpful for public and elected officials, too)

Recommendations to the Puget Sound Partnership Regarding LID

- Grants to hire staff
- More education opportunities and resources

City of Oak Harbor

2008 Recipient

Contact: Steven Powers

Interview Date: 3/8/10

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - 11.17 Street Design Standards
  - 12.20-12.30 Stormwater Management
  - 19.20 Zoning
  - 19.31 Planned Residential Developments
  - 19.44 Parking
  - 19.46 Landscaping and Screening
  - 19.47 Land Clearing
  - 21.20 – 21.30 Subdivisions (Preliminary Plat and Final Plat)
  - 21.40 Design Standards
  - Engineering Standard Details
- Work Products:
  - Proposed modifications to 11.17, 12.20-12.30, 19.31, 19.20, 19.44, 19.46, 19.47
  - LID Road Standards and Details
  - Additional information was provided for 21.20-21.30 (Subdivisions – Preliminary Plat and Final Plat), for 21.40 Design Standards (including road sections and details)
  - Draft LID Chapter
  - Materials on LID incentives, native tree species, and "Draft Protection of LID BMPs During Construction", outlining construction sequencing and practices for protecting pervious areas and LID practices during construction, and "Maintenance of Low Impact Development Facilities" – Guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques

Status of Recommendations and of the LID Approach

- Not adopted, on the work plan for 3rd quarter 2010; discussions have started amongst elected officials, the public, and staff
- May 'tweak' from recommendations to better suit development pattern of Oak Harbor

- Subdivision code currently being re-worked, LID code is a subset of this
- Haven't implemented pilot projects, but have implemented LID techniques on a couple of park projects (pervious pavement, rain barrels)
- The Council has embraced the idea of LID
- LID Manual: have adopted the 2005 Ecology Manual, and refer to the LID Technical Guidance Manual for Puget Sound

Barriers to Implementation of Recommendations and the LID Approach

- Densities are not high (4-5 housing units per acre), so incentives for clustering are not effective
- Streets maintenance crews concerned about long-term maintenance needs
- Busy with other things (NPDES Phase 2, others)

Potential Solutions to Barriers

- Case studies on public projects would help prove that LID works

Recommendations to the Puget Sound Partnership Regarding LID

- More funding in the form of technical assistance (a more in-depth version of assistance received as part of this program – didn't have a lot of time to interact, so product wasn't as specific to Oak Harbor as desired)
- Assistance with characterizing long-term costs (ex: maintenance) of LID, and of communicating this to public, developers, maintenance staff

City of Port Angeles

2006 Recipient

Contact: Scott Johns

Interview Date: 3/3/10

Scope of Regulatory Assistance Received

- Review City codes and standards:
  - PAMC 15.24 – Wetlands Protection
  - PAMC 15.28 – Clearing, Grading, Filling and Drainage Requirements
  - PAMC Title 16 – Subdivisions
  - PAMC Title 17 – Zoning
  - Road Sections and details for the City of Port Angeles
- Work Products: 15.28 – Clearing, Grading, Filling and Drainage Requirements, 17.44 – Planned Low Impact Development Chapter, Right-of-Way Standards and Parking Lot Details, LID Incentives

Status of Recommendations and of the LID Approach

- The planned LID overlay zone has been adopted into the zoning code, no applications made under this yet (changed this quite a bit from the recommendations)
- Modifications made to street profiles
- Haven't had a land division application for several months (economy has changed), after having 700 new lots in the last 3 to 4 years
- Did not adopt the suggested clearing and grading section (probably won't adopt – the prepared version seemed more appropriate for rural areas)
- LID project at Future Builders house, build 1 house per year, employ high school kids, implemented monitoring study to compare LID vs. non-LID (Paired study), seen 'dramatic' differences (monitored since November 2009)
- Other LID Projects: Church Street Subdivision (street paved with pervious concrete), Rain Gardens at Housing Authority of Clallam County site (cluster o f 8 homes)
- Infill overlay zone; was not intended as LID, but has same benefits of increasing density in urban areas and of reducing sprawl (have had it for three years, but only used once as demand for additional housing has decreased)
- LID Manual: Adopted the LID Technical Guidance Manual for Puget Sound

Barriers to Implementation of Recommendations and the LID Approach

- Staff time (have three to four capital projects currently underway, staff don't have time, also National Pollutant Discharge Elimination System compliance, combined sewer overflows, etc.)
- Lack of LID materials (ex: pervious concrete) locally
- Local contractors not trained on how to install LID (for example, how to lay pervious pavement)
- LID is more expensive now (design, permit review, etc. is different, therefore takes more time right now, also transportation costs for pervious concrete are high on the peninsula), but won't always be
- Economic slowdown, fewer developments and home buying
- No clear way to use LID to retrofit old neighborhoods (typical 7,000-square-foot lot, curb and gutter drainage system), how to reduce stormwater from these areas?
- Reducing stormwater runoff is not as attractive to commercial/industrial users without incentives
- Short-term benefits vs. long-term benefits; in current economy, often go with short-term less expensive solution (LID perceived as more expensive)

Potential Solutions to Barriers

- Funding for additional staff time
- Education materials and tutorials for developers and owner/contractors submitting LID projects for permit review – better designs equal less permit review time
- Increased use of LID will help lower costs (in design, permit review, and materials costs), increase demand for LID (once economy picks up)
- Incentives for reducing stormwater runoff in commercial/industrial areas
- Developers see landscape plan as afterthought, could require more robust plan including requiring follow-through on plants chosen (wind tolerant, drought tolerant, tolerant of 'wet feet' in rain garden areas); see too often developer will just buy whatever is available at the time; Local nurseries could supply plant and soil material (require use of local suppliers)
- Technical assistance with designing a street section, also guidance on how to bring LID into streets standards/guidelines

Recommendations to the Puget Sound Partnership Regarding LID

- Inventory of LID projects and a summary of what's worked and what hasn't; what other peninsula communities of done for LID and how they've addressed the higher cost of materials

City of Port Orchard

2006 Recipient

Contact: James Weaver

Interview Date: 3/5/10

Scope of Regulatory Assistance Received

- Review City codes and standards:
  - Port Orchard Zoning Ordinance – emphasis on landscaping, tree retention and parking lot standards
  - Developers Handbook
  - Title 16 Port Orchard Municipal Code
- Work Products: right-of-way and parking details, Title 18 Clear and Grade Ordinance, Tree Canopy Standards, Planned Low Impact Developments (PLID) Chapter, Transfer of Residential Density Credits for Low Impact Developments

Status of Recommendations and of the LID Approach

- LID standards were adopted via ordinance in March 2008
- Planned Low Impact Developments chapter adopted in 2009
- Two LID projects in design (LID sidewalk project 'cedar heights', and Bay Street waterfront)
- Working towards LID as encouraged, rather than required (embraced 'wholeheartedly' by elected officials)
- LID Manual: use as technical reference

Barriers to Implementation of Recommendations and the LID Approach

- Staff time and availability (Critical Areas Ordinances, Shorelines)
- Glacial till soils make LID challenging, though pockets of land that are more suitable; also have high water problems in low areas
- Merging these new recommendations (code changes) with existing code, regulations, plans (Growth Management Act), etc. is toughest part of LID – the actual implementation, changing the way things are done and how it all is "married" together is biggest challenge
- Current elected officials are on board (as is public), though a challenge to re-educate a group of elected officials every 2 years with election cycles

- Have no guidance on what to do if LID fails or how to prepare for "worst case" scenario, preparing inspectors, maintenance staff and engineers for real-time response is imperative
- Have serious problem with developers who clear sites, then abandon sites (economic slowdown), yet site is already cleared

Potential Solutions to Barriers

- Technical assistance or funding for staff person to develop ordinances, etc. an opportunity for a shared resource with other jurisdictions
- Incentives work better than mandates. Additional guidance on how to incorporate incentives

Recommendations to the Puget Sound Partnership Regarding LID

- Provide assistance with how to address sites cleared, then abandoned, by developers
- Provide funding for LID implementation (pilot projects, education, etc.)
- Provide additional education materials (for engineers, as engineers do not have continuing education requirements)
- Provide information on case studies, what's worked and what hasn't, cost-effective BMPs, methods to incentivize LID

City of Port Townsend

2009 Recipient

Contact: Samantha Trone

Interview Date:

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - Title 12 – Streets and Sidewalks
  - Title 13 – Water, Sewer, and Stormwater
  - Title 17 – Zoning (17.32, 17.34, 17.36, 17.44, 17.46)
  - Title 18 – Lane Division (18.24)
  - Engineering Design Standards (EDS)
- Work Products:
  - Proposed modifications to Title 12, Title 13, Title 17, and Title 18
  - Proposed modifications to Engineering Design Standards
  - LID Road Standards
  - Other materials: list of incentives that will facility the use of LID BMPs, document that outlines how edible landscapes relate to native vegetation and LID, and a user's guide to the LID performance standards table and modeling.
  - Other materials: list of native tree species, "Draft Protection of LID BMPs During Construction" outlining construction sequencing and practices for protecting pervious areas and LID practices during construction, "Maintenance of LID facilities" as guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques, "Criteria for Determining When LID is Feasible", "Background on the LID Performance Standards" describing the background and general methodology behind the development of the conventional stormwater volume reduction standards, minimum native vegetation retention, and maximum impervious surface standards and modeling assumptions, and "Frequently Asked Questions about LID".

Status of Recommendations and of the LID Approach

- Recommendations not adopted
- Several LID BMPs implemented on city property
- Port Townsend approach to LID is 1) encourage LID on private projects, 2) utilize LID on public projects

- (rain garden retrofits,
- Port Townsend encourages LID, but has not changed Code
- LID Manual: Use LID Technical Guidance Manual for Puget Sound, not formally adopted

Barriers to Implementation of Recommendations and the LID Approach

- Setting priorities is difficult
- Code changes take time, hasn't been that long since recommendations were received; NPDES Phase II is prompting changes to standards; changes to code will follow

Potential Solutions to Barriers

- Additional funding for education
- Share lessons learned from LID projects throughout the Pacific Northwest, database of what's worked and where

Recommendations to the Puget Sound Partnership Regarding LID

- Funding for demonstration projects
- Partnership 'road show' on LID

City of Poulsbo

2005 Recipient

Contact: Andrzej Kasiniak

Interview Date: 3/10/10

Scope of Regulatory Assistance Received

- Work Products:
  - Roof downspout controls
  - LID road sections
  - Parking comparison and recommendations
  - Cost comparison memorandum
  - Planned Low Impact Developments Chapter
  - Incentives Matrix

Status of Recommendations and of the LID Approach

- Adopted LID ordinance (similar to Port Orchard and Kitsap County)
- Working on 'cookbook', or guidelines, for LID (in draft form as of March 2008)
- Several demonstration projects and projects with LID elements (including private development); some with monitoring; Porous pavement demonstration project implemented, now monitoring for three years
- March 2010 Stormwater Management Program (SWMP) refers to Kitsap County Stormwater Management Manual (1997) and the Stormwater Management Manual for the Puget Sound Basin (1992), though working on the following as part of NPDES Phase II compliance efforts:
  - development and implementation of ordinances for stormwater management
  - Adoption of minimum requirements and technical thresholds equivalent to the 2005 Ecology Manual for Western Washington and the revision of associated codes and standards as necessary
- Poulsbo encourages LID on projects within the City but aren't yet fully there with ordinances and code changes (encourage the use of LID on projects)
- Staff are trained on LID
- LID Manual: Developed the LID Guidance Manual – A Practical Guide to LID Implementation in Kitsap County (July 1, 2009)

Barriers to Implementation of Recommendations and the LID Approach

- Poulsbo does not have a dedicated stormwater person much less one for LID
- Lack of resources, both time and money
- Updating all parts of code and standards that relate to LID

Potential Solutions to Barriers

- Shared resources for maintenance requirements of LID (shared with other jurisdictions, both personnel and equipment)

Recommendations to the Puget Sound Partnership Regarding LID

- Additional technical assistance
- Funding for additional demonstration projects

City of Redmond

2005 Recipient

Contact: Cathy Beam

Interview Date: 03/8/10

Scope of Regulatory Assistance Received

- Review City codes and standards:
  - Critical Areas Ordinance and Natural Features Element, RCDG 20.80
  - Landscaping and Tree Protection, RCDG 20C.30-100
  - Maximum Lot Coverage of Structures, RCDG 20C.30.25-110
  - Maximum Impervious Surface, plus associated site requirement charts for the various zoning districts
  - Redmond Shoreline Master Program, RCDG 20E.90
  - Clearing, Grading, and Stormwater Management, Clearing, Grading, and Stormwater Management Technical Notebook, Issue No. 4,RMC Chapter 15.06
  - Fire Code
  - Standard Specifications and Details for Public Works Construction, 20D.180
- Work Products
  - Clearing Grading and Stormwater Management Technical Notebook review,
  - Memorandum helping the City address water and sewer bedding requirements,
  - New LID Chapter (Chapter 16),
  - Guidance on maintenance of LID facilities,
  - Example of site analysis documents for modeling work done (Pierce County Hylebos project)

Status of Recommendations and of the LID Approach

- Adopted recommendations into the 2007 stormwater manual:
  - LID is not being used on a technical basis, though not an administrative or policy topic yet; recommendations were adopted as-is
  - It's working this way, though LID never went through a public process or council/planning commission)
- Zoning code or stormwater regulations changes are planned, need to have public discussions first

- Elected officials back "green" approaches and sustainability, the momentum is in the right direction
- LID Manual: Adopted LID Technical Guidance Manual by reference in the stormwater code

Barriers to Implementation of Recommendations and the LID Approach

- Specifics on LID are not well understood (what works well where, what are benefits, what are limitations, LID is more than just permeable pavement)
- Discomfort with change (LID is new and different and therefore harder to review, inspect, design, and maintain); LID isn't "proven," according to some
- With economic slowdown, less development
- Overlake area is glacial till, so LID is difficult; downtown is better suited for LID (though doing regional approach to stormwater in downtown)

Potential Solutions to Barriers

- Internal training (permit review staff, inspectors, those that maintain facilities)
- Education of elected officials and public (what works well where, what are benefits, what are limitations, demonstrated effectiveness, LID works better in some areas of the city than others)
- "Proof" provided to public that LID works
- Partnership should continue outreach, if not enhance
- Message that LID is important has to come from above, from decision-makers and elected officials

Recommendations to the Puget Sound Partnership Regarding LID

- The Partnership could hold education for City staff and developers (2-3 hour workshop is better than an entire day)
- Inventory of local, tried-and-true examples, a database

San Juan County

2008 Recipient

Contact: Colin Maycock

Interview Date: 3/9/10

Scope of Regulatory Assistance Received

- Review of County codes and standards
  - 16.55 Eastsound Subarea Plan
  - 18.50.340 Transportation facilities in shoreline areas
  - 18.60.050 Density, Dimension, and Open-Space Standards
  - 18.60.060 Clearing and Grading Standards
  - 18.60.070 Stormwater Management
  - 18.60.080-100 Standards for Public and Private Roads
  - 18.60.120 Parking
  - 18.60.160 Landscaping
  - 18.70.060 Design and Development Standards
  - Road Standards
- Work Products:
  - Proposed modifications to 16.55, 18.50.340, 18.60.050, 18.60.060, 18.60.070, 18.60.080-100, 18.60.120, 18.60.160,
  - Proposed Revisions to 18.70.060 (Design and Development Standards)
  - Draft LID Chapter (18.60.270)
  - Draft Tree Canopy Conservation Chapter (18.60.165)
  - LID Road Standards and Details
  - Materials on LID incentives, native tree species, and "Draft Protection of LID BMPs During Construction", outlining construction sequencing and practices for protecting pervious areas and LID practices during construction, and "Maintenance of Low Impact Development Facilities" – Guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques

Status of Recommendations and of the LID Approach

- Just beginning efforts to implement the recommendations and change the code, will likely tweak recommendations

- Rain gardens and other LID BMPs are encouraged for small projects, but current code makes it difficult
- Stormwater regulations are a barrier to LID, changes are planned for short-term
- LID Manual: non adopted

Barriers to Implementation of Recommendations and the LID Approach

- Challenging on framing the LID discussion to the public and elected officials
- Staff time (long-range planners have other priorities)

Potential Solutions to Barriers

- Additional technical resources (though do have current expertise in LID)
- Assistance with presentations to the public
- Mapping activities (assistance to GIS department)
- Education materials
- Opportunities for collaboration would help bring folks together

Recommendations to the Puget Sound Partnership Regarding LID

- Provide assistance with mapping locations where LID could be feasible (based on soils, topography, etc.)
- Provide technical resources, presentations to the public, education materials

City of Sequim

2009 Recipient

Contact: Joe Irvin

Interview Date: 3/10/10

Scope of Regulatory Assistance Received

- Review of City codes and standards
  - Title 12 – Streets, Sidewalks, and Public Places
  - Title 13 – Public Services (13.108 Stormwater Maintenance)
  - Title 17 – Subdivisions (17.12, 17.20, 17.24, 17.28, 17.32)
  - Title 18 – Zoning (18.22, 18.24, 18.28, 18.40, 18.44, 18.48)
- Work Products:
  - Proposed modifications to Title 12, Title 13, Title 17, and Title 18
  - LID Road Standards
  - Materials on native tree species, "Draft Protection of LID BMPs During Construction" outlining construction sequencing and practices for protecting pervious areas and LID practices during construction, "Maintenance of LID facilities" as guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques, "Background on the LID Performance Standards" describing the background and general methodology behind the development of the conventional stormwater volume reduction standards, minimum native vegetation retention, and maximum impervious surface standards and modeling assumptions, and "Frequently Asked Questions about LID".

Status of Recommendations and of the LID Approach

- The recommendations are planned for submittal to elected governing body late 2010. Had a delay in public process (public meeting ran over time and did not get to LID agenda item, then process delayed); have been given direction to bring the LID recommendations forward in late summer 2010.
- Small infill recreational/commercial developments utilizing LID BMPs (City park utilizing pervious asphalt for parking lot, and commercial development proposing a rain garden for stormwater management); examples of good early communication with the project proponents was key success factor
- North Olympic Peninsula Building Association doing good things for the LID cause
- Development review staff promote incorporation of LID into project designs; the vision is to integrate projects which manage stormwater where it falls while creating aesthetically and environmentally friendly site designs

- LID Manual: Have not adopted an LID manual

Barriers to Implementation of Recommendations and the LID Approach

- Leadership change during public participation stage of the LID code proposals (Public Works director and City Manager positions, City Manager position is now filled and in the process of filling the Public Works Director position)
- The North Peninsula's Builders Association has concerns with the proposed amendments as presented and their suggestions will definitely be presented to our governing body and will most likely be incorporated into the proposal
- Cost of installing LID is a talking point for those opposing LID code implementation
- Perception of LID costs and long-term maintenance needs (Olympic Peninsula may be more expensive for LID implementation because of transportation costs of materials)

Potential Solutions to Barriers

- Many of these barriers are being addressed currently, especially those internal to the city organization
- Have created a working task force with members from local home builders association and local engineers to discuss some alternative language, which should prove to be beneficial

Recommendations to the Puget Sound Partnership Regarding LID

- Nothing more at this time

Snohomish County

2005 Recipient

Contact: Randy Sleight / Bill Leif

Interview Date: 3/9/10

Scope of Regulatory Assistance Received

- Strategies to minimize impervious surfaces that include examining the street, parking use, height, density/dimension and native vegetation retention/restoration standards
- Review and recommendations on the Reduced Drainage Discharge Demonstration Program
- Preparation of a new chapter for LID projects that describes the site analysis process, provides interim recognition of LID Best Management Practices (BMPs) found in the 2005 Washington State Department of Ecology Manual
- Preparation of regulatory language that addresses ongoing access to and maintenance of LID facilities
- Review and amendment to Chapter 20.25 Snohomish County Code to require minimum standards for landscaped area soils
- Review and recommendation that the Draft Critical Areas Regulations (June 2005 draft) include bioretention as an approved BMPs

Status of Recommendations and of the LID Approach

- Adopted ordinance 06-044 in July of 2006
- Since June 2006 approval, have over 400 lots that can be described as LID or "LID-like", though development has slowed so this has slowed
- LID is not mandatory except in Fully Contained Communities (required by SCC 30.33A.150(6))
- LID Manual: Adopted the LID Technical Guidance Manual for Puget Sound in SCC 30.63C.010

Barriers to Implementation of Recommendations and the LID Approach

- Economy has slowed, staff reductions
- LID approval process (permit review) is difficult, different every time, have streamlined inspections in general, but still struggle with LID approvals; now each permit review is done on a case-by-case basis with decisions within the County right-of-way made by engineering, and decisions on private property made by planning and development services

- Differences in approach within County: allowing LID versus encouraging LID (via incentives); though now allow for reduced stormwater pond volumes with LID (for example)
- Elected officials vary in opinion on LID
- Materials for LID are expensive

Potential Solutions to Barriers

- Better understanding internally to Snohomish County clarity on which codes did change, which did not, and how to navigate through
- Need training/education for developers who wish to design LID
- Developers could use a "key" to help select BMPs, for example, the BMPs could be placed into categories based on applicability for any one situation and placed in order of preference according to Snohomish County
- "Road show" to educate elected officials on LID benefits, effectiveness, and limitations
- Materials are expensive, even though many providers of materials (amended soils, etc.) are local to Snohomish County

Recommendations to the Puget Sound Partnership Regarding LID

- Additional technical assistance
- Funding for demonstration projects

Thurston County

2005 Recipient

Contact: Mark Swartout

Interview Date: 03/5/10

Scope of Regulatory Assistance Received

- Preparation of revisions to draft stormwater management manual to integrate LID
- Preparation of a new landscaping and native vegetation retention chapter
- Recommendations on modifications to Forest Practices standards to provide tree retention for Class IV Conversions
- Review of impervious surface and other bulk/dimensional requirements from the Thurston County zoning code

Status of Recommendations and of the LID Approach

- Updated stormwater manual and standards; no other recommendations adopted
- Have a grant to do watershed characterization – to figure out where LID is feasible, then work to determine where it could be most effective
- LID Manual: Use LID Technical Guidance manual as technical reference, have not adopted an LID manual, though stormwater manual has LID elements

Barriers to Implementation of Recommendations and the LID Approach

- Staff availability and workload (other priorities)
- Public and elected officials are pushing for LID, limited by staff time and availability

Potential Solutions to Barriers

- Technical assistance or funded staff person for progressing on implementing recommendations
- Prove to developers that LID works, they will start using it (especially if shown economic incentives, such as smaller pond size)
- Forum for discussing big issues surrounding LID
- Education of public and elected officials on LID details, so that all are on the same page

Recommendations to the Puget Sound Partnership Regarding LID

- Create database with LID projects that have and haven't worked, to demonstrate to folks LID can work if proper approaches and tools are used (more effective than workshops)

Whatcom County

2005 Recipient

Contact: Peter Gill and Cathy Craver

Interview Date: 3/8/10

Scope of Regulatory Assistance Received

- Draft of new section 20.80.637 Whatcom County Code that establishes minimum standards for an LID project, including standards for residential uses, non-residential, new roads, and soil preservation and/or amendment
- Preparation of a Planned Low Impact Developments (PLID) chapter that provides incentives for applicants proposing LID subdivisions, standards for impervious surface cover, native forest, and soil preservation and/or amendments
- Research of available maintenance covenants for LID facilities
- Preparation of a maintenance manual for LID facilities

Status of Recommendations and of the LID Approach

- Not yet adopted PLID ordinance or minimum LID standards
- PLID ordinance and minimum LID standards will change because the PLID was built from the zoning code that will be re-written
- Have established water resources special management areas (soil and sediment control, phased LID, soil), also water resources protection overlay district, and stormwater special district (ex: Lake Whatcom watershed – any development that is not vested has to adhere to specific standards that are similar to what an LID ordinance would require)
- Requiring LID was recommended within the Birch Bay Stormwater Plan prepared for Whatcom County. The plan has been approved by Whatcom County Council
- In the process of changing Title 20 in the planning department; public works changing development standards
- Current approach is strongly encouraged in sensitive areas; possibly required in NPDES areas, if NPDES goes that way
- LID Manual: LID Technical Guidance Manual adopted by reference

Barriers to Implementation of Recommendations and the LID Approach

- Staff turnover, staff availability (National Pollutant Discharge Elimination System Phase II, Critical Areas Ordinances, Shorelines)
- Public knowledge of LID methods and effectiveness is lacking, education needed; need to bridge the public understanding gap
- Some of the public are behind it (example: Birch Bay, Lake Whatcom), but not all;

- Significant coordination is required between departments within County
- County staff not all knowledgeable to same degree
- Perception that LID is too expensive, as compared to conventional systems

Potential Solutions to Barriers

- Technical assistance or funding of ordinance-writing and coordination
- Funding of public outreach and education efforts
- Demonstration that reduced road widths do not prevent fire/emergency response
- Education and training of county staff (public works and planning) on LID benefits, concepts, applicability), especially with recent turnover
- Training of permit review staff to review LID projects
- Training of maintenance staff to maintain LID projects
- Shared resources among local governments regarding the regulatory aspects of LID (each local government has its own set of accomplishments and struggles, need to share information on what's worked and what hasn't), possibly Partnership or else WSU extension
- Education on costs of LID compared to conventional methods
- Local pilot projects would allow residents and elected officials to see LID first hand, would increase momentum for LID

Recommendations to the Puget Sound Partnership Regarding LID

- Funding for pilot projects, and code and engineering standards updates (Lake Whatcom especially, with TMDL)
- County-wide feasibility assessment regarding LID, could prioritize
- Continued education, workshops

City of Woodinville

2006 Recipient

Contact: Sarah Ruether

Interview Date: 3/5/10

Scope of Regulatory Assistance Received

- Review City codes and standards:
    - 20.02 Subdivisions, 21.12 Density and Dimensions, 21.14 Design Requirements, 21.16 Tree Retention and Landscaping, 21.18 Parking and Circulation, 21.34 Residential Density Incentives, 21.36 Transfer of Residential Density Credits, 21.38 Property Specific Development Standards
- Work Products
    - 21.12 Density and Dimensions, 21.34 Residential Density Incentives, 21.36 Transfer of Residential Density Credits, 21.37 Low Impact Development Chapter, Roadway Sections and Details, Supplemental Information on green roofs, pervious pavement, and native tree species

Status of Recommendations and of the LID Approach

- No recommendations adopted yet
- Plans for approaching planning commission, then council and public, regarding LID regulations
- LID Manual: use LID Technical Guidance Manual for Puget Sound as technical resource

Barriers to Implementation of Recommendations and the LID Approach

- Staff turnover and staff time availability, though LID is on work program for next few years and is there due to Council wanting it there (though since isn't required, isn't as much of a priority)
- Fire and maintenance have concerns with road widths, permeable pavers, respectively
- Council not as comfortable with LID (not proven yet)

Potential Solutions to Barriers

- Technical assistance by outside party
- Funding for staff position
- Documentation of LID that has worked elsewhere, potential applications locally
- Education of elected officials, public on LID: what works where and why

Recommendations to the Puget Sound Partnership Regarding LID

- Grants and other assistance
- Keeping LID in people's minds is good, education and information materials

Attachment C

Local Government Contact Information

2005 Recipients

Local Government	Contact Name	Title & Department	Contact Phone Number	Contact Email
Bellingham	Renee LaCroix	Planning and Community Development Department	360-778-7900	RLaCroix@cob.org
Clallam County	Carol Creasy	Senior Planner, Department of Community Development	360-417-2423	ccreasey@co.clallam.wa.us
Issaquah	Trish Heinonen Kerry Ritland	Planning Manager, Planning Department Surface Water Manager, Public Works Department Works	425-837-3095 425-837-3410	TrishH@ci.issaquah.wa.us KerryR@ci.issaquah.wa.us
Jefferson County	Stacie Hoskins	Long Range Planning Manager, Department of Community	360-379-4463	shoskins@co.jefferson.wa.us
Kitsap County	Jeff Rowe-Hornbaker	Assistant Director, Community Development Department	360-337-7181	jhornbak@co.kitsap.wa.us
Marysville	John Cowling	Development Services Manager, Community Development	360-363-8100	jcowling@ci.marysville.wa.us
Poulsbo	Andrzej Kasiniak	Assistant Director, Public Works Department	360-779-5111	akasiniak@cityofpoulsbo.com
Redmond	Cathy Beam	Principal Environmental Planner, Planning and Community Development Department	425-556-2429	cbeam@redmond.gov
Snohomish County	Randy Sleight Bill Leif	Chief Engineering Officer, Planning and Development Services Environmental Compliance Programs, Public Works	425-388-3311 ext. 2014	Randy.Sleight@co.snohomish.wa.us B.Leif@co.snohomish.wa.us
Thurston County	Mark J. Swartout	Natural Resources Program Manager, Development Services Department	360-709-3079	swartom@co.thurston.wa.us
Whatcom County	Peter Gill Cathy Craver	Senior Planner, Planning and Development Services Planner, Planning and Development Services	360-676-6907 360-676-6907	pgill@co.whatcom.wa.us ccraver@co.whatcom.wa.us

Local Government Contact Information

2006 Recipients

Local Government	Contact Name	Title & Department	Contact Phone Number	Contact Email
Edmonds	Robert Chave	Planning Manager, Development Services Department	425-771-0220	Chave@ci.edmonds.wa.us
Kirkland	Jenny Gaus Stacey Rush	Surface Water Manager, Public Works Dept. Surface Water Engineer, Public Works Dept.	425-587-3850 425-587-3854	jgaus@ci.kirkland.wa.us srush@ci.kirkland.wa.us
Lacey	Doug Christenson	Water Resources Engineer, Public Works Department	360-438-2686	dchriste@ci.lacey.wa.us
Mason County	Emmett Dobey	Utilities Manager	360-427-9670	emmettd@co.mason.wa.us
Normandy Park	John Adamson	Director, Community Development Department	206-248-8257	johna@ci.normandy-park.wa.us
Port Angeles	Scott Johns	Associate Planner, Community and Economic Development	360-417-4752	sjohns@cityofpa.us
Port Orchard	James Weaver	Development Director, Planning Department	360-876-4991	jweaver@cityofportorchard.us
Woodinville	Sarah Ruether	Planner, Public Works Department	425-489-2700	sarahr@ci.woodinville.wa.us

Local Government Contact Information

2008 Recipients

Local Government	Contact Name	Title & Department	Contact Phone Number	Contact Email
Anacortes	Don Measamer	Assistant Director, Planning and Community Development	360-293-1901	don@cityofanacortes.org
Bremerton	Larry Matel	Managing Engineer, Public Works and Utilities	360-473-5342	Larry.Matel@ci.bremerton.wa.us
Coupeville	Malcolm Bishop	Director, Public Works and Utilities	360-678-4461	mbishop@whidbey.net
Eatonville	Nick Bond	Town Planner	360-832-3361	Nicholas@eatonville-wa.gov
Everett	Jane Zimmerman	Engineer, Public Works	425-257-8885	jzimmerman@ci.everett.wa.us
Federal Way	Janet Shull	Senior Planner	253-835-7000	janet.shull@cityoffederalway.com
Hamilton	Margaret Fleek	Planning Director, City of Burlington Planning Department	360-755-9717	margaretf@ci.burlington.wa.us
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Lake Stevens	Shane Oden	Project Engineer, Department of Public Works	425-212-3317	soden@ci.lake-stevens.wa.us
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Local Government Contact Information

2009 Recipients

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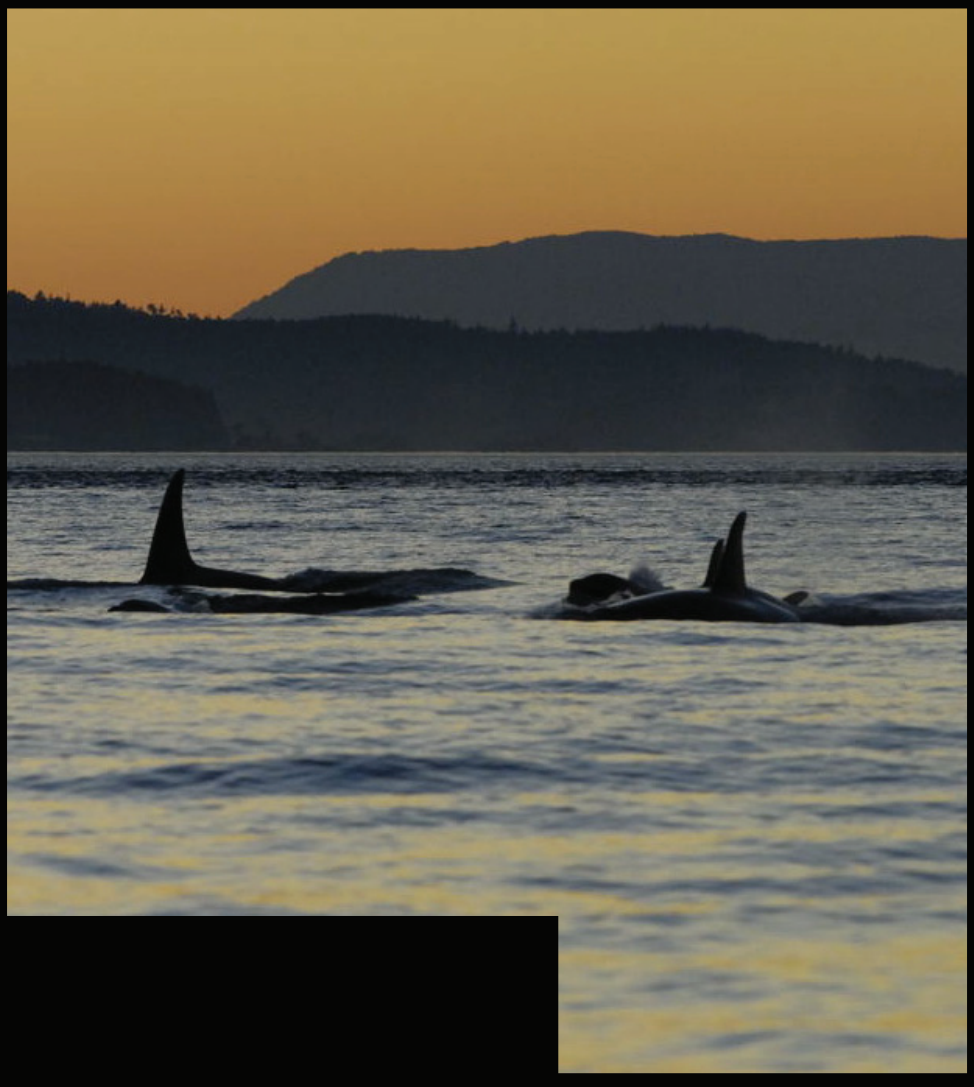

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