



LOW IMPACT DEVELOPMENT LOCAL REGULATION ASSISTANCE PROJECT 2009 PROJECT SUMMARY

INTRODUCTION

The purpose of this project was to provide technical assistance to local government staff for the preparation and/or revision of local codes and standards related to stormwater management and land development practices. The objective of this effort was to increase the use of the low impact development (LID) approach to stormwater management and LID practices for projects within the participating jurisdictions.

After completing three rounds of the LID Local Regulation Assistance Project in 2005-2008 (and assisting a total of 32 municipalities), the Puget Sound Partnership (PSP) staff facilitated a fourth round of LID technical assistance in 2009 for four additional local governments within the Puget Sound basin. A competitive application and interview process led the PSP to award LID technical assistance to the following four jurisdictions:

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

The primary goal for the project was to furnish specific recommendations to staff from the four local governments, and for the staff and managers at the four local governments to present the draft regulatory changes and LID recommendations for adoption by their local elected officials. Through adoption of the recommended code revisions, local governments would both remove regulatory obstacles inhibiting LID and facilitate the increased use of the LID approach and best management practices (BMPs) throughout the Puget Sound basin.

SCOPE OF SERVICES

To implement the project, staff from the PSP and AHBL designed the project to occur in each community with the following general steps:

- Initial Kickoff Meeting: PSP and AHBL staff met with local government staff from the four jurisdictions on January 13, 2009. This meeting, held at the offices of the Homebuilders Association of Kitsap County in Bremerton, introduced the project scope and timeline, and served to provide a shared understanding of LID principles and practices, and local political, economic, and environmental conditions that might influence the direction of the assistance. Local government staff were urged to form “teams” of staff from planning, public works and fire departments, and designate a local staff lead.
- Scope of Review: After the initial kickoff meeting, staff from each local government worked with AHBL staff to develop a draft scope of work. The first step in this process included local government staff first determining how they believed LID might be best implemented into the regulatory code, namely if LID would be encouraged, incentive based, prescriptive, or a combination of methods. Local government staff then identified regulations, specific code chapters, drainage standards, and road details that would need to be reviewed and revised. AHBL staff also identified new chapters that would be developed to fill gaps in the existing code and help each local government meet its objectives. AHBL and local government staff then scheduled two meeting dates.
- Policy Review Meeting (Meeting #1): At the policy review meeting (meeting #1), AHBL presented the findings of the initial regulatory review and provided each local government with preliminary recommendations and comments. Based on the findings of the policy review and meeting



discussion, the local government staff, PSP staff, and AHBL developed a final scope of services that AHBL would provide for each jurisdiction.

- Draft Regulatory Materials: The first policy review meeting provided AHBL with the scope of work and direction necessary to prepare draft regulatory materials, including amendments to existing local regulations, new ordinances, studies and additional information where requested. Depending on the structure of each jurisdiction's code, AHBL either amended existing chapters or sections to better facilitate LID, or developed new ordinances and standards to reflect the specific goals of the respective local government. These standards generally included amendments to storm water, zoning, subdivision, landscape, clear and grade, and planned unit development chapters. In addition, new road maintenance provisions, and published studies were provided to the participants.
- Regulatory Amendments Meeting (Meeting #2): At the regulatory amendments meeting (meeting #2), AHBL presented the draft regulatory materials and additional information as requested by the local government. Local government staff reviewed the documents and provided further input to AHBL staff.
- Regulatory Language Final Draft: After incorporating staff comments from each local government, and following review by PSP of all materials, and WSU Cooperative Extension Pierce County and the Department of Ecology for a representative sampling of draft materials, AHBL staff prepared final drafts of the regulations and standards. The final recommendations were in native and PDF files as well as in hard copy form.

COMMON THEMES AND LESSONS LEARNED

General:

The four participants in the 2009 Local Government Regulation Assistance Program consisted of three cities and one county. In general, jurisdictions were most commonly interested in LID standards and best management practices (BMPs) covering three topics or areas: stormwater regulations, clearing and grading, and tree conservation/native vegetation retention. Port Townsend, Sequim, and Island County generally sought assistance in how to implement LID in unique rural settings, where a large portion of development is infill or small-scale residential or commercial projects. The City of Kent, on the other hand, sought to make LID prescriptive in a rapidly expanding urban environment with a strong manufacturing and industrial base.

In past rounds of local technical assistance, jurisdictions were generally interested in promoting LID by providing incentives for "LID projects" through a new LID Draft Chapter. However, this round of technical assistance was different in that most jurisdictions chose to make LID prescriptive throughout the code. As such, AHBL's recommendations generally integrated LID BMPs throughout the code, particularly in the stormwater and drainage code chapters. AHBL increasingly found that some of the most common and effective LID BMPs were easiest to implement through the stormwater and drainage regulations. All four jurisdictions integrated new policies into their respective stormwater or drainage chapters which required a reduction in conventional stormwater volume through a combination of LID BMPs.

Another difference in this round of technical assistance was that all four jurisdictions requested policies to assess the potential for LID during the initial phases of project design. As such, AHBL developed policies and recommendations to make LID an integral part of development at the early stages of design, including LID site assessment procedures and LID pre-application consultations.

The recent Washington Court of Appeals ruling in *Citizens' Alliance for Property Rights v. Sims* on King County's native vegetation requirements in the County's Critical Areas Ordinance complicated this round of technical assistance. In that decision, the Court ruled that the County could not require 65% native vegetation retention in rural zones, as this requirement constitutes an unfair tax on property owners based on the court's interpretation of RCW 82.02.020. In the past, because retaining native vegetation



and minimizing impervious surfaces are such integral strategies of LID, AHBL has recommended that local governments set targets for minimum native vegetation retention and maximum impervious surface coverage based on land use and density. However, this court decision changed the course of AHBL's recommendations mid-stream. Instead of establishing specific requirements for native vegetation and impervious surface coverage, AHBL recommended that local governments set targets or requirements for reducing conventional stormwater volume through any combination of LID BMPs. In so doing, jurisdictions will still accomplish the same goals in facilitating LID while avoiding potential confrontation or land use challenges in light of the King County decision.

All of the consultant team's recommendations for this round of technical assistance were governed by the clause that LID techniques shall or should be implemented, 'unless proven infeasible, as determined by the Public Works Department.' As such, AHBL developed an outline of criteria (as an appendix) so that jurisdictions had an additional tool to help them determine when various LID BMPs were feasible on site as part of the development review process. The criteria were organized by BMP and include a simplified version of the standards found in the current edition of the *LID Technical Guidance Manual for Puget Sound* and Ecology's *Stormwater Management Manual for Puget Sound*.

AHBL provided recommendations for improving the existing code in light of the political climate in each jurisdiction. This resulted in suggestions for incremental improvements to the respective code, some of which were not entirely LID. Similar to previous rounds of technical assistance, most of the 2009 jurisdictions expressed appreciation that the deliverables consisted of "ready-for-adoption" ordinances and standards rather than more general forms of technical advice. Select code portions were amended in legislative underline/strikeout format to include additional or eliminate specific language or regulations.

Common Themes:

Project Scope

The scope of modifications and additions to the local government regulations generally included one or more of the following:

1. Zoning Code
 - a. Landscape requirements within existing codes.
 - b. Native vegetation recommendations where LID was required and native vegetation requirements in situations such as planned unit developments.
 - c. Requirements for pervious surfacing and integrating bioretention swales with required landscaping in parking areas where site and soil conditions make LID feasible.
2. Stormwater and Drainage Code
 - a. LID site assessment requirements were often integrated here or in the zoning code.
 - b. Conventional stormwater reduction goals/requirements through any combination of LID BMPs.
3. Clearing and Grading Chapter
 - a. Model language prepared by AHBL and DOE staff was either integrated into existing codes or accepted in its entirety.
 - b. The consultant team also developed an 'LID Construction Controls' document, which outlines standards to protect LID BMPs during construction.
4. Public Works Standards
 - a. Road standards allowing for more narrow driving lanes, reductions in impervious surface, alternative surfacing methods for shoulders and walkways, and bioretention facilities in roadside swales.
 - b. Stormwater management regulations allowing the recognition and application of the BMPs found in the *LID Technical Guidance Manual for Puget Sound* (January 2005 or as amended) and the *Stormwater Management Manual for Western Washington* (2005 or as amended).

Meetings and Document Review



PSP staff held a kickoff meeting on January 13, 2009 to introduce staff from the four local governments to the consultant team and to ensure that everyone began the project with a similar understanding of LID, project objectives and scope, timeline, process, and final products. Following the introductory meeting, two working meetings were held with teams of staff from each participating local government. The consultant team then prepared all final deliverables.

Meetings with participating jurisdictions included engineers, planners, natural resource staff, and the fire marshal. All of the jurisdictions kept a fairly consistent and diverse team of staff so that LID questions could be examined from different departmental perspectives.

One of the biggest differences in this round of technical assistance than in the past was that jurisdictions generally chose to make LID prescriptive in most or all areas of the code. The King County court decision also changed the how AHBL recommended implementation of LID in the code. Instead of setting up requirements for various LID BMPs based on land use, as was recommended in years past, the consultant team recommended that jurisdictions require a reduction in conventional stormwater volume through any combination of LID BMPs. This revised strategy helped local governments achieve their goals for integrating LID into the development process while still providing flexibility in site design.

Special thanks are in order to Ed O'Brien and Foroozan Labib of the Washington State Department of Ecology and Curtis Hinman of the Washington State University Pierce County Extension for reviewing draft documents developed under this project. The consultant team was impressed with the high level of effort and energy put forth by all staff members participating in this technical assistance project.



**City of Kent:
Project Summary**



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Scope of Assistance:

Prior to the policy review meeting on March 3, 2009, the City of Kent staff and AHBL staff agreed on a scope of services for the regulations to be reviewed. The following are the sections of the code that the City staff directed the consultant team to review:

- ◆ Title 7 – Utilities
- ◆ Title 11 – Environmental Management
- ◆ Title 12 – Planning and Land Development
- ◆ Title 13 – Fire Prevention and Protection
- ◆ Title 15 – Zoning
- ◆ Engineering Design and Construction Standards

This direction resulted in the review of the following Municipal Codes and standards by the consultant team:

- ◆ Title 7 – Utilities
 - 7.07 – Surface Water and Drainage Code
- ◆ Title 11 – Environmental Management
 - 11.04 – Shoreline Master Program
- ◆ Title 12 – Planning and Land Development
 - 12.05 – Mobile Home Parks
 - 12.06 – Recreational Vehicle Parks
- ◆ Title 15 – Zoning
 - 15.04 – District Regulations
 - 15.05 – Off-Street Parking and Loading Requirements
 - 15.07 – Landscaping Regulations
 - 15.08 – General and Supplementary Provisions
 - 15.09 – Administration
- ◆ Construction Standards: AHBL reviewed the proposed construction standard details and add LID language, detail drawings, and techniques where applicable.
- ◆ Additional Work Products:
 - Review the latest adopted Cottage Housing Ordinance for opportunities to incorporate LID.
 - Review Kent's Draft Subdivision Ordinance for opportunities to incorporate LID.

The policy review meeting with City of Kent staff occurred on March 3, 2009. At the meeting, City staff directed the consultant team on the content of the desired technical assistance. This direction resulted in the preparation of several work products to be reviewed by City staff with the consultant team at the regulatory amendments meeting on April 15, 2009. An outline of these work products is presented below in a topical manner with the full text of the updates attached separately.



Work Products:

1. Title 7 – Utilities - 7.07 – Surface Water and Drainage Code
AHBL incorporated new conventional stormwater volume reduction requirements into the code which are applicable to the whole City, unless proven infeasible as determined by the Public Works Department.
2. Title 11 – Environmental Management - 11.04 – Shoreline Master Program (SMP)
AHBL provided a few basic comments for integrating LID into the goals of the SMP.
3. Title 12 – Planning and Land Development - 12.05 – Mobile Home Parks
AHBL made minor revisions to this Chapter which included language promoting LID. However, Kent staff said that revisions to this Chapter were not a priority for adoption.
4. Title 12 – Planning and Land Development - 12.06 – Recreational Vehicle Parks
AHBL made minor revisions to this Chapter which included language promoting LID. However, Kent staff said that revisions to this Chapter were not a priority for adoption.
5. Title 15 – Zoning - 15.04 – District Regulations
The Kent Municipal Code already had existing impervious surface limits for many of the zones in the City, and AHBL provided additional recommendations for maximum impervious surface coverage where appropriate. Initially, the consultant team proposed minimum native vegetation retention standards in this Section, however in light of the Washington Court of Appeals decision on King County's code these recommendations were moved to the tree preservation requirements in 15.08 as encouraged standards.
6. Title 15 – Zoning - 15.05 – Off-Street Parking and Loading Requirements
Two provisions were recommended for this section, including a requirement for all parking spaces above the minimum required to be pervious unless infeasible as determined by Public Works and language facilitating the integration of parking lot landscaping with bioretention swales.
7. Title 15 – Zoning - 15.07 – Landscaping Regulations
AHBL made minor revisions to this Chapter, including the integration of required landscaping and bioretention swales where appropriate and feasible, and emphasizing the use of native species in landscaping.
8. Title 15 – Zoning - 15.08 – General and Supplementary Provisions
The consultant team provided native vegetation retention standards for sites based on land use and density. These standards include a definition of native vegetation and minimum tree density, minimum retention requirements, replanting requirements, soil amendment standards, and other general considerations.
9. Title 15 – Zoning - 15.09 – Administration
AHBL added some minor language calling for LID to be part of the criteria in development review and design review.
10. Cottage Housing Demonstration Project Ordinance
The principles behind cottage housing developments reinforce the goals of LID, as cottage housing developments aim to reduce building footprints and retain tracts of native vegetation. AHBL recommended that the demonstration projects be required to meet the new, proposed LID conventional volume reduction goals, and adhere to the standards in the draft Clearing and Grading Chapter.
11. Draft Clearing and Grading Chapter



Per the City's request, the consultant provided staff with a draft Clearing and Grading Code with a set of 'performance standards' from a model clear and grade chapter prepared by AHBL and approved by the Department of Ecology.

12. LID Road Standards and Details

AHBL provided road standards featuring LID components and the application of pervious surfaces.

Supplemental Information:

In addition, the consultant team provided the following:

1. Tree species table listing Pacific Northwest native and near native species appropriate for native vegetation requirements, tree protection, and landscaping requirements.
2. "Draft Protection of LID IMPs During Construction" – A document prepared by AHBL that outlines construction sequencing and practices that protect pervious areas and LID BMPs during construction.
3. "Maintenance of LID Facilities" – Guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques.
4. "Criteria for Determining When LID is Feasible" – Outlines criteria to help local government staff determine when LID is feasible.
5. "Background of the LID Performance Standards" – Describes 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.
6. "Frequently Asked Questions About LID."

Findings:

A large portion of the City of Kent is located in a valley with a high ground water table and susceptible to flooding. As such, City staff had a keen interest in reducing surface water runoff and protecting local infrastructure through LID BMPs. Kent staff requested that recommendations make LID prescriptive throughout the City for most major development projects, by requiring conventional stormwater volume reduction through any combination of LID BMPs. This will be a key step in facilitating LID as the City continues to expand. In addition, the City was in need of detailed and LID focused clearing and grading standards, so the draft chapter provided by the consultant team will be a key tool in facilitating LID in the future.



**Island County:
Project Summary**



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Scope of Assistance:

Prior to the policy review meeting on February 26, 2009, Island County and AHBL staff agreed on a scope of services for the regulations to be reviewed. The following are the sections of the code that the County staff directed the consultant team to review:

- ◆ Title 11 – Land Development Standards
 - 11.01 – Land Development Standards
 - 11.02 – Clearing and Grading Requirements
 - 11.03 – Stormwater and Surface Water
- ◆ Title 16 – Planning and Subdivisions
 - 16.06 – Land Divisions and Dedications
 - 16.15 – Site Plan Review
 - 16.17 – Planned Residential Development
 - 16.19 – Land Use Review Process
- ◆ Title 17 – Zoning
 - 17.03.010 – 17.03.163 (Zones)
 - 17.03.180 – Land Use Standards
 - Engineering Design Standards
- ◆ Additional Work Products:
 - Review the existing Rural Stewardship Program and make recommendations for how can LID be implemented.

This direction resulted in the review of the following County Codes and standards by the consultant team:

- ◆ Title 11 – Land Development Standards
 - 11.01 – Land Development Standards
 - 11.02 – Clearing and Grading Requirements
 - 11.03 – Stormwater and Surface Water
- ◆ Title 16 – Planning and Subdivisions
 - 16.06 – Land Divisions and Dedications
 - 16.15 – Site Plan Review
 - 16.17 – Planned Residential Development
 - 16.19 – Land Use Review Process
- ◆ Title 17 – Zoning
 - 17.03.010 – 17.03.163 (Zones)
 - 17.03.180 – Land Use Standards
- ◆ Engineering Design Standards.
- ◆ Review the existing Rural Stewardship Program and make recommendations for how can LID be implemented.

The policy review meeting with Island County staff occurred on February 26, 2009. At the meeting, County staff directed the consultant team on the content of the desired technical assistance. This direction resulted in the preparation of several work products to be reviewed by County staff with the



consultant team at the regulatory amendments meeting on April 21, 2009. An outline of these work products is presented below in a topical manner with the full text of the updates attached separately.

Work Products:

1. 11.01 – Land Development Standards

County staff requested that the consultant team integrate LID into the goals and purpose of Title 11. Language was added to the “Purpose and Intent” of this Chapter to better facilitate LID. AHBL also recommended additional language that specifies a preference for the use of LID BMPs in road design where feasible.

2. 11.02 – Clearing and Grading Requirements

Per the County’s request, LID performance standards were added to this Chapter, and the County’s existing performance standards such as 11.02.330 – Erosion Control and 11.02.280 – Cuts or Excavations, were consolidated with the new performance standards. AHBL supplemented the existing definitions in this Chapter with new, applicable definitions based on the recommended performance standards.

Native vegetation retention standards were recommended as a new Section – 11.02.278 to this Chapter, and are encouraged for all development projects and preferred for PUD projects. These native vegetation standards were proposed as encouraged for all projects and preferred for PUDs, rather than required, in light of the Washington Court of Appeals decision on King County’s native vegetation requirements.

3. 11.03 – Stormwater and Surface Water

11.03.010 – Declaration of Purpose

Per the County’s request, the goals of LID were added to the purpose of this Section so that project applicants will better understand the reasoning behind the new LID standards. This addition coincides with the new amendments proposed in the ‘Purpose’ of 11.02.

11.03.092 – LID Site Analysis (New Section)

County staff agreed that the new proposed LID Site Analysis requirements (Section 11.03.092 – Low Impact Development Site Analysis), was a necessary addition to the Code in order to identify opportunities for LID in the early stages of project conception. The site analysis requires the applicant to document the site analysis with both textual and graphic information. The County will likely simplify some of these requirements after further review.

11.03.095 Low Impact Development Requirements (New Section)

This new Section makes the proposed LID standards in 11.03.220 a requirement for all major development activities, for development in public and capital improvement development projects, and development projects with 5,000 square feet of new impervious surface or clearing more than two acres.

11.03.105 – LID requirements for existing and new single-family residential lots under 10 acres (New Section)

The development of this new Section was particularly important to Island County staff, as there was no existing mechanism to require LID in smaller single-family residential lots. The new Section requires single-family residential development projects on new or existing lots less than 10 acres to manage any new impervious surface through any combination of LID BMPs. County staff felt this was a crucial addition to the code and necessary to achieve the County’s goals of recharging the community’s sole source aquifer.

11.03.220 – LID Requirements for Major Development Activity (New Section)

This new section requires LID to be used as the first option in stormwater management for all Major Development Activity, and public projects with 5,000 square feet of impervious surface or projects resulting in the clearing of two acres. County staff chose not to include specific LID



performance standards in this section, but rather to determine the amount of conventional volume reduction on a site-by-site basis.

4. Title 16 – Planning and Subdivisions
Recommended additions to this Title were relatively minor and include language integrating LID into the application requirements, application requirements for final approval, and criteria for final approval. The consultant team also recommended that an LID site analysis be a requirement for PRDs, so that LID can be incorporated into the site design to the early stages of project conception. Per the County’s request, the consultant team also developed a new section, 16.19.075 - Low Impact Development (LID) Consultation, which requires a LID consultation for small residential development activities and for single-family residential lots where LID is required per 11.03.105.
5. Title 11 – Zoning
The recommendations to this title were minor and included new language under 17.03.075 – Rural Areas of More Intense Development (RAIDS), which references the LID requirements for RAIDS in Chapter 11.03.
6. Rural Stewardship Plan (RSP) Application
The consultant team provided recommendations on the County’s existing RSP application which expanded the scope of LID techniques required by referencing the proposed requirements in Chapter 11.03 as well as BMP T5.13, the Department of Ecology’s soil amendment standard. The other primary recommendations were to include references or guidelines for homeowners when choosing some of the various BMPs listed as options under this program.
7. LID Road Standards
AHBL provided two simple LID road sections for the County to add to the existing engineering design standards. The new road sections will serve as a foundation for variations on LID road design and construction.

Supplemental Information:

In addition, the consultant team provided the following:

1. Tree species table listing Pacific Northwest native and near native species appropriate for native vegetation requirements, tree protection, and landscaping requirements.
2. “Draft Protection of LID IMPs During Construction” – a document prepared by AHBL that outlines construction sequencing and practices that protect pervious areas and LID BMPs during construction.
3. “Maintenance of LID Facilities” – Guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques.
4. “Criteria for Determining When LID is Feasible” – Outlines criteria to help local government staff determine when LID is feasible.
5. “Background on the LID Performance Standards” – Describes 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.
6. “Frequently Asked Questions About LID.”

Findings:

The biggest challenge for Island County staff during this process was deciding how LID would be implemented in the Code. In Island County, there is a heightened sense of urgency to expand the breadth and depth of LID in the County Code, as the community is dependent on a sole source aquifer and adequate groundwater for their primary potable water source. After much analysis and discussion, County staff decided to make LID prescriptive throughout the code and increase the level of site analysis and extent of LID BMP implementation based on the scale and type of project proposed. The new recommendations allowed Public Works staff to require more drainage analysis for small residential lots, larger development projects, and other types of projects that may not have required LID or any type of



drainage analysis under the existing Code. County staff recognized that the final recommendations will increase the amount of projects undergoing drainage review by Public Works and Planning, yet staff was committed to make LID work in order to preserve local resources and the community's livelihood.

**Port Townsend:
Project Summary**



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Scope of Assistance:

Prior to the policy review meeting on February 24, 2009, Port Townsend and AHBL staff agreed on a scope of services for the regulations to be reviewed. The following are the sections of the code that City staff directed the consultant team to review:

- ◆ Title 12 – Streets and Sidewalks
 - 12.04 – Transportation and Rights-of-Way Improvement Standards
 - 12.12 – Sidewalk Maintenance, Construction, and Repair
 - 12.24 – Street and Park Trees
- ◆ Title 13 – Water, Sewer, and Stormwater
 - 13.05 – Utility Rates and Charges
 - 13.31 – Utility Service-General Provisions
 - 13.32 – Stormwater Management Requirements
- ◆ Title 17 – Zoning
 - 17.32 – Planned Unit Developments (PUD)
 - 17.34 – Cottage Housing Development Design Standards
 - 17.36 – Multifamily Residential Development Standards
 - 17.44 – Commercial and Mixed Use Architectural and Site Design Standards
 - 17.46 – Commercial, Multifamily, Cottage Housing Developments, and Mixed Use Architectural and Site Design Review Processes
- ◆ Title 18 – Land Division
 - 18.24 – Subdivision and Development Standards
- ◆ Engineering Design Standards (EDS)
 - Chapter 4 – Stormwater
 - Chapter 6 – Transportation
 - Chapter 5 – Clearing, Grading, and Erosion Control
- ◆ Additional Work Products:
Port Townsend staff requested that AHBL prepare the following additional items:
 - A list of incentives that will facilitate the use of LID BMPs.
 - A list of street trees and plants that are appropriate for Port Townsend
 - Bioretention soil mix composition and field testing procedures.
 - A guidance manual for design, implementation, and maintenance of raingardens, bioretention swales, and other LID stormwater management techniques.
 - A new section in the EDS with warranty and maintenance provisions for plants and LID stormwater management facilities.
 - Resources for hydrologic modeling software that are user-friendly for the public.



This direction resulted in the review of the following City Codes and standards by the consultant team:

- ◆ Title 12 – Streets and Sidewalks
 - 12.04 – Transportation and Rights-of-Way Improvement Standards
- ◆ Title 13 – Water, Sewer, and Stormwater
 - 13.32 – Stormwater Management Requirements
- ◆ Title 17 – Zoning
 - 17.32 – Planned Unit Developments (PUD)
 - 17.34 – Cottage Housing Development Design Standards
 - 17.36 – Multifamily Residential Development Standards
 - 17.44 – Commercial and Mixed Use Architectural and Site Design Standards
 - 17.46 – Commercial, Multifamily, Cottage Housing Developments, and Mixed Use Architectural and Site Design Review Processes
- ◆ Title 18 – Land Division
 - 18.24 – Subdivision and Development Standards
- ◆ Engineering Design Standards (EDS)
 - Chapter 4 – Stormwater
 - Chapter 6 – Transportation
 - Chapter 5 – Clearing, Grading, and Erosion Control
- ◆ Additional Work Products:

Port Townsend staff requested that AHBL prepare the following additional items:

 - A list of incentives that will facilitate the use of LID BMPs.
 - A guidance manual for design, implementation, and maintenance of raingardens, bioretention swales, and other LID stormwater management techniques.
 - A document that outlines how edible landscapes relate to native vegetation and LID.

The policy review meeting with City staff occurred on February 24, 2009. At the meeting, Port Townsend staff directed the consultant team on the content of the desired technical assistance. This direction resulted in the preparation of several work products to be reviewed by City staff with the consultant team at the regulatory amendments meeting on April 30, 2009. An outline of these work products is presented below in a topical manner with the full text of the updates attached separately.

Work Products:

1. Title 12 – Streets and Sidewalks
12.04– Transportation and Rights-of-Way Improvement Standards
The consultant team recommended adding language to this Chapter emphasizing the use of LID BMPs in streets and sidewalks, particularly permeable surfacing where appropriate and feasible.
2. Title 13 – Water, Sewer, and Stormwater
13.32 – Stormwater Management Requirements
A new LID-focused “Purpose” section was added to this Chapter to make it an integral part of stormwater management and to help facilitate the use of LID BMPs as the preferred stormwater management technique.

The consultant team developed additional new sections, including two that reference the LID requirements for large and small development activities that are outlined in Chapter Four of the EDS. Another new section briefly addresses maintenance responsibilities of LID stormwater management facilities. The recommended language gives the City the right to inspect facilities annually and bill the appropriate party for labor and materials if the facility is not functioning properly. Per the City’s request, the consultant team also added a new section addressing



financial securities for LID facilities, which gives the City the ability to require a financial guarantee, when deemed necessary, in order to help ensure the success of LID facilities.

3. Title 17 – Zoning

17.32 – Planned Unit Developments (PUD)

Recommendations for this Chapter were relatively minor and included language facilitating LID and referencing the LID site analysis and stormwater management requirements in Chapter Four of the EDS. Native vegetation retention standards were also added as optional/preferred standards.

17.34 – Cottage Housing Development Design Standards

Recommendations for this Chapter were relatively minor and included language facilitating LID and referencing the LID site analysis and stormwater management requirements in Chapter Four of the EDS.

17.36 – Multifamily Residential Development Standards and 17.44 – Commercial and Mixed Use Architectural and Site Design Standards

Language was added to both of the Chapters that facilitate the use of LID BMPs for parking areas.

17.46 – Commercial, Multifamily, Cottage Housing Developments, and Mixed Use Architectural and Site Design Review Processes

References to the required LID site analysis and performance standards were added as recommendations for this Chapter.

4. Title 18 – Land Division

18.24 – Subdivision and Development Standards

References to the required LID site analysis and performance standards were added as recommendations for this Chapter.

5. Engineering Design Standards (EDS)

Chapter 4 – Stormwater

Two of the primary additions to this Chapter were requirements for an LID site analysis and LID performance standards. The LID site analysis focuses on assessing the site and soil conditions in the early stages of project conception. The LID performance standards require conventional volume reduction based on land use and density using any combination of LID BMPs, and serve as the foundation for implementing LID throughout the rest of the code.

Current development patterns in Port Townsend, like Island County, include a considerable amount of infill on single-family residential lots. As such, Port Townsend requested new policy language that would require LID on small, residential projects that fall under the Department of Ecology's threshold for flow control and/or treatment of stormwater. AHBL developed a new section which requires new development on existing single-family lots to manage stormwater through a combination of LID BMPs unless infeasible.

Other significant additions to this Chapter include:

- A new 'Purpose' Section to reinforce the goals behind the new, proposed LID standards;
- Raingarden site analysis, design, and construction procedures;
- Maintenance procedures and guidelines for the primary LID BMPs, including bioretention swales, permeable paving; vegetated roofs; and rainwater harvesting collection systems.

Chapter 5 – Clearing, Grading, and Erosion Control

Per the City's request, new LID-focused performance standards were integrated in this Chapter to supplement and enhance the existing performance standards. Some of the recommended performance standards include site containment, construction phasing, native vegetation retention and restoration, and more.



Chapter 6 – Transportation

Per the City's request, the consultant team moved language from Chapter 12.12 – Sidewalk Maintenance, Construction, and Repair to this Chapter of the EDS. The addition was relatively minor and promoted the use of LID techniques, particularly permeable surfacing, where site and soil conditions make it feasible.

6. LID Road Standards
AHBL provided several LID road sections for the City to add to the existing engineering design standards. The new road sections will serve as a guide for LID road design and construction.
7. Additional Work Products:
AHBL prepared the following additional items:
 - A list of incentives that will facilitate the use of LID BMPs.
 - A document that outlines how edible landscapes relate to native vegetation and LID.
 - A user's guide to the LID performance standards table and modeling.

Supplemental Information:

In addition, the consultant team provided the following:

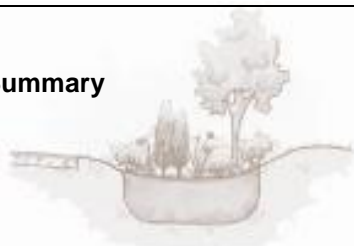
1. Tree species table listing Pacific Northwest native and near native species appropriate for native vegetation requirements, tree protection, and landscaping requirements.
2. "Draft Protection of LID IMPs During Construction" – a document prepared by AHBL that outlines construction sequencing and practices that protect pervious areas and LID BMPs during construction.
3. "Maintenance of LID Facilities" – Guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques.
4. "Criteria for Determining When LID is Feasible" – Outlines criteria to help local government staff determine when LID is feasible.
5. "Background on the LID Performance Standards" – Describes 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.
6. "Frequently Asked Questions About LID."

Findings:

Port Townsend staff chose to concentrate the majority of recommendations, including an LID site analysis and performance standards, in the Engineering and Design Standards. These new requirements were then referenced where applicable throughout the Code. For Port Townsend staff, like other jurisdictions participating in this round of the LID Local Government Regulation Assistance Project, the new LID performance standards and LID site analysis are critical components that will form the backbone for implementing LID BMPs throughout the City. The addition of new clearing and grading performance standards was also a valuable addition to the existing code, which is a critical component in carrying-out LID design and construction properly from start to finish. Port Townsend staff were committed to making LID standard practice in the City, while still maintaining site design flexibility and development efficiency for project applicants.



**Sequim:
Project Summary**



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Scope of Assistance:

Prior to the policy review meeting on February 24, 2009, Sequim and AHBL staff agreed on a scope of services for the regulations to be reviewed. The following are the sections of the code that City staff directed the consultant team to review:

- ◆ Title 12 – Streets, Sidewalks, and Public Places
- ◆ Title 13 – Public Services
 - 13.104 – Stormwater Management
 - 13.108 – Stormwater Maintenance
- ◆ Title 17 – Subdivisions
 - 17.12 – Administration and Enforcement
 - 17.20 – Subdivisions
 - 17.24 – Binding Site Plans
 - 17.28 – General Design Standards
 - 17.32 – Street Design Standards
- ◆ Title 18 – Zoning
 - 18.22 – Development Standards
 - 18.24 – Design Standards
 - 18.40 - PUD
 - 18.44 – Bulk and Dimensional Requirements
 - 18.46 – Landscaping
 - 18.48 – Off-Street Parking

This direction resulted in the review of the following City Codes and standards by the consultant team:

- ◆ Title 12 – Streets, Sidewalks, and Public Places
- ◆ Title 13 – Public Services
 - 13.108 – Stormwater Maintenance
- ◆ Title 17 – Subdivisions
 - 17.12 – Administration and Enforcement
 - 17.20 – Subdivisions
 - 17.24 – Binding Site Plans
 - 17.28 – General Design Standards
 - 17.32 – Street Design Standards
- ◆ Title 18 – Zoning
 - 18.22 – Development Standards
 - 18.24 – Design Standards
 - 18.40 - PUD
 - 18.44 – Bulk and Dimensional Requirements
 - 18.48 – Off-Street Parking
- ◆ Additional Work Products
Sequim staff requested that AHBL prepare the following additional items:



- Revise the existing tree retention standards in Chapter 18.28 and add native vegetation standards to reflect LID standards.
- Revise the existing Clear and Grade standards and/or provide a draft ordinance.
- Develop standards or criteria to determine when it is appropriate to retrofit existing conventional facilities with LID BMPs.
- Provide appropriate LID street sections or engineering standard drawings based on those referenced in Chapter 17.32.

The policy review meeting with City staff occurred on February 24, 2009. At the meeting, Sequim staff directed the consultant team on the content of the desired technical assistance. This direction resulted in the preparation of several work products to be reviewed by City staff with the consultant team at the regulatory amendments meeting on April 30, 2009. An outline of these work products is presented below in a topical manner with the full text of the updates attached separately. City made additional updates to the work products that were not necessarily LID-related.

Work Products:

1. Title 12 – Streets, Sidewalks, and Public Places
The majority of recommendations to this Title include new sections and language that facilitates permeable surfacing for sidewalks and right-of-ways, where site and soil conditions make LID feasible. A new section was added to encourage alternative street design that incorporates LID BMPs, particularly bioretention swales, where site and soil conditions make LID feasible.
2. Title 13 – Public Services

13.108 – Stormwater Maintenance
Revisions to this Chapter were minimal as the existing maintenance requirements already included the provisions necessary for adequately maintaining LID facilities.
3. Title 17 – Subdivisions
17.12 – Administration and Enforcement
The consultant team recommended that applicants conduct an LID site analysis and bring the results of this analysis to the required pre-application conference. City staff agreed that requiring more site analysis during the early stages of project conception was important. Several LID components were also added to the application procedures, including the LID site analysis findings, identification of significant trees and trees of local significance, and identification of proposed LID BMPs where applicable.

17.20 – Subdivisions
Recommended revisions to this Chapter were minor, and include language that makes the use of LID BMPs, when feasible, part of the review and approval criteria for subdivisions.

17.24 – Binding Site Plans
Recommended revisions to this Chapter were minor, and include language that makes the use of LID BMPs, when feasible, part of the review and approval criteria for binding site plans.

17.28 – General Design Standards
The consultant team recommended replacing the existing site analysis requirements for subdivisions with the LID site analysis requirements proposed in Section 18.22.015. Additional language was added that discusses native vegetation retention standards and facilitates the integration of required landscaping and bioretention swales, where feasible and appropriate based on site and soil conditions.

17.32 – Street Design Standards



Revisions to this Chapter include language that facilitates permeable surfacing for sidewalks and in rights-of-way where site and soil conditions make it feasible. Language facilitating shared driveways and alternative street design to accommodate various LID BMPs was added as well.

4. Title 18 – Zoning

18.22 – Development Standards

A new section was added to this Chapter, *18.22.015 – Site analysis required*, which requires an LID-focused site analysis for certain projects. Per the City's request, LID requirements were added to the Chapter that provides specific standards for the reduction of conventional stormwater volumes through a combination of LID BMPs. These proposed standards and the LID site analysis would provide a strong foundation for LID throughout Sequim's Code.

The City's existing Grading standards in this Chapter are minimal, and therefore the consultant team prepared a new draft Clearing and Grading Chapter – 18.23, at the request of City staff. A reference to the new draft Chapter was added to the existing Section.

Additional recommendations include revision of the existing tree standards and other minor additions to facilitate the use of LID BMPs in multifamily, commercial, mixed-use, and other uses.

18.23 – Land Clearing and Grading (new draft Chapter)

The draft Clearing and Grading Chapter, which was prepared by AHBL and approved by the Department of Ecology, provides LID-focused performance standards that include site containment, construction phasing, native vegetation retention and restoration, and more.

18.24 – Design Standards

Additions to this Chapter were fairly minor and include a plan to be submitted as part of the design review which shows any proposed LID BMPs. References to the *LID Technical Guidance Manual* were added as the preferred resource for design and construction of LID stormwater management facilities.

18.40 – PUD

Native vegetation retention standards were added to this Chapter as a preferred/encouraged standard, as the underlying goals and flexibility of PUD design.

18.44 – Bulk and Dimensional Requirements

The only recommendation made to this section was a reference to the LID standards proposed in 18.22.035.

18.48 – Off-Street Parking

This Chapter had existing LID language under Section 18.48.080 - Parking lot location, construction and design. AHBL modified the language slightly and added references to the LID engineering standard drawings that the consultant team prepared for the city. A provision was added to allow LID stormwater management facilities to be integrated with required landscaping where site and soil conditions permit.

5. LID Road Standards

AHBL provided several LID road sections for the City to add to the existing engineering design standards. The new road sections will serve as a guide for LID road design and construction.

Supplemental Information:

In addition, the consultant team provided the following:

1. Tree species table listing Pacific Northwest native and near native species appropriate for native vegetation requirements, tree protection, and landscaping requirements.
2. "Draft Protection of LID IMPs During Construction" – a document prepared by AHBL that outlines construction sequencing and practices that protect pervious areas and LID BMPs during construction.



3. "Maintenance of LID Facilities" – Guidelines for the maintenance of pervious pavement, rain gardens and other LID management techniques.
4. "Criteria for Determining When LID is Feasible" – Outlines criteria for to help local government staff determine when LID is feasible.
5. "Background on the LID Performance Standards" – Describes 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.
6. "Frequently Asked Questions About LID."

Findings:

Sequim staff commented that implementing LID best management practices had added importance in their community because the City has a drier climate and receives less rainfall on average than the rest of Puget Sound. Staff decided to make LID prescriptive throughout the code as a means to protect local resources, promote groundwater recharge, and provide irrigation opportunities for local agriculture. At the same time, Sequim staff were initially concerned about how effective LID could be in the City, since much of Sequim is characterized by a high groundwater table and clay soils. While these conditions can make some LID techniques difficult to implement, they do not preclude the use of LID. As such, the consultant team proposed all new code amendments with the clause that 'LID BMPs are required unless proven infeasible, as determined by the Public Works Department'.