

LID ELEMENT #18: LID SITE ASSESSMENT

OBJECTIVE

To perform site assessments for LID feasibility early enough in the project design and review to fulfill the intent of low impact development and optimize the use of its techniques.

CONSIDERATIONS

For this memorandum, it is assumed that the requirements of Volume 1, Chapter 3 of the 2012 Washington State Department of Ecology's Stormwater Management Manual for Western Washington (DOE Manual) for site assessments will be adopted as part of the updated Drainage Design and Erosion Control Manual (DDECM). The DOE Manual requirements specify what is required for a site assessment and establishes exemption thresholds. This memo provides a discussion of the timing of the site assessments.

RELATED ELEMENTS

Element 17 Adopt New DDECM

TRADITIONAL SITE PLANNING TECHNIQUES

Site planning associated with land development typically establishes building footprints, transportation access, parking layout, utility connections, drainage facilities, and landscape elements. Topography, soils, vegetation and water features on proposed development sites are considered during the project review process.

However, most critical decisions regarding project layout and design are made prior to the availability of detailed information regarding these features. The City site plan review process works to ensure that basic development regulations can be met before detailed and costly site characteristics are pursued. Natural hydrology is not a prominent factor in this initial planning process. Consequently, as long as zoning district bulk and dimensional standards, critical area buffers and setbacks, and engineering design and development standards are met, the building envelope and associated improvements are assumed to be appropriate for the site regardless of the hydrologic dynamics.

“Comprehensive inventory and assessment of on-site conditions and adjacent off-site conditions are important first steps for designing and implementing a low impact development project. This process provides the information necessary to implement site planning and layout activities by identifying current and estimating predisturbance conditions. Specifically, site hydrology, topography, soils, vegetation and water features are evaluated to identify how the site currently processes stormwater. Roads, lots and structures are aligned, and construction practices are implemented to preserve and utilize these features to retain natural hydrologic function.”

Puget Sound Partnership: Low Impact Development, Technical Guidance Manual for Puget Sound, December 2012

CODES AND STANDARDS REVIEWED

Olympia Municipal Code (OMC) Section 18.77

Engineering Design and Development Standards (EDDS) Section 3.045

Drainage Design and Erosion Control Manual (DDECM) Volume 1, Chapter 3

BENEFITS OF EARLY SITE ASSESSMENTS

The primary premise of low impact development is to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration by emphasizing conservation, use of on-site natural features, and distributed stormwater management practices. Integrating these features into a project design requires they be a primary consideration in the site planning process. Early site assessments allow site features to be understood early in the process of project development.

BACKGROUND

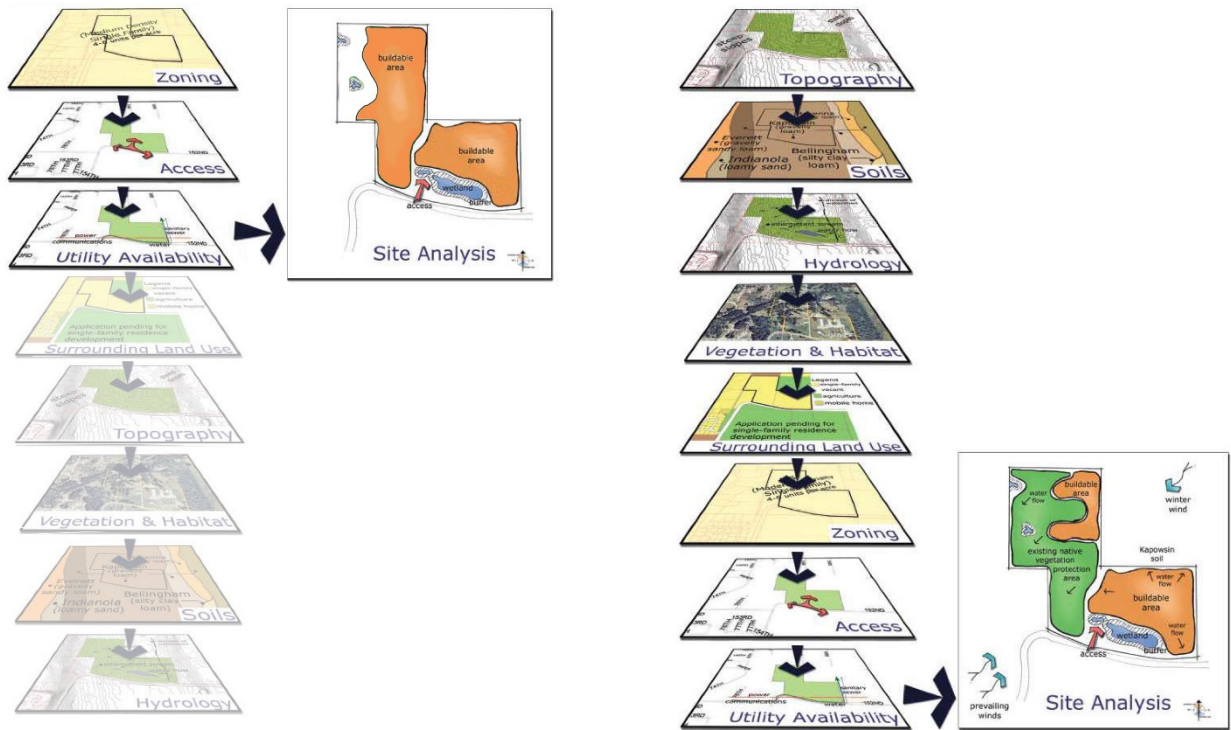
Currently, the primary drivers of site layout and development are the requirements of the zoning code, utility and access availability, and market factors – the needs and desires of the future tenant or purchaser. Project proponents start the development process by evaluating the zoning and development standards to determine whether a project is viable. Typically, very little technical study of the land is done in the preliminary phase of a project.

The City land use review process works to ensure existing development regulations are met, with limited consideration of natural hydrology. Not all land is equally viable for implementation of LID. Soils and the size of parcels are key factors in determining how sites can incorporate LID. Effective LID benefits from soils that readily infiltrate rainfall and runoff. Sites that have glacial till or other low permeability soils benefit from LID techniques that reduce runoff, but cannot infiltrate all runoff on site. Similarly small sites and sites with steep topography will have challenges implementing many of the LID techniques that are land/space intensive. To effectively implement LID, the City and project proponents need to first understand how a parcel can use these development strategies, and which strategies are best applied to what projects.

Incorporating LID into the land use review process will require that site characteristics are identified early in the development review process. The analysis needed to determine LID application would be performed prior to submittal of a land use review application to City. With LID, the site planning process will integrate the site assessment findings to produce road and lot configurations that strategically use site features to minimize and isolate impervious surfaces and disperse and infiltrate storm flows. The process requires an initial evaluation that includes:

- A land survey showing existing improvements on the property, topographic features, major and minor hydrologic features, flood hazards, geologic hazards and wellhead protection areas.
- A soils report identifying soil types, infiltration capacity, restrictive layers (if any), and suitability for water quality treatment, and depth to groundwater.
- On projects required to protect native soil and vegetation, a tree and vegetation study identifying vegetation most suitable for preservation.

Currently, project proponents generate conceptual level information that is submitted to the City for an initial review at a presubmission conference. Project proponents are often uncertain as to the viability of a project at this initial stage, and are therefore hesitant to make big investments in technical studies before they are certain these investments are reasonable and in line with the project objectives.



Current development process focuses on zoning, access and utilities before considering hydrologic function

LID development focuses on understanding a site's hydrological functions and creating a development plan that preserves those functions.

HURDLES TO IMPLEMENTATION OF EARLY LID SITE ASSESSMENTS

Changing to an LID focus for site layout and development will present the following challenges:

Increased Up Front Costs – Developers typically want to assess the feasibility of a project with as little upfront costs as possible. Currently, studies like topographic surveys, tree surveys, geotechnical analyses, and stormwater evaluations are not performed until a project is well underway and a site plan already established. The current City process allows for this approach as these studies are not required prior to land use application submittal. In order to effectively review a site plan in the context of LID implementation, information regarding how water and soil interact on a site will be needed. This will increase up front development costs and may influence site selection decisions.

City Review & Coordination Procedures – Once the information regarding existing site conditions, soil types, and trees and vegetation is generated, it must be evaluated to determine a site’s suitability for LID. As part of the stormwater site plan (drainage report), a professional will have to evaluate the data and make determinations of the site’s feasibility for LID and what best management practices will achieve LID standards for the proposed development. LID site assessment will add cost and time to the development project approval process.

Requirements Vary Parcel to Parcel – Evaluation of each site to determine viability for LID development means that development requirements could vary considerably between parcels that share similar zoning. The density or development coverage achieved on parcels that are not well suited for LID could exceed those required to fully incorporate LID. This could complicate review procedures.

Submittal Requirement Checklists – Each City department maintains checklists of materials required to be submitted for approval of a development. These include the *Application Content Lists* referenced in Olympia Municipal Code Chapter 18.77, the *Plan Checklist* identified in the EDDS, and the *Stormwater Site Plan* analysis requirements in the DDECM. A new checklist, or revisions to one of the City’s existing checklists, would be needed to address the LID feasibility requirements.

OPTIONS CONSIDERED

The options considered were as follows:

- Option 1: No change in requirements. LID site assessments will be required only as part of a complete land use review application.
- Option 2: LID site assessments will be required to be submitted after the presubmission conference, but before formal land use review application submittal.

ANALYSIS

As discussed above, establishing an early LID site assessment requirement will result in increased costs imposed prior to project proponents having certainty regarding whether their project concept can be implemented on a particular parcel.

Option #1 (no change) will not require any changes to current City processes. Site assessments will be required per the updated DDECM, but these will be submitted with the stormwater site plan which is submitted as part of complete land use review submittal. It will be up to applicants to perform site assessments early enough in their site planning process to avoid redesign work resulting from later site assessment results. There are many infeasibility criteria for LID design features and applicants may strive to demonstrate infeasibility rather than change a design that is well underway. LID may not be fully incorporated into projects.

Option #2 (require LID site assessments prior to land use review submittal) will require site assessments to be performed prior to formal land use review submittal, likely through requiring a stormwater scoping meeting between the applicants and staff. This will force applicants to perform LID assessments earlier in the site planning process and better ensure that project site designs are created with LID in mind from the beginning.

RECOMMENDATION

Staff recommends Option 2. Option 2 would provide the most potential for sites to be designed to work with site features and maximize implementation of LID. It will reduce the need for redesign work later in the development process.

