

# Low Impact Development and Community Planning



Low Impact Development (LID) is still a relatively new concept in Alabama. Very few plans submitted to city and county planning offices have water resource elements that specifically address LID. Moreover, LID is not consistently addressed in the comprehensive planning process.

As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Administered by the USEPA, NPDES is driving the use of LID measures especially in new development. In most areas, the State is the delegated authority charged with implementation.

Smart Growth is another USEPA development strategy seeking to balance economic growth, urban renewal, and conservation. In new development, Smart Growth advocates compact, village-centered communities

composed of open space, commercial areas, and affordable housing, interconnected by pedestrian paths and bicycle lanes. Smart Growth stresses “walkable communities” and alternative forms of transportation that can help lessen the environmental and social consequences of urban sprawl. While not explicitly mentioned as a principal, stormwater management, nevertheless benefits from Smart Growth policies. Compact, high-density development reduces imperviousness at the watershed scale to help reduce overall stormwater runoff. USEPA encourages both LID and Smart Growth as stormwater control measures.

## A Holistic Approach to Planning

Planners can support stormwater runoff mitigation by promoting development designs that reduce impervious surfaces and urban sprawl. Communities employing conservation development techniques have found that natural features like undeveloped landscapes, vegetation, and buffer zones effectively reduce and filter stormwater flows. There are also additional benefits such as recreation, wildlife habitat, and increased property values. LID integrates environmental considerations into each stage of development, from design to construction and post-construction. LID practices are also known to improve air quality, reduce the heat island effect, and enhance community appearance. LID measures used individually can produce measurable improvements in stormwater runoff management. Used in combination, they can help local governments and institutions address significant sources of stormwater pollution, and meet NPDES stormwater regulations.

## Incorporating LID into the Planning Process

The comprehensive plan is the cornerstone of the Alabama planning process. A comprehensive plan dictates public policy in terms of transportation, utilities, land use, recreation, and housing. The comprehensive plan typically encompasses a specific geographical area and covers a long-term time horizon. Comprehensive planning is an attempt to establish guidelines for the future growth and welfare of a community. Local governments may also voluntarily adopt elements addressing topics of local interest. Cities and counties could adopt an optional LID element in their comprehensive plans, but few have done so. Water is typically addressed only in terms of water supply, and water quality issues have most often been addressed in a separate stormwater management plan. The range of issues addressed in the comprehensive plan and areas covered is left to the decision-making body of the City or the County adopting the plan.

There are several methods to incorporate LID into comprehensive plans. One approach involves amending existing comprehensive plans to incorporate LID language on principals, goals, and policies. Since the land use element is the focus of land use decisions, language on LID should be added to the element. LID language should also be

added to other elements that concern water such as Natural Resources. A second approach would be an optional water element to the comprehensive plan. Not many such elements exist in Alabama. The city of Semmes, AL is a good example of how to include watershed protection in a municipal comprehensive plan. Watershed protection and management, protecting and improving water quality, and managing water resource supply and demand are components that should be addressed in comprehensive plans. Such a model element would address the links between water and land use. LID principals, goals, and policies should be added to the jurisdictional stormwater management plan and cross-referenced between these two documents for consistency.

LID may be implemented using an “overlay” specific plan. Such plans are flexible and scalable by design. They are typically used to address the comprehensive development or redevelopment of a defined area (overlay zone) and include LID requirements among the standard and implementation measures applicable to the area.

## Conditions of Approval

One method of addressing LID early in the planning process is to develop and apply both standard and non-standard conditions of approval. Most municipalities apply “conditions of approval” to the approval of development projects. These conditions often relate to a broad range of topics, including grading, drainage, landscaping, and water quality. Conditions of approval normally state what is to be done, who is to do it, when it is to be done, and who is responsible for determining compliance. Conditions are applied to discretionary planning permits and subdivision maps at different levels in the approval process. Many jurisdictions in the northeast and on the west coast of the United States have developed water quality conditions of approval. Such conditions often relate to pollution prevention during construction and planning for the installation of post-construction structural and non-structural water quality control measures. Attending and speaking up at your community’s comprehensive plan update review is one way to get involved in this process.

New conditions requiring consideration and planning for the implementation of LID measures should be added to the list of standard conditions of approval. LID conditions of approval should be applied as early as possible in the project approval process and repeated at subsequent levels of approval to ensure compliance, timely implementation, and long-term maintenance.

## LID and Jurisdictional Codes

Jurisdictional codes can support LID in several ways. Cities and counties can adopt separate ordinances that require the use of LID principals in development projects and provide standards for their use of LID. A LID ordinance can specify when LID implementation plans are due and specify compliance with criteria and standards in a manual or handbook such as this document.

Existing jurisdictional codes may contain barriers to LID implementation. Many types of codes and ordinances can influence the implementation of LID, and impact LID differently at varied scales. At the site scale, building codes, landscape codes, parking codes, and zoning ordinances can influence site coverage, building dimension, parking requirements, and landscaping. A variance, or legal permission from the local governing authority to depart from the code or ordinance, may be needed to implement LID under these codes.



## Removing Barriers to LID in Current Codes

Removing barriers to LID in existing codes, including zoning codes, is likely to be a time consuming process and vary from jurisdiction to jurisdiction. Perceived barriers to implementation of LID measures are often the result of multiple requirements from multiple departments within a municipality. Not all perceived barriers need to be removed from existing codes. It may actually be easier, at least initially, to apply for a variance or use overlay zones to facilitate implementation of LID practices in both new development and redevelopment projects. As more experience is gained with implementation of LID, the municipal ordinance could then be modified and updated to be more LID inclusive.

## New Ordinances to Facilitate LID

A direct way to facilitate LID is to adopt a specific LID ordinance that requires the use of LID principals in development projects. The easiest way to write such a LID ordinance is to use a “model ordinance” as a template. A model LID ordinance for Alabama would need language that is implementable under State Code of Alabama law. The City of Auburn, AL Conservation Subdivision Development Ordinance and Stream Buffer Ordinance, the Subdivision Regulations for Semmes, AL and Daphne, AL Land Use and Development Ordinance, are good examples of model ordinances that support LID principals. Examples of model ordinances can be found in Appendix B. The Center for Watershed Protection Code and Ordinance Worksheet (found in Appendix B) is based on 22 model development principals for the state of Maryland published in *Better Site Design: A Handbook for Changing Development Rules in Your Community* (August 1998). This handbook is an excellent guide to facilitate local discussion on Model Development Principals in Alabama communities striving to make their codes and ordinances more LID friendly. The Center for Watershed Protection, Inc. is headquartered in Ellicott City, Maryland, and is a national repository for best practices in stormwater and watershed management.

## Conservation Development

Like LID, Conservation Development attempts to moderate the effects of urbanization. It places an added importance on protecting aquatic habitat and other natural resources. Conservation Development subdivisions are characterized by dense clustered lots surrounding common open space. Conservation Development’s goal is to make a small footprint, thus disturbing as little land area as possible while simultaneously allowing for the maximum number of residences permitted under zoning laws. Here developers evaluate natural topography, drainage patterns, soils, and vegetation prior to construction. Designs should implement LID practices to alleviate flooding and protect natural hydrology. Conservation Development creates conditions that slow, absorb, and filter stormwater runoff on site by maintaining natural hydrological processes. Conservation Development provides for long-term and permanent resource protection. Additionally, conservation easements, transfer of development rights, and other “in perpetuity” mechanisms ensure that protective measures are more than just temporary. A LID Site Planning and Design Checklist can be used to assist municipalities and developers in the planning and design of LID developments (See Table 2.4 in Site Selection).

## LID, LEED and Sustainable Sites Initiative

LID practices can accomplish stormwater management goals, while aiding in obtaining LEED (Leadership in Energy and Environmental Design) certification. LEED is an internationally recognized green building rating system. There are nine LEED building rating systems. Projects that are landscape-only, such as parks, cannot be LEED certified (see Sustainable Sites Initiative below). LEED is voluntary, consensus-building and market-driven. The systems are categorized by building type, and internally divided into credit categories. The credit name, number, and LEED pointworth are provided, as well as the credit’s intent, requirements, options, and in some cases, potential strategies. Some credit categories have prerequisites that must be met before credit certification can be achieved. The United States Green Building Council (USGBC) provides information about all of the LEED rating systems including lists of prerequisites, possible credits, and points.

The USGBC administers LEED certification for all commercial and industrial projects. The certification process begins with a determination of whether LEED is right for a project. The project must then be registered, signifying intent to develop a building which meets LEED certification requirements. Resources will be provided at this time that will assist with the building application for certification. Once all materials are assembled, the designated LEED Project Administrator is eligible to submit the application online.

The two LEED rating systems most relevant to LID are LEED for New Construction and Major Renovations (including LEED for Schools), and LEED for Neighborhood Development. For commercial buildings and neighborhoods to earn LEED certification, a project must satisfy all LEED prerequisites and earn a minimum 40 points on a 110-point LEED

rating system scale. Homes must earn a minimum of 45 points on a 136-point scale. The LEED for New Construction and Major Renovations Rating System is designed to guide high-performance commercial and institutional projects including offices, libraries, churches, hotels and government buildings. The intent is to promote healthful, durable, affordable, and environmentally sound practices, in building design and construction. Credit categories relating to LID include: Sustainable Sites, Water Efficiency, and Materials and Resources. See Table B.1 in Appendix B.

The LEED for Neighborhood Development Rating System integrates the principals of Smart Growth, urbanism, and green building into a plan that relates the neighborhood to its larger region and landscape. LEED for Neighborhood Development is developed in collaboration with Congress for the New Urbanism and the Natural Resources Defense Council. The rating system emphasizes elements that bring buildings and infrastructure together and relates the neighborhood to its local and regional landscape. This partnership was created to encourage developers to revitalize existing urban areas, reduce land consumption, reduce automobile dependence, promote pedestrian activity, improve air quality, decrease polluted stormwater runoff, and build more livable and sustainable communities for people of all income levels. Credit categories relating to LID include: Smart Location & Linkage and Green Construction & Technology. See Table B.2 in Appendix B.

The Sustainable Sites Initiative (SITES) is an interdisciplinary effort by the American Society of Landscape Architects, the Lady Bird Johnson Wildflower Center at The University of Texas at Austin, and the United States Botanic Garden to create voluntary national guidelines and performance benchmarks for sustainable land design, construction and maintenance practices. It has established Sustainable Sites Initiative Guidelines, to certify sustainable landscape projects. The guidelines are modeled after the LEED program, offer certification based on the use of prerequisites and credits for specific sustainable design practices, and are constantly being updated.<sup>0</sup> Ratings are based on a 250-point system. A minimum of 100 credits must be earned in order to be awarded one star. In addition to earning credits, projects must follow several prerequisites in order to qualify as sustainable sites. Up to 127 of these credits can be earned by following the LID site design process. See Table B.3 in Appendix B.

# References

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