

Model LID Regulations

Low Impact Development is still relatively new across the country, but state and local governments are beginning to step up and adopt thoughtful regulations to implement these sustainable practices. Read more at the links below:

Nashville (Tennessee), Metro Government of Nashville and Davidson County. 2012. "Low Impact Development Stormwater Management Manual." Available at http://www.nashville.gov/portals/0/SiteContent/WaterServices/Stormwater/docs/SWMM/vol5/SWMM_Vol5LIDManual_2012.pdf

- Manual that details standards and guidelines on the use of green infrastructure as it pertains to low impact development. Background information on LID is also provided.

Dylewski, Katie, Jessica T. R. Brown, Charlene M. LeBleu, Dr. Eve F. Brantley. "Low Impact Development Handbook for the State of Alabama." Alabama Department of Environmental Management Alabama Cooperative Extension System Auburn University. Available at <http://www.mobilebaynep.com/images/uploads/library/LIDHandbookPrint.pdf>

- Presents current research and design recommendations to assist all interested groups in setting goals for their development and re-development projects. Goals may include maximizing pollutant load reductions, incorporation of low maintenance, attractive native vegetation, and/or community involvement in understanding connections between what we do in our landscapes and the health of local streams.

Johnson, Buz. 2013. Knoxville-Knox County Metropolitan Planning Commission. "Low Impact Development: Making the Zoning Code and Subdivision Regulations Work for You." Available at <http://www.cityofknoxville.org/engineering/workshops/2013/SGB155-13.pdf>

- Document that details how regulations and incentives for LIDs can be viable and beneficial for Knoxville.

Trinkaus, Steven D. 2011. "Town of Tolland [Connecticut] Low Impact Development and Stormwater Management Design Manual." Available at <http://www.tolland.org/wp-content/uploads/2008/07/tolland-LID-Manual-07012011.pdf>

- The purpose of this manual is to provide the technical framework to implement development and stormwater strategies that will lead to the improvement of surface water quality and groundwater quality to achieve the water quality goals.

Sample Ordinances for LIDs

Daphne (Alabama), City of. 2012. Land Use & Development Ordinance. Article 39 Landscape and Tree Protection. Available at <http://www.daphneal.com/government/ordinances/>

- Jubilee Retail Overlay District Landscaping Retrofit:
- Jubilee Retail Overlay District shall be developed as a Low Impact Development (LID) wherein the Planning Commission shall consider innovative low impact development landscape design, techniques and methods as a means to decrease stormwater runoff, pollution, erosion and to recharge groundwater. Bio-retention areas, porous asphalt, permeable pavers, pervious walkways, elevated landscape beds, bio-retention cells, vegetated swales, infiltration trenches, and dry wells to increase storage volume and facilitate infiltration are encouraged.

Fayetteville (Arkansas), City of. 2014. *City Code*. Unified Development Code. Title XV Unified Development Code. Chapter 179 - Low Impact Development. Available at http://www.accessfayetteville.org/government/city_clerk/city_code/index.cfm

- The purpose of this chapter is to provide a regulatory basis for site design and development which incorporates Low Impact Development (LID) strategies into land development. This chapter provides techniques for property owners, builders and land developers to integrate site appropriate stormwater management practices while striving to maintain or enhance natural site features.

Greenville County (South Carolina), County of. 2014. *Code of Ordinances*. Chapter 8 Flood Control and Drainage. Article III Stormwater Management. Available at http://www.amlegal.com/greenvillecode_sc/

- Low impact development (LID) practices, such as minimizing the area of streets, parking lots and rooftops; bio-retention swales and basins; porous pavement; or other innovative measures to reduce runoff volume and protect water quality;

Huntersville (North Carolina), Town of. 2013. Huntersville Zoning Ordinance. Post-Construction Storm Water Ordinances. Available at <ftp://ftp1.co.mecklenburg.nc.us/WaterQuality/PCO%20Ordinances/Huntersville%20Post-Construction%20Ordinance%20FINAL.pdf>

- This ordinance and the Huntersville Water Quality Design Manual require the use of Low Impact Development (LID) BMPs that utilize infiltration, evaporation, retention and detention as well as biological and physical processes to more closely replicate pre-development hydrology characteristics and reduce negative water quality impacts.

Nashville (Tennessee), Metro Government of Nashville and Davidson County. 2014. *Code of Ordinances*. Title 15 Water, Sewers and other Public Services. Chapter 15.64 Stormwater Management. 15.64.195 Stormwater master planning district. Available at <https://library.municode.com/index.aspx?clientId=14214>.

- A. There is hereby created a stormwater master planning district within the geographical limits of the Metropolitan Government of Nashville and Davidson County and co-terminus with the area currently served by the combined sanitary sewer system, as described by lines, words and figures on the maps on file with the department of water and sewerage services, which are incorporated herein by reference.
- B. In cooperation with the metropolitan planning department, the metropolitan development and housing agency, and the department of public works, the metropolitan department of water and sewerage services ("MWS") shall be responsible for developing a plan for the installation of green infrastructure within the stormwater master planning district. At the discretion of the director of metro water services, the stormwater master planning district may be subdivided into appropriate study areas.
- C. Such plan for a stormwater master planning district should include general location and type of installation and its estimated impact on the CSS.
- D. The initial plan shall be submitted to the metropolitan council not later than November 1, 2009, and shall be updated annually as part of the report by the director of MWS pursuant to section 15.64.034 of this chapter.
- E. Funding.
 - 1. The director of MWS shall submit to the mayor and the director of finance a list of green infrastructure projects within the stormwater master planning district(s) for suggested inclusion as part of the capital improvements budget not later than four months prior to the end of the fiscal year, as provided in Section 6.13 of the Metropolitan Charter.
 - 2. Not less than thirty days after the adoption of the capital improvements budget each year, the director of MWS shall further submit to the mayor and the director of finance a prioritized list of green infrastructure projects within the stormwater master planning district(s) for recommended inclusion as part of the next capital spending plan. Such recommendation shall include estimated construction and maintenance costs as well as anticipated benefit to water quality and water treatment.
- F. The department of water and sewerage services, working in conjunction with the department of public works, shall be responsible for the maintenance of any publicly funded green infrastructure projects within the stormwater master planning district(s). Such maintenance shall be done in accordance with specifications and standards established by MWS.
- G. Notwithstanding the geographical limitations imposed by the stormwater master planning district, the department of water and sewerage services shall have the authority to promulgate and enforce rules and regulations for the implementation of green infrastructure techniques to address stormwater issues associated with private development.
- H. Subsequent to the enactment of this section, additional areas within the Metropolitan Government of Nashville and Davidson County may be designated as stormwater master planning districts by a resolution of the metropolitan council receiving twenty-one affirmative votes.

Pender County (North Carolina), County of. 2014. *Unified Development Ordinance*. Article Design Standards. 7.14 Low Impact Development. Available at <http://www.pendercountync.gov/Government/Departments/PlanningCommunityDevelopment/PlanningZoning/OrdinancesPlans.aspx>

- In an effort to balance development needs with natural resource protection and enhancement, additional design and dimensional flexibility are offered to projects designed utilizing Low Impact Development stormwater management techniques.
- A. LID Project Criteria – In order for a project to utilize the variations to dimensional standards as prescribed in Section 7.14.B or landscaping and open space inclusions as prescribed in Section 7.14.C, the applicant shall submit a certification from a licensed professional stating that the project conforms to all of

the following criteria. An example certification form may be found in Appendix D – Typical Forms and Surveyor Notes. A project meeting the criteria set forth shall hereinafter be defined as an “LID Project”.

- 1) The LID Project must comply with the requirements for stormwater management as set forth in 15A NCAC 02H.1005.
- 2) The LID Project must utilize a combination of engineered, structural LID stormwater best management practices (BMPs) as defined in Chapter 4: LID Stormwater BMPs of North Carolina State University’s Low Impact Development: A Guidebook for North Carolina (June 2009) and designed in accordance with 15A NCAC 02H .1008 to treat runoff from all surfaces generated by one and one-half inches of rainfall, or the difference in the stormwater runoff from all surfaces from the predevelopment and post-development conditions for a one-year, 24-hour storm, whichever is greater, in order to achieve average annual 85% Total Suspended Solids (TSS) removal for the developed area of a site.
- 3) The LID Project must utilize a combination of engineered, structural LID stormwater best management practices (BMPs) as defined in Chapter 4: LID Stormwater BMPs of North Carolina State University’s Low Impact Development: A Guidebook for North Carolina (June 2009) to control and treat the increase in storm water runoff volume associated with post-construction conditions as compared with pre-construction (existing) conditions for the 1-year frequency, 24-hour duration storm event in order to achieve a storage volume discharge rate equal to or less than the predevelopment discharge rate for the 1-year, 24-hour storm event. This may be achieved by hydrologic abstraction, recycling and/or reuse, or other accepted management practice as described in the North Carolina Division of Water Quality’s Stormwater Best Management Practices Manual, and in consultation with North Carolina State University’s Low Impact Development: A Guidebook for North Carolina.
- B. An LID Project meeting the criteria defined in Section 7.14.A shall be allowed the following variations from the Dimensional Standards:
 - 1) Residential LID Projects in the RA and RP zoning districts shall be allowed a 25% reduction in the “Lot Size” and “Lot Size Duplex” dimensional standards found in Section 4.14.
 - 2) LID Projects in the RA, RP, GB, OI, and IT zoning districts shall be allowed a 50% reduction in the Minimum Lot Width, Minimum Chord Length at ROW Line for “cul de sac’s”, Minimum Front, Side, and Rear Yards, and Minimum Required Structure Separation.
- C. A project meeting the criteria defined in Section 7.14.A shall be allowed the following landscaping and open space inclusions:
 - 1) For residential projects, LID BMPs including but not limited to swales, pocket wetlands, bioretention areas, and infiltration trenches shall be allowed to be included in the acreage requirement for Passive Open Space as prescribed in Section 7.6.1, so long as the intent of the project’s required buffer is met as prescribed in Article 8, Landscaping and Buffering. Basins and other retention and detention facilities shall not be included in the required Passive Open Space.
 - 2) For non-residential projects, LID BMPs shall be allowed to be incorporated into the landscaping and buffer areas required in Article 8, Landscaping and Buffering.
- D. All projects meeting the criteria defined in Section 7.14.A and utilizing any variations from Dimensional Standards allowed in Section 7.14.B or any landscaping or open space inclusions allowed in Section 7.14.C shall utilize durable, all weather educational placards no smaller than 0.5 square feet and no larger than 2 square foot at each BMP to provide information to the public as to the function and benefit of the best management practice. The educational placards shall remain in place for the life of the BMP.
- E. All open space in residential LID Projects shall comply with the open space requirements set forth in Section 7.6, Open Space.
- F. All stormwater best management practices employed to meet the criteria defined in Section 7.14.A shall be maintained in accordance with the recommendations set forth by the NC DENR Division of Water Quality. For each BMP, an Operations and Maintenance Agreement shall be recorded with the Pender County Register of Deeds. These Operation and Maintenance Agreement forms may be obtained from the NC DENR DWQ website: <http://portal.ncdenr.org/web/wq/ws/su/bmp-manual>

Pulaski County (Arkansas), County of. 2013. *Lake Maumelle Watershed Zoning Code*.

Section 2.4 Low Impact Planned Residential (LI). Available at

<http://www.co.pulaski.ar.us/planning6.shtml>

- The Low Impact Planned Residential District (LI) is intended to accommodate large-scale, predominantly residential planned development. The standards offer flexibility, and require the project to be designed in accordance with the principles of low impact development. Low Impact Planned Residential District property will be developed in a manner consistent with the SET Tool and provide minimum Open Space in accordance with the SET Tool and this Code.
- Charts for District Dimensional Standards in LIDs are provided.

Sammamish (Washington), City of. 2008. Proposed Sammamish Municipal Code Amendments: Low Impact Code Amendments. Available at <http://www.ci.sammamish.wa.us/files/ordinance/3750.pdf>.

- Series of code amendments to incorporate LID principles into site design and stormwater management provisions.

Incentives for Low Impact Development

Alachua (Florida), County of. 2014. Code of Ordinances. Part III, Unified Land Development Code; Title 40, Land Development Regulations; Chapter 407, General Development Standards; Article V, Open Space; Section 407.56(d), Requirements for Stormwater Management Areas Used as Open Space. Available at <http://library.municode.com/index.aspx?clientID=10343&stateID=9&statename=Florida>.

- Stormwater management areas that incorporate two or more LID techniques to treat the 1st inch of rainfall may receive credit for open space without needing to meet specified design criteria as listed in the ordinance.

Beaverton (Oregon), City of. 2013. Development Code. Section 60.12.40, Low Impact Development (LID) Techniques; Table 60.12.40, Low Impact Development (LID) Techniques – Credit Table. Link to PDF available at <http://www.beavertonoregon.gov/index.aspx?nid=463>.

- See pp. 83–100 of PDF. Lists various LID techniques (additional street tree canopy, site soil amendment, disconnect drainspouts, eco-roof, rain garden, rooftop garden, integrated parking, existing tree preservation and mitigation) and the credits they earn toward landscaping requirements and building height increases.

Bellingham (Washington), City of. 2014. Municipal Code. Title 15, Water and Sewers; Chapter 16, Surface and Storm Water Utility; Section 15.16.030, Storm and Surface Water Service Rates; Part B3, System Development Charge; Table 1, Minimum Thresholds for Low Impact Development Credit. Available at <http://www.cob.org/web/bmcode.nsf/CityCode?OpenView>.

- Developments that meet minimum LID thresholds earn a 50% stormwater system development charge credit.
- See also “City of Bellingham Green Building Incentives: Residential and Commercial” for list of LID incentives, including free staff consultations and flexibility in code standards, at <http://sustainableconnections.org/greenbuilding/resources/green-building-incentives>.

Long Beach (California), City of. 2014. Municipal Code. Title 18, Buildings and Construction; Chapter 18.74, Low Impact Development Standards; Section 18.74.040(C)(2), LID Plan Review. Available at <http://library.municode.com/index.aspx?clientID=16115&stateID=5&statename=California>.

- “To provide an incentive for on-site management of stormwater runoff, development and redevelopment projects will receive the following reduction in the off-site runoff mitigation fee based on the percentages of stormwater runoff that is managed on-site through infiltration, evapotranspiration, and/or capture and use.” On-site stormwater runoff management between 50 and 74% earns a 25% fee reduction, between 75 and 89% earns a 50% fee reduction, and between 90 and 99% earns a 75% fee reduction.

Marysville (Washington), City of. 2014. Municipal Code. Title 22, Unified Development Code; Title 22C, Land Use Standards; Chapter 22C.090, Residential Density Incentives; Section 22C.090.030(5), Public Benefits and Density Incentives. Available at <http://www.codepublishing.com/wa/marysville/>.

- LID earns a 5–10% increase over base density (range dependent on degree of LID integration in project design and construction).

Sammamish (Washington), City of. 2014. Municipal Code. Title 21A, Development Code; Chapter 21A.85, Low Impact Development. Available at <http://www.codepublishing.com/wa/sammamish/>.

- Lists LID practices and associated “technique points” developers earn for incorporating them into project design; points are summed and used toward “preferred LID incentives” including density bonuses, street improvement and ROW reductions, city recognition, building height incentives, increased signage, and attached housing. “Comprehensive” LID design incorporating a set collection of listed LID techniques is preferred and eligible for additional incentives.

