

## Low Impact Development

### *Balancing Development with Water Quality Protection*

LID NEWS is a newsletter designed to inform elected and appointed officials in southwest Michigan about LOW IMPACT DEVELOPMENT (LID). The LID approach to land development utilizes various land use planning and design practices and technologies to simultaneously protect water quality and reduce infrastructure costs.

#### **5 things Township, Village and City Officials Can Do to Promote Low Impact Development in Local Ordinances**

Local ordinances are often identified as an impediment to LID. In some cases, ordinances prohibit or discourage certain LID techniques. Perhaps more commonly, ordinances are silent on the approach, leaving planning boards and developers to rely on the “conventional” approaches to stormwater or site design.

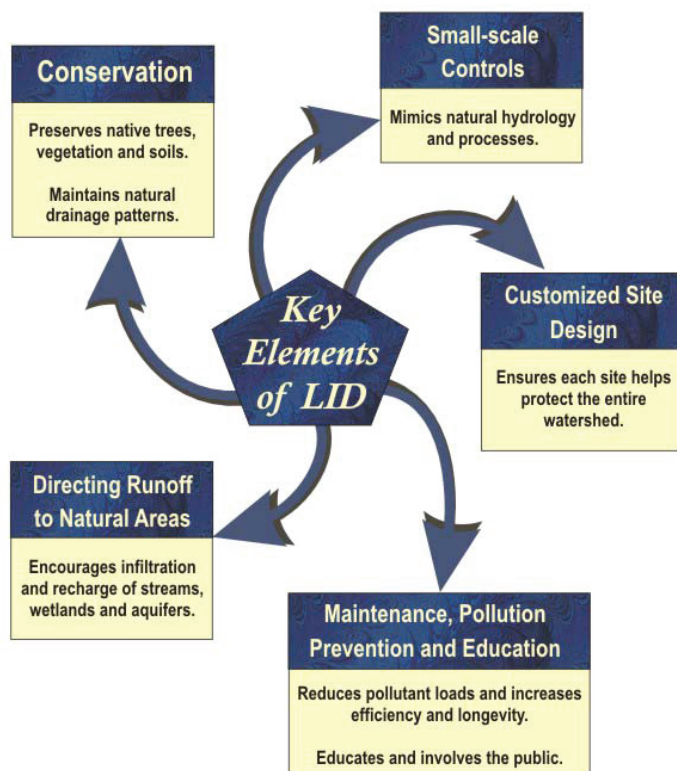
#### **Definition of LID**

Low Impact Development (LID) is an approach to land development that uses various land planning and design practices and technologies to simultaneously **conserve and protect natural resource systems and reduce infrastructure costs.**

*The following Top 5 list offers concise guidance for planning commissioners on typical land use ordinances that often limit or sometimes prohibit Low Impact Development.*

#### **1. Make Sure Ordinances Don't Prohibit/Discourage LID**

A first step is ensuring that LID techniques aren't prohibited or discouraged in local ordinances – either explicitly or implicitly. Become familiar with LID techniques (see newsletter editions 3 & 4 at [www.swmpc.org/lid.asp](http://www.swmpc.org/lid.asp)) and evaluate how your ordinances would treat proposals using each LID technique. The local ordinance may not only contain outright prohibitions on certain measures (for example, not allowing pervious pavement treatments in commercial parking areas); but also, provisions that may act to discourage LID features – such as treating them as structures that must meet setback requirements or not allowing them to be accounted for in determining required areas for landscaping or open space.

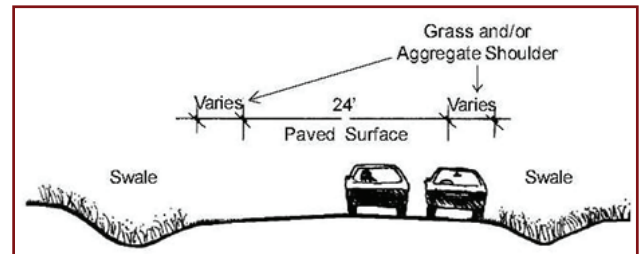


#### **2. Revise Street and Parking Standards to Reduce Impervious Surfaces**

LID's focus on reducing impervious surfaces is often difficult to achieve with local ordinance requirements. Often ordinances set minimum standards, that, while intended to ensure adequate traffic circulation, parking and access for public safety vehicles, can result in excessive paving, at least for certain types of projects or improvements. Consider reevaluating your ordinance standards that dictate the size of roads, drives and parking areas. The goal should not be to look solely at pavement reduction, but on ways that circulation, safety and parking needs can be approached in a balanced fashion.

Areas that deserve particular attention include:

- Pavement widths on residential streets. Consider allowing widths of 24 feet or less for residential streets (18-22 feet may be a reasonable standard for low-volume streets). For a good discussion of both street width and design, see [http://www.metrocouncil.org/Environment/Watershed/BMP/CH3\\_RPPImpStreet.pdf](http://www.metrocouncil.org/Environment/Watershed/BMP/CH3_RPPImpStreet.pdf)
- Turning radius for cul-de-sacs. Reducing the radius of a cul-de-sac from 40 feet to 30 feet, for example, yields a 45% reduction in paved surface. Emergency vehicle access should be a consideration, but should be balanced with other objectives. See an excellent discussion at [http://www.metrocouncil.org/environment/Watershed/BMP/CH3\\_RPPImpCuldeSac.pdf](http://www.metrocouncil.org/environment/Watershed/BMP/CH3_RPPImpCuldeSac.pdf)
- Number of parking spaces. If your ordinance requires more than 3 spaces per 1,000 square feet of gross floor areas for offices, and 4.5 spaces per 1,000 square feet of gross floor area for retail, consider reducing these standards.
- Other Opportunities for More Efficient Parking Areas. In evaluating parking standards and making changes, take into account the availability of on-street-parking and excess parking capacity in the vicinity, as well as opportunities for allowing smaller spaces for compact cars and shared parking among businesses with different peak uses.



*Example of Reduced Pavement Width for low volume streets*

### **3. Pay attention to Street and Parking Lot Layout and Design**

Besides allowing for the reduction of paved areas, local ordinances can promote design of roads and parking areas that incorporate a decentralized approach to stormwater management consistent with LID principles. Three good examples of this are:

- Use of vegetated swales as an alternative to curbs and gutters. Typical ordinances provisions either mandate or strongly promote curb and gutter profiles for streets, which serves to concentrate stormwater and increase its velocity. Consider adopting provisions that allow or encourage “open section” roadways that utilize vegetated swales, especially for more rural projects.
- Incorporate LID measures into parking lot design and landscaping. Ordinance language can also be revised to promote breaking up large paved expanses into multiple parking areas punctuated with natural vegetation and bio-retention areas. If your ordinances now require parking areas to be paved, consider allowing use of permeable paving treatments as well. To build familiarity with the approach, your ordinance might be revised to require porous paving for overflow parking areas.
- Install rain gardens into cul-de-sac design. Cul-de-sac vegetated islands with depressions, in conjunction with open curb treatments, can serve as infiltration areas for the paved areas that surround them.



*LID parking lot design*

### **4. Incorporate LID Site Planning/Design Principles (including promotion of conservation or open space subdivisions)**

Some of the best opportunities for creating low impact projects occur at the site planning and design stage. By careful attention to natural features, drainage patterns and the placement of

buildings and improvements, projects can be made to work with, rather than against, the site's existing hydrology. Your ordinances can help promote this approach to site planning and design.

Conservation or open space subdivisions are an approach to site planning and design that can facilitate LID objectives as

well as provide other benefits. At the very least, your ordinances should allow for a somewhat modified review process needed to facilitate these projects, and the flexibility to allow clustering of buildings or lots to create open space.

Ideally, your ordinance should require or strongly encourage open space subdivisions. For example, Chikaming Township in Berrien County offers density bonuses for developments that utilize the open space/cluster option. A wealth of online resources exist on conservation subdivisions. A particularly good reference for those who are unfamiliar with or have concerns about the approach is a resource developed by *Land Choices* at <http://www.landchoices.org/ConservationSubdivisions.htm>.



*Example of Conservation Subdivision focusing on retention of natural features.*

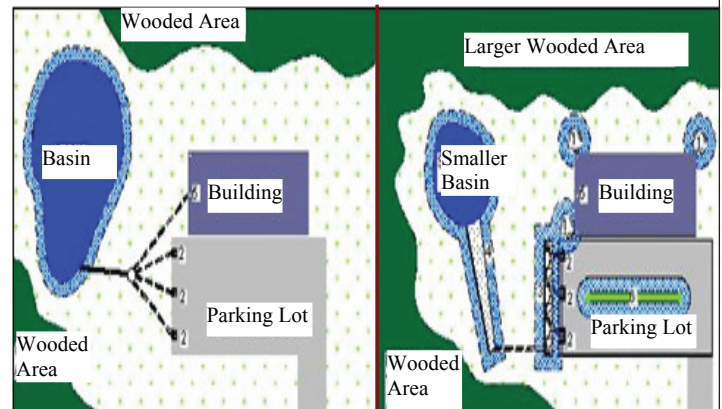
Even projects that don't involve lot size reductions or clustering can be designed to better meet LID objectives. Your ordinances may already contain standards such as minimizing site disturbances and retaining natural features. Such provisions can be given more teeth by requiring mapping of significant natural features or submission of tree preservation plans. Pre-application conferences or "sketch plan" meetings represent an excellent opportunity to discuss project planning and design issues – consider adding more guidance in your ordinances regarding expectations and submittals for this stage of the process.

## **5. Add Additional LID-promoting Provisions to Your Ordinances**

Steps 1-4 above are geared to making relatively modest changes to your ordinances to better accommodate LID development. If your community wants to not only allow, but to more strongly encourage LID techniques, you may want to consider the adoption of additional ordinance language that promotes or provides more guidance on the approach.

When it comes to adding language on LID to your ordinances, you are generally better off selectively incorporating principles and general standards of performance that are likely to be well understood and applied – as opposed to the bulk adoption of pages of detailed design specifications of various LID techniques and practices.

If adopting a new ordinance is the route you want to take, it's usually preferable to adopt a comprehensive integrated stormwater management ordinance that includes LID principles and standards and which apply to all projects allowed in the zoning ordinance. Your planning department or board can also maintain links to LID manuals to assist developers and others who want detailed guidance.



*Compare a typical commercial development to a LID commercial development layout*

**\*\*The State of Michigan is currently creating a statewide LID manual. This manual should be available Summer 2008. Watch for more information at [www.swmpc.org/lid.asp](http://www.swmpc.org/lid.asp).**

**Be sure to tell your planning consultants and developers you would like to see Low Impact Development in your community!**

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[www.swmpc.org](http://www.swmpc.org)

As a local official, you can ensure that your zoning ordinance allows, or better yet, encourages LID techniques to be used in all new developments or redevelopments in your community. If you need assistance, ask your planning and zoning staff and/or consultant. For more information visit [www.swmpc.org/lid.asp](http://www.swmpc.org/lid.asp). Also see LID NEWS edition #2 on this website for a cost comparison of LID and a typical development.

**Future Issue of this newsletter will address:**

Examples of Low Impact Development in southwest Michigan.\*

**LID Examples in SW Michigan**

Long Meadow Development, Niles Township, Berrien County  
Pokagon Band, Elder Housing, Cass County  
Dowagiac Industrial Park, City of Dowagiac, Cass County  
Lion's Park raingarden, Bangor City, Van Buren County  
Housing Development, Watervliet, Berrien County  
Urban Stormwater Demonstration Site, Watervliet, Berrien County



*Pokagon Band Development, Cass County*

\*If you know of a LID project in southwest Michigan, please contact: **Marcy (269) 925-1137 x25**  
[colcloughm@swmpc.org](mailto:colcloughm@swmpc.org). For more information or questions, please visit these websites or contact the watershed coordinators:

**Black River Watershed:** Erin Fuller (269) 657-4030 x5

**Galien River Watershed:** Jean Brokish (269) 469-2330

**Gun River Watershed:** Shawn McKenney (269) 673-8965 x3

**Paw Paw River Watershed:** Matt Meersman (269) 925-1137 x22

[www.vbco.org/blackriver\\_2.asp](http://www.vbco.org/blackriver_2.asp)

[www.swmpc.org/galien\\_river.asp](http://www.swmpc.org/galien_river.asp)

[www.alleganecd.org/gun-river](http://www.alleganecd.org/gun-river)

[www.swmpc.org/pprw.asp](http://www.swmpc.org/pprw.asp)

See more on LID at [www.swmpc.org/LID.asp](http://www.swmpc.org/LID.asp)



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