



[www.grandhaven.org/city-services/sustainability/](http://www.grandhaven.org/city-services/sustainability/)



# Your Guide to Low Impact Development in Grand Haven, Michigan



The City of Grand Haven is using low impact development (LID) techniques to better manage storm water runoff and protect the Grand River and Lake Michigan.

This brochure highlights the LID techniques and community/ educational practices located in Grand Haven, Michigan, that are preventing polluted storm water from entering the Grand River and Lake Michigan.

#### What is Storm Water Runoff?

When it rains, storm water flows over lawns, streets, and parking lots carrying with it road dirt, fertilizers, oil, and grease into storm drains, which are often located alongside streets and parking lots.

#### Where do Storm Drains Lead?

Storm drains lead directly to nearby rivers and lakes without any type of treatment.

#### What is LID?

LID techniques store, filter, and soak up storm water where it falls to mimic nature and reduce the amount of storm water entering storm drains. In this way, LID prevents polluted storm water from entering our rivers and lakes.

### Community/ Educational practices



#### Roadway Sign

Roadway signs placed throughout the City raise awareness of the Grand River Watershed.



#### Storm Drain Marker

Storm drain markers installed near catch basins discourage residents from dumping pollutants into storm drains. Varieties include temporary stencils, semi-permanent workers, or permanent gate imprints.



#### Rain Barrel

Rain barrels capture rain water from roof drains. This water can then be used to water lawns and gardens.



#### Native Landscaping and Community Gardens

Native landscaping displaces traditional turf grass using careful planning and careful planting. Native landscaping reduces carbon emissions by needing less mowing, saves water by needing no irrigation system, and reduces excessive nutrients by needing less fertilizer. Community gardens will use storm water runoff as a water source to grow food for the community.

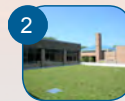


### LID Techniques



#### Grass Swale

Grass swales are shallow channels densely planted with a variety of grasses. These swales slow, filter, and soak up storm water.



#### Green Roof

Green roofs are covered drought-tolerant succulent plants. They absorb rainfall, extend a roof's life, and reduce heating costs.



#### Floating Walkway

A floating walkway is a pre-manufactured system, constructed close to the ground and installed by hand to reduce impact to the site. The walkway will rise and float as floodwaters from the Grand River flow into the site. As waters recede, the walkway will return to its original height above the ground.



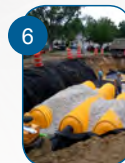
#### Snow Melt System

The snow melt system uses condenser wastewater from Sims Generating Plant to heat the streets and sidewalks of downtown Grand Haven. This system will reduce the cost of plowing and trucking snow. More importantly, it will also reduce the use of salt resulting in cleaner storm water emptying into the Grand River.



#### Stormceptor

Stormceptors are treatment units inserted into storm drains to remove storm water pollutants (including road dirt, oil, grease, and debris).



#### Underground Detention System








Underground detention systems temporarily store storm water, help prevent downstream flooding, and reduce storm water velocities.



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**LEGEND**  
Community/Educational Practices\*

 Roadway Signs	 Storm Drain Stencils	 Storm Drain Markers	 Storm Drain Imprints
 Rain Barrels	 Native Landscaping	 Community Gardens	

\*As you drive through the City, look for these practices along your roads and in your neighborhoods.

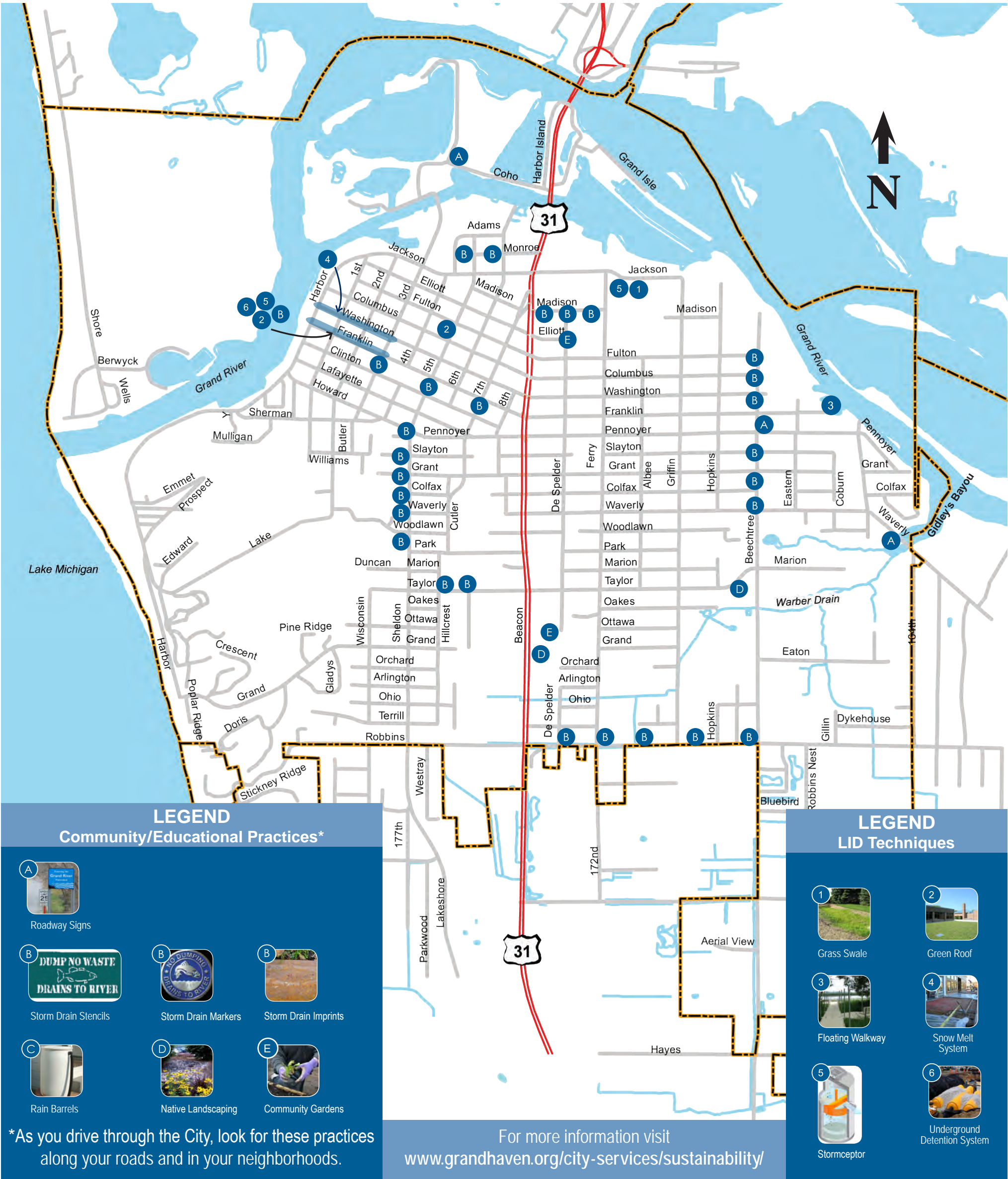
**LEGEND**  
LID Techniques

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