



Michigan's
Nonpoint Source
Program

**Nonpoint Source Grant
Clean Michigan Initiative
Clean Water Fund**

Tracking code: 2005-0328



City of Grand Haven

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City of Grand Haven Storm Water Initiative Project

August 31, 2005 through August 31, 2011

The City of Grand Haven (City) is located within the Lower Grand River (LGR) Watershed at the Grand River's confluence with Lake Michigan. The LGR Watershed is 2,909 acres, comprised of 51% agricultural land, 21% forest, 12% urban, 11% wetland, and 5% water and open land. The LGR Watershed Project ranked the subwatershed management unit that includes Grand Haven as moderately critical for high storm water runoff, population density, and imperviousness. The City participated in the development of the LGR Watershed Management Plan (WMP). Consistent with the recommendations of the WMP, the goal of this project was to increase the use of Low Impact Development (LID) techniques in core areas of the City. Increasing the use of LID techniques reduced the negative impacts of storm water pollution, specifically of sediment, elevated temperature, and nutrients, as well as storm water volume.



Grant Amount: \$ 366,549.09

Match Funds: \$ 383,604.81

Total Amount: \$ 750,153.90



Best Management Practices:

Grand Haven Community Center

- Green Roof

Downtown Parking Lots

- Underground detention
- Stormceptors
- Green Roof

Department of Public Works

- Vegetative bioswales
- Stormceptors
- Berm Filters
- Crushed concrete
- Regrading
- Downspout disconnects



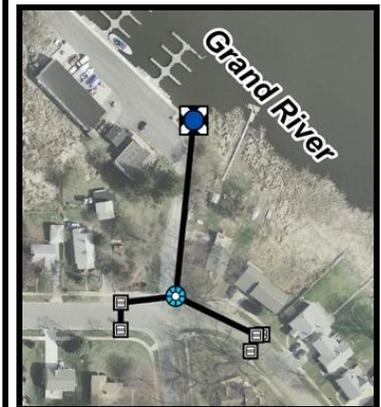
Catch Basin Cleaning

- 1,440 catch basins cleaned

Geographic Information

System:

- Storm Sewer System
- Subcatchment drainage areas
- Manholes, catch basins, pipes with direction of flow, feature numbering system
- City-owned parking lots



Information & Education Activities:



- LID Brochure
- Road Signs
- Educational Signs at Project Sites
- Storm Drain Markers
- Staff Storm Water Information Booths at Local Events

Partners Involved:

- City of Grand Haven
- Downtown Grand Haven
- Fishbeck, Thompson, Carr & Huber, Inc. (FTC&H)
- MDEQ

Pollutants Removed:

Sediment - 47.27 tons
Phosphorus - 74.1 pounds
Nitrogen - 1,037.3 pounds



Community Center Before: A goal of the project was to create a demonstration site that promotes the benefits of a LID practice, such as water quantity reduction and slower flow rates.



Community Center After: A green roof replaced the vegetated footprint that was removed when the building was constructed and reduced the amount of runoff from the building.



DPW Before: Surface runoff carrying pollutants from the site entered the storm sewer located in Jackson Street. The Jackson Street storm sewer discharges directly into the Grand River.



DPW After: The goal of the project was to filter the runoff from the site through hydrodynamic separator units and provide treatment trains through bioswales and filter berms, thereby removing pollutants that would otherwise be discharged through the storm sewer system.