

**KALAMAZOO RIVER WATERSHED MANAGEMENT PLAN FOR THE  
KALAMAZOO RIVER WATERSHED COUNCIL IN KALAMAZOO, MICHIGAN**

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**Project Costs: \$297,022 (99,000 K&A Costs)**

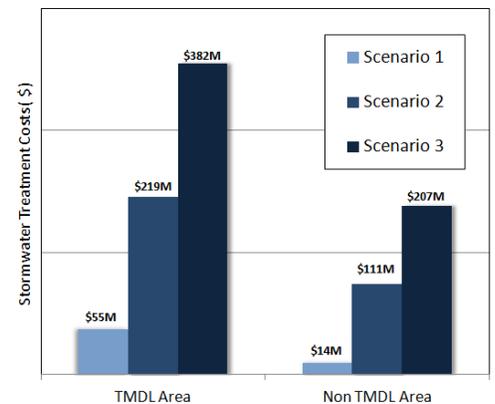
**Project Completion: 2010**

KIESER & ASSOCIATES, LLC (K&A) was contracted by the Kalamazoo River Watershed Council (KRWC) in 2007 to provide technical assistance on the development of an EPA-approvable Watershed Management Plan (WMP) for the Kalamazoo River watershed under a Clean Water Act (CWA) Section 319 Planning Grant. K&A also wrote and submitted the successful CWA Section 319 grant proposal on behalf of the KRWC. K&A efforts on the Kalamazoo River WMP built upon their previous modeling efforts related to the Lake Allegan/Kalamazoo River Phosphorus Total Maximum Daily Load (TMDL) Implementation Plan (see <http://www.kalamazooriver.net/tmdl/implementation/> and [http://www.kalamazooriver.net/tmdl/implementation/Implementation\\_text.PDF](http://www.kalamazooriver.net/tmdl/implementation/Implementation_text.PDF)).

As part of the technical assistance, K&A completed an assessment of nonpoint source pollution concerns through research and modeling. An empirical, watershed-wide nonpoint source model was run by K&A to estimate runoff volumes and pollutant loading from recent, existing land cover. Loads and volumes were also estimated for a future built-out scenario by running the model on a 2030 land use scenario developed by the Land Transformation Model by Purdue University (see [http://ltm.agriculture.purdue.edu/default\\_ltm.htm](http://ltm.agriculture.purdue.edu/default_ltm.htm)). The results from the build-out loading analysis were used to assess the potential impacts of future urban development on water quality and to estimate the costs necessary to achieve existing and future water quality goals.

Using the model results, K&A developed a spreadsheet-based best management practice (BMP) calculation tool for use by stakeholders. This tool was incorporated into the WMP to allow stakeholders to determine relative costs and benefits from reducing stormwater runoff. The tool allows users to select a subset of the watershed, either a township or small watershed, and calculate the phosphorus and sediment loading associated with particular land cover types. The tool can then be used to identify potential load reductions associated with restoration and BMP retrofits for urban stormwater. The tool provides users with an estimated cost for BMP implementation based on a user-selected treatment area and BMPs. This tool is particularly relevant to municipalities as they develop plans to address MS4 and phosphorus TMDL needs.

K&A also assisted in identifying critical restoration and protection needs by using the model results. As an extension of the modeling, K&A performed an analysis of the river corridor as a natural buffer area and critical area for protection and restoration. This analysis involved calculating the potential load reduction and costs associated with agricultural producers installing buffer strips. These elements associated with the phosphorus TMDL and necessary load reductions built on over a decade's worth of K&A efforts of river monitoring, modeling, and TMDL implementation planning (see <http://www.kalamazooriver.net>).



Scenario 1: reduce 50% of 2001 load  
Scenario 2: reduce 50% of 2030 load  
Scenario 3: reduce to 50% of 2001 load after 2030 build-out