

**DAVIS CREEK 319 WATERSHED MANAGEMENT PLANNING GRANT:  
PLANNING, WATER QUALITY MONITORING, NATURAL FEATURES  
AND STORMWATER ENGINEERING IN KALAMAZOO, MICHIGAN**

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**Project Costs:            K&A: \$28,000 (plus in-kind services)**

**Project Completion: 2000**

Mr. Mark Kieser, principal of KIESER & ASSOCIATES (K&A), voluntarily served on the Davis Creek Watershed 319 Grant funded project Steering Committee for five years; three of those as Chairperson. This 9,251-acre watershed is a tributary to the Kalamazoo River overlapping five separate townships and municipalities. As one of the first urban watersheds to receive 319 Grant funding in Michigan, this project successfully developed a watershed management plan with voluntary, cross-jurisdictional participation for long-term implementation. Over 15 separate non-point source improvement projects have been implemented in this effort.

During the course of this 319 project, K&A conducted an evaluation of baseline and wet weather water quality impacts via field sampling and data analysis for dissolved oxygen, algal nutrients, BOD, chlorides and heavy metals. These efforts have also included a comprehensive compilation of natural features within the Davis Creek Watershed. A user-friendly interactive Natural Features Guide was completed for inclusion on MDEQ and other local website hosts (see [www.theforum.org/nfi/](http://www.theforum.org/nfi/)). The inventory utilized Thematic Mapper Imagery (satellite data) to update existing land use/land cover information.



Additional studies were more recently completed to assess the feasibility of stormwater treatment for the largest, single stormwater discharge to this system in an area where the state of Michigan has just completed a \$1M stream corridor restoration. K&A was contracted by the Davis Creek Watershed Steering Committee to conduct this latter feasibility study to examine alternatives for improving environmental conditions associated with stormwater discharges to Davis Creek. This specifically related to an area where a municipal outfall, located on the former Lakeside Refinery site in the City of Kalamazoo, entered the creek. The outfall drains approximately 333 acres of residential and industrial properties located south of Cork Street.

The watershed drainage for this area is roughly Portage Road to the east, Cork Street to the north, Emerald Drive to the west and Dorchester Avenue to the south. The watershed of the drain is densely developed with 1/4-acre residential lots and large industrial complexes. The outfall discharges to Davis Creek on the former Lakeside Refinery property in an area of the creek that has recently been restored by the Michigan Department of Environmental Quality in relation to the removal of a failing dam located downstream of the outfall.

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Master planning for development of the former Lakeside Refinery site has been conducted with a plan that focuses on highlighting key natural features of the site with the creation of trail ways and possible public park. For this feasibility study, the Davis Creek Steering Committee sought to identify the magnitude of pollutants discharging to the creek from the outfall and research potential alternatives for stormwater treatment to coincide with the site plan.

The storm drainage to the outfall was assessed by K&A in terms of land use/land cover, volume of rainfall runoff, storm flows and pollutant loading. Options for alternate stormwater treatment design were also evaluated in terms of water capacity, pollutant reduction effectiveness, available land, identification of property ownership, and incorporation with current site planning efforts. Stormwater treatment design alternatives were considered based on their treatment effectiveness, aesthetic values, potential costs, and functionality within the site plan.

Stormwater from the drainage area associated with the 66-inch outfall was found in this study to be a significant source of pollutant loading to Davis Creek. Benefits to providing stormwater treatment for the drainage area include: protection of the recently restored reach of Davis Creek, phosphorus load reductions for the Kalamazoo River/Lake Allegan Total Maximum Daily Load (TMDL), and incorporation into future Phase II Stormwater requirements for the City of Kalamazoo.

Details can be found in the May 2000 report "Davis Creek Stormwater Drainage Feasibility Study", prepared for the Davis Creek Steering Committee, Davis Creek 319 Grant Watershed Project.