

The pages in this document were taken from the "Millers Creek Watershed Improvement Plan" published in April 2004. The entire document can be found at <http://www.aamillerscreek.org/Findings.htm>.

Millers Creek Watershed Improvement Plan

Excerpt Showing an Example of Watershed Description Information

April 2004

2. BACKGROUND

Millers Creek has a 2.4 square mile watershed and is the smallest named tributary to the Huron River (**Figure 2.1a and 2.1b**). The 125-mile Huron River, from its origin in Springfield Township in Oakland County to its outlet on Lake Erie, is a critical natural resource. It supplies drinking water to 140,000 people, and with two-thirds of the public recreational land of southeast Michigan, is one of the major recreational features in the region. The Huron River is also recognized as one of the premier smallmouth bass fisheries in Michigan. Thirty-seven miles of the Huron River and three of its tributaries have Michigan Department of Natural Resources Country Scenic River designation under the State's Natural Rivers Act (Act 231, PA 1970).

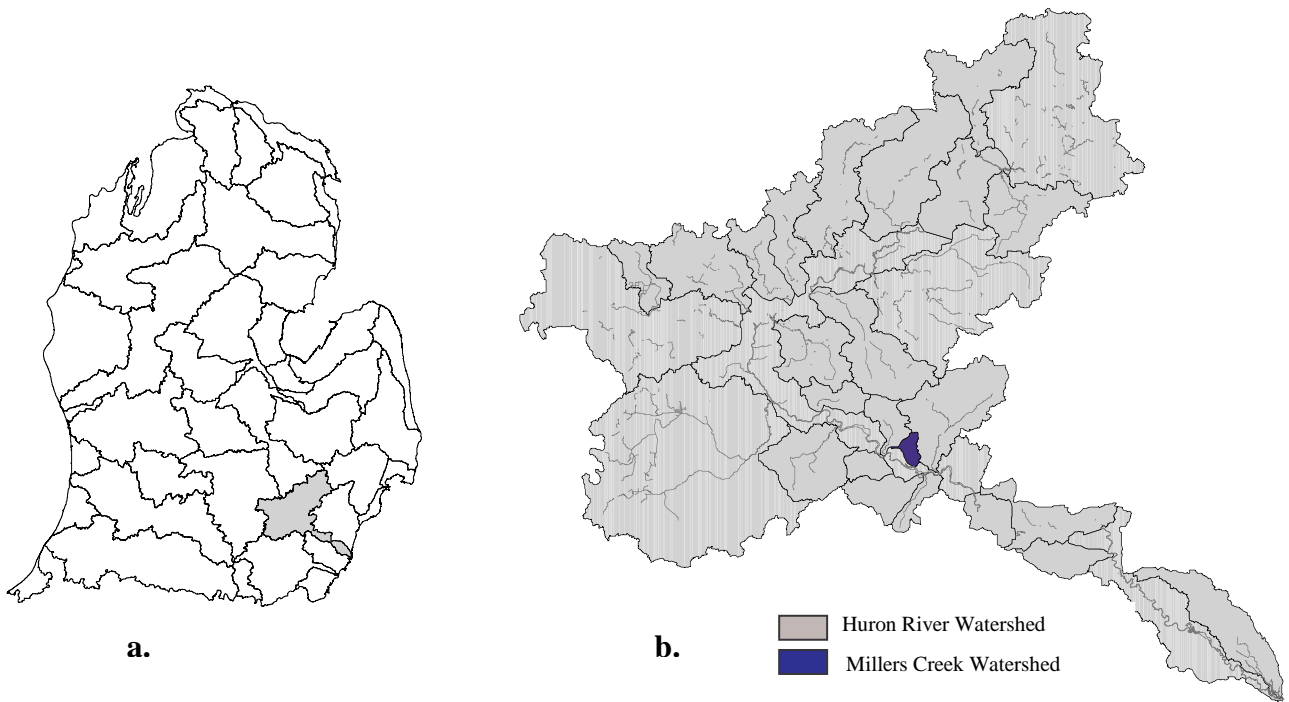


Figure 2.1 a. Location of Huron River Watershed within the State of Michigan.
b. Location of the Millers Creek Watershed within the Huron River Watershed.

The main branch of Millers Creek (formerly known as the North Campus Drain) originates on Pfizer's 1600 Huron Parkway campus and flows under Baxter Road, through UM north campus, under Huron Parkway and Pfizer's 2800 Plymouth Road campus and then back again under the Parkway and Hubbard Road (See **Figure 2.2**). The creek crosses under the Parkway twice then cuts through Ruthven Nature Area to meet up with the Huron River at Gallup Park. The northeastern tributary (or Green Road tributary) originates at the wetland on the current campus of the Ave Maria Law School and drains a significant area near the intersection of Green and Plymouth Roads. The southwestern tributary, referred to here as the Lakehaven tributary, drains several hundred acres north of Glazier Way and along Green Road.

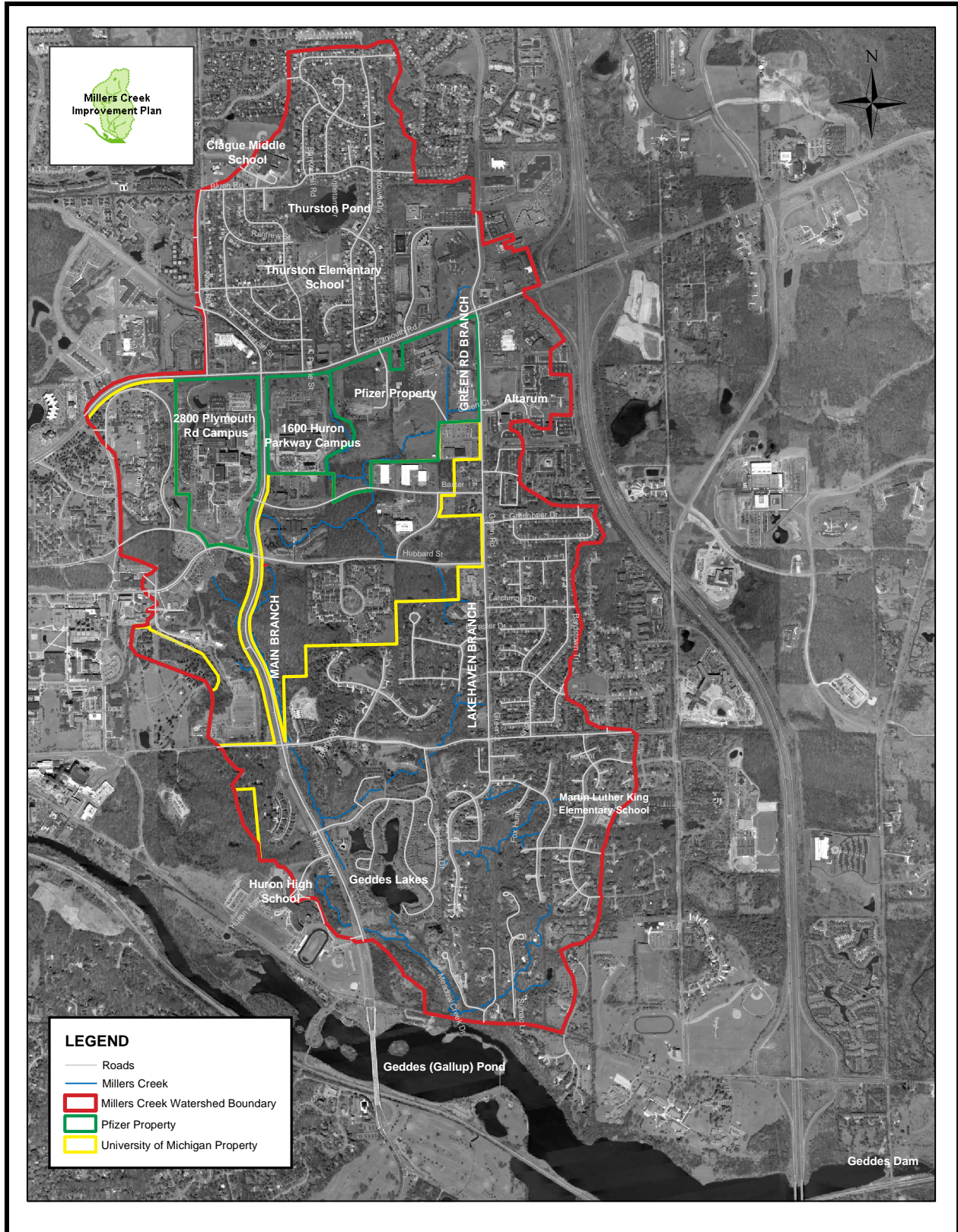


Figure 2.2 Millers Creek Watershed Map

The name “Millers Creek” first appears on a 1905 Huron River Atlas prepared by Gardner S. Williams for the Detroit Edison Company. A portion of the creek appears on the original surveyors plat for Ann Arbor Township prepared by Joseph Wampler in 1818. The entire stream system appears on the first USGS quadrangle produced by the USGS in 1902.

Millers Creek is located in the planning region for the Northeast Area Plan of the City of Ann Arbor (CPC, 2003). The population of the northeast area of Ann Arbor grew by 14% between 1990 and 2000, making it the fastest growing area within the city. The Southeast Michigan Council of Governments (SEMCOG) projects 16% growth for the area between 2000 and 2020.

The conversion of open space from forest and fields to roads, rooftops, parking lots, driveways and lawns completely changes the hydrologic cycle. It is likely that before European settlement in the 1800s, most rainfall in this area was intercepted by vegetation or infiltrated into the ground and slowly recharged groundwater, lakes, rivers and streams. With the construction of impervious surfaces, rainfall was cut off from its former hydrologic pathways. Rain now strikes impervious surfaces and with nowhere else to go, must be channeled away to lakes and streams.

This channeled runoff delivers significantly higher volumes of water to lakes, rivers and streams in a much shorter period of time. Natural channels formed to transport historic flows must now cope with frequently occurring and significantly higher flows. This new flow regime literally reshapes channels, making them deeper and wider, carrying bed and bank sediment downstream. In addition, channeled runoff flows over construction sites, lawns, driveways, roads and parking lots carrying with it sediment, nutrients (such as nitrogen and phosphorus), pesticides, oils, grease, gasoline, heavy metals (from brake pads, internal combustion engines, etc.), salts, and in the summertime, heat from sunlight-absorbing surfaces such as asphalt.

Runoff, both from urban, suburban and agricultural sources, has been identified as a primary source of water quality problems in the Huron River. The MDEQ has identified two significant water quality problems, high phosphorus and *Escherichia coli* (*E. coli*) concentrations, related to the impact of runoff on the Huron River.

Low dissolved oxygen levels (DO), algae blooms and fish kills in Ford and Belleville Lakes (impoundments on the Huron River downstream of Ann Arbor) prompted the MDEQ to add these reservoirs to Michigan’s Section 303(d) list (Impaired Waterbodies List) for not meeting designated recreational uses. Low DO and high phosphorus are caused by nutrient enrichment, particularly high phosphorus loading from wastewater treatment plants and runoff. The MDEQ has set summer (May through October) phosphorus concentration targets at Belleville and Ford Lakes of 30 ug/L and 50 ug/L, respectively. This requires an approximate 50% reduction in both wastewater treatment plant and runoff phosphorus loads. Millers Creek is one of six creeks in the Ann Arbor area contributing an estimated, combined total phosphorus load of 11,580 pounds annually or about 14% of the total load at Ford and Belleville Lakes (Brenner and Rentschler, 1996).

Geddes Pond is also listed as an impaired waterbody due to elevated pathogen levels. The listed segment is approximately five miles of the Huron River located in the Ann Arbor area, from Geddes Dam at Dixboro Road upstream to Argo Dam. This segment is also the receiving water for Allens Creek, Traver Creek, Millers Creek, Malletts Creek, and Swift Run Creek. Water sampling in this area indicates that Michigan Water Quality Standards (WQS) for *E. coli* are not consistently being met in the Huron River or its tributaries (See **Appendix A**).

The other major regulatory mechanism influencing storm water management is the National Pollutant Discharge Elimination System (NPDES) storm water permitting program. The City of Ann Arbor and the UM both hold Phase I stormwater NPDES permits. Ann Arbor Township and the Ann Arbor School District received certificates of coverage for Phase II NPDES permits in 2003. The NPDES permits require the permit holders to develop and implement a local stormwater management program that educates watershed residents about stormwater impacts and controls runoff within their jurisdictions.

For development of this plan, Pfizer brought together a plan oversight committee, called the Millers Creek Action Team (MCAT) with volunteer representatives from Pfizer, the WCDC, the MDEQ, the City of Ann Arbor (AA), the University of Michigan (UM), the HRWC, Altarum Institute, and Pollack Design Associates. The local (Ann Arbor vicinity) institutional stakeholder representatives in MCAT are many of the same individuals responsible for implementing the Middle Huron Phosphorus TMDL Initiative and the *E. coli* TMDL implementation plan (2003). This carry-over of representatives with long-standing relationships has helped facilitate productive and efficient information exchange for the MCAT.

5. EXISTING CONDITIONS

This section is a general overview of conditions of Millers Creek and its watershed. Descriptions of individual reaches (sections of the stream) are also summarized in this chapter. Detailed descriptions of individual reaches within the creek, along with detailed site maps and photographs can be found in **Appendix D**. All the mapping data, in ArcMap format, can be found in **Appendix E**. A map of the reaches is shown in **Figure 5.1**. Each reach is referred to by the sampling station name at the downstream end of that reach. For example, the Plymouth reach ends at the Plymouth sampling station and includes all channel upstream of this sampling station. The Baxter reach begins at the Plymouth sampling station and ends at the Baxter sampling station. In some areas, the reaches are broken up into sub-reaches due to the heterogeneity of conditions within that reach.