

BARTON HILLS VILLAGE
2013 WELLHEAD PROTECTION PLAN

Barton Hills Village Water Resources Advisory Committee
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Barton Hills Village Board of Trustees
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INTRODUCTION

This document details the Barton Hills Village Wellhead Protection Plan (WHPP) as updated in 2013 and submitted to the State of Michigan for approval. Wellhead Protection Plans are voluntary efforts to help protect ground water supplies from contamination.

The purpose of the plan is to identify actions the Village can take in its efforts to protect the groundwater that supplies its municipal drinking water wells and the private drinking water wells in Ann Arbor and Northfield Townships. The plan consists of ten chapters each of which describes an element of the wellhead protection program.

The Wellhead Protection Area (WHPA) is the area within which contaminants could move toward and reach the Village municipal wells within a ten year time period, and is the geographic area in which protection efforts are focused. This area encompasses portions of Barton Hills Village and Ann Arbor and Northfield Townships. Although nearly all of the WHPA lies outside Barton Hills' boundaries, the Village has found Ann Arbor and Northfield Townships to be willing partners in efforts to protect its ground water supplies from contamination.

For a map of the WHPA, see Addendum C. Local area maps are found in Addendum A and B. Maps of potential contamination sources within the WHPA and 1/5/10 year delineation of the WHPA are found in Addendum D and E.

CHAPTER 1: Contact List for Wellhead Protection

The State of Michigan approved the first Barton Hills Village Wellhead Protection Plan (WHPP) in 1997. The plan was developed and approved under the leadership of the Huron River Watershed Council. Subsequently, Barton Hills Village took ownership of the program and assumed responsibility for periodic updates to the plan; this is the first, formal update submitted to the State for approval.

The Village relies on a team of individuals and organizations to help sustain its wellhead protection program; some individuals, and all of the organizations, have been members of this team since it was first formed in 1997. These long-term associations have helped to achieve the plan's mission to develop and sustain a program to help ensure that residents have a safe and adequate supply of drinking water.

Ann Arbor Township

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Barton Hills Village Resident Representatives

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Forrest Butterwick, Barton Hills Village Environmental Committee Chair
William Davis, Jr., Barton Hills Village Water Committee Chair
Christine Doherty-Mikesell, Water Resources Advisory Committee member
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Huron River Watershed Council

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Michigan Department of Environmental Quality, Office of Drinking Water & Municipal Assistance

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MDEQ, EMRD, P.O. Box 30241, Lansing, MI 48909

Northfield Township

Bill Wagner, Township Fire Chief, wagnerw@twp.northfield.mi.us - 734-449-2880
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Washtenaw County Environmental Health Department

Jennifer Conn, Environmental Quality Analyst, connj@ewashtenaw.org - 734-222-3855
705 N. Zeeb Road, P.O. Box 8645, Ann Arbor, MI 48107

CHAPTER 2: Water Supply/Community Profile Worksheet

- 1. Public Water Supply Agency:** Barton Hills Village.
- 2. Service Area and population served:** Barton Hills Village is a residential community with a geographic area that covers about one square mile. The community consists of approximately 400 residents who reside in about 140 single family homes. There are no schools or retail establishments located within the village's boundaries.
- 3. Proposed expansion to service area, if any:** Significant growth is not expected.
- 4. Number of wells and capacity of each:**

<u>Well number</u>	<u>Depth: below ground level (bgl)</u>	<u>Capacity: gallons/minute gpm)</u>
PW-1A	139' bgl	200 gpm
PW-2 (standby well)	57' bgl	200 gpm
PW-3	55' bgl	200 gpm
PW-4	138' bgl	200 gpm

Average daily usage for peak month: 143,548 gallons per day (August)

Water tower capacity: 150,000 gallons

CHAPTER 3: Goals and Objectives

The mission statement and goals listed below are guides that have been used to help determine actions that can be taken to complete portions of the WHPP. Many of the actions listed have been employed on multiple occasions in recent years as part of the ongoing, general oversight of the local water supply and implementation of the original plan.

Mission statement for Barton Hills Village Wellhead Protection Plan: To develop and sustain a program to ensure that an adequate, safe drinking water supply exists for Village residents.

Goal #1: Research land uses within the WHPA that may pose a threat to the groundwater supply.

Ideas on how to accomplish Goal #1:

- Regular communications between and among WHPP team members will help to ensure that key stakeholders are timely aware of new situations that may adversely affect the water supply and, thus, provide an early opportunity to initiate protective actions. Fortunately, many of the Village's WHPP team members are affiliated with governmental organizations that would be among the first to know of local water supply issues whether it be due to a sudden, environmental disaster of magnitude, or a slowly developing issue of lesser magnitude.
- Discuss historical land use with long-term residents and document usage concerns to ensure such information is not "lost" by the passage of time.
- Search the Michigan Department of Environmental Quality (MDEQ) and various federal government websites for data that identifies locations of potential environmental concern that are situated in the WHPA, including: MDEQ's Sites of Environmental Contamination (201 sites), Underground Storage Tank List, Leaking Underground Storage Tank Sites, Oil & Gas Contamination Sites, Hazardous Waste Generators, Groundwater Discharge Permits, Landfill/Solid Waste Disposal Site List, the Environmental Mapper, and the Federal National Priorities List EPA for Region 5 (Superfund).
- Periodically undertake a windshield survey of the WHPA to maintain awareness of changes to existing land uses, such as the development of retail corridors, business parks, new subdivisions, etc., on formerly vacant rural parcels.

Goal #2: Protect the drinking water supply by working to prevent the pollution of surface and groundwater.

Ideas on how to accomplish Goal #2:

- Maintain contacts with the MDEQ, the Washtenaw County Pollution Prevention Program and similar organizations to ensure Barton Hills Village WHPA remains “on their radar” in the event conditions develop that threaten the water supply.
- Develop emergency plans to respond quickly to spills and accidents, and periodically review such plans with the appropriate Ann Arbor and Northfield Township officials.
- Maintain awareness of Community Master Plans and Zoning Ordinances that govern land uses within the WHPA to understand the potential for groundwater contamination arising from existing Plans, Ordinances, and updates to same.

Goal #3: Educate property owners within the WHPA to ensure land use practices on their property do not threaten the drinking water supply.

Ideas on how to accomplish Goal #3:

- Update the Village’s website to include a link to its WHPP, and links to other sources of information related to water quality.
- Periodically publish in the Village newsletter articles outlining steps residents can take to help protect the water supply, such as:

Maintaining septic systems, and complying with the Village ordinance of septic tank pumping at least once every four years;

Minimizing usage of pesticides and fertilizers;

Properly disposing of household hazardous waste and toxins through the Village pick-up program or drop-off at County facilities;

Picking up and properly disposing of animal wastes;

Alerting Village officials of possible contamination; and

Finding and plugging abandoned wells.

- Periodically highlight in the newsletter programs that the Huron River Watershed Council (HRWC) offers to homeowners so they can learn more about helping to reduce water pollution; for example, publishing information about programs such as “Adopt a Storm Drain” and “Rain Garden Installation” as well as providing advertising and manpower to support the Council’s “rain barrel” sales.
- Financially support HRWC advertisements in local publications and other media that announce upcoming events or promote other programs, events and seminars aimed at educating area residents on how they can help protect water quality.
- Coordinate public education efforts with the activities of the Barton Hills Village storm water management program.

Goal #4: Plan and prepare for water supply emergencies.

Ideas on how to accomplish Goal #4:

- The Village recently updated its plan for the handling of water supply emergencies; a summary of the plan is found in Chapter 8.

Goal #5: Promote inter-governmental cooperation to ensure protection of water supplies.

Ideas on how to accomplish Goal #5:

- Continue to work with Ann Arbor and Northfield Townships, Washtenaw County and State officials to provide safe drinking water to residents.
- Support state and local efforts to research, develop and apply Best Management Practices for Groundwater Protection by participating in round-tables, conferences and other forums dedicated to improving water quality.

Goal #6: Maintain an awareness of the State and local laws and regulations that apply to wellhead protection.

Ideas on how to accomplish Goal #6:

- Maintain regular contact with MDEQ and local officials to promote understanding of existing requirements and gain insight into requirements under consideration for updates.

CHAPTER 4: Delineation Study

A wellhead protection delineation study was conducted for Barton Hills Village in 1995 and approved by the MDEQ in January 1996.

The study was conducted by Fishbeck, Thompson, Carr & Huber, Inc., 39500 MacKenzie Drive, Suite 100, Novi, MI 48377 (248-324-2090). E-mail: info@ftch.com.

The following excerpts from their report briefly summarize the scope of the study and the geology of the aquifer supplying the Village's water wells. The complete report is on file, and available for review by appointment, at the Barton Hills Village Clerk's Office, 199 Barton Shore Drive, Barton Hills, MI 48105.

The scope of the investigation conducted by Fishbeck et al includes:

- Compilation of data which describes hydrogeologic conditions and groundwater flow directions.
- Evaluation of aquifer characteristics from aquifer performance tests.
- Interpretation of major ion and tritium chemistry of groundwater and Barton Pond water samples.
- Delineation of the preliminary wellhead protection area for each Village well.
- Identification of potential new well field locations.

Regionally, the area surrounding the Village consists of outwash plains, and recessional and ground moraines. The outwash plains typically consist of interbedded sand and gravel deposited by glacial meltwater. The moraines were directly deposited by glacial ice, and consist of unsorted mixtures of clay, silt, sand and gravel (till). Commonly, the outwash deposits are interbedded with, or rest directly on, clay-rich till. Typically, the outwash deposits form productive aquifers, whereas the moraine and till deposits form lower permeability confining layers.

The thickness of glacial deposits in this area appears to range from 150 to 250 feet. The bedrock underlying the glacial deposits in this area is comprised of the Mississippian Coldwater Shale. The Coldwater Shale is not a source of potable groundwater.

The present public water supply system for the Village consists of four production wells which are screened in outwash/alluvial deposits.

CHAPTER 5: Inventory of potential sources of contamination

A key element of the WHPP is to develop greater awareness of past and present land uses within the WHPA that may pose a threat to groundwater supplies. There are a variety of ways to develop such an awareness including: periodic windshield surveys, discussions with long term residents, and consulting with organizations concerned with protecting water quality to learn about land uses susceptible to contributing to groundwater contamination. Additionally, there are numerous state and federal governmental websites that can be used to identify specific locations of potential concern.

Each of the above methods have been utilized to learn about land uses within the WHPA, and to classify selected sites as active or historic; the results of the search are outlined below. As information, generally, once a site is listed in a MDEQ generated report it remains on the report; even if corrective actions have been taken to restore the site to pristine conditions, the site remains in the data base for historical purposes. Also, some MDEQ reports identify sites but do not provide status. In such cases, an individual interested in a particular site should investigate further to determine if it is a site of active environmental concern or a historical data site not requiring active monitoring.

Below is a summary of land use/activities occurring generally throughout the WHPA; following the summary are the results of MDEQ and federal data base searches from which specific sites were identified as current potential sources of groundwater contamination:

Land uses/activities within the WHPA that can contribute to groundwater contamination

- U.S. 23 is a major transportation artery running through the wellhead protection area, and as such, is an avenue for vehicles loaded with toxic materials which can spill during an accident and result in groundwater contamination. Railroad tracks and depots service freight cars loaded with toxic substances that can contaminate groundwater by leaks or accidents; a set of tracks runs parallel to U. S. 23 throughout the WHPA as well as along the western border of the Village.
- Septic tanks are located in residential areas throughout the area. Nationally, leaking residential septic systems are major contributors to groundwater contamination.
- Fertilizer and pesticides are used at farming operations and residences located throughout the area and at Barton Hills Country Club. Storm water run-off can carry these chemicals from treated lawns, shrubs and other plantings into streams and rivers, contaminating the groundwater and upsetting the ecological balance of rivers and streams.

- Cemeteries also are potential sources of groundwater contamination. There are two cemeteries located within the WHPA: Washtenong Memorial Park, 3771 Whitmore Lake Road, and Old Saint Patrick’s Church, 5671 Whitmore Lake Road.

Sites specifically identified as current potential sources of groundwater contamination

1 Active Entry - Part 201 Contaminated Sites, MDEQ website

Generally, inclusion on this list means the site is not suitable for unrestricted residential use because there’s been some hazardous substance release and/or the clean-up hasn’t been sufficient for unrestricted residential use. Search list at www.deq.state.mi.us/part201ss

- Charles Braun Warehouse, 4175 Whitmore Lake Road, Ann Arbor, MI. Listed on the MDEQ Part 201 Site List, site ID #81000009. This facility was the only site located within the WHPA listed on the Part 201 report obtained for the 2013 WHPP update. This site was included in the original WHPP with notes indicating MDEQ viewed the site as a lower level concern and that it is inspected by Washtenaw County Pollution Prevention who are aware it is in the WHPA.

Currently, the site is owned by Tantre Farm. Tantre has hired environmental consultants Mannik & Smith Group, Inc. to aid them in obtaining a “No Further Action Status” for the site which had residual atrazine contamination detected in 2008 groundwater samples. Site contamination originally occurred in 1978 when a warehouse containing 20-30 tons of pesticides and herbicides was destroyed by a fire.

Tantre submitted, and the DEQ approved in December 2012, a Response Activity Plan with numerous investigational and response activities aimed at bringing the site into compliance and eventually permitting delisting from the Part 201 List; it will likely be 4th quarter 2014 before the plan is completed and data provided to the MDEQ for review. Meanwhile, the site’s Part 201 status is “Evaluation in Progress”. This information was provided by Dan Hamel, Remediation and Redevelopment Division, MDEQ, Jackson, MI. (517)780-7832, hameld@michigan.gov .

1 Active Entry – Hazardous Waste Generators Part 111 of Act 451 and Landfill/Solid Waste Disposal Sites, Part 115 of Act 451, MDEQ’s Waste Data System (WDS)

The WDS tracks activities at sites regulated by the Solid Waste, Scrap Tire, Hazardous Waste and Liquid Industrial Waste Programs. Searched for data at www.deq.state.mi.us/wdspj by zip codes 48105 and 48189 and located one active waste generator located in the WHPA:

- Barton Hills Country Club, active WDS #446492, liquid industrial waste generator; status linked to maintenance of golf carts and other equipment. (Memo: BHCC WDS #403429 has been deactivated).

The Hazardous Waste Generators website is generally useful and informative; however, the data base can have some limitations. For example, a listed location may have a notification date of 1/1/1970; this is a default date as the original reporting system did not require dates. And, particularly for older or default entries, specifics may be lacking as to why that location was included in the data base. Consequently, such listings may need further investigation to determine if the site should be classified as active or historical for WHPP purposes.

The following WDS sites have been classified in the WHPP as historical due to the data base limitations described above, and an absence of other illuminating information: WDS #443967 -- Richard Adams Russell & Associates; WDS #446541 -- Real Estate Investment; and, WDS #451120 -- Township of Ann Arbor.

Additional MDEQ and EPA online searches – no active sites found in the WHPA

0 Active Entries - Leaking Underground Storage Tanks (LUST), MDEQ Site

These sites are classified in two ways: an open LUST means there has been a release and corrective actions have not been completed to bring the site into compliance for the appropriate land use. A closed LUST means there has been a release **AND** corrective actions have been taken to bring the site up to appropriate land use criteria. Search site at www.deq.state.mi.us/sid-web by WHPA zip codes 48105 and 48189.

- **48105 Open LUST:** none on the list are located within the WHPA.
- **48105 Closed LUST:** 3 sites appear, however, the specific locations are not cited in this report as their classification indicates sites were appropriately restored and monitoring is not required. (Note: these sites were included in the original, 1997 WHPP).
- **48189 Open LUST:** none on the list are located within the WHPA.
- **48189 Closed LUST:** none on the list are located within the WHPA.

0 Active Entries – Oil & Gas Contamination Sites Act 61, MDEQ Site

Search site at www.deq.state.mi.us/mir search criteria was Washtenaw County. One entry for the county popped up, none in the WHPA (identified as Rawson1 with plugging approved).

0 Active Entries – Groundwater Discharge Permits, Part 31 of Act 451, MDEQ Site

These permits allow waste water to be discharged to ground water. At the time of the 2013 Plan update, there was no website available to search for Permit data. Data for this report was obtained from Mr. Rick Ruzs, Groundwater Permits Unit, Water Resources Division, MDEQ, Lansing, MI, 1-517-373-2040, ruszr@michigan.gov.

Mr. Ruzs provided a list of current groundwater permits for Washtenaw County (25 permits), none of which are located with the WHPA.

0 Active Entries – Region 5 Superfund Clean Up

Search at www.epa.gov/region5/cleanup/index.htm#MI indicated there are no Superfund clean-up sites located in the WHPA.

CHAPTER 6: Management Strategies

Several active and planned strategies intended to help safeguard groundwater supplies were noted in the original WHPP. Those strategies are summarized below, and remain in effect:

The Washtenaw County Pollution Prevention Program, which operates in accordance with the County's pollution prevention regulations, requires, among other things, that every facility that handles, stores, or manufactures stated amounts of hazardous substances must submit annually a status report regarding same; further, facilities are inspected regularly, the frequency of which depends on the quantity of material stored and other factors. Facilities that do not comply with the program are fined.

Ann Arbor and Northfield Townships Fire Departments inspect all businesses for fire safety and hazardous materials storage. The Fire Marshall coordinates with and forwards information on to Washtenaw County's Pollution Prevention Program including changes in facility use or ownership.

Washtenaw County operates a Home Toxins Reduction Program which is open to all county residents to drop off their household hazardous waste. Residents of Northfield and Ann Arbor Township have access to this facility. Barton Hills Village residents have the added convenience of being able to place their hazardous waste out with their trash. The Village Superintendent and Assistant Superintendent collect the waste and deliver it to the County's drop off center, essentially providing residents with a curbside household hazardous waste disposal service.

The planned strategies include publishing articles in community papers and newsletters outlining steps residents can take to help protect groundwater supplies, reminders to utilize the County's Hazardous Waste drop off facility, and the need to regularly inspect and properly maintain septic systems. Informational articles such as these continue to be printed in a variety of publications.

In addition to the above, since the original WHPP was approved, Barton Hills Village has adopted several ordinances aimed at protecting groundwater. The ordinances, which are summarized here, can be viewed in full online at www.vil-bartonhills.org .

Ordinance 21 (2001) requires Village residents to have septic systems inspected at least once every four years. Also, Washtenaw County requires the inspection of on-site sewage disposal systems prior to the sale of a property having such a system.

Ordinance 29 (2009) regulates geothermal systems and prohibits Village residents from installing open loop systems as these systems discharge into ground water.

Ordinance 31 (2010) permits the Village to purchase development rights; such purchases permit the Village to acquire offered interests in farmland and open spaces,

allowing such lands to remain in an undeveloped state thus reducing the likelihood of groundwater contamination. Ann Arbor Township also adopted in 2007 an ordinance permitting the purchase of development rights to further its intent to maintain the Township's rural character.

Ordinance 37 (2011) prohibits illicit discharges and imposes fines of up to \$500 for discharging substances other than storm water into Village water courses.

Barton Hills Village is covered under Ann Arbor Township's Soil Erosion and Sedimentation Control Ordinance No. 7-2007 which is aimed at reducing soil erosion and protecting water quality. This ordinance, and other Ann Arbor Township ordinances, can be viewed in their entirety at www.aatwp.org.

Ann Arbor Township's commitment to protecting groundwater supplies is evident from a review of ordinances enacted during the past several years that are intended to protect water quality. In addition to the ordinances noted above, the following water quality ordinances also were adopted by the Township since MDEQ's approval of the initial Barton Hills Village WHPP:

Ordinance 2-2007, part 81 (2007); this supplemental sewer use ordinance is intended to prevent pollution of the environment by regulating discharges into public sewers and works by the issuance of permits, and enforces requirements through administrative, civil and criminal penalties. It also authorizes monitoring and requires discharger reporting.

Ordinance 4-2009 (2009) is a storm water management tool which, among other things, was enacted to prevent water quality degradation resulting from storm water run-off, and compliance with state and federal regulations. The amendment is comprehensive and contains numerous measures, including those aimed at preventing flooding, drainage, stream bank erosion and water quality degradation resulting from storm water run-off during and after site developments.

Ordinance 7-2009 (2009) the Natural Features Setback and Steep Slope Use Protection regulation codifies the Township's intent to protect natural features, and lands adjacent to them, including wetlands which provide filtration of groundwater.

Northfield Township has demonstrated a commitment to protecting water supplies in a variety of ways since publication of the original Barton Hills Village WHPP:

For example: their website, www.twp-northfield.org has a link to the Washtenaw County Drain Commissioner's Guide to Water Quality Protection for Homeowner Associations and Households. This publication provides information on catch basin care, septic system maintenance and other steps homeowners can take to help protect water quality.

Northfield Township has adopted a zoning ordinance that specifically addresses protection of groundwater recharge areas and wellhead protection areas located in the Township:

Article 60.26 (J) specifically provides for preservation and restoration activities in these sensitive areas; the balance of 60.26 is dedicated to natural features preservation within the Township, including protecting wetlands, watercourses, flood plains, woodlands, and steep slopes.

Northfield Township also has enacted zoning ordinance provisions aimed at preserving open spaces, the rural character of the community, and the creation of conservation easements -- land uses which reduce the potential for groundwater contamination:

Article 35 titled *Open Space Preservation Residential Development* is intended to “provide residential development in an enhanced living environment through the preservation of natural features, agriculture and rural landscape...”.

Northfield Township’s zoning ordinance, as amended through February 15, 2012, can be found at www.twp-northfield.org as can the community’s proposed Master Plan.

The Township’s proposed Master Plan includes a policy that requires consideration of how a proposed land use affects groundwater recharge areas and other sensitive sites such as waterways, wetlands and woodlands, and has a stated goal of maintaining a rural atmosphere by encouraging retention of farmlands and open spaces in general. At the time of this update, about 45 percent of the Township is active agriculture and farmland; nearly another 40 percent of the Township is grass and shrub lands, woods, wetlands and water

In addition to maintaining programs and policies currently in place, further efforts to protect groundwater supplies will be undertaken by pursuing strategies such as:

Taking steps to increase community awareness of the WHPA -- highlighting the importance of protecting all ground water supplies from contaminants through education and outreach programs, and partnering with local businesses to promote water quality and WHPA visibility. (For example: printed informational restaurant place-mats and window posters, plantings identified as “rain-garden friendly” at local nurseries, and installation of rain gardens on public lands along with signs explaining the benefits of such gardens; providing “recognition plaques” to homeowners/businesses that install rain gardens);

Continuing to develop and implement planning and zoning provisions aimed at safeguarding the water supply. For example, the WHPA could be overlaid on zoning and master planning maps to increase awareness of drinking water supplies located beneath developed and developing areas; and, an ordinance that requires land owners to search for and properly plug abandoned wells could be enacted; additionally, a wellhead

protection policy statement could be incorporated into each community's master plan to help ensure development activity takes into account the need to protect groundwater supplies;

Budgeting funds annually to implement plans and programs designed to create awareness of and protection the wellhead protection area;

Monitoring annually sites and activities viewed as potential sources of contaminants;

Participating in Ann Arbor and Northfield Townships public hearings on zoning and master planning proposals;

Investigating MDEQ/state funding opportunities to promote awareness of wellhead protection areas and programs aimed at protecting water quality and conservation;

Making greater use of social media to expand awareness of the WHPP and reinforce the message that protecting the wellhead is a community service that all residents can and should participate in;

Supporting front-line organizations such as the Huron River Watershed Council by providing financial support for educational and outreach programs and volunteers to man water quality events;

Discussing the need for any additional delineation studies with Fishbeck, Thompson et al prior to the next WHPP update, and updating same at that time if conditions warrant it.

CHAPTER 7: Educational Strategies and Public Participation

The Village's educational strategy consists largely of informing the residents of the Village, and Ann Arbor and Northfield Townships, of steps they can take to protect drinking water supplies.

Since approval of the initial WHPP, the Village has regularly published information aimed at ensuring residents are aware of practices they can follow to protect drinking water. Local newspapers and community newsletters are the type of publications used most frequently in providing this type of information; however, flyers and brochures also have been utilized in mail box drops and welcome packages delivered to new residents. The Village will continue to promote awareness of the WHPA and water quality protection with publications of this kind.

Creating awareness in residents of the need to safeguard groundwater supplies and a desire to participate in protective actions is essential to achieving the WHPP's mission of developing and sustaining a program that ensures an adequate safe drinking water supply exists for Village residents. Accordingly, efforts will be stepped up to ensure that residents of the WHPA are aware of the plan and motivated to actively protect groundwater supplies.

Examples of actions to be taken to achieve these goals (in conjunction with WHPP partners):

- Updating community website "home pages" to include links to the WHPP and front-line water conservation organizations such as the Huron River Watershed Council www.hrwc.com, Washtenaw County's Water Resources Commissioner www.ewashtenaw.org and the National Groundwater Association www.ngwa.org . These organizations offer a wealth of information on groundwater facts and a multitude of programs designed to assist individuals, families and businesses in helping to protect water quality.
- Promoting in newsletters, flyers and social media water quality/conservation programs that families and individuals can participate in such as the Adopt-a-Stream and Adopt-a-Storm Drain programs offered by the HRWC.
- Championing creation of "rain gardens" and giving recognition to participating homeowners in community publications and awarding them with a commemorative item, such as an inscribed garden "stepping stone".
- Working with local restaurants and diners to print up paper place mats with kid-friendly games and puzzles downloadable from the National Groundwater Association.
- Sponsoring poster art contests in local schools with winning submissions acknowledged in community newspapers and newsletters and displayed in local businesses.

- Promoting participation in Washtenaw County's RiverSafe Home Program. The program was created to enable residents to identify water quality protection activities they currently practice and commit to additional pollution prevention practices they may not have considered before. Over 138,000 county residents have taken part in the program since its inception. Participants receive home decals that acknowledge their home as being "RiverSafe".
- Providing financial support of signing activities which identify approved wellhead protection areas, or promote the concept of groundwater protection such as storm drain stenciling which reminds residents drains are for storm water only.

CHAPTER 8: Emergency Response Plan

The Michigan Department of Environmental Quality (MDEQ) requires that all public water supply systems have an emergency operations plan in place in case of a water emergency; the existence of such a plan could also be useful in the event of a chemical spill or accident involving toxic substances.

An emergency plan is vital because it supports a rapid response to a crisis situation thus helping to minimize contamination of the water supply system and harmful effects to users of the system. Barton Hills Village updates its plan as necessary – when key personnel or contacts are changed, for example – but no less than every five years.

Most recently, the Village updated its plan in August 2013; a complete copy of the plan is on file and available for review by appointment at the Clerk's Office, 199 Barton Shore Drive, Barton Hills, MI. 48105.

The emergency response plan can be triggered in a variety of circumstances such as a significant loss of water pressure, when there are inadequate quantities of water available or contamination has occurred. If the plan is triggered, Village residents will be notified by telephone, e-mail and/or personal delivery to their residences.

If residents become aware of a contamination situation, or circumstance that calls into question the availability of quality water in the normally expected quantities, they are urged to immediately contact any one of the following Village officials (available 24/7/365):

Walter Esch, (Superintendent) Maintenance), certified water system operator, (cell), 734-368-7874, (home) 734-663-1284;

David Esch, (Assistant Superintendent) Maintenance, certified water system operator, (cell) 734-368-7884, (home) 734-665-5574; or

William Davis, Water Committee Chair, 734-332-6026.

In such an emergency, Village officials will take steps to verify the nature and extent of the emergency and contact appropriate local and state first-responders for assistance as necessary; these contacts include the Washtenaw County Health Department, the Ann Arbor Township Fire Department, Washtenaw County 911, nearby laboratories for water sample testing, a source for alternative water supplies, pre-approved contractors for excavating, drilling, and supply of chemicals or replacement pumps, the MDEQ and the Department of Agriculture's USDA Washtenaw County Service Center.

CHAPTER 9: Siting of New Wells

As indicated in Chapter 4, the Village retained in 1995 Fishbeck, Thompson, Carr & Huber, Inc., to conduct a wellhead protection delineation study. The identification of potential new well field locations was included in the scope of work for that investigation.

Their investigation found that “the Village wells are more than capable of meeting firm capacity as defined by the MDPH. However, if it became necessary to install an additional production well, it should be located in an area where a productive aquifer exists and where there are no contaminant sources located within the projected WHPA for the new well”.

The study report also states “the most productive aquifer in the Village (PW-3) is the alluvial sand and gravel aquifer near Barton Pond (Huron River). Based on the configuration of this aquifer, the most likely areas for exploration and development of a new production well in this aquifer should be located:

- Adjacent to Barton Pond near the old test well.
- Southwest of PW-1A and PW-4.
- North of PW-2 and PW-3, and south of MW-3”

CHAPTER 10: Roles and Responsibilities for Wellhead Protection

Barton Hills Village Resident Representatives

Barton Hills Village has lead responsibility for implementing the Wellhead Protection Plan and updating it from time to time as all Village residents obtain their household water supplies from the wellhead protected by this plan.

This requires Village representatives to meet regularly with team members listed in Chapter 1 to strengthen those relationships and develop the cooperative spirit needed to help ensure implementation of the strategies and action items identified in the plan.

Key responsibilities include taking steps to: 1) heighten community awareness of the WHPA and protecting water quality in general, and 2) motivate residents and businesses within the WHPA to actively support the WHPP specifically, and protect groundwater supplies as they conduct their day-to-day activities. Success with these steps is essential given the significant impact that residents' activities and local business operations have on water quality.

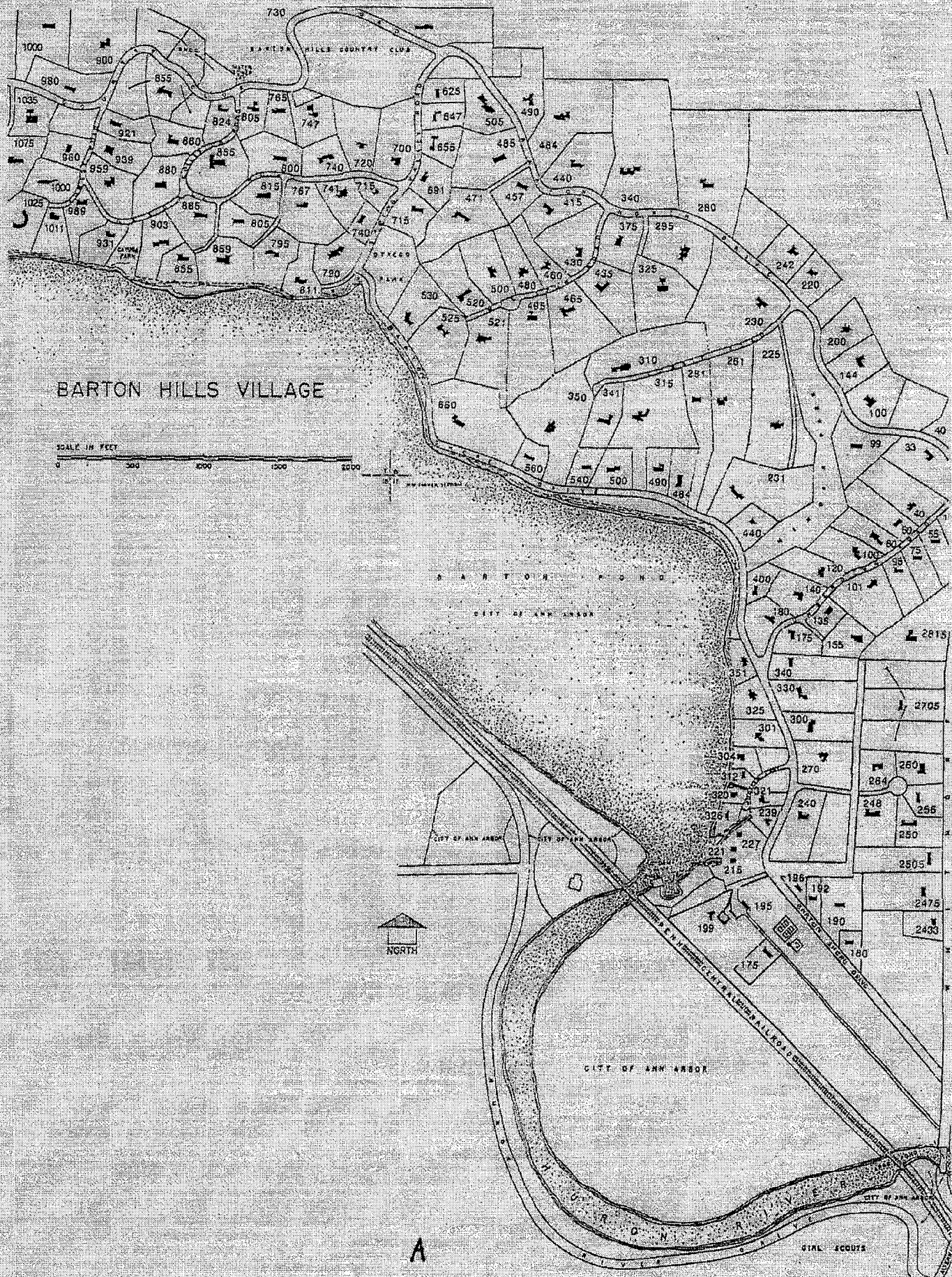
Ann Arbor and Northfield Townships

Ann Arbor and Northfield Township officials recognize that nearly all of the wellhead protection area is located outside Barton Hills Village boundaries, and have been willing partners in the Village's efforts to protect its groundwater supplies.

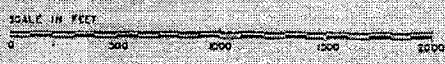
As both capable professionals and good neighbors, Barton Hills Village is confident that Ann Arbor and Northfield Township officials will continue to support the wellhead protection plan by being mindful of the WHPA as they carry out official duties having the potential to impact the area, and by actively supporting measures that require joint efforts to be successful.

Technical Support

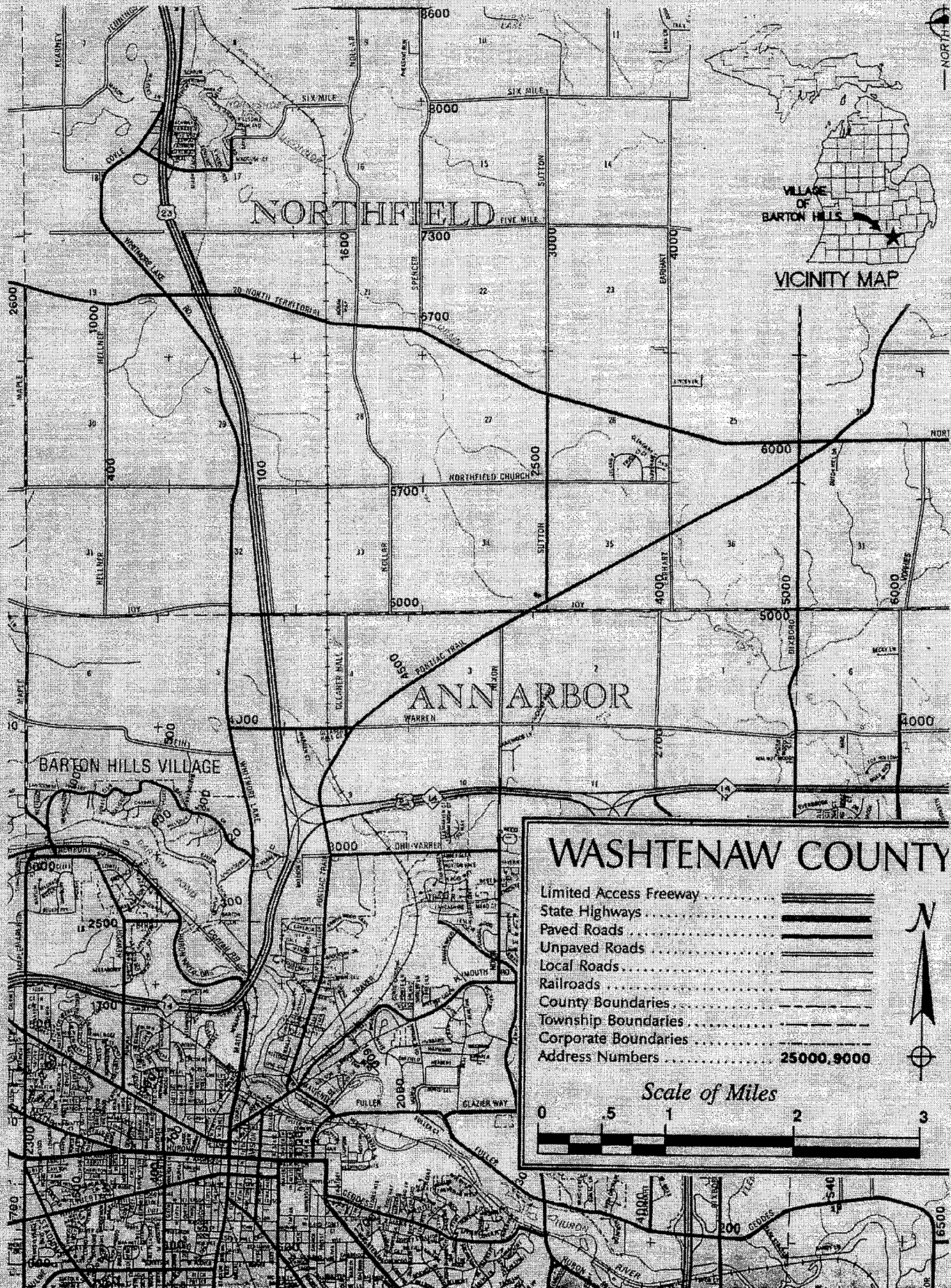
The Huron River Watershed Council, MDEQ's Office of Drinking Water & Municipal Assistance, and Washtenaw County's Environmental Health Department are relied upon to provide technical expertise on water quality issues and wellhead protection. Barton Hills Village will also significantly rely on educational materials and grassroots water conservation programs they have developed over the years to support community awareness efforts outlined in the WHPP.



BARTON HILLS VILLAGE



A



NORTHFIELD

ANN ARBOR

BARTON HILLS VILLAGE

VILLAGE OF BARTON HILLS

VICINITY MAP

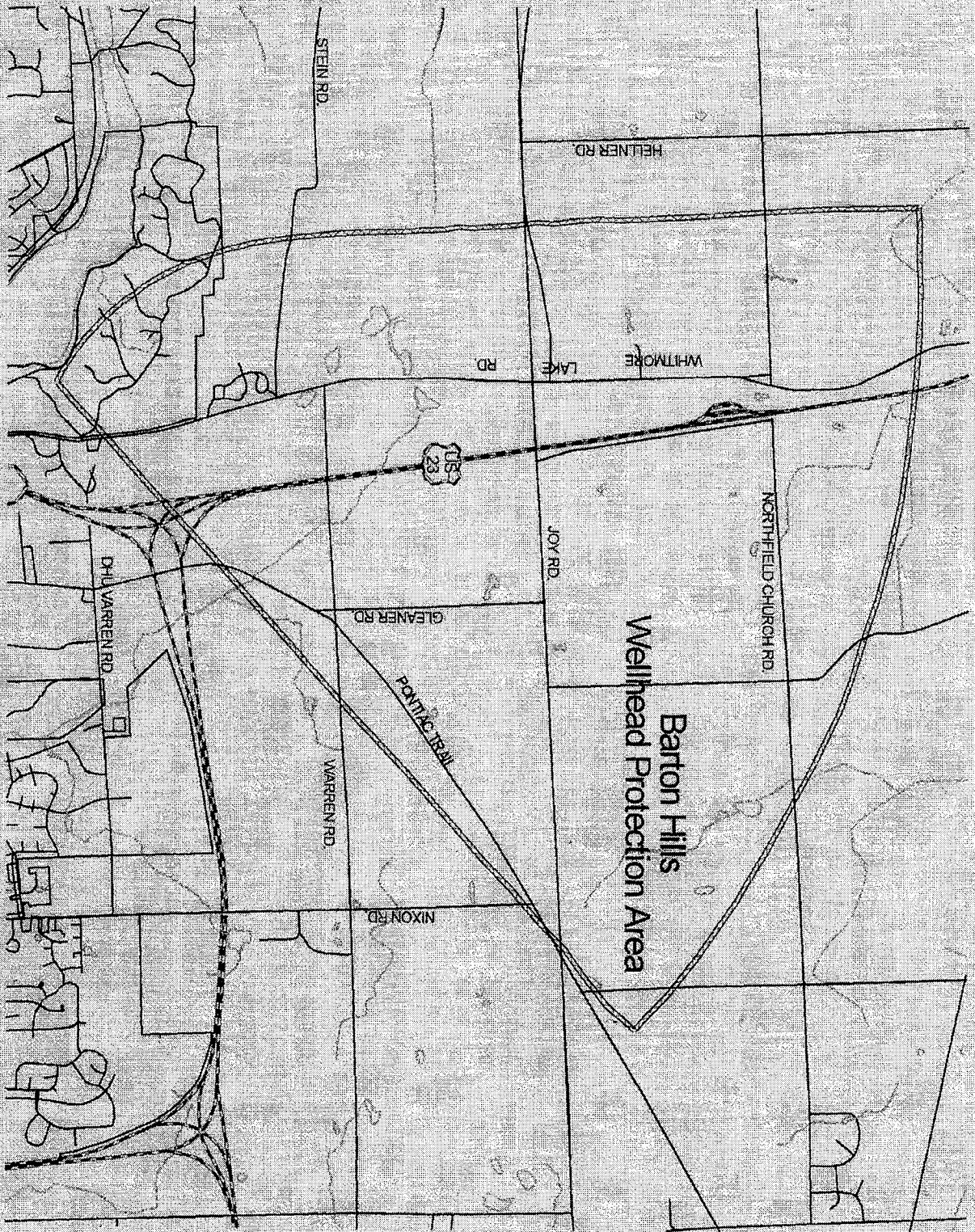
WASHTENAW COUNTY

- Limited Access Freeway
- State Highways
- Paved Roads
- Unpaved Roads
- Local Roads
- Railroads
- County Boundaries
- Township Boundaries
- Corporate Boundaries
- Address Numbers



Scale of Miles





Barton Hills
Wellhead Protection Area

STEIN RD

HELLNER RD

WHITMORE
LAKE RD

JOY RD

NORTHFIELD CHURCH RD

GLEANER RD

PONTIAC TRAIL

WARREN RD

NIXON RD

D.H. WARREN RD

0

From the Wellhead Protection Area

- Potential Sources
Of Contamination
- 1 Barton Hills CC
 - 2 Washburn Memorial
Park Cemetery
 - 3 Charles Braun
 - 4 Old St. Patrick's
Cemetery

