

REQUEST FOR PROPOSAL

RFP # 956

SURFACE WATER INTAKE PROTECTION PLAN

City of Ann Arbor
Water Treatment Plant



Due Date: Tuesday, December 8, 2015 by 2:00 p.m.

Issued By:

City of Ann Arbor
Procurement Unit
301 E. Huron Street
Ann Arbor, MI 48104

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SECTION 1- GENERAL INFORMATION

A. OBJECTIVE

The City is seeking to select a qualified team with expertise in drinking water engineering and planning services for the development of a Surface Water Intake Protection Plan. The City of Ann Arbor received a grant from the MDEQ to develop and implement a Surface Water Intake Protection Plan. The Plan must be completed by October 1, 2016.

Specific services, although not all-inclusive, are to be performed as follows:

- Utilizing guidance documents from the Michigan Department of Environmental Quality (MDEQ) - Draft and Finalize a Surface Water Intake Protection Plan for ultimate acceptance and approval by the City of Ann Arbor and the MDEQ.
- Appropriately inform and educate the water customers
- Engage identified stakeholders.

B. QUESTIONS ABOUT AND CLARIFICATIONS OF THE REQUEST FOR PROPOSAL

All questions regarding this Request for Proposal (RFP) shall be submitted via e-mail. Questions will be accepted and answered in accordance with the terms and conditions of this RFP.

All questions shall be submitted on or before Thursday, November 19, 2015, at 3:00 p.m., and should be addressed as follows:

Scope of Work/Proposal Content questions shall be e-mailed to Jennifer Lawson, Water Quality Manager, at jlawson@a2gov.org

RFP Process and Compliance questions to Colin Spencer at cspencer@a2gov.org

Should any prospective consultant be in doubt as to the true meaning of any portion of this RFP, or should the consultant find any ambiguity, inconsistency, or omission therein, the consultant shall make a written request for an official interpretation or correction by the due date above.

All interpretations, corrections, or additions to this RFP will be made only as an official addendum that will be posted to a2gov.org and MITN.info and it shall be the consultant's responsibility to ensure they have received all addenda before

submitting a proposal. Any addendum issued by the City shall become part of the RFP, and must be incorporated in the proposal where applicable.

To avoid any miscommunications, each Respondent must acknowledge in its proposal, all addenda which it has received, but the failure of a Respondent to receive or acknowledge receipt of any addenda shall not relieve the Respondent of the responsibility for complying with the terms thereof.

The City will not be bound by oral responses to inquiries or written responses other than official written addenda.

C. PRE-PROPOSAL MEETING

There will be a pre-proposal meeting on November 18, 2015 at the City of Ann Arbor Water Treatment Plant (919 Sunset Rd.) conference room at 1:30pm. Attendance at this meeting is highly recommended.

D. PROPOSAL FORMAT

To be considered, each firm must submit a response to this RFP using the format provided in Section III. No other distribution of proposals is to be made by the consultant. An official authorized to bind the consultant to its provisions must sign the proposal in ink. Each proposal must remain valid for at least ninety days from the due date of this RFP.

Proposals should be prepared simply and economically providing a straightforward, concise description of the consultant's ability to meet the requirements of the RFP. Each total submittal should not be more than 50 sheets (100 sides), not including required attachments. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed in ink by the person signing the proposal.

E. SELECTION CRITERIA

Responses to this RFP will be evaluated using a point system as shown in Section III. An evaluation committee comprised of primarily staff from the City will complete the evaluation.

The fee proposals will not be reviewed at the initial evaluation. After initial evaluation, the City will determine top proposals, and open only those fee proposals. The City will then determine which, if any, firms will be interviewed. During the interviews, the selected firms will be given the opportunity to discuss their proposal, qualifications, past experience, and their fee proposal in more detail. The City further reserves the right to interview the key personnel assigned by the selected consultant to this project. If the City chooses to interview any respondents, the interviews will be tentatively held in January 2016. Consultant must be available on these dates.

All proposals submitted may be subject to clarifications and further negotiation. All agreements resulting from negotiations that differ from what is represented within the RFP or in the consultant's response shall be documented and included as part of the final contract.

F. SEALED PROPOSAL SUBMISSION

All proposals are due and must be delivered to the City Procurement Unit on, or before, **Tuesday, December 8, at 2:00 p.m.** (local time). Proposals submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each respondent must submit in a sealed envelope

- **one (1) original proposal**
- **five (5) additional proposal copies**

Each respondent must submit in a separate sealed envelope marked Fee Proposal

- **two (2) originals of the fee proposal**

The fee proposal and all costs must be separate from the rest of the proposal.

Proposals submitted must be clearly marked: "**RFP No. 956 – Surface Water Intake Protection Plan**" and list the consultant's name and address.

Proposals must be addressed and delivered to:
City of Ann Arbor
c/o Customer Service
301 East Huron Street
P.O. Box 8647
Ann Arbor, MI 48107

All proposals received on or before the due date will be publicly opened and recorded on the due date. No immediate decisions will be rendered.

Hand delivered proposals must be date/time stamped by the Customer Service Department at the address above in order to be considered. Delivery hours are 9:00 a.m. to 3:00 p.m. Monday through Friday, excluding Holidays.

The City will not be liable to any consultant for any unforeseen circumstances, delivery, or postal delays. Postmarking on the due date will not substitute for receipt of the proposal. Consultants are responsible for submission of their proposal. Additional time will not be granted to a single consultant. However, additional time may be granted to all consultants at the discretion of the City.

A proposal will be disqualified if:

- 1. The fee proposal is not contained within a separate sealed envelope.***
- 2. The fee proposal is submitted as part of the digital copy. Provide fee proposal in hard copy only.***
- 3. The forms provided as Attachment B - City of Ann Arbor Non-Discrimination Declaration of Compliance, Attachment C - City of Ann Arbor Living Wage Declaration of Compliance, Attachment D - Vendor Conflict of Interest Disclosure Form of the RFP Document must be included in submitted proposals. Proposals that fail to provide these completed forms listed above upon proposal opening will be deemed non-responsive and will not be considered for award.***

G. DISCLOSURES

Under the Freedom of Information Act (Public Act 442), the City is obligated to permit review of its files, if requested by others. All information in a consultant's proposal is subject to disclosure under this provision. This act also provides for a complete disclosure of contracts and attachments thereto.

H. TYPE OF CONTRACT

A sample of the Professional Services Agreement is included as Appendix A. Those who wish to submit a proposal to the City are required to review the this sample agreement carefully. **The City will not entertain changes to its Professional Services Agreement.**

The City reserves the right to award the total proposal, to reject any or all proposals in whole or in part, and to waive any informality or technical defects if, in the City's sole judgment, the best interests of the City will be so served.

This RFP and the selected consultant's response thereto, shall constitute the basis of the scope of services in the contract by reference.

I. HUMAN RIGHTS REQUIREMENTS

All contractors proposing to do business with the City shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the Section 9:158 of the Ann Arbor City Code. Breach of the obligation not to discriminate as outlined in Attachment B shall be a material breach of the contract. Contractors are required to post a copy of Ann Arbor's Non-Discrimination Ordinance attached at all work locations where its employees provide services under a contract with the City.

J. WAGE REQUIREMENTS

The Attachments provided herein outline the requirements for payment of prevailing wages or of a “living wage” to employees providing service to the City under this contract. The successful consultant must comply with all applicable requirements and provide documentary proof of compliance when requested.

K. CONFLICT OF INTEREST DISCLOSURE

The City of Ann Arbor Purchasing Policy requires that the consultant complete a Conflict of Interest Disclosure form. A contract may not be awarded to the selected consultant unless and until the Procurement Unit and the City Administrator have reviewed the Disclosure form and determined that no conflict exists under applicable federal, state, or local law or administrative regulation. Not every relationship or situation disclosed on the Disclosure Form may be a disqualifying conflict. Depending on applicable law and regulations, some contracts may awarded on the recommendation of the City Administrator after full disclosure, where such action is allowed by law, if demonstrated competitive pricing exists and/or it is determined the award is in the best interest of the City. A copy of the Conflict of Interest Disclosure Form is attached.

L. COST LIABILITY

The City of Ann Arbor assumes no responsibility or liability for costs incurred by the consultant prior to the execution of a Professional Services Agreement. The liability of the City is limited to the terms and conditions outlined in the Agreement. By submitting a proposal, consultant agrees to bear all costs incurred or related to the preparation, submission, and selection process for the proposal.

M. PROPOSAL PROTEST

All proposal protests must be in writing and filed with the Purchasing Manager within five (5) business days of the award action. The consultant must clearly state the reasons for the protest. If a consultant contacts a City Service Area/Unit and indicates a desire to protest an award, the Service Area/Unit shall refer the consultant to the Purchasing Manager. The Purchasing Manager will provide the consultant with the appropriate instructions for filing the protest. The protest shall be reviewed by the City Administrator or designee, whose decision shall be final.

N. SCHEDULE

The proposals submitted should define an appropriate schedule in accordance with the requirements of the Proposed Work Plan in Section III.

The following is the schedule for this RFP process.

Activity/Event	Anticipated Date
Written Question Deadline	November 24, 2015, 5:00 p.m.
Proposal Due Date	December 8, 2015, 2:00 p.m.
Interviews	January 2016
Selection	January 2016
City Council Authorization	February 2016
Agreement Execution	February 2016

The above schedule is for information purposes only and is subject to change at the City's discretion.

O. IRS FORM W-9

The selected consultant will be required to provide the City of Ann Arbor an IRS form W-9.

P. RESERVATION OF RIGHTS

1. The City reserves the right in its sole and absolute discretion to accept or reject any or all proposals, or alternative proposals, in whole or in part, with or without cause.
2. The City reserves the right to waive, or not waive, informalities or irregularities in terms or conditions of any proposal if determined by the City to be in its best interest.
3. The City reserves the right to request additional information from any or all consultants.
4. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested within RFP.
5. The City reserves the right to determine whether the scope of the project will be entirely as described in the RFP, a portion of the scope, or a revised scope be implemented.
6. The City reserves the right to select one or more consultants to perform services.
7. The City reserves the right to retain all proposals submitted and to use any ideas in a proposal regardless of whether that proposal is selected. Submission of a proposal indicates acceptance by the firm of the conditions contained in this RFP, unless clearly and specifically noted in the proposal submitted.
8. The City reserves the right to disqualify proposals that fail to respond to any requirements outlined in the RFP, or failure to enclose copies of the required documents outlined within RFP.

SECTION II – BACKGROUND AND SCOPE OF WORK

A. Scope of Work

Services, including but not limited to the following, are to be performed by the consultant.

- Develop Surface Water Intake Protection Plan.
- Survey at least 5 comparable river supplied municipal water systems Surface Water Intake Protection Plans (SWIPP)s to assess components that may add value to the City's SWIPP.
 - Develop a matrix that compares SWIPP components among peer water systems.
- In collaboration with City Staff, develop a public engagement plan that includes:
 - Identify stakeholders using the City of Ann Arbor's Public Engagement toolkit and convene a Surface Water Intake Protection (SWIP) Team.
 - Meet with the Surface Water Intake Protection (SWIP) Team quarterly at a minimum.
 - The Consultant will develop meeting agendas, provide written progress reports, and complete discussion summaries for documentation of each progress meeting.
 - Attend, present and record minutes from at least three (3) public meetings to inform and educate the community about SWIPP and the recommendations.
- Submit all MDEQ-grant required documentation on behalf of the City of Ann Arbor.
- Develop a prioritized list of recommendations for implementation with a timeframe.
- Developing cost estimates for implementing recommendations.
- Evaluate options for monitoring water quality of the influent to Barton Pond and within the pond.
 - Options should consider monitoring technologies, data acquisition and telemetry, analytical parameters, data management and response planning.

Deliverables include:

- MDEQ approved plan;
- Timetable for implementation;
- Minutes and documentation from all SWIP meetings
- education and outreach materials (digital and print materials);

SECTION III - MINIMUM INFORMATION REQUIRED

Respondents should organize their Proposals into the following Sections:

- A. Professional Qualifications
- B. Past Involvement with Similar Projects
- C. Proposed Work Plan
- D. Fee Proposal by Task (include in a separate sealed envelope clearly marked "Fee Proposal")
- E. Authorized Negotiator
- F. Attachments

The following describes the elements that should be included in each of the proposal sections and the weighted point system that will be used for evaluation of the proposals.

A. Professional Qualifications – 40 points

1. State the full name and address of your organization and, if applicable, the branch office or other subordinate element that will perform, or assist in performing, the work hereunder. Indicate whether it operates as an individual, partnership, or corporation. If as a corporation, include the state in which it is incorporated. If appropriate, indicate whether it is licensed to operate in the State of Michigan.
2. Include the number of executive and professional personnel by skill and qualification that will be employed in the work. Show where these personnel will be physically located during the time they are engaged in the work. Indicate which of these individuals you consider key to the successful completion of the project. Identify individuals who will do the work on this project by name and title including any, who will be subcontracted to assist you with this project, and the extent of work for which they will be responsible. Resumes or qualifications are required for proposed project personnel who will be assigned to the project. Qualifications and resumes of all subconsultants shall be included.
3. State history of firm, in terms of length of existence, types of services provided, etc. Identify the technical details that make the firm uniquely qualified for this work.
4. Project team personnel experience in drinking water regulatory plans and/or documentation, and public engagement. Identify and provide background information on the key personnel who take the most active role(s) in the administration and management of the project. Provide resumes and biographical information on key professionals that will be directly involved in the project. Include the number of years at your firm, total years of experience, and professional licenses and designations (if applicable).

5. State experience understanding the current state of Michigan drinking water regulations and issues that may affect this project.

B. Past Involvement with Similar Projects - 20 points

The written proposal must include a list of specific experience in the project area and indicate proven ability in developing detailed plans and implementing similar projects for the firm and the individuals to be involved in the project. The proposal should also indicate the ability to have projects completed within the budgeted amounts. A summary of related projects with the original deadline and cost estimate versus the actual design completion date and final cost of the design is appropriate with this section. A complete list of client references must be provided for similar projects recently completed. It shall include the firms/agencies name, address, telephone number, project title, and contact person.

C. Proposed Work Plan – 30 points

A detailed work plan is to be presented which lists all tasks determined to be necessary to accomplish the work detailed in the scope of services. The work plan shall define resources needed for each task. In addition, the work plan shall include a timeline schedule depicting the sequence and duration of tasks showing how the work will be organized and executed. The consultant may propose tasks and deliverable outside of those listed above if they believe they are necessary to support the city's objectives.

The Surface Water Intake Protection Plan must be completed by October 1, 2016.

In the scoring for this section, consultants shall be evaluated on the clarity, thoroughness, and content of their responses to the above items.

D. Fee Proposal - 10 points

Fee quotations shall be submitted in a separate sealed envelope with the proposal. The fee quotation should be broken down separately for each task. Fee quotations are to include the names, title, hourly rates, overhead factors, and any other details by which the overall and project element costs have been derived. The fee quotation is to relate in detail to each item of the proposed work plan, including the proposer-suggested project elements and proposer-suggested contingencies, if any. Consultants shall be capable of justifying the details of the fee proposal relative to personnel costs, overhead, how the overhead rate is derived, material and time.

E. Authorized Negotiator

Include the name, phone number, and e-mail address of persons(s) in your organization authorized to negotiate the Professional Services Agreement with the City.

F. Attachments

The following forms must be completed and returned with the proposal. These elements should be included as attachments to the proposal submission:

- **Non-Discrimination Ordinance Declaration of Compliance (Attachment B)**
- **Living Wage Ordinance Declaration of Compliance (Attachment C)**
- **Vendor Conflict of Interest Disclosure Form (Attachment D)**

PROPOSAL EVALUATION

An evaluation committee composed of City staff will evaluate each proposal by the above described criteria and point system (A, B and C, based on 90 points) to select a short list of firms for further consideration. The City reserves the right to not consider any proposal which it determines to be unresponsive and deficient in any of the information requested for evaluation. A proposal with all the requested information does not guarantee the proposing firm to be a candidate for further consideration. The City may contact references to verify material submitted by the Respondents.

Interviews with the selected firms will be scheduled if deemed necessary by the City. At the interviews, the selected firms will be given the opportunity to discuss in more detail their qualifications, past experience, proposed work plan, and fee proposal if opened prior to interviews. The interview must include the project team members expected to complete a majority of work on the project. The interview shall consist of a presentation by the Respondent, including the person who will be the project manager on this Contract, followed by questions and answers. Audiovisual aids may be used during the oral interviews. The oral interviews may be recorded on tape by the Evaluation Team.

The firms interviewed will then be re-evaluated by the above criteria (A through D), and adjustments to scoring will be made as appropriate. After evaluation of the proposals, further negotiation with the selected firm may be pursued leading to the award of a PSA by City Council, if suitable proposals are received.

The City reserves the right to not consider any proposal which is determined to be unresponsive and deficient in any of the information requested for evaluation. The City also reserves the right to waive the interview process and evaluate the respondents based on their proposals and fee schedules alone.

The City will determine whether the final scope of the project to be negotiated will be entirely as described in this Request for Proposal, a portion of the scope, or a revised scope.

Work to be done under this contract is generally described through the detailed specifications and must be completed fully in accordance with the contract documents.

Any proposal that does not conform fully to these instructions may be rejected.

SECTION IV - ATTACHMENTS

Attachment A: - Legal Status of Respondent

Attachment B – Non-Discrimination Ordinance Declaration of Compliance Form

Attachment C – Living Wage Declaration of Compliance Form

Attachment D – Vendor Conflict of Interest Disclosure Form

Attachment E – Non-Discrimination Ordinance Poster

Attachment F – Living Wage Ordinance Poster

**ATTACHMENT A
LEGAL STATUS OF RESPONDENT**

(The Respondent shall fill out the provision and strike out the remaining ones.)

The Respondent is:

- A corporation organized and doing business under the laws of the state of _____, for whom _____ bearing the office title of _____, whose signature is affixed to this proposal, is authorized to execute contracts on behalf of respondent.*

*If not incorporated in Michigan, please attach the corporation's Certificate of Authority

- A limited liability company doing business under the laws of the state of _____, whom _____ bearing the title of _____ whose signature is affixed to this proposal, is authorized to execute contract on behalf of the LLC.

- A partnership organized under the laws of the state of _____ and filed with the county of _____, whose members are (attach list including street and mailing address for each.)

- An individual, whose signature with address, is affixed to this RFP.

Respondent has examined the basic requirements of this RFP and its scope of services, including all Addendum (if applicable) and hereby agrees to offer the services as specified in the RFP.

_____, Date: _____,
Signature

(Print) Name _____ Title _____

Firm: _____

Address: _____

Contact Phone _____ Fax _____

Email _____

**ATTACHMENT C
CITY OF ANN ARBOR
LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE**

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that an employer who is (a) a contractor providing services to or for the City for a value greater than \$10,000 for any twelve-month contract term, or (b) a recipient of federal, state, or local grant funding administered by the City for a value greater than \$10,000, or (c) a recipient of financial assistance awarded by the City for a value greater than \$10,000, shall pay its employees a prescribed minimum level of compensation (i.e., Living Wage) for the time those employees perform work on the contract or in connection with the grant or financial assistance. The Living Wage must be paid to these employees for the length of the contract/program.

Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from compliance with the Living Wage Ordinance. If this exemption applies to your company/non-profit agency please check here [] No. of employees ____

The Contractor or Grantee agrees:

- (a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as \$12.81/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than \$14.30/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance (Section 1:815(3)).

Check the applicable box below which applies to your workforce

- [] Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits
- [] Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage with health benefits

- (b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.
- (c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.
- (d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.
- (e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services or agrees to accept financial assistance in accordance with the terms of the Living Wage Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Living Wage Ordinance, obligates the Employer/Grantee to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract or grant of financial assistance.

Company Name

Signature of Authorized Representative Date

Print Name and Title

Address, City, State, Zip

Phone/Email address

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500
Revised 3/31/15 Rev 1

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ATTACHMENT D



VENDOR CONFLICT OF INTEREST DISCLOSURE FORM
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All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor's conflict interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

Certification: I hereby certify that to my knowledge, there is no conflict of interest involving the vendor named below:

1. No City official or employee or City employee's immediate family member has an ownership interest in vendor's company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor's Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Vendor Name	Vendor Phone Number
Conflict of Interest Disclosure *	
Name of City of Ann Arbor employees, elected officials, or immediate family members with whom there may be a potential conflict of interest.	<input type="checkbox"/> Relationship to employee <input type="checkbox"/> Interest in vendor's company <input type="checkbox"/> Other

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that the information provided is true and correct by my signature below:

Signature of Vendor Authorized Representative	Date	Printed Name of Vendor Authorized Representative
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PROCUREMENT USE ONLY

- Yes, named employee was involved in Bid / Proposal process.
- No, named employee was not involved in procurement process or decision.

CITY OF ANN ARBOR NON-DISCRIMINATION ORDINANCE

Relevant provisions of Chapter 112, Nondiscrimination, of the Ann Arbor City Code are included below. You can review the entire ordinance at [www. a2gov.org/departments/city-clerk](http://www.a2gov.org/departments/city-clerk)

Intent: It is the intent of the city that no individual be denied equal protection of the laws; nor shall any individual be denied the enjoyment of his or her civil or political rights or be discriminated against because of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight.

Discriminatory Employment Practices: No person shall discriminate in the hire, employment, compensation, work classifications, conditions or terms, promotion or demotion, or termination of employment of any individual. No person shall discriminate in limiting membership, conditions of membership or termination of membership in any labor union or apprenticeship program.

Discriminatory Effects: No person shall adopt, enforce or employ any policy or requirement which has the effect of creating unequal opportunities according to actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight for an individual to obtain housing, employment or public accommodation, except for a bona fide business necessity. Such a necessity does not arise due to a mere inconvenience or because of suspected objection to such a person by neighbors, customers or other persons.

Nondiscrimination by City Contractors: All contractors proposing to do business with the City of Ann Arbor shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All city contractors shall ensure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon any classification protected by this chapter. All contractors shall agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of any applicable protected classification. All contractors shall be required to post a copy of Ann Arbor's Non-Discrimination Ordinance at all work locations where its employees provide services under a contract with the city.

Complaint Procedure: If any individual has a grievance alleging a violation of this chapter, he/she has 180 calendar days from the date of the individual's knowledge of the allegedly discriminatory action or 180 calendar days from the date when the individual should have known of the alleged discriminatory action to file a complaint with the city's Human Rights Commission. If an individual fails to file a complaint alleging a violation of this chapter within the specified time frame, the complaint will not be considered by the Human Rights Commission. The complaint should be made in writing to the Human Rights Commission. The complaint may be filed in person with the City Clerk, by e-mail at aahumanrightscommission@gmail.com, or by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107). The complaint must contain information about the alleged discrimination, such as name, address, phone number of the complainant and location, date and description of the alleged violation of this chapter.

Private Actions For Damages or Injunctive Relief: To the extent allowed by law, an individual who is the victim of discriminatory action in violation of this chapter may bring a civil action for appropriate injunctive relief or damages or both against the person(s) who acted in violation of this chapter

THIS IS AN OFFICIAL GOVERNMENT NOTICE AND
MUST BE DISPLAYED WHERE EMPLOYEES CAN READILY SEE IT.

ATTACHMENT F

CITY OF ANN ARBOR LIVING WAGE ORDINANCE

RATE EFFECTIVE APRIL 30, 2015 - ENDING APRIL 29, 2016

\$12.81 per hour

If the employer provides health care benefits*

\$14.30 per hour

If the employer does **NOT** provide health care benefits*

Employers providing services to or for the City of Ann Arbor or recipients of grants or financial assistance from the City of Ann Arbor for a value of more than \$10,000 in a twelve-month period of time must pay those employees performing work on a City of Ann Arbor contract or grant, the above living wage.

ENFORCEMENT

The City of Ann Arbor may recover back wages either administratively or through court action for the employees that have been underpaid in violation of the law. Persons denied payment of the living wage have the right to bring a civil action for damages in addition to any action taken by the City.

Violation of this Ordinance is punishable by fines of not more than \$500/violation plus costs, with each day being considered a separate violation. Additionally, the City of Ann Arbor has the right to modify, terminate, cancel or suspend a contract in the event of a violation of the Ordinance.

* Health Care benefits include those paid for by the employer or making an employer contribution toward the purchase of health care. The employee contribution must not exceed \$.50 an hour for an average work week; and the employer cost or contribution must equal no less than \$1/hr for the average work week.

The Law Requires Employers to Display This Poster Where Employees Can Readily See It.

**For Additional Information or to File a Complaint Contact
Mark Berryman at 734/794-6500 or mberryman@a2gov.org**

APPENDIX A: SAMPLE PROFESSIONAL SERVICES AGREEMENT

If a contract is awarded, the selected Firm(s) will be required to adhere to a set of general contract provisions which will become a part of any formal agreement. These provisions are general principles which apply to all contractors/service providers to the City of Ann Arbor. The required provisions are:

SAMPLE PROFESSIONAL SERVICES AGREEMENT BETWEEN

AND THE CITY OF ANN ARBOR
FOR _____

The City of Ann Arbor, a Michigan municipal corporation, having its offices at 301 E. Huron St. Ann Arbor, Michigan 48103 ("City"), and _____

("Contractor") a(n) _____
(State where organized) (Partnership, Sole Proprietorship, or Corporation)

with its address at _____
agree as follows on this _____ day of _____, 20____.

The Contractor agrees to provide services to the City under the following terms and conditions:

I. DEFINITIONS

Administering Service Area/Unit means _____.

Contract Administrator means _____, acting personally or through any assistants authorized by the Administrator/Manager of the Administering Service Area/Unit.

Deliverables means all Plans, Specifications, Reports, Recommendations, and other materials developed for and delivered to City by Contractor under this Agreement

Project means _____
Project name

II. DURATION

This Agreement shall become effective on _____, 20____, and shall remain in effect until satisfactory completion of the Services specified below unless terminated as provided for in Article XI.

III. SERVICES

A. The Contractor agrees to provide _____
type of service

("Services") in connection with the Project as described in Exhibit A. The City retains the right to make changes to the quantities of service within the general scope of the Agreement at any

time by a written order. If the changes add to or deduct from the extent of the services, the contract sum shall be adjusted accordingly. All such changes shall be executed under the conditions of the original Agreement.

- B. Quality of Services under this Agreement shall be of the level of quality performed by persons regularly rendering this type of service. Determination of acceptable quality shall be made solely by the Contract Administrator.
- C. The Contractor shall perform its Services for the Project in compliance with all statutory, regulatory and contractual requirements now or hereafter in effect as may be applicable to the rights and obligations set forth in the Agreement.
- D. The Contractor may rely upon the accuracy of reports and surveys provided to it by the City (if any) except when defects should have been apparent to a reasonably competent professional or when it has actual notice of any defects in the reports and surveys.

IV. INDEPENDENT CONTRACTOR

The Parties agree that at all times and for all purposes under the terms of this Agreement each Party's relationship to any other Party shall be that of an independent contractor. Each Party will be solely responsible for the acts of its own employees, agents, and servants. No liability, right, or benefit arising out of any employer/employee relationship, either express or implied, shall arise or accrue to any Party as a result of this Agreement.

V. COMPENSATION OF CONTRACTOR

- A. The Contractor shall be paid in the manner set forth in Exhibit B. Payment shall be made monthly, unless another payment term is specified in Exhibit B, following receipt of invoices submitted by the Contractor, and approved by the Contract Administrator.
- B. The Contractor will be compensated for Services performed in addition to the Services described in Section III, only when the scope of and compensation for those additional Services have received prior written approval of the Contract Administrator.
- C. The Contractor shall keep complete records of work performed (e.g. tasks performed/hours allocated) so that the City may verify invoices submitted by the Contractor. Such records shall be made available to the City upon request and submitted in summary form with each invoice.

VI. INSURANCE/INDEMNIFICATION

- A. The Contractor shall procure and maintain during the life of this contract such insurance policies, including those set forth in Exhibit C, as will protect itself and the City from all claims for bodily injuries, death or property damage which may

arise under this contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor, any subcontractor or anyone employed by them directly or indirectly. In the case of all contracts involving on-site work, the Contractor shall provide to the City, before the commencement of any work under this contract, documentation satisfactory to the City demonstrating it has obtained the policies and endorsements required by Exhibit C.

- B. Any insurance provider of Contractor shall be admitted and authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-admitted insurance companies are not acceptable unless approved in writing by the City.
- C. To the fullest extent permitted by law, Contractor shall indemnify, defend and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses, including attorney's fees, resulting or alleged to result, from any acts or omissions by Contractor or its employees and agents occurring in the performance of or breach in this Agreement, except to the extent that any suit, claim, judgment or expense are finally judicially determined to have resulted from the City's negligence or willful misconduct or its failure to comply with any of its material obligations set forth in this Agreement.

VII. COMPLIANCE REQUIREMENTS

- A. Nondiscrimination. The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of MCL 37.2209. The Contractor further agrees to comply with the provisions of Section 9:158 of Chapter 112 of the Ann Arbor City Code and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity.
- B. Living Wage. If the Contractor is a "covered employer" as defined in Chapter 23 of the Ann Arbor City Code, the Contractor agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the City under this Agreement a "living wage," as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the City of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Agreement are working; to maintain records of compliance; if requested by the City, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

VIII. WARRANTIES BY THE CONTRACTOR

- A. The Contractor warrants that the quality of its Services under this Agreement shall conform to the level of quality performed by persons regularly rendering this type of service.
- B. The Contractor warrants that it has all the skills, experience, and professional licenses necessary to perform the Services specified in this Agreement.
- C. The Contractor warrants that it has available, or will engage, at its own expense, sufficient trained employees to provide the Services specified in this Agreement.
- D. The Contractor warrants that it is not, and shall not become overdue or in default to the City for any contract, debt, or any other obligation to the City including real and personal property taxes.
- E. The Contractor warrants that its proposal for services was made in good faith, it arrived at the costs of its proposal independently, without consultation, communication or agreement, for the purpose of restricting completion as to any matter relating to such fees with any competitor for these Services; and no attempt has been made or shall be made by the Contractor to induce any other perform or firm to submit or not to submit a proposal for the purpose of restricting competition.

IX. OBLIGATIONS OF THE CITY

- A. The City agrees to give the Contractor access to the Project area and other City-owned properties as required to perform the necessary Services under this Agreement.
- B. The City shall notify the Contractor of any defects in the Services of which the Contract Administrator has actual notice.

X. ASSIGNMENT

- A. The Contractor shall not subcontract or assign any portion of any right or obligation under this Agreement without prior written consent from the City. Notwithstanding any consent by the City to any assignment, Contractor shall at all times remain bound to all warranties, certifications, indemnifications, promises and performances, however described, as are required of it under the Agreement unless specifically released from the requirement, in writing, by the City.
- B. The Contractor shall retain the right to pledge payment(s) due and payable under this Agreement to third parties.

XI. TERMINATION OF AGREEMENT

- A. If either party is in breach of this Agreement for a period of fifteen (15) days following receipt of notice from the non-breaching party with respect to a breach, the non-breaching party may pursue any remedies available to it against the

breaching party under applicable law, including but not limited to, the right to terminate this Agreement without further notice. The waiver of any breach by any party to this Agreement shall not waive any subsequent breach by any party.

- B. The City may terminate this Agreement, on at least thirty (30) days advance notice, for any reason, including convenience, without incurring any penalty, expense or liability to Contractor, except the obligation to pay for Services actually performed under the Agreement before the termination date.
- C. Contractor acknowledges that, if this Agreement extends for several fiscal years, continuation of this Agreement is subject to appropriation of funds for this Project. If funds to enable the City to effect continued payment under this Agreement are not appropriated or otherwise made available, the City shall have the right to terminate this Agreement without penalty at the end of the last period for which funds have been appropriated or otherwise made available by giving written notice of termination to Contractor. The Contract Administrator shall give Contractor written notice of such non-appropriation within thirty (30) days after it receives notice of such non-appropriation.
- D. The provisions of Articles VI and VIII shall survive the expiration or earlier termination of this Agreement for any reason. The expiration or termination of this Agreement, for any reason, shall not release either party from any obligation or liability to the other party, including any payment obligation that has already accrued and Contractor's obligation to deliver all Deliverables due as of the date of termination of the Agreement.

XII. REMEDIES

- A. This Agreement does not, and is not intended to, impair, divest, delegate or contravene any constitutional, statutory and/or other legal right, privilege, power, obligation, duty or immunity of the Parties.
- B. All rights and remedies provided in this Agreement are cumulative and not exclusive, and the exercise by either party of any right or remedy does not preclude the exercise of any other rights or remedies that may now or subsequently be available at law, in equity, by statute, in any agreement between the parties or otherwise.
- C. Absent a written waiver, no act, failure, or delay by a Party to pursue or enforce any rights or remedies under this Agreement shall constitute a waiver of those rights with regard to any existing or subsequent breach of this Agreement. No waiver of any term, condition, or provision of this Agreement, whether by conduct or otherwise, in one or more instances, shall be deemed or construed as a continuing waiver of any term, condition, or provision of this Agreement. No waiver by either Party shall subsequently effect its right to require strict performance of this Agreement.

XIII. NOTICE

All notices and submissions required under this Agreement shall be delivered to the respective party in the manner described herein to the address stated in this Agreement or such other address as either party may designate by prior written notice to the other. Notices given under this Agreement shall be in writing and shall be personally delivered, sent by next day express delivery service, certified mail, or first class U.S. mail postage prepaid, and addressed to the person listed below. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; (2) the next business day when notice is sent next day express delivery service or personal delivery; or (3) three days after mailing first class or certified U.S. mail.

If Notice is sent to the CONTRACTOR, it shall be addressed and sent to:

If Notice is sent to the CITY, it shall be addressed and sent to:

City of Ann Arbor

(insert name of Administering Service Area Administrator)

301 E. Huron St.
Ann Arbor, Michigan 48103

XIV. CHOICE OF LAW AND FORUM

This Agreement will be governed and controlled in all respects by the laws of the State of Michigan, including interpretation, enforceability, validity and construction, excepting the principles of conflicts of law. The parties submit to the jurisdiction and venue of the Circuit Court for Washtenaw County, State of Michigan, or, if original jurisdiction can be established, the United States District Court for the Eastern District of Michigan, Southern Division, with respect to any action arising, directly or indirectly, out of this Agreement or the performance or breach of this Agreement. The parties stipulate that the venues referenced in this Agreement are convenient and waive any claim of non-convenience.

XV. OWNERSHIP OF DOCUMENTS

Upon completion or termination of this Agreement, all documents (i.e., Deliverables) prepared by or obtained by the Contractor as provided under the terms of this Agreement shall be delivered to and become the property of the City. Original basic survey notes, sketches, charts, drawings, partially completed drawings, computations, quantities and other data shall remain in

the possession of the Contractor as instruments of service unless specifically incorporated in a deliverable, but shall be made available, upon request, to the City without restriction or limitation on their use. The City acknowledges that the documents are prepared only for the Project. Prior to completion of the contracted Services the City shall have a recognized proprietary interest in the work product of the Contractor.

Unless otherwise stated in this Agreement, any intellectual property owned by Contractor prior to the effective date of this Agreement (i.e., Preexisting Information) shall remain the exclusive property of Contractor even if such Preexisting Information is embedded or otherwise incorporated in materials or products first produced as a result of this Agreement or used to develop Deliverables. The City's right under this provision shall not apply to any Preexisting Information or any component thereof regardless of form or media.

XV. CONFLICTS OF INTEREST OR REPRESENTATION

Contractor certifies it has no financial interest in the Services to be provided under this Agreement other than the compensation specified herein. Contractor further certifies that it presently has no personal or financial interest, and shall not acquire any such interest, direct or indirect, which would conflict in any manner with its performance of the Services under this Agreement.

Contractor agrees to advise the City if Contractor has been or is retained to handle any matter in which its representation is adverse to the City. The City's prospective consent to the Contractor's representation of a client in matters adverse to the City, as identified above, will not apply in any instance where, as the result of Contractor's representation, the Contractor has obtained sensitive, proprietary or otherwise confidential information of a non-public nature that, if known to another client of the Contractor, could be used in any such other matter by the other client to the material disadvantage of the City. Each matter will be reviewed on a case by case basis.

XVII. SEVERABILITY OF PROVISIONS

Whenever possible, each provision of this Agreement will be interpreted in a manner as to be effective and valid under applicable law. However, if any provision of this Agreement or the application of any provision to any party or circumstance will be prohibited by or invalid under applicable law, that provision will be ineffective to the extent of the prohibition or invalidity without invalidating the remainder of the provisions of this Agreement or the application of the provision to other parties and circumstances.

XVIII. EXTENT OF AGREEMENT

This Agreement, together with any affixed exhibits, schedules or other documentation, constitutes the entire understanding between the City and the Contractor with respect to the subject matter of the Agreement and it supersedes, unless otherwise incorporated by reference herein, all prior representations, negotiations, agreements or understandings whether written or

oral. Neither party has relied on any prior representations, of any kind or nature, in entering into this Agreement. No terms or conditions of either party's invoice, purchase order or other administrative document shall modify the terms and conditions of this Agreement, regardless of the other party's failure to object to such form. This Agreement shall be binding on and shall inure to the benefit of the parties to this Agreement and their permitted successors and permitted assigns and nothing in this Agreement, express or implied, is intended to or shall confer on any other person or entity any legal or equitable right, benefit, or remedy of any nature whatsoever under or by reason of this Agreement. This Agreement may only be altered, amended or modified by written amendment signed by the Contractor and the City. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement.

FOR CONTRACTOR

By _____
Type Name
Its

FOR THE CITY OF ANN ARBOR

By _____
Christopher Taylor, Mayor
By _____
Jacqueline Beaudry, City Clerk

Approved as to substance

City Administrator

Type Name
Service Area Administrator

Approved as to form and content

Stephen K. Postema, City Attorney

**EXHIBIT A
SCOPE OF SERVICES**

(Insert/Attach Scope of Work & Deliverables Schedule)

**EXHIBIT B
COMPENSATION**

General

Contractor shall be paid for those Services performed pursuant to this Agreement inclusive of all reimbursable expenses (if applicable), in accordance with the terms and conditions herein. The Compensation Schedule below/attached states nature and amount of compensation the Contractor may charge the City:

(insert/Attach Negotiated Fee Arrangement)

**EXHIBIT C
INSURANCE REQUIREMENTS**

Effective the date of this Agreement, and continuing without interruption during the term of this Agreement, Contractor shall provide certificates of insurance to the City on behalf of itself, and when requested any subcontractor(s). The certificates of insurance shall meet the following minimum requirements.

A. The Contractor shall have insurance that meets the following minimum requirements:

1. Professional Liability Insurance or Errors and Omissions Insurance protecting the Contractor and its employees in an amount not less than \$1,000,000.

2. Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

Bodily Injury by Accident - \$500,000 each accident
Bodily Injury by Disease - \$500,000 each employee
Bodily Injury by Disease - \$500,000 each policy limit

3. Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 07 98 or current equivalent. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements which diminish the City's protections as an additional insured under the policy. Further, the following minimum limits of liability are required:

\$1,000,000 Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined
\$2,000,000 Per Job General Aggregate
\$1,000,000 Personal and Advertising Injury

4. Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97 or current equivalent. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

5. Umbrella/Excess Liability Insurance shall be provided to apply in excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.

- B. Insurance required under A.3 above shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City.

- C. Insurance companies and policy forms are subject to approval of the City Attorney, which approval shall not be unreasonably withheld. Documentation must provide and demonstrate an unconditional 30 day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified. Contractor shall furnish the City with satisfactory certificates of insurance and endorsements prior to commencement of any work. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) to the City. If any of the above coverages expire by their terms during the term of this contract, the Contractor shall deliver proof of renewal and/or new policies to the Administering Service Area/Unit at least ten days prior to the expiration date.



Michigan Source Water Protection Grant Program Grant Eligible Activities

(Examples are not all inclusive, if you have questions about whether an activity is grant eligible, please contact one of the SWP staff)

Definition of a Source Water Protection Grant Eligible Activity

Grant-eligible activities shall support the development or implementation of a local source water protection (SWP) program and be consistent with the state of Michigan SWP program and is performed within the Source Water Protection Area (SWPA) or 1-mile radius for low tritium public water supply wells.

Roles and Duties

Examples of grant eligible Roles and Duties Activities include:

- Formation of a local source water protection team, **a collection of not less than three persons whose purpose is to facilitate the development, implementation, and maintenance of a SWP.** The team must include the Public Water Supply (PWS) Superintendent and a representative from the municipality served by the PWS. The team meets quarterly during the contract period as a minimum and reports quarterly to the MDEQ.
- Development and implementation of management strategies on a local level.

Delineation Activities

Examples of grant eligible Delineation Activities include:

- Compiling existing hydrogeologic information
- Installing observation wells for an aquifer test on an existing public water supply well
- Surveying
- Collecting static water levels
- Performing groundwater modeling, including particle tracking

If deemed necessary by the MDEQ due to the lack of accessibility to existing wells, the area geology indicates a public water supply may be low tritium public water supply, or a known groundwater contamination is present within the SWPA, the following activities may be grant eligible:

- The installation of monitoring wells for the collection of static water level information
- The collection and analysis of tritium samples
- The installation of sentinel wells to monitor water quality within the SWPA

Contaminant Source Inventory Activities

Examples of grant eligible Contaminant Source inventory activities include:

- Record searches to identify potential sources of contamination and land uses that have a potential to impact the groundwater
- Conducting general surveys to identify potential sources of contamination and land uses that have a potential to impact the groundwater
- Conducting on-site inspection of facilities that have a potential to impact the groundwater
- Record searches to identify historical land uses that have a potential to impact the groundwater
- Map existing and potential sources of contamination within the SWPA
- Updating the contaminant source inventory
- Developing and implementing a program to locate and identify abandoned wells.

<p>Management Strategy Activities</p>	<p>Examples of grant eligible Management Strategy Activities include:</p> <ul style="list-style-type: none"> • Developing and implementing management strategies within the SWPA • The development and implementation of best management practices that reduce the risk of groundwater contamination • The development and implementation of source water protection resolutions or ordinances • On-site inspections for the purpose of improving facility management of potential sources of contamination • The development and management of a program to control abandoned wells, excluding the actual sealing of abandoned wells • Incorporation of a SWP Program into a municipality's master plan or other regional land use planning program • Waste reduction strategies targeted for source water protection areas • The development and implementation of partnership agreements between municipalities for the purpose of source water protection
<p>Contingency Plan & Emergency Response Protocol activities</p>	<p>Examples of grant-eligible contingency plan and emergency response protocol activities include:</p> <ul style="list-style-type: none"> • The development and implementation of a contingency plan and emergency response protocol for a source water protection area or within a 1-mile radius of the well field for a low tritium public water supply are grant eligible activities
<p>New Source Activities</p>	<p>Examples of grant-eligible New well activities include:</p> <ul style="list-style-type: none"> • Completion of a delineation for a new well or well field, exclusive of the cost incurred to conduct an aquifer test that is a requirement of the public water supply program for the construction of new wells • The development and implementation of a source water protection program for a new well or well field • Incorporation of a new well or well field into an existing source water protection program
<p>Public participation activities</p>	<p>Examples of public participation activities include:</p> <ul style="list-style-type: none"> • Development and implementation of a school curriculum related to source water protection • Development and implementation of a strategy to educate the general public on issues related to source water protection • Development, production and circulation of educational materials • Development, preparation, and production of media announcements, such as news releases, newspaper articles and radio announcements • Signing activities which identify and approved source water protection area or which promote the concept of source water protection, such as storm drain stenciling, construction and placement of road signs • Advertisement for a hazardous waste collection, (the actual collection of hazardous waste is not grant eligible)



Michigan Source Water Protection Grant Program

Non grant-eligible activities

(Examples are not all inclusive, if you have questions about whether an activity is grant eligible, please contact one of the SWP staff)

Roles and Duties	<ul style="list-style-type: none"> • Food for meetings is not eligible • Mileage/Travel Expenses are not eligible • Employees' wages are not eligible for payment unless the employee's specific duties, as outlined in his or her job description, include source water protection and have been pre-approved by the DEQ
Delineation Activities and New Sources	<ul style="list-style-type: none"> • Aquifer tests for new wells, as required by the Safe Drinking Water Act, are not eligible
Management Strategies	<ul style="list-style-type: none"> • Purchasing land or real estate is not grant eligible • Sealing abandoned wells is not grant eligible • Activities required by other Federal or State statutes are not eligible • Water quality monitoring are not eligible, except Tritium testing
Public participation activities	<ul style="list-style-type: none"> • Household hazardous waste collection and other community-wide general groundwater protection activities are not eligible • Equipment purchases are not eligible except for the Groundwater Flow model and other teaching models for SWP
Contingency Plan & Emergency Response Protocol Activities	<ul style="list-style-type: none"> • Emergency water connections are not eligible even if they are part of the contingency plan, because it is a capital improvement on the water system • Training is not grant eligible



**Department of Environmental Quality
Water Bureau
Drinking Water and Environmental Health Section**

Guidance for Surface Water Intake Protection Program (SWIPP)

Since the source water assessments (SWA) have been completed, the state is developing guidance for communities for development of a Surface Water Intake Protection Program (SWIPP). Michigan has a wellhead protection (WHP) program that has been approved by the USEPA. Since this would be the protection program for a system that is supplied with groundwater, it is logical to develop protection programs for surface water systems with the same logic. A SWIPP should have the same basic seven elements that a WHP program has. These are:

- Defining roles and duties of government units and water supply agencies.
- Designating a source water protection area for each water supply source based on the state's defined source water area.
- Identifying potential contaminant sources within each source water protection area.
- Utilizing management approaches for protection of source water, including but not limited to education and regulatory approaches.
- Creating contingency plans for public water supply sources including the location of alternate drinking water sources.
- Assuring proper siting on new water sources to minimize potential contamination.
- Encouraging public participation.

This guidance document is intended to assist communities with surface water systems in developing an approvable SWIPP. Communities may add other items as appropriate, and are encouraged to submit a work plan for review before proceeding with development of their SWIPP.

Program Elements

Basic information about the water supply system and community

- _ Community location and population
- _ Present service area (geographic area and population served)
- _ System capacity
- _ Local program goals for SWIPP

Defining roles and duties of government units and water supply agencies

- _ Identification of all people, local, county, or state agencies, or public water supply agencies that have significant responsibilities for carrying out the local SWIPP
- _ Brief description of the roles and responsibilities for each person or agency
- _ Intergovernmental agreements, memoranda, or ordinances which set forth procedures or responsibilities related to SWIPP
- _ Agency, person and/or team responsible for the periodic update of the local SWIPP
- _ Schedule for quarterly meetings of SWIPP team

Designating a source water protection area for each water supply source based on the state's defined source water area

- _ Map that shows or describes the area that contributes water to your source. This is described in your source water assessment that was completed by the state. This will be very site specific and may be very general for some systems. i.e. a Great Lake source extending far into the lake versus an inland river intake with a defined watershed (Use of a U.S. Geological Survey quadrangle map as a base is recommended).
- _ Small watershed boundaries and/or surface water runoff patterns, if appropriate for SWIPP
- _ Storm water drainage system and facilities, including storm water basins if relevant to the SWIPP

Identifying potential sources of contamination within the SWP area

NOTE: This will take some judgment since there may be numerous potential contamination sources. It may be necessary to describe them both specifically for significant ones and generally for those that are relatively common. For example; there are numerous underground tanks, but fewer large industrial complexes.

- _ Record searches to identify potential sources of contamination and land uses that have a potential to impact the surface water source
- _ General surveys to identify potential sources of contamination and land uses that have a potential to impact the surface water source
- _ Record searches to identify historical land uses that have a potential

to impact the surface water source

_ Map which displays potential sources of contamination within the SWIPP

_ Description of the process used to identify potential sources of contamination, including the sources of information

_ Comprehensive listing of potential sources of contamination within the SWIPP area

Utilizing management approaches for protection of source water, including but not limited to education and regulatory approaches

_ Description of the local management program for SWIPP. Examples of local management program elements include:

- Zoning ordinance provisions for SWIPP
- Facility inspection or hazardous material survey program
- Information to businesses concerning state and county requirements
- Environmental permits checklist for new businesses
- Strategic monitoring within the SWIPP area
- Inter-agency coordination and communication
- Other SWIPP elements developed by the local agency
- Identification of partnerships or agreements with county or state agencies which will help implement the local SWIPP
- Development and implementation of best management practices that reduce the risk of surface water contamination
- On-site inspections for the purpose of improving facility management of potential sources of contamination
- Incorporation of SWIPP into a municipality's master plan or other regional land use planning program

_ Timetable for management plan implementation

Creating contingency plans for public water supply sources including the location of alternative drinking water sources

_ Plans for how the community would deal with a major threat to the intake.

_ Response protocol in the event of a hazardous substance spill or other emergency

_ Emergency water supplies (bottled, bulk, etc.)

_ Policies and procedures related to water supply replacement

Assuring proper siting of new water sources to minimize potential contamination

_ General procedure that would be employed if a new source was developed

_ Proposed method for incorporating new sources into SWIPP

Encouraging public participation

_ Description of the methods used to involve and educate the public during the SWIPP planning and implementation process. Examples include:

- Local meetings
- Newsletters
- Newspaper articles
- School presentations
- Brochures
- Website
- SWP signage
- Hazardous waste collection activities
- Other _____

This is general guidance and each program will be site specific. It is suggested the community develop a draft outline for review before any detailed SWIPP is developed.



**SURFACE WATER INTAKE PROTECTION GRANT AGREEMENT
BETWEEN
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AND CITY OF ANN ARBOR**

This Grant Agreement ("Agreement") is made between the Michigan Department of Environmental Quality, (DEQ), Office of Drinking Water and Municipal Assistance ("State"), and City of Ann Arbor ("Grantee").

The purpose of this Agreement is to provide funding in exchange for work to be performed for the project named below. The State is authorized to provide grant assistance pursuant Michigan Safe Drinking Water Act, 1976 PA 399, as amended, Legislative appropriation of Funds for grant assistance is set forth in Public Act 84 of 2015. This Agreement is subject to the terms and conditions specified herein.

Project Name: Surface Water Intake Protection

Amount of grant: \$17,500.00

Amount of match: \$17,500.00 = 50%

Start Date (date executed by DEQ): October 1, 2015

Match from Previous Expenditures: \$ 0.00

% of grant state 0 / % of grant federal 100

Project Total: \$35,000.00 (grant plus match includes previous expenditures)

End Date: September 30, 2016

GRANTEE CONTACT:

Jennifer, Lawson

Name/Title

City of Ann Arbor

Organization

301 East Huron

Address

Ann Arbor, Michigan 48107

Address

(734) 794-6430

Telephone number

Fax number

jlawson@a2gov.org

E-mail address

38-6004534

Federal ID number

Grantee DUNS number

STATE'S CONTACT:

Jason Berndt, Environmental Quality Analyst

Name/Title

Community Drinking Water Unit

Division/Bureau/Office

2100 West M-32

Address

Gaylord, Michigan 49735

Address

(989) 705-3420

Telephone number

(989) 731-6181

Fax number

Berndtj1@michigan.gov

E-mail address

The individuals signing below certify by their signatures that they are authorized to sign this Agreement on behalf of their agencies and that the parties will fulfill the terms of this Agreement, including any attached appendices, as set forth herein.

FOR THE GRANTEE:

Signature

Date

Name/Title

FOR THE STATE:

Signature

Date

Name/Title

I. PROJECT SCOPE

This Agreement and its appendices constitute the entire Agreement between the State and the Grantee and may be modified only by written agreement between the State and the Grantee.

(A) The scope of this project is limited to the activities specified in Appendix A and such activities as are authorized by the State under this Agreement. Any change in project scope requires prior written approval in accordance with Section III, Changes, in this Agreement.

(B) By acceptance of this Agreement, the Grantee commits to complete the project identified in Appendix A within the time period allowed for in this Agreement and in accordance with the terms and conditions of this Agreement.

II. AGREEMENT PERIOD

Upon signature by the State, the Agreement shall be effective from the Start Date until the End Date on page one. The State shall have no responsibility to provide funding to the Grantee for project work performed except between the Start Date and the End Date specified on page one. Expenditures made by the Grantee prior to the Start Date or after the End Date of this Agreement are not eligible for payment under this Agreement.

III. CHANGES

Any changes to this Agreement shall be requested by the Grantee or the State in writing and implemented only upon approval in writing by the State. The State reserves the right to deny requests for changes to the Agreement or to the appendices. No changes can be implemented without approval by the State.

IV. GRANTEE DELIVERABLES AND REPORTING REQUIREMENTS

The Grantee shall submit deliverables and follow reporting requirements specified in Appendix A of this Agreement.

(A) The Grantee must complete and submit quarterly financial and/or progress reports according to a form and format prescribed by the State and must include supporting documentation of eligible project expenses. These reports shall be due according to the following:

Reporting Period	Due Date
January 1 – March 31	April 30
April 1 – June 30	July 31
July 1 – September 30	Before October 15*
October 1 – December 31	January 31

*Due to the State’s year-end closing procedures, there will be an accelerated due date for the report covering July 1 – September 30. Advance notification regarding the due date for the quarter ending September 30 will be sent to the Grantee. If the Grantee is unable to submit a report in early October for the quarter ending September 30, an estimate of expenditures through September 30 must be submitted to allow the State to complete its accounting for that fiscal year.

The forms provided by the State shall be submitted to the State’s contact at the address on page one. All required supporting documentation (invoices, proof of payment, etc.) for expenses must be included with the report.

(B) The Grantee shall provide a final project report in a format prescribed by the State. The Grantee shall submit the final status report, including all supporting documentation for expenses, along with the final project report and any other outstanding products within 30 days from the End Date of the Agreement.

(C) The Grantee must provide two copies of all products and deliverables in accordance with Appendix A.

(D) All products shall acknowledge that the project was supported in whole or in part by Wellhead Protection Program, DEQ, per the guidelines provided by the program.

(E) If 15 percent (15%) or more of the grant amount is expended in a single quarter, payment requests may be submitted.

V. GRANTEE RESPONSIBILITIES

(A) The Grantee agrees to abide by all applicable local, state, and federal laws, rules, ordinances, and regulations in the performance of this grant.

(B) All local, state, and federal permits, if required, are the responsibility of the Grantee. Award of this grant is not a guarantee of permit approval by the State.

(C) The Grantee shall be solely responsible to pay all applicable taxes and fees, if any, that arise from the Grantee's receipt or execution of this grant.

(D) The Grantee is responsible for the professional quality, technical accuracy, timely completion, and coordination of all designs, drawings, specifications, reports, and other services submitted to the State under this Agreement. The Grantee shall, without additional compensation, correct or revise any errors, omissions, or other deficiencies in drawings, designs, specifications, reports, or other services.

(E) The State's approval of drawings, designs, specifications, reports, and incidental work or materials furnished hereunder shall not in any way relieve the Grantee of responsibility for the technical adequacy of the work. The State's review, approval, acceptance, or payment for any of the services shall not be construed as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement.

(F) The Grantee acknowledges that it is a crime to knowingly and willingly file false information with the State for the purpose of obtaining this Agreement or any payment under the Agreement, and that any such filing may subject the Grantee, its agents, and/or employees to criminal and civil prosecution and/or termination of the grant.

VI. USE OF MATERIAL

Unless otherwise specified in this Agreement, the Grantee may release information or material developed under this Agreement, provided it is acknowledged that the State funded all or a portion of its development.

The State, and federal awarding agency, if applicable, retains a royalty-free, nonexclusive and irrevocable right to reproduce, publish, and use in whole or in part, and authorize others to do so, any copyrightable material or research data submitted under this grant whether or not the material is copyrighted by the Grantee or another person. The Grantee will only submit materials that the State can use in accordance with this paragraph.

VII. ASSIGNABILITY

The Grantee shall not assign this Agreement or assign or delegate any of its duties or obligations under this Agreement to any other party without the prior written consent of the State. The State does not assume responsibility regarding the contractual relationships between the Grantee and any subcontractor.

VIII. SUBCONTRACTS

The State reserves the right to deny the use of any consultant, contractor, associate, or other personnel to perform any portion of the project. The Grantee is solely responsible for all contractual activities performed under this Agreement. Further, the State will consider the Grantee to be the sole point of contact with regard to contractual matters, including payment of any and all charges resulting from the anticipated Grant. All subcontractors used by the Grantee in performing the project shall be subject to the provisions of this Agreement and shall be qualified to perform the duties required.

IX. NON-DISCRIMINATION

The Grantee shall comply with the Elliott Larsen Civil Rights Act, 1976 PA 453, as amended, MCL 37.2101 *et seq.*, the Persons with Disabilities Civil Rights Act, 1976 PA 220, as amended, MCL 37.1101 *et seq.*, and all other federal, state, and local fair employment practices and equal opportunity laws and covenants that it shall not discriminate against any employee or applicant for employment, to be employed in the performance of this Agreement, with respect to his or her hire, tenure, terms, conditions, or privileges of employment, or any matter directly or indirectly related to employment, because of his or her race, religion, color, national origin, age, sex, height, weight, marital status, or physical or mental disability that is unrelated to the individual's ability to perform the duties of a particular job or position. The Grantee agrees to include in every subcontract entered into for the performance of this Agreement this covenant not to discriminate in employment. A breach of this covenant is a material breach of this Agreement.

X. UNFAIR LABOR PRACTICES

The Grantee shall comply with the Employers Engaging in Unfair Labor Practices Act, 1980 PA 278, as amended, MCL 423.321 *et seq.*

XI. LIABILITY

(A) The Grantee, not the State, is responsible for all liabilities as a result of claims, judgments, or costs arising out of activities to be carried out by the Grantee under this Agreement, if the liability is caused by the Grantee, or any employee or agent of the Grantee acting within the scope of their employment or agency.

(B) Nothing in this Agreement should be construed as a waiver of any governmental immunity by the Grantee, the State, its agencies, or their employees as provided by statute or court decisions.

XII. CONFLICT OF INTEREST

No government employee, or member of the legislative, judicial, or executive branches, or member of the Grantee's Board of Directors, its employees, partner agencies, or their families shall benefit financially from any part of this Agreement.

XIII. ANTI-LOBBYING

If all or a portion of this Agreement is funded with federal funds, then in accordance with OMB Circular A-21, A-87, or A-122, as appropriate, the Grantee shall comply with the Anti-Lobbying Act, which prohibits the use of all project funds regardless of source, to engage in lobbying the state or

federal government or in litigation against the State. Further, the Grantee shall require that the language of this assurance be included in the award documents of all subawards at all tiers.

If all or a portion of this Agreement is funded with state funds, then the Grantee shall not use any of the grant funds awarded in this Agreement for the purpose of lobbying as defined in the State of Michigan's lobbying statute, MCL 4.415(2). "'Lobbying' means communicating directly with an official of the executive branch of state government or an official in the legislative branch of state government for the purpose of influencing legislative or administrative action." The Grantee shall not use any of the grant funds awarded in this Agreement for the purpose of litigation against the State. Further, the Grantee shall require that language of this assurance be included in the award documents of all subawards at all tiers.

XIV. DEBARMENT AND SUSPENSION

By signing this Agreement, the Grantee certifies that it has checked the federal debarment/suspension list at www.SAM.gov to verify that its agents, and its subcontractors:

- (1) Are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any federal department or the state.
- (2) Have not within a three-year period preceding this Agreement been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or contract under a public transaction, as defined in 45 CFR 1185; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
- (3) Are not presently indicted or otherwise criminally or civilly charged by a government entity (federal, state, or local) with commission of any of the offenses enumerated in subsection (2).
- (4) Have not within a three-year period preceding this Agreement had one or more public transactions (federal, state, or local) terminated for cause or default.
- (5) Will comply with all applicable requirements of all other state or federal laws, executive orders, regulations, and policies governing this program.

XV. AUDIT AND ACCESS TO RECORDS

The State reserves the right to conduct a programmatic and financial audit of the project, and the State may withhold payment until the audit is satisfactorily completed. The Grantee will be required to maintain all pertinent records and evidence pertaining to this Agreement, including grant and any required matching funds, in accordance with generally accepted accounting principles and other procedures specified by the State. The State or any of its duly authorized representatives must have access, upon reasonable notice, to such books, records, documents, and other evidence for the purpose of inspection, audit, and copying. The Grantee will provide proper facilities for such access and inspection. All records must be maintained for a minimum of five years after the final payment has been issued to the Grantee by the State.

XVI. INSURANCE

(A) The Grantee must maintain insurance or self-insurance that will protect it from claims that may arise from the Grantee's actions under this Agreement.

(B) The Grantee must comply with applicable workers' compensation laws while engaging in activities authorized under this Agreement.

XVII. OTHER SOURCES OF FUNDING

The Grantee guarantees that any claims for reimbursement made to the State under this Agreement must not be financed by any source other than the State under the terms of this Agreement. If funding is received through any other source, the Grantee agrees to delete from Grantee's billings, or to immediately refund to the State, the total amount representing such duplication of funding.

XVIII. COMPENSATION

(A) A breakdown of costs allowed under this Agreement is identified in Appendix A. The State will pay the Grantee a total amount not to exceed the amount on page one of this Agreement, in accordance with Appendix A, and only for expenses incurred and paid. All other costs necessary to complete the project are the sole responsibility of the Grantee.

(B) Expenses incurred by the Grantee prior to the Start Date or after the End Date of this Agreement are not allowed under the Agreement.

(C) The State will approve payment requests after approval of reports and related documentation as required under this Agreement.

(D) The State reserves the right to request additional information necessary to substantiate payment requests.

(E) Payments under this Agreement may be processed by Electronic Funds Transfer (EFT). The Grantee may register to receive payments by EFT at the Contract & Payment Express Web Site (<http://www.cpexpress.state.mi.us>).

(F) The Grantee is committed to the match percentage on page one of the Agreement, in accordance with Appendix A. The Grantee shall expend all local match committed to the project by the End Date on page one of the Agreement.

XIX. CLOSEOUT

(A) A determination of project completion, which may include a site inspection and an audit, shall be made by the State after the Grantee has met any match obligations, satisfactorily completed the activities, and provided products and deliverables described in Appendix A.

(B) Upon issuance of final payment from the State, the Grantee releases the State of all claims against the State arising under this Agreement. Unless otherwise provided in this Agreement or by State law, final payment under this Agreement shall not constitute a waiver of the State's claims against the Grantee.

(C) The Grantee shall immediately refund to the State any payments in excess of the costs allowed by this Agreement.

XX. CANCELLATION

This Agreement may be canceled by the State, upon 30 days written notice, due to Executive Order, budgetary reduction, other lack of funding, upon request by the Grantee, or upon mutual agreement by the State and Grantee. The State may honor requests for just and equitable compensation to the Grantee for all satisfactory and eligible work completed under this Agreement up until 30 days after written notice, upon which time all outstanding reports and documents are due to the State and the State will no longer be liable to pay the grantee for any further charges to the grant.

XXI. TERMINATION

(A) This Agreement may be terminated by the State as follows.

(1) Upon 30 days written notice to the Grantee:

- a. If the Grantee fails to comply with the terms and conditions of the Agreement, or with the requirements of the authorizing legislation cited on page one, or the rules promulgated thereunder, or other applicable law or rules.
- b. If the Grantee knowingly and willingly presents false information to the State for the purpose of obtaining this Agreement or any payment under this Agreement.
- c. If the State finds that the Grantee, or any of the Grantee's agents or representatives, offered or gave gratuities, favors, or gifts of monetary value to any official, employee, or agent of the State in an attempt to secure a subcontract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Agreement.
- d. If the Grantee or any subcontractor, manufacturer, or supplier of the Grantee appears in the register of persons engaging in unfair labor practices that is compiled by the Michigan Department of Licensing and Regulatory Affairs or its successor.
- e. During the 30-day written notice period, the State shall withhold payment for any findings under subparagraphs a through d, above and the Grantee will immediately cease charging to the grant and stop earning match for the project (if applicable).

(2) Immediately and without further liability to the State if the Grantee, or any agent of the Grantee, or any agent of any subcontract is:

- a. Convicted of a criminal offense incident to the application for or performance of a State, public, or private contract or subcontract;
- b. Convicted of a criminal offense, including but not limited to any of the following: embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, or attempting to influence a public employee to breach the ethical conduct standards for State of Michigan employees;
- c. Convicted under State or federal antitrust statutes; or
- d. Convicted of any other criminal offense that, in the sole discretion of the State, reflects on the Grantee's business integrity.
- e. Added to the federal or state Suspension and Debarment list.

(B) If a grant is terminated, the State reserves the right to require the Grantee to repay all or a portion of funds received under this Agreement.

XXII. IRAN SANCTIONS ACT

By signing this Agreement the Grantee is certifying that it is not an Iran linked business, and that its contractors are not Iran linked businesses, as defined in MCL 129.312.

PROGRAM SPECIFIC SECTION

XXIII. FEDERAL FUNDING REQUIREMENTS

A maximum of 100 % of total disbursements is funded with Federal Funding. The Catalog of Federal Domestic Assistance (CFDA) title is Capitalization Grants for Safe Drinking Water State Revolving Fund and the CFDA number is 66.468. The federal grant number is FS975487-14, and this grant is funded with Federal funds from the U.S. Environmental Protection Agency. By accepting this Agreement, the Grantee shall comply with all applicable Federal statutes and regulations in effect with respect to the period during which it receives grant funding. These regulations include, but are not limited to, the following:

(A) The Grantee agrees to fulfill conditions that the Federal Government has imposed on the State as a condition of Federal funding as indicated herein and in all appendices.

(B) The Grantee will comply with the **Hatch Political Activity Act**, as amended, 5 USC §§ 1501-1508, and the Intergovernmental Personnel Act of 1970 as amended by Title (6) of the Civil Service Reform Act, 42 USC § 4728, which states that employees working in programs financed with federal grants may not be a candidate for elective public office in a partisan election, use official authority or influence to affect the result of an election, or influence a state or local officer to provide financial support for a political purpose.

(C) **Payment to Consultants.** EPA participation in the salary rate (excluding overhead) paid to individual consultants by recipients or by a recipient's contractors or subcontractors shall be limited to the maximum daily rate for a Level IV of the Executive Schedule, to be adjusted annually. This limit applies to consultation services of designated individuals with specialized skills who are paid at a daily or hourly rate. As of January 1, 2015, the limit is \$610.40 per day and \$76.40 per hour. This rate does not include transportation and subsistence costs for travel performed. (The recipient will pay these in accordance with their normal travel reimbursement practices).

Subrecipients with firms for services that are awarded using the procurement requirements in Subpart D of 2 CFR 200, are not affected by this limitation unless the terms of the Agreement provided the recipient with responsibility for the selection, direction, and control of the individuals who will be providing services under the Agreement at an hourly or daily rate of compensation. See 2 CFR 1500.9

(D) **Subawards.**

The grantee agrees to:

- (1) Establish all subaward agreements in writing;
- (2) Ensure that any subawards comply with the standards in 2 CFR 200 Subpart D and are not used to acquire commercial goods or services for the recipient;
- (3) Ensure that any subawards are awarded to eligible subrecipients and that proposed subaward costs are necessary, reasonable, and allocable;
- (4) Ensure that any subawards to 501(c)(4) organizations do not involve lobbying activities;
- (5) Monitor the performance of their recipients and ensure that they comply with all applicable regulations, statutes, and terms and conditions which flow down in the subaward;
- (6) Obtain DEQ's consent before making a subaward to a foreign or international organization, or a subaward to be performed in a foreign country; and
- (7) Obtain approval from DEQ for any new subaward work that is not outlined in the approved work plan.
- (8) Be responsible for selecting its subrecipients and, if applicable, for conducting subaward competitions.

(E) **Single Audit.** Grantees spending \$750,000 or more in federal funds in their fiscal year shall have a single audit performed in compliance with 2 CFR 200.501(a). This audit must be performed and copies provided to the appropriate agencies within nine months from the end of the grantee's fiscal year, or 30 days after receiving the report from the auditors. The Grantee must submit a copy of the Audit Report to the Michigan Department of Environmental Quality at the following address:

Michigan Department of Environmental Quality
Administration Division
Constitution Hall, 6th floor
525 West Allegan
Lansing, MI 48909

Or the grantee may also submit the single audit report electronically to the Michigan Department of Treasury website (http://www.michigan.gov/treasury/0,1607,7-121-1751_31038--00.html).

It is the responsibility of the Grantee to report the expenditures related to this grant on the Grantee's annual Schedule of Expenditures of Federal Awards.

(F) **Copyrighted Material.** In accordance with 2 CFR 200.315, the EPA has the right to reproduce, publish, use, and authorize others to reproduce, publish, and use copyrighted works or other data developed under this assistance agreement for Federal purposes.

Examples of Federal purpose include but are not limited to: (1) Use by the EPA and other Federal employees for official Government purposes; (2) Use by Federal contractors performing specific tasks for the Government; (3) Publication in EPA documents provided the document do not disclose trade secrets (e.g. software codes) and the work is properly attributed to the recipient through citation or otherwise; (4) Reproduction of documents for inclusion in Federal depositories; (5) Use by State, tribal and local governments that carry out delegated Federal environmental programs as "co-regulators" or act as official partners with the EPA to carry out a national environmental program within their jurisdiction; and (6) Limited use by other grantees to carry out Federal grants provided the use is consistent with the terms of the EPA's authorization to the grantee to use the copyrighted works or other data.

Under Item 6, the grantee acknowledges that EPA may authorize another grantee(s) to use the copyrighted works or other data developed under this grant as a result of:

- a. the selection of another grantee by EPA to perform a project that will involve the use of the copyrighted works or other data or;
- b. termination or expiration of this agreement.

In addition, EPA may authorize another grantee to use copyrighted works or other data developed with Agency funds provided under this grant to perform another grant when such use promotes efficient and effective use of Federal grant funds.

(G) **Electronic and Information Technology Accessibility.** Grantees developing electronic and information technology products, which includes but is not limited to information kiosks and World Wide Websites, must meet accommodation standards in Section 508 of the Rehabilitation Act, 36 CFR Part 1194, unless such causes undue hardship to the entity involved.

(H) **Drug-Free Workplace.** The recipient organization of this EPA assistance agreement must make an ongoing, good faith effort to maintain a drug-free workplace pursuant to the specific requirements set forth in Title 2 CFR Part 1536 Subpart B. Additionally, in accordance with these regulations, the recipient organization must identify all known workplaces under its federal awards, and keep this information on file during the performance of the award.

Those recipients who are individuals must comply with the drug-free provision set forth in Title 2 CFR 1536 Subpart C.

The consequences for violating this condition are detailed under Title 2 CFR Part 1536 Subpart E, which recipients can access at <http://ecfr.gpoaccess.gov/>

(I) **Hotel-Motel Fire Safety.** Pursuant to 15 USC 2225a the recipient agrees to ensure that all space for conferences, meetings, conventions or training seminars funded in whole or in part with federal funds complies with the protection and control guidelines of the Hotel and Motel Fire Safety Act (PL 101-391, as amended). Recipients may search the Hotel-Motel National Master List at <http://www.usfa.dhs.gov/applications/hotel> to see if a property is in compliance.

(J) **Recycled Paper.** When directed to provide paper documents, the recipient agrees to use recycled paper and double sided printing for all reports which are prepared as a part of this agreement and delivered to the USEPA. This requirement does not apply to reports prepared on forms supplied by the EPA.

(K) **Recycled Products.** Consistent with goals of section 6002 of RCRA (42 U.S.C. 6962), State and local institutions of higher education, hospitals, and non-profit organization recipients agree to give preference in procurement programs to the purchase of specific products containing recycled materials, as identified in 40 CFR Part 247.

Consistent with section 6002 of RCRA (42 U.S.C. 6962) and 2 CFR 200.322, State agencies or agencies of a political subdivision of a State and its contractors are required to purchase certain items made from recycled materials, as identified in 40 CFR Part 247, when the purchase price exceeds \$10,000 during the course of a fiscal year or where the quantity of such items acquired in the course of the preceding fiscal year was \$10,000 or more. Pursuant to 40 CFR 247.2 (d), the recipient may decide not to procure such items if they are not reasonably available in a reasonable period of time; fail to meet reasonable performance standards; or are only available at an unreasonable price.

(L) **Trafficking.** Grantees, contractors, and subcontractors may not engage in severe forms of trafficking in persons, procure a commercial sex act, or use forced labor in the performance of the grant or subcontracts.

XXIV. QUALITY ASSURANCE/QUALITY CONTROL

A project-specific Quality Assurance Project Plan (QAPP) must be submitted to the State in accordance with guidance provided by the DEQ project administrator. Monitoring conducted prior to final DEQ approval of the QAPP will not be reimbursed.

PROJECT-SPECIFIC REQUIREMENTS – APPENDIX A

Responsibilities – Grantee

The Grantee, in accordance with the general purposes and objectives of this agreement, will:

- A. Provide for oversight of the project.
- B. Meet with the Surface Water Intake Protection (SWIP) Team quarterly as a minimum team requirement.
- C. Submit a signed copy of the Quarterly Grant Team Progress Report after each quarterly SWIP team meeting. Quarterly reports shall be sent to the MDEQ, Resource Management Group, Drinking Water and Environmental Health Section, Community Drinking Water Unit, Gaylord Field Office, 2100 W. M-32, Gaylord, MI 49735-9282. The contact person is the Surface Water Intake Protection Program Coordinator, Jason Berndt, who can be reached at (989) 705-3420 or by e-mail at berndtj1@michigan.gov. If a Financial Status Report form is not submitted, the quarterly report shall include a statement that the request for payment is not being made as part of the Quarterly Grant Team Progress Report.
- D. Utilize all report forms and reporting formats required by the State.
- E. Complete for State approval the items listed in “Table 2: Grant Tabulation 2016.”

Project Specific Requirements – Appendix A Continued

Michigan Department of Environmental Quality
Office of Drinking Water and Municipal Assistance
Drinking Water and Environmental Health Section
Community Drinking Water Unit



**SURFACE WATER INTAKE PROTECTION GRANT PROGRAM
PROGRAM BUDGET – COST DETAIL SCHEDULE**

Program Surface Water Intake Protection Grant Assistance	Budget Period October 1, 2015 to September 30, 2016		Date Prepared 9/28/15
Local Agency City of Ann Arbor			
Description	Grant Assistance	Local Funds	Previous Expenditures
See attached "Table 2: Grant Tabulation 2016" for City of Ann Arbor	<u>\$17,500.00</u>	<u>\$17,500.00</u>	<u>\$ 0.00</u>

Completion is a Condition of Funding
Authority: 1976 PA 399



Project Specific Requirements – Appendix A Continued

Michigan Department of Environmental Quality
 Office of Drinking Water and Municipal Assistance
 Drinking Water and Environmental Health Section
 Community Drinking Water Unit

**SURFACE WATER INTAKE PROTECTION GRANT PROGRAM
 PROGRAM BUDGET SUMMARY**

Program		Budget Period			Date Prepared
Surface Water Intake Protection Grant Assistance		October 1, 2015 to September 30, 2016			9/28/15
Local Agency City of Ann Arbor					
Address		City	State	Zip Code	Federal Identification No.
301 East Huron		Ann Arbor	Michigan	48107	38-6004534
	SOURCE OF FUNDS			TOTAL BUDGET	
1.	State Agreement			<u>\$17,500.00</u>	
2.	Local Match			<u>\$17,500.00</u>	
3.	Local Previous Expenditures			<u>\$ 0.00</u>	
4.	TOTAL FUNDING			<u>\$35,000.00</u>	

Completion is a Condition of Funding
 Authority: 1976 PA 399

*The Department, under the terms of this agreement, will provide funding not to exceed **\$17,500.00.***

Expenditures must be grant eligible in accordance with Rules 325.12812 through 325.12820, Part 28 of the Michigan Safe Drinking Water Act, 1976 PA 399, as amended

TABLE 2: Grant Assistance Tabulation 2016

Contract Period October 1, 2015 to September 30, 2016

City of Ann Arbor
Water Supply Name

DEQ USE ONLY

Previous Expenditures: \$0.00

Previous Expenditures to be used this contract period: \$0.00

Remaining Previous Expenditures for use as future local match: \$0.00

(A) Grant Eligible Activities	(B) Deliverable	(C) Activity Cost	(D) Requested Grant Assistance	(E) Local Match	
				Local Funds	Previous Expend.
Previous Expenditures To Be Used This Contract Period	DEQ Approved Previous Expenditures	<u>\$0.00</u>	\$0	\$0	<u>\$0.00</u>
Develop and implement Surface Water Intake Protection Plan.	MDEQ approved plan; timetable for implementation; education and outreach materials (digital and print materials); signage	\$30,000.00	\$15,000.00	\$15,000.00	\$0
Administration (including Team Meetings; quarterly reporting).	Agendas; meeting minutes	\$5,000.00	\$2,500.00	\$2,500.00	\$0
	Total	\$35,000.00	\$17,500.00	\$17,500.00	\$0.00

Attention: Amendments to this table must be requested in writing at least 2 months prior to contract expiration and cannot increase the total contract amount.



STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

March 30, 2004

Mr. Roger Fraser, City Administrator
City of Ann Arbor
100 North Fifth Street
P.O. Box 8647
Ann Arbor, MI 48107-8647

Dear Mr. Fraser:

SUBJECT: Source Water Assessment

Enclosed is a source water assessment report of the city of Ann Arbor public water supply, Huron River intake source water completed by the Department of Environmental Quality (DEQ) in partnership with the U.S. Geological Survey (USGS), the city utilities department, and the Michigan Public Health Institute. We are asking you, the water plant staff, the local health department, and the Water Division, Field Operations Section, staff to review this report and offer comments regarding the accuracy of its content.

The 1996 amendments to the Federal Safe Drinking Water Act require states to conduct assessments of all sources of public drinking water. These assessments consist of defining the source water area, analyzing source sensitivity, conducting a contaminant source inventory, determining source susceptibility, and informing the public of the results. The Michigan Source Water Assessment Program (SWAP) was developed per federal guidelines through an advisory committee and approved by the U.S. Environmental Protection Agency (USEPA) in October 1999. The intent of these assessments will ultimately be to prioritize protection activities for all sources of public drinking water. Enclosed for your information is a brochure further explaining the Michigan SWAP and one USGS report for city personnel explaining assessment methodology.

The state of Michigan has historically recognized all surface water sources of drinking water as susceptible to contamination. Hence, Michigan requires complete treatment of these sources. To further categorize susceptibility, Michigan has developed an outline of surface water source susceptibility for the SWAP ranging from very high for inland river sources to moderately low for our deep intakes located miles out in the Great Lakes. The city of Ann Arbor Huron River intake source water has been determined to have **very high susceptibility**, as explained in the assessment. This determination is supported by listed and nonpoint contaminant sources in the defined source water area that could potentially impact the Ann Arbor Water Treatment Plant (WTP) intake. As further explained in this assessment, the WTP has, historically, provided satisfactory treatment of this source water to meet drinking water standards.

We appreciate the assistance of the water plant staff in providing the information necessary to complete this assessment. Comments on the July 2001 working draft of this assessment received from Ms. Janice Skadsen were particularly useful. It is important to the DEQ, the city, and the city's water customers that this assessment be as accurate as possible.



Mr. [Name]
[Address]
[City, State, ZIP]

Dear Mr. [Name]:

I am writing to you regarding the [Topic]. The [Topic] is a critical issue that affects the health and well-being of our nation's citizens. It is important that we take action to address this issue as soon as possible. The [Topic] is a complex issue that requires a coordinated effort from all stakeholders. We are committed to working with you to find a solution that works for everyone.

The [Topic] is a complex issue that requires a coordinated effort from all stakeholders. We are committed to working with you to find a solution that works for everyone. We have already taken several steps to address this issue, and we will continue to do so in the future. We are confident that we can find a solution that works for everyone.

The [Topic] is a complex issue that requires a coordinated effort from all stakeholders. We are committed to working with you to find a solution that works for everyone. We have already taken several steps to address this issue, and we will continue to do so in the future. We are confident that we can find a solution that works for everyone.

The [Topic] is a complex issue that requires a coordinated effort from all stakeholders. We are committed to working with you to find a solution that works for everyone. We have already taken several steps to address this issue, and we will continue to do so in the future. We are confident that we can find a solution that works for everyone.

**Source Water Assessment Report for the
City of Ann Arbor Water Supply
March 2004**

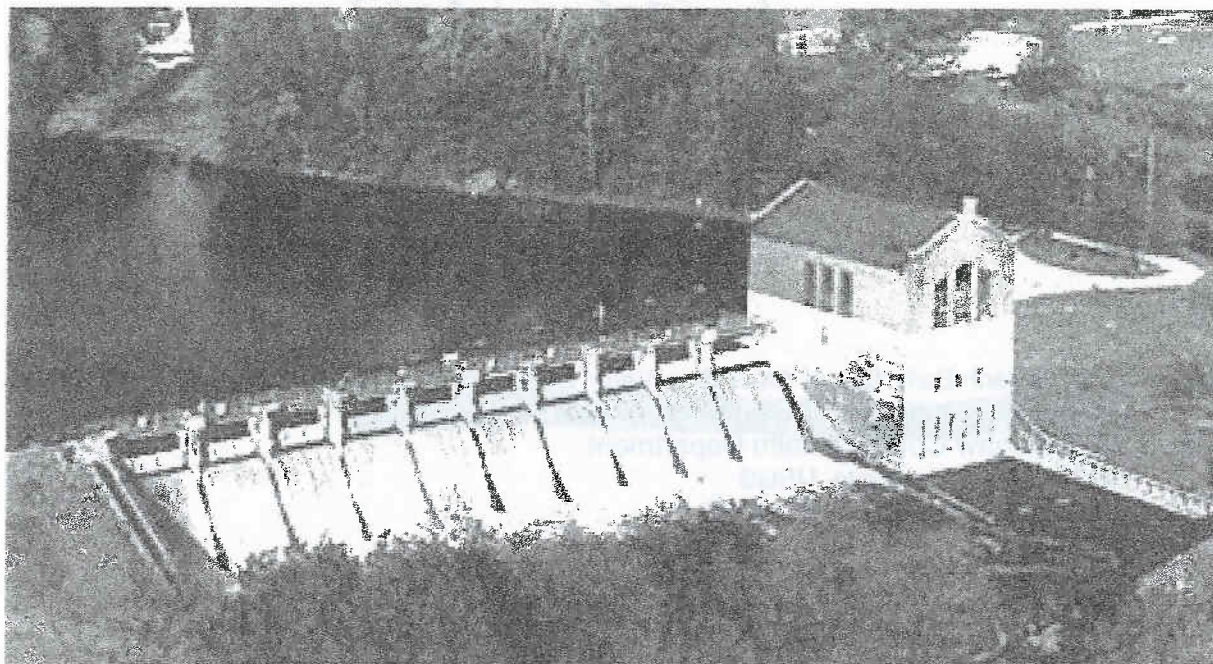


Photo Courtesy of City of Ann Arbor

*Huron River, Barton Dam and Pond
City of Ann Arbor Water Supply
Ann Arbor, Michigan*

Prepared for:
City of Ann Arbor Water Supply; WSSN 0220

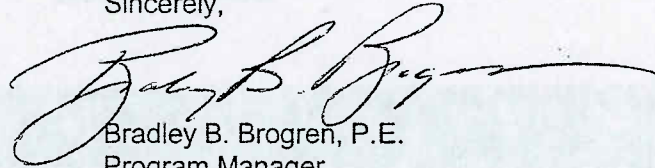
Prepared by:
U.S. Geological Survey, Water Resources Division, Michigan District
Michigan Department of Environmental Quality, Water Division
City of Ann Arbor Water Utilities Department

Michigan Source Water Assessment Report 12

Mr. Roger Fraser
Page 2
March 20, 2004

Accordingly, we are asking that further revisions be submitted within 30 days. After this 30-day period, the assessment will be considered complete. You may provide comments in writing, by telephone, by fax at 517-241-1328, or e-mail at brogrenb@michigan.gov. Thank you for your cooperation.

Sincerely,



Bradley B. Brogren, P.E.
Program Manager
MDEQ Affiliate Center
Michigan Public Health Institute
517-241-1361

Enclosures

BBB:ckp

cc/enc: Mr. Sumedh Balh, City of Ann Arbor Water Treatment Plant Superintendent
Ms. Janice Skadsen, City of Ann Arbor Water Quality Manager
Washtenaw County Health Department
Mr. Stephen Rheaume, USGS
Jackson District Office, WD, DEQ

Executive Summary

The purpose of the Source Water Assessment is to analyze the sensitivity (natural protection) and determine susceptibility (potential for contamination) of a community's source of drinking water to potential sources of contamination.

*Sensitivity is determined from the natural setting of the source water (raw water to the water treatment plant), and indicates natural protection afforded the source water. Using procedures established in the Great Lakes Protocol, Michigan Source Water Assessment Program, the intakes at Barton Pond for the Ann Arbor Water Treatment Plant have a **very high degree of sensitivity** to potential contaminants. When the effects of agricultural and urban runoff in the Huron River watershed are considered, the Ann Arbor intakes are categorized as very highly sensitive.*

Susceptibility identifies factors within the community's source water area that may pose a risk to the water supply. The susceptibility determination provides information with respect to listed facilities and land areas within the source water area that should be given greater priority and oversight in implementing a source water protection program. The source water area for the Ann Arbor intakes includes 611 potential contaminant sources, 91 listed potential contaminant sources within the susceptible area, plus urban and agricultural runoff from the Huron River watershed into the Huron River and Barton Pond. The potential contaminant sources, in combination with the very highly sensitive intakes, indicate that the Ann Arbor source water is very highly susceptible to potential contamination.

The Ann Arbor source water is categorized as very highly susceptible, given land uses and potential contaminant sources within the source water area. However, it is noted that historically, the City of Ann Arbor Water Treatment Plant has effectively treated this source water to meet drinking water standards. The City of Ann Arbor has instituted pollution prevention programs, but should be cognizant of additional potential threats to its source of drinking water that are identified in this report. This report explains the background and basis for these determinations.

Using this Assessment

Clean, safe drinking water is fundamental to the viability of any community. Protecting the drinking water source is a wise and relatively inexpensive investment in your community's future. The overall intent of this assessment is to provide background information for your community to use in developing a local source water protection program. The assessment benefits your community by providing the following:

- ***A basis for focusing limited resources within the community to protect the drinking water source(s).***
The assessment provides your community with information regarding activities within the **source water area (SWA)** that directly affect your water supply. It is within this SWA that a spill or improper use of **potential contaminants** may cause these contaminants to migrate toward the water **intake**. By examining where the source waters are most susceptible to contaminants, and where potential contaminants are located, the assessment clearly illustrates the potential risks that should be addressed.
- ***A basis for informed decision-making regarding land use within the community.***
The assessment provides your community with a significant amount of information regarding where your drinking water comes from (the source) and what the risks are to the quality of that source. Knowing where the resource is allows your community planning authorities to make informed decisions regarding proposed land uses within the SWA that are compatible with both your drinking water resource and the vision of growth embraced by the city and neighboring communities.
- ***A basis for dealing with future regulations.***
The assessment has been designed to functionally meet proposed requirements for surface-water supplies. Information needed to address regulatory needs and requirements has been collected and made available to your community through this report.

This source water assessment also provides the basis for a locally developed, voluntary source water protection program. Communities interested in voluntarily developing source water protection programs should contact the Michigan Department of Environmental Quality (MDEQ) or visit the Department web page at <http://www.deq.state.mi.us>.

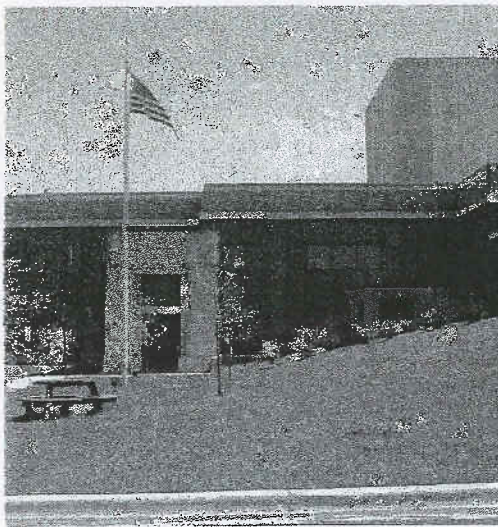
Introduction

In 1996, Congress amended the **Safe Drinking Water Act** and provided resources for state agencies to conduct source water assessments by identifying SWAs, analyzing the **sensitivity** of the source to natural conditions, conducting **contaminant source inventories**, and determining the **susceptibility** of the source to potential contamination. Delineations, sensitivity analyses, contaminant inventories, and susceptibility determinations comprise a "source water assessment." Assessments will be completed for every public water supply source in Michigan. To support this effort, the MDEQ Water Division established a partnership with the U.S. Geological Survey (USGS) to develop a method for conducting source water assessments for surface water supplies (Sweat and others, 2000; Sweat and others, 2001).

The requirements for public water supplies in Michigan to meet United States Environmental Protection Agency (USEPA) **maximum contaminant levels (MCLs)** provide some degree of assurance of safe drinking water; however, all systems are vulnerable to potential contamination. One of the best ways to ensure safe drinking water is to develop a **local program** designed to protect the source of drinking water against potential contamination. Not only does this add a margin of safety, but it also raises the awareness of consumers and/or the community of the risks of drinking water contamination. It is expected that source water assessment results will provide a basis for developing a source water protection program.

Background

Ann Arbor is located in Washtenaw County (fig. 1), about 40 miles west-southwest of Detroit, Michigan. Besides serving City residents, the water supply also serves Ann Arbor, Superior and Scio townships. The Ann Arbor water supply was originally constructed in 1885 and put into service in 1886, using untreated ground water as its source.



City of Ann Arbor Water Treatment Plant

Beginning in 1890, the water supply was augmented with untreated water from the Huron River. In 1905, a new water intake was constructed near what is now Barton Pond. Filtration and ozonation were used to treat the raw water beginning in 1910, and were replaced with chlorination in 1915. In 1930, the use of surface water was discontinued. Use of surface water resumed in 1937 with the completion of two sedimentation basins and six filters, and the City began softening its water at that time. Fluoridation was started in 1954. In 1981, the City switched to chloramination, and resumed ozonation in 1996. The present intake constructed in 1913 is a 24-inch (in) diameter cast iron pipe extending 200 feet (ft) offshore in Barton Pond in about 20 ft of water (1924 dam). The intake terminates in a 20 structure about 3 ft above the bottom of Barton Pond (City of Ann Arbor, 1999; Janice Skadsen, Water Quality Manager, Ann Arbor Water Treatment Plant, personal commun., 27 April 2001). A second, 36 in diameter intake is located in the Barton Pond dam. Treatment plant expansions occurred in 1937, 1948, 1965, 1974, and 1994.

Five low service pumps deliver raw water from Barton Station to the treatment plant. Total low service pumping capacity is 43.9

(clarification), ozone (disinfection), fluoride (dental health), plus NaOCl and NH₃ (pH adjustment, distribution system disinfection).

The WTP, rated at 43.9 MGD, has two clear wells and one in-ground reservoir on site, with a total capacity of 6,076,000 gallons (gal). There is a 5 million gallon (MG) underground concrete tank in the Northeast high service area, a 3 MG underground concrete tank in the West high service area, a 500,000 gal elevated steel tank in the North high service area, and a 4 MG storage reservoir and a 500,000 gal elevated steel tank in the Southeast high service area. The Ann Arbor WTP serves approximately 115,000 people (City of Ann Arbor, 1999).

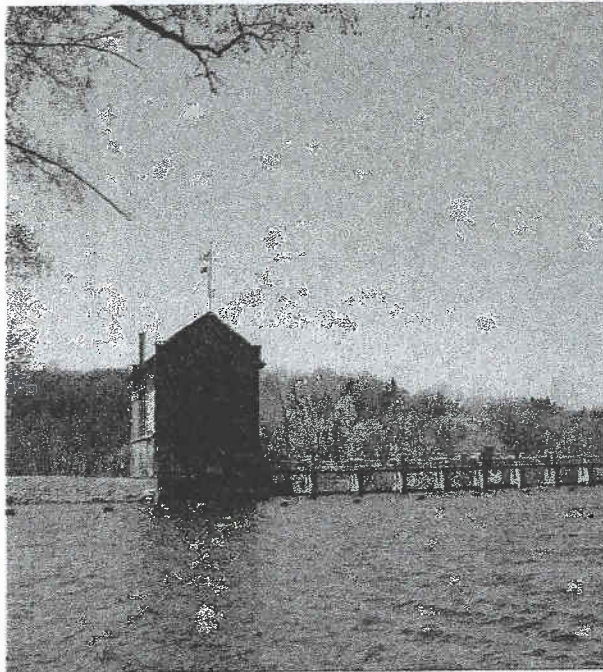
Water treatment plants are periodically inspected to identify construction, maintenance, operational or source defects that could make them vulnerable to contamination, particularly from contaminants that are microbial in nature, such as fecal coliforms. Water suppliers are provided a sanitary survey report that notes deficiencies in the system, and the State may direct the system to make necessary corrections. The sanitary survey is an important part of a safe drinking water program. The most recent sanitary survey of the Ann Arbor WTP was completed in 1999.

Climate

The Ann Arbor water supply is located in the Southern Lower Peninsula hydrologic province (Rheaume, 1991), in the Huron River watershed (USGS, 1974, 1982). The region experiences temperate summers with moderate winters. The Ann Arbor Weather Bureau station reports that the average annual precipitation for the climatic years 1957-1999 was 32.81 inches and the average from the past 5 years is 36.8 inches (NOAA, 1999), with about a tenth of that as snowfall between November and March. Annual average runoff for the Ann Arbor SWA, extrapolated from Miller and Twenter (1986, fig. 1) is about 8 inches.

Source Water Area Geology and Hydrology

The study area for evaluating the extent of the Ann Arbor WTP SWA includes the upper reaches of the Huron River watershed upstream of Barton Pond (fig. 1). Ann Arbor is located at the upper end of the lower third of the Huron River watershed. Adjacent upland areas are primarily outwash moraines and glaciofluvial deposits, underlain by Coldwater shale (Martin, 1955; Milstein, 1987). Soils underlying the Ann Arbor SWA are primarily from the Colwood, Edwards, and Adrian soil complexes (U.S. Department of Agriculture, 1961; BASINS, 1998; MIRIS, 2000). They include loams, sands and gravels, muck, clay, and combinations.



Powerhouse Intake on Barton Pond

Soil permeability is based on the calculated time of travel, in inches per hour (in/hr), for water to move vertically through a saturated soil zone. Soil thickness and permeability values are available in soil survey reports published by the National Cooperative Soil Survey and U.S. Department of Agriculture (1982, 1992, 1993, also 2 county reprints in press).

Permeability ranges from less than 0.06 in/hr, rated as very slow, to more than 20 in/hr, rated as very rapid.

Very slowly permeable soils significantly reduce the movement of water through the soil zone and, as a result, allow greater time for natural degradation of contaminants. However, such soils also provide for rapid overland transport of contaminants directly to receiving waters, which in turn may affect the water supply intake. Erosion and transport of soils by surface waters can cause an increase in turbidity. In contrast, very rapidly permeable soils allow for rapid infiltration and passage through the soil zone from the surface. Such soils potentially allow rapid transport of contaminants with minimal contact-time available for contaminant breakdown.

Ann Arbor Source Water Area (SWA)

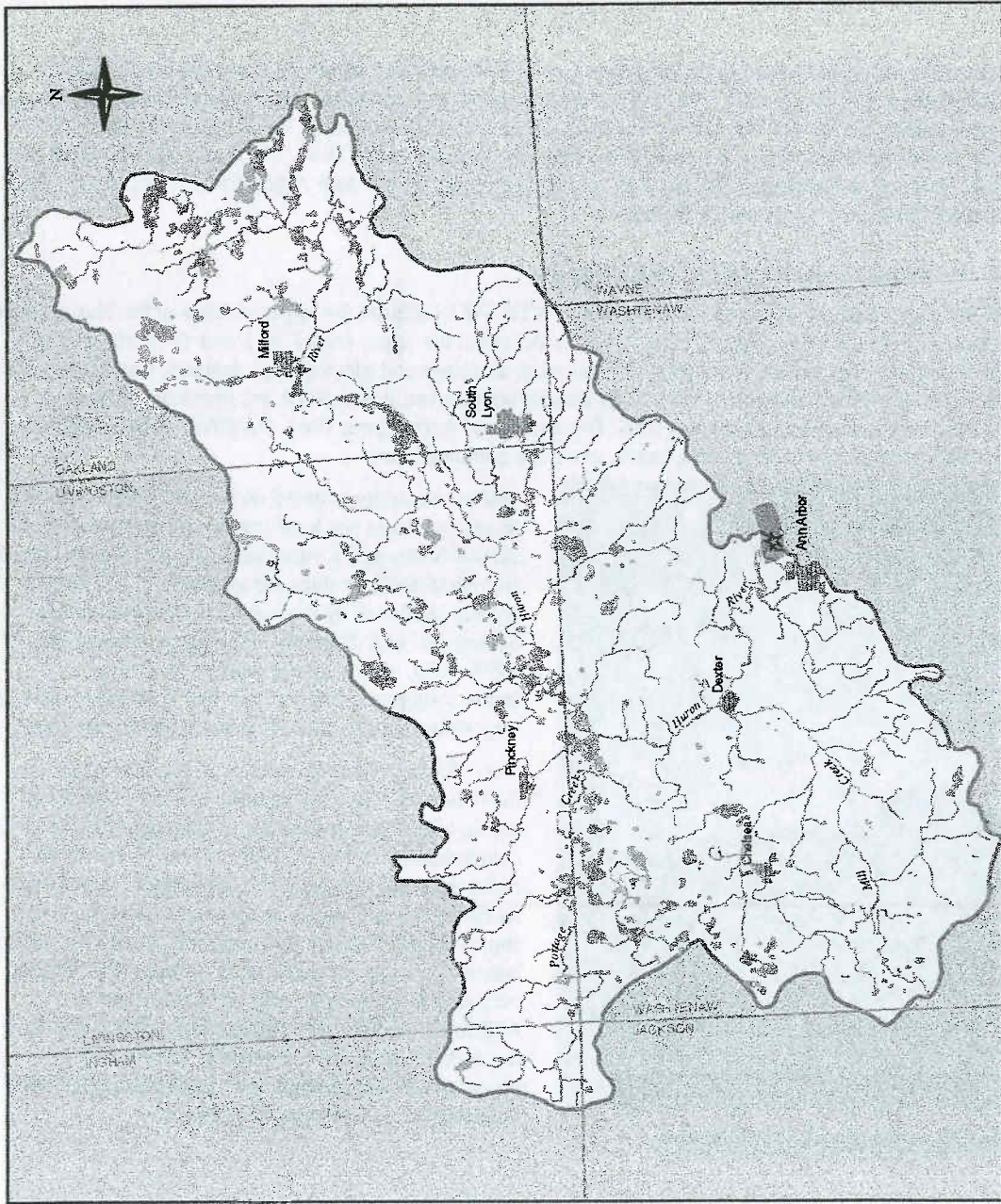
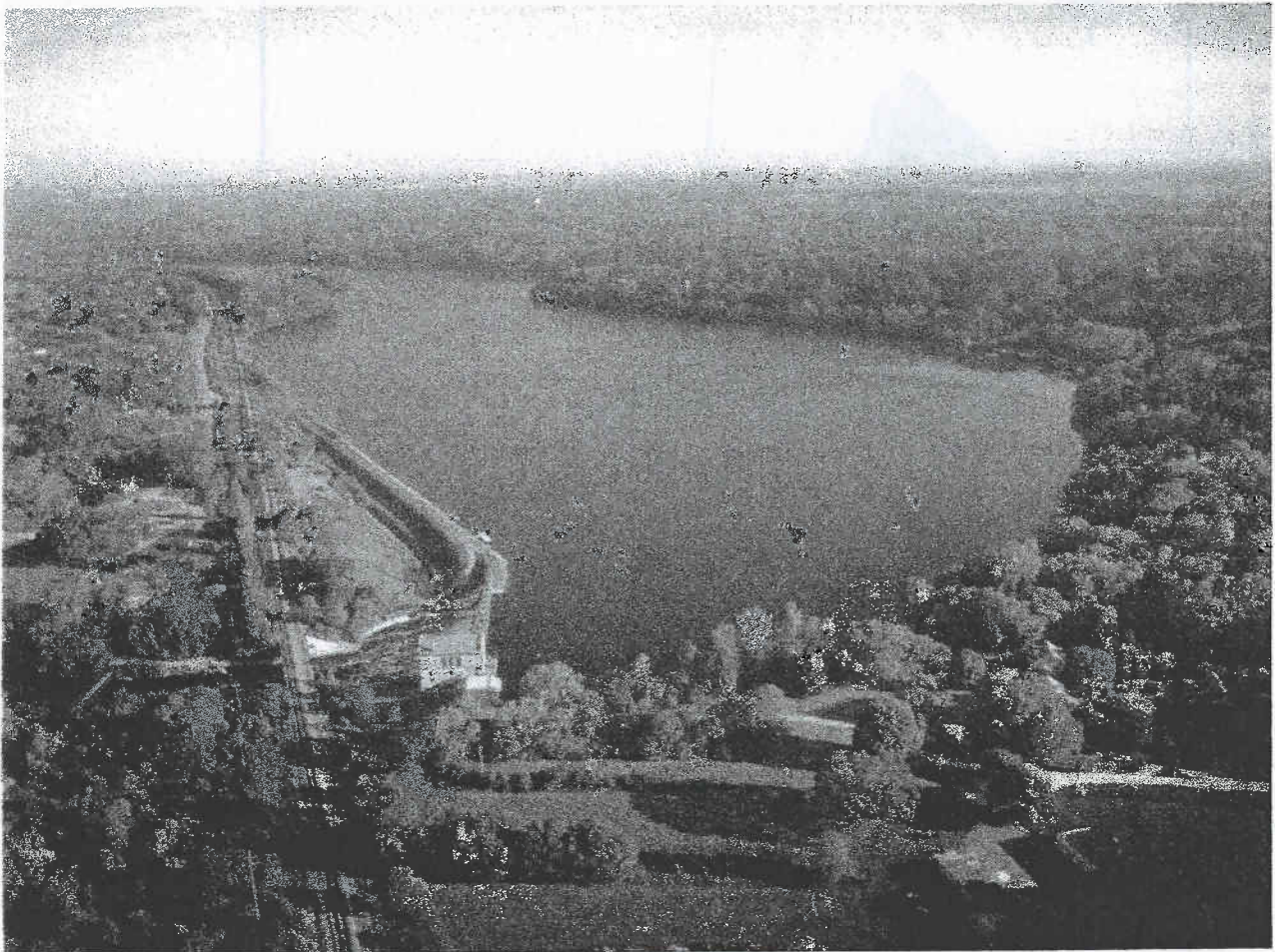


Figure 1. Source water area (SWA) for the Ann Arbor water supply, Ann Arbor, MI.

Mean, area-weighted, depth-integrated permeabilities for the Ann Arbor SWA range from 0.2 to as much as 20.0 in/hr. The mean permeability is 5.0 in/hr (Schneider and Erickson, undated, series of 5 maps; BASINS, 1998; MIRIS, 2000). Soil permeability ranges from moderately slow to slow in the southeastern part of the SWA to moderately rapid to rapid in the northern and western parts of the SWA (fig. 2; Lusch and others, 1992, U.S. Department of Agriculture, 1961; BASINS, 1998; MIRIS, 2000).

The Ann Arbor SWA contains an area of about 760 square miles (mi²). The most significant tributary to the Huron River upstream of Ann Arbor is Mill Creek, with a drainage area of about 130 mi². Between 1904 and 1999 as many as 12 stream gauges were operated in the Ann Arbor SWA by the USGS (Blumer and others, 2000, p. xiii). Currently there are 5 gauges operated in the Huron River watershed. Annual mean discharge at the Huron River at Ann Arbor gauging station, immediately downstream of the SWA, was 331 cubic feet per second (cfs) between 1915 and 1999, and ranged from 120 to 929 cfs.



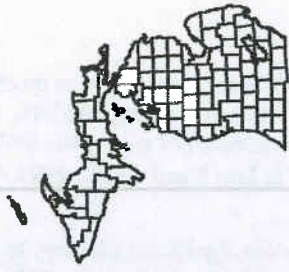
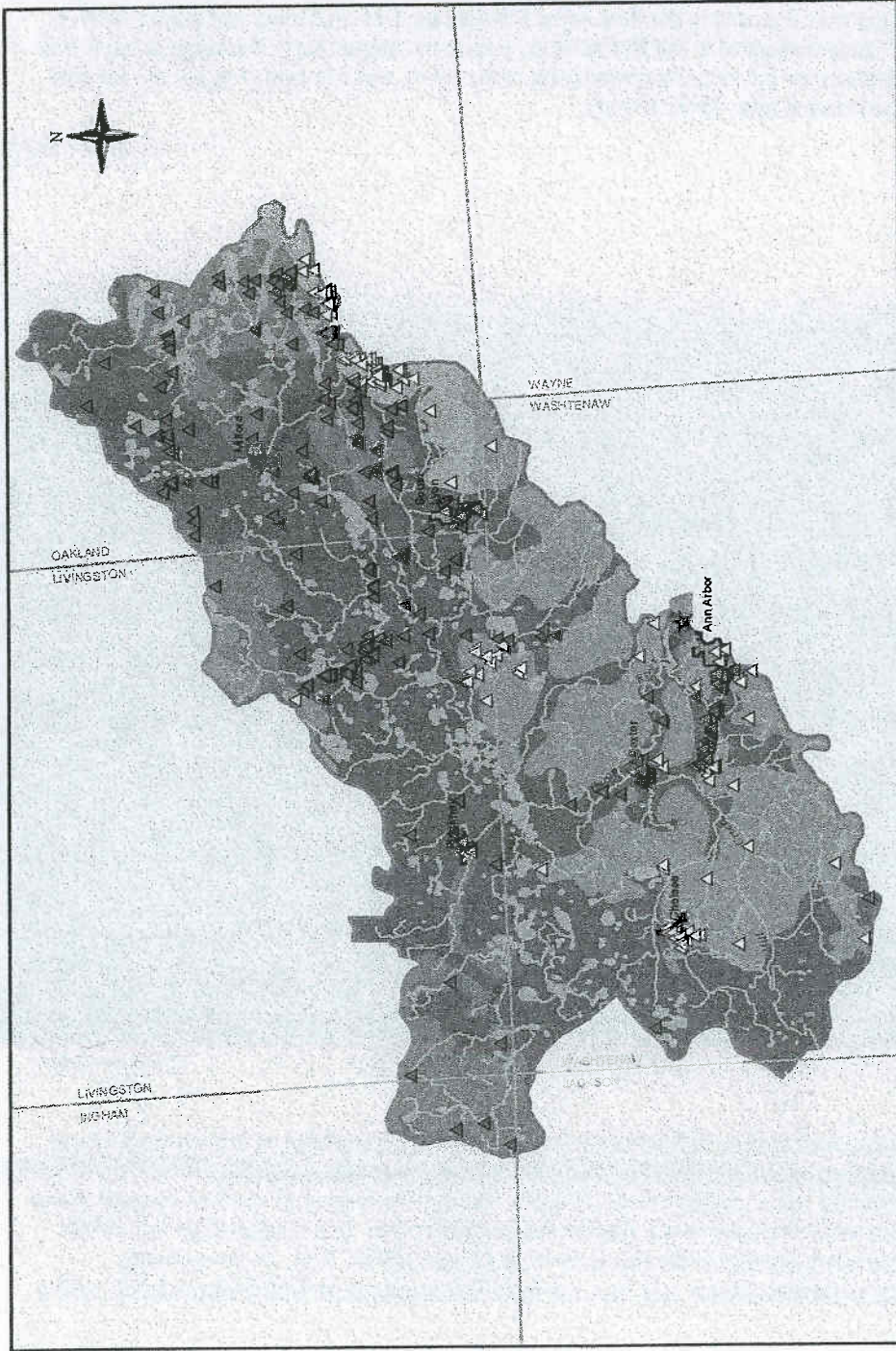
Barton Pond on the Huron River

City of Ann Arbor

Photo

Barton Pond is an impoundment on the Huron River from which the City of Ann Arbor withdraws its drinking water supply through two intakes, one in the pond upstream of the dam and one in a penstock in the southeast end of the dam. The pond is about six miles long and varies in depth. Throughout most of its reach, it averages about 10 ft deep, although immediately behind the dam it reaches depths greater than 21 ft (Limno-Tech Inc, 2000). Using long-term annual average discharges in the Huron River at Dexter (USGS, 2001, 26 years of data, http://water.usgs.gov/mi/nwis/annual/calendar_year?site_no=04173000&agency_cd=USGS&format=rdb) and in the

Ann Arbor Source Water Area Soil Permeability



Explanation

- ★ Ann Arbor Water Supply Intake
- ▲ PCS on Lower Permeable Soils
- ▲ PCS on Higher Permeable Soils
- River
- County Boundary
- Lake
- Urban Area
- SWA Boundary
- Soil Permeability
- Moderately Slow
- Moderate
- Moderately Rapid
- Rapid



Figure 2. Source water area (SWA) permeability map for the Ann Arbor water supply, Ann Arbor, MI.

Huron River at Ann Arbor (USGS, 2001, 84 years of data, http://water.usgs.gov/mi/nwis/annual/calendar_year?site_no=04174500&agency_cd=USGS&format=rdb) the average annual residence time would be expected to range from about 60 hours to about 47 hours. Using average annual flow rates through the dam and the Ann Arbor WTP raw-water intake, the calculated average annual residence time of water in the pond would be about 45 hours (Limno-Tech, 2000, p. 2). As water travels through Barton Pond, its velocity is reduced causing many suspended materials to settle out of the water column. This reduces the likelihood of these materials reaching the WTP, and consequently reduces the load on the WTP. The sediment accumulation has not changed the pond depth profile between 1965 and 1999 (communication, J. Skadson, May 2002)

Upstream inputs to the Ann Arbor SWA include Mill Creek at Dexter, and discharge of treated water from the Dexter wastewater treatment plant. Using distance weighted, average annual velocities in this reach, it would take about 24 hours for contaminants introduced at the convergence of Mill Creek with the Huron River to reach the upper end of Barton Pond. It would take an additional 54 hours to transit Barton Pond, using an average of the travel times previously discussed.

History of Raw Water Quality at the Source

Public water supplies are required to routinely monitor raw water quality for selected parameters to optimize treatment, and to monitor treated water quality for a list of contaminants that is determined by MDEQ and the Safe Drinking Water Act. A detection of any contaminant may indicate that a pathway exists for contaminants to reach the intake. It is important to realize that the results from a given sample only provide information regarding the water quality at the time the sample was collected. Water quality can change with time for a number of reasons. The fact that a water sample does not contain contaminants is no guarantee that contamination will not occur in the future. Conversely, the detection of a contaminant in the past does not indicate that it will occur in the future.

The Ann Arbor WTP records show that water use between 1994 and 1999 has fluctuated between 9.49 and 34.13 MGD, with an average annual use of 6,747 million gallons. Surface water accounts for between 69 and 100 percent of all water treated, with higher percentages of surface water used in summer, and lower percentages of surface water used in winter. Long-term average water composition is 80 percent surface water and 20 percent ground water. Water quality and meteorological conditions have been monitored since about 1878. An analysis of flow duration for the Huron River and source water chemistry indicates that there may be an indirect correlation between turbidity, suspended sediments, and coliforms and high flows associated with spring snowmelt and precipitation runoff events.

In general, Barton Pond would tend to dampen the effects of any contaminants entering the SWA upstream of the intake because of the length of time it takes water to travel through the pond, which acts as a natural settling basin, and provides large volumes of water for dilution. Ann Arbor periodically tests both raw and treated water for the presence of total coliform bacteria. Test results indicate that fecal coliform bacteria are not present in the treated water. Recent analyses by both the WTP laboratory and contract laboratories have indicated that chromium and aluminum are occasionally present in the raw water; however, results have not been consistent, either over time or between laboratories. Ann Arbor WTP personnel are currently investigating these occurrences and continue to sample the source water for both chromium and aluminum.

Source Water Assessment Methodology

Technical guidelines for completing source water assessments are contained in the Michigan **Source Water Assessment Program**, Assessment Protocol for Great Lakes Sources (Protocol) (MDEQ, 1999, Appendix L) available at <http://www.deq.state.mi.us/dwr>. In general, an assessment is a process for evaluating a drinking water supply and the potential for its treated water to exceed an MCL due to raw water contamination. A source water assessment considers the SWA, potential sources of contamination within the SWA, conditions of the water supply intake, and susceptibility to contaminants in order to identify potential risks to drinking water quality. Although the Protocol provides the minimum requirements and instructions on how to conduct an assessment, each water supply is unique with respect to how the process is carried out, due to local conditions and information. Sweat and others (2000, 2001) have developed and documented the methodology used in the preparation of this assessment.

Delineating Source Water Areas

Delineation of the SWA is accomplished by using **geographic information system (GIS)** software to map the watershed(s) that have the potential to affect source water at the intake. Using information from the water supply, a 3000 foot **critical assessment zone (CAZ)** is defined for the intake (MDEQ, 1999, Appendix L). A buffer is then created along any shoreline intersected by the CAZ, and from the edge of the CAZ to the mouth of any river(s) that might influence the intake. Finally, the 300 foot buffer is extended along the shoreline of any river(s) that might influence the intake, from the mouth of the river to its headwaters. The area defined by the CAZ plus the river and shoreline buffers is termed the **susceptible area**. The susceptible area within the SWA defines locations where a water supply should focus its management strategies and resources to benefit the drinking water resources.

Using the Great Lakes Protocol and the Ann Arbor water supply information:

- The CAZ for the Ann Arbor intakes is assigned as 3,000 ft since the intakes are located in an inland river (figure 3).
- The susceptible area along the shoreline is determined to be:
A distance of 300 ft inland from the shore of Barton Pond, and along the banks of the Huron River and its tributaries (fig. 3).

Contaminant Source Inventory

Past, current, and potential future sources of contaminants were inventoried to identify several categories of potential sources of contaminants including microorganisms (bacteria, oocysts, and viruses), inorganic compounds (nitrates and metals), organic compounds (solvents, petroleum compounds, pesticides), and disinfection by-product precursors (trihalomethanes, haloacetic acids).

It is important to remember that sites and areas identified by this process are only **potential contaminant sources (PCS)** to the drinking water. Environmental contamination is not likely to occur when potential contaminants are used and managed properly. In addition, assumptions were made about particular types of land uses and risks associated with those land uses. Assumptions are discussed further in the results portion of this report.

The process for completing the inventory included several steps, which are summarized as follows:

1. Reviewed readily available land use maps and historical/current aerial photographs.
2. Plotted relevant information from applicable state and federal regulatory databases including the following lists:
 - MDEQ leaking underground storage tank (LUST) sites;
 - MDEQ registered underground storage tank (UST) sites;
 - MDEQ Environmental Cleanup Site Information System (ECSI) sites;
 - MDEQ Source Information System (for water discharge permit sites including National Pollutant Discharge Elimination System (NPDES) permits, Water Pollution Control Facility (WPCF) permits, storm water discharge permits, and on-site sewage (septic) system permits);
 - MDEQ Underground Injection Control (UIC) database;
 - MDEQ Active Solid Waste Disposal Permits list;
 - Michigan Department of Transportation (MDOT) - Hazardous Materials database;
 - State Fire Marshall registry of above-ground fuel storage tank sites;
 - State Fire Marshall Hazardous Material Handlers and Hazardous Material Incidents (HAZMAT) sites;
 - U.S. EPA BASINS software, version 2.1.
 - U.S. EPA Envirofacts database;
 - U.S. EPA Resource Conservation Recovery Act (RCRA) generators or notifiers list;
 - U.S. EPA RCRA Treatment, Storage, and Disposal Facility (TSDF) Permits list;
 - U.S. EPA National Priorities List (NPL);
 - U.S. EPA Comprehensive Environmental Response, Compensation and Liability Information System (CERCLA) List;
 - U.S. EPA RCRA Corrective Action Activity List (CORRACTS);
 - U.S. Department of Transportation (DOT) Hazardous Materials Information Reporting System (HMIRS);

Ann Arbor Source Water Intake Critical Assessment Zone

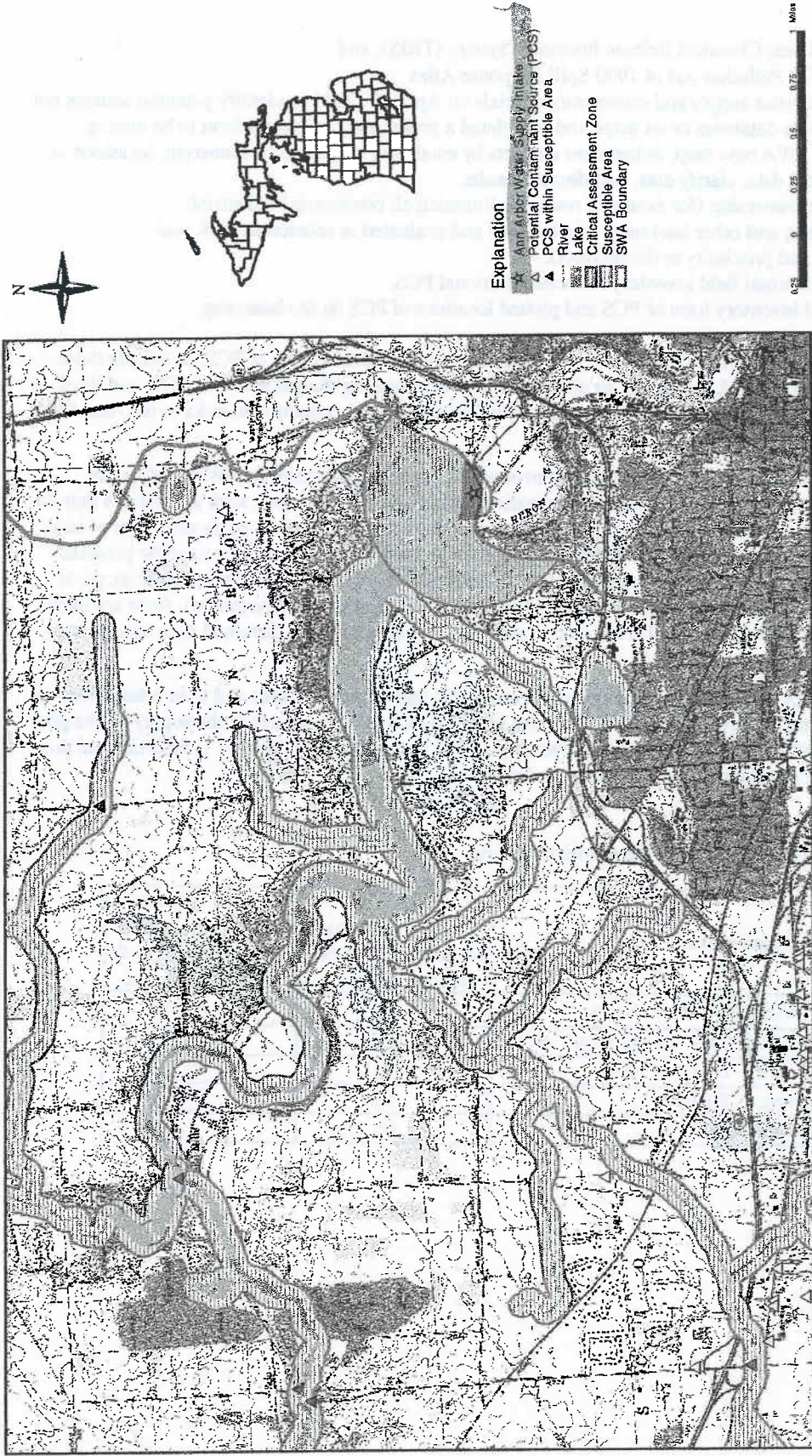


Figure 3. Critical assessment zone (CAZ) for the Ann Arbor water supply, Ann Arbor, MI.

- U.S. EPA Toxic Chemical Release Inventory System (TRIS); and
 - U.S. EPA Oil Pollution Act of 1990 Spill Response Atlas
3. Met with public water supply and community officials on April 27, 2001 to identify potential sources not listed elsewhere in databases or on maps and completed a preliminary inventory form to be used in completing the SWA base map. Subsequent contacts by email and telephone on numerous occasions to request additional data, clarify data, and discuss results.
 4. Land use and/or ownership (for example, residential/municipal; commercial/industrial; agricultural/forest; and other land uses) was mapped and evaluated in relation to PCS, soil characteristics, and proximity to the intake(s).
 5. Conducted an informal field inventory to locate additional PCS.
 6. Completed final inventory form of PCS and plotted locations of PCS on the base map.

The purpose of the inventory is three fold: first, to provide information on the location of PCS, especially those within the susceptible area; second, to provide an effective means of educating the public about PCS; and third, to provide a reliable basis for developing a management plan to reduce potential contaminant risks to the Ann Arbor water supply.

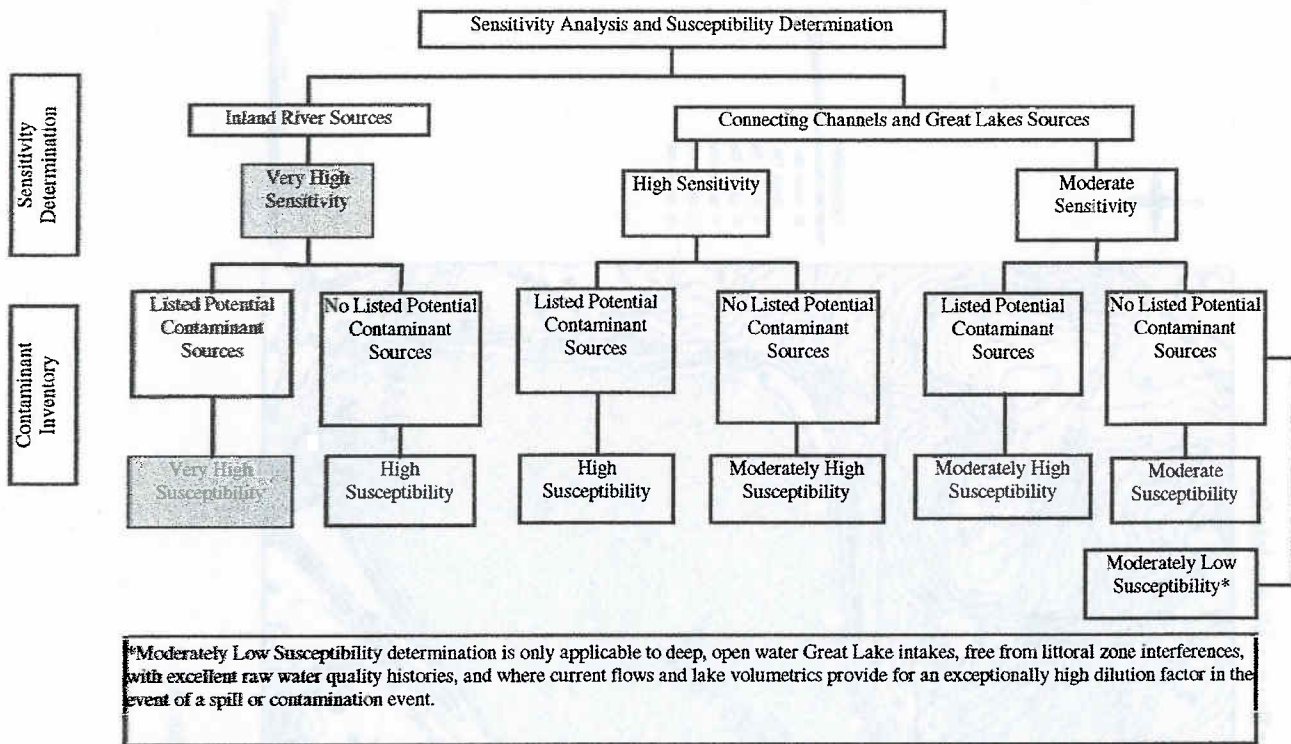
The inventory process attempts to identify potential point-source contaminants within the SWA. It does not include an attempt to identify specific potential contamination problems at specific sites, such as facilities that do not safely store potentially hazardous materials. However, assumptions were made about particular types of land use. For example, it is assumed that rural residences associated with farming operations have specific potential contamination sources such as fuel storage, chemical storage and mixing areas, and machinery repair shops. It should also be noted that although the inventory depicts existing agricultural uses (crops grown), these are likely to undergo continual change due to normal crop rotation practices. What is irrigated farmland now may be non-irrigated farmland next year, or vice versa.

The results of the inventory were analyzed in terms of current, past, and future land uses and their relationship to the susceptible area and the supply intake. In general, land uses and PCS that are closest to the supply intake pose the greatest threat to a safe drinking water supply. Inventory results are summarized in table 1, facilities and their locations listed in table 2 (appendix), and are shown on figure 4.

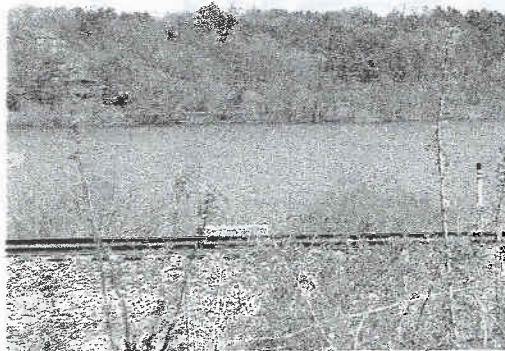
Table 1. Potential contaminant sources in the source water area

Type of potential contaminant source	Number of potential contaminant sources in the source water area	Number of potential contaminant sources in or discharging to the susceptible area
Hazardous or Solid Waste Site	494	43
Industrial Facilities Discharge Site	28	8
National Priority List Sites	6	0
Permit Compliance System	38	36
Toxic Release Inventory	45	4

Figure 4. Surface-water source sensitivity analyses and susceptibility determination for the Ann Arbor water-treatment plant source-water area.



Many PCS are readily identifiable because they have a single discharge point, and often a permit is required for these discharges. However, other PCS have diffused, poorly defined discharge locations. These are known as **non-point discharges** because they occur over large areas and may not be quantifiable by readily accepted methods. These non-point source discharges are difficult to identify and control, and consequently to quantify, yet they are a major source of water pollution (Carpenter and others, 1998). Non-point sources also include atmospheric deposition over water and land, and include urban, rural, and agricultural runoff from areas such as lawns, golf courses, farm fields, pastures, parking lots, and roadways. Runoff from these areas can contain many types of pollutants including sediments, metals, organic and inorganic chemicals, viral and bacterial pathogens, pharmaceuticals, and animal wastes. Transportation also represents a non-point source of contamination. Trucking and railroads transport potential contaminants through the SWA. An accident causing a spill could lead to potential contaminants entering a storm sewer, or in the case of rail transportation, directly to Barton Pond.



Railroad and Storm Sewer Outfall at Barton Pond

Non-point sources of concern to the Ann Arbor water supply are primarily from storm sewers and runoff from residential sources surrounding Barton Pond and from industrial, commercial, and residential sources in the SWA and communities upstream of Barton Pond. A railroad bridge at the upstream end of Barton Pond carries occasional train traffic. A road bridge crosses the pond upstream of the intake, and is used primarily for residential traffic to the community of Barton Hills. On the north shore of Barton Pond there are 18 storm drains that discharge to the pond, ranging in size from 6 in to 30 in (table 3, fig. 5), and 3 creeks, all draining the community of Barton Hills.

Storm Water Outfalls in Vicinity of Ann Arbor Source Water Intake



Figure 5. Location and size of storm drains to Barton Pond from Barton Hills, Ann Arbor, MI.

Contaminant Source Inventory for Ann Arbor Source Water Area

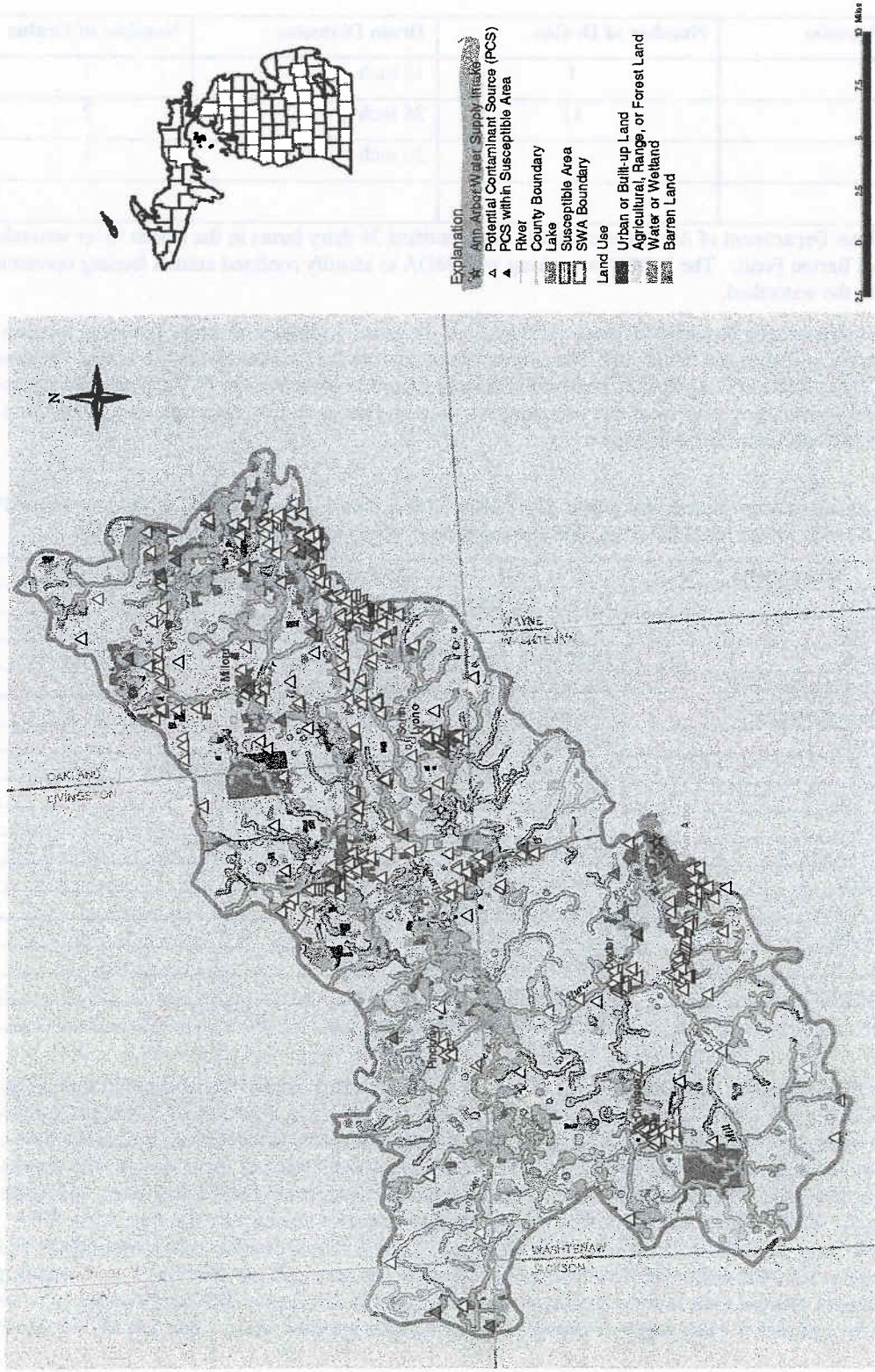


Figure 6. Contaminant source inventory for the Ann Arbor water supply source water area, Ann Arbor, MI.

Table 3. Storm drain size and numbers discharging to Barton Pond from Barton Hills

Drain Diameter	Number of Drains	Drain Diameter	Number of Drains
6 inch	1	18 inch	1
8 inch	11	24 inch	2
10 inch	1	30 inch	1
12 inch	1		

The Michigan Department of Agriculture (MDA) has identified 24 dairy farms in the Huron River watershed upstream of Barton Pond. The MDEQ is working with MDA to identify confined animal feeding operations (CAFOs) in the watershed.

The U.S. Environmental Protection Agency (USEPA) has identified 16 **impaired water bodies** in the Ann Arbor SWA on its Clean Water Act 303(d) list. The parameters of concern for the listed lakes (9), creeks (3), ponds (2), watershed (1) and drain (1) are E. coli, pathogens, fish consumption advisories for PCBs, poor rated macroinvertebrate communities, poor rated fish communities, mercury, and nutrients. Impaired water bodies and their parameters of concern are listed in table 4.

Table 4. Impaired water bodies in the Ann Arbor source water area as listed on the U.S. Environmental Protection Agency 303(d) list (FCA-PCB, fish consumption advisory for polychlorinated biphenyls).

Water body	Reason for listing (impairment)
Allen Creek	E. coli, pathogens (Rule 100)
Barton Pond	FCA-PCBs
Honey Creek	Pathogens (Rule 100)
Honey Creek (watershed)	Macroinvertebrate community rated poor
Horseshoe Lake Drain	Macroinvertebrate community rated poor
Gallup Pond	Pathogens (Rule 100)
Letts Creek	Fish and macroinvertebrate community rated poor
Portage Lake	Mercury
South Lake	Mercury
Whitmore Lake	FCA-PCBs
Bishop Lake	Mercury
Limekiln Lake	Nutrient enrichment
Brighton Lake	Nutrient enrichment
Ore Lake	Nutrient enrichment
Strawberry Lake	Nutrient enrichment
Kent Lake	FCA-PCBs, mercury

In general, PCS within the susceptible area pose greater risks than those outside the susceptible area. The presence of PCS within the SWA indicates potential sources of chemicals that could, if improperly managed or released, impact the water quality at the intake. Small quantities of these chemicals, in some cases less than a liter, can significantly affect the supply. Also of concern is the location and distribution of these sources with respect to highly permeable soils. The susceptible area consists of primarily agricultural land, urban areas, and wetlands. Overlaying the PCS locations and the rapidly to very rapidly permeable soil map for the Ann Arbor SWA indicates that more than 600 of the located PCS are located on or very near to areas with moderately to highly-permeable soils. All PCS within the SWA should be addressed; the susceptibility determination, however, provides the water supply with the tools to focus resources where the greatest risk occurs. The results of the PCS inventory performed for Ann Arbor water supply is shown on figure 6 and is summarized as a function of PCS locations

relative to the susceptible area. The inventory results indicate that there are 64 PCS, holding 76 permits for discharge, within the susceptible area (table 2).

Sensitivity Analysis

Sensitivity is the natural ability of a SWA to provide protection against the contamination of the water supply intake, and includes physical attributes of lakes, rivers, and soils. The sensitivity analysis requires consideration of several different variables related to the natural environment, for example:

- Water quality history of the source.
- Distribution of moderately to highly-permeable soils.
- Amount of available water from precipitation or runoff.
- Potential for runoff to affect the intake.
- Nature of the intake, including: depth, distance from shore, age, and materials used.
- Surface water flow patterns in vicinity of intake.

To perform this analysis, USGS, MDEQ, and the staff of the Ann Arbor WTP collected, researched, and analyzed information from the WTP, monthly operator reports, sanitary surveys, soil maps, published reports, and historical plant operation and raw water quality data. The Michigan SWAP has three categories of sensitivity for surface water sources ranging from moderately sensitive for deep, Great Lakes to very highly sensitive for inland river sources. Analysis of this information, using guidelines provided in Brogren (1999) and Sweat and others (2000, in press), indicates that the Ann Arbor intake is at the high end of this range or very highly sensitive (fig. 4). This means that the natural environment offers little protection against contamination of the water supply intake.

Susceptibility Determination

Susceptibility is the relative potential for contamination to reach the public water supply intake used for drinking water purposes. Whereas the sensitivity of a water supply is the natural ability of the area to protect the intake against contamination, the susceptibility determination also takes into account other factors that will affect whether a contaminant reaches the intake. Whether or not a particular drinking water source becomes contaminated depends on three factors:

- (1) The distribution of PCS;
- (2) The source water area; and
- (3) The natural protection, or sensitivity, of the source.

In conducting a susceptibility determination, the part of the SWA that yields water to the water supply-system intake is identified by establishment of the susceptible area within the source water area. PCS within the susceptible area are then located. Based on the distribution of PCS within the susceptible area, the type of PCS, and the nature of the chemicals they use or store, PCS are analyzed for the risk they may represent to the water supply intake. Along with the presence and distribution of PCS, the sensitivity analysis is then used to determine the susceptibility of the water supply (fig. 4). This leads to a determination of whether the drinking water source is moderately susceptible, highly susceptible, or very highly susceptible to contamination (Brogren, 1999; Sweat and others, in press). It is important to understand that a system can have low sensitivity relative to some conditions (for example, intake construction and location), and high susceptibility because of other conditions (for example, the type of PCS). In Michigan, surface water sources of drinking water range from moderately-low to very-high susceptibility.

When a public water supply is determined to have a moderate, high, or very high susceptibility because of a particular condition or set of conditions, there is a significant risk of contamination of the drinking water source because of that condition or set of conditions. Although the susceptibility determination does not predict when or if contamination will actually occur, it does recognize conditions that are highly favorable for contamination of the supply. In the event of a contaminant release to soils or surface water within the susceptible area, it is very likely that contamination at the intake would occur without completion of remedial actions.

If a public water supply's drinking water source is determined to be highly susceptible, it is recommended that the system identify the condition(s) that lead to the high susceptibility. Immediate steps should be taken to protect the source, and action should be considered to remedy the condition (for example, repairing or replacing faulty intake construction, working directly with facility operators to implement sound management practices, etc.).

All water supplies, regardless of their susceptibility, should consider identified factors that could lead to higher susceptibility in the future, and should prepare a strategy to protect the water supply source. Raising public awareness through signs and other education programs, encouraging proper intake construction and the use of best management practices in existing facilities are good ways of ensuring that a surface water source maintains its moderate susceptibility rating.

Summary and Recommendations

The actual susceptibility of the drinking water source of a water supply depends on a number of contributing factors, some of which are only slightly related. Sensitivity is determined from the natural setting of the source and identifies the natural protection afforded to the source water. Susceptibility is determined by identifying those factors within the community's SWA that may pose a risk to the source water. The susceptibility determination provides information with respect to facilities within the SWA or land areas within the SWA that should be given greater priority and oversight in the implementation of a drinking water protection program.

Sensitivity Analysis: Based on criteria adopted in the Great Lakes Protocol of the Michigan Source Water Assessment Program, the intakes at Barton Pond for the Ann Arbor Water Treatment Plant have a very high degree of sensitivity to potential contaminants.

Susceptibility Determination: The SWA for the Ann Arbor intake includes 76 listed potential contaminant sources within the susceptible area, 18 storm drains around Barton Pond, and recent detections of the metals chromium and aluminum in water from the Huron River and Barton Pond, plus urban, agricultural, and industrial runoff from the Huron River watershed. Combining these potential contaminant sources with the very highly sensitive intake yields a very highly susceptible determination for Ann Arbor source water (fig. 6).

Effective Treatment:

The results of this assessment and the recommendations based on these results are summarized as follows:

- **Intake** - The Ann Arbor Water Supply was originally constructed in 1885. The current intake was installed in 1905 and draws water from both an intake in a penstock in the Barton Pond Dam and from an intake 200 ft from shore, under about 20 ft of water (1924 datum), making both intakes very highly sensitive.
- **Soils** - Using a mean, area-weighted, depth-integrated permeability estimation, the soil and subsoil permeability in the SWA range from 0.2 in/hr to as much as 20.0 in/hr. The mean permeability is 5.0 in/hr (Schneider and Erickson, undated, series of 5 maps; BASINS, 1998; MIRIS, 2000). About three quarters of the soils in the Ann Arbor SWA are rapidly or very rapidly permeable. More than 600 PCS are located on these soils. These factors combine to make the SWA, and thus the intake, very highly sensitive. The community should take steps to evaluate current and future land use in areas of highly permeable soils, particularly those occurring within the susceptible area. Those PCS that have been identified either on or in close proximity to these soils should be informed of the sensitive nature of the area and encouraged to adopt best management practices designed to minimize the risk of a ground release. Residential areas that have been developed on these soils should be targeted for educational programs identifying steps that residents can take to protect the water supply.
- **Historical Contaminant Detections** - There have been occasional detections of atrazine and 2,4-D in the systems raw water. These detections are normally at very low concentrations (near the detection limits) and are primarily during summer. 2,4-D is used in some upstream lakes for weed control.

Inorganic contaminants are typically at source-water background levels. Nitrate concentrations are routinely about 0.5 milligrams per liter (mg/L), although there are occasional nitrate detections up to 1 mg/L during the spring and early summer.

Positive coliform bacteria detections often occur with snowmelt, spring runoff, and discharge from the Huron River above median flow. The continuous presence of coliform bacteria is indicative of a relationship between runoff and soil conditions, causing the occasional presence of bacteria at detectable levels in the source water. These detections are also associated with the lowering of the Portage settling ponds. The Ann Arbor WTP is notified when the ponds will be lowered.

Turbidities of 60 to 70 NTU are sometimes measured during storms. They are usually of short duration, and usually associated with winter storms, lasting no more than 2 to 3 days. Background turbidity is usually in the range of 2 to 3 NTU.

These factors indicate that the SWA, and thus the intake, is very highly susceptible.

- **Sanitary Survey** - The most recent sanitary survey (Feighner and Wade, 1999) revealed only minor defects. Those requiring repair either have been corrected or are scheduled for repair. It is important that the water supply continue to follow good management practices.
- **Potential Contaminant Sources** - A review of the PCS inventory and the rapidly and very rapidly permeable soil distribution indicates that the Ann Arbor SWA has more than 600 PCS located on rapidly permeable soils. Within the susceptible area, there are 74 PCS with 91 discharge permits. In addition, there are 18 storm drains and 3 creeks draining the Barton Hills subdivision on the north side of Barton Pond. It is recommended that the community focus initially on PCS that are within the susceptible area as they pose the greatest potential threat to the water supply. These facilities should be made aware of free technical assistance that is available through MDEQ's pollution prevention programs. Through chemical inventory, waste reduction, and by increasing awareness of best management practices, the risk these facilities pose to source waters can be reduced. The PCS inventory indicates that the source is very highly susceptible.
- **Source Water Assessment** - The Ann Arbor source water assessment is based on these site-specific parameters:
 1. Definition of a Critical Assessment Zone around both intakes for a very highly sensitive source;
 2. Definition of a SWA for Barton Pond, the Huron River, and shoreline near the intake;
 3. Flow duration and discharge in the Huron River upstream of the intake, and the effects of upstream contaminant discharges on the source water quality; and
 4. Listed and nonlisted potential contaminant sources.
- **Source Water Protection** - The City has initiated source water protection activities with an Industrial Pretreatment Program incorporating management plans, chemical containment, and spill response, spill response training, and an aggressive street cleaning program.

The Ann Arbor WTP and/or the community should assemble a team to assist in the development and implementation of a source water protection program that uses this assessment to further protect the Ann Arbor source water area.

Selected References

- Berg, Clara, 1990, Barton Pond - A water quality profile for the Ann Arbor Water Treatment Plant: June, July, August 1990: Department of Environmental and Industrial Health, School of Public Health, University of Michigan, Ann Arbor, Michigan, November, 1990, 86 p.
- Black and Veatch, Consulting Engineers, 1960, A report on waste disposal and water use in the down-stream portion of the Huron River: Kansas City, MO.
- Blumer, S.P., Behrendt, T.E., Ellis, J.M., Minnerick, R.J., LeuVoy, R.L., and Whited, C.R., 2000, Water Resources Data Michigan Water Year 1999: Water-Data Report MI-99-1, 365 p.
- Borchardt, T.A., 1958, The results of one year's observations of some chemical and biological characteristics of the Huron River: University of Michigan consulting report for the City of Ypsilanti, MI: Ann Arbor, MI.
- Borton, T.E., 1974, Planning perspectives on water resources: Washtenaw County, Michigan: Washtenaw County Planning Commission report MIP-357-384-3, 69 p.
- Bowman, W.D., undated, University of Michigan term paper on the Huron River Watershed.
- Brater, E.F. and Wylie, E.G., 1971, Hydrologic study of the proposed Mill Creek Dam and Lake: Huron-Clinton Metropolitan Authority. Summary of a number of factors relating to the hydrology of the Mill Creek drainage basin above Guenther Road, including a study of the effect of the proposed lake on the upstream land used and drainage on the downstream flow, and on the water table in the vicinity of the lake.
- Carpenter, S.R., Caraco, N.F., Correll, D.L., Howarth, R.W., Sharpley, A.N., and Smith, V.H., 1998, Nonpoint Pollution of Surface Waters with Phosphorus and Nitrogen, Ecological Applications, 8:3, 559-568.

- City of Ann Arbor Water Utilities, 2000, 1999 Drinking water quality report, Ann Arbor, Michigan, 8 p.
- , 2001, 2000 Drinking water quality report, Ann Arbor, Michigan, 8 p.
- , 2001, Water filtration plant World Wide Web site, URL <http://www.ci.ann-arbor.mi.us/framed/Utilities/index.html>, accessed 10 July 2001.
- Feighner, Bryce and Wade, Molly, 1999, The City of Ann Arbor water treatment plant and distribution system sanitary survey: Michigan Department of Environmental Quality Drinking Water and Radiological Protection Division Field Operations Section, 97 p., 15 appendices.
- Fleck, W.B., 1980, Geology and hydrology for environmental planning in Washtenaw County, Michigan: U.S. Geological Survey Open-File Report, Lansing, MI, 23 p.
- Fulton, J.K., 1971, Inland Lakes – Analysis and action: Huron River Watershed Council. Illustrated explanation of lake-related environmental concepts, and suggested action items, glossary, and bibliography.
- Fulton, J.K., Say, E.W., and Bletcher, T.E., Inland Lakes – Reference Handbook: Huron River Watershed Council. Discussion of factors impacting lakes, lake problems, and proposed citizen actions.
- Gannon, J.J., 1974, Mill Creek Water Quality Investigation: Huron-Clinton Metropolitan Authority. Describes long-term evaluation of the water quality of the Mill Creek study Area. Preliminary results are presented and analyzed, and implications discussed for the proposed HCMA park impoundment.
- Holland, J.M., and Smit, R.J., 1966, Water supply and sanitary sewerage systems for Washtenaw County, Michigan: Ayers, Lewis, Norris, and May, and McNamee, Porter and Seeley, Consulting Engineers, Ann Arbor, MI, 124 p.
- Huron River Watershed Council, 1973, Huron River Creeksheds: Data resource inventory, prepared by the Huron River Watershed Council for the Creekshed Project. Bibliography and matrices correlating selected parts of the creekshed system with sources of data indexed in the bibliography.
- Kunkle, G.R., 1960, The ground-water geology and hydrology of Washtenaw County and the upper Huron River Basin: Unpublished Ph.D. Dissertation, University of Michigan.
- , 1961, The ground-water geology and hydrology of Washtenaw County and the upper Huron River Basin, Michigan: Washtenaw County Planning Commission, Ann Arbor, MI, 247 p.
- Lewis, Norris and May, Inc, 1966, Water supply and sanitary systems for Washtenaw County, Michigan: Review of existing and future water supply and sanitary sewerage needs of the County with recommendations and preliminary cost estimates.
- Limno-Tech, Inc., 2000, Barton Pond bathymetric survey: Report to the Ann Arbor Water Treatment Plant, Limno-Tech, Inc., Ann Arbor, Michigan, 2 p., 2 illustrations.
- Lusch, D.P., Rader, C.P., Barrett, L.R., and Rader, N.K., 1992, Aquifer vulnerability to surface contamination in Michigan: Center for Remote Sensing and Department of Geography, Michigan State University, East Lansing, MI, scale 1:1,500,000.
- Martin, H.M., 1955, Map of the surface formations of the southern peninsula of Michigan: Michigan Geological Survey, Department of Conservation, Publication 49, scale 1:500,000, 2 sheets.
- McNamee, R.L., 1930, The Surface Waters of Michigan: University of Michigan Engineering Institute, Publication #16, Ann Arbor, MI. Ten-year investigation of potential public water supply sources in Michigan. Includes data for the Huron River Basin including topography, geology, meteorology, population, water quality, industrial waste load, and river discharge.
- McNamee, Porter and Seeley, Inc., and Metro Engineers, Inc., 1973, Report on wastewater management for Washtenaw County: Washtenaw County Board of Public Works. Report describing alternatives for wastewater management, including costs and implications for water quality and flows.
- Meier, P.G., Cleckner, L.B, and Tavers, David, 1994, Final Report – An aquatic study of Barton Pond with emphasis on the aquatic macrophytes: Institute of Environmental and Industrial Health, The School of Public Health, The University of Michigan, Ann Arbor, Michigan, February 8, 1994, 38 p., 2 appendices.
- Michigan Department of Environmental Quality, 1999, State of Michigan Source Water Assessment Program, 153 p.
- Michigan Department of Natural Resources, 1993, A biological survey of the Huron River and selected tributaries, Oakland, Livingston, Washtenaw, and Wayne counties, June-October, 1992: Staff report, Surface Water Quality Division, March, 1993, Lansing, Michigan, Report MI/DNR/SWQ-93/021, 31 p.

- Michigan Water Resources Commission, 1957, Water resource conditions and uses in the Huron River Basin: Department of Natural Resources. Analysis of water resource conditions and uses in the Huron River basin with emphasis on methods to improve the lower Huron River for water supply and waste disposal purposes.
- , 1968, Summary of water quality standards for designated use areas in Michigan interstate waters: Department of Natural Resources. Summary of interstate standards, water use designations, and plans of implementation for major interstate waters in Michigan.
- Miller, J.B. and Twenter, F.R., 1986, Michigan surface-water resources, *in* U.S. Geological Survey, National Water Summary 1985—hydrologic events and surface-water resources: U.S. Geological Survey Water-Supply Paper 2300, p. 277-284.
- Milstein, R.L., compiler, 1987, Michigan sesquicentennial, 1837-1987, bedrock geology of southern Michigan: Michigan Department of Natural Resources, Geological Survey Division, scale 1:500,000.
- MIRIS, 2000, Michigan Resource Information System: Michigan Department of Natural Resources, Land and Water Management Division, 2 compact discs, as updated.
- National Oceanic and Atmospheric Administration, 1999, Climatological Data, Michigan: U.S. Department of Commerce, 113:13.
- Rheaume, S.J., 1991, Hydrologic provinces of Michigan: U.S. Geological Survey Water-Resources Investigation Report 91-4120, 73 p., 1 plate, scale 1:500,000.
- SEMCOG, 1971, Southeast Michigan regional water sewerage and storm drainage facilities and plans: Southeast Michigan Council of Governments, November. Regional plan for water supply and sanitary sewer and sewage treatment facilities.
- State of Michigan, 1984, Report to the City Administrator transmitting analytical results of composited sediment samples from Barton Pond: Toxic Substance Control Commission, James W. Bedford, Lansing, Michigan, August 10, 1984, 9 p.
- , 1984, Interpretation of heavy metal analysis of Barton Pond sediment: Toxic Substance Control Commission, James W. Bedford, Lansing, Michigan, September 13, 1984, 5 p.
- Sweat, M.J., Erickson, P.M., and Brogren, B.B., 2000, The Michigan Source Water Assessment Program for Evaluation of Public Surface Water Supplies, *in* Bryant, Jeff, ed., NWQMC National Monitoring Conference 2000: Monitoring for the Millennium, Austin, TX, April 25-27, 2000.
- Sweat, M.J., Brogren, B.B., Jodoin, R.S., Rossi, T.A., and Loerop, M.A., 2002, Michigan's Source Water Assessment Program -- Surface Water Assessments Leading to Protection Initiatives, *in*, Proceedings of Watershed 2002: Water Environment Federation International Conference, February 23-27, 2002, Fort Lauderdale, FL, 28 p. (also MDEQ Source Water Assessment Report 22)
- Sweat, M.J., Brogren, B.B., Jodoin, R.S., and Rossi, T.A., *in press*, A source water assessment program for evaluation of public water supplies using surface water sources in Michigan: U.S. Geological Survey Water Resources Investigations Report 01-xxxx, xx p (also MDEQ Source Water Assessment Report 8)
- Twenter, F.R., Knutilla, R.L., and Nowlin, J.O., 1976, Water resources of Washtenaw County, Michigan: Washtenaw County Planning Commission, 143 p., 43 figs., 18 tables.
- U.S. Army Corps of Engineers, 1965, Status of Mill Creek Reservoir studies: Correspondence from the Detroit Army Corps of Army Engineers Office, March 1965.
- U.S. Department of Agriculture, *in press*, Soil survey of Washtenaw County, Michigan:
- , 1982, Soil survey of Oakland County, Michigan: 167 p., 135 sheets.
- , 1992, Soil survey of Ingham County, Michigan: 149 p., 84 sheets.
- , 1993, Soil survey of Livingston County, Michigan: 92 p., 44 sheets.
- , *in press*, Soil survey of Jackson County, Michigan:
- U.S. Environmental Protection Agency, 1983, Final report of the Nationwide Urban Runoff Program: Executive Summary: Water Planning Division, Office of Water Program Operations, 37 p.
- , 1983, Nationwide Urban Runoff Program: Ann Arbor – Michigan: Region V, EPA, Section G, pp 15-1 – 15-28.
- , 1983, Results of the Nationwide Urban Runoff Program: Volume I – Final Report: Water Planning Division, U.S. Environmental Protection Agency.
- , 1998, Better assessment science integrating point and nonpoint sources: BASINS Version 2.0. EPA 823-B-98-006, variably numbered.
- U.S. Geological Survey, 1974, Hydrologic unit map—1974, State of Michigan: scale 1:500,000, 2 sheets.

- , 1982, Codes for the identification of hydrologic units in the United States and the Caribbean outlying areas: U.S. Geological Survey Circular 878-A, 115 p.
- University of Michigan, 1960, Drought flow of Michigan streams: School of Public Health, University of Michigan, School of Public Health, Ann Arbor, MI.
- , 1964, Survey of Huron River, Geddes Pond: Department of Environmental Health Sanitary Field Survey, Student report for Environmental Health 669, Ann Arbor, MI.
- , 1965, Survey of Huron River – Barton and Argo Ponds: Department of Environmental Health, School of Public Health. Interpretation of basic water quality parameters along this section of the Huron River.
- , 1965, Survey of Huron River – Dexter to Argo Pond, Ann Arbor: Department of Environmental Health, School of Public Health, report by students enrolled in Environmental Health 669, Sanitary Field Survey, Ann Arbor, Michigan, 28 p.
- , 1971, Huron River water quality study – Dexter to Barton Dams: Department of Environmental and Industrial Health, Water Quality Program, School of Public Health. Interpretation of basic water quality parameters along this section of the Huron River.
- Veatch, J.L., Wheeting, L.C., and Baner, Arnold, 1930, Soil survey of Washtenaw County, Michigan: U.S. Department of Agriculture, Ser. 1930, no. 21, 47 p.
- Washtenaw County Health Department, 1974, The environment of Washtenaw County: Report summarizing data on environmental conditions in the County, including surface water quality, wastewater treatment, air quality, water supply, and housing and refuse problems.
- Washtenaw County Planning Commission, 1953, Washtenaw Resource Inventory – Part I, Study of Agriculture. Report containing data and maps of land types, topographic features, agricultural land sustainability, and trends in land use. County summaries and individual township descriptions are included.

GLOSSARY

- Critical Assessment Zone (CAZ)** – the area from the intake structure to the shoreline and inland, including a triangular water surface and a land area encompassed by an arc from the endpoint of the shoreline distance on either side of the on shore intake pipe location
- Geographic Information System (GIS)** – a system to capture, store, update, manipulate, analyze, and display all forms of geographically referenced information
- Impaired water bodies** -
- Intake** – the point at which source (raw) water is drawn into a pipe to be delivered to a water treatment plant
- Lignins** – an amorphous, cellulose-like, organic substance that acts as a binder for the cellulose fibers in wood and adds strength and stiffness to cell walls
- Maximum Contaminant Level (MCL)** – the maximum permissible level of a contaminant in water that is delivered to any user of a public water system
- Potential Contaminant Sources (PCS)** – listed and non-listed agricultural sites, businesses, and industries that have the potential to cause contaminants to be introduced into source water
- Sensitivity** – a measure of the physical attributes of the source area and how readily they protect the intake from contaminants
- Source** – the water body from which a water supplier gets its water
- Source Water Area (SWA)** – the land and water area upstream of an intake that has the potential to directly influence the quality of the water at the intake
- Source Water Assessment Program (SWAP)**– in Michigan, the process defined by the state Department of Environmental Quality to complete assessments of all the state's public water supplies
- Susceptibility** – the Susceptibility identifies factors that may pose a risk within the community's source water area
- Susceptible Area** – the area defined by the critical assessment zone and a buffer on either side of any drainages that contribute water to an intake
- Synthetic Organic Contaminants (SOC)** – Manmade organic chemical compounds such as pesticides, etc.
- Tannins** – naturally occurring phenolic compounds that precipitate proteins, alkaloids, and glucosides from solution that has a yellowish appearance
- Volatile Organic Contaminants (VOC)** – Unnatural, volatile organic chemical compounds such as gasoline components, solvents, degreasers, etc.

APPENDIX

Table 2. Potential contaminant source inventory results for the Ann Arbor SWA susceptible area.

Site Name	City	ID Number	Reason for Permit	Reason for Listing as Potential Contaminant Source
PINCKNEY STP	----	MI0000259	Process, Treatment, and Waste Water	Industrial Facilities Discharge Site
SOUTH LYON WWTP ^a	SOUTH LYON	MI0020273		
CHELSEA WWTP ^b	CHELSEA	MI0020737		
DEXTER WWTP ^c	DEXTER	MI0022829		
MILFORD WSTWTR TRMT PLT ^d	MILFORD	MI0023604		
OAKLAND CO DPW-SUB KNOLLS WWTP ^e	PONTIAC	MI0023728		
OAKLAND CO DPW-WIXOM WWTP ^f	WIXOM	MI0024384		
SOUTH COMMERCE TWP WWTP	WALLED LAKE	MI0025071	Waste Water, Dust, and Process Water	Permit Compliance System
MCPHERSON OIL CO	PINCKNEY	MI0046353		
CHRYSE-CHelsea PROVING GROUNDS	CHELSEA	MI0046540		
OAKLAND CO DPW-SUB KNOLLS WWTP ^e	HIGHLAND TWP	MI0023728		
OAKLAND CO DPW-WIXOM WWTP ^f	WIXOM	MI0024384		
MASCOTECH TUBULAR PROD	HAMBURG	MI0043737		
THETFORD CORP-DEXTER	DEXTER	MI0036951		
MILFORD WWTP ^d	MILFORD //	MI0023604		
WOODBRIIDGE FOAM	WHITMORE LAKE	MI0003212		
GM-PROVING GROUNDS-MILFORD ^g	MILFORD //	MI0001911		
QUANEX CORP-MICH SEAMLESS TUBE	SOUTH LYON	MI0001902		
PITTSFIELD PRODUCTS-ACO DIV	PINCKNEY	MI0048534		
SWEEPSTER JENKINS EQUIPMENT CO ^h	DEXTER	MI0045934		
DEXTER AUTOMATIC PROD-BISHOP ⁱ	DEXTER	MI0046655		
WAKELAND-BRIGHTON-W GRD RIVER	BRIGHTON	MI0052132		
HOP-IN OF MICH-WHITMORE LAKE ^j	WHITMORE LAKE	MI0053341		
FARMERS PETROLEUM-HIGHLAND	HIGHLAND TWP	MI0048381		
BRIGHTON WTP	BRIGHTON	MI0047074		
CHELSEA WFP	CHELSEA	MI0004804		
COMMERCE TWP WWTP	WALLED LAKE	MI0025071		
SOUTH LYON COMMUNITY SCHOOLS	SALEM	MI0027081		
SOUTH LYON WWTP ^a	SOUTH LYON	MI0020273		
SUPERAMERICA-ANN ARBOR	ANN ARBOR	MI0049956		
WHITMORE LAKE SCHOOLS	WHITMORE LAKE	MI0045691		
GELMAN SCIENCES INC ^k	ANN ARBOR	MI0048453		
NORTHFIELD TWP WWTP	WHITMORE LAKE	MI0023710		
LOCH ALPINE SA-SCIO-WEB WWTP ^l	ANN ARBOR	MI0024066		
CHELSEA WWTP ^b	CHELSEA	MI0020737		
DEXTER WWTP ^c	DEXTER	MI0022829		
DEXTER WFP	DEXTER	MI0038504		
NORTH ARBOR PARK MHP WWTP	ANN ARBOR	MI0043575		

Table 2. Potential contaminant-source inventory results for the Ann Arbor SWA susceptible area -- continued

Site Name	City	ID Number	Reason for Permit	Reason for Listing as Potential Contaminant Source
DANDY OIL CO-BRIGHTON	BRIGHTON	MI0049158	Waste Water Dust, and Process Water	Permit Compliance System
BARRINGTON CHEM CO	WILLIAMSTON	MI0042480		
GM-PROVING GROUNDS-GWCU ^g	MILFORD N/I	MI0053554		
BRIGHTON WWTP	BRIGHTON	MI0020877		
NOVI VILLAGE MHP WWTP	NOVI	MI0054143		
GPCO-FREEDOM GAS CO	MANCHESTER	MI0002038		
WIXOM SEWAGE DISPOSAL PLANT	WIXOM	MID000776112	On-Site Storage	Hazardous or Solid Waste Site
DEXTER AUTOMATIC PRODUCTS CO DAPCO IND ⁱ	DEXTER	MID005338611		
GELMAN SCIENCES INC ^k	ANN ARBOR	MID005341813		
DEDOES INDUSTRIES INC	WALLED LAKE	MID006006589		
WILLIAMS INTERNATIONAL ^m	WALLED LAKE	MID006401970		
PETRO LUBE INC	WHITMORE LAKE	MID018998971		
KAISER OPTICAL SYSTEMS INC	ANN ARBOR	MID037744919		
KELSEY HAYES MILFORD PLANT ⁿ	MILFORD	MID053347456		
ABS BODY AND FRAME SHOP	ANN ARBOR	MID058801408		
MILLMET INC ^o	BRIGHTON	MID074250275		
OAKLAND TECH CTR SW CAMPUS	WALLED LAKE	MID091949743		
DONS BODY SHOP	WHITMORE LAKE	MID095401998		
A AND M RESTORATIONS	ANN ARBOR	MID106753965		
COUNTRY FRESH DRY CLEANERS	BRIGHTON	MID113060958		
FAB-MART	WALLED LAKE	MID125817858		
SPEARHEAD DEVELOPMENT TECH	WALLED LAKE	MID175211713		
STOCKBRIDGE AUTO SUPPLY INC	STOCKBRIDGE	MID981960180		
SWEEPSTER JENKINS EQUIP CO ^h	DEXTER	MID982608473		
AMERICAN TRUCK CUSTOMIZING	PINCKNEY	MID982623266		
MATPEX INC	DEXTER	MID985567247		
MOBIL OIL CORP	ANN ARBOR	MID985573591		
CHELSEA VILLAGE OF	CHELSEA	MID985575927		
SPEEDWAY 2367	WALLED LAKE	MID985595941		
MILFORD STANDARD SVC INC 5214	MILFORD	MID985611813	On-Site Storage	Hazardous or Solid Waste Site
HOP IN FOOD STORES ^j	DEXTER	MID985620657		
HOP IN FOOD STORES ^j	WHITMORE	MID985620681		
CORKYS CAR CLINIC	BRIGHTON	MID985625235		
DEPT OF PUBLIC WORKS	SOUTH LYON	MID985632371		
SAKE SALES INC	MANCHESTER	MID985635564		
GT SPECIALTY FASTNERS	WALLED LAKE	MID985636554		
DIETRICH SHELL INC	UNION LAKE	MID985649755		
MOELLER MFG CO INC WIXOM PLT	WIXOM	MID985650936		
POHL WALTER	WHITE LAKE	MID985655927		
TUSHIS STEVE DECORATING	HIGHLAND TWP	MID985658327		

Table 2. Potential contaminant-source inventory results for the Ann Arbor SWA susceptible area -- continued

Site Name	City	ID Number	Reason for Permit	Reason for Listing as Potential Contaminant Source
KWIK PHOTO 1 HR	MILFORD	MID985611813	On-Site Storage	Hazardous or Solid Waste Site
CHRYSLER CORP INTROL DIV	ANN ARBOR	MID990760100		
MHT CORP	MILFORD	MI0000018507		
LOCH ALPINE SA SCIO WEB WWTP ^l	ANN ARBOR	MI0000052670		
RAYS LANDSCAPING AND NURSERY INC	WALLED LAKE	MI0000071845		
QUALITY FUELS INC	WHITE LAKE	MI0000274571		
UNIFLEX INC	BRIGHTON	MIR000001511		
CLARK STORE #1947	BRIGHTON	MIR000004655		
MOBIL OIL CORP WHITE LAKE	WHITE LAKE	MIR000008003	Release or Manufacture of Toxic Compounds	Toxic Release Inventory
GELMAN SCIENCES INC. ^k	ANN ARBOR	MID005341813		
KELSEY-HAYES CO. ⁿ	MILFORD	MID053347456		
MILLMET INC. ^o	BRIGHTON	MID074250275		
WILLIAMS INTL ^m	WALLED LAKE	MID006401970		