SECTION C
Proposed Work Plan

C. Proposed Work Plan

1. Project Approach:

Arcadis uses an enterprise project management system for consistent delivery worldwide. The system provides industry standard best practice methodologies and tools for monitoring and control of schedule, resources, budget, scope, and quality to facilitate the delivery of superior consulting services and work products, regardless of work type or location.

DEFINE	Understand the Client's Expectations Know the Contract and Scope of Work Define the Project Requirements – Deliverables - Schedule
PLAN	Meet Client Expectations Meet Scope and Contract Objectives Achieve Budget Goals Develop a Work Plan for Each Task: Work Activities – Approach – Delivery Communicate the Plan to the Team: Assignments and Schedules
CONTROL	Perform Monthly and Quarterly Milestone/Reviews Follow the Plan and Meet Objectives Implement the QA/QC Plan

Arcadis' Project Manager, Gwen Kubacki, will be responsible for directing all project management activities and will serve as liaison to the City of Ann Arbor. Gwen will develop the Project Management Plan (PMP), in collaboration with the City's Project Manager, and then oversee a coordinated and effective execution of the work in accordance with the approved PMP.

Our PMP approach integrates rigorous project management with timely communications and effective quality controls to provide the City of Ann Arbor the following benefits:

- **Effective management of schedule, resources, budget and risk.** Our **Work Plan** incorporates a Schedule and Work Breakdown Structure detailing the schedule and resource allocation to the sub-task level from all team members.
- **Clear and concise communications with all stakeholders.** Our comprehensive Communication Plan ensures timely delivery of the right information to the right project participants and stakeholders. Project communication will be supported by a secure Project Collaboration Site to be provided via SharePoint®. An important component of the overall Communication Plan is the Issues Tracking List, which captures and tracks resolution to any open questions or action items.

- **Highest-quality data and deliverables to support effective planning.** A Data and Information Plan provides policies and procedures for effective management, use and turnover of all project information and data. A dedicated Quality Plan ensures that all project data acquisition has independent quality assurance validation, and all analyses and deliverables receive quality control review prior to presenting to the City of Ann Arbor. Our PMP will provide monthly project status meetings and reports including; task completions relative to schedule and budget, the status of all deliverables, a summary of all quality activities performed, any updates to the issues tracking list. Table C.1 summarizes the Work, Quality, Communication and Information components of the overall PMP, along with the status reports and update frequency to be provided to the City of Ann Arbor.

Table C.1 Overview of the Project Management Plan

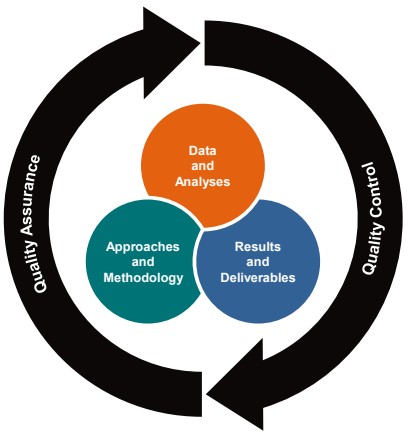
PMP Component	Status Reporting Summary
Work Plan work breakdown structure with schedule, definition of all task deliverables and risk register.	• Monthly progress reports, schedule updates and status meetings.
Quality Plan identifying the QA/QC procedures and responsibilities for all project elements: data, analyses and deliverables.	• Monthly updates of QA/QC activities included with the progress report.
Communication Plan detailing the protocols to be used for routine project communication, engagement with outside stakeholders (if required) and for tracking issues and action items to resolution.	• Weekly update of Issues Tracking List. • Continuous update and management of the secure SharePoint® portal.
Information Management Plan policies and procedures to manage, control, share and ultimately turn over to the City all project data and information.	• Monthly status updates included with the progress report.

Work Breakdown Structure and Schedule. Arcadis' enterprise project management system uses Oracle's technology platform for development of the work breakdown structure (WBS) and schedule.

Our WBS and schedule indicate the key work items, durations, and resources necessary to complete all required services. The WBS and schedule will be reviewed and finalized with the City of Ann Arbor as part of the project initiation and will set the baseline cost-loaded schedule. Establishing the WBS at the appropriate level provides clear direction for Task Leaders and greatly facilitates the allocation and management of technical resources to complete activities in a logical and coordinated sequence. Using our Oracle enterprise tools, work and overall delivery can then be managed to the baseline for each activity indicating status, percent complete, remaining duration, budget expended and estimate to complete. Identifying the need for logic updates (changes in work activity sequencing or relationships) or altering of resources to meet shifting demands is more transparent, easier to anticipate and faster to implement.

Proactive management via the WBS results in effective project controls for scope, schedule and budget. Our Oracle enterprise project management tools provide automated notifications, on-demand access, pre-scheduled reports and fully customized reporting to give our Project Manager and Task Leaders the insight and flexibility to keep the overall delivery on track. Gwen will provide the City of Ann Arbor monthly status updates with transparent reporting, including summary dashboards, detailed task level information and updates of the cost-loaded schedule relative to baseline, to demonstrate schedule and budget performance.

Quality Assurance and Quality Control (QA/QC). Arcadis understands the value of robust QA/QC, particularly for source water and well water protection plans that the City relies upon for clean, uncontaminated drinking water. Our Quality Plan provides a proven approach with expert attention to optimize both the assurance and control aspects of an effective program:



- **Quality Assurance.** Dedicated technical advisors to provide meaningful insight and advice across the full project life-cycle, data, methodologies, analyses and deliverables.
- **Quality Control.** Policies and procedures to ensure timely and comprehensive reviews – not only for potential errors and omissions, but also style and presentation. All deliverables, whether print or electronic, must be complete, correct and meet the needs of the intended audience.

The Quality Plan is tightly integrated into the WBS such that reviews are initiated at the appropriate work item level. For example, when a Technical Memo is reviewed, any underlying data collection and key analyses will have already been reviewed as identified by the WBS. Integrating QA/QC with the WBS makes certain technical experts are notified in advance and are prepared to complete timely reviews. The Quality Plan also includes a Responsibility Assignment Matrix (RAM) to assign the responsible, informed team member for each deliverable. The RAM assignments provide clarity for the QA/AC team to know who needs to be involved and in what capacity when technical reviews are initiated.

Your Project Manager, Gwen Kubacki, will review the status and outcomes of QA/QC reviews with the City of Ann Arbor at the monthly progress meetings and the detailed status will be part of the monthly schedule updates.

Project Schedule

Our project team knows the value of delivering this project for the City of Ann Arbor within budget and on time. This will be accomplished by actively controlling, forecasting and managing time, resources and project risks. Our team will monitor the schedule throughout the project and review the actual work status on a monthly basis. We will address project schedule issues well in advance of actual scheduled work. This proactive schedule review process prevents delays and keeps the project on track.

Data and Information Management – How and When Data will be Delivered to the City

The Information Management Plan, part of the Project Management Plan, will define the policies and procedures to catalog, manage, control, share and turn over to the City of Ann Arbor all the data and information (print media and electronic based) used and created on the project.

Effective data management is important for project success. We will establish standardized formats to catalog, manage, control and file information generated by Arcadis. The Information Management Plan will be developed with the City of Ann Arbor and will include the following:

- Naming conventions for documentation to cover version controls.
- Templates to be used for data collection — either paper based or electronic as required.
- Procedure for verifying integrity of information being supplied.
- Standards for electronic data management (GIS, spreadsheet, database) including software versions, formats and documentation.
- Security and access of documentation and information.
- Information flows and workflow.
- Approach to reviewing and improving information quality.
- When electronic and hard copied information will be delivered to the City of Ann Arbor.
- Who the information will be addressed to at the City of Ann Arbor.
- Planned deliveries to the City will be part of the detailed schedule and WBS.

Ultimately, all project data and information will be turned over to the City of Ann Arbor — either in print media or electronic format as defined by the Information Management Plan. The status of data deliverables will be reviewed monthly with the City at the progress meeting.

Communication Plan and Coordination with City of Ann Arbor Staff

Arcadis provides a highly collaborative process emphasizing the optimum involvement of the City of Ann Arbor staff in workshops, reviews of data, analyses, key decisions and deliverables. Gwen will assure that all involvement of city staff is identified early in the planning process such there are no surprises and individuals can set their schedules to participate fully.

- The **Communication Plan** within the overall PMP will identify the stakeholders and the type and frequency of required communication across all project activities.
- The **Issues Tracking List** facilitates the proactive identification and resolution of task specific issues, which if left unattended, could potentially impact scope, budget or schedule. The List will be updated weekly via the SharePoint® secure project portal.
- Our SharePoint® secure project portal is not simply a “repository,” but a proactively managed collaboration hub to ensure all team members, including the City of Ann Arbor, have access to the data and information necessary to effectively execute the work.

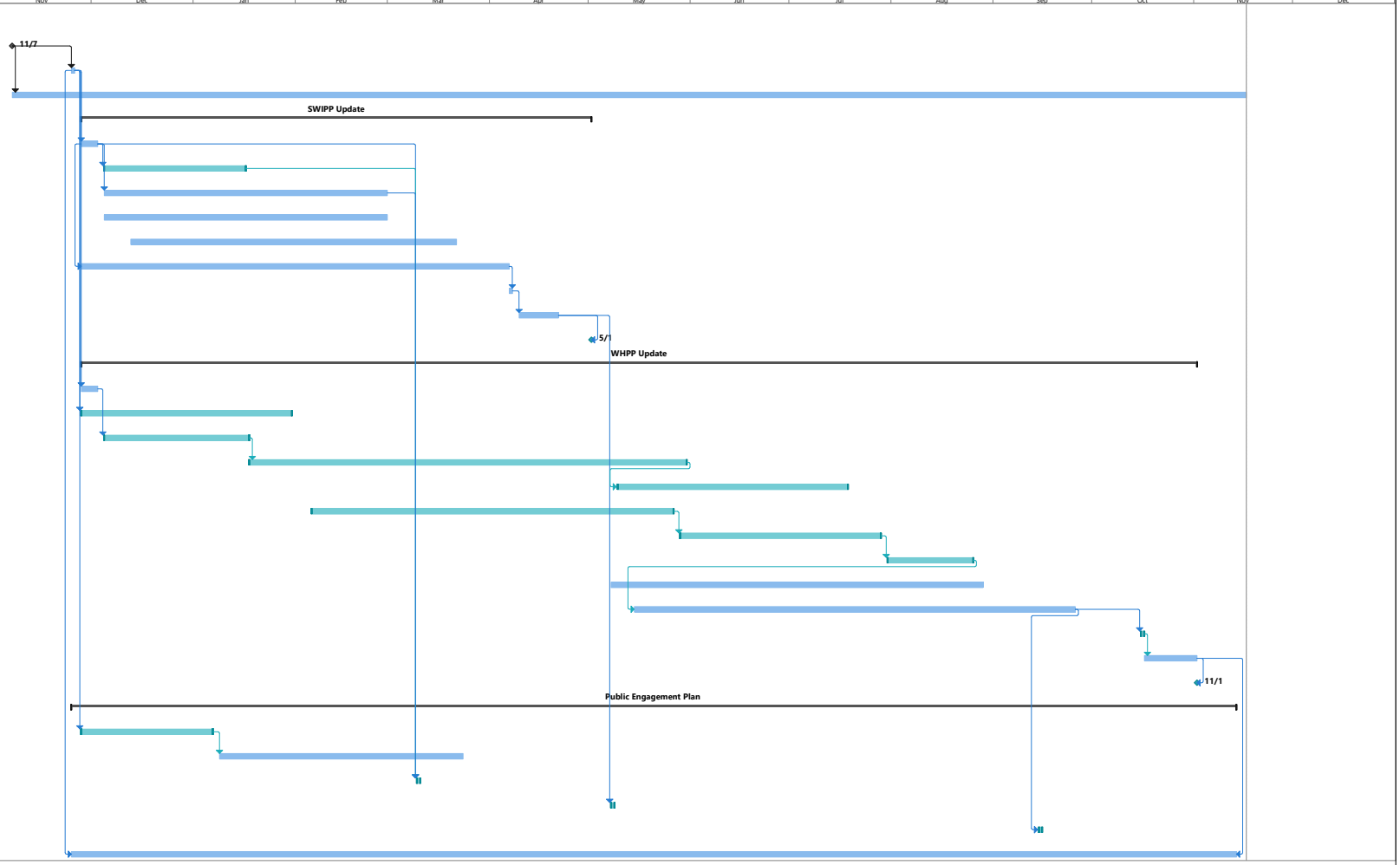
Regular monthly progress meetings will include a review of overall communication effectiveness with updates to the Communication Plan or project portal performed as appropriate.

It is important that the time commitment of the City of Ann Arbor staff be considered and coordinated. Our project manager is committed to ensuring that the city is well informed, our staff is accessible and the Communication Plan is immediately in place and practiced regularly. The Plan provides a mechanism through which the engineering design process will proceed, while obtaining City input and disseminating information back to the City staff.

Schedule

City of Ann Arbor - Source Water Master Plan

ID	Task Mode	Task Name	Duration	Start	Finish
1					
2		NTP	0 days	Mon 11/7/22	Mon 11/7/22
3		Project kick off meeting	1 day?	Fri 11/25/22	Fri 11/25/22
4		Project Management/ Monthly meeeting	269 days	Mon 11/7/22	Thu 11/16/23
5		**SWIPP Update**	**111 days**	**Mon 11/28/22**	**Mon 5/1/23**
6		Review existing SWIPP docuemnts	5 days	Mon 11/28/22	Fri 12/2/22
7		Comparisan with Peer Systems technical Memo	31 days	Mon 12/5/22	Mon 1/16/23
8		Contamination Source Inventory	62 days	Mon 12/5/22	Tue 2/28/23
9		Surface water protection area delineation, optional	62 days	Mon 12/5/22	Tue 2/28/23
10		Water Quality Monitoring Options	71 days	Tue 12/13/22	Tue 3/21/23
11		Draft SWIPP	94 days	Mon 11/28/22	Thu 4/6/23
12		Draft SWIPP Workshop	1 day	Fri 4/7/23	Fri 4/7/23
13		Final SWIPP Report	10 days	Mon 4/10/23	Fri 4/21/23
14		Submit SWIPP to EGLE	0 days	Mon 5/1/23	Mon 5/1/23
15		**WHPP Update**	**243 days**	**Mon 11/28/22**	**Wed 11/1/23**
16		Review existing WHPP docuemnts	5 days	Mon 11/28/22	Fri 12/2/22
17		Roles and Responsibilities	46 days	Mon 11/28/22	Mon 1/30/23
18		WHPP - Comparisan with other Peer Systems	32 days	Mon 12/5/22	Tue 1/17/23
19		Wellhead Protection Area Delineation, optional	95 days	Wed 1/18/23	Tue 5/30/23
20		Contaminant Source Inventory	50 days	Wed 5/10/23	Tue 7/18/23
21		Wellhead Protection Aera Management	80 days	Mon 2/6/23	Fri 5/26/23
22		Contingency Plan	45 days	Mon 5/29/23	Fri 7/28/23
23		New Wells Plan	20 days	Mon 7/31/23	Fri 8/25/23
24		Public Education and Participation	81 days	Mon 5/8/23	Mon 8/28/23
25		Draft WHPP	96 days	Mon 5/15/23	Mon 9/25/23
26		Draft WHPP workshop	1 day	Mon 10/16/23	Mon 10/16/23
27		Final WHPP	12 days	Tue 10/17/23	Wed 11/1/23
28		Submit WHPP to EGLE	0 days	Wed 11/1/23	Wed 11/1/23
29		**Public Engagement Plan**	**252 days**	**Fri 11/25/22**	**Mon 11/13/23**
30		Develop Public engagement plan	30 days	Mon 11/28/22	Fri 1/6/23
31		Develop education and outreach materials	54 days	Mon 1/9/23	Thu 3/23/23
32		Public Meeting # 1	1 day	Fri 3/10/23	Fri 3/10/23
33		Public Meeting # 2	1 day	Mon 5/8/23	Mon 5/8/23
34		Public Meeting # 3	1 day	Fri 9/15/23	Fri 9/15/23
35		Technical Advisory Committee	252 days	Fri 11/25/22	Mon 11/13/23



Project: Project Schedule Draft2
Date: Mon 8/22/22

Task, Split, Milestone, Summary, Project Summary, Inactive Task, Inactive Milestone, Inactive Summary, Manual Task, Duration-only, Manual Summary Rollup, Manual Summary, Start-only, Finish-only, External Tasks, External Milestone, Deadline, Progress, Manual Progress

Page 1

In conjunction with the meetings and reporting required by the RFP, our communication plan includes the following distinct elements:

- **Project Kick-off** – A kickoff meeting will be held to establish lines of communication and agree to work as a team to meet stated project objectives. We recommend that our lead management and technical team and key individuals from the City of Ann Arbor attend. Communication contact points within our team and the City will be mutually agreed to. These lines of communication and objectives will be maintained through the project life.
- **Project Group Meetings/ Workshops** – As the project develops, it will be critical that the City of Ann Arbor staff have correct and timely input. Our experience has proven that technical meetings and workshops in addition to regular project meetings are invaluable for issue resolution. These meetings will address all project issues with emphasis on project responsibilities required to keep the schedule on course. As part of our Project Management Plan, we will work with the City of Ann Arbor to establish a schedule of which issues will require such meetings, and when the meetings should take place. We anticipate these meetings will include our project staff along with the City's project and affected stakeholder staff. It has been our experience that such meetings have been successful in presenting the direction of the project to appropriate staff while gaining staff input to improve and/or revise the project plan.

Working Relationship between City and Consultant

The Arcadis culture of sustainability and people first drives our teams to work closely with our clients to develop systems that are maintainable, efficient, digitally driven and looking forward to tomorrow's operational challenges. This cultural passion motivates our Arcadis team to communicate all issues with the City of Ann Arbor as they occur.

The Arcadis project manager, Gwen Kubacki, will conduct monthly progress meetings with the City to review in detail the progress of the project, and review the issues register and project schedule. Project workshops will be held with the City for critical submittals, decision points in the process, and any permitting requirements.

Funding

Funds used during the development of the SWIPP and WHPP and associated outreach activities meet the criteria for matching funds for State source water protection grants. Arcadis has a firm understanding of the funding process and will assist the city in the grant applications for the SWIPP in the 2023 grant funding cycle and for the WHPP in the 2024 grant funding cycle to cover applicable tasks. Funding obtained through the grant can be used to finance implementation of recommendations included in the SWIPP and WHPP.

One Water Approach

Arcadis proposes integrating the One Water approach into both the City's SWIPP and WHPP plan development process and the final product. The Water Research Foundation (WRF) defined One Water as "an integrated planning and implementation approach to managing finite water resources for long-term resilience and reliability, and meeting both community and ecosystem needs". The goals posited by One Water are common to the internal goals outlined by Ann Arbor, and can be achieved through interdepartmental communication, robust community outreach, and holistic watershed modeling.

Arcadis understands that the City of Ann Arbor is currently updating their One Water Program. As such, our team will work with the City to determine the best approach to integrate the SWIPP and WHPP initiatives in concert with existing City infrastructure. Potential integrations of One Water with the City's SWIPP and WHPP may include:

- References to the City's One Water roadmap and goals.
- Documentation of the City's conservation programs and water savings, as both total volume and per capita demand.
- Description of the Huron River Watershed and ongoing watershed protection efforts.

Task 1: Surface Water Protection Plan Update

Our project team is experienced in source water quality and risk assessment and will bring our expertise to the Ann Arbor SWIPP updates. We will work with the City through kickoff and monthly progress meetings and regular contact to ensure the end result aligns with Ann Arbor's goals for the report.

Similar System Comparison

Following notice to proceed, Arcadis will work to obtain up to three additional SWIPP documents from similar water systems in the State of Michigan that have been approved by EGLE. This can be completed by submitted a Freedom of Information Act (FOIA) request through EGLE to obtain these documents. Upon receipt of the documents, Arcadis will complete a comparison between Ann Arbor's existing SWIPP and those of the similar communities. Results of the comparison will be compiled in a presentation delivered to the city during discussed with the City in the monthly progress meetings.

System and Community Information

The SWIPP contains background information relevant to the City's water use and source water protection including a description of existing equipment and service area, treatment capacities, land use, population served, and drainage areas. Arcadis will coordinate with the City and stakeholders to update any outdated information. Our team will leverage Ann Arbor's membership to SEMCOG to obtain available land use and population projections as well as consult USGS databases to generate new GIS figures accurately showing the development level of the source water area.

Roles and Duties of Government Units and Water Supply Agencies

Arcadis will work with the City and the Technical Advisory Group assembled as part of this effort to determine those members of the community that must work together to protect the Source Water Area. Our Team will review all existing contacts to ensure accuracy, and evaluate additions to the plan including local, state, and national authorities, regulatory entities, and emergency response.

Arcadis' hydraulic modeling group is staffed by eight engineers that specialize in the use of computational methods to simulate free-surface flows in the environment. The group maintains a suite of hydraulic modeling software including HEC-RAS, Delft3D, FLOW-3D, and FLUENT. Past projects include the simulation of the flooding in the Lower Ninth Ward caused by Hurricane Katrina, the study of thermal mixing in the Wheeler Reservoir for the Tennessee Valley Authority (TVA), the simulation of pollutant transport in the Ohio River, and wide range of other design projects. Combined, the modeling group has carried out 400 projects and most of the staff has worked together for over 10-years.

Source Water Area

Arcadis will review the source water area as delineated by the State of Michigan during the Source Water Assessment Program (SWAP) and generate new GIS maps showing the source water area and critical assessment zones. Upon review of the SWAP, our team will provide recommendations on whether additional modeling would provide value to Ann Arbor in the event of a Huron River contamination event.

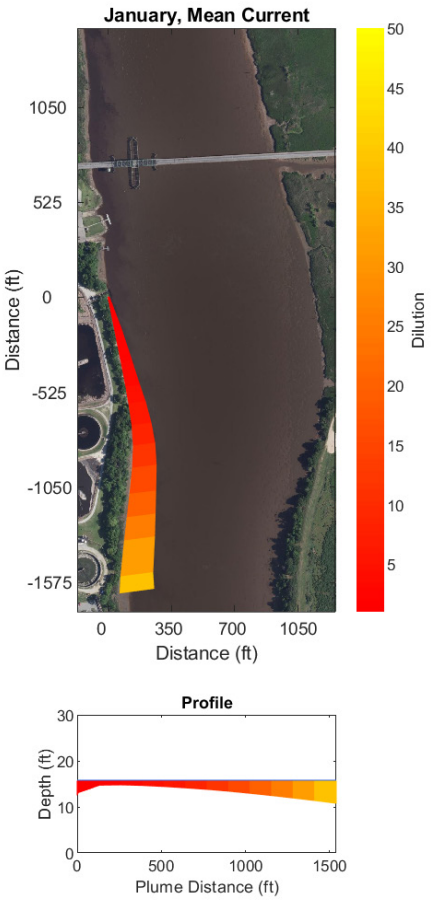
If additional modeling is warranted, our modeling team will use the contaminate source inventory generated as part of the SWIPP update to create updated GIS maps to the city that highlight these new findings and determine potential pollution outfall locations. As part of the optional modeling effort, Arcadis will use the updated information to estimate travel times between the different discharge locations and the city's intakes. This analysis could be done several different ways and Arcadis will work with City Staff to determine the most satisfactory approach given identified project constraints.

Option 1: The simplest approach would be **a** desktop study to estimate travel times based on a very coarse representation of the conveyance channels leading to the city's intakes. For example, stage/discharge/travel time relationships could be developed from idealized representations of the source water bodies (e.g., assume that channels that convey water are prismatic) and would not require the use of any hydraulic modeling software.

Option 2: If more accuracy was required, then 1-D modeling scheme could be used to better characterize flows in the Huron River. To create the model, this option requires field data collection through a river survey for the targeted section of the Huron River to generate cross sections.

Option 3: 2-D modeling schemes add additional complexity and resolution to the modeling, increasing the accuracy of results. As with the 1-D model, this option also requires field data field data collection through a river survey for the targeted section of the Huron River to generate cross sections.

Option 4: Finally, dynamic 3-D modeling techniques could be used to simulate flows in certain areas that may or may not be stratified depending on predominate weather conditions. Results from any of these models can be used to generate Buffer Zones around Ann Arbor's intakes representing designated travel times for hypothetical pollutants released into the Huron River. These zones would then be applied to the potential contaminate source inventory to determine sources most threatening to the intake.



The above shows pollutant transport and concentration downstream of source.

This option also requires field data, including increased resolution around intakes, outfalls, and other points of complexity in the river.

Each of these four different approaches for the calculation of travel times comes with its own unique level of effort. Options 2 through 4 require varying amounts of survey information, the development of computer models, and potentially even dye testing for verification if warranted. Because of these differences, the cost and schedule associated with these different approaches varies and is presented as a set of options in our fee proposal. At the outset of the project Arcadis will conduct a meeting with the city to discuss these different approaches and the pros and cons of each. It should be noted that river surveys are most easily conducted during summer and fall, which may not be feasible for incorporation into the SWIPP document for this update, but could be recommended for implementation strategies.

Potential Sources of Contamination

Potential sources of contamination within the Source Water Area include prescribed potential drinking water threats as listed in local, state, and national databases, hazardous pipeline river crossings, CAFOs, and non-point source pollution. Our team will review each database used in the previous contaminant source inventory and update with additional resources such as the Michigan PFAS Action Response Team (MPART) site database and any available inventories of septic systems. Once compiled, Arcadis will work with the City and appropriate stakeholders including the TAC to review the existing criteria for "Priority 1" sites – those with the highest potential to significantly contaminate the City's source water. If necessary, criteria will be re-evaluated, updated, and applied to the complete contaminant source inventory to identify specific sites for the updated Priority 1 site list.

Management Strategies for Source Water Protection

The SWIPP contains active management strategies to protection the City's source water, including strategic source water monitoring. Arcadis has teamed with Paul Gantzer of Gantzer Water to evaluate surface water quality monitoring for Barton Pond. Paul will evaluate options for monitoring water quality of the influent to Barton Pond and within the pond and to provide ideas for incorporation of climate change impacts and climate adaptation strategies related to water quality management of source water to the treatment plant.

Options for monitoring water quality will include evaluation of inflows and outflows of source water, parameters affecting the water treatment process. Evaluation will include evaluation of the treatment process, withdrawal characteristics to the water treatment plant, and water quality parameters associated with water treatment challenges. The goal of the monitoring evaluation will be to provide a matrix of parameters to be monitored, benefits, and associated triggers related to water quality deterioration. Ideas related to climate change impacts and climate adaption strategies will be focused on changing water quality, eutrophication, and the impacts of it. Adaptive strategies will evaluate the source water as an integral part of the treatment process and will be tailored to address water quality related to challenges that arise in the treatment plant.

Other management strategies include active coordination with local government, non-governmental organizations, and hazardous material site facilities. Our team understands the City's personnel is limited with time and resources. As such, Arcadis will provide a prioritized, practical list of tasks assigned to specific individuals that will progress the goals of the SWIPP until the next document update cycle. Our team will work with the City to ensure that assigned individuals have the resources and time available to complete the appropriate SWIPP tasks.

Contingency Plan and Source Siting

Through kickoff and monthly project meetings, Arcadis will coordinate with the Ann Arbor WTP plant staff to update the existing contingency and emergency supply sections in the SWIPP to reflect current emergency action strategies.

Public Participation

Ann Arbor has a rich history of involving the public and conducting extensive outreach. As part of the SWIPP update, Arcadis will work closely with City staff to accurately document all outreach activities relating to source water protection that have been completed since the drafting of the initial document. Active outreach conducted as part of this project is discussed in Task 3.

TASK 1 DELIVERABLES:

- Updated SWIPP document including updated GIS graphics
- Electronic files and GIS shapefiles used in the generation of the SWIPP document and graphics
- List of Prioritized Recommendations for realistic implementation by Ann Arbor staff
- Meeting materials including minutes, agendas, and attendance.

TASK 1 MEETINGS:

- Kickoff Meeting
- Monthly Progress Meetings
- SWIPP Draft Review Workshop

Task 2: Wellhead Protection Plan (WHPP) Update

Our project team is experienced in developing and updating WHPPs. In addition, we are experienced in working with communities on educational aspects of groundwater associated with WHPPs. We will work with the city through kickoff and monthly progress meetings and regular contact to ensure the result aligns with Ann Arbor's goals for the report. We understand our scope of services related to the WHPP includes:

- Updating the seven sections of the WHPP plan (as needed) in accordance with EGLE guidance documents and city and stakeholder input:
  - Roles and Responsibilities
  - Wellhead Protection Area Delineation
  - Contaminant Source Inventory
  - Management Approaches for Local Wellhead Protection
  - Contingency Plan
  - Plan for New Wells
  - Public Participation and Outreach/Education
- Meeting at least monthly to provide updates and obtain feedback.
- Comparing Ann Arbor's existing WHPP to those of peer municipal water systems to identify potential items that could be approved and how they should be updated. These finding would be discussed at the monthly meetings. Potential peer communities for WHP may be Kalamazoo and Battle Creek but the communities used would be based on discussions with the team and EGLE (determine communities with updated WHPP).
- Providing a recommendation on if the WHPAs should be re-evaluated for both the Montgomery and Steele Farm Wellfields.
- Identifying in a chart, areas for collaboration and leverages existing resources/programs with stakeholders.
- Developing a prioritized list of realistic recommendations for implementation with cost estimates and timeframes to implements such recommendations. Use of WHP grants may be a method for moving the recommendations forward which have been stalled in the past.

Specifically, the reviews and updates of these sections will consist of the following.

Roles and Responsibilities

This section establishes role and responsibilities that builds partnerships within all levels of governments, neighboring communities and stakeholders using the City of Ann Arbor's Public Engagement toolkit and Technical Advisory Committee. This is the team that will be responsible for the development, implementation, and long-term maintenance of the WHPP. Team members can include:

- Water Plant Superintendent
- Local units of government – this may include neighboring government officials since Wellhead Protection Areas (WHPA) are in the neighboring communities.
- Director of utilities
- City engineer
- Fire chief
- Residents
- Teachers
- Business and industry representatives
- State representatives (EGLE, Department of Natural Resources, Department of Agricultural and Rural Development, and Department of Transportation)
- Universities (University of Michigan)
- County health officials
- Huron River Watershed Council

Arcadis will work with the City of Ann Arbor officials to develop a team that will benefit the area and move the development and implementation of the WHPP forward.

Wellhead Protection Area (WHPA) Delineation

The WHPA is the physical area that the WHPP manages. The WHPA is typically delineated with a groundwater model, which is used to establish the area over which particles of water migrate to the given wellhead field over an established period of time. The 10-year time-of-travel boundary has been selected by the State of Michigan to delineate WHPAs because it provides a reasonable length of time for responding to environmental issues in the WHPA.

The City of Ann Arbor currently has WHPAs developed for two locations: The Montgomery and Steele Farm Wellfields. The Montgomery Wellfield was taken off-line in April 2001 due to a detection of 1,4-dioxane. The WHPAs were initially delineated in 1996 by the Eastern Michigan University ICARD program and were then updated in 2006 by Flies and Vanderbrink. The WHPP was initially completed in 2003 and updated in 2014.

The Request for Proposal requests that a separate cost be provided should it be determined that the WHPAs needs to be reassessed.

A cursory review of the two wellfields identified the following observations:

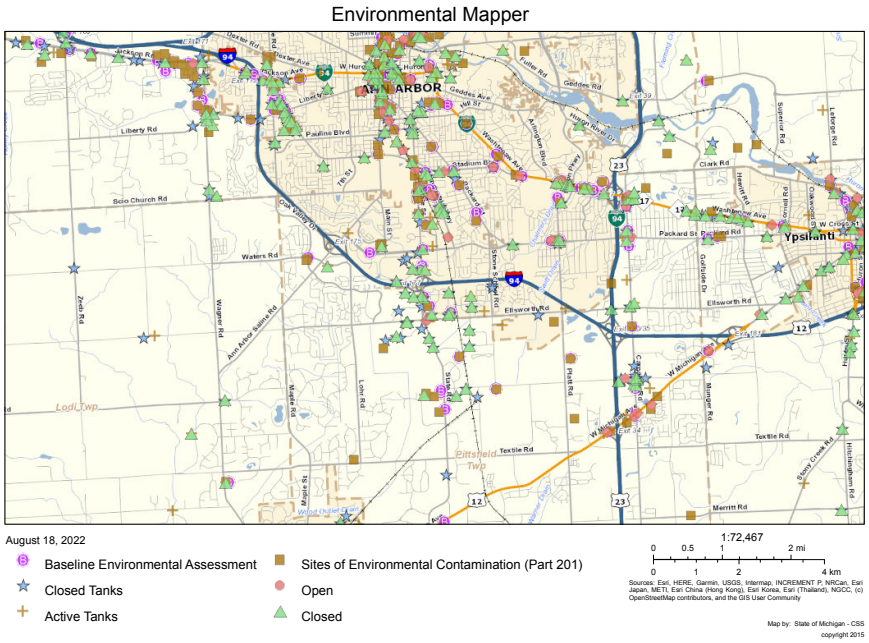
Montgomery Wellfield

- This wellfield has not been used since 2001. Arcadis will work with the City on whether this wellfield should it be removed from the WHPP and the well abandoned, or used as a contingency location.

Steele Farm Wellfield

- The WHPA was delineated assuming three of the four wells were pumping at their rated capacity. The WHPA may not need to be re-delineated if only these three wells are being used and their rated capacities have not changed.
- The fourth well was recommended to be abandoned. If the well is not abandoned, it could be assumed to be active, which would mean a new WHPA would need to be delineated.

The groundwater flow models used to delineate the WHPAs are typically constructed based on aquifer tests, which according to the regulations should be 24-hours for confined aquifers and 73-hours for an unconfined aquifer. Reviewing the information provided in the older WHPP, the aquifer test completed at the Steele Farm Wellfield was 16-hour constant rate test and the aquifer was defined as leaky confined. Because this aquifer test did not meet the required minimum aquifer test time, EGLE may request a new aquifer test. For costing purposes, Arcadis assumes that EGLE will not request a new aquifer test. Arcadis also assumes the model files used to delineate the previous WHPAs will be available for use, and only the Steele Farm Wellfield WHPA will be re-delineated.



Potential Sources of Contamination

Once the WHPA(s) are determined a contaminant source inventory will be completed. The inventory will be conducted for the Montgomery and Steele Farm WHPAs. Tools such as EDR Radius MapTM (EDR), EGLE databases, and local units of government (i.e., Washtenaw County Health Department). The EDR search will identify and locate potential and known sources of contamination (leaking underground storage tanks, Superfund sites, Part 201 sites, oil and gas spills). Based on the location of the potential sources of contamination, additional information may be obtained from EGLE. These other sources of information include the following:

- EGLE's Environmental Mapper Program and Remediation Information data Exchange database which would be used to confirm the EDR search.
- EGLE's Geowebface database provides the locations of water, and oil and gas wells and their associated well logs.
- EGLE's Water Well Mapper and Wellogic database to obtain water wells information.
- Washtenaw County Health Department may have information concerning septic systems and water supply wells.

Once potential source of contamination is identified, Arcadis would work with wellhead protection team to determine sites where more information is needed through an EGLE FOIA request.

Management Approaches for Local Wellhead Protection

Management practices are important in protecting the groundwater resource as development activities take place. Arcadis will work with the wellhead protection team to develop strategies that may include:

- Reviewing Site plan
- Zoning
- Incorporating Wellhead Protection in Master Plan
- Handling of hazardous materials in WHPP

An example of a management approach is the institutional control established due to the 1,4-dioxane groundwater plume called the "Prohibited Zone" which restricts the

use of groundwater for drinking water use. No water wells are allowed in this area, with a few exceptions noted in the institutional control. The Montgomery Wellfield is in the 2021 expansion of the Prohibited Zone but may meet an exception for potential use.

The WHPP is voluntary which reinforces the need to develop good working relationships between community leaders, residents, and businesses/agriculture in working towards the goal of protecting groundwater.

Contingency Plan

Based on the 2021 Water Quality Report, Ann Arbor obtains its drinking water from surface water (85%) and groundwater (15%). The original WHPP plan stated surface water could be used in case the wellfield(s) could not be used. Arcadis will assess this and look at other temporary fixes such as the use of outside bulk or bottled water as alternative water sources. The WHPP will also identify how and who will oversee notifying the community.

Plan for New Wells

This portion of the WHPP reviews how news wells will be brought into the water supply system based on development needs or possibly a vulnerable aquifer to contamination. The earlier WHPP stated that seven areas were assessed as possible locations for new wells. Three of these locations (northeast of the city, the Steele Farm Wellfield, and southeast of the Steele Farm Wellfield) were identified as possible locations for new wells. Of these choices, increase use of the Steele Farm Wellfield was recommended. Arcadis will review the previous assessment and meet with the stakeholders to determine if additional areas should be considered.

Public Participation and Outreach/Education

This aspect of the WHPP involves educating the community and encouraging them to participate in protecting drinking water sources. Arcadis will work with the team in identifying the best approaches to reach out to the community and getting them excited to participate in the program. Examples of outreach may be 1) development of brochure(s) explaining groundwater, what a WHPA is, and safe management practices when working with potential contaminants, 2) presentations at various stakeholder meetings, 3) hazardous waste collection days, 4) signs identifying the WHPA, and 5) working with teachers to educate youth in the schools. Materials developed for this task will be made available on the City of Ann Arbors website (qualitywatermatter.org).

TASK 2 DELIVERABLES:

- Standalone EGLE-approved WHPP that is easily searchable WHPP.
- Meeting materials including minutes, agendas, and attendance.
- Electronic files and GIS shapefiles used in the generation of the SWIPP document and graphics.
- List of Prioritized Recommendations for realistic implementation by Ann Arbor staff.

TASK 2 MEETINGS:

- Kickoff Meeting
- Monthly Progress Meetings
- WHPP Draft Review Workshop

Task 3: Outreach and Communications

Develop Public Engagement Plan in Collaboration with City Staff

Creating a thoughtful, inclusive public engagement strategy with subject matter experts and the public will be critical in generating the input necessary to determine realistic, prioritized recommendations for implementation. It is a crucial first step for every project of this type. Working in close partnership with the client City and the project team Arcadis, we'll begin by developing a comprehensive engagement strategy that identifies:

1. Individuals and groups who are likely to have an interest in the topic under consideration;
2. The most efficient and effective method(s) of engaging these stakeholders, capitalizing whenever possible on pre-existing forums that could provide convenient opportunities to connect; and
3. The topics on which feedback is sought, as well as the manner in which the feedback will be used to influence the project's design.

The City of Ann Arbor places high value on thoughtful and inclusive public engagement as a means of leveraging an informed, involved citizenry in decision-making. Public engagement is a core practice and priority within Arcadis and we are thrilled to be partnering with Bridgeport Consulting to work alongside City Staff and the project

team. Bridgeport Consulting has a healthy working relationship with the City of Ann Arbor, built over a decade of successful projects that featured community-scale initiatives and engagement with multiple neighborhoods.

Bridgeport will be supported by Arcadis communications experts who specialize in translating complex technical information and making it accessible to the public. These experts will work alongside Arcadis engineers, scientists, and technical communications specialists to understand the issues and will develop education and outreach materials to facilitate the public's understanding about the source water protection planning process and the value of source water protection.

In partnership with the City of Ann Arbor and Arcadis, Bridgeport will develop a Public Engagement Plan to guide the public outreach and stakeholder engagements aspects of the project. This includes identifying and involving stakeholders and public audiences using the City of Ann Arbor's Public Engagement toolkit and convening a Technical Advisory Committee to collaboratively develop a SWIPP and WHPP.

Project Team Planning and Debrief

Bridgeport embeds within the project team in order to maintain a full and current understanding of the project and integrate a seamless, responsive public engagement and communications strategy to ensure successful project delivery. Bridgeport anticipates meeting with the project team from the City of Ann Arbor and Arcadis approximately four times to plan and/or debrief public engagement initiatives, particularly the public meetings.

Technical Advisory Committee

Bridgeport will meet regularly throughout the project with a Technical Advisory Committee to define and guide the SWIPP and WHPP update process, serve as a sounding board, and test and validate proposed recommendations, as the project unfolds.

Public Meetings

Bridgeport will design and facilitate a series of public meetings designed to: 1) introduce the project, the anticipated trajectory, and the opportunities to engage, 2) present source water protection goals and recommendations for reaction and refinement, 3) share the resulting plan elements, close out the project, and thank participants. Bridgeport is adept at structuring these meetings for maximum impact, facilitating the conversation to ensure productive participation, and documenting the outcomes such that the project team can discern "the signal from the noise" in addressing the public's expressed needs and desires. When tensions run high, or unforeseen problems arise during a project, Bridgeport is able to act as a neutral party who serves the role of a calming, compassionate, professional resource to capture concerns and facilitate a rapid, effective response from the project team. While Bridgeport always enjoys meeting with people in person, we've adapted our talents and cultivated our skills to host effective, participatory – and even (gasp!) fun – virtual meetings.

Content and Materials

Bridgeport will prepare meeting agendas and discussion summaries for Technical Advisory Committee meetings and project meetings; design and document the public meetings; and team with Arcadis to produce communications collateral to advance the work (e.g., public meeting display materials, website content, public presentations, interactive and social media content). The project team anticipates using a variety of methods to involve and educate the public during the SWIPP planning and implementation, including local meetings or events, news articles, signage, brochures and hazardous waste collection activities.

Bridgeport places significant value on defining the boundaries and desired outcomes of the engagement strategy at the outset of the project, as well as the level of authority or importance that will be conferred to the feedback the project receives. Communicating these parameters respectfully and well with stakeholders increases the clarity and comfort of the engagement process, helps make the best use of everyone's time, and limits the potential for frustration and disappointment as the project unfolds and stakeholders do (or do not) see their perspectives reflected in the design.

TASK 3 DELIVERABLES:

- Digital content for existing City of Ann Arbor webpages and social media updates.
- Electronic files for 4 factsheets/ brochures, 8 boards for public meetings, and content for one website update.
- Meeting materials including agendas, minutes, and attendance for 3 public events and 12 TAC Meetings.

TASK 3 MEETINGS:

- 12 TAC Virtual Meetings
- 3 Public Outreach Events (2 in-person, 1 hybrid in-person/virtual)

Alternative Ideas or Scope Enhancements

Harmful Algal Bloom (HAB) Plan: Through the course of the SWIPP update process, the City may determine that a HAB plan would be beneficial. Arcadis has the expertise to generate a plan and has done so for several utilities in the region, including three plans in Michigan. A HAB Plan would outline how the City's WTP can adjust the treatment process to manage HABs. A HAB is any cyanobacteria and/or algae bloom that causes harmful effects. Cyanobacteria can quickly proliferate in response to eutrophication, sunlight, and warm temperature. As temperatures increase due to climate change, HABs have increased in frequency in Barton Pond. In addition, cyanotoxins are future candidates for US Environmental Protection Agency (EPA) regulation.

The purpose of this HAB Plan would be to outline the treatment capabilities of the WTPs with respect to cyanotoxin removal. The City of Ann Arbor sources its water from Barton Pond, which has experienced several HABs. With incidences and frequency of HABs on the rise and a history of significant blooms in the nearby area, Arcadis proposes incorporating an HAB Plan into the current round of SWIPP report updates. Preparation of the HAB plan would complement the SWIPP report, which assesses intake vulnerability and addresses risk mitigation. In addition, this HAB Plan would identify steps to prepare for an HAB event and maximize mitigation and removal through treatment, treatment modifications and operational practices. Costs for a HAB Plan will be developed upon request from the City.

Assumptions and Disclosures

- During the review of the Ann Arbor Wellhead Protection Plan updated in 2017, our team noticed that the Meijer #64 service station site was identified in the contaminant assessment. Arcadis worked on this site located at 3145 Ann Arbor – Saline Road. Work included removing some of the impacted soil and submitting a closure report under Part 213 of Public Act 451, as amended. The closure report using restrictive covenants was reviewed and accepted by the EGLE Jackson District office in 2014, and site closure was approved.
- Aquifer test for the Steele Farm Wellfieldare not included in the scope of work.
- The WHPA for the Montgomery Wellfield will not be re-delineated since the wellfield has not been used since 2002 due to 1,4-dioxane contamination.
- The WHPA contaminant assessment will be completed for both wellfields (Steele Farm and Montgomery).
- The model files used to delineate the previous WHPAs will be available for use, and only the Steele Farm Wellfield WHPA will be re-delineated.
- The groundwater model files can be readily converted to current software.
- No structural changes to the groundwater model are required (no geology updates).
- Monthly progress meetings will be held virtually.
- All workshops will be held in-person with local Arcadis personnel.
- Detailed site evaluations for SWIPP candidate Priority 1 sites including site visits are not included in the scope of work.
- Public outreach meetings will not exceed 2.5 hours.