

S T A T E O F M I C H I G A N

BOARD OF COMMISSIONERS OF THE COUNTY OF ALLEGAN

WATER STUDY WORKGROUP—AUTHORIZE REQUEST FOR PROPOSAL

WHEREAS, on June 9, 2022, the Board of Commissioners (Board) accepted the Groundwater Study Phase II Project from Hydrosimulatics, Inc. for approximately \$110,000 and authorized the County Administrator to negotiate contracts for services for the Phase II Study (Hydrosymulatics, Inc.) and up to 24 monitoring wells (Michigan Geological Survey/Western Michigan) while reserving \$3,000,000.00 of ARPA funds for the purpose of groundwater studies, monitoring wells, potential water quality and availability improvements all towards the development of a short and long term plan for the protection of Allegan County water supply and water-related projects; and

WHEREAS, on November 2, 2022, the workgroup voted to approve an update, attached to this resolution, which outlines the workgroup's activities, inclusive of additional recommendations; and

WHEREAS, the County Administrator has worked in conjunction with the workgroup in the development of the update and recommends the actions to proceed with master planning and education/outreach services.

THEREFORE BE IT RESOLVED that the Board authorizes the County Administrator to release a request for proposal for master planning and education/outreach services; and

BE IT FURTHER RESOLVED the workgroup and the County Administrator are authorized to engage local units of government county-wide, regional, state, and federal entities and other stakeholders public or private that may be helpful in the development of a master plan; and

BE IT FURTHER RESOLVED that the Board authorizes an extension on the timeframe of the workgroup to April 2024; and

BE IT FINALLY RESOLVED the County Administrator is authorized to sign agreements on behalf of the County and the Executive Director of Finance is authorized to perform the necessary budget adjustments to complete this action.

ADDITIONAL HISTORY:

- On May 13, 2021, as the next step, the Board accepted the Public Health's Water Study Workgroup Report.
- On May 27, 2021, the Board accepted the Water Study Group Memorandum from the County Administrator which further vetted the workgroup's tasks and deliverables.

- On June 10, 2021, the Board established the Water Study Workgroup.
- On March 23, 2022, the workgroup held its first meeting.
- On May 4, 2022, the workgroup recommended to the Board to accept the Screening-Level Modeling, Risk Analysis, and Ranking Proposal (Groundwater Study Phase II Project) from Hydrosimulatics, Inc. for screening level modeling of contaminated sites.
- On June 1, 2022, the workgroup voted to recommend the implementation of monitoring wells in conjunction with the Michigan Geological Survey/Western Michigan for the initial build of four wells (approximately \$15,000 of ARPA with blended funding) and a plan to implement approximately twenty more wells with blended funding (estimated total of approximately \$100,000).
- On June 1, 2022, the workgroup reviewed funding models for overall anticipated project plans and is recommending the Board appropriate three million dollars (\$3,000,000.00) for the purpose of groundwater studies, monitoring wells, potential water quality and availability improvements all towards the development of a short and long term plan for the protection of Allegan County water supply.

Allegan County Ground Water Study Ad-Hoc Work Group



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Chairperson, Tom Kunetz
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To: Allegan County Board of Commissioners
Subject: Update on the Allegan County Groundwater Quantity and Quality Protection Plan
Submitted: November 10, 2022

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Part 1: The Case for Creating a Groundwater Protection Plan

Historically and presently, practically all the water supply in Allegan County is from two geologic aquifers as groundwater. In select areas, water supply is the responsibility of the local unit of government or municipal utility. In the majority of the County, water supply is from private wells. There are approximately 21,348 private household wells, 671 irrigation wells, and 32 industrial wells in Allegan County. These private wells account for 93% of all the wells in the County by number. The remainder 7% are municipal water utility wells. Virtually the entire population of the County shares the two aquifers. Yet neither the County government nor the local units of government (LUG) hold oversight for private wells after permitting has occurred for new, hook-up to existing, and replacements. In other words, the water supply is largely unregulated, with no protection from overdraft, neighbor impacts, drought, climate change, or natural contamination.

A resilient supply of clean water is essential for public health and economic vitality of Allegan County. Therefore, it is prudent for the people of Allegan County to establish a plan to establish activities and policies to protect this precious resource for today and for the future. The factors outlined above leave us with an opportunity to engage stakeholders at all levels (local, regional, state, and federal) to collectively develop a groundwater protection master plan

Presented herein is updated information from the Groundwater Work Group on the development of a plan called the "Allegan County Groundwater Quality and Quantity Protection Plan" (Groundwater Protection Plan for short). The Groundwater Protection Plan is a collection of activities intended to provide LUGs and County staff with the means and methods to be proactive in monitoring, protecting, and managing this precious resource today and well into the future based on objective data and stakeholder input.

The Groundwater Protection Plan begins with four activities:

1. Implementing the recommendations of the Phase 2 Screening Level Modeling, Risk Analysis, and Ranking Study.
2. Installation of an array of water table monitoring wells across the County
3. Creation of a public education and outreach program
4. Development of a Water Supply Master Plan for the County

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The activities above were previously recommended to the Board by the Work Group and County Administrator at the June 9, 2022 Board Planning Session and were approved at said meeting. Updates are presented in greater detail in Part 2 of this report.

The Water Supply Master Plan is deemed essential for setting the roadmap for the protection and management of the groundwater supply, today and for future generations. However, planning activities cannot be dictated by the County alone. The County does not have the authority over critical activities such as withdrawal, remediation of contaminated sites, and connection to municipal supplies, nor will it engage in local unit governance. Therefore, groundwater protection planning activities must include the participation of primary stakeholders, namely the LUGs, state regulators, and the Groundwater Work Group, which represents various stakeholder interests.

The Groundwater Work Group recommends that the Board authorize the County Administrator to engage the services of a consulting firm to prepare the Water Supply Master Plan and to develop and deploy an education and outreach program. The general statement of work is described in Part 2 of this report. Included in the scope of work is for the consultant to engage the primary stakeholders in in-person input and discussion sessions. This would start with a series of learning sessions, educating the stakeholders on the results of the Phase 1 and Phase 2 Studies so that they may become familiar with the geology, hydrogeology, water quality concerns, state of the aquifers, current withdrawals, and other essential background information upon which to build the Water Supply Master Plan.

The Phase 1 Study recommended that the County implement an interactive Decision Support System tool to assist the County in making informed decisions to protect the groundwater supply. The Board charged this Groundwater Work Group to “provide particular focus on Hydrosimulatics, Inc.’s recommendation to pursue an interactive Decision Support System” (DSS). After robust discussion, the Groundwater Work Group has concluded that the decision on whether to implement a DSS, and what features the DSS should include, is not a decision that the County should make alone. Rather, the decision should be vetted through a collective process that includes the LUGs, state, and Groundwater Work Group.

The power of a DSS is that it is widely adaptable in its breadth and depth. It can be used to address questions as broad reaching as the impact of a drought on the entire county and as site-specific as the influence of an individual well. An interactive DSS can be used by County staff, LUG staff, state agencies, Michigan Geologic Survey, property developers, farmers, commercial businesses, industries, and individuals to answer such questions as:

- What will be the impact of the new housing development on existing nearby wells?
- What is the maximum pumping rate that can be sustained from my neighbor’s well without interfering with my well?
- Is there an area of low-production private wells that can be better served by expansion of a municipal water distribution system?
- There is a drought. Can a farmer afford to irrigate her crops at the same rate as typical? Can adverse impacts be avoided/eliminated based on strategic irrigation well placement?
- Where are the areas in the aquifers that are particularly vulnerable to contamination?

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- If an accidental spill occurs and an emergency capture wells need to be quickly installed to control / prevent plume spreading, where should the wells be placed?
- How much farther down can the water table go before naturally occurring salinity affects the well water?
- Are nitrates impacting a municipal wellhead protection area?

Therefore, it is important that the people who would use the DSS be the ones who drive the decisions on design, implementation, training, and system management.

Other issues that the primary stakeholders should discuss during the master planning process are the possible creation of an independent, county-wide water authority, and the possible creation of a county-wide position for a Groundwater Specialist. The Groundwater Specialist would be the central point of coordination with the LUGs to assure County-wide consistency oversight, as well as provide technical advice to the County's 21,000 private well owners, who otherwise have no advocacy or support.

Given the amount of time it would take for the process to issue a request for proposals for a Water Supply Master Plan consultant, award the contract, organize the in-person input and discussion sessions, and generate deliverables, the planning timeframe for the master planning work will extend through the end of 2023. As such, it would be prudent for the Board to extend the term of the Groundwater Work Group, which is set to sunset in April 2023. Therefore, the Groundwater Work Group recommends that the Board extend its term to April 2024.

Part 2: Elements of the Allegan County Groundwater Quantity and Quality Protection Plan

1. Phase 2: Screening Level Modeling, Risk Analysis, and Ranking Study

A. Update

The contract for the Phase 2 study has been executed and is under way. Recommendations will be submitted to the Board by the Groundwater Work Group when the final report is submitted by Hydrosimulatics Inc. in early January 2023. Recommendations should also be included in the master plan.

B. Root Need

Hydrosimulatics, Inc. has been retained by the County to prepare the Phase 2 groundwater study. The project will enable the County to rank and prioritize sites of environmental concern across its entire site portfolio – from high-risk sites requiring “immediate” action (e.g., oversight, groundwater sampling and analysis, and possible remediation), to low risk sites that can be addressed later (perhaps years in the future), or everything in between. The project will also provide additional information regarding source water areas (or “well-watersheds”) of critical public water supply wells in the County (Type I community supply wells).

C. Expected Result

The deliverables of this project--maps of pollution site impact areas, source water areas of critical groundwater receptors, a countywide aquifer vulnerability map, and risk rankings--can be used to guide long-term planning relative to groundwater use and growth trends, allowing the county to answer questions such as:

- Which critical groundwater receptors are threatened by known or potential sources of groundwater pollution because of proximity to a pollution impact area?
- Which receptors are most vulnerable because of aquifer and soil properties?
- Which ones require “immediate attention” or close monitoring?
- Which ones might have an issue sometime later in the future?
- Which areas being considered for future development face water supply issues because of impaired water quality?
- What are the time-scales involved?

D. Management/Oversight Model

The Health Department is administering the contract. The Groundwater Work Group is providing feedback and oversight to Hydrosimulatics. The deliverables will be retained by the Health Department. Recommendations for action will be vetted by the Ground Water Work Group and forwarded to the Board.

E. Funding

The Phase 2 Study has been awarded for \$107,000.00 and paid with ARPA funds.

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Funding for each of the recommendations that will be presented by Hydrosimulatics as part of their deliverables will be presented to the Board after vetting by the Groundwater Work Group.

2. Water Table Monitoring Wells

A. Update

The Groundwater Work Group is working with the County to approach public land holders including the County Road commission, DNR, public school districts, and local units of government to seek cooperative agreements for siting the necessary number of monitoring wells.

B. Root Need

Understanding how much groundwater is available in the aquifer is important for the County to be able to make decisions with respect to meeting groundwater demand. Unfortunately, this is not a precise science. Water supply can be estimated by calculations based on measurements of the water table and other properties of the subsurface (e.g., aquifer thickness and aquifer yield). Because the geology of the County is highly variable, the more (accurate) data points there are, the better prediction a hydrogeologist can make about the available water supply and its changes over time. For example, if the groundwater table shows a downward trend over time, it means that the water supply is shrinking. Therefore, it is necessary for the County to establish water table monitoring wells at numerous points throughout the County, and to collect and monitor this data over time, so that proactive actions can be taken before a crisis exists.

Monitoring wells should be located in areas of greatest concern, and which can provide optimal benefit. Based on the Phase 1 Study, these areas include:

- Areas where Static Water Level trend analysis suggested a possible systematic decline across the area.
 - North-central Lee Twp.
 - Northwest Saugatuck
 - West-central Alleghen Twp.
 - Central Door Twp.
 - Leighton Twp. (bedrock aquifer)
 - Overisel Twp. (bedrock aquifer)
- Areas where groundwater use is highest or has increased significantly in recent decades (which could lead to aquifer overmining).
- Areas of water quality hotspots based on analysis of “background” groundwater concentrations.
- The results from the Phase 2 screening level analysis of impact areas will likely reveal a number of locations that should be monitored for possible current or future contamination concerns.

Siting water table monitoring wells is challenging in that not only is it necessary to find sites that offer valued information from a geologic perspective, but access is also needed for County personnel to drill the well, and then for subsequent periodic access to the level sensors and data loggers. For this reason, public property is typically preferred over private property. To date, the Health Department has collaborated with the Michigan Geologic Survey to site two monitoring

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wells on County government property. However, the County government does not own enough property across Allegan County to satisfy the need for monitoring well sites. Therefore, the county will have to work in cooperation with other public entities to make arrangements for establishing monitoring wells across the County.

While it is understood that it will be a challenge to work with other public entities to get cooperative agreements to site monitoring wells, the hard reality is that the only way for the County to truly understand the groundwater situation is through a well-distributed array of data points. This underscores the importance of keeping local units of government involved in the Water Supply Master Plan process.

C. Expected Results

The data from the monitoring wells will be collected by the County and made available to LUGs and the public through a webpage created for making this data public. In addition, if the LUGs decide to move forward with the Decision Support System tool, this data will be connected to the DSS to provide up-to-date data in the DSS.

D. Management/Oversight Model

Siting of the wells, installation, and data gathering will be done by the Health Department. During the Water Supply Master plan process, LUGs will be encouraged to cooperate with the County in siting and managing data collected from monitoring wells located within their municipalities.

E. Funding

As approved on June 9, 2022, funding (current estimates are up \$160,000) has been allocated for up to 24 monitoring wells.

3. Public Education and Outreach Program

A. Update

The Work Group is in development of a public education and outreach program concerning Allegan County's water supply and water quality. While the expertise to develop such a program does exist within the County staff, the institutional capacity does not. The Work Group is working with the County to retain a consultant experienced in community education and outreach to develop the program. The target audience of the proposed program is all residents of Allegan County, businesses, and local units of government.

B. Root Need

Allegan County's Vision Statement declares that it will "promote a safe, clean, and healthy environment in which to live, work, and play." One of the best ways the County can meet this vision is to provide the information and tools that enable residents of the County to make good decisions. Good health starts with a good education. The more that Allegan County residents know about their drinking water the better they will be at making important decisions at both the individual and community level. Therefore, a robust community education and outreach program on water supply and water quality is instrumental in achieving the Department's

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Vision. The Health Department is well-situated to be the prime transmitter of information that is trustworthy and based in science.

C. Expected Results

The program should include the following elements and activities:

- Education about where the county's drinking water comes from, and why it is important to protect both water quantity and water quality.
- Ways in which residents can help protect the aquifer and surface water, such as properly maintained septic systems, stormwater management, and capping of abandoned wells.
- Online County-wide map showing up-to-date information on groundwater levels derived from the monitoring wells program.
- Outreach to local units of government educating them on how to use the Decision Support System tool.
- Serve as a clearinghouse of information to assist residents and local units of government:
 - Provide appropriate sources for technical support
 - Consult on how to apply to other agencies for loans and grants
 - Provide a list of water quality laboratories
 - Reach out to neighboring counties that share the aquifer with Allegan County.
- In-person and online recorded tutorials covering Surface and Groundwater Basics
 - Ties into the first bullet point on education about county drinking water by providing a strong foundation for understanding the county's water and how it is connected.
 - Educational workshop (in-person and online recorded tutorials) on planning and zoning best practices for water quantity and quality
 - Facilitate multiple public panel discussions and Q&A conducted in multiple municipalities for the general public on the state of Allegan County's water supply and quality.
 - Identify and develop connections among complementary organizations to build water education and outreach capacity in the County.

D. Management/Oversight Model

The professional services contract will be managed by County Administration (or a delegate office).

E. Funding

The estimated cost for a professional services contract is \$100,000, funded through ARPA funds.

4. Water Supply Master Plan

A. Recommendation

The Groundwater Work Group is working with the County to retain a qualified consultant to prepare a Water Supply Master Plan for the County. The Water Supply Master Plan should estimate the current usage of groundwater by various categories of users, including residential, municipal, industrial, commercial, and agriculture. Using the event horizons of fifteen years and

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thirty years, the plan should project future use by category. The consultant should actively include representatives from each local unit of government and relevant state agencies to sit on an oversight committee, to participate in the development process, and to provide local perspectives to insure buy-in of the final product.

B. Root Need

Lakeshore Advantage has determined that Allegan County's population is growing at a rate of about 8% per year. The County is one of the fastest growing counties in southwest Michigan. This period of growth that started decades ago and has sustained in recent years results in systematic increases in water use. The essential question is: Will there be enough water for all needs (agriculture, residential, industrial, commercial) in the future? And if not, what actions should Allegan County take today to mitigate water shortages? In as much as potential solutions to future water demand may require a long-lead time (such as developing a water intake and treatment plant at Lake Michigan) it would be prudent for all stakeholders in Allegan County to know well in advance what future actions may be required. While it is not possible to accurately predict what the water demand will be in fifteen and thirty years, by establishing a baseline today, the Master Plan can be revisited at biennial intervals to identify if projections are underestimated, on-target, or over-estimated. Furthermore, external factors such as increasing or decreasing groundwater recharge rates, or contaminated wellhead areas, should be considered in the projections to provide "worst case," "best case" and "most likely" scenarios.

C. Expected Results

The process will involve formal in-person convening of primary stakeholders including representatives from LUGs, state agencies, and the Groundwater Work Group. Much of the development work must revolve around the input of these stakeholders.

The main deliverable will be a Master Plan document that the County and LUGs should use to support decision making (inclusive of the necessary tools and structure) with respect to land development, infrastructure planning, environmental degradation, impacts of climate change, economic development, and population growth.

D. Management/Oversight Model

The Groundwater Work Group will assist County staff in the development of the statement of work and scope of work for the professional services contract. The professional services contract will be administered by the County Health Department. Each local unit of government, plus relevant state agencies will be encouraged to send one representative each to actively engage in the planning process.

E. Funding

Estimated to be \$150,000, payable through ARPA funds.