



OFFICIAL NOTICE AND AGENDA
of a meeting of a City Board, Commission, Department
Committee, Agency, Corporation, Quasi-Municipal
Corporation, or Sub-unit thereof.

A Meeting of Wausau Water Works Commission will be held in the
Council Chambers, 1st Floor City Hall, Wausau, WI 54403 at 1:30 p.m. on
Tuesday, March 2, 2021.

Members: Katie Rosenberg (President), Dawn Herbst, Jim Force, Joe Gehin, John Robinson

AGENDA

1. Approve Minutes of February 2, 2021 Meeting.
2. Director's Report on Utility Operations
 - Water Department – New Hires
 - Frozen Water Services
 - Main and Service Line Breaks
 - Wastewater Permit Limits
 - Wastewater Seal Fail
 - WWTF Plant Update
 - PLC and MTU Failures
 - Northern Pipe Sewer Main Cleaning and Televising
 - New Sewer Maintainer and Plant Mechanic Position
 - Wastewater Conveyor System Failure
3. Presentation and Project Update for the Inflow/Infiltration Study by Strand & Associates.
4. Discussion on PFAS/PFOS Related Activities and Regulations.
5. Discussion and Possible Action on the Implementation of a Rain Barrel Program City Wide.
6. Discussion and Possible Action on the Purchase of 1010 Bugbee Ave for the Purpose of Constructing a Solar Array.

Adjourn.

**Next meeting scheduled for April 13, 2021 @ 10:30 am.*

THIS NOTICE POSTED AT CITY HALL AND EMAILED TO CITY PAGES AND DAILY HERALD: February 25, 2021 at 2:05 p.m.

Due to the COVID-19 pandemic, this meeting is being held in person and via teleconference. Members of the media and the public may attend in person, subject to the social distancing rules of maintaining at least 6 feet apart from other individuals, or by calling 1-408-418-9388. The Access Code is 187 885 4420 and the password is kyNDvkfZ772. Individuals appearing in person will either be seated in the Council Chambers or an overflow room, subject to the social distancing rules. Space available will be on a first come, first served basis. All public participants' phones will be muted during the meeting. Members of the public who do not wish to appear in person may view the meeting live over the internet at <https://tinyurl.com/wausaucitycouncil> on the City of Wausau's YouTube Channel https://www.youtube.com/channel/UC-Nigpdco_i8sq5FbbJD_aw and live by cable TV, Channel 981. Any person wishing to offer public comment who does not appear in person to do so, may e-mail michelle.weasler@ci.wausau.wi.us with "Water Commission public comment" in the subject line prior to the meeting start. All public comment, either by email or in person, will be limited to items on the agenda at this time. The messages related to agenda items received prior to the start of the meeting will be provided to the Chair.

In accordance with the requirements of Title II of the Americans with Disabilities Act of 1990 (ADA), the City of Wausau will not discriminate against qualified individuals with disabilities on the basis of disability in its services, programs or activities. If you need assistance or reasonable accommodations in participating in this meeting or event due to a disability as defined under the ADA, please call the ADA Coordinator at (715) 261-6590 or ADAServices@ci.wausau.wi.us to discuss your accessibility needs. We ask your request be provided a minimum of 72 hours before the scheduled event or meeting. If a request is made less than 72 hours before the event the City of Wausau will make a good faith effort to accommodate your request.



Minutes of February 2, 2021

A meeting of the Wausau Water Works Commission was called to order at 1:30 p.m. in City Hall on February 2, 2021. In compliance with Wisconsin Statutes, this meeting was posted and receipted for by the Wausau Daily Herald on January 28, 2021.

Members present: President Rosenberg, Commissioners Robinson, Herbst, Force, Gehin.

Others present: Eric Lindman, Dave Erickson, Scott Boers, Tonia Westphal/Clark Dietz, Lisa Zahrt/Clark Dietz.

1) Approve Minutes of January 12, 2021 Meeting.

Force moved to approve the minutes of the January 12, 2021 meeting. Seconded by Herbst. Motion to approve the minutes carried 5-0.

2) Director's Report on Utility Operations.

Lindman noted that he wanted to keep the lead and copper rules on the forefront as there will be implications to the utility for that. Any new detailed information will be brought forward at future meetings. There is a cheat sheet in the packet showing the differences as to what the old rules were and what the new rules will be. Robinson asked if we have an inventory of all of our lead service lines. Lindman responded we do not. Robinson asked how hard that would be for us to do. Lindman advised that it's not difficult but it is time consuming. Boers added that we need to have the registry sent to the state by January 16, 2024. At this point, we are not required to know what all of the materials are however, anything that is unknown will be counted as lead. He estimates that we have 5,000 lead services on the utility side. It's a little more difficult to estimate the private side but believes it's approximately 8,000-10,000 lead services. Lindman explained that the only way to confirm that is to go inside the homes and check the pipe that comes into the house. We've been doing that as we've been doing meter change outs. With the lead and copper rule, we will need to establish a lead service line replacement plan by about the same timeframe in 2024. We'll bring that back several times for the commission's review on how best we move forward with that, whether it's mandating that through an ordinance or some other process. Robinson stated that he would imagine there would be significantly more pressure on the use of the state dollars for replacement of lead service lines. Would it be advantageous for the city to look at a larger request to the state for next year or before 2024? Lindman advised that we'd love to make a larger request to the state and this year we are requesting funding to replace 100 private service lines. If we stay on that pace it would take 30+ years to replace them all. At this time, we only have the capacity to do 100 replacements. We'd have to look at doing something different. Lindman also indicated that increasing the amount that we're doing will also create a cost to the utility. This is something the commission will need to review as part of the plan as well.

Gehin asked about the labeling of unknown service material as lead, will that be date sensitive as well since after a certain date, lead could no longer be used? Boer's confirmed there is a date and believes it was 1970. Those homes could be presumed as copper rather than lead. Gehin read an article in the AWWA newsletter about the replacement of lead services in Green Bay. Was that all on the

public side or private as well? Boers responded that they were complete replacements, meaning both sides however, the city of Green Bay offered a lot of funding. He's not sure if they have the PSC replacement program where they have rate money available for private side replacements but does know they have been applying for the same funding as we have. Gehin asked if we could be forced to replace the private side at our expense. Boers explained we will not be forced to replace the private side of the service at our expense but will need to offer to replace them at their expense and have a plan in place to help those that cannot economically accomplish that. Lindman advised that could come in the form of a low interest loan or the PSC also allows for up to 50% of user rates to be used on the private side, that could be another option but then that would involve all users in the city helping to pay for private service lines.

Gehin advised that there is an update on well 3 and it's pending a letter of acceptance by the EPA.

3) Discussion/Update on Proposed Solar Array for the New Water Treatment Facility.

Westphal explained that they were under contract in December and started site surveying right away. They've looked at calculating what size array would be needed based on the load of the new plant. 3 million kWh converts to a range of 0.83 MW – 1.86 MW for the 40-90% sizing, which comes from the original RFP. In this scenario, we would need 6-8 acres of viable property per MW. That's a range of 6-15 acres for the 40-90% sizing of this array. Based on the site field survey and some soil work there was not 15 acres available in one location. In the meantime, the property at 1010 Bugbee became potentially available per agenda item #4. The cost for a 40% single site array at about 6-8 acres in conservative numbers is about \$1.5 million. To do a full 90%, which would need to be over multiple sites is closer to \$3.5 million. These are rough numbers with contingencies built in for racking and system performance, There is bedrock, steep topography and trees on this site which makes placement important.

Gehin asked what our goal was as far as our needs for power. Westphal explained we were looking for 40-90% based on the RFP. The goal is determined by the budget and affinity for the project.

Gehin asked about the 1010 Bugbee site and the clearing of trees. What was the commitment to the neighborhood about a buffer zone? Lindman responded that the property discussed with the residents was on the south side of where the treatment facility was. He did reach out to Lisa Rasmussen because it is her district and she was certainly ok with the utility's potential to purchase it and that it may be better than leaving it up to the private sector. The solar arrays can be seen but are not obtrusive and that is what Rasmussen relayed back. She didn't feel it would be a detriment to the area.

Robinson asked what the payback or estimated savings with this. Westphal responded that the rate of return would depend on what percent we decide to go with, actual construction costs and the plant itself. Zahrt stated that the plant is not built yet so we don't have a complete load picture. They took the design load and estimated run time to get to the 3 million kWh. At this point, that is the best that they can do and the payback would depend on where that really falls when the plant is operational.

Robinson asked if they think we can get 3 million kWh generated, what does that translate to in terms of savings. Westphal advised that is something that they will put together in the next step. If he's looking for just a general rate of return on a solar array they can work with their solar partner and put something together but in this particular case they haven't done a specific calculation for this system. Solar array equipment has come down as much as 80% in the last 10-15 years. Even with the tariffs put in place a couple years ago, solar is a cost effective solution for producing power. The difference with our array vs. several in the state is that people are building arrays to sell additional power back to the utility. This is not intended to do that as all of the power generated will be used to power the plant. The bulk rate for selling power here is very low.

Gehin asked if it would be there recommendation to have the units as close to the water treatment plant as possible. Westphal stated that it would cost less if it was closer to the plant because of electrical length and stepping of the electrical.

Lindman indicated that once we know the overall load at the plant, the property we need and the cost we can get a more accurate estimate of what the payback would be. Mathy Construction approached the utility about the sale of the property at 1010 Bugbee. Gehin thought the initial purpose to buy this land was for future wells. Would that still be part of a future plan? Lindman responded that we bought the property to the north for \$1.1 million. The 1010 Bugbee portion was originally part of

that for \$1.5 million. At the time it wasn't something we needed immediately. This property is much less expensive than it was in 2016.

Force indicated that whenever we have the discussions about alternative power, the issue of payback always comes up. Unless things have changed, usually the use of solar does not turn out to be the most cost effective option. However, he would urge us to look a little bit beyond that to the environmental benefit of going with an alternative energy source and also the climate change argument. Robinson agreed with that but it's also important to do our due diligence with spending public dollars on it. He would hope we will be able to generate what the return on investment is.

Westphal brought forth a resource called Renew. They have a lot of data and information that could be helpful as we move forward with the public. Most of the time the public is receptive to something like solar.

Lindman indicated that during the public information meetings proposing the new facilities, there were questions whether we had looked at alternative energy sources. The public in general terms is on board with considering these things and once we have details it would be good to potentially have public information meetings to roll it out before any final decisions are made. We need to understand this isn't a few hundred thousand dollars, we're looking at a couple million dollars.

Lindman wanted to clarify that in the RFP with Clark Dietz we asked for a 40%, 60% and 90% power generation of what our load would be. Is the commission still okay with moving ahead with that? The consensus was yes to move ahead.

4) Discussion and Possible Action on the Purchase of 1010 Bugbee Ave.

Lindman advised that Mathy Construction approached us regarding this property. They were looking at putting this property up for sale publicly but wanted to see if we had an interest in purchasing it. We spoke with Clark Dietz to see if it could be usable for solar. Based on what Westphal and Zahrt said in the previous agenda item is that we think it would be. There are also other advantages to having this property, such as future wells and wellhead protection plans. We do have a well in the corner of that property. Based on that and the cost, would the commission like us to take a look at this and possibly do a phase one environmental on it to see if this is a site than can be used or if it has been filled with construction debris.

Motion by Gehin to authorize staff to do due diligence associated with the possible purchase of 1010 Bugbee Ave. Seconded by Force.

Force reiterated what Lindman said that even if we don't do solar arrays there are other uses for this property.

Motion carried 5-0.

5) Presentation on Rain Barrels.

Force talked through a packet he provided on 4 different rain barrel programs he found had been offered in communities. League City, TX offers the purchasing and reselling of rain barrels to users and water bill rebates of \$25/per barrel per year. Madison doesn't get involved with the purchasing and reselling but rather provide information to their customers about what rain barrels are, how they can be acquired and installed. Force indicated he has one and installation and maintenance is not a tough thing. Another possibility would be to publicize the barrels and invite customers to order them from a local supplier. Menards and Home Depot are more expensive than what you would pay through some of these organized programs. There are 2 systems that he found. Blue Barrel out of California suggests repurposing barrels or finding a local provider as getting rid of these barrels isn't easy. He has not been able to find a local provider as of today. The other is Rain Water Solutions out of North Carolina, they make their own barrels, ship them to you and handle all of the transactions. They have a lot of locations around the country.

Robinson talked to the environmental service division for the City of Superior and they have run an intermittent rain barrel program and composting program since 2010. They take used barrels that the utility has, buy kits from Menards and offer an educational program. The rain barrels sell for \$40.00 and the compost bins for \$30.00. He was thinking the farmer's market would make a good pick up site. Force stated that he would like for the board to express a firm interest in pursuing the program. He would like everyone to review the material that's been distributed between now and the next meeting

and perhaps form a task force to come back at the March meeting with a few recommendations that we could consider. The first step would be a motion to seriously pursue a rain barrel program and the second would be to establish a mechanism of coming up with a recommendation at the next meeting.

Motion by Herbst to pursue a rain barrel program, seconded by Gehin.

Robinson would encourage us to look at the role of the utility, whether we facilitate, buy or distribute, is there an educational component, is it limited to rain barrels and is there a corresponding credit of some sort such as storm water.

Motion carried 5-0.

Robinson would like the utility to do an educational program on PFAS and suggested we bring this forward at a future meeting.

Adjourn.

There being no further business to discuss, motion was made by Robinson to adjourn the meeting. Seconded by Gehin.



MEMORANDUM

TO: President Rosenberg
Commissioner Herbst
Commissioner Force
Commissioner Gehin
Commissioner Robinson

FROM: Eric Lindman, P.E.
Director of Public Works & Utilities

SUBJECT: Director's Report – February 2021

WATER DIVISION

1. The Water Department would like to welcome new employees, Gina Vang, Admin. Asst. and Ed Zoborowski, Water Plant Operations Technician, to our team.
2. As of Wednesday February 24, 2021, so far we have had 27 frozen services for the year.
3. To date, 2/24/2021, we have also repaired 12 main breaks and 4 services, since the 1st of the year.

WASTEWATER DIVISION

1. The Wastewater Treatment Plant is on track to meet permit limits for February.
2. We had a major incident at the wastewater plant beginning 2/14/2021, Valentine's day. A seal failed on piping going from the digester building basement to the south secondary digester. This allowed 500,000 gallons of digested sludge to drain from the digester into the basement. The basements are connected by tunnels so the main building, blower building, new solids building (under construction), and digester building were flooded with digested sludge. The lowest level room in the main building was completely flooded and other locations ranged from 6" to 5'. A lot of equipment and material related to the new construction was damaged or destroyed.

We called Riverview Construction in to start pumping. The south primary digester was empty as part of the construction process so we pumped to it. Some of the material also drained or pumped into the plant treatment system. There were some added difficulties in keeping discharge lines from freezing because of the very cold temperatures. We had Riverview bring in an additional crew to help plant employees, and Miron construction, squeegee sludge from the floor to the drains

or pumps. We worked some long hours, and around the clock, but had most of the water pumped out by the end of the day on Friday. We are continuing to work with the insurance companies and complete the cleanup.

3. The work on our plant upgrade project is proceeding even with the setbacks associated with the flooding. The most recent Donohue report is attached.
4. The master Programmable Logic Controller (PLC) in the Master Terminal Unit (MTU) has been giving us problems and failed on Sunday 2/21/21. The PLC communicates with equipment in the plant and our lift stations, controls plant operations, and generates alarms when conditions exceed established parameters. The MTU dates from 2010 and 1999 and is out of date. It will be replaced as part of the plant upgrade but we need to keep it running until new equipment is installed. We called Van Ert Electric in to make temporary repairs for the weekend. New parts are not available but they ordered a used PLC on Ebay.
5. Work was delayed because of the weather, but Northern Pipe is continuing to work on the sewer main cleaning and televising project. Work on the pipe in the vicinity of the collapse on Imm Street, and in the vicinity of the street project scheduled for Rosecrans Street, has been completed. The Engineering Department and Ryan Dwelly, our Collection System Supervisor, have begun discussions as to how to address issues with those sections.
6. Mark Brener started as our new sewer maintainer on February 26th. The HR department is also in the process of making an offer for the remaining plant mechanic position.
7. The conveyor system that moves screenings from the influent step screen in the basement up to the dumpster on the main floor level has been troublesome and failed completely on February 8th. A photo is attached showing the collapsed auger. We have ordered replacement auger for a temporary repair and are working with Donohue to find a permanent solution.

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44

Engineer Activities This Period

- Construction administration services related to technical review of contractor shop drawings, responding to contract interpretation questions (RFIs), initiating requests for proposals (RFPs), attending weekly and monthly construction progress meetings, processing work change directives to the contract, and contractor monthly payment requests.
- Prepared and submitted Clean Water Fund disbursement request and provided CWF administration.
- Provided full time Resident Project Representative (RPR).
- Provided part time on-site observation of selected work by Becher-Hoppe.
- Submitted Change Order 3 for Owner signature.
- Working with Owner on the last of the color selections for equipment, buildings, and interior furnishings.
- Working with Owner on identifying the laboratory equipment that is to be procured under the laboratory equipment allowance.
- Working with Owner and furniture solutions company to finalize furniture colors and selections to be procured under the furniture allowance. The first order with the bulk of the furniture has been placed, with a second to address Str 770 and miscellaneous items.
- Prepared several Work Change Directives to address unforeseen work that needed to be expedited to allow the Contractor to maintain their construction scheduled progress.
- Weekly coordination calls have been established to facilitate contractor startup of the various systems that are being scheduled for near-future startup.
- The Engineer's application engineering staff are working on the various systems programming that will need to be completed as the new unit process systems are brought into operation. Start-up of servers to occur this week.
- Developed into a weekly meeting are discussions pertaining to system commissioning and how all systems tie together to provide further detail to the construction schedule.

Engineer Near-Term Activities

- As the project proceeds, the engineer will continue to provide construction administration services including the technical review of shop drawings, responding to RFIs, preparing RFPs, attending weekly and monthly construction progress meetings, processing change orders, reviewing contractor payment requests, and providing full-time on-site resident engineering services.
- Preparation of Change Order 4.

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44

- Continue to coordinate temporary Server install and work thru connectivity protocol to the City's Network for initiation of Applications Engineering programming.

Contractor Progress to Date

- The Notice to Proceed with Construction was issued to the Contractor on June 18, 2020 and established the final completion date as June 3, 2023.
- Construction on the improvements to the Wastewater Treatment Facility (WWTF) began on July 6, 2020.
- Structure 100 (Main Building):
 - Demolition on the existing clarifier tank in Gravity Thickener area of the structure has been completed.
 - Miron is in the process of forming up the slab on grade for this area as well as cleaning up the area for the future gas compressor equipment. Structural support walls and columns for the slab on grade have been poured.
 - Van Ert Electric has placed the conduit in the old gravity thickener area for the new switchgear and continues to run conduit on the interior from the new electrical room to where the new generators will be located in the existing gravity thickener tank area.
- Structure 120 (Administration Building):
 - Interior mechanical, electrical and plumbing work are nearing completion
 - Drywall has been completed; painting, tile flooring and acoustical ceiling tile work is beginning.
 - Vestibule structures/roofing canopy construction nearing completion.
 - Window installation has been completed for the structure.
 - HVAC roof equipment/fans are being installed.
- Structure 350 (Primary Effluent Channel) and Structure 404 (Junction Structure):
 - Primary effluent channel continues to be in operation for Structures 320, 330 and 340 (Primary Clarifiers 2, 3 & 4).
 - Grating for the channel installation has begun as well as some backfilling around the channel and final piping connection to Structure 310 (Primary Clarifier 1).
- Structure 400 (Activated Sludge Building):
 - The new blowers for this structure arrived and are currently being stored inside.
 - The existing north blower has been removed and the blower pad has been demolished to allow for the eventual placement of the new blower.

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44

- Van Ert Electric has started placing conduit for the new blowers.
- Structure 500 (Secondary Splitter)
 - Concrete walls and tanks were completed.
 - Tank leak testing was completed.
- Structure 540 (Secondary Clarifier 4):
 - Tank leakage testing completed.
 - Backfilling around the structure has started.
 - The 16-inch return activated sludge pipe to Structure 770 (Solids Building) has been pressure and leak tested.
 - Connection piping from Structure 540 (Secondary Clarifier 4) to Structure 776 (Basin Drain Pump Station 2) has also been completed as far as Structure 770 (Solids Building).
- Structure 610 (Chemical Building): Miron has completed the face brick around the structure.
- Structure 700 (Digester Building):
 - Equipment pads have been poured in both the lower level for the dewatering feed pumps and digester mixing pumps.
 - Concrete pads have been poured on the main level for the boilers and digester Heat Exchanger.
 - August Winters and Sons has been removing existing piping and installing temporary piping where needed to allow for the installation of the future piping and conduit runs in this structure.
 - Miron's masons placed the concrete masonry unit walls for the new electrical room on the grade level.
- Structure 770 (Solids Building):
 - The last at grade floor slab has been completed for the structure.
 - Precision Grading started backfilling around the entire structure to allow for ease of access to the structure from grade.
 - Miron has started placing the precast walls, decking and roofing for the above grade levels.
 - Van Ert Electric has been running conduit into the lower level and placing grounding for the structure as well as completing the temporary power and lighting for the lower level of the structure.

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44

- August Winters and Sons has started running the floor drains in the lower level for the grade-level floor as well as placing mechanical piping in the lower lever.
 - Miron's masons completed the concrete masonry unit walls for the electrical room at the south west corner of the structure.
 - Form work for the northeast and northcentral stairways to the lower lever has been started.
- Structure 776 (Basin Drain Pump Station 2): Concrete work for Structure 776 complete and backfilling around structure has started.
- Tunnel 900:
 - R-Industries continues demolition of minor piping.
 - August Winters & Sons completed temporary piping adjustments to allow for future piping to be installed per plan.
 - Van Ert Electric continues to run conduit along the ceiling of the tunnel to the planned duct bank to electrical manhole 1.
- Tunnel 910
 - The tunnel has been enclosed from Structure 700 (Digester Building) to Structure 770 (Solids Building).
 - Work remains to be completed on the tunnel from the tie-in point to the existing Structure 700 (Digester Building).
 - Finishing and rubbing of the concrete walls and ceiling have been completed in the Tunnel.
 - August Winters has begun to place piping along the west wall and Van Ert has begun to run 4-inch conduit along the ceiling for connections between Structure 700 (Digester Building) to Structure 770 (Solids Building)
- Yard Piping:
 - Integrity Grading and Excavating continues with the placement of various yard piping connections including
 - Connections between Structures 770, 775 and 776 (Solids Building, PSD Thickener and Basin Drain Pump Station 2, respectively).
 - Connections between Structures 410, 540 and 770 (Basin Drain Pump Station, Secondary Clarifier 4 and Solids Building, respectively).
 - Completed the 36-inch mixed liquor line between Structures 500 and 540 (Secondary Splitter and Secondary Clarifier 4).
 - Van Ert Electric has completed the placement of electrical duct bank E from electrical manhole 2 to Tunnel 900.

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44

- Precision Grading has completed backfilling on the interior portions of Structure 770 (Solids Building) and has started the backfilling around Structure 500 (Secondary Splitter), Structure 540 (Secondary Clarifier 4), Structure 775 (PSD Thickener) and Structure 776 (Basin Drain Pump Station 2).
- Construction progress photographs are located at the end of this progress report.

Construction Schedule

- The Contractor has developed a detailed construction schedule that defines a timeline for the orderly completion of the work and a breakdown by structure of the work to be done in the various work areas. We continue to review the timeline and work tasks against the various constraints identified in the project manual to confirm that the contractor has adequately addressed them and accounted for shutdown time limits as their work proceeds.

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

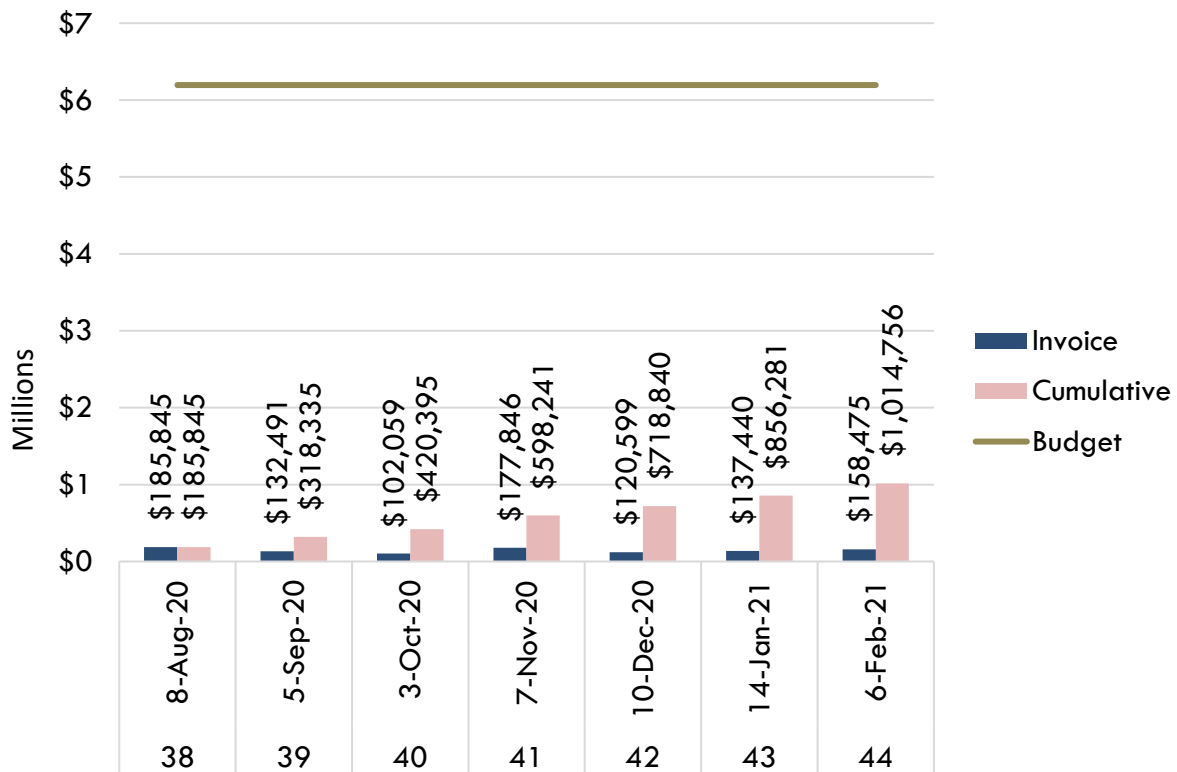
Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44

Project Related Budget Snapshot

Construction Engineering Budget



Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

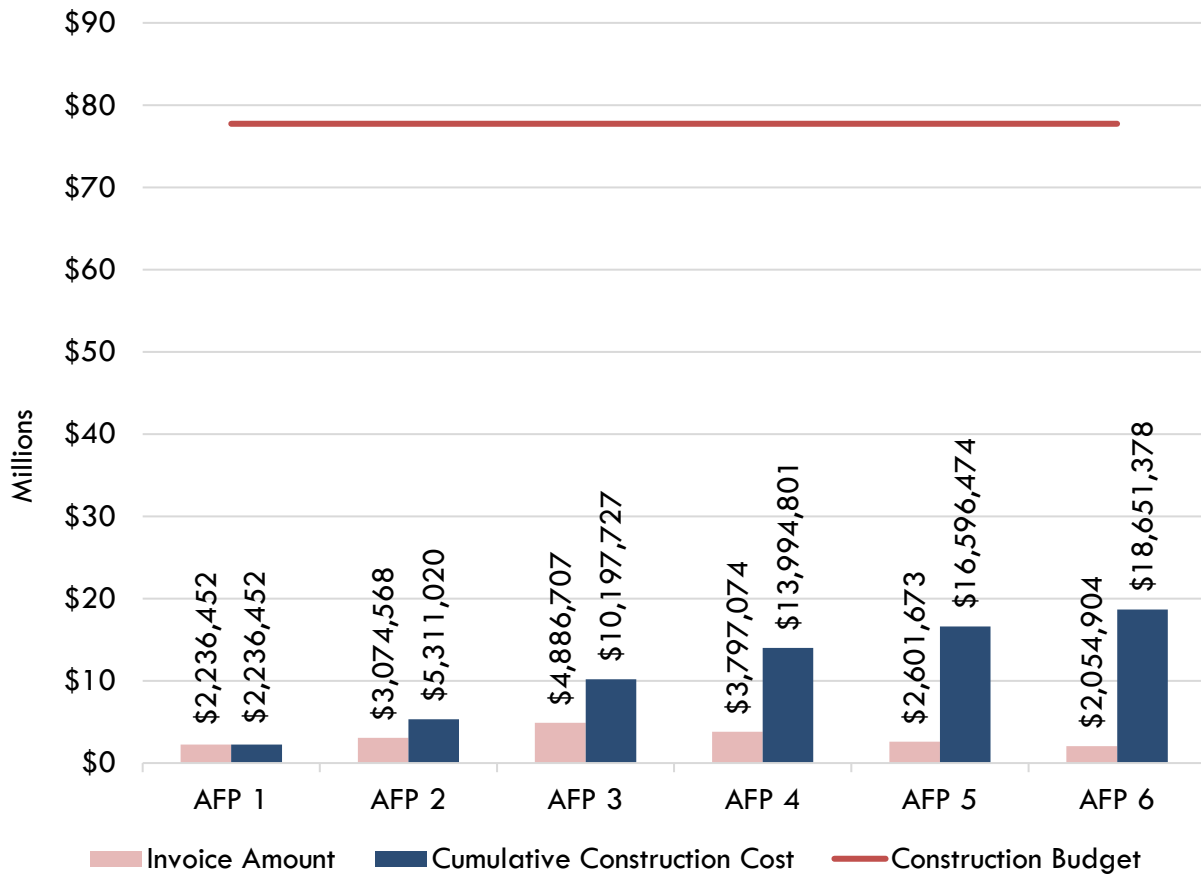
City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44

Construction Budget: Pay Applications Approved by Engineer



Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

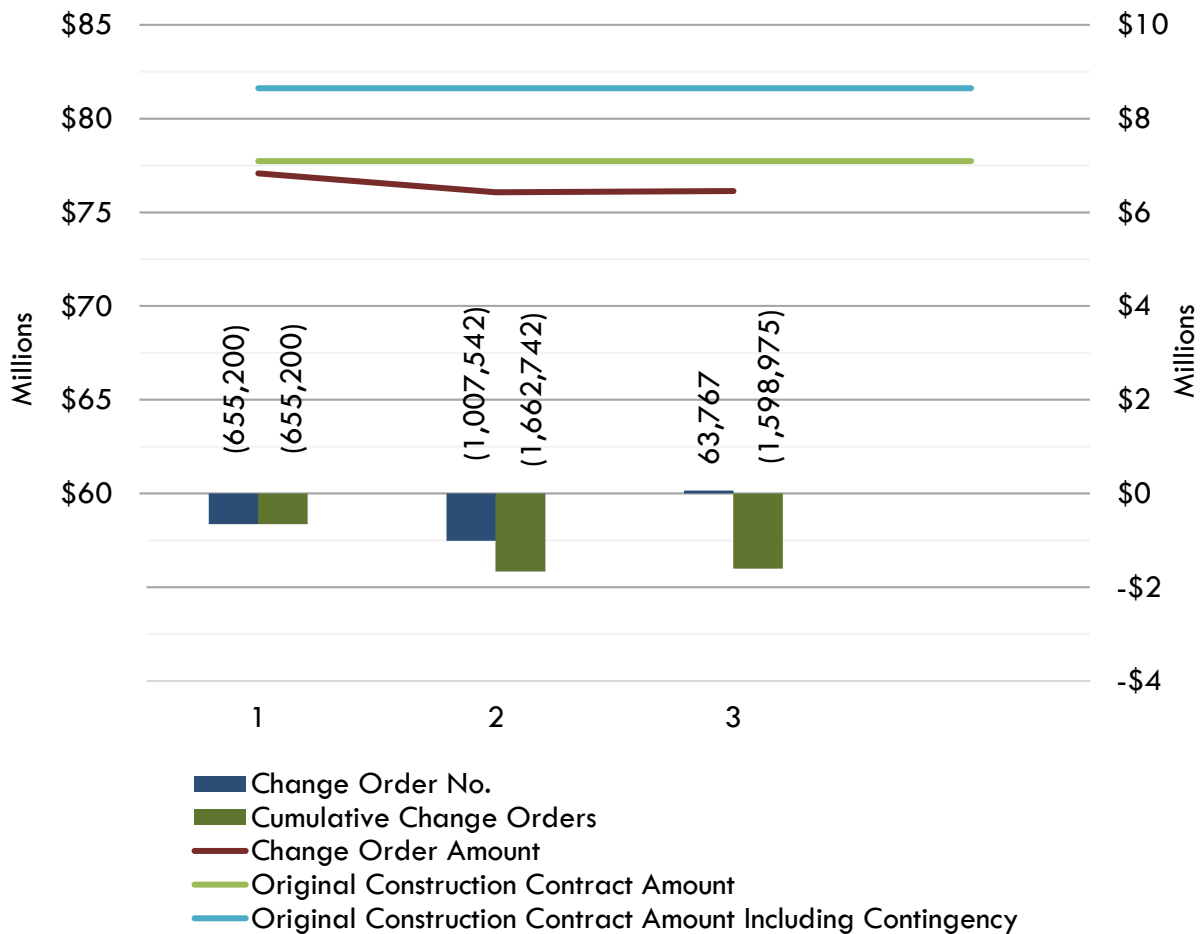
City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44

Overall Project Budget



Budget Notes:

1. No budget issues at this time.

Remarks

1. None.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

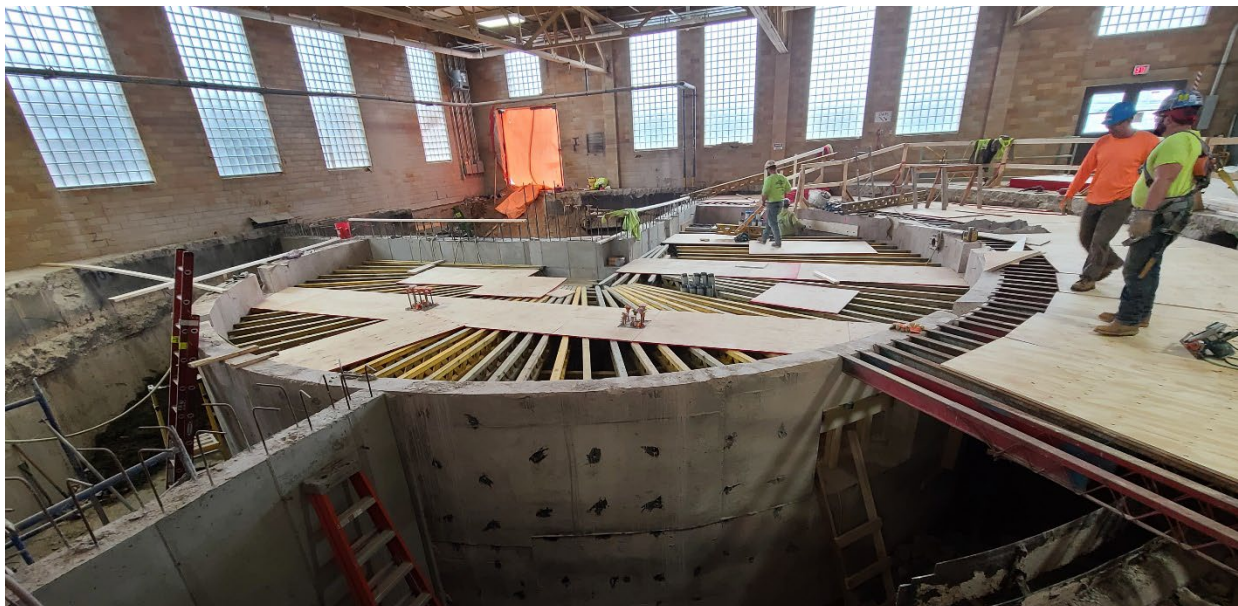
Period | January 10, 2020 – February 6, 2021

Invoice 44

Construction Photographs



Structure 100 (Main Building): Pumper truck pumping concrete for support walls for generator room.



Slab on grade formwork and conduit runs for switchgear 1 as well as new generators and gas compressor at Structure 100 (Main Building)

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44



Exterior of Structure 120 (Administration Building) looking at the entryway between the garage and administration areas.



Final connection of Structure 350 (Primary Effluent Channel) to Structure 310 (Primary Clarifier 1).

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44



Structure 120 (Administration Building): Vestibule No. 1 roof work and windows in place



Garage area of Structure 120 (Administration Building): garage doors being installed, lighting and all other mechanical, electrical and plumbing work ongoing.

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44



Tile work in Women's Locker Room of Structure 120 (Administration Building)



Structure 350 (Primary Effluent Channel) grating installation and backfill west side of channel.

Project Status Report

Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44



First new blower, being brought into Structure 400 (Activated Sludge Building). Existing north doorway removed to allow for blower entry.



Integrity Grading and Excavating installing the 36-inch Mixed Liquor line into Structure 500 (Secondary Splitter); in the foreground is the new 36-inch Secondary Effluent line from Structure 530 (Secondary Clarifier 3).

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44



Structure 500 (Secondary Splitter): looking at the west side future connection point to the aeration basin effluent channel.



Integrity connecting the 36-inch mixed liquor line to Structure 540 (Secondary Clarifier 4).

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44



Precision backfilling around Structure 540 (Secondary Clarifier 4).



Miron has completed face brick of Structure 610 (Chemical Building)

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44



Structure 700 (Digester Building) boilers 1 and 2 equipment pads and the digester heat exchanger pad.



Structure 770 (Solids Building) precast walls were set by end of January.

Project Status Report



Wastewater Treatment Facility Improvements Project – Engineer During Construction

City of Wausau, Wisconsin

Donohue Project Number 13229

Period | January 10, 2020 – February 6, 2021

Invoice 44



August Winters installation of new 20" RAS piping at south end of Tunnel 900.



Van Ert Electric running 4-inch conduit along the ceiling of Tunnel 910.

INVOICE



3311 Weeden Creek Road
Sheboygan, WI 53081
Phone: 920-208-0296
www.donohue-associates.com

Invoice To:	Invoice Date:	February 11, 2021
	Donohue Project No.:	13229
City of Wausau	Invoice No:	13229-44
Attn: Dave Erickson	Project Manager:	Mike Gerbitz
407 Grant Street	Terms:	Net 30 Days
Wausau, WI 54403	Billing Period:	01/10/21 - 02/06/21

Project Description: Wastewater Facilities Plan & Design

Your Authorization: Engineering Services Agreement, Signed 03/29/17
Amendment No. 1, Signed 06/28/18
Amendment No. 2, Signed 03/05/19
Amendment No. 3, Signed 01/27/20
Amendment No. 4, Signed 05/07/20
Permit Review Fees Payment Request, 02/27/20

Compensation:	Time and Expense	\$	129,220.00
	Time and Expense	\$	984,565.00
	Time and Expense	\$	3,323,900.00
	Time and Expense	\$	4,351,831.00
	Time and Expense	\$	1,843,325.00
	Permit Review Fees	\$	12,534.50
	Total	\$	10,645,375.50

Billing Summary:	Total Charges to Date	\$	5,464,991.15
	Charges Previously Billed	\$	5,306,516.23
	Current Charges	\$	158,474.92

Summary of Current Charges

Labor (867.0 hours)	\$	141,782.50
Reimbursable Expenses (Travel, shipping, printing)	\$	6,960.42
Permit Review Fees	\$	-
Subconsultants	\$	9,732.00
Total	\$	158,474.92

Current Charges Due	\$	158,474.92
----------------------------	-----------	-------------------

Please Remit to: Donohue & Associates, Inc.
3311 Weeden Creek Road
Sheboygan, WI 53081
Phone: 920-208-0296
Fax: 920-208-0402

Aged Receivables

<u>Current</u>	<u>31 - 60 Days</u>	<u>61 - 90 Days</u>	<u>91 - 120 days</u>	<u>>120 days</u>
\$158,474.92	\$137,440.31	\$0.00	\$0.00	\$0.00



Sludge conveyor with side cover removed showing collapsed auger



Excellence in Engineering Since 1946

Strand Associates, Inc.® (SAI)

Infiltration and Inflow Analysis Summarizes the City's Baseline for Existing Dry and Wet Weather Sanitary Sewer Flows

City of Wausau, WI



Introductions – Project Staff

Project Engineer



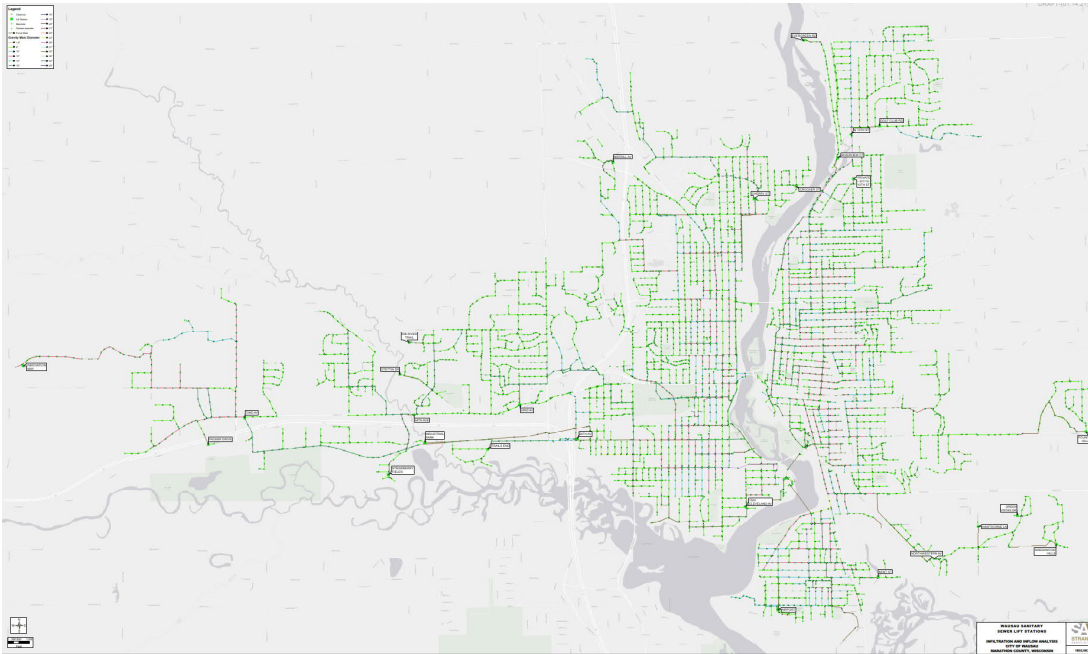
Ryan Yentz, P.E.

Project Manager and Quality Control



Andrew Craven, P.E.

Reducing I/I is Key to City's Operation and Maintenance Success From the Streets to the WWTP



- Reduces Sanitary Sewer Overflows
- Reduces Sinkholes in Streets
- Reduces Pumping and Chemical Costs
- Increases Future Development Potential

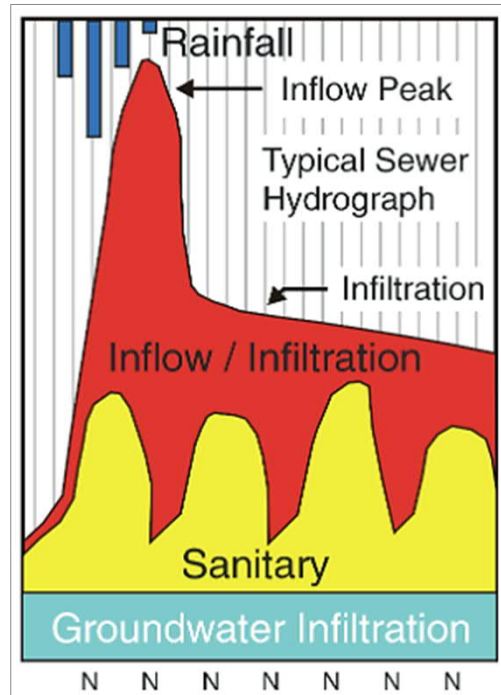
Flow Metering Collects Sound, Quality Data to Evaluate Dry and Wet Weather Flow Patterns



With Permission of: Teledyne Isco



With Permission of: Teledyne Isco



I/I Enters the Collection System in Several Different Locations



**Vented Covers/Open Pick
Holes**

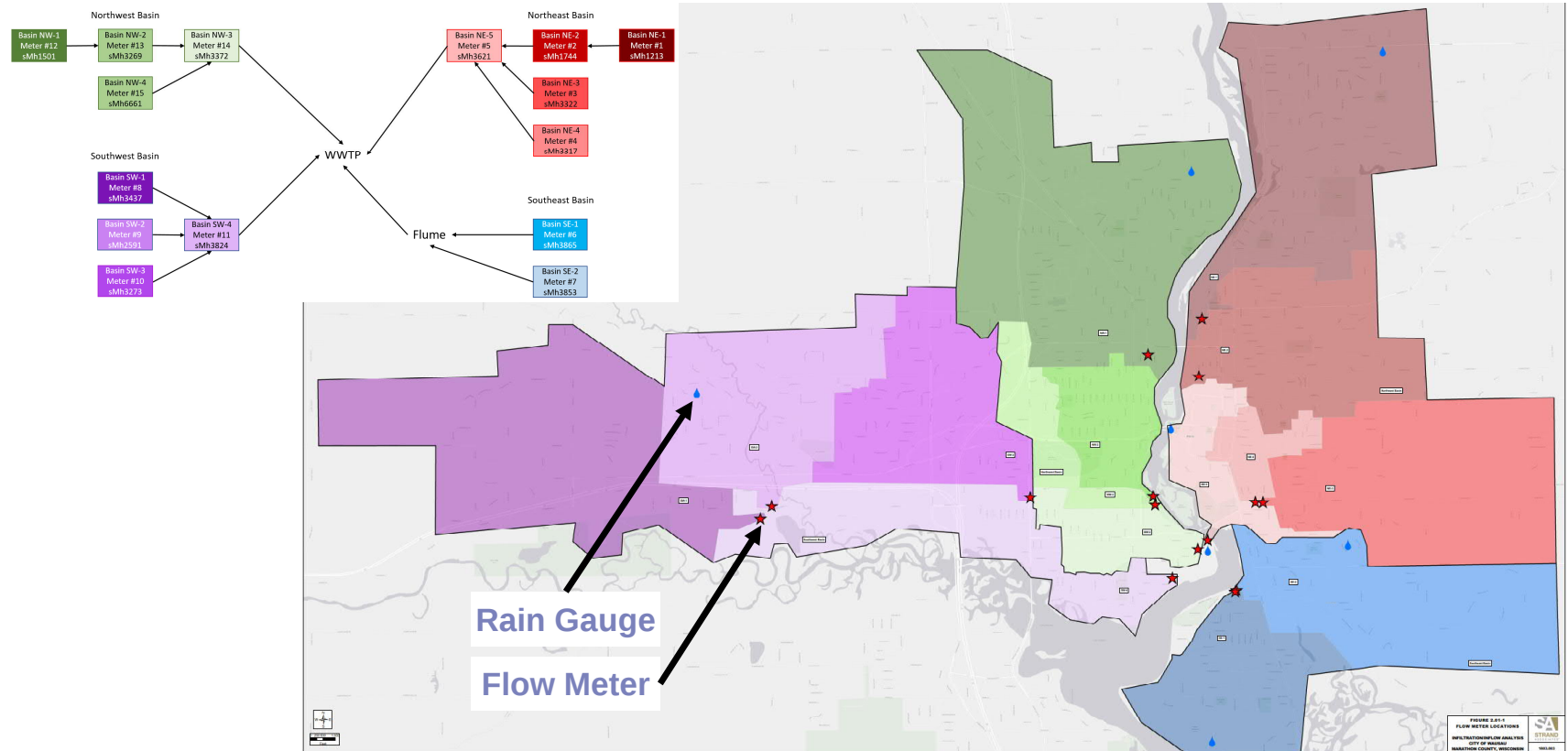


**Joints, Steps, Service
Connections in
Manholes**



**Joints, Service
Connections in Sewers**

City Collection System Was Divided Into 15 Drainage Basins for a Comprehensive Analysis

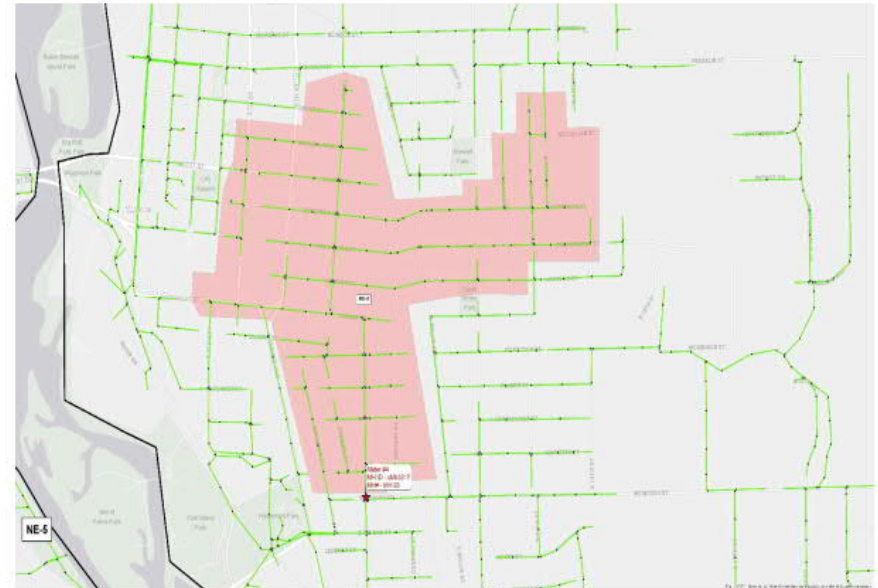


Summary Sheets Provide Valuable Information on Wet Weather Flow

Wet Weather Event:	No. 1	No. 2	No. 3	No. 4
1 Wet Weather Event Start Date and Time	6/9/2020 20:00	6/20/2020 4:00	7/14/2020 11:00	7/26/2020 9:00
2 Wet Weather Observation Period (hrs)	36	72	72	24
3 Total Rainfall (in)	2.06	2.97	2.39	1.51
4 Peak 1-Hour Intensity (in/hr)	0.49	0.89	0.79	1.30
5 Overall Average Dry Weather Flow ^a (gpm)	133			
6 Average Wet Weather Flow ^b (gpm)	216	408	222	276
7 Average Dry Weather Flow ^c (gpm)	124	137	130	139
8 Average I/I ^{d,e} (gpm)	92	271	92	137
9 Total Metered Flow (gal)	470,169	1,766,954	963,440	402,035
10 Dry Weather Flow (gal)	269,459	592,937	561,500	201,902
11 Total I/I ^f (gal)	200,710	1,174,017	401,940	200,133
12 Peak 15-min Wet Weather Flow (gpm)	395	1,544	990	2,098
13 15-min Dry Weather Flow ^g (gpm)	115	111	145	166
14 Peaking Factor ^h	3.4	13.9	6.8	12.6
15 Peak Flow Ratio ⁱ	3.2	11.3	7.6	15.1
16 Peak 15-min I/I ^j (gpm)	280	1,433	845	1,932
17 R-Value ^k	0.0060	0.0169	0.0113	0.0156
Comments (see below)				

Notes:

- Overall Average Dry Weather Flow (gpm) is the average flow of the during the dry weather period.
- Average Wet Weather Flow is the wet weather flow averaged over the Wet Weather Observation Period starting at the Wet Weather Event Start Date and Time.
- Average Dry Weather Flow is an average of dry weather flows on the same day(s) as the wet weather event.
- I/I - Infiltration and inflow.
- Average I/I is the Average Wet Weather Flow minus Average Dry Weather Flow. (Line 6 - Line 7)
- Total I/I is the total difference in Wet Weather Flow and Dry Weather Flow for the Wet Weather Observation Period beginning at the Wet Weather Event Start Date and Time. (Line 9 - Line 10)
- 15-Minute Dry Weather Flow is the Average Dry Weather Flow at the site at the same time as the 15-Minute Dry Weather Flow.
- Peaking Factor is the Peak 15-Minute Wet Weather Flow divided by the 15-Minute Dry Weather Flow. (Line 12 ÷ Line 13)
- Peak Flow Ratio is the Peak 15-Minute Wet Weather Flow divided by the Average Dry Weather Flow. (Line 12 ÷ Line 7)
- Peak 15-Minute I/I is the Peak 15-Minute Wet Weather Flow minus the 15-Minute Dry Weather Flow. (Line 12 - Line 13)
- R-value is the fraction of the rainfall volume entering the system as I/I.



Site Description: Manhole sMh3317 located in the intersection of Prospect Ave and McIntosh St.

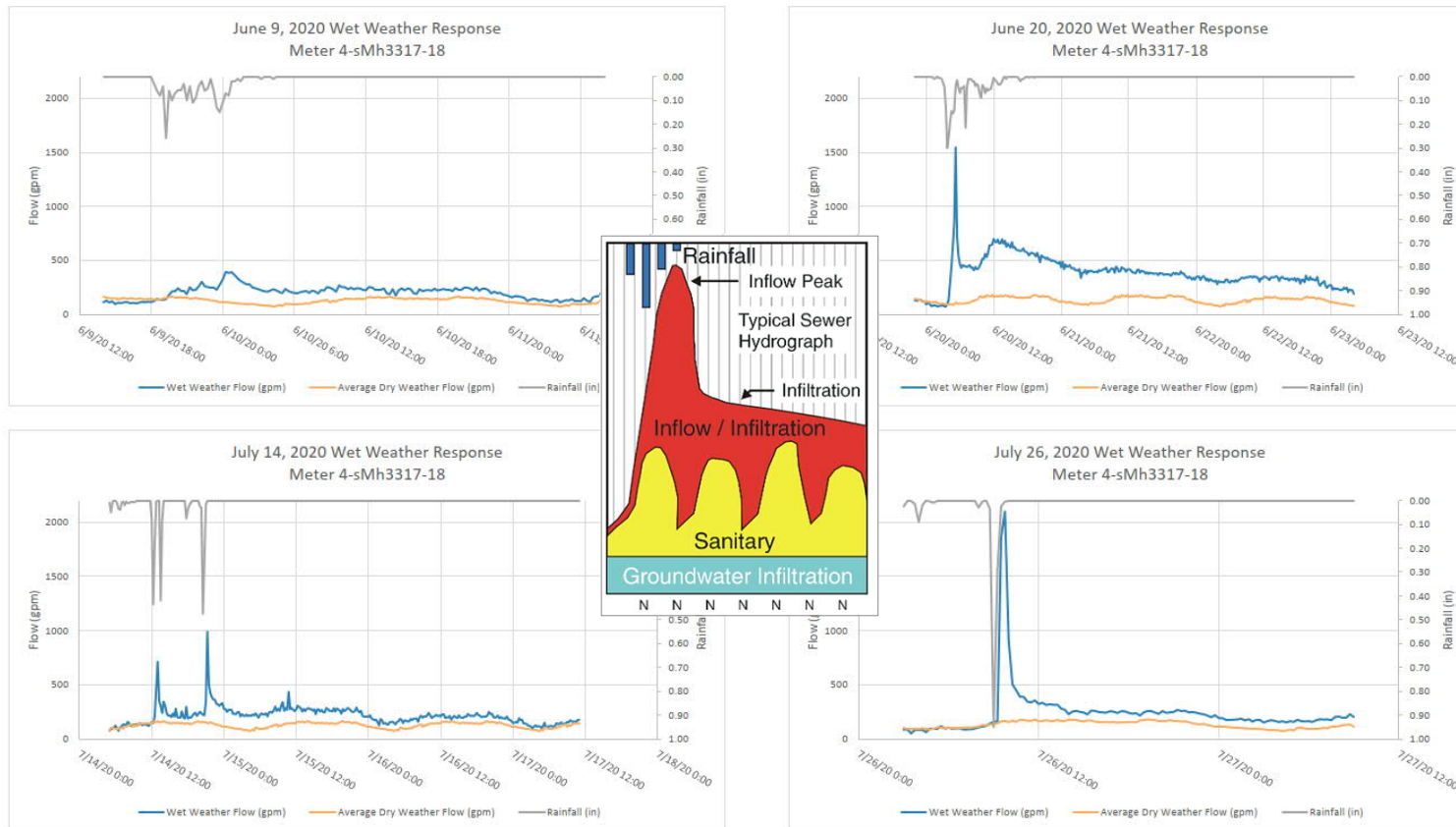
Pipe Diameter: 18 inches

Tributary Area: NE-4

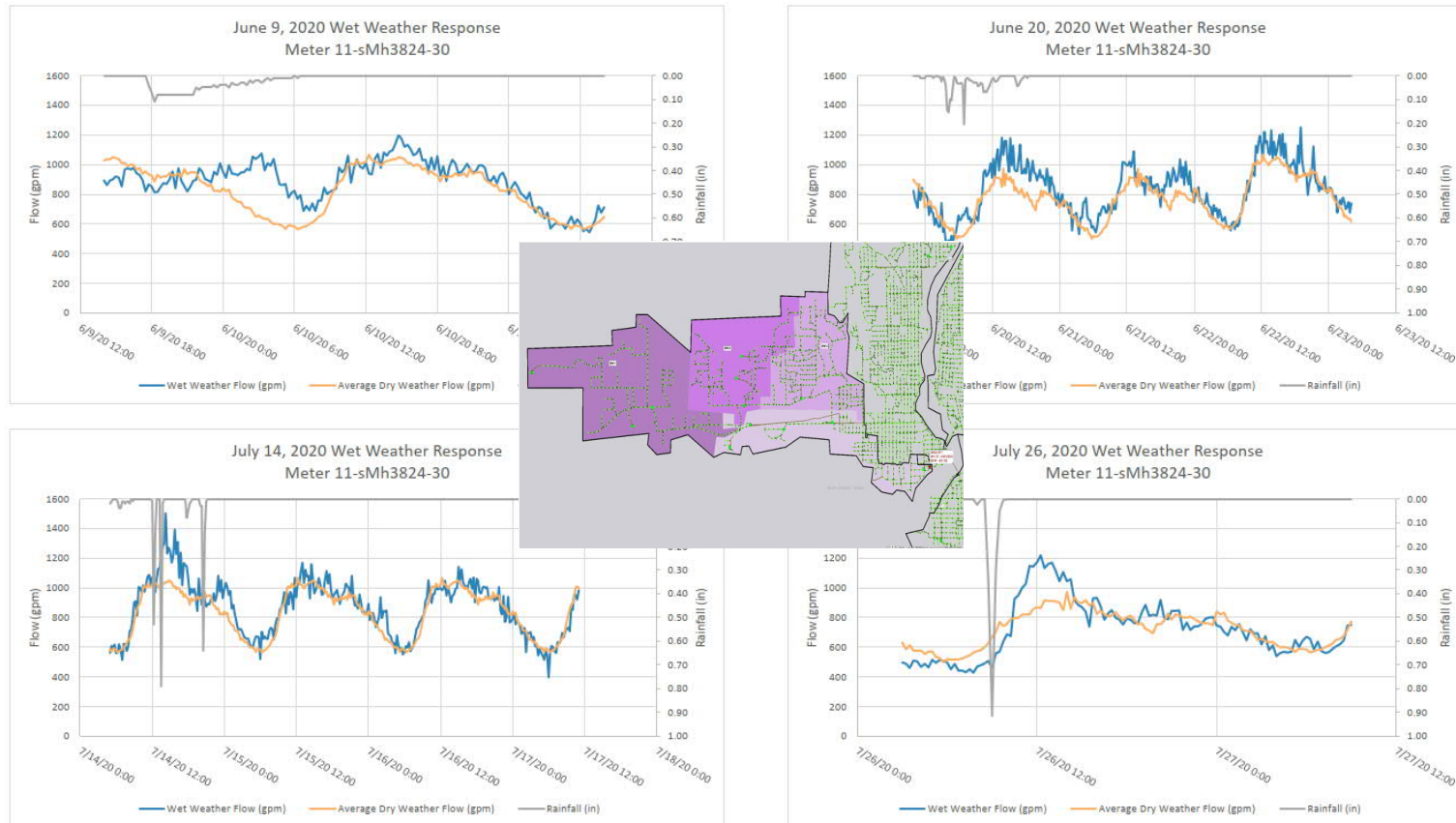
Tributary Area Size: 214 acres

Rainfall Data: Weather Underground: KWIWAUSA45, KWIWAUSA17

Summary Sheets Provide Valuable Information on Wet Weather Flow

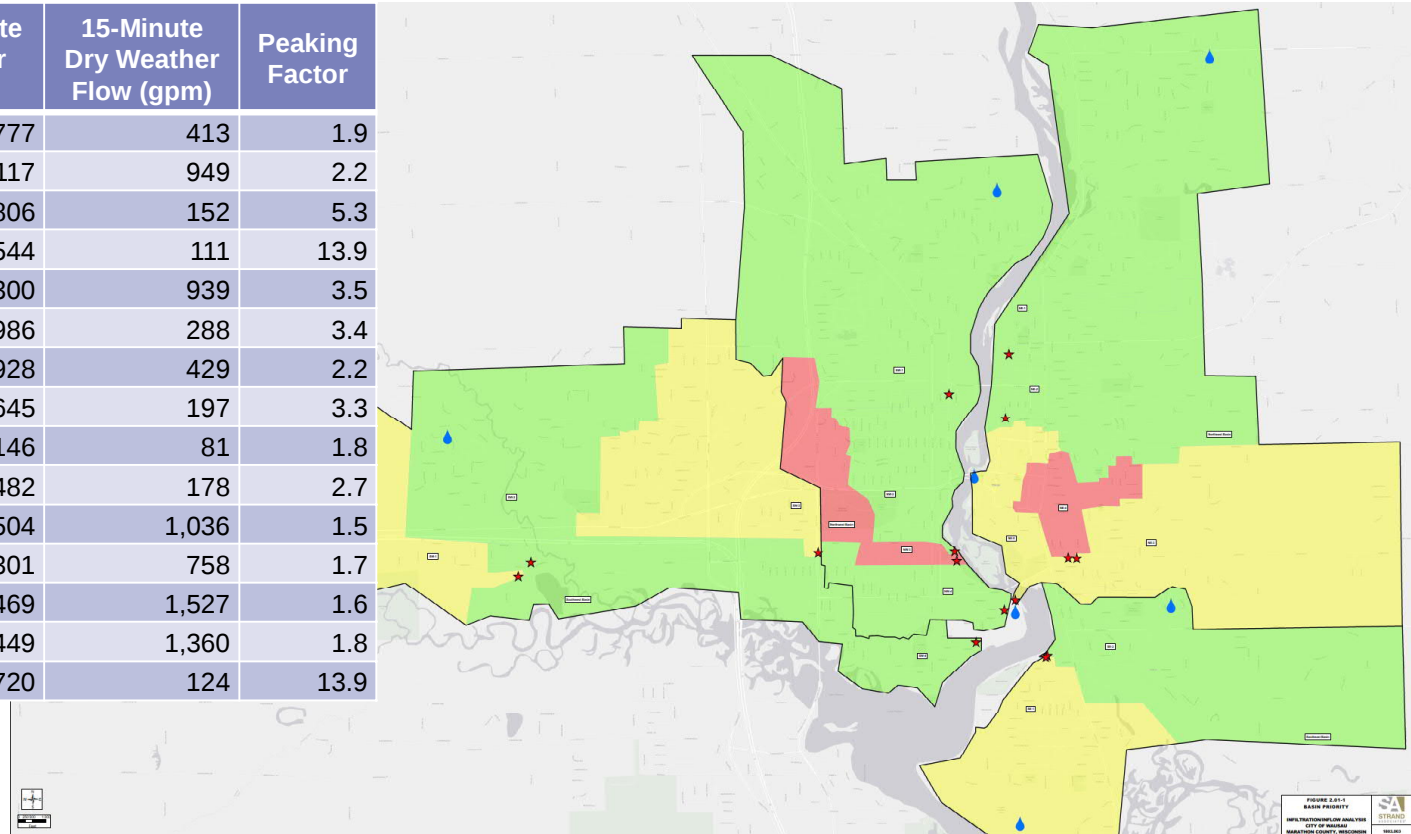


Summary Sheets Provide Valuable Information on Wet Weather Flow



Flow Metering Results Focus Maintenance Activities for 1.2 Million Feet of Sewer Infrastructure

Meter ID	Sewer Basin	Peak 15-Minute Wet Weather Flow (gpm)	15-Minute Dry Weather Flow (gpm)	Peaking Factor
1	NE-1	777	413	1.9
2	NE-1,2	2,117	949	2.2
3	NE-3	806	152	5.3
4	NE-4	1,544	111	13.9
5	NE-1,2,3,4,5	3,300	939	3.5
6	SE-1	986	288	3.4
7	SE-2	928	429	2.2
8	SW-1	645	197	3.3
9	SW-2	146	81	1.8
10	SW-3	482	178	2.7
11	SW-1,2,3,4	1,504	1,036	1.5
12	NW-1	1,301	758	1.7
13	NW-1,2	2,469	1,527	1.6
14	NW-1,2,3,4	2,449	1,360	1.8
15	NW-3	1,720	124	13.9



Wausau-Specific Investigations Result in Additional Opportunities for I/I Removal

First St Access Hatch Assessment

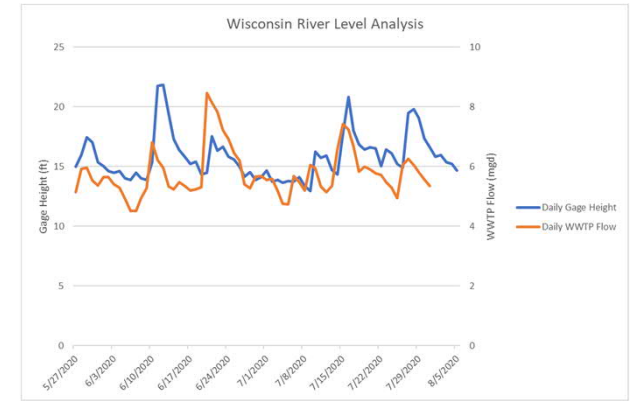


Capacity Analysis



With Permission of: Wisconsin Sanitary Sewer System Study Guide

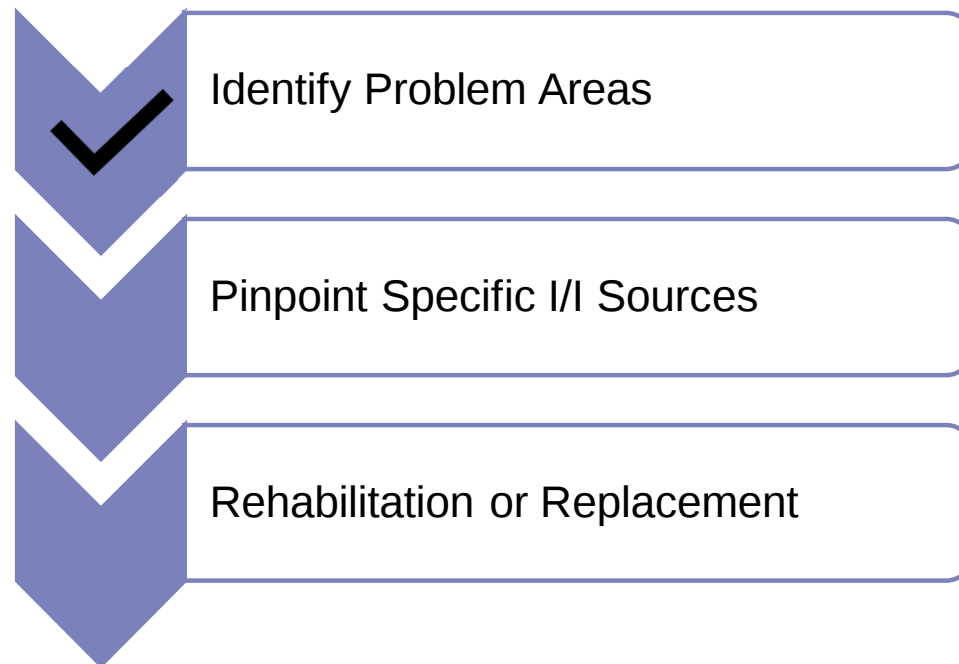
River Level Analysis



Lift Station Analysis



Recommendations Summary Provides City Outline for Future Evaluations and Capital Improvements



Sewer Basin	Priority	Recommendations	OPCC (\$)
NE-1	Low	Monitor through Routine Maintenance	\$0
NE-2	Low	Monitor through Routine Maintenance	\$0
NE-3	Medium	Manhole Assessments	\$21,000
NE-4	High	Smoke Testing, Manhole Assessments	\$26,000
NE-5	Medium	Manhole Assessments	\$18,000
SE-1	Medium	Manhole Assessments	\$25,000
SE-2	Low	Monitor Tributary to Northwestern Lift Station	\$0
SW-1	Medium	Manhole Assessments	\$19,000
SW-2	Low	Monitor through Routine Maintenance	\$0
SW-3	Medium	Manhole Assessments	\$35,000
SW-4	Low	Monitor through Routine Maintenance	\$0
NW-1	Low	Monitor Tributary to Merrill Ave Lift Station	\$0
NW-2	Low	Monitor through Routine Maintenance	\$0
NW-4	Low	Monitor through Routine Maintenance	\$0
NW-3	High	Smoke Testing, Manhole Assessments	\$37,000



Smoke Testing Efficiently Locates Sources of Inflow to be Removed

Sanitary Smoke Testing

City of Davenport

Incident ID

9

Incident Date

9/7/2017

Technician

Strand - RMY

Basin ID

Iowa Street

Incident Time

10:43:00 AM

Set Up Number

6

Plug 1 Loc

Plug 3 Loc

Plug 5 Loc

Smoker Location

RO-1-38

Plug 2 Loc

Plug 4 Loc

Plug 6 Loc

Incident Location

1009 Pershing Avenue

Incident Category

Private - Lateral

Inflow Potential

Medium

Estimated Severity

Severe

Infiltration Potential

High

Observations

Smoke observed through cracks in sidewalk and through grass surface of parkway.

Additional Investigation Recommended?

☒

Recommended Additional Investigation

Televiser main line.

Recommended Repair

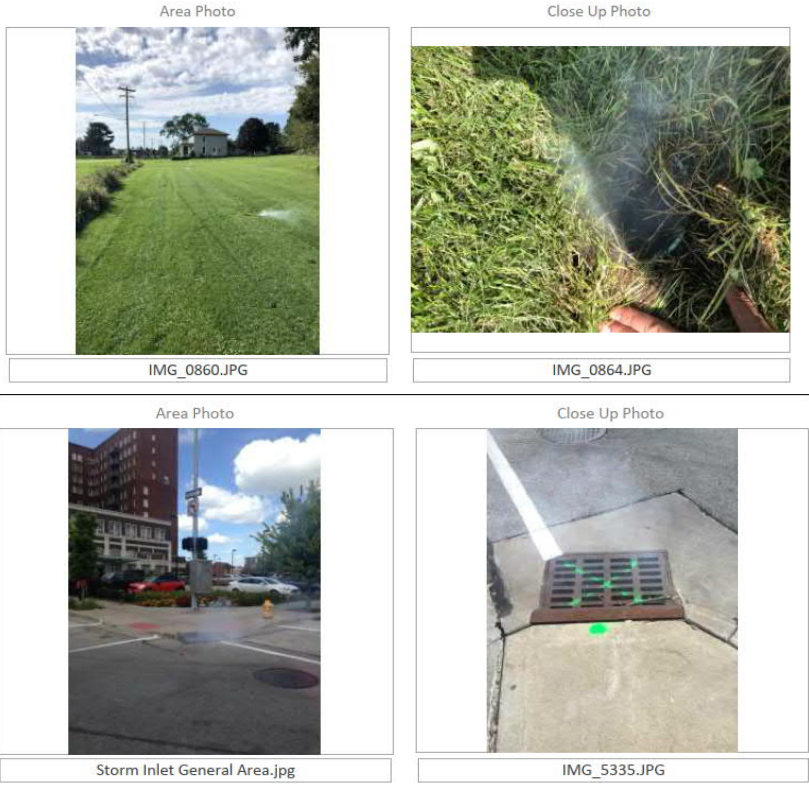
Rehabilitation methods to be determined following review of CCTV

Area Photo

Close Up Photo

10th and pershing lateral.jpg

IMG_5331.JPG



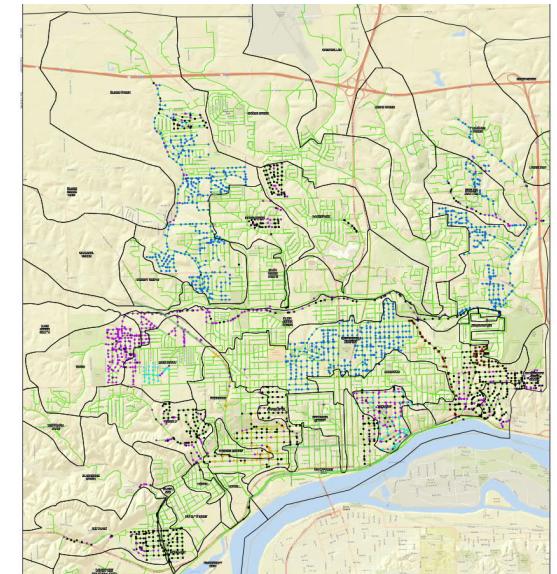
Where Smoke Can Exit the System, Water Can Enter the System

Manhole Assessments Provide Another Layer to City's Existing Asset Management Practices



**Multiple Photos Facilitate
Future Review from
Computer**

**Specific Rehab
Recommendations
Provided for Each
Manhole**



**Management of
Assessments and Rehab
Documents Progress**



2020 Infiltration and Inflow Analysis Summarizes the Baseline for City's Existing Dry and Wet Weather Sanitary Sewer Flows

- Flow Metering Collects Sound, Quality Data to Evaluate Dry and Wet Weather Flow Patterns
- Flow Metering Results Focus Maintenance Activities For 1.2 Million Feet of Sewer Infrastructure
- Wausau Specific Investigations Result in Additional Opportunities for I/I Removal
- **Future Activities:**
 - Smoke Testing
 - Manhole Assessments
 - Collection System Rehabilitation

Questions



© Coloures-Pic – stock.adobe.com



Excellence in Engineering Since 1946

OPPORTUNITIES NOW

An Analysis of Priority Issues and Actions
for Wisconsin's Natural Resources



2021
2023

**PFAS – Forever
Chemicals in Wisconsin**

PFAS – Forever Chemicals in Wisconsin

Wisconsin's Green Fire

BOARD OF DIRECTORS

Terry Daulton, President
Jim Perry, Vice President
Robin Schmidt, Secretary
Robert Gurda, Treasurer
Michael Cain
Ron Eckstein
Jodi Habush-Sinykin
Tom Jerow
Paul LaLiberte
Bob Martini
Mike Meyer
Bryan Pierce
Kate Reilly
Shannon Thielman
Fred Clark,
Executive Director

Contributors

Sarah Peterson
John Robinson
Meleesa Johnson
Tom Jerow
James Baumann
Fred Clark

About this Work:

Opportunities Now is an issue paper series published by Wisconsin's Green Fire that summarizes the science and background of key conservation and environmental issues and makes policy recommendations that support pro-conservation outcomes. Each of the papers in our Opportunities Now series is the product of an analysis of current literature, interviews with agency staff and experts, and the consensus of our subject matter teams. Policy makers, conservation organizations, and concerned citizens are all welcome to use and distribute Opportunities Now papers without restrictions.

Direct inquiries on this paper to WGF Science Director Sarah Peterson, at speterson@wigreenfire.org

Cover photo: Aqueous Film Forming Foam containing PFAS at use in a fire at a city of Madison electric substation in July, 2019. Photo credit: Wisconsin State Journal.

Foam containing PFAS
found in Starkweather
Creek, Madison, Wisconsin.
Photo Credit: WDNR.



PFAS – Forever Chemicals in Wisconsin

Countries across the world are grappling with the long-term health and environmental impacts related to the manufacturing and use of the large family of chemicals known as PFAS, or Per- and Polyfluoroalkyl Substances. PFAS are often called “forever chemicals” due to a molecular structure that gives them extraordinary persistence in the environment and the ability to resist decomposition.

PFAS as a group includes thousands of individual chemicals, many of which have been in production and use in a wide variety of products since at least the 1950s. PFAS are especially valued for their ability to resist grease, stains, oil, water, and heat and are found in many everyday products such as firefighting foam, carpeting, coated paper, chrome metal plating, nonstick cookware, dental floss, and a wide variety of food packaging. Due to their widespread use in so many consumer products, PFAS are now being detected in the environment and in humans, animals, and other organisms in every part of the world.

Exposure to high levels of PFAS has been linked to a myriad of human health issues including increased risk of some cancers, decreased vaccine response in children, changes in liver enzymes, and fertility and pregnancy complications in women.¹

In the last 15 years PFAS have been found in groundwater, surface water, drinking water wells, as well as in biosolids, soils, and aquatic sediments in Wisconsin. In the absence of a comprehensive federal approach to PFAS, Wisconsin, along with other states, is now grappling with how to regulate these chemical contaminants while working to better understand their health effects.

Like many other states, Wisconsin currently lacks enforceable standards for PFAS in surface water, groundwater, and drinking water.

*Johnson Controls - Tyco
Fire Products Stanton
Street Facility located
on the Menominee River
in Marinette has been a
documented source of
PFAS contamination. Photo
Credit: Fred Clark.*



The lack of state enforceable standards is compounded by the lack of federal standards – the United States Environmental Protection Agency (EPA) currently has not established enforceable standards* for any PFAS chemical. The EPA has established non-regulatory health advisory levels for drinking water of 70 parts per trillion (ppt) or two of the most tested-for PFAS chemicals, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), combined.

One of the earliest PFAS chemicals to be studied, PFOS, was voluntarily phased out of use in 2002 in the United States. U.S. Manufacturers voluntarily eliminated PFOA emissions and their use in products by the end of 2015. Despite these actions numerous other PFAS known as “short chain PFAS” are still in use.²

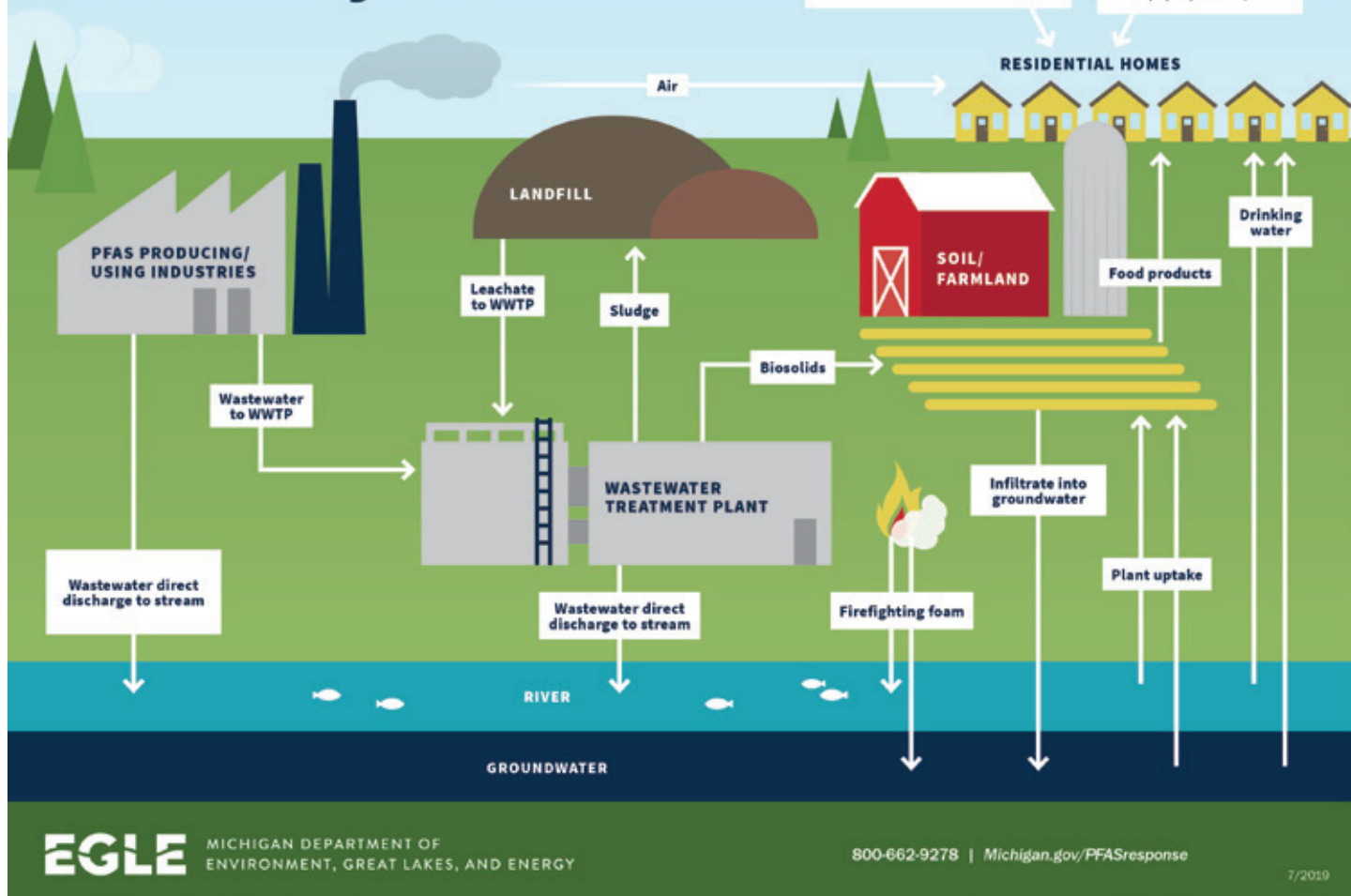
Short chain PFAS contain fewer fluorine atoms than long chain PFAS and have been reported in manufacturers' studies to be safer and less likely to bioaccumulate.³ Recent toxicity studies however show that second generation short-chain PFAS chemicals have comparable toxicity with longer chain chemicals, affecting the same organ systems, similar to the effects of the older longer chain PFAS.⁴

In the absence of federally enforceable standards for PFAS, states are left to devise their own standards and response. The Wisconsin Department of Health Services (WDHS) has recommended a health-based standard of 20 ppt for PFOA and PFOS combined, in groundwater. As of December 2020, a Wisconsin Department of Natural Resources (WDNR) rulemaking process is underway to develop statewide standards for PFAS in drinking water, ground, and surface waters.

*Enforceable Standards are regulatory limits for contaminants that require corrective action when exceedances occur. Health advisory levels are non-regulatory thresholds that trigger public advisories.

This report provides a look into sources of exposure, health effects, and known releases for PFAS in Wisconsin, as well as state agency involvement. Recommendations in the report point to improved environmental management of PFAS grounded in the latest science, methods to reduce exposure and devise clean up procedures for spills that occur.

PFAS Cycle



How PFAS cycle through the environment, their fate and transport. Credit: Michigan Department of Environment, Great Lakes, and Energy

Background

Routes of Exposure

PFAS have a unique chemical structure that contributes to their persistence. PFAS molecules contain a hydrophobic (or water repellent) fluorine-saturate carbon chain and a hydrophilic (attracted to water) functional group. This structure gives PFAS their desirable water and fat repellent quality that makes them perfect for nonstick and water repellent products, but it also contributes to their exceptional persistence in the environment.⁵

Detecting and managing PFAS is complex, in part due to the numerous points within the manufacturing and distribution systems and the waste streams where PFAS and products containing PFAS enter the environment. Human exposure may occur at any of these points.

Homes, work places, hospitals and even schools can also be sources of PFAS exposure because of commonly used items, which may include:⁶

- Stain-free carpeting, draperies, and furniture
- Grease and moisture-resistant paper products such as fast-food wrappers, dry goods packaging, and medical gowns and curtains⁷

- Non-stick pans and cookware
- Building products such as plumbing tape, house wraps and paints
- Outdoor rain-resistant fabrics and gear
- Personal care products like lotions, cosmetics, and dental floss
- Fabric softeners

Through their regular use, humans become exposed to PFAS that leach from cooking pans or by breathing PFAS-laden dust loosened from fabrics. As these items are discarded, they enter the environment, either through the solid waste stream, or directly to air or water. Whether recycled, landfilled, composted, or incinerated, PFAS remain in the air, water, and soil because of their persistent nature.

PFAS have been found in wastewater effluent and in industrial and municipal waste system biosolids (the solid fraction that remains after wastewater treatment). Biosolids from wastewater treatment plants (WWTPs) are often land-spread on farm fields as a soil amendment or sent to solid waste facilities for management. PFAS can be

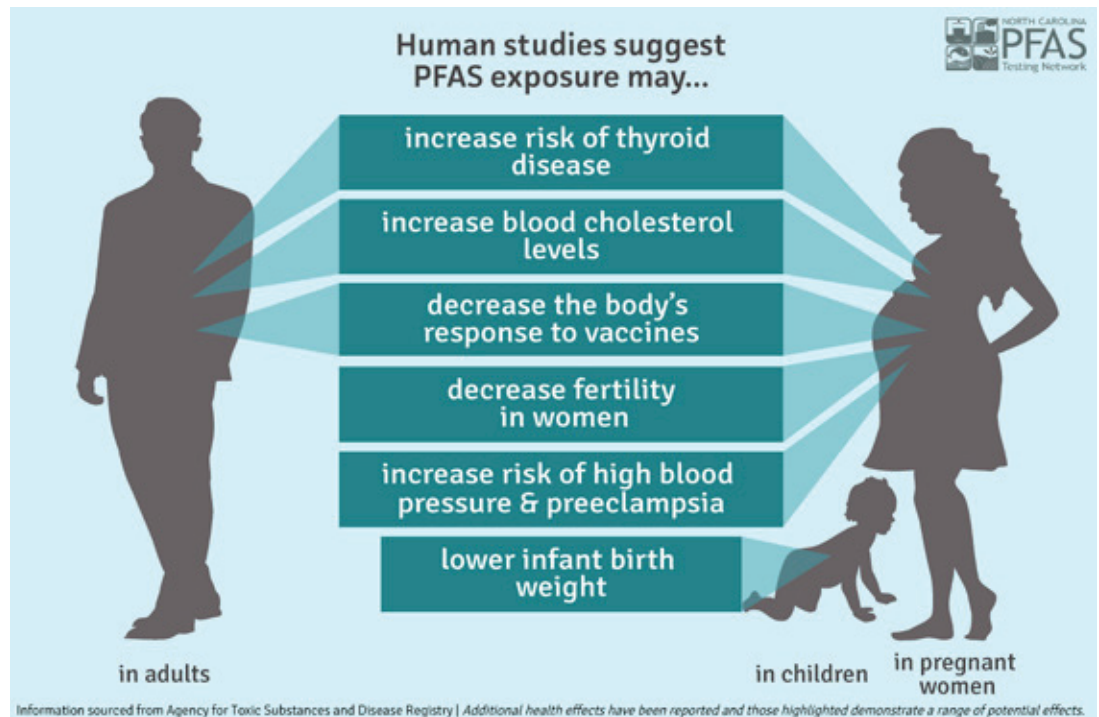
reintroduced back into the environment when present in biosolids. Studies have also shown that plants have the ability to uptake PFAS from PFAS-laden soil.⁸

Another common entry point for PFAS to the environment is through the use of aqueous film-forming foams (AFFFs) used in municipal airport and airfield firefighting. Firefighting training exercises at military air bases have commonly led to releases of PFAS to surface and groundwater. Documented releases have occurred across the state at all three of Wisconsin's Air National Guard bases.

Health Effects

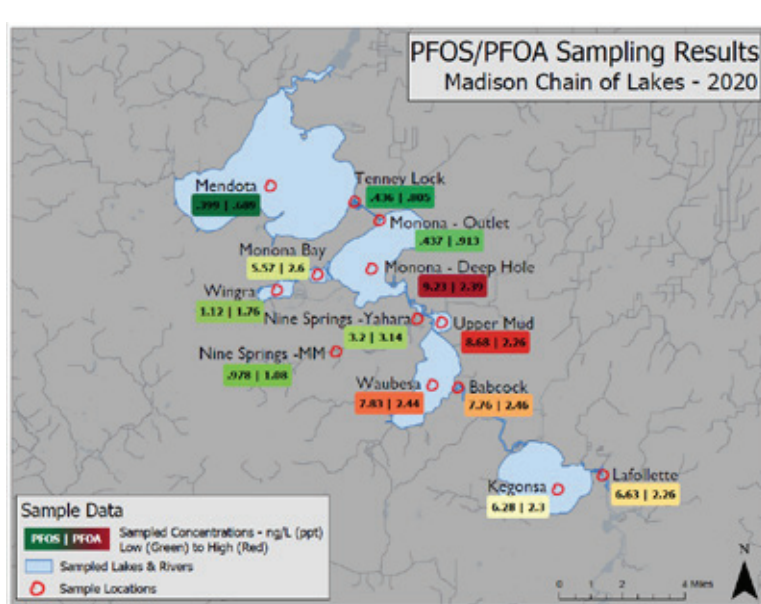
PFAS chemicals bind to proteins, particularly in the liver and blood.⁹ Preliminary research suggests that high levels of PFAS may increase cholesterol levels, decrease how well the body reacts to vaccines, result in changes in liver enzymes, increase the risk of certain cancers, increase the risk of pregnancy complications such as pre-eclampsia and lower average birth weights in newborns.^{1, 10} Reducing human exposure to PFAS is difficult, however, due to

Research suggests a variety of human health impacts from PFAS exposure. Credit: Agency for Toxic Substances and Disease Registry.





Lake Monona shoreline anglers fish next to a fish consumption advisory notice in Madison, WI. Photo credit: Midwest Environmental Advocates.



Map based on 2020 sampling showing elevated levels of PFOS and PFOA compounds in the Madison Chain of Lakes. Credit: WDNR.

multiple sources of exposure and the widespread use of PFAS in everyday life.

Due to their resistance to degradation in the environment, PFAS compounds have high potential for bioaccumulation and biomagnification and toxicity to organisms.⁵ Fish advisories are commonly issued following known releases of PFOS to the environment or in areas where PFAS has been a persistent problem.¹¹ A recent WDNR study also found PFOS in the livers of deer near the Johnson Controls International (JCI)/Tyco site in Marinette.¹²

The manufacture, incineration, and disposal of PFAS chemicals has inordinate impacts on vulnerable communities.

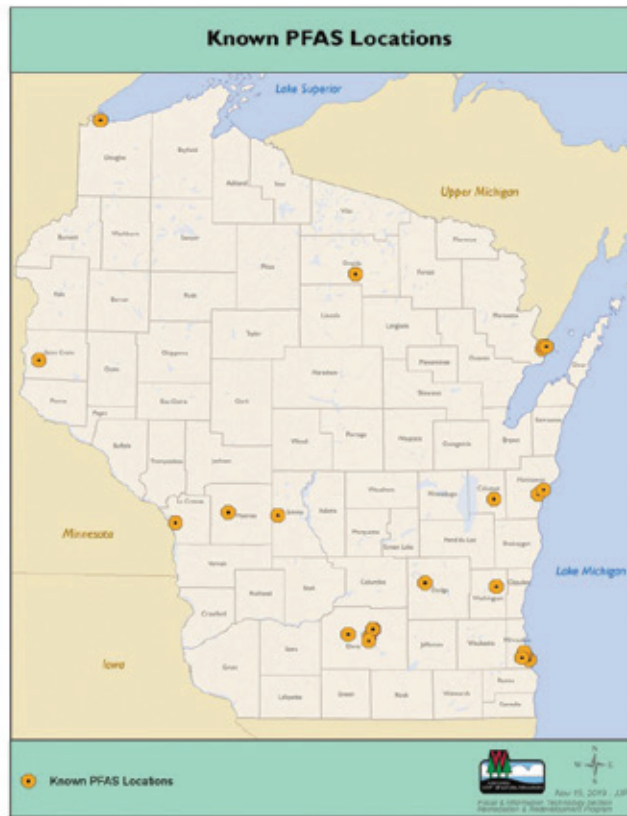
Multiple studies have shown that low-income communities and communities of color are more likely to live near PFAS-contaminated areas and face exposure to bioaccumulating PFAS toxins found in fish due to a higher reliance on subsistence fishing activities.^{13, 14}

Known Areas of Contamination in Wisconsin

Notable sites with high-profile releases include:

- MIRRO Plants in Manitowoc and Chilton: former manufacturing facilities
- JCI/TYCO site in Marinette: manufacture and testing of firefighting foam
- 2018 Husky Energy Refinery in Superior: use of firefighting foam to suppress an explosion and fire
- 2019 MG&E Substation Transformer in Madison: use of firefighting foam to suppress an explosion and fire
- Truax Field in Madison: use of firefighting foam in training exercises requiring fire suppression
- Volk Field at Camp Douglas and Fort McCoy: use of firefighting foam in training exercises requiring fire suppression
- General Mitchell Airport in Milwaukee: use of firefighting foam in training exercises requiring fire suppression
- Refuse Hideaway Landfill in Middleton and Junker Landfill in Hudson: leachate containing PFAS

As of October 2020,
there were 47 documented
releases of PFAS into the
environment in Wisconsin



Known PFAS locations in Wisconsin. Source: Wisconsin Department of Natural Resources.

The known PFAS releases in Wisconsin have resulted in impacts to public and private water supply wells at several sites including wells in the Peshtigo/Marinette area (JCI/TYCO), Rhinelander Municipal Well #7, La Crosse Municipal Wells 23 & 24. In August 2020, Madison Water Utility reported PFAS in all 22 of its active wells with total PFAS concentrations ranging from 2.5 to 47 ppt.¹⁵

Due to concerns over the uptake and bioaccumulation of PFAS in deer livers from grazing on fields impacted by PFAS runoff or landspreading of biosolids, the WDHS and the WDNR have recommended that hunters do not eat liver harvested from deer within the PFAS advisory area around the JCI/TYCO site.¹³



Aqueous Film Forming Foam containing PFAS at use in a fire at a City of Madison electric substation in July, 2019. Photo credit: Wisconsin State Journal.

The lack of information relating to the historic use and release of PFAS is one of the biggest limitations in effectively managing this threat. Our understanding of the extent and distribution of PFAS contamination in Wisconsin is still incomplete but growing as additional sampling occurs and new information becomes available.

Monitoring in Wastewater Treatment Plants Wisconsin

Current monitoring for PFAS in Wastewater Treatment Plants (WWTPs) is incomplete and insufficient, partly due to the lack of enforceable environmental standards and the lack of adequate agency authority. Most of the monitoring that has occurred at WWTPs to date has either been done by the WDNR or done by WWTP operators on a voluntary basis.

Understanding the level of PFAS in influent, effluent, and biosolids at WWTPs is critical to developing regulations and water quality standards. This information would help provide an understanding of the potential routes for human exposures through the consumption of fish, wildlife, and drinking water.

Treatment, Containment, and Remediation

Effectively treating and destroying PFAS is an area of emerging research. Membrane bioreactors, granulated activated carbon, ion exchange resins, ultrafiltration, reverse osmosis, electrochemical oxidation, electrocoagulation, and concentrators are all methods being evaluated and some are in early stage use.¹⁶ None of these methods achieves complete remediation however as each method leaves residual PFAS in filters, membranes, and resins. Methods for destroying PFAS through incineration also result in incomplete remediation and leave behind residual PFAS.

All of the known remediation methods for PFAS also carry high costs and available funding is nowhere near adequate to address the known problem areas today. The U.S. Department of Defense (DOD) estimated that the cost to cleanup PFAS contamination at DOD installations alone would exceed \$3 billion.¹⁷

Wisconsin State Government: Policy and Agency Capacity

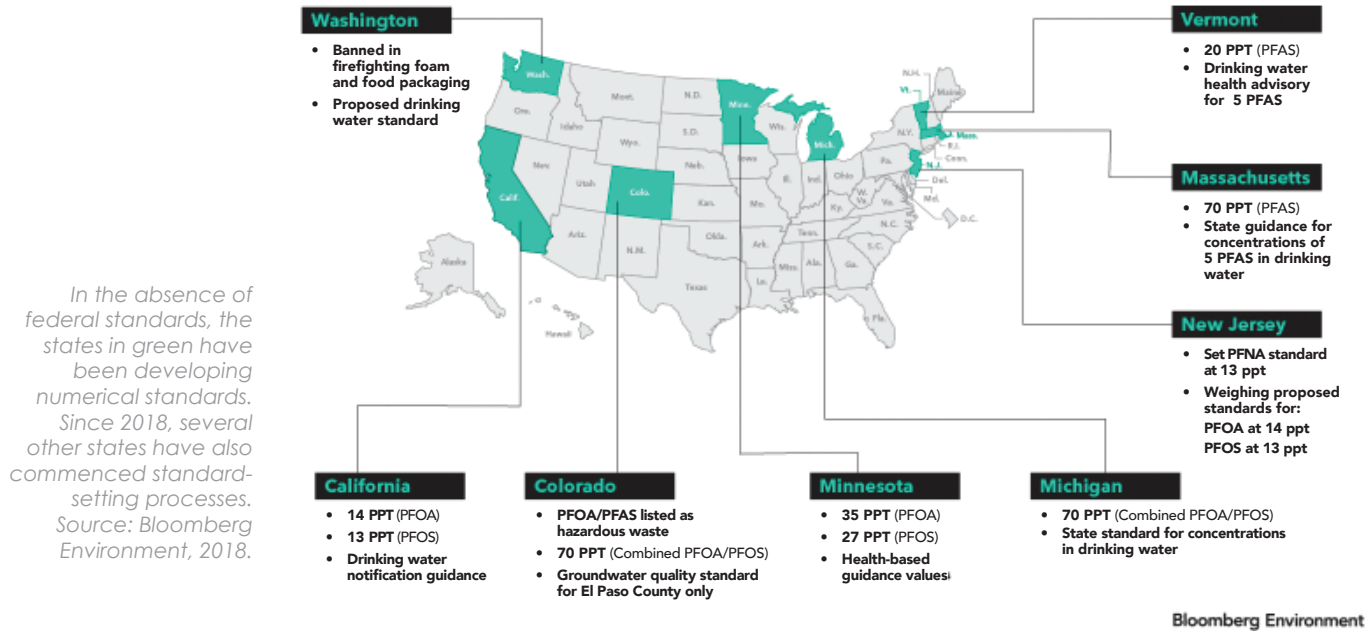
PFAS were identified as a priority issue during multiple public hearings hosted by the 2019 Wisconsin State Assembly Water Quality Taskforce.¹⁸

Only one of the proposals introduced during the 2019-2020 legislative session was enacted into law. 2019 Wisconsin Act 101 limits the use and discharge (with limited exceptions) of Class B firefighting foams that contains intentionally added PFAS. A WDNR emergency rule to implement Act 101 was approved on December 9, 2020 by the Wisconsin Natural Resources Board. On December 18th, the Wisconsin Legislature's Joint Committee on Review of Environmental Rules (JCRAR) voted to eliminate key provisions from the rule that addressed containment of PFAS contaminated material, rendering an important intent of the legislation ineffective.

In August 2019, Governor Evers issued Executive Order 40, which established a Wisconsin PFAS Coordinating Council, (since renamed the Wisconsin PFAS Action Council, or WisPAC). The Council was tasked with developing statewide standards for drinking water, ground water, and surface waters.

On December 16, 2020 WisPAC released a PFAS Action Plan that included a broad set of recommendations for environmental and health standards, pollution prevention, engagement and communication, research, bans and the phasing out of PFAS chemicals,

States With Numerical PFAS Limits



program funding, environmental justice issues, and addressing the historic legacy of PFAS discharges and exposures.

WDHS has recommended health standards of 20 ppt for PFOS and PFOA. WDNR is in the process of incorporating the proposed standards into drinking and groundwater standards. WDNR is also developing surface water quality standards for other PFAS chemicals. The agencies are seeking input from the public through stakeholder meetings.

All of the efforts to develop administrative rules and standards are processes that can take as much as three years, however delays caused by COVID-19 restrictions

Marinette, Wisconsin residents voice their concerns around PFAS exposure and cancer at a public listening session in January 2020.
Photo Credit: Susan Bence.





Madison, Wisconsin residents organize to urge the Wisconsin Air National Guard to investigate and clean up PFAS chemicals in 2018. Photo Credit: Steve Apps/Wisconsin State Journal.

on meetings may cause further delays. Given the urgency of human health aspects of PFAS, WDNR may use the emergency rule process to provide guidance for enacting drinking water standards sooner.

Conclusion

Although PFAS have been known in Wisconsin for at least 15 years, the issue is gaining increased attention as an important public health concern. In the absence of federal action, the Wisconsin environmental and public health community is beginning to understand the reach and scope of the problem.

In order to properly address PFAS in the environment and protect human health, Wisconsin must take a holistic, comprehensive, and science-based approach to managing these forever chemicals. This will require collaboration in the ways that PFAS are managed, working closely with all the players in the PFAS cycle from manufacturing to disposal, educating the public on limiting exposure, and using the best available science to guide decision-making and passing necessary legislation.

Recommended Actions



= Executive Action



= Budget



= Policy

Contamination by PFAS is known to have disproportionate effects on low-income communities and communities of color. PFAS action should adopt a “no-harm” approach that avoids placing additional burden on these communities and giving priority to sampling, monitoring, and abating PFAS contamination in communities with known releases.

Wisconsin Department of Natural Resources will be the primary agency in regulating PFAS use and remediation. Wisconsin Department of Health Services (WDHS) will play a supporting role.

1. Identify sources of PFAS exposures and releases

- a.  Require that all public water supplies begin testing for multiple PFAS compounds no later than the 2021-2022 state fiscal year and the results of those tests should be publicly available.
- b.  Require statewide sampling of PFAS in the influent, effluent, and biosolids of municipal and industrial wastewater treatment facilities no later than the 2021-2022 state fiscal year.
- c.  Use the results of the sampling of public waste supply systems and wastewater treatment systems to identify PFAS clean systems and the systems with risk.
- d.  Collect, assemble and make available representative data from a subset of Wisconsin dischargers as part of the rule development process. This action will support the ongoing administrative rule processes for drinking water Ch NR 809 Wis. Admin. Code, groundwater Ch NR 140 Wis. Admin. Code, and surface waters/wastewater Ch NR 102 to NR 211.
- e.  Expand understanding of the prevalence of PFAS in the environment, through the collection of randomized data in watersheds and ecosystems in Wisconsin. The data can serve as the basis for development of environmental

standards. Wisconsin can look to neighboring states such as Minnesota and Michigan to compare and evaluate standards.

2. Develop science-based statewide standards that are protective of human health and the environment

- a.   Establish science-based environmental standards for drinking water, groundwater, and surface waters for PFOA and PFOS. In a second phase, establish standards for other PFAS compounds.
- b.   Support expediting cleanup standards by using the emergency rule process for soil, groundwater, and drinking water standards. Establish science-based standards for biosolids application to cropped fields and other lands, for solid waste and soil, and sediment associated with remediation/cleanup projects.
- c.  Support additional research into PFAS in drinking water, surface water, wastewater, and groundwater across the state, as well as studies on health and environmental impacts. This includes sampling fish tissues and blood serum from wildlife near suspected sources.



= Executive Action



= Budget



= Policy

3. Manage environmental PFAS contamination and devise cleanup procedures for PFAS-containing media

- a.  Build off WisPAC recommendations on disposal, and direct research dollars towards encouraging the development of innovative approaches to understand how PFAS can be safely destroyed.
- b.  Provide funding for PFAS remediation efforts for fire departments, municipalities, small businesses, and waste water treatment plants.
- c.  Amend the Cooperative Agreement between WDNR and the Department of Defense (DOD) to ensure a full evaluation of the fate and transport of PFAS associated with contaminated DOD sites across the state.

4. Control sources of PFAS and identify methods to reduce exposure to contamination

- a.  Incentivize voluntary and regulatory approaches to control PFAS at the manufacturing source by limiting or eliminating their distribution and use in the supply chain. Consider phasing out the use of short-chain and new generation PFAS from food packaging.
- b.  Develop legislation to encourage product stewardship and extended producer responsibility – closing the loop on management and end-of-life care of PFAS wastes. Producers, wholesalers, retailers, and users of PFAS products, need to share the costs of disposal and cleanup.
- c.  Fund a clean sweep program for collection and disposal of unused PFAS Class B firefighting foam.

5. Lead an educational campaign to inform the public on how they can act personally to reduce their exposure to PFAS

- a.  Support consumer groups and partner organizations in their ability to properly dispose of household materials containing PFAS.
- b.  Assist consumer groups and partner organizations in making informed decisions about the products they buy and whether PFAS may be found in those products.
- c.  Support efforts to create a PFAS single point of contact to coordinate communication both within the WDNR but also within state agencies to develop targeted and consistent messaging on PFAS. A designated person who can champion the issue is critical.
- d.  Coordinate state agency development of PFAS-related educational material for the classroom.
- e.  Encourage WisPAC to host a PFAS summit to provide a forum for sharing information and the latest research.



Literature cited

- ¹ Agency for Toxic Substances and Disease Registry. 2020. Per- and Polyfluoroalkyl Substances (PFAS) and Your Health. <https://www.atsdr.cdc.gov/pfas/health-effects/index.html>
- ² National Toxicology Program: U.S. Department of Health and Human Services. 2020. Immunotoxicity Associated with Exposure to Perfluorooctanoic Acid (PFOA) or Perfluorooctane Sulfonate (PFOS). <https://ntp.niehs.nih.gov/whatwestudy/assessments/noncancer/completed/pfoa/index.html>
- ³ Andrews, D. 2020. FDA Studies: 'Short-chain' PFAS Chemicals More Toxic Than Previously Thought. Environmental Working Group. <https://www.ewg.org/news-and-analysis/2020/03/fda-studies-short-chain-pfas-chemicals-more-toxic-previously-thought>
- ⁴ National Toxicology Program. Per- and Polyfluoroalkyl Substances (PFAS). 2020. <https://ntp.niehs.nih.gov/whatwestudy/topics/pfas/index.html>
- ⁵ NGI. Reducing Negative Impacts of PFAS. <https://www.ngi.no/eng/Projects/Reducing-negative-impact-of-PFAS/PFAS>
- ⁶ United States Environmental Protection Agency. PFOA, PFOS and Other PFASs: Basic Information on PFAS. <https://www.epa.gov/pfas/basic-information-pfas>
- ⁷ 3M. 3M's Commitment to PFAS Stewardship. https://www.3m.com/3M/en_US/pfas-stewardship-us/
- ⁸ Blaine, A., C. Rich, L. Hundal, C. Lau, M. A. Mills, K. M. Harris, and C. Higgins. 2013. Uptake of perfluoroalkyl acids into edible crops via land applied biosolids: Field and greenhouse studies. *Environmental Science and Technology*. John Wiley & Sons, Ltd., Indianapolis, IN, 47(24):14062-9.
- ⁹ Jones, P.D., W. Hu, W.D. Coen, J.L. Newsted, and J.P. Gisey. 2003. Binding of perfluorinated fatty acids to serum proteins. *Environmental Toxicology and Chemistry*. 11:2639-49. <https://pubmed.ncbi.nlm.nih.gov/14587903/>
- ¹⁰ Waterfield, J., M. Rogers, P. Grandjean, M. Auffhammer, and D. Sunding. 2020. Reducing exposure to high levels of perfluorinated compounds in drinking water improves reproductive outcomes: evidence from an intervention in Minnesota. *Environmental Health*. 19:42. <http://www.documentcloud.org/documents/7205135-REPORT-Grandjean-2020-PFAS-ReproductiveImpacts.html>
- ¹¹ Williams, M.C.W. and C.S. Shrank. 2016. Perfluorinated compounds (PFCs) in fish from Wisconsin's major rivers and Great Lakes. Administrative Management Report No. 83. Wisconsin Department of Natural Resources, Madison, Wisconsin, USA. <https://dnr.wi.gov/files/PDF/pubs/fh/AdminReports/FH083.pdf>
- ¹² Wisconsin Department of Natural Resources. Safely Eating Wild Game <https://dnr.wisconsin.gov/topic/wildlifehabitat/eatsafe>
- ¹³ United States Department of Energy: Office of Minority Economic Impact. 1998. Incorporating Environmental Justice Principles into the CERCLA Process. Washington, D.C. file:///C:/Users/sewll/Downloads/envjustice.pdf
- ¹⁴ Desikan, A., J. Carter, S. Kinser, and G. Goldman. 2019. Abandoned Science, Broken Promises. Union of Concerned Scientists: Center for Science and Democracy. <https://www.ucsusa.org/sites/default/files/2019-10/abandoned-science-broken-promises-web-final.pdf>
- ¹⁵ Hubbuch, C. 2020. Madison water utility finds PFAS in every well; levels below proposed state health guidelines. *Wisconsin State Journal*. https://madison.com/news/local/environment/madison-water-utility-finds-pfas-in-every-well-levels-below-proposed-state-health-guidelines/article_dd118ff7-06a0-5857-88f3-49141fc20cad.html
- ¹⁶ Brown and Caldwell. 2019. Conceptual Leachate Treatment Scoping Study for New England Waste Services of Vermont (NEWSVT) Landfill. Prepared for Casella Waste Systems, Inc. Hyde Park, Vermont. https://anrweb.vt.gov/PubDocs/DEC/SolidWaste/OL510/OL510%202019.10.15%20Conceptual_Leachate_Treatmnt_Scoping_Study.pdf
- ¹⁷ INSIDE EPA.COM. 2020. DOD Says PFAS Cleanup Will Likely Top \$3 Billion But Braces for More. <https://insideepa.com/daily-news/dod-says-pfas-cleanup-will-likely-top-3-billion-braces-more>
- ¹⁸ Wisconsin State Legislature. Water Quality Task Force. <https://legis.wisconsin.gov/2019/committees/assembly/STF-WQ>



715.203.0384

wigreenfire.org | info@wigreenfire.org
PO Box 1206 | Rhineland, WI 54501



TO: Wausau Waterworks Commission

FROM: Eric Lindman, P.E.
Director of Public Works & Utilities

DATE: March 2, 2021

SUBJECT: Rain Barrels – Implementation Program

As part of the WauterSavvy, a rain barrel program has been discussed and some research went into the feasibility of the program in Wausau. Commissioners Force and Robinson have the leaders of this effort and have come up with a couple different options to implement a program.

1. Partner with a private rain barrel company to take orders for barrels from private citizens, then the barrels are delivered and residents pick them up.
2. The utility purchases the barrels and then manages the sales of the barrels.

Another consideration for the program was providing incentives for having the rain barrels.

1. Purchase the rain barrels or reimburse the cost of the rain barrels.
2. Provide a one-time rebate on your water/sewer bill for purchasing the rain barrel.

Discussing the various options the group considered what type of administrative burden there would be on utility staff and what would be easy for the users. It was determined that working with a private entity and having residents purchase the barrels directly online would be the most beneficial all around. The barrels would come complete and already set up and the utility would be able to advertise a pick up day for residents. One of the entities we could partner with is Rain Barrel Solutions, information attached, and they have a well laid out program. Cottage Grove, WI has a program in place and we will be hosting a conference call with them prior to the meeting so will be able to provide further updates.

Providing a rebate from the water side of the bill will require PSC approval and the approval will likely need to be part of a rate study. The sewer side of the bill is controlled locally so this could be implemented by the Commission.

At this time the Storm Water Coalition was not interested in being part of coordinating or managing the rain barrel program. Further discussions with the group about the program will be forthcoming and we will continue to work with this group on ways they may assist with a program and possible expansion of the program.

Starting a Municipal Rain Barrel Distribution Program



Not all rain barrels are created equal. Rain Water Solutions partners with you to provide homeowners an easy, affordable way to harvest rainwater and limit run-off. Our superior services, support, and bulk pricing will ensure the success of your municipal rain barrel distribution program.

Ready? Get Started!



**SAWS Rain Barrel Distribution Event -
Jan. 14, 2017**

from **San Antonio Water System**

Three reasons to partner with Rain Water Solutions



1 OUR DIFFERENCE

Rain Water Solutions has helped 80+ municipal and nonprofit agencies run successful rain barrel distribution programs.

- Best practices to ensure simple and effective distribution programs
- Awareness campaigns and distribution programs with rain barrel rebates or subsidies
- Education and community outreach to government agencies, nonprofit groups, and homeowners

2 OUR SERVICES

Rain Water Solutions provides the support and marketing tools municipalities need to run a successful rain barrel distribution program - ***from start to finish.***

Personalized Support

- Customized rain barrel distribution programs to fit your needs and budget
- Rain Barrel Distribution Program Quick-Start Package with easy to use instructions

- On-site delivery and help with rain barrel distribution events
- Post-distribution support and customer satisfaction surveys/results

Marketing Tools

- **Significantly discounted pricing on each rain barrel sold**
- Sample Ivy Rain Barrel and Point-of-Sale displays
- Homeowners use a secure e-commerce site to purchase rain barrels
- Dedicated website and URL - with your agencies logo and branding
- 'How to Install a Rain Barrel' video guide

3 OUR RAIN BARRELS

Rain Water Solution's barrels have a superior design that is perfect for homeowners.

- Affordable, safe, and easy to use - everything is included for simple installation
- Locking Lid - Stable When Full - Mosquito Proof
- Made in the USA from 100% recycled materials
- Our 50 gallon 'Ivy' rain barrels nest and transport comfortably in most cars
- Linking capability - use multiple rain barrels to increase water conservation
- Two-year warranty



Starting a municipal rain barrel distribution program with Rain Water Solutions

Rain Water Solution's dedicated staff will provide the support, knowledge, and marketing tools you need to run a successful program that is ***hassle-free from start to finish.***

MUNICIPAL SUCCESS STORIES



Rain Barrel Awareness

These programs are a great fit for agencies that want to encourage the use of rain barrels without funding rebates or subsidies. With no 'upfront costs', our bulk pricing and secure e-commerce site enable agencies to offer residents 'Ivy' rain barrels at a cost significantly less than retail.

CASE STUDY: FORT WORTH



Rain Barrel Rebate Programs

Public utilities commonly use rebate programs as an incentive to increase the number of customers who buy and use rain barrels. Rebates combined with our bulk pricing and secure e-commerce site makes harvesting rainwater more attractive and affordable for a broader customer base.

CASE STUDY: SAN DIEGO COUNTY





using rain barrels easier and more affordable.

CASE STUDY: NASHVILLE

PHONE:

919.835.1699

STORE HOURS:

Call ahead for hours and
product availability

MAILING ADDRESS:

Rain Water Solutions
3812 Tarheel Drive Suite C
Raleigh, NC 27609

Municipalities
Nonprofits
Success Stories

[FAQs](#)

[Contact](#)

[About](#)



Copyright © 2002-2021 Rain Water Solutions Inc. ® is a registered trademark. All Rights Reserved. View Policies.

Department of Public Works



Eric Lindman, P.E.
Director of Public Works and Utilities

TO: Wausau Waterworks Commission

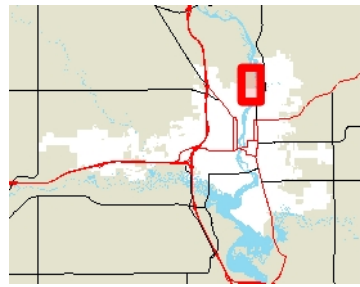
FROM: Eric Lindman, P.E.
Director of Public Works & Utilities

DATE: March 2, 2021

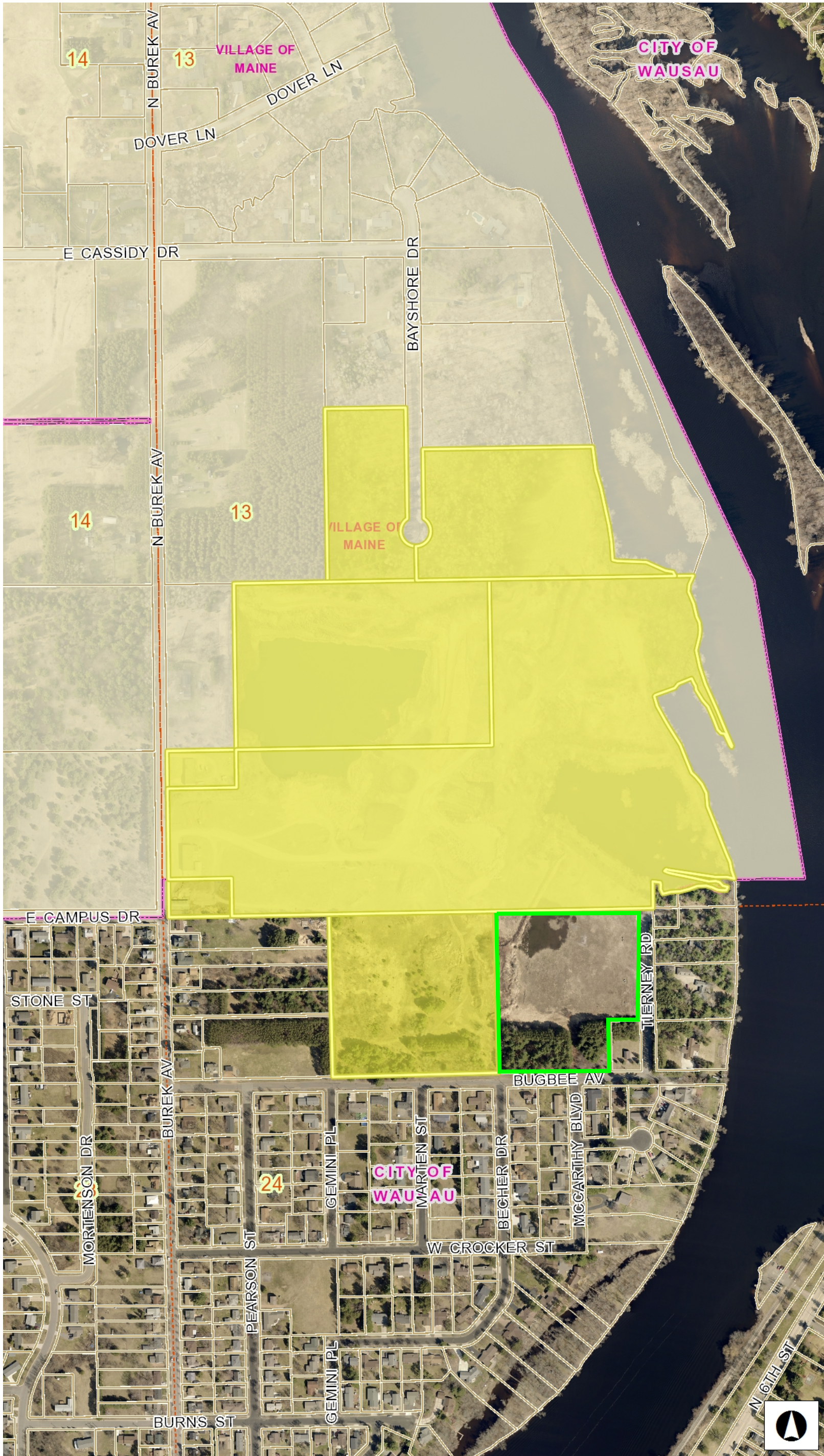
SUBJECT: 1010 Bugbee Ave – Possible purchase

Attached in the packet is an agreement to purchase 1010 Bugbee Ave for \$125,000. The City has completed a Phase I Environmental Assessment which shows there is no history of environmental issues with this site and no further investigation is needed. The purchase agreement also has a contingency in it for us to complete some soil test pits to ensure the sub surface soils will meet our needs for foundation work related to the solar array.

Staff would like to move ahead with the purchase of this property for purposes of constructing a solar array to generate power to be used at the DWTF. Once the contingencies of the purchase agreement have been satisfied we will work with the City Attorney's office to set up a closing for the purchase of the property.



- Legend
- Parcel
 - Section Line/Number
 - Municipality



Proposed Property

Map Created: 1/27/2021

195.44 0 195.44 Feet



NAD_1983_HARN_WISCRS_Marathon_County_Feet

DISCLAIMER: The information and depictions herein are for informational purposes and Marathon County-City of Wausau specifically disclaims accuracy in this reproduction and specifically admonishes and advises that if specific and precise accuracy is required, the same should be determined by procurement of certified maps, surveys, plats, Flood Insurance Studies, or other official means. Marathon County-City of Wausau will not be responsible for any damages which result from third party use of the information and depictions herein or for use which ignores this warning.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

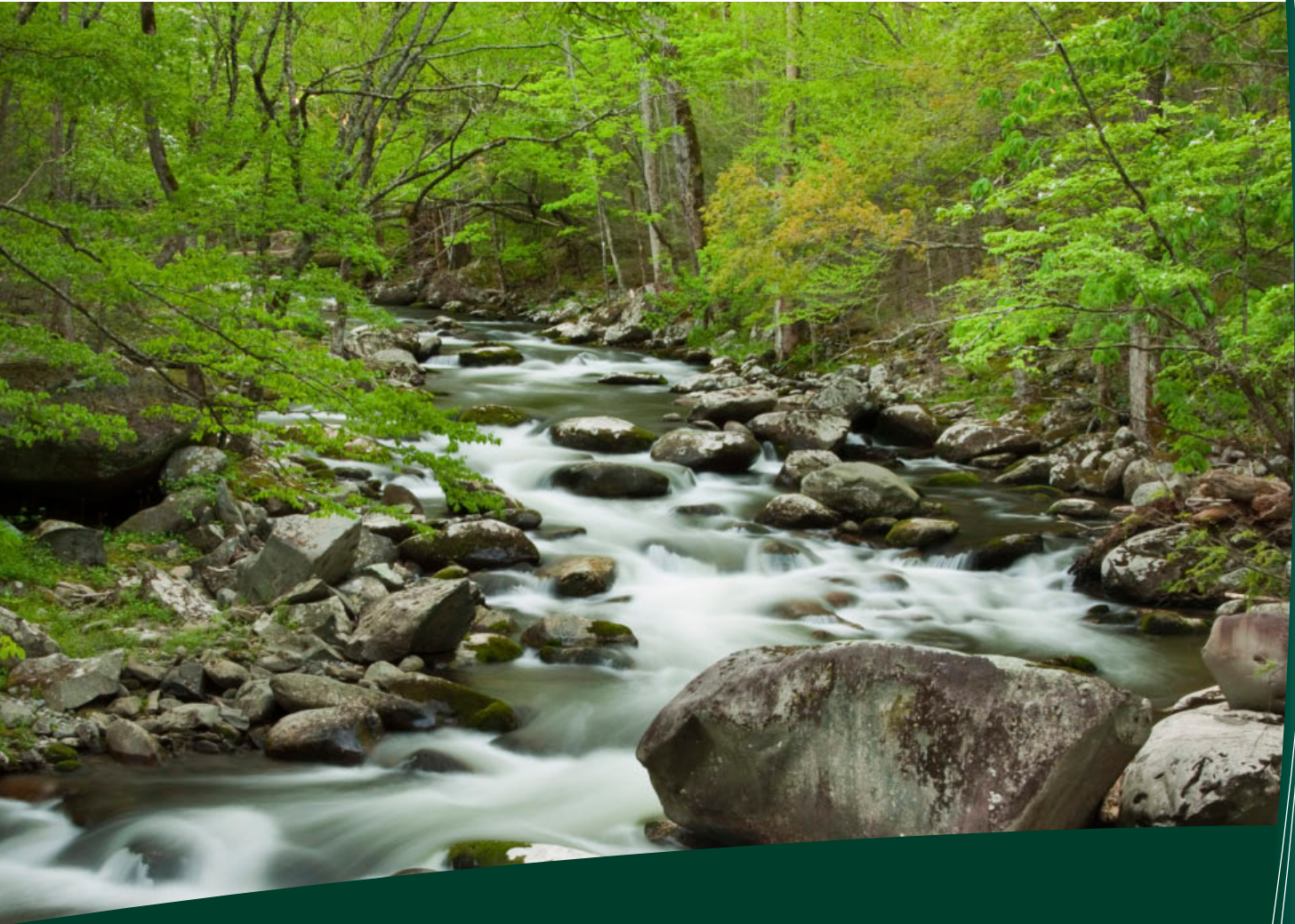
Notes



REI

**CIVIL & ENVIRONMENTAL
ENGINEERING, SURVEYING**

**Mathy Property
1010 Bugbee Avenue
Wausau, WI 54401
REI Project # 9668**



**COMPREHENSIVE
SERVICES WITH
PRACTICAL
SOLUTIONS**



**PHASE I
ENVIRONMENTAL SITE ASSESSMENT REPORT**

**MATHY PROPERTY
1010 BUGBEE AVENUE
WAUSAU, WI 54401**

REI # 9668



PREPARED FOR:

**City of Wausau
Eric Lindman
407 Grant Street
Wausau, Wisconsin 54403**

PREPARED BY:

**REI Engineering, Inc.
4080 N. 20th Avenue
Wausau, WI 54401
(715)675-9784**

February 23, 2021

TABLE OF CONTENTS

1.0 SUMMARY.....	1
2.0 INTRODUCTION.....	1
2.1 Purpose.....	1
2.2 Detailed Scope of Services.....	1
2.3 Significant Assumptions.....	2
2.4 Limitations and Exceptions.....	2
2.5 Special Terms and Conditions.....	2
2.6 User Reliance.....	3
3.0 SITE DESCRIPTION.....	3
3.1 Location and Legal Description.....	3
3.2 Site and General Vicinity Characteristics.....	3
3.3 Current Use of the Property.....	3
3.4 Description of Structures, Roads, Other Improvements on the Site.....	3
3.5 Information Reported by User - Environmental Liens or Specialized Knowledge.....	3
3.6 Current and Past Uses of the Property.....	4
3.7 Current and Past Uses of Adjoining Properties.....	4
4.0 USER PROVIDED INFORMATION.....	4
4.1 Environmental Liens or Activity and Use Limitations.....	4
4.2 Activity and Use Limitation Filed or Recorded Against the Property.....	4
4.3 Specialized Knowledge.....	5
4.4 Relationship of Purchase Price to Fair Market Value.....	5
4.5 Commonly Known or Reasonably Ascertainable Information.....	5
4.6 Degree of Obviousness of the Presence or Likely Presence of Contamination.....	5
5.0 RECORDS REVIEW.....	5
5.1 Standard Environmental Records Sources.....	5
5.2 Additional Environmental Record Sources.....	7
5.3 Physical Setting Source.....	8
6.0 SITE RECONNAISSANCE.....	8
6.1 Methodology and Limiting Conditions.....	8
6.2 General Site Setting.....	8
6.3 Exterior Observations.....	8
6.4 Interior Observations.....	8
7.0 INTERVIEWS.....	8
7.1 Interview with Site Contacts.....	8
8.0 EVALUATION.....	8
8.1 Findings.....	8
8.2 Opinion.....	9
8.3 Conclusions.....	9
8.4 Data Gaps.....	9
8.5 Signature of Environmental Professional.....	9
9.0 NON-SCOPE SERVICES.....	9
10.0 REFERENCES.....	9

TABLE OF CONTENTS

List Of Appendices

Figures.....	11
Appendix A: Site Photographs.....	14
Appendix B: Land Records and Parcel Mapping Information	28
Appendix C: Historical Aerial Photographs.....	208
Appendix D: Historical Topographic Maps.....	223
Appendix E: Historical Fire Insurance Maps.....	235
Appendix F: City Directory Search.....	238
Appendix G: Soils Information.....	272
Appendix H: Qualifications.....	279

1.0 SUMMARY

REI Engineering, Inc. (REI) has completed the Phase I Environmental Site Assessment (ESA) for the property located at 1010 Bugbee Avenue in the City of Wausau, Marathon County, Wisconsin. The property is currently vacant and has been primarily used for a gravel pit.

Upon completion of the Phase I ESA, REI has determined that Recognized Environmental Conditions (REC) do not exist on the property. The ASTM standard 1527-13 defines Recognized Environmental Conditions as: the presence or likely presence of any hazardous substances or petroleum products in, on or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

2.0 INTRODUCTION

2.1 Purpose

The purpose of the Phase I Environmental Site Assessment (ESA) was to evaluate the current and historical conditions of the Subject Property in an effort to identify recognized environmental conditions in connection with the Subject Property.

A recognized environmental condition is defined by ASTM as:

Recognized Environmental Condition - The presence of or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a material risk to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies.

The identification of recognized environmental conditions in connection with the subject property may impose an environmental liability on owners or operators of the site, reduce the value of the site, or restrict the use or marketability of the site, and therefore, further investigation may be warranted to evaluate the scope and extent of potential environmental liabilities.

2.2 Detailed Scope of Services

The Phase I ESA conducted at the Subject Property was in general accordance with ASTM Standard E 1527-13 and included the following:

- Review of historical aerial photographs from 1948, 1951, 1960, 1968, 1978, 1986, 1992, 1998, 2006, 2010, 2013, and 2017.
- Review of historical topographical maps from 1899, 1902, 1951, 1953, 1963, 1978, 1982, 1993, and 2013.
- Review of Marathon County and City of Wausau land records.
- Review of Historical City Directories from 1963, 1967, 1972, 1977, 1982, 1987, 1992, 1995, 2000, 2005, 2010, 2014, and 2017.
- An environmental record review by Environmental Data Resources for the area within a 1 mile radius of the subject property.
- A site reconnaissance performed on February 19th, 2021.
- Review of the WDNR GIS registry.
- Review of soils data .
- An interview with Scott Boers, Drinking Water Superintendent for the City of Wausau.

Typically, a Phase I ESA does not include sampling or testing of air, soil, groundwater, surface water, or building materials. These activities would be carried out in a Phase II ESA, if required. For this Phase I ESA, no additions to the ASTM E 1527-13 standard were made with the exception of the following: None.

2.3 Significant Assumptions

There is a possibility that even with the proper application of these methodologies there may exist on the Subject Property conditions that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. REI Engineering, Inc. believes that the information obtained from the record review and the interviews concerning the site is reliable. However, REI Engineering, Inc. cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The methodologies of this assessment are not intended to produce all inclusive or comprehensive results, but rather to provide the City of Wausau with information relating to the Subject Property.

2.4 Limitations and Exceptions

Along with all of the limitations set forth in various sections of the ASTM E 1527-13 protocol, the accuracy and completeness of this report may be limited by the following:

Access Limitations - None

Physical Obstructions to Observations - Surface was snow covered

Outstanding Information Requests - None

Historical Data Source Failure - Sanborn insurance maps were not available

Other - None

It should be noted that this assessment did not include a review or audit of operational environmental compliance issues, or of any environmental management systems (EMS) that may exist on the property. Where required, the documents listed in Appendices A through G were used as reference material for the completion of the Phase I ESA. Some of the information presented in this report was provided through existing documents and interviews. Although attempts were made, whenever possible, to obtain a minimum of two confirmatory sources of information, REI Engineering, Inc. in certain instances has been required to assume that the information provided is accurate.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted engineering and scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgment of REI Engineering, Inc. based on the data obtained from the work. Due to the nature of investigation and the limited data available, REI Engineering, Inc. cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be construed as legal advice.

Should additional information become available which differs significantly from our understanding of conditions presented in this report, we request that this information be brought to our attention so that we may reassess the conclusions provided herein.

2.5 Special Terms and Conditions

Authorization to perform this assessment was given by the client on February 11, 2021. Instructions as to the location of the property, access, and an explanation of the property and facilities to be assessed were provided by the City of Wausau.

2.6 User Reliance

This report has been prepared for the sole benefit of the client. The report may not be relied upon by any other person or entity without the express written consent of City of Wausau and the client with the following exceptions(s): None.

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

The subject property is known as Mathy Property and is located at 1010 Bugbee Avenue, Wausau, WI. Information obtained from the Wausau Assessor's Department indicated that the tax assessment parcel number for the subject property is 291-2907-242-0148.

Property is described as: Schofield Acres Addition Lots 1 through 8, Block 1 & Lots 1 through 6 & N 48.85' of Lot 7 Block 2 City of Wausau, Marathon County, Wisconsin.

3.2 Site and General Vicinity Characteristics

The Subject Property consists of approximately 7.81 acres and is undeveloped. The ground surface at the site is relatively flat throughout. Groundcover consists primarily of grass and brush with mature trees along the southern property boundary. The subject property can be accessed from Bugbee Avenue along the southern boundary, and Tierney Avenue along the eastern boundary.

The site is zoned as Residential. The area surrounding the site is primarily residential, with a municipal property to the west owned by the City of Wausau and is not zoned.

3.3 Current Use of the Property

At the present time, the property is undeveloped. In our research, REI Engineering, Inc. has not found any evidence that the property has ever been developed or had any permanent structures built on it.

3.4 Description of Structures, Roads, Other Improvements on the Site

There are no buildings on the property. Bugbee Avenue is the southern boundary and Tierney Road is the eastern boundary.

The City of Wausau supplies drinking water to residences on Bugbee Avenue and Tierney Road. Sanitary discharges on the subject site are discharged into the municipal sanitary sewer system. The subject site area is serviced by the City of Wausau.

3.5 Information Reported by User - Environmental Liens or Specialized Knowledge

REI Engineering, Inc. has no specialized knowledge of the Subject Property outside of the research which was conducted and reported as part of this report.

The property ownership and tenants as well as all individuals who were interviewed as part of this investigation, have not reported any specialized knowledge of this Subject Property outside of what is contained in this report.

3.6 Current and Past Uses of the Property

As part of the record review for this report, REI reviewed historical aerial photographs from 1948 to 2017, and historic topographic maps from 1899 to 2013. City directories were reviewed from 1963 through 2017. Sanborn fire insurance maps were not available for the property.

The subject property appears to have been a vacant field in photos from 1948 and 1951. In the 1960 and 1968 aerial photographs, gravel mining activities appear to be present on the subject property. Trees are present in the 1978 aerial photograph, with numerous site gradings apparent in aerial photographs from 1978 to 2006. Site conditions have been revegetated with grass and trees present in recent aerial photographs from 2010 to 2017. Air photographs are included in Appendix C.

None of the historical topographic maps showed any structures or developments on the subject property. Historic topographic maps are shown in Appendix D.

Sanborn Fire Insurance mapping was not available for the property, which only recently has been in the City of Wausau. A No Coverage Document is included in Appendix E.

Bugbee Avenue and Tierney Road are present in the city directories as early as 1963. However, there are no addresses indicative to the subject property at 1010 Bugbee Avenue in any of the city directory files. Copies of the city directory pages are included in Appendix F.

3.7 Current and Past Uses of Adjoining Properties

Based on aerial photography, the area surrounding the subject property was agricultural until the 1960s when residential development began to the south, west and north. The property is bound to the east by Tierney Road with residential properties beyond.

Direction From Site	Occupant	Use	Comments
North	City of Wausau	Gravel Mining Activities	Reclaimed gravel mine.
South		Residential	Beyond Bugbee Avenue.
East		Residential	Beyond Tierney Road.
West	City of Wausau	Under development	Currently under development.

4.0 USER PROVIDED INFORMATION

4.1 Environmental Liens or Activity and Use Limitations

Environmental liens, Activity Use Limitations or continuing obligations may include, but are not limited to, groundwater use restrictions, deed restrictions, and/or Geographic Information Systems (GIS) registries for residual soil and groundwater contamination. In Wisconsin, this list is maintained by the Department of Natural Resources through the Bureau of Remediation and Redevelopment Tracking System (BRRTS).

4.2 Activity and Use Limitation Filed or Recorded Against the Property

A title search was not completed for the subject parcels. REI completed a review of the WDNR web site (BRRTS) and GIS registry, there are no liens, use limitations or continuing obligations associated with the property.

4.3 Specialized Knowledge

There was no specialized knowledge provided by the User or acquired by the Environmental Professional.

4.4 Relationship of Purchase Price to Fair Market Value

REI Engineering, Inc. has not been provided with an appraisal for the subject property.

No environmental issues were identified by the user/client that could result in property value reduction.

4.5 Commonly Known or Reasonably Ascertainable Information

There was no commonly known or reasonably ascertainable information beyond the records described.

4.6 Degree of Obviousness of the Presence or Likely Presence of Contamination

Due to the historic use as a gravel mine, the potential for contamination to be present is low.

5.0 RECORDS REVIEW

5.1 Standard Environmental Records Sources

REI Engineering, Inc. contracted Environmental Data Resources, Inc. (EDR) to conduct a search of Federal and State databases containing known and suspected sites of environmental contamination. The number of listed sites identified within the approximate minimum search distance (AMSD) from the Federal and State environmental records database listings specified in ASTM Standard E 1527-13 are summarized in the following table. Detailed information for sites identified within the AMSDs is provided below, along with an opinion about the significance of the listing to the analysis of recognized environmental conditions in connection with the subject property. Copies of the EDR research data and a description of the databases are included in Appendix B of this report.

Map Findings Summary

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1	0	0	1	0	NR	1
US ENG CONTROLS		0.5	0	0	1	NR	NR	1
CONSENT		1	0	0	1	0	NR	1
FINDS		0.001	1	NR	NR	NR	NR	1
SEMS		0.5	0	0	1	NR	NR	1
US MINES		0.25	0	2	NR	NR	NR	2
ROD		1	0	0	1	0	NR	1
ABANDONED MINES		0.25	0	1	NR	NR	NR	1
UST		0.25	1	3	NR	NR	NR	4
AST		0.25	1	1	NR	NR	NR	2
SHWIMS		0.5	0	1	1	NR	NR	2
WDS		0.5	0	1	1	NR	NR	2

Detail Summary

Site Name:	END OF TIERNEY RD
Databases:	FINDS
Address:	END OF TIERNEY RD
Distance:	0

Direction:	Northeast
Elevation:	Lower
Comments:	This appears to be air monitoring permitting for the former mine.

Site Name:	GILBERT SCHREIBER
Databases:	UST
Address:	1721 TERNEY RD
Distance:	85
Direction:	ENE
Elevation:	Higher
Comments:	750 gallon fuel oil tank was removed in 1996, site assessment is not required. If contamination was observed in 1996, the City of Wausau fire inspector would have required sampling data.

Site Name:	PATRICE SULLIVAN
Databases:	AST
Address:	1108 BUGBEE AVE
Distance:	225
Direction:	East
Elevation:	Lower
Comments:	This is likely a 275 gallon basement fuel oil storage tank removed in 1998. Any release from the fuel oil tank would have been obvious and would have been investigated.

Site Name:	LOTZ READY MIX
Databases:	US MINES
Address:	
Distance:	1245
Direction:	North
Elevation:	Higher
Comments:	This represents a former ready mix plant within the area.

Site Name:	HANZ CONTRACTORS INC
Databases:	BRRTS, SHWIMS, ASBESTOS, AST, UST
Address:	1801 BUREK AVE
Distance:	1259
Direction:	WNW
Elevation:	Higher
Comments:	The asbestos listing represents the proper removal of asbestos from a building prior to renovation/demolition. In 1998 two 10,000 gallon diesel USTs were removed from the property with a No Action Required designation. SHWIMS listing designates proper disposal of solid waste.

Site Name:	PIONEER SCREEN PLANT
Databases:	ABANDONED MINES, US MINES
Address:	1801 BUREK AVE.
Distance:	1259
Direction:	WNW
Elevation:	Higher
Comments:	This represents a former gravel pit within the area.

Site Name:	WAUSAU MALL PROJECT (SEC. 24)
Databases:	WDS
Address:	1801 BUREK AVE
Distance:	1259
Direction:	WNW
Elevation:	Higher

Comments:	This represents unsuitable overburden hauled to the site during the construction of the mall. Due to the distance of the site (1,259 ft.) it is not likely this is affecting the subject property.
------------------	--

Site Name:	HOFFMAN CONSTRUCTION
Databases:	UST
Address:	BURCK AVE
Distance:	1262
Direction:	WNW
Elevation:	Higher
Comments:	A 500 gallon UST was removed from the site in 1995. A site assessment was required on this UST, if contamination was discovered a site investigation would have been required.

Site Name:	JAMES M FOERSTER
Databases:	UST
Address:	3333 N SIXTH ST
Distance:	1289
Direction:	ESE
Elevation:	Higher
Comments:	A 1,000 gallon fuel oil UST was abandoned in place in 1987. A site assessment was not required, however due to the distance from the subject property (1,289 feet) it is highly unlikely contamination is affecting the property.

Site Name:	BECHER-HOPPE ENGINEERS
Databases:	WDS
Address:	1801 BUREK AVE
Distance:	1324
Direction:	WNW
Elevation:	Higher
Comments:	This is likely related to the Wausau Mall project in 2008. Due to the distance of the site, contamination affecting the property is unlikely.

Site Name:	WAUSAU GROUND WATER CONTAMINATION
Databases:	US ENG CONTROLS, CONSENT, NPL, ROD, PRP, SEMS
Address:	S24 & 25 T29N R7E
Distance:	1684
Direction:	Southwest
Elevation:	
Comments:	This is a significant regional investigation in the city of Wausau. Sampling conducted shows contamination does not extend onto the subject property.

Site Name:	AMERICAN LEGION POST 10
Databases:	SHWIMS, FINDS, RCRA-VSQG, ECHO
Address:	1000 GOLF CLUB RD
Distance:	2592
Direction:	Northeast
Elevation:	Higher
Comments:	A very small quantity generator of ignitable waste with no violations found.

There were nineteen (19) site identified on the state and federal databases searched. None of the sites within the search radius have a significant potential for impact to the subject property.

5.2 Additional Environmental Record Sources

There were no other sources other than those previously described.

5.3 Physical Setting Source

A review of the NRCS Soil Survey website indicates the majority of soils on site are listed as pits, gravels. The remainder of the property is covered with the native overburden consisting of Chetek sandy loam. Chetek sandy loam soils are somewhat excessively drained and formed on stream terraces and outwash plains. Soil information is included in Appendix G.

6.0 SITE RECONNAISSANCE

6.1 Methodology and Limiting Conditions

The site reconnaissance was conducted on February 19th 2021 by Andrew Delforge, Hydrogeologist with REI Engineering, Inc. Weather conditions at the time of the site reconnaissance were overcast and seasonably cold. The visual reconnaissance consisted of observing the boundaries of the property and systematically traversing the site to provide an overlapping field of view, wherever possible. Photographs of pertinent site features identified during the site reconnaissance are included in Appendix B.

6.2 General Site Setting

The subject property is located in the Central Wisconsin River Basin. The basin is entirely glaciated. The site topography is relatively flat. Native soil types consist of glacial ground moraine deposits. Precambrian crystalline bedrock is present beneath the site at 25 to 50 feet below ground surface (bgs). Groundwater is expected to be present within 30 feet bgs.

6.3 Exterior Observations

The northern 3/4 portion of the property consists of a field with immature trees and brush. The southern 1/4 portion of the property consists of a wooded area. An eight (8) foot berm exists along the western boundary of the property. Tierney Road exists to the east to the property, and Bugbee Avenue exists to the south of the property. The property is rectangular, except the southeast corner, which is utilized by the city of Wausau as a municipal well.

A monitoring well exists on the southern 1/4 portion of the property within the woods. This monitoring well has been used in the regional Wausau Groundwater Contamination site, and is documented to be non detection for VOCs.

6.4 Interior Observations

There are no buildings associated with the property.

7.0 INTERVIEWS

7.1 Interview with Site Contacts

Mr. Scott Boers, Drinking Water Superintendent for Wausau Water Works was interviewed regarding the property. He had no knowledge of the air permit or monitoring well results.

8.0 EVALUATION

8.1 Findings

Upon completion of the Phase I ESA, REI has determined that Recognized Environmental Conditions (RECs) do not exist on the subject property. A monitoring well was present on the subject property, but is associated with a site located approximately 1,600 feet to the south. This monitoring well has historically been clean.

8.2 Opinion

It is REI's opinion that no additional inquiry is required or recommended at this time.

8.3 Conclusions

REI Engineering, Inc. has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 on the property located at 1010 Bugbee Avenue, City of Wausau, Marathon County, Wisconsin. Any exceptions to, or deletions from, this practice are described in Section 2.4 of this report. This assessment has revealed no evidence of Recognized Environmental Conditions (RECs) in connection with the subject property.

8.4 Data Gaps

Sanborn Fire Insurance mapping was not available for the parcel, however based on aerial photography, the property has been utilized as a gravel pit/quarry. Limited information was available for the air monitoring permit at the end of Tierney Road.

8.5 Signature of Environmental Professional

"I, Kaylin Felix, declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental professional as defined in § 312.10 of 40 CFR § 312" and "I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."

Site Assessor:



Andrew R. Delforge
Senior Hydrogeologist

Senior Reviewer:



Brian J. Bailey
Scientist/Department Manager

9.0 NON-SCOPE SERVICES

There were no additional non-scope services performed for this report.

10.0 REFERENCES

ASTM Standard E-1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process

Environmental Data Resources, Inc. Report, February 11, 2021

WDNR GIS Registry

Marathon County Land Records

City of Wausau Assessment Records

USDA NRCS Web Based Soil Survey

Devaul and Green, Water Resources of Wisconsin - Central Wisconsin River Basin, HA-367,
USGS, Virginia, 1971

DATCP Registered Storage Tanks Database