



Parks and Public Works Committee Meeting

August 22, 2023 – 9:30 am

This is an in-person meeting at Saugatuck City Hall, 102 Butler St, Saugatuck, MI 49453.

The meeting will also be available live, virtually on Zoom.

1. CALL TO ORDER

2. ROLL CALL

3. APPROVAL OF AGENDA

4. APPROVAL OF MINUTES:

- A. Regular Meeting Minutes from 07/25/23

5. GUEST SPEAKER:

- A. Ruth Thornton – Land Conservancy of West Michigan,
Land Protection Director

6. PUBLIC COMMENTS/TODAY'S AGENDA TOPICS ONLY

(LIMIT 3 MINUTES) Use the “raise hand” button in the participant’s screen found in the Zoom interface or enter *9 if calling in by phone to raise hand.

7. REVIEW/DISCUSSION:

- A. Department of Public Works and Administrative Updates
- B. Study Group Updates
 - 1. Invasive Species **(Pg. 7)**
 - 2. Airport Property **(Pg. 29)**
 - 3. Blue Star Multimodal Path **(Pg. 55)**
 - 4. Village Square & Playground
 - 5. Park Street & Mt. Baldhead Improvements
 - 6. Recycling Bins
 - 7. Canary in the Coal Mine Public Art **(Pg. 67)**
- C. Tri-Community Parks & Recreation Master Plan Update

8. REVIEW NEXT STEPS

9. PUBLIC COMMENTS (LIMIT 3 MINUTES) Use the “raise hand” button in the participant’s screen found in the Zoom interface or enter *9 if calling in by phone to raise hand.

10. MEMBER CLOSING COMMENTS

11. ADJOURN

NOTICE:

Join online by visiting:

<https://us02web.zoom.us/j/2698572603>

Join by phone by dialing:

**(312) 626-6799 -or-
(646) 518-9805**

Then enter “Meeting ID”:

2698572603

Please send questions or comments regarding meeting agenda items prior to meeting to:
ryan@saugatuckcity.com

Requests for accommodations or interpretive services must be made 48 hours prior to this meeting. Please contact Saugatuck City Clerk at 269-857-2603 or JWolters@saugatuckcity.com for further information.



PARKS AND PUBLIC WORKS COMMITTEE MEETING MINUTES
July 25, 2023

The Parks and Public Works Committee met for Regular Committee Meeting at 10:00 a.m.
City Hall
102 Butler St., Saugatuck, MI 49453.

Call to Order:

The meeting was called to order by Chair Baldwin at 10:00 a.m.

Attendance:

Present: Chair Baldwin, Committee members Charak, Johnson, Kimble & Roche.

Absent: Committee member DeJong.

Others Present: Superintendent Herbert, Deputy Clerk & DPW Asst. Williams

Approval of Agenda:

Motion by Kimble, second by Charak, to approve the agenda for July 25, 2023. Via voice vote, motion carried 4-0.

Approval of Minutes from 6/27/23:

Motion by Roche, second by Charak, to approve the amended minutes from the June 27, 2023, meeting. Via voice vote, motion carried 4-0.

Public Comments (agenda items only): None.

Review/Discussion:

A. Department of Public Works and Administrative Updates:

DPW Superintendent Herbert gave an update and said that Public Works is pretty heavily weighted with routine maintenance this time of year as they have a lot of special events that they are assisting with and keeping town up and operational for their visitors and business owners. Over the past month, they have assisted with the Waterfront Invitational Art Fair, the Fourth of July Parade, the Fourth of July extravaganza and fireworks event, and Music in the Park. For the Fourth of July parade, they rented some Archer 1200's which are vehicle blocking barriers. He explained that as the years have progressed, they have identified a need where they have to start thinking about things like keeping crowds safe. He thinks that the city is doing a good job of taking that seriously and a good step to exploring the purchase. They are expensive, like \$80-100,000 for a trailer with eight or nine of the barriers. They thought it would be appropriate to spend a couple of thousand dollars on renting these archers for one of the biggest parades of the year, the Fourth of July parade, to see how it goes. People were fascinated by them, and he was able to take himself out of the parade to get some hands-on experience with them and was able to block off two intersections by himself. He said that it was a

good experience, and it is probably the direction that staff will ultimately be recommending that council purchases in the future.

Herbert said that beyond special events, DPW has done some routine maintenance with concrete work around town. Every year, they come through some of the sidewalks around town that are either unsafe or just unsightly or deteriorated. They will do some sidewalk tear-outs and replacements. The most recent round they focused primarily on Allegan Street on top of the hill between Mason and Elizabeth Street, and they also replaced broken curbs around town that have been damaged during winter plowing. Consumers Energy had to do some tree removals in front of the Post Office area and the Inn of Saugatuck and had to remove these really beautiful mature trees, one was a Sycamore and the other a Japanese Zelkova because an adjacent property needed some added power. Those trees had probably outgrown their useful space because they had a very narrow green space in between the sidewalk and the street, and the trees kept growing to the point where it pushed the curb of the street out towards the centerline. The root systems made the sidewalk in front of it wavy and uneven and it didn't drain well. When ice or snow melted in the wintertime and puddle up it would freeze. It was a good opportunity for them to create some more space for the trees that are going to get replanted in that area. Herbert said that they could do that by tearing out the sidewalk and doing some regrading. He thinks the project turned out really well and they ended up gaining roughly 1.8 feet of room for the new tree which doesn't sound like much, but it is pretty significant. He is happy to wrap up the concrete work for this year.

B. Study Group Updates:

a. Airport Property:

Chair Baldwin said that there was not too much to report. She checked in with the ODC and they have not received a report back from them yet. They are working on that as they owe them a full report. She is hoping to have this by mid-August.

b. Blue Star Multimodal Path:

Committee member Kimble said that she has complaints because she has nothing to report. Since the last meeting she was kind of harassing C2AE to schedule the project kickoff meeting. Finally, they got an email from a guy named Jared Secor, which had not been introduced but he does work for C2AE. He was trying to figure out who should be on the project kickoff meeting which basically everyone is suggesting that it should be whoever is on the Tri-Community Committee board committee for the trail, which is a long list of people. He didn't have the membership correct because there have been changes. She told him the changes that she knew about, and he got it all figured out. Finally on July 18, he sent out a doodle survey with three different meeting dates for the first week of August. She responded and she got nothing. She called yesterday and got no response. Before, they had a guy named Eric Kronk who was supposed to be taking over the project, so she called him. He explained to her that he was no longer on the project that instead, Jared was taking over. She sent over a nice email to Jared and said that she was on the committee for the Saugatuck City Parks and Public Works Committee and has been designated as a lead role for the Blue Star Trail and explained that the PPW meeting was the next day, and she was supposed to give an update on the trail progress. She said that if things have been happening, please advise her because she has nothing tangible to report. She told him that it would be helpful if she could at least tell the committee that the kickoff meeting has been scheduled. She promptly received a response that he was out of the office until July 27. She then received a message from Roger Marks, his boss, that said that the full communication plan is set at the kickoff meeting. They did not get

responses from each party, August 1-August 4 of the two dates available to all the respondents so far. At the next meeting they will review the background work and process for the survey and the archaeological study and also confirm the project milestones. He then says to preview their additions to the team, Jared is assigned to schedule all events and keep the project on track that they choose together. Eric continues with the leadership of the project plans and design elements. She said that when she talked to Eric, he acts like he was off the project, and that was yesterday. She looks forward to their kickoff meeting.

c. Park Street:

Committee member Johnson said that they received good suggestions, ideas, and stuff from their Park Street people, and they are happy with it. She said that the Chain Ferry still needs the John Woollam sign removed, it has been taken down but is still sitting on the property. The removal has left two big holes and it is a safety concern for people and animals. She suggests that it be filled in and the sign be replaced. She thinks that they need some kind of temporary signage for the John Woollam trail to show people where to go. She would also like some direction signs there as people get off of the Chain Ferry and have no idea where to go. She also suggests putting signs on the other side of the river as well. Most of the people are confused, they don't know where to go because they have never been here. They don't know that there is a trail one way, beach another way, and Mt. Baldhead in the other direction. The people need guidance, and she thinks adding some directional signage would help with the issue.

d. Mt Baldhead Improvements:

Chair Baldwin gave the Mt. Baldhead updates as City Manager Heise was not in attendance. She said that there has been a backup on some of the AT&T work as they have located some Native American tools and such. It has put a wrench in the project and will probably result in the bathrooms remaining in their current location, but they do not have a full update on that yet.

City Engineer John Moxey added that AT&T is to take all of the equipment that was to be in the building at the bottom of the dune and put it up at the top of the dune. It was not their first choice because that means their personnel are going to have to climb the stairs every time they need to do their maintenance. The current plan is to not touch anything at the bottom of the dune other than just the drilling work to get cables and conduits and everything up to the top with the rest of the equipment. He said that they are still involved to help with the critical dunes permitting. The restroom design has kind of gone by the wayside at this point. Chair Baldwin added that City Manager Heise had previously said that the bathrooms could still be updated to the same footprint of where they are currently located.

d. Invasive Species:

Committee Member Charak said that he is trying get a though process on runoff, which promotes Japanese Millfoil which is an aquatic plant. The amount of phosphorus and other pesticides and herbicides that are put on the lines that are put on the lawns with the lawn services that come into town, every lawn is green and there is not a weed in sight on his block except in his area. Twenty to Forty percent of the pesticides and herbicides that are put in the lawn actually contribute directly to the groundwater runoff that goes into the creeks and streams, which therefore promote invasive species in the rivers and the creeks. He is trying to

figure out a plan and the route that it takes to see if there is anything that they can do and things that you can do. There are different combinations of chemicals, herbicides and pesticides that are probably more inert on a faster basis. Lawns have such a short root system that they go into the ground and hence, especially on the hill with such a high claim base, they have better run off. Not this summer as it has been particularly dry. He is just trying to figure out what he can come up with down the line to make a recommendation to Council so they can give a recommendation to lawn services.

e. Village Square:

Committee Member Roche said that she shared at the last meeting where they were in terms of moving forward with the existing school playground and then they started to get bids from different companies. She said that she has been talking to Sinclair who is local in Holland, and they have provided some renderings which she will share over the next few days once her and Glenna have had a chance to go over them. There is also a company called Landscape Structures that has done a lot with the West Ottawa School system. They are going to go out there and check them out. They had a rep come out this week and they met with them. They would like to do a themed playground. She said to expect to have larger commands for them to share for the next meeting. She said that both groups say that if they are able to decide by early fall, that they would still be able to order things and then have a teardown and then group what they hope to be a community build in the spring.

C. Tri-Community Parks & Recreation Master Plan Update:

Chair Baldwin gave update on Tri-Community Parks & Recreation Master Plan. They did have their kick-off meeting with Veritas. They have a steering committee that selected a consultant to do this, and they are partnering with the community. There will be three communities as well as Saugatuck Public Schools and they will split the cost four ways which is \$15,500. One thing she didn't know was that when you read the five-year plan a lot of it looks like a big wish list, which is by design. You can't apply for a grant for anything that is not in that plan. There is a requirement by the State of Michigan that they have to have some by February 2024 for every community. If you don't have this done, you will not be eligible for any grants. It is important to do, they are doing it and they are a partner with the other communities. They definitely want to take a big picture view. She was adamant in the kick-off meeting that what she didn't want to do is just check every box so that they can apply for grants. She would like to look at the big picture so they can talk about sustainability, conservation, and other things. They are very aware that we are looking to do that and work with Daniel DeFranco on that from the Township. She thinks that they have some good traction in that and that was only the kick-off meeting. They are just getting started but it is going full steam ahead and they are going to have some deliverables for them pretty soon. She will share with them the Gantt chart that they have. There are going to be two meetings with each individual community which is about eight meetings. They will have input from all of them and from the whole community as well. She will share that with them, and she will email the other documents that were sent last week.

Review Next Steps: None.

Public Comments: None.

Member Closing Comments: None.

Adjournment:

Motion by Charak, second by Roche, to approve adjournment of the meeting. Via voice vote, motion carried 4-0. Chairwoman Baldwin adjourned at 11:03 a.m.

Respectfully Submitted,

Sara Williams, City Deputy Clerk & DPW Administrative Assistant



Request for Bids for Treatment of Hemlock Woolly Adelgid

Project Description:

The Allegan Conservation District (ACD) is a local unit of state government with a service area including the entirety of Allegan County, Michigan. The mission of the Allegan Conservation District is to help all land users wisely manage the natural resources of Allegan County.

Currently, the Allegan Conservation District is working to treat 4,212 Hemlock trees infested with Hemlock Woolly Adelgid (HWA) on 182.6 acres in Northwestern Allegan County, along the lakeshore.

Contractor Qualifications:

Qualified contractors must have current insurance and licensure to operate any equipment or pesticide used for the project and at least 2 years of experience performing work of similar nature. The contractor must have the equipment and staff necessary to perform the required treatments and is responsible for the transportation of the equipment. Prior to initiation of any work on the project, a signed contract agreement between the Allegan Conservation District and the contractor must be on file.

Right to Reject Proposals:

The Allegan Conservation District reserves the right to reject proposals submitted from contractors who do not meet the above qualifications.

Price Proposal:

All prices/rates quoted in the bidder's response to this work statement will be firm for the duration of the contract. No price changes will be permitted.

This project will be bid on a lump sum basis by site. The price for each site should reflect the complete cost of treatment as specified for that site. This includes the cost of all equipment, supplies, labor, and transportation. No additional charges (such as equipment repair) beyond the original bid price will be permitted.

Bidders may submit bids for any combination of sites and treatment techniques. The Allegan Conservation District reserves the right to award each location separately and to different contractors, if price and overall proposal warrants. The Allegan Conservation District does not guarantee to award all sites and will determine sites to be awarded based on priority and bid submissions.

Please include any price concessions your company would be willing to extend, such as prompt payment discounts or multiple site award discounts. Any quantity discounts for treating more than one location with your company should be included in the bid and will be considered.



Information Required from Bidders:

1. Signed and completed Contract Bid Form (see below)
2. Narrative – Include a brief narrative description of the proposed effort. Include a proposed timeline and treatment details such as chemical(s) to be used, application rates, timing, etc.
3. Prior Experience – Indicate here prior experience of your firm which you consider relevant to the successful accomplishment of the project defined by the project outline. Include sufficient detail to demonstrate the relevance of such experience.
4. Project Staffing – the contractor must be able to staff a project team (or individual) which possesses the talent and expertise necessary to complete the tasks associated with this project. Include the number of professional personnel by skill and qualification that will be employed in the work. Indicate which of these individuals you consider key to the successful completion of the project. Identify key individuals by name and title.
5. Subcontractors – List here all subcontractors; include firm name and address, contact person, and complete description of work to be subcontracted. Include descriptive information concerning subcontractor's organization and abilities.

Contract Payment:

The specific payment schedule will be mutually agreed upon by the Allegan Conservation District and the Contractor. In general, payment will be released after the contractor has notified Allegan Conservation District of completion of treatment across all locations.

Project Site Maps

See the attached Survey Report for Hemlock concentration maps, parcel maps, and HWA hotspot maps.



CONTRACTOR BID FORM

Submit Bid to:

Allegan Conservation District

1668 Lincoln Rd

Allegan, MI 49010

Phone: (269) 941-6165

Email: emily.brown@macd.org

Project Name: HWA Treatment

Bidder Information:

Company: GEI Consultants

Name: Steve Rice

Address: 5225 Edgewater Drive

City, State, Zip: Allendale, Michigan, 49401

Phone: (616) 403-4905

Email: srice@geiconsultants.com

Submission Deadline: Friday, March 31, 2023

SCOPE OF WORK:

This is an invitation for a bid for providing all the labor, materials, and equipment (including any necessary equipment rental fees) to treat HWA on all identified infected Hemlock trees in the North Western portion of Allegan County. The project begins immediately and must be completed by October 2023.

Bid/Work Proposal For HWA Treatment:

Parcel Number	Acerage	Trees > 5' DBH	Trees < 5' DBH	Cost/Bid Amount
11-016-012-00	1.59	40	27	\$ 1,745
70-15-09-400-048	2.06	5	0	\$ 705
11-023-020-00	20.87	18	7	\$ 1,115
11-090-003-00	.85	1	3	\$ 775
11-090-001-00	.72	1	0	\$ 730
11-003-019-22	1.98	5	0	\$ 785
59-017-095-00	.74	1	0	\$ 740



**ALLEGAN
CONSERVATION
DISTRICT**

*The Allegan Conservation District is dedicated to
helping all land users wisely manage the natural
resources of Allegan County*

Parcel Number	Acerage	Trees > 5' DBH	Trees < 5' DBH	Cost/Bid Amount
57-008-001-00	41.53	2,965	1,139	\$ 44,400
57-008-002-00	5.03			
57-009-051-00	16.03			
57-009-050-00	13.82			
57-009-052-01	59.82			
57-009-050-00	17.52			

3/30/2023

Contractor Signature

Date

Allegan Conservation District
 Emily Brown, Allegan Conservation District
 Brian Talsma, Executive Director
 1668 Lincoln Rd, Allegan, MI 49010

RE: Hemlock Woolly Adelgid Treatment, Allegan County, Michigan

Dear Mr. Talsma:

GEI Consultants of Michigan, P.C. (GEI) appreciates the opportunity to be of service to the Allegan Conservation District and to provide a proposal for hemlock woolly adelgid (*Adelges tsugae*) (HWA) treatment within Allegan County.

In preparation of this scope of services and fees, GEI staff reviewed the documents, maps, and representative photographs you provided to obtain a better understanding of requirements, level of effort, and equipment needs for this work. GEI has extensive experience working with HWA and similar projects. GEI was involved in the survey efforts for West Michigan Cooperative Invasive Species Management Area (WMCISMA) project to find the northern extent of HWA along West Michigan. We also have numerous projects involving pesticide applications in all community types. (See attached project sheets). GEI employs individuals that have pesticide applicators license with the forestry category and experience with the proposed type of work. Below are key personnel that will be involved in the project, also, see attached resumes:

1. Asia Rasch, Restoration Ecologist
2. Joe Vander Yacht, Restoration Ecologist
3. Steve Rice, Project Manager, Branch Manager
4. Erin White, GIS Specialist
5. Terron Kosten, Administration Specialist

Scope of Services

GEI will perform hemlock woolly adelgid treatment within Allegan County at the locations provided.

Parcel Number	Address	Acres	Trees>5'DBH	Tree<5'DBH
11-016-012-00	4210 Hogback Rd. Holland, MI	1.59	40	27
70-15-09-400-048	17059 Riley Street Holland, MI	2.06	5	0
11-023-020-00	4183 64 th St. Holland, MI	20.87	18	7
11-090-003-00	4739 Chautauqua Rd, Holland, MI	0.85	1	3
11-090-001-00	4736 Chautauqua Rd, Holland, MI	0.72	1	0
11-003-019-22	1814 32 nd St. Holland, MI	1.98	5	0
59-017-095-00	3099 Lakeshore Dr, Douglas, MI	0.74	1	0
57-008-001-00+	Mount Baldhead Park	154	2,965	1,139

Description of Proposed Effort

GEI team(s) will treat each hemlock (*Tsuga canadensis*) specified on Allegan Conservation District (ACD) HWA Survey Datasheets. Treatment for hemlock woolly adelgid (HWA) will occur within the appropriate treatment window to maximize efficacy and mitigate unnecessary ecological risks. Proper maintenance/cleaning and decontamination procedures will be executed to ensure health and safety of

individuals and the environment. Signage will be posted at each property owner’s door in residential settings following treatment. In public areas, such as recreational areas or parks, signage will be posted in a conspicuous area at each entrance as a public notice of pesticide application. Two types of treatments will be used, determined by the DBH of individual trees. Trees with a DBH of >5-inches will receive treatment via direct injection. Trees with a DBH ≤5-inches will receive treatment via basal bark spraying to avoid unintentional girdling. These treatments will take place concurrently.

Basal Bark Treatments (≤5 DBH): LESCO Bandit 2F Insecticide containing the active ingredient imidacloprid (21.4%) will be used for basal bark treatments to combat HWA. Starting at the point of DBH (4.5 feet), a 13% Bandit solution will be applied at a rate of 1.5 mL per inch of DBH.

Trunk Injection Treatments (>5 DBH): Mauget Imicide containing the active ingredient imidacloprid (10%) will be used for trunk injection treatments. The DBH of each individual tree will be divided by two to determine the designated number of injection holes. Trees ranging from 5-10 DBH will receive 1-mL of Imicide per injection hole. Trees with a DBH range of 10-36 will receive 1.5-mL of chemical per injection hole.

Project Cost

GEI shall perform the tasks described above for the following estimated fee per parcel:

Item Number	Parcel Number	Address	Acres	Cost/Bid Amount
1	11-016-012-00	4210 Hogback Rd. Holland, MI	1.59	\$ 1,745
2	70-15-09-400-048	17059 Riley Street Holland, MI	2.06	\$ 705
3	11-023-020-00	4183 64 th St. Holland, MI	20.87	\$1,115
4	11-090-003-00	4739 Chautauqua Rd, Holland, MI	0.85	\$ 775
5	11-090-001-00	4736 Chautauqua Rd, Holland, MI	0.72	\$ 730
6	11-003-019-22	1814 32 nd St. Holland, MI	1.98	\$ 785
7	59-017-095-00	3099 Lakeshore Dr, Douglas, MI	0.74	\$ 740
8	57-008-001-00+	Mount Baldhead Park	154	\$ 44,400

* A cost savings of \$2,000 will occur if ACD awards GEI item numbers 2-7 as a group.

* A cost savings of 2% will occur if payment is received within 15 days upon completion of the project

This cost assumes the following:

- GEI will perform work as weather permits, and during the HWA treatment season.
- GEI will be allowed to use and have clear and free access to the addresses provided above and either Allegan Conservation District or GEI Consultants will call landowners before performing HWA treatments activities.
- This effort will require approximately 28 days for 4 field staff.
- Level of effort and approximate days and field staff may vary depending on awarded parcels.
- Costs include all labor, expenses, and mobilization required to complete the treatment.
- Cost savings will occur if awarded multiple parcels as stated in the cost breakdown above.

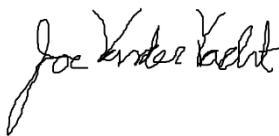
Terms

GEI will complete the requested scope of work according to the attached Standard Professional Services Agreement. Please sign and return one copy of the attached agreement, which will serve as our contract and notice to proceed.

We look forward to providing professional services to Allegan Conservation District on this project. Please feel free to contact Joseph Vander Yacht at (616) 499-1371 or jvanderyacht@geiconsultants.com, or Asia Rasch at (231) 327-9170 or arasch@geiconsultants.com should you need any additional information or have questions regarding our proposal.

Sincerely,

GEI CONSULTANTS OF MICHIGAN, P.C.



Joe Vander Yacht
Restoration Ecologist
Senior Field Lead



Steve Rice
Environmental Ecologist
Branch Manager



Asia Rasch
Restoration Ecologist
Senior Field Lead

Attachment(s): Standard Professional Services Agreement and 2022 Fee Schedule
Staff Resumes

1. Asia Rasch
2. Joe Vander Yacht
3. Steve Rice
4. Erin White

Project Sheets

1. Hemlock Woolly Adelgid Survey
2. Pretty Lake Ecological Services
3. Line 6B, Kalamazoo River and Talmadge Creek Assessment

STANDARD PROFESSIONAL SERVICES AGREEMENT

1. AGREEMENT.

This Agreement is made and entered into by and between:

GEI Consultants of Michigan, P.C. (GEI), 5225 Edgewater Dr, Allendale, MI 49401

Allegan Conservation District, 1668 Lincoln Rd, Allegan, MI 49010

By this Agreement, the parties do mutually agree as follows:

2. SCOPE OF SERVICES.

GEI shall perform the services described herein and in **Exhibit A**.

3. EFFECTIVE DATE.

The effective date of this Agreement shall be the latter of the acceptance dates indicated in Article 16, Acceptance. Acceptance of this Agreement by both parties shall serve as GEI's Notice to Proceed with the services described in **Exhibit A**.

4. TIMES FOR RENDERING SERVICES.

- a) GEI shall endeavor to perform the services under this Agreement in an orderly and efficient manner, consistent with the schedule or milestone dates provided in **Exhibit A**.
- b) GEI shall not be responsible for delays caused by factors beyond GEI's reasonable control. When such delays beyond GEI's reasonable control occur, CLIENT agrees that GEI shall not be responsible for damages, nor shall GEI be deemed in default of this Agreement.

5. COMPENSATION.

- a) CLIENT agrees to pay GEI in accordance with the payment terms provided in **Exhibit B**.
- b) GEI will submit invoices monthly or upon completion of a specified scope of service in accordance with GEI's standard invoicing practices, or as otherwise provided in **Exhibit B**.
- c) Payment is due upon receipt of the invoice. Payments will be made by either check or electronic transfer to the address specified by GEI and will reference GEI's invoice number.
- d) Interest will accrue at the rate of 1% per month of the invoiced amount in excess of 30 days past the invoice date, or as otherwise provided in **Exhibit B**.
- e) In the event of a disputed or contested invoice, only that portion so contested will be withheld from payment, and the undisputed amounts will be paid.

6. PERFORMANCE STANDARDS.

- a) GEI will perform its services under this Agreement in a manner consistent with that degree of skill and care ordinarily exercised by members of GEI's profession currently practicing in the same locality under similar conditions. GEI makes no other warranties or representations, either expressed or implied, regarding the services provided hereunder.

- b) GEI shall correct deficiencies in services or documents provided under this Agreement without additional cost to CLIENT; except to the extent that such deficiencies are directly attributable to deficiencies in CLIENT-furnished information.
- c) Unless otherwise specifically indicated in writing, GEI shall be entitled to rely, without liability, on the accuracy and completeness of information provided by CLIENT, CLIENT's consultants and contractors, and information from public records, without the need for independent verification.

7. INSURANCE.

- a) GEI will carry the types and amounts of insurance in the usual form as provided in **Exhibit C**.
- b) Upon written request of CLIENT, GEI will furnish Certificates of Insurance indicating the required coverages and conditions.

8. ALLOCATION OF RISKS.

- a) Indemnification. To the fullest extent permitted by law, GEI agrees to indemnify and hold CLIENT harmless from and against any liabilities, claims, damages, and costs (including reasonable attorney's fees) to the extent caused by the negligence or willful misconduct of GEI in the performance of services under this Agreement.
- b) Limitation of Liability. To the fullest extent permitted by law, the total liability, in the aggregate, of GEI and its officers, directors, employees, agents, and independent professional associates and consultants, and any of them, to CLIENT and any one claiming by, through or under CLIENT, for any and all injuries, claims, losses, expenses, or damages whatsoever arising out of or in any way related to GEI's services, the project or this Agreement, will not exceed the total compensation received by GEI under this Agreement, or available proceeds from GEI's insurance, whichever is less. This limitation will apply regardless of legal theory and includes but is not limited to claims or actions alleging negligence, errors, omissions, strict liability, breach of contract, breach of warranty of GEI or its officers, directors, employees, agents or independent professional associates or consultants, or any of them. CLIENT further agrees to require that all contractors and subcontractors agree that this limitation of GEI's liability extends to include any claims or actions that they might bring in any forum.
- c) Consequential Damages. GEI and CLIENT waive consequential damages, including but not limited to damages for loss of profits, loss of revenues, and loss of business or business opportunities, for claims, disputes or other matters in question arising out of or relating to this Agreement.

9. CONFIDENTIALITY.

- a) Unless compelled by law, governmental agency or authority, or order of a court of competent jurisdiction, or unless required pursuant to a subpoena deemed by GEI to be duly issued, or unless requested to do so in writing by CLIENT, GEI agrees it will not convey to others any proprietary non-public information, knowledge, data or property relating to the business or affairs of CLIENT or of any of its affiliates, which is in any way obtained by GEI during its association with CLIENT. GEI further agrees to strive to limit, to a "need to know" basis, access by its employees to information referred to above.
- b) Unless compelled by law, governmental agency or authority, or order of a court of competent jurisdiction, or unless required pursuant to a subpoena deemed by CLIENT to be duly issued, CLIENT will not release to its employees or any other parties any concepts, materials, or procedures of GEI deemed by GEI to be proprietary and so explained to CLIENT.

10. OWNERSHIP OF DOCUMENTS.

Drawings, diagrams, specifications, calculations, reports, processes, computer processes and software, operational and design data, and all other documents and information produced in connection with the project as instruments of service (Project Documents), regardless of form, will be confidential and the proprietary information of GEI, and will remain the sole and exclusive property of GEI whether the project for which they are made is executed or not. CLIENT retains the right to use Project Documents for the furtherance of the project consistent with the express purpose(s) of the Project Documents, and for CLIENT's information and reference in connection with CLIENT's use and occupancy of the project. Any use of Project Documents for purposes other than those for which they were explicitly prepared shall be at CLIENT's sole risk and liability. CLIENT agrees to defend, indemnify, and hold GEI harmless from and against any claims, losses,

liabilities, and damages arising out of or resulting from the unauthorized use of Project Documents.

11. TERMINATION AND SUSPENSION.

- a) This Agreement may be terminated by CLIENT for any reason upon 10 days written notice to GEI.
- b) This Agreement may be terminated by GEI for cause upon 30 days written notice to CLIENT.
- c) In the event that this Agreement is terminated for any reason, CLIENT agrees to remit just and equitable compensation to GEI for services already performed in accordance with this Agreement, subject to the limitations given in this Article 11, Termination and Suspension.
- d) In the event Client terminates this Agreement for cause, in determining just and equitable compensation to GEI for work already performed, CLIENT may reduce amounts due to GEI by amounts equal to additional costs incurred by CLIENT to complete the Agreement scope. Such additional costs incurred by CLIENT may include but are not limited to: (1) the additional costs incurred by CLIENT to engage another qualified consultant to complete the unfinished scope; and (2) CLIENT’s labor costs and expenses to demobilize and remobilize its personnel to the site to coordinate with the new consultant.
- e) GEI may suspend any or all services under this Agreement if CLIENT fails to pay undisputed invoice amounts within 90 days following invoice date, by providing a 10-day written notice to CLIENT, until payments are restored to a current basis. In the event GEI engages counsel to enforce overdue payments, CLIENT will reimburse GEI for all reasonable attorney’s fees and court costs related to enforcement of overdue payments, provided that CLIENT does not have a good faith dispute with the invoice. CLIENT will indemnify and save GEI harmless from any claim or liability resulting from suspension of the work due to non-current, undisputed payments.

12. DISPUTE RESOLUTION.

Both parties agree to submit any claims, disputes, or controversies arising out of or in relation to the interpretation, application, or enforcement of this Agreement to non-binding mediation pursuant to the Rules for Commercial Mediation of the American Arbitration Association, as a condition precedent to litigation or any other form of dispute resolution.

13. GENERAL CONSIDERATIONS.

- a) Authorized Representatives. The following individuals are authorized to act as CLIENT’s and GEI’s representatives with respect to the services provided under this Agreement:

For Client:	Brian Talsma
	1668 Lincoln Rd, Allegan, MI 49010
For GEI:	Steve Rice
	5335 Edgewater Dr. Allendale MI
	49460

- b) Nothing in this Agreement shall be construed as establishing a fiduciary relationship between Client and GEI.
- c) Notices. Any notice required under this Agreement will be in writing, submitted to the respective party’s Authorized Representative at the address provided in this Article 13, General Considerations. Notices shall be delivered by registered or certified mail postage prepaid, or by commercial courier service. All notices shall be effective upon the date of receipt.
- d) Controlling Law. This Agreement is to be governed by the laws of the State of Michigan.
- e) Survival. All express representations, indemnifications, or limitations of liability included in the Agreement will survive its completion or termination for any reason. However, in no event shall indemnification obligations extend beyond the date when the institution of legal or equitable proceedings for professional negligence would be barred by an applicable statute of repose or statute of limitations.
- f) Severability. Any provision or part of this Agreement held to be void or unenforceable under any law or regulation shall be deemed stricken and all remaining provisions shall continue to be valid and binding upon GEI and CLIENT.

- g) Waiver. Non-enforcement of any provision by either party shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Agreement.
- h) Headings. The headings used in this Agreement are for general reference only and do not have special significance.
- i) Certifications. GEI shall not be required to sign any documents, no matter by whom requested, that would result in GEI having to certify, guaranty, or warrant the existence of conditions or the suitability or performance of GEI's services or the project, that would require knowledge, services or responsibilities beyond the scope of this Agreement.
- j) Third Parties. Nothing contained in this Agreement shall create a contractual relationship with, or a cause of action in favor of, a third party against either CLIENT or GEI. GEI's services hereunder are being performed solely for the benefit of CLIENT, and no other entity shall have any claim against GEI because of this Agreement or GEI's performance of services hereunder.

14. ADDITIONAL PROVISIONS.

- a) If Field Services are provided under this Agreement, the additional provisions included in **Exhibit D** shall apply. Field Services are defined as services performed on property owned or controlled by CLIENT, any federal, state, or local government or governmental agency, or other third party, and include, but are not limited to: site inspection, site investigation, subsurface investigation, sample collection, or sample testing.
- b) If the services of a Licensed Site Professional (LSP) or Licensed Environmental Professional (LEP) are provided under this Agreement, the additional provisions included in **Exhibit E** shall apply.
- c) If Engineering Design Services are provided under this Agreement, the additional provisions included in **Exhibit F** shall apply.
- d) If Opinions of Probable Construction Cost are provided under this Agreement, the additional provisions included in **Exhibit G** shall apply.
- e) If Construction Services are provided under this Agreement, the additional provisions included in **Exhibit H** shall apply.

15. EXHIBITS.

The following Exhibits are attached to and made a part of this Agreement:

- Exhibit A, Scope of Services and Schedule
- Exhibit B, Payment Terms
- Exhibit C, Insurance
- Exhibit D, Special Provisions for Field Services
- ~~Exhibit E, Special Provisions for Services of Licensed Site/Environmental Professionals~~
- Exhibit F, Special Provisions for Engineering Design Services
- Exhibit G, Special Provisions for Opinions of Probable Construction Costs
- Exhibit H, Special Provisions for Construction Services

16. ACCEPTANCE.

The parties hereto have executed this Agreement as of the dates shown below.

For CLIENT:

For GEI:

By: _____
(Signature)

By: 

(Signature)

(Print Name)

(Title)

(Date)

Steve Rice

(Print Name)

Branch Manager

(Title)

March 31, 2023

(Date)

**STANDARD PROFESSIONAL SERVICES AGREEMENT
EXHIBITS A - H**

EXHIBIT A

Scope of Services and Schedule

See Attached Letter/ Proposal, dated March 31, 2023.

EXHIBIT B

Payment Terms

See Attached Letter/Proposal, dated March 31, 2023.

EXHIBIT C

Insurance

GEI will carry the following types and amounts of insurance:

- A. Worker's Compensation and Employer's Liability (statutory):
 - 1. In accordance with the laws of the state(s) in which services are performed.
- B. Commercial General Liability (CGL) Insurance:
 - 1. Bodily Injury and Property Damage Combined: \$1,000,000 per occurrence and in aggregate.
 - 2. Including explosion, underground drilling excavation, and collapse hazards.
 - 3. Including an endorsement providing Additional Insured Status to CLIENT under the policy.
- C. Comprehensive Automobile Insurance:
 - 1. Bodily Injury and Property Damage Combined: \$1,000,000 per accident.
 - 2. Includes all owned, non-owned, and hired vehicles used in connection with the services under this Agreement.
- D. Professional Liability Insurance:
 - 1. \$1,000,000 per claim and in aggregate.

EXHIBIT D

Special Provisions for Field Services

- A. Right of Entry. CLIENT agrees to furnish GEI with right-of-entry and a plan of boundaries of the site where GEI will perform its services. If CLIENT does not own the site, CLIENT represents and warrants that it will obtain permission for GEI's access to the site to conduct site reconnaissance, surveys, borings, and other explorations of the site pursuant to the scope of services in the Agreement. GEI will take reasonable precautions to minimize damage to the site from use of equipment, but GEI is not responsible for damage to the site caused by normal and customary use of equipment. The cost for restoration of damage that may result from GEI's operations has not been included in GEI's fee, unless specifically stated in **Exhibit B**.
- B. Underground structures. CLIENT will identify locations of buried utilities and other underground structures in areas of subsurface exploration. GEI will take reasonable precautions to avoid damage to the buried utilities and other underground structures noted. If locations are not known or cannot be confirmed by CLIENT, then there will be a degree of risk to CLIENT associated with conducting the exploration. In the absence of confirmed underground structure locations, CLIENT agrees to accept the risk of any damages and losses resulting from the exploration work.
- C. Presence of Hazardous Materials. If the services under this Agreement do not include services relating to hazardous waste, oil, asbestos, or other hazardous materials, as defined by federal, state, or local laws or regulations, and if such materials are discovered during GEI's work, CLIENT agrees to negotiate appropriate revisions to the scope, schedule, budget, terms, and conditions of this Agreement. When such hazardous materials are suspected, GEI will have the option to stop work, without financial penalty, until a modification to this Agreement is made or a new Agreement is reached. If a mutually satisfactory Agreement cannot be reached between both parties, this Agreement will be terminated, and CLIENT agrees to pay GEI for all services rendered up to the date of termination, including any costs associated with termination.

- D. Disposal of Samples and Wastes Containing Regulated Contaminants. In the event that samples collected by GEI or provided by CLIENT, or wastes generated as a result of site investigation activities, contain or potentially contain substances or constituents which are or may be regulated contaminants as defined by federal, state, or local statutes, regulations, or ordinances, including but not limited to samples or wastes containing hazardous materials, said samples or wastes remain the property of CLIENT and CLIENT will have responsibility for them as a generator. If set forth in the Agreement, GEI will, at CLIENT's expense, perform necessary testing, and either (a) return said samples and wastes to CLIENT, or (b) using a manifest signed by CLIENT as generator, have said samples and/or wastes transported to a location selected by CLIENT for disposal. CLIENT agrees to pay all costs associated with the storage, transport, and disposal of said samples and/or wastes. Unless otherwise provided in the Agreement, GEI will not transport, handle, store, or dispose of waste or samples or arrange or subcontract for waste or sample transport, handling, storage, or disposal. CLIENT recognizes and agrees that GEI is working as a bailee and at no time assumes title to said waste or samples or any responsibility as generator of said waste or samples.
- E. Contribution of Hazardous Materials. CLIENT agrees that GEI has not contributed to the presence of hazardous wastes, oils, asbestos, biological pollutants such as molds, fungi, spores, bacteria, and viruses, and by-products of any such biological organisms, or other hazardous materials that may exist or be discovered in the future at the site. GEI does not assume any liability for the known or unknown presence of such materials. GEI's scope of services does not include the investigation or detection of biological pollutants such as molds, fungi, spores, bacteria, and viruses, and by-products of any such biological organisms. CLIENT agrees to indemnify and hold harmless GEI, its subconsultants, subcontractors, agents, and employees from and against all claims, damages, losses, and costs (including reasonable attorneys' fees) that may result from the detection, failure to detect, or from the actual, alleged, or threatened discharge, dispersal, release, escape, or exposure to any solid, liquid, gaseous or thermal irritant, asbestos in any form, or contaminants including smoke, vapor, soot, fumes, acids, alkalies, chemicals, waste, oil, hazardous materials, or biological pollutants. CLIENT's obligations under this paragraph apply unless such claims, damages, losses, and expenses are caused by GEI's sole negligence or willful misconduct.

EXHIBIT E

Special Provisions for Services of Licensed Site/Environmental Professionals

For services under this Agreement that require the engagement of a Licensed Site Professional (LSP) or a Licensed Environmental Professional (LEP) registered with and subject to the laws and regulations promulgated by the state in which the services are provided (collectively the LSP/LEP Program), the following will apply:

- A. ~~Under the LSP/LEP Program, the LSP/LEP owes professional obligations to the public, including, in some instances, a duty to disclose the existence of certain contaminants to the state in which the services are provided.~~
- B. ~~CLIENT understands and acknowledges that in the event that the licensed professional's obligations under the LSP/LEP Program conflict in any way with the terms and conditions of this Agreement or the wishes or intentions of CLIENT, the licensed professional is bound by law to comply with the requirements of the LSP/LEP Program. CLIENT recognizes that the licensed professional is immune from civil liability resulting from any such actual or alleged conflict.~~
- C. ~~CLIENT agrees to indemnify and hold GEI harmless from any claims, losses, damages, fines, or administrative, civil, or criminal penalties resulting from the licensed professional's fulfillment of the licensed professional's obligations under the LSP/LEP Program.~~

EXHIBIT F

Special Provisions for Engineering Design Services

- A. Design Without Construction Phase Services. CLIENT understands and agrees that if GEI's services under this Agreement include engineering design and do not include Construction-Related Services, then CLIENT:
1. Assumes all responsibility for interpretation of the construction Contract Documents.
 2. Assumes all responsibility for construction observation and review.
 3. Waives any claims against GEI that may be in any way connected thereto.

For purposes of this Agreement, Construction-Related Services include, but are not limited to: construction observation; review of the construction contractor's technical submittals; review of the construction contractor's progress; or other construction-phase services.

B. Use of Documents.

1. The actual signed and sealed hardcopy construction Contract Documents including stamped drawings, together with any addenda or revisions, are and will remain the official copies of all documents.
2. All documents including drawings, data, plans, specifications, reports or other information recorded on or transmitted as Electronic Files are subject to undetectable alteration, either intentional or unintentional, due to transmission, conversion, media degradation, software error, human alteration, or other causes.
3. Electronic Files are provided for convenience and informational purposes only and are not a finished product or Contract Document. GEI makes no representation regarding the accuracy or completeness of any accompanying Electronic Files. GEI may, at its sole discretion, add wording to this effect on electronic file submissions.
4. CLIENT waives any and all claims against GEI that may result in any way from the use or misuse, unauthorized reuse, alteration, addition to, or transfer of the Electronic Files. CLIENT agrees to indemnify and hold harmless GEI, its officers, directors, employees, agents, or subconsultants, from any claims, losses, damages or costs (including reasonable attorney's fees) which may arise out of the use or misuse, unauthorized reuse, alteration, addition to, or transfer of Electronic Files.

EXHIBIT G

Special Provisions for Opinions of Probable Construction Costs

GEI's Opinions of Probable Construction Cost provided under this Agreement are made on the basis of GEI's experience and qualifications, and represent GEI's best judgment as an experienced and qualified professional generally familiar with the industry. However, since GEI has no control over the cost of labor, materials, equipment or services furnished by others, or over a contractor's methods of determining prices, or over competitive bidding or market conditions, GEI cannot and does not guarantee that proposals, bids or actual construction costs will not vary from Opinions of Probable Construction Cost prepared by GEI.

If CLIENT wishes greater assurance as to probable construction costs, CLIENT agrees to employ an independent cost estimator.

EXHIBIT H

Special Provisions for Construction Services

In accordance with the scope of services under this Agreement, GEI will provide personnel to observe the specific aspects of construction stated in the Agreement and to ascertain that construction is being performed, in general, in accordance with the approved construction Contract Documents.

A. GEI cannot provide its opinion on the suitability of any part of the work performed unless GEI's personnel make measurements and observations of that part of the construction. By performing construction observation services, GEI does not guarantee the contractor's work. The contractor will remain solely responsible for the accuracy and adequacy of all construction or other activities performed by the contractor, including: methods of construction; supervision of personnel and construction; control of machinery; false work, scaffolding or other temporary construction aids; safety in, on, or about the job site; and compliance with OSHA and construction safety regulations and any other applicable federal, state, or local laws or regulations.

B. In consideration of any review or evaluation by GEI of the various bidders and bid submissions, and to make recommendations to CLIENT regarding the award of the construction Contract, CLIENT agrees to hold harmless and indemnify GEI for all costs, expenses, damages and attorneys' fees incurred by GEI as a result of any claims, allegations, administrative proceedings, or court proceedings arising out of or relating to any bid protest or such other action taken by any person or entity with respect to the review and evaluation of bidders and bid submissions or recommendations concerning the award of the construction Contract. This paragraph will not apply if GEI is adjudicated by a court to have been solely negligent or to have actually engaged in intentional and willful misconduct without legitimate justification, privilege, or immunity; however, CLIENT will be obligated to indemnify GEI until any such final adjudication by a court of competent jurisdiction.

FEE SCHEDULE

<u>Personnel Category</u>	<u>Hourly Billing Rate \$ per hour</u>
Staff Professional – Grade 1	\$ 93
Staff Professional – Grade 2	\$ 101
Project Professional – Grade 3	\$ 109
Project Professional – Grade 4	\$ 117
Senior Professional – Grade 5	\$ 133
Senior Professional – Grade 6	\$ 172
Senior Professional – Grade 7	\$ 185
Senior Consultant – Grade 8	\$ 256
Senior Consultant – Grade 9	\$ 287
Senior Principal – Grade 10	\$ 287

Senior Drafter and Designer / GIS	\$ 106
Drafter and Designer / GIS	\$ 86
*Senior Field Professional	\$ 109
*Field Professional	\$ 95
*Senior Technician	\$ 82
*Technician II	\$ 78
*Technician I	\$ 68
Word Processor, Administrative Staff	\$ 71
Office Aide	\$ 71

These rates are billed for both regular and overtime hours in all categories. Rates will increase up to 5% annually, at GEI’s option, for all contracts that extend beyond twelve (12) months after the date of the contract. Rates for Deposition and Testimony are increased 1.5 times.

OTHER PROJECT COSTS

Third Party Project Charges – All third party project charges will be billed at cost plus a 10% service charge. Examples of such charges include chemical laboratory charges; rented or leased equipment; printing and communication costs; shipping and mailing costs; sample disposal costs; transportation costs, project permits, and licenses.

Billing Rates for Specialized Technical Computer Programs – Computer usage for specialized technical programs will be billed at a flat rate of \$10.00 per hour in addition to the labor required to operate the computer.

Field Equipment Charges – GEI-owned field equipment will be billed at the following rates:

Backpack and shoreline electro-fishers	\$ 160/day	Invertebrate equipment package	\$ 55/day
Boat electro-fisher	\$ 420/day	Flow meter	\$ 85/day
Boat only	\$ 260/day	Multi-probe	\$ 160/day
IFIM equipment package	\$ 85/day		

Transportation Charges - Automobile expenses for GEI or employee owned cars will be charged at the rate per mile set by the Internal Revenue Service for tax purposes plus tolls and parking charges or at a rate negotiated for each project. When required for a project, four-wheel drive vehicles owned by GEI or the employees will be billed at \$25/day plus mileage. Travel costs including airfare, rental vehicles, taxis, parking, tolls, and other transportation charges will be billed at cost plus 15% service charge.

Subsistence – Lodging and meal costs at job sites, and in transit to and from job sites, will be billed at cost plus 15% service charge.

PAYMENT TERMS

Invoices will be submitted monthly or upon completion of a specified scope of service, as described in the accompanying contract (proposal, project, or agreement document that is signed and dated by GEI and CLIENT). Payment is due upon receipt of the invoice. Interest will accrue at the rate of 1% of the invoice amount per month, for amounts that remain unpaid more than 30 days after the invoice date. All payments will be made by either check or electronic transfer to the address specified by GEI and will include reference to GEI’s invoice number.



PROJECT

Hemlock Woolly Adelgid Survey

Location: Mason, Oceana, and Muskegon Counties, Michigan

Client: West Michigan Shoreline Regional Development Commission

Service Dates

Start: April 2018

Completed: 2019

Fees

- GEI Fee: \$96,162

Key Elements

- Invasive species survey and mapping
- Data collection and management
- Landowner interactions
- Public education
- Project partner collaboration



GEI Consultants has surveyed 2,000 acres of Lake Michigan shoreline for the presence of hemlock woolly adelgid on parcels predetermined by geospatial data to be most susceptible to this exotic pest.

In 2018, GEI was given a list of parcels requiring surveys for invasive exotic hemlock woolly adelgid (HWA). As part of the project scope, GEI needed to obtain landowner permission to access over 1,400 parcels before commencing any field work.

This was accomplished by creating an online survey which linked answers to a database. The URL link was then added to an informational postcard and mailed to each landowner. Throughout the process, permission data was constantly updated in both the database and GIS data used by field staff.

Once permission was granted for a particular parcel, surveyors systematically walked the property and inspected any hemlock trees (*Tsuga canadensis*) for the presence of the woolly adelgid. Data such as hemlock density, adelgid presence, and land use was collected using handheld GPS units capable of sub-meter accuracy. Field staff used the Midwest Invasive Species Information Network (MISIN) collection protocol which defines the species, area, and density of each population.

GEI constantly worked with both West Michigan Shoreline Regional Development Commission and the Ottawa Conservation District to ensure data quality, give and receive input, and provide survey status updates.



Hemlock Woolly Adelgid (HWA)



Insect that drains sap from hemlocks at the base of needles.

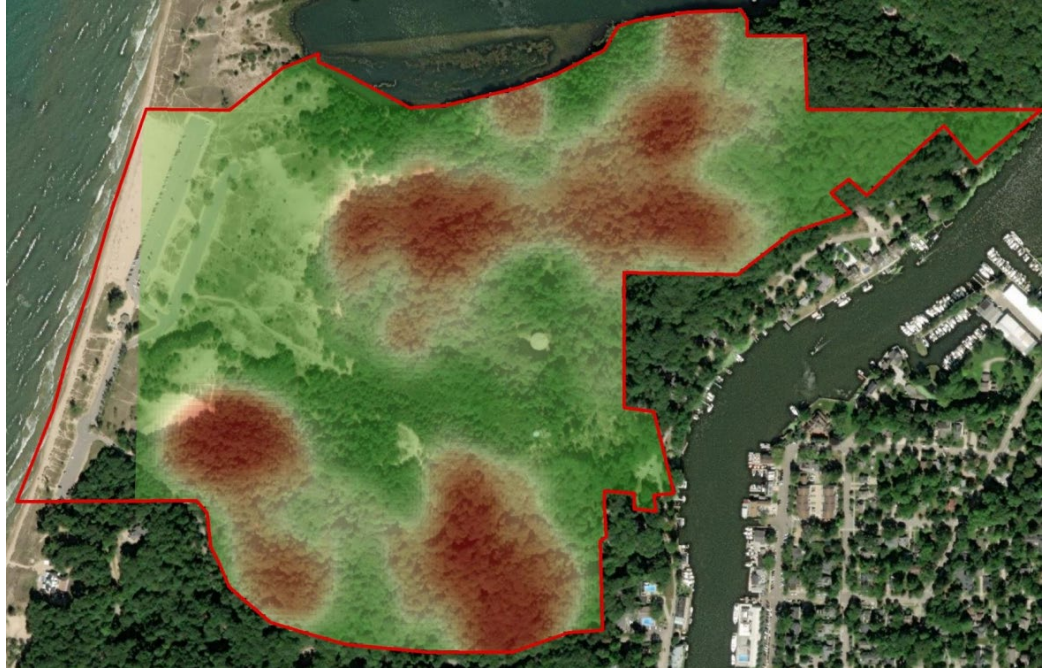
Causes defoliation typically progressing from the bottom up.

Infested trees typically die in 4-10 years based on health, size, etc.

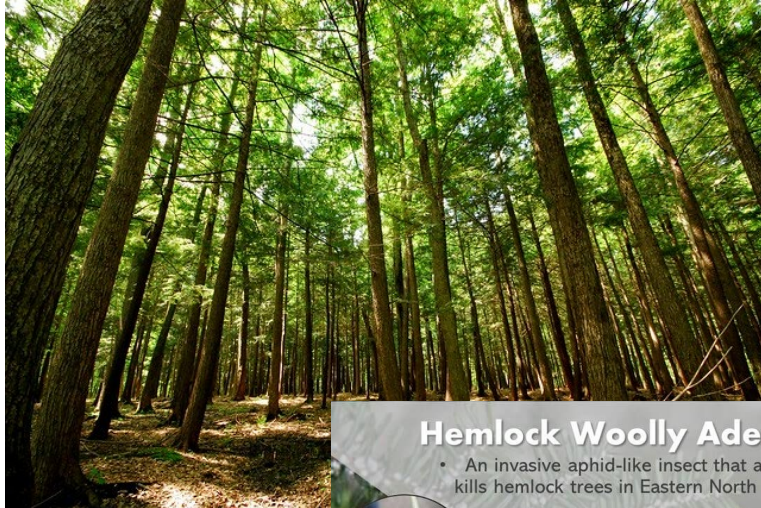
Extent of HWA

Survey of 6 City parcels (154 acres) identified 4212 hemlocks for treatment.

Relatively new infestation—5-10% defoliation.



Integrated Management Strategies



Hemlock Woolly Adelgid

- An invasive aphid-like insect that attacks & kills hemlock trees in Eastern North America
- Detected by woolly sacs at the base of hemlock needles, dieback and thinning
- Spreads by movement of firewood, nursery stock or contaminated clothing/gear



PROTECT CANADA'S FORESTS & TREES

TAKE ACTION:



BuyLocalBurnLocal.ca



PlayCleanGo.ca

Forest management planning

- Stand thinning
- Replacement and restoration

Educational efforts

- Management on private land
- Preventing spread

Biological controls

- Research is ongoing

Chemical Control

Imidacloprid (proposed)

- Best for prevention and new infestations
- Takes up to one year for full affect
- Lasts 5-7 years
- Less expensive

Dinotefuran

- Best for time-sensitive treatment
- Effective within a month
- Lasts 1-2 years
- More expensive

Bids

Parcel Number	Acerage	Trees > 5' DBH	Trees < 5' DBH	Muskegon CD	Honeytree Arborist	GEI Consultants
57-008-001-00	41.53	2,965	1,139	\$61,545.00	\$158,478.50	\$44,400.00
57-008-002-00	5.03					
57-009-051-00	16.03					
57-009-050-00	13.82					
57-009-052-01	59.82					
57-004-013-00	17.52					

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Sustainability Evaluation of “Former Airport Property”

This report was created for:

City of Saugatuck
102 Butler St, Saugatuck, MI 49453

Sustainability Evaluation

ODC Network sustainability staff evaluated the sustainability performance of the City of Saugatuck-owned “Former Airport” property (parcel #'s: 20-002-027-00 and 20-260-002-00), both in its current state and potential future uses. This assessment involved an examination of carbon sequestration and mitigation potential, air pollution, hydrological benefits, EV charging feasibility, and solar development opportunity. The primary purpose of this work was to identify opportunities for improving sustainability performance and strategies to balance and support social, environmental, and economic needs of the community.

Executive Summary:

The forest cover of this site represents the bulk of its value as a sustainability asset to the community. The ecological services provided by the large areas of mature, biodiverse, and healthy forests should be preserved and emphasized in any future use plans for the property. In addition to its intrinsic value as high-quality habitat and natural area, the property has a measurable impact on factors directly associated with human health, wellness, and prosperity. Unless significant redevelopment of the parcel and surrounding area were to occur, opportunities to leverage the property for electric vehicle charging and/or solar development are non-existent.

Valuation of Existing Canopy

The data presented here provided a quantitative assessment of the properties role in combatting climate change, enhancing air quality, and sustaining the water balance within the region.

Sequestration Value of Existing Canopy

Healthy forests capture and store large quantities of CO₂, the primary greenhouse gas associated with human-caused emissions and climate change. This relatively large tract of forest acts as significant carbon sink in the community. At the time of this report, the tree cover alone stores over 5,000 metric tonnes of carbon or the equivalent to approximately 20,000 metric tonnes of CO₂. US Forest Service estimates the social cost of this quantity of carbon to be upwards of \$900,000. Each year, the property is project to sequester an additional 200+ metric tons of carbon, the equivalent to 100 homes’ energy use for one year (**Appendix B**)

Description	Carbon (T)	±SE	CO ₂ Equiv. (T)	±SE	Value (USD)	±SE
Sequestered Annually in Canopy	217.94	±3.98	799.11	±14.58	\$37,169	±678
Stored in Trees (Not Annual)	5,473.24	±99.85	20,068.55	±366.13	\$933,465	±17,030

Soil-based carbon sequestration values were not included in this report (Standard measurement practices and tools are still in development), however, it is highly likely that this represents an additional carbon sink and ecosystem service provided by the property in its current state.

Air Pollution Value of Existing Canopy

In addition to carbon sequestration, healthy forests also play a critical role in the moderation of air quality and air pollution. At the time of this report, the existing canopy of this property has the potential to remove over 12,000 lbs. of air pollution each year. Notably, this includes particulate matter (PM2.5 and PM10), one of the primary concerns associated with the increased presence of wildfire smoke in West Michigan.

Abbr.	Description	Annual Removal (lbs.)	±SE	Value (USD)	±SE
CO	Carbon Monoxide	142.56	±2.60	\$2	±0
NO2	Nitrogen Dioxide	776.85	±14.75	\$3	±0
O3	Ozone	7,822.81	±142.72	\$185	±3
SO2	Sulfur Dioxide	494.87	±9.03	\$1	±0
PM2.5	Particulate Matter <2.5 Microns	379.38	±6.92	\$373	±7
PM10	Particulate Matter <10 Microns	2,635.50	±48.08	\$150	±3
Total		12,251.98	±223.52	\$714	±13

Hydrological Value of Existing Canopy

Forests are also a key component of the water cycle and healthy watersheds. The trees alone on this property help to filter and manage over 20,000 gallons of water (the size of an average swimming pool in the United States) each year.

Abbr.	Benefit	Amount (gal)	±SE
AVRO	Avoided Runoff	34.83	±0.64
E	Evaporation	5,935.62	±108.29
I	Interception	5,967.80	±108.88
T	Transpiration	8,496.19	±155.00
Total		20,434.44	±372.81

*Data calculated using I-Tree software, A product produced through the collaboration of the US Forest Service, Davey, Arbor Day Foundation, Society of Municipal Arborists, Casey Trees, International Society of Arboriculture. See **Appendix A** for more information.*

EV Charging Evaluation:

Public entities including parks, beaches, and nature preserves represent are increasing popular locations for EV chargers as demand rises for charging options that provide entertainment and recreation opportunities while drivers and passengers refuel (Appendix C). At the time of this report, the charging infrastructure of the Saugatuck is considered underdeveloped and ripe with opportunity for additional public charging facilities. The portion of Interstate 196 passing through the Saugatuck area does not yet meet the US Department of Energy’s minimum distance or fuel-specific station requirements to qualify as an electric-vehicle ready corridor.

Although demand at this property could increase depending on future-use plans and public accessibility, investment in publicly available EV charging facilities should be prioritized elsewhere in the community before focusing on this area. The property is ineligible for the Department of Environment Great Lakes and Energy’s Charge Up Michigan program and will likely be ineligible for other funding sources due to its distance from local thoroughfares and population centers. (The current driveway is 1.59 miles from exit 41, 4.58 miles from exit 36)

Solar Evaluation

As it stands, the property does not lend itself to solar development satisfying only one of four priorities typically considered in site selection:

- **Three-phase power:** Close proximity (less than 1 mile) to 3-phase power is a minimum requirement for solar development and is conveniently present along 63rd street.
- **Substation:** Close proximity (less than 3 miles) to an electrical substation is commonly preferred for solar development. The nearest substations are located 6.89 miles and 8.15 miles away.
- **Ecological loss:** Current solar developments prioritize land that has already been cleared and leveled. In addition to the logistical issue of clearing the land, the social and environmental cost of

site preparations for a ground-mount solar array (minimum of 20 acres) would likely outweigh the potential returns (Annual lease rates currently hover between \$600 - \$1,500 per acre).

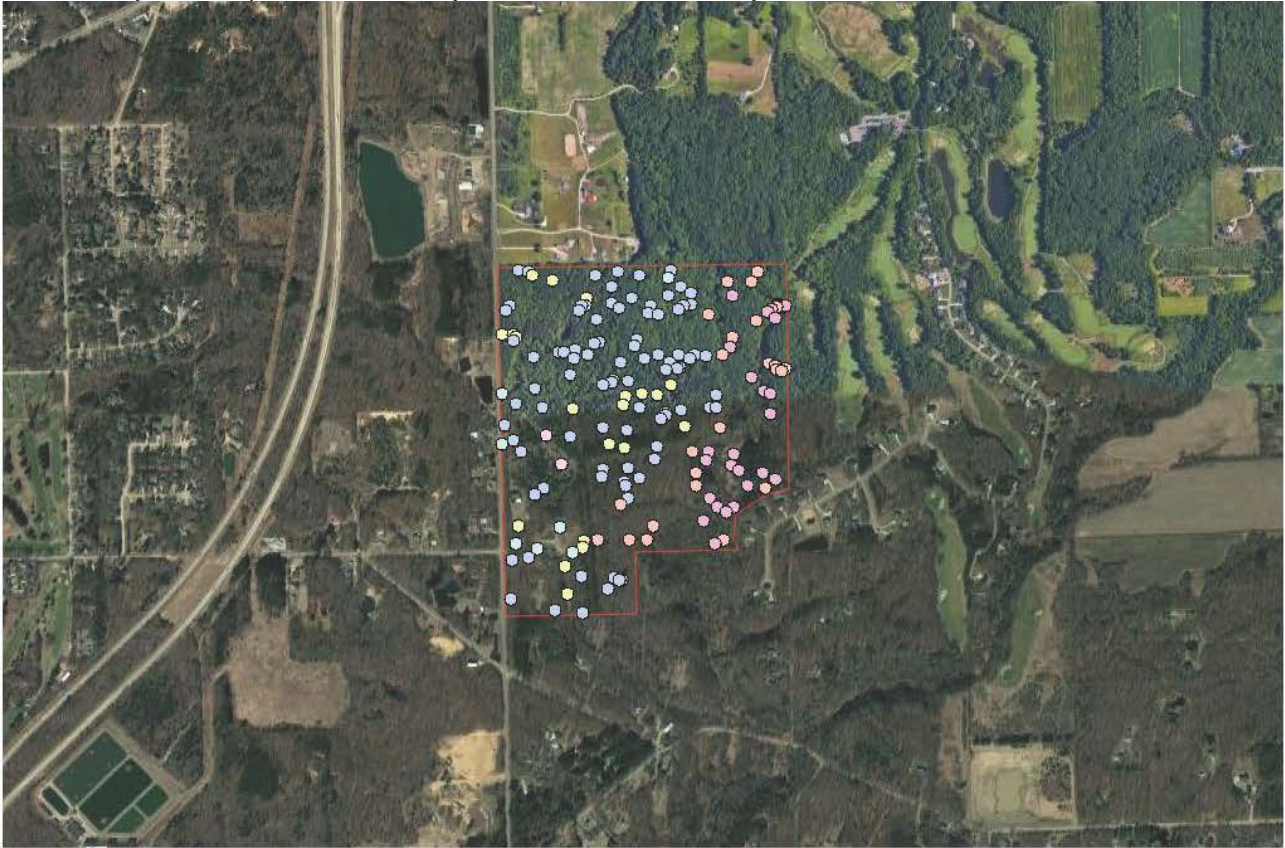
- **Competitive Alternatives:** The presence of numerous alternative sites in the region with a lower opportunity cost for solar development (parking lots, rooftops, vacant property, agricultural land) pose significant competition making this property an unlikely candidate.

Composting/Yard Waste Material Management:

The disturbed area of property currently used to manage DPW lawn waste appears compliant with Section 11521(4)(b)(i) and (ii), of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451 requirement for use as a Commercial Composting facility. If demand for a larger local composting facility to serve residential needs exists, many aspects of this location make it a good candidate for consideration. The western half of the property is well-buffered from require setbacks and is visually isolated from major residential and commercial areas. The eastern half of the property could serve as an olfactory buffer to any neighbors downwind of the operation. If this opportunity were pursued, caution should be taken to avoid the introduction of invasive species to the surrounding natural areas through the translocation of yard and lawn waste. If codeveloped with a trail system and other recreational opportunities, careful planning would be necessary to isolate operations from public-use areas.

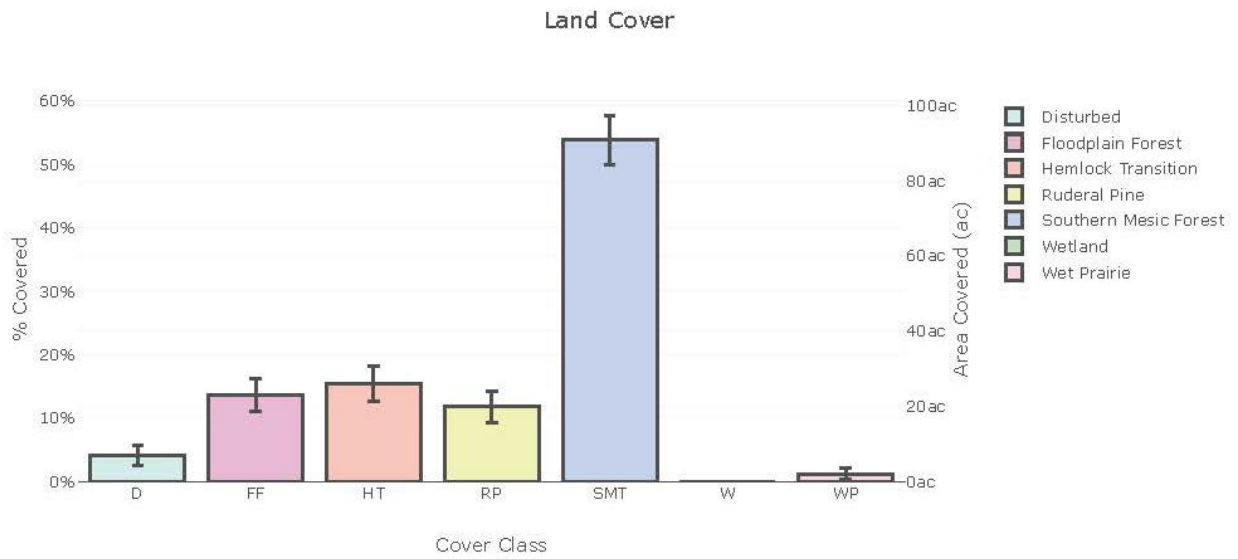
Appendix A: Canopy Valuation Results:

Data calculated using I-Tree software. A product produced through the collaboration of the US Forest Service, Davey, Arbor Day Foundation, Society of Municipal Arborists, Casey Trees, International Society of Arboriculture.



Google

Imagery ©2023, CNES / Airbus, Maxar Technologies, NOAA, USDA/FPAC/GEO Report a map error



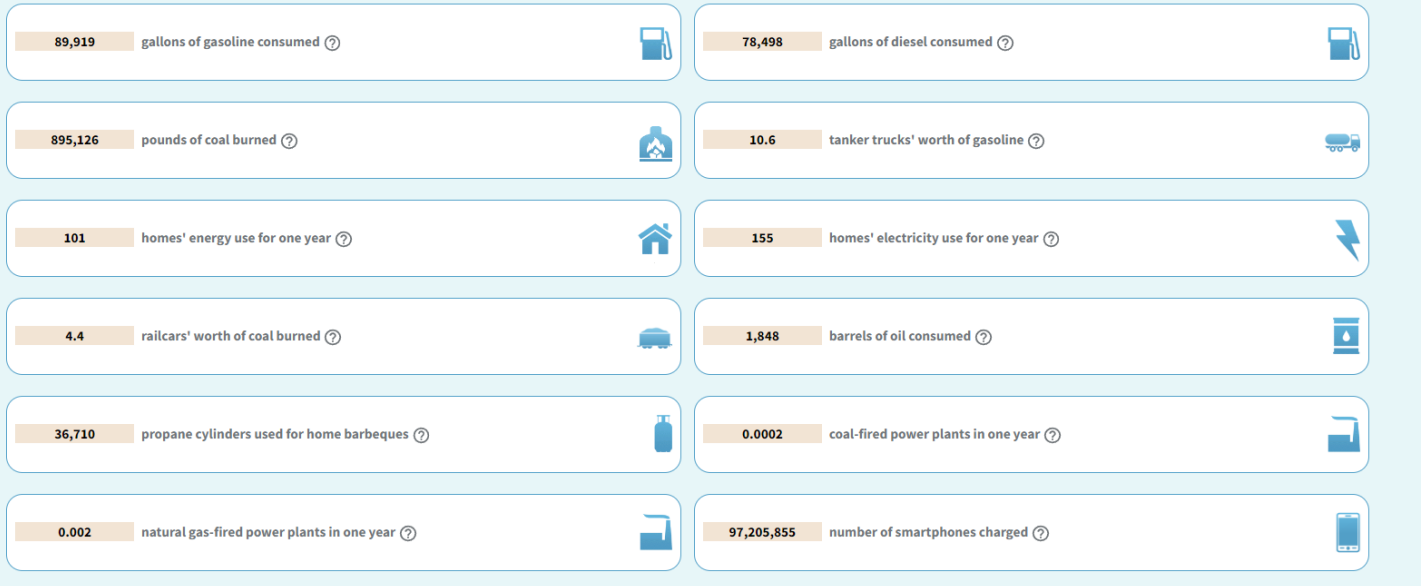
Appendix B: Canopy Sequestration Equivalencies: Calculated using EPA [Greenhouse Gas Equivalencies Calculator](#)

799 Metric Tons of Carbon Dioxide (CO₂) equivalent

This is equivalent to greenhouse gas emissions from:

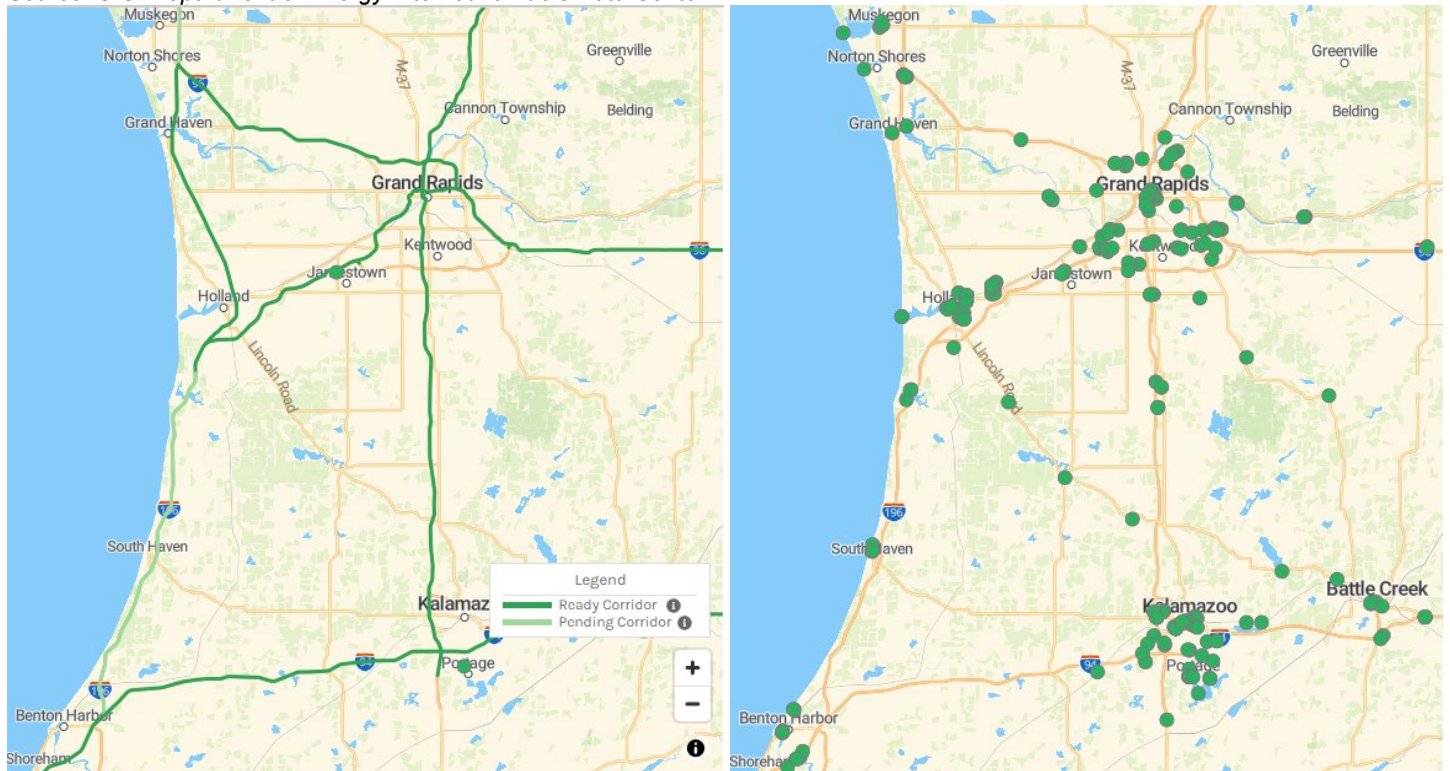


This is equivalent to CO₂ emissions from:



Appendix C: EV Charging Supporting Data

Source: U.S. Department of Energy Alternative Fuels Data Center



Appendix D: Commercial Composting Regulatory Requirements

[Department of Environment, Great Lakes, and Energy Commercial Composting](#)

Yard Waste Composting Isolation Distances (feet)

According to Section 11521(4)(b)(i) and (ii), of Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, registered composting sites must maintain certain isolation distances to property lines, residences, surface water, wells, and sensitive receptors. The following table contains these requirements.

	Facility in operation before December 1, 2007	Facility in operation after December 1, 2007
Property line	50	50
Residence	200	200
Surface water	100	100
Type I or IIA water supply well	NA	2,000
Type IIB or III water supply well	NA	800
Sensitive receptor	NA	500
Groundwater	NA	4

Ecological Evaluation of “Former Airport Property”



This report was created for:

City of Saugatuck
102 Butler St, Saugatuck, MI 49453

Project Background:

The ODC Conservation Services team conducted an ecological evaluation of the City of Saugatuck-owned “Former Airport” property (parcel #'s: 20-002-027-00 and 20-260-002-00). Survey work for the ecological evaluation began on **June 2, 2023** and continued through **July 31, 2023**. The purpose of the ecological evaluation was to assess the current state of ecological health of the existing natural communities and to provide direction for future land-use decisions on the property. The ecological evaluation process involved the identification of distinct natural communities on the site, along with outlining the following criteria for each unit:

- General ecological site description and inventory of natural features
- Description of each natural community including:
 - Landscape context and natural processes
 - General inventory of native plant communities including canopy, understory, and forb/graminoid layer
 - Documentation of high-quality native plant species (coefficient of conservatism rankings between 7-10)
 - Documentation of observed (and potential) wildlife including: state threatened (T), endangered (E), and species of special concern (SC)
 - Documentation of invasive species, pests, and ecological threats
 - Identification of potential ecological restoration and outdoor education opportunities

Executive Summary

The reviewed property consists of 169.1 total acres located along a significant mosaic of greenspace within the Kalamazoo River corridor. The site offers a diverse range of habitats including mature expanses of Mesic Southern Forest, Floodplain Forest, a biodiverse river corridor, several vernal pools, and multiple non-natural communities facing substantial anthropogenic disturbance. Based on our findings detailed below in this report, we recommend any future development and/or recreational amenities should remain on the western half of the property which is of lower ecological quality. The eastern half of the property consists almost entirely of high quality habitat that should be preserved if possible. Pockets of invasive species should be prioritized for management throughout the entire property in order to prevent the eventual displacement of these high quality plant communities.

Site Description

The property under review is situated directly east the intersection of 63rd St and 134th Ave in Saugatuck. The property has a long history of anthropogenic disturbance including a brief stint as an airport, a snowmobile club and trail system, as well as a current storage area for DPW lawn waste and other materials. The extensive history of anthropogenic disturbance is most obvious on the western half of the property. A plethora of invasive and noxious, disturbance-prone species can be found throughout this area. Despite this concern, the property also harbors several high-quality natural areas as we move east throughout the property including a rich creek corridor, hemlock dominated slopes leading to the creek, large tracts of mature forest with old growth oaks, multiple vernal pools, and several pockets of high-quality wet woods. Although invasive species are dense on the western half of the property, the presence of this wide range of habitats warrants a concerted management effort to discourage the spread of invasive species and preserve the integrity of the high-quality natural areas of the property.

Site Information:

Property Size:

169.1 acres

Topography:

Substantial elevation changes from upland (680') to lower-lying areas of Silver Creek (600') on the east side of the property

Watershed:

Kalamazoo

Corridor Component:

One of a number of connected recreational areas along Silver Creek

Historical Land Use:

Previously owned and operated as a small airport in the 1920's

Former snowmobile/UTV recreation club for a period of time (trails throughout)

Active storage area for DPW on SW corner of the property

Disturbance Comments:

Frequent anthropogenic disturbance has led to an increase in invasive and noxious species in the DPW storage area, the old airport runway, and in general on the western half of the property

Ecological Community Information:

Pre-settlement Communities:

Hemlock-Beech-Sugar Maple Forest, Mixed Hardwood Swamp

Present Communities:

Mesic Southern Forest, Floodplain Forest, Ruderal Pine Forest, Disturbed Wet Prairie

Maturity:

Mature canopy on eastern half of the property with pockets of middle-aged and early successional on the western half

Total Species Recorded:

102 in less disturbed areas

88 in heavily disturbed areas

***NOTE:** FQI recorded in two separate units due to the high prevalence of non-native species in the disturbed areas on the western half of the property

Floristic Quality Index (FQI):

41.4 in less disturbed areas

12.2 in heavily disturbed areas

***General scale:** 1-19 = low quality, 20-35 high quality, 35+ = exceptional

Notable Elements:

16 plants with a coefficient of conservatism (CC) of 7 or higher

Ecological Site Description and Natural Features:

1. Topography

The property has notable changes in elevation as we move east through the property. The peak elevation is 680' on the NW portion of the unit, with 600' being the low point of Silver Creek. The creek corridor is prone to frequent flooding events due to the presence of the creek, a high-water table, and notable elevation changes.

2. Hydrology

Silver Creek flows south through the eastern transect of the property meandering through the pockets of floodplain forest. Several ravines and seepage areas dot the slopes leading down to Silver Creek.

3. Present Natural Communities (see Appendix A)

- Mesic Southern Forest
- Floodplain Forest/Hemlock Transitional Zone
- Disturbed & Non-natural Communities:
 - Disturbed Wet Prairie
 - Ruderal Pine Forest
 - Disturbed Storage Lot

4. High Quality Plant Species (*CC = Coefficient of Conservatism)

- Fox grape (*Vitis labrusca*) *CC of 7
- Red trillium (*Trillium erectum*) *CC of 7
- Blackhaw (*Viburnum prunifolium*) *CC of 7
- Spicebush (*Lindera benzoin*) *CC of 7
- Yellow birch (*Betula alleghaniensis*) *CC of 7
- Red baneberry (*Actaea rubra*) *CC of 7
- Spotted wintergreen (*Chimaphila maculata*) *CC of 8
- Plaintain-leaf sedge (*Carex plantaginea*) *CC of 8
- Rue anemone (*Thalictrum thalictroides*) *CC of 8
- American cancer root (*Orobanche uniflora*) *CC of 8
- Flowering dogwood (*Cornus florida*) *CC of 8
- Joe-pye weed (*Eutrochium fistulosum*) *CC of 8
- Lizard's tail (*Saururus cernuus*) *CC of 9
- Tulip tree (*Liriodendron tulipifera*) *CC of 9
- Paw Paw (*Asimina triloba*) *CC of 9
- Toadshade (*Trillium sessile*) *CC of 9
- American chestnut (*Castanea dentata*) *CC of 9

5. Non-native/Invasive Species

- Black locust (*Robinia pseudoacacia*)
- Tree-of-Heaven (*Ailanthus altissima*)
- Multiflora rose (*Rosa multiflora*)
- European privet (*Ligustrum vulgare*)
- Japanese barberry (*Berberis vulgaris*)
- Purple loosestrife (*Lythrum salicaria*)
- Garlic mustard (*Alliaria petiolata*)
- Canada thistle (*Cirsium arvense*)
- Autumn olive (*Elaeagnus umbellata*)
- Spotted knapweed (*Centaurea stoebe*)
- Asian bittersweet (*Celastrus orbiculatus*)
- Japanese knotweed (*Fallopia japonica*)
- Creeping myrtle (*Vinca minor*)
- Honeysuckle (*Lonicera tatarica*)
- Phragmites (*Phragmites australis*)
- Glossy buckthorn (*Frangula alnus*)
- Reed canary grass (*Phalaris arundinacea*)
- Sweet clover (*Melilotus spp.*)
- Dame's rocket (*Hesperis matronalis*)

Description of Natural Communities (see Appendix A for map):

1. Mesic Southern Forest

- **Landscape Context/Natural Features:**
Mesic Southern Forest is a beech-maple dominated community that typically occurs on moraine and glacial outwash areas in close proximity to the Great Lakes. Gap phase dynamics from periodic severe weather events is the main process that promotes canopy regeneration in this system. The mosaic of old growth oaks in conjunction with recent recruitment of primarily younger beech and maple saplings supports this history of small-scale weather related disturbance. A matrix of long-lived, middle-aged, and early successional forest is found throughout this system.

- Native Plant Community:** Mesic-Southern Forest occupies the majority of the property until the terrace/Hemlock transitional zone of the floodplain forest is reached on the eastern portion. It is situated along on the upland portions of the slopes west of the creek following the areas of more well-drained soil. The canopy layer is quite diverse here with the dominant species observed being American beech (*Fagus grandifolia*) and sugar maple (*Acer saccharum*). Abundant canopy associates include: yellow poplar (*Liriodendron tulipifera*), bitternut hickory (*Carya cordiformis*), white oak (*Quercus alba*), red oak (*Quercus rubra*), blue beech (*Carpinus caroliniana*), and ironwood (*Ostrya virginiana*). Young saplings of beech, maple, elm, and ironwood trees are common. Parasitic species American-cancer root (*Conopholis americana*), beech-drops (*Epifagus virginiana*) are also quite common. The soil is dense with leaf litter and organic matter which harbors a rich network of fungi as well. The shrub layer consists mainly of witch hazel (*Hamamelis virginiana*), spicebush (*Lindera benzoin*), prickly gooseberry (*Ribes cynosbati*), with a few scatterings of both pawpaw (*Asimina triloba*) and flowering dogwood (*Cornus florida*) on the east side. Virginia creeper (*Parthenocissus quinquefolia*), green briar (*Smilax spp.*), and poison ivy (*Toxicodendron radicans*) make up the majority of woody vine species. The ground/forb layer offers several high value native species and a variety of spring ephemerals including: squirrel corn (*Dicentra canadensis*), Dutchman's breeches (*D. cucullaria*), spring beauty (*Claytonia virginica*), wild geranium (*Geranium maculatum*), yellow trout lily (*E. americanum*), sharp-lobed hepatica (*Hepatica acutiloba*), May apple (*Podophyllum peltatum*), common trillium (*Trillium grandiflorum*), sessile trillium (*Trillium sessile*), bloodroot (*Sanguinaria canadensis*), and Canada mayflower (*Maianthemum canadense*). Several sedge species (*Carex albursina*, *C. arctata*, *C. blanda*) and fescue/bluegrasses fill in pockets of the understory during summer months. Baneberries (*Actaea pachypoda* and *A. rubra*), wreath goldenrod (*Solidago caesia*), and several fern species are also common later in the growing season. The problematic invasive species that have infiltrated this community are autumn olive (*Elaeagnus umbellata*), Japanese barberry (*Berberis thunbergii*), multiflora rose (*Rosa multiflora*), garlic mustard (*Alliaria petiolata*), Asian bittersweet (*Celastrus orbiculatus*), and autumn olive (*Elaeagnus umbellate*).
- High Quality Plant Species:**

 - Blackhaw (*Viburnum prunifolium*) *CC of 7 (state special concern)
 - Spicebush (*Lindera benzoin*) *CC of 7
 - Red baneberry (*Actaea rubra*) *CC of 7
 - Spotted wintergreen (*Chimaphila maculata*) *CC of 8
 - Plaintain-leaf sedge (*Carex plantaginea*) *CC of 8
 - Rue anemone (*Thalictrum thalictroides*) *CC of 8
 - American cancer root (*Orobancha uniflora*) *CC of 8
 - Flowering dogwood (*Cornus florida*) *CC of 8
 - Tulip tree (*Liriodendron tulipifera*) *CC of 9
 - Toadshade (*Trillium sessile*) *CC of 9 (state threatened)
 - American chestnut (*Castanea dentata*) *CC of 9 (state endangered)
- Observed and Potential Wildlife Habitat:**

 - This high-quality plant community provides habitat for wood thrush, warblers, tanagers, barred owl, pileated woodpecker, hawks, squirrels, chipmunks, rabbits, white-tailed deer, fox, raccoon, opossum, turkey, as well as diverse array of songbirds. Salamanders, frogs, aquatic invertebrates, and other amphibians seek refuge in the scattered vernal pools.
 - Habitat is suitable for a variety of potential rare wildlife including:
 - Accipiter cooperii* (Cooper's hawk, state special concern)
 - Accipiter gentilis* (northern goshawk, state special concern)
 - Ambystoma opacum* (marbled salamander, state threatened)
 - Ambystoma texanum* (small-mouthed salamander, state endangered)
 - Buteo lineatus* (red-shouldered hawk, state threatened)
 - Dendroica cerulea* (cerulean warbler, state special concern)

- *Elaphe o. obsoleta* (black rat snake, state special concern)
- *Emydoidea blandingii* (Blanding's turtle, state special concern)
- *Microtus pinetorum* (woodland vole, state special concern)
- *Nicrophorus americanus* (American burying beetle, federal/state endangered)
- *Protonotaria citrea* (prothonotary warbler, state special concern)
- *Seiurus motacilla* (Louisiana waterthrush, state special concern)
- *Terrapene c. carolina* (eastern box turtle, state special concern)
- *Wilsonia citrina* (hooded warbler, state special concern)
- **Potential Invasive Species, Pests, Ecological Threats:**
 - Small pockets of invasive species pose the largest threat that could reduce biodiversity if left unchecked.
 - Management of Japanese knotweed and Asian bittersweet.
 - Hemlock Woolly Adelgid (HWA) is imminent and should be prepared for treatment.
- **Outdoor Education Opportunities:**
 - Hiking/biking trails – existing infrastructure footprint could be utilized.
 - Pole barn could be retrofit into welcome area/parking/restrooms/etc. and would be separate from DPW storage area.
 - Bird watching opportunities.
 - Plant identification/interpretive signage throughout.
 - Connection to other nearby trails.
- **Ecological Restoration Opportunities:**
 - Removal of non-native/invasive plant species to help protect the high quality Mesic Southern Forest and Floodplain Forest on the east side of the property.
 - Especially Asian bittersweet considering it's ability to spread rapidly and to girdle trees causing eventual mortality.



Figure 1: Photo of Mesic Southern Forest community with high-quality ephemeral forb layer consisting of May apple (*Podophyllum peltatum*) and wild geranium (*Geranium maculatum*).

2. Floodplain Forest / Hemlock Transitional Zone

- **Landscape Context/Natural Features:** Floodplain forests are a dynamic interface community that bridge the gap between terrestrial and aquatic systems. The lower zone of the floodplain experiences dynamic interactions of over-the-bank flooding, sediment deposition, streambank erosion, and ice scour in the winter months. As expected with moving water and dynamic fluctuations in water level, the plant communities are quite diverse with variable species composition throughout different levels of inundation. Multi-stemmed trees are common due to this process of bank-scouring, deposition, and erosion. Shade from nearby trees and shrubs helps shade the creek from excessive sun exposure during the summer months which creates pockets of water with unique plant and wildlife components.

Plant Community: The dominant canopy species of the low-lying, creek adjacent zone of this unit are silver maple (*Acer saccharinum*), basswood (*Tilia americana*), box elder (*Acer negundo*), slippery elm (*Ulmus rubra*), and a few standing-dead green ash (*Fraxinus pennsylvanica*). As we continue the transition away from fluvial landforms and reach soil above the influence of seasonal inundation, the species composition begins to shift. Eastern hemlock (*Tsuga canadensis*) trees dominate a majority of the slope/terrace region. Hemlock trees should be closely monitored for the presence of the invasive tree pest Hemlock Woolly Adelgid (HWA). American beech (*Fagus grandifolia*), ironwood (*Carpinus caroliniana*), and sugar maple (*Acer saccharum*) trees become more common as we continue to increase in elevation up the terrace/slope back into Mesic Southern Forest. The shrub layer is scattered and consists mainly of dogwoods (*Cornus* spp.) and spicebush (*Lindera benzoin*). Several high quality species including: royal fern (*Osmunda regalis*), wood fern (*Dryopteris* spp.), cut grass (*Leersia oryzoides*), wood reedgrass (*Cinna arundinacea*), jewelweed (*Impatiens capensis*), jumpseed (*Persicaria virginiana*), Virginia waterleaf (*Hydrophyllum virginianum*), and white avens (*Geum canadense*) are all common in the forb layer. Moonseed (*Menispermum canadense*), Virginia creeper (*Parthenocissus quinquefolia*), and poison-ivy (*Toxicodendron radicans*) are the most abundant woody vines in this community.

- **High Quality Plant Species:**
 - Blackhaw (*Viburnum prunifolium*) *CC of 7 (state special concern)
 - Spicebush (*Lindera benzoin*) *CC of 7
 - Yellow birch (*Betula alleghaniensis*) *CC of 7
 - Joe-pye weed (*Eutrochium fistulosum*) *CC of 8
 - Lizard's tail (*Saururus cernuus*) *CC of 9
 - Toadshade (*Trillium sessile*) *CC of 9 (state threatened)
 - Paw Paw (*Asimina triloba*) *CC of 9
- **Observed and Potential Wildlife:**
 - This community provides important habitat for cavity-nesting birds, canopy-dwelling birds, woodpeckers, and migratory birds. Ducks, owls, herons, egrets, songbirds, wawks, bats, squirrels, chipmunks, rabbits, white-tailed deer, and raccoon are also common. Turtles, invertebrates, frogs, snakes, and other reptiles/amphibians are scattered throughout differing levels of inundation. Various species of creek-dwelling fish occupy pools of deeper water throughout the creek.
 - Habitat is suitable for a variety of potential rare wildlife including:
 - *Accipiter cooperii* (Cooper's hawk, state special concern)
 - *Ambystoma opacum* (marbled salamander, state threatened)
 - *Ambystoma texanum* (small-mouthed salamander, state endangered)
 - *Buteo lineatus* (red-shouldered hawk, state threatened)
 - *Clonophis kirtlandii* (Kirtland's snake, state endangered)
 - *Dendroica cerulea* (cerulean warbler, state special concern)
 - *Dendroica dominica* (yellow-throated warbler, state threatened)
 - *Elaphe o. obsoleta* (black rat snake, state special concern)
 - *Emydoidea blandingii* (Blanding's turtle, state special concern)
 - *Glyptemys insculpta* (wood turtle, state special concern)

- *Myotis sodalis* (Indiana bat, federal/state endangered)
- *Nerodia erythrogaster neglecta* (copperbelly watersnake, federal threatened and state endangered)
- *Protonotaria citrea* (prothonotary warbler, state special concern)
- *Seiurus motacilla* (Louisiana waterthrush, state special concern)
- *Sistrurus c. catenatus* (eastern massasauga, federal candidate species and state special concern)
- *Tachopteryx thoreyi* (grey petaltail, state special concern)
- *Terrapene c. carolina* (eastern box turtle, state special concern)
- *Wilsonia citrina* (hooded warbler, state special concern)
- **Potential Invasive Species, Pests, Ecological Threats:**
 - Creek has potential to carry in unwanted aquatic invasive species including reed canary grass, purple loosestrife, and phragmites.
 - Hemlock Woolly Adelgid (HWA) will cause eventual mortality to Eastern Hemlock trees if left untreated.
- **Outdoor Education and Recreational Opportunities:**
 - Hiking trails to observe creek corridor plant community and topography.
 - Plant identification signage.
 - Bird watching opportunities.
 - Recommend minimalist trails in this area and avoiding bike paths here to limit disturbance and protect high quality plant communities.
- **Ecological Restoration Opportunities:**
 - HWA control to prevent eventual loss of slope stabilizing Eastern Hemlocks.
 - Prioritization of Asian bittersweet control to prevent mortality of mature trees through girdling and displacement of native plant communities.



Figure 2: Photo of Floodplain Forest community documenting the shift of the understory plant community at the beginning of the Hemlock transition zone.

3. Disturbed Wet Prairie

- **Landscape Context/Natural Features:** The disturbed wet prairie section is a highly disturbed and neglected area that appears to be the remnants of the old runway or possibly the remnants of the large White Spruce (*Picea glauca*) and Scotch Pine (*Pinus sylvestris*) planting that occurred following the abandoning of the airport. A clay topsoil is covering the area that creates unconventional plant communities; with ruts in the clay being most similar to a wet prairie. The intense microtopography as a result of the rutted clay topsoil has formed a wetland matrix throughout the unit with the majority of the wetland pockets along the treeline to the northeast. Tree species exhibit stunted growth due to the seasonal inundation from the hard clay topsoil.
- **Plant Community:** The plant community throughout the disturbed wet prairie is highly disturbed and impacted by dense populations of invasive species. Native tree species throughout the area are primarily early successional trees including; boxelder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), and cottonwood (*Populus deltoids*). Encroaching populations of Autumn Olive (*Elaeagnus umbellata*), Red Pine (*Pinus resinosa*), and Scotch Pine (*Pinus sylvestris*) are a non-natural liability on the surrounding landscape and should be controlled if a native, high-quality habitat is the primary goal. Woody vegetation is much more abundant at higher elevations along the southwest edge of the wet prairie plant community. As you go to the northeast and elevation starts to drop the hardpacked clay soil holds onto more water which has prevented a lot of the woody invasive plants from encroaching too much. The forbs throughout this area mirror the same pattern as the woody vegetation with dryer species like black-eyed susan (*Rudbeckia hirta*), blackberry (*Rubus spp.*), and meadow garlic (*Allium canadense*) being along the southwest line and wetter species like bulrush (*Scirpoides holoschoenus*), phragmites (*Phragmites australis*), and meadowsweet (*Filipendula ulmaria*) at the lower elevations. This wetland spectrum is further complicated by the microtopography throughout the area; which allows wetland species to be located at the higher elevations where pockets of clay allow for water retention.
- **High Quality Plant Species:**
 - Fox grape (*Vitis labrusca*) *CC of 7
 - Joe-pye weed (*Eutrochium fistulosum*) *CC of 8
- **Observed and Potential Wildlife:**
 - Suitable habitat for woodpeckers, hawks, squirrels, chipmunks, rabbits, white-tailed deer, raccoon, opossum, turkey, and songbirds. Turtles, snakes and other amphibians are found throughout the scattered wet pockets.
 - Habitat is suitable for a variety of potential rare wildlife including:
 - *Acris crepitans blanchardi* (Blanchard's cricket frog, state special concern)
 - *Ambystoma texanum* (smallmouth salamander, state endangered)
 - *Ammodramus savannarum* (grasshopper sparrow, state special concern)
 - *Asio flammeus* (short-eared owl, state endangered)
 - *Botaurus lentiginosus* (American bittern, state special concern)
 - *Circus cyaneus* (northern harrier, state special concern)
 - *Clemmys guttata* (spotted turtle, state threatened)
 - *Clonophis kirtlandii* (Kirtland's snake, state endangered)
 - *Dorydiella kansana* (leafhopper, state special concern)
 - *Emydoidea blandingii* (Blanding's turtle, state special concern)
 - *Flexamia reflexus* (leafhopper, state special concern)
 - *Meropleon ambifusca* (Newman's brocade, state special concern)
 - *Neoconocephalus lyristes* (bog conehead, state special concern)
 - *Neoconocephalus retusus* (conehead grasshopper, state special concern)
 - *Neonympha m. mitchellii* (Mitchell's satyr, federal/state endangered)
 - *Orchelimum concinnum* (red-faced meadow katydid, state special concern)
 - *Orphulella pelidna* (green desert grasshopper, state special concern)

- *Papaipema cerina* (golden borer, state special concern)
- *Papaipema maritima* (maritime sunflower borer, state special concern)
- *Papaipema speciosissima* (regal fern borer, state special concern)
- *Paroxya hoosieri* (Hoosier locust, state special concern)
- *Phalaropus tricolor* (Wilson's phalarope, state special concern)
- *Sistrurus c. catenatus* (eastern massasauga, federal candidate species and state special concern)
- *Spartiniphaga inops* (spartina moth, state special concern)
- *Spiza americana* (dickcissel, state special concern)
- *Tyto alba* (barn owl, state endangered)
- **Potential Invasive Species, Pests, Ecological Threats:**
 - Proximity to large populations of Autumn Olive (*Elaeagnus umbellata*) will continue to encroach into the community over time.
 - Absence of fire has allowed other non-native species like Phragmites (*Phragmites australis*), Sweet Clover (*Melilotus officinalis*), Purple Loosestrife (*Lythrum salicaria*), and Bull Thistle (*Cirsium vulgare*) to outcompete native vegetation in pockets.
- **Outdoor Education Opportunities**
 - Wet prairies are incredibly educational because the dynamic water relationships that exist seasonally within the plant community.
 - A trail should be planned on the outskirts of the community to avoid waterlogged clay soil.
- **Ecological Restoration Opportunities:**
 - Invasive species management should be the top priority in this plant community. Removal of early successional trees and invasive shrubs will allow for better light penetration and will drastically improve the biodiversity throughout the unit.
 - Reintroduction of fire would also have a massive impact on plant community diversity by removing species that are not adapted to fire like blackberry (*Rubus spp.*), bentgrass (*Agrostis spp.*), phragmites (*Phragmites australis*), and clovers (*Trifolium spp.*)



Figure 3: Invasive phragmites (*Phragmites Australis*) pictured invading pockets of disturbed wet prairie.

4. Ruderal Pine Forest

- **Landscape Context/Natural Features:** Monoculture stands of purposefully planted pine trees are scattered throughout the property and appear to coincide with historic deforestation and replanting in the 1940's. The logging companies usually would plant a monoculture of a fast growing timber species. In this case, red pines were the majority planted. While a naturally spaced stand of red pines can survive for ~400 years, a reforestation with spacing maximized for commercial lumber production will generally fail after ~80 years. Due to the age of the stand the red pines are starting to fail. Topographically the areas are uniformly flat with a sandy soil. Water retention in these areas is non-existent.
- **Plant Community:** The canopy is dominated by red pines that were obviously planted as part of a large scale reforestation project. The size of the trees would suggest the trees were planted ~80 years ago. This was a common practice in the mid 20th century following large scaled logging projects. A major issue with tightly spaced red pine stands is the lack of sun into the understory which leads to poor replacement of trees. The understory is non-existent within the center of these red pine stands. Pre-deforestation this community would have mimicked the surrounding Mesic Southern plant community. This is evident by the forbs observed within pockets of dappled sunlight. Virginia Creeper, Wild Geranium, Canada Mayflower, Spicebush and Wood Fern are found sporadically throughout this unit. There are large populations of Asian Bittersweet along areas with historic disturbance (remnant snowmobile trails.) This bittersweet is quickly colonizing the area, girdling red pines, and eventually pulling them down.
- **Observed and Potential Wildlife:**
 - Suitable habitat for spillover of typical inhabitants of the surrounding Mesic Southern Forest including: songbirds, owls, woodpeckers, hawks, squirrels, chipmunks, rabbits, white-tailed deer, raccoon, opossum, turkey, and snakes.
 - Habitat is suitable for a variety of potential rare wildlife including:
 - *Accipiter gentilis* (northern goshawk, state special concern)
 - *Falco columbarius* (merlin, state threatened)
 - *Haliaeetus leucocephalus* (bald eagle, state threatened)
 - *Pandion haliaetus* (osprey, state threatened)
 - *Picoides arcticus* (black-backed woodpecker, state special concern)
- **Potential Invasive Species, Pests, Ecological Threats:**
 - Asian bittersweet is a problem as it continues to shade out and smother the small pockets of native species.
 - As Asian bittersweet continues to pull down the dying red pines and exposes the forest floor to sunlight, there is potential for invasive shrub species like honeysuckle, Japanese barberry, autumn olive, and common buckthorn to establish quickly in the vacant space.
 - There is minimal hardwood replacement occurring within the community which will create an ecological void as the red pines continue to die off.
- **Outdoor Education Opportunities**
 - In it's current state, there is minimal educational opportunities through this community.
 - There could be potential connecting trails run through these areas to connect higher quality areas to public access points.
 - Special care should be taken along these trails to prevent invasive species spread (mainly bittersweet) via the trail system.
- **Ecological Restoration Opportunities:**
 - Focus on invasive species along the trail system to prevent spread. Containment should be the first priority.
 - Strategic thinning of the red pines would allow for large scale reforestation to occur in this unit to return it to it's presettlement community type.
 - Broad-scale invasive species management.



Figure 4: Photo of Ruderal Pine Forest documenting red pine monoculture with minimal understory.

5. Disturbed Storage Lot

- **Landscape Context/Natural Features:** The storage lot area is a highly disturbed community that experiences consistent disturbance and non-native plant material inputs. Decades of municipal yard waste and fill dirt have been placed into an area that likely mirrored the surrounding mesic southern forest. This has created an inhospitable soil structure littered with gravel, large rocks, and partially decayed woody plant material. The soil appears to be consisting of heavy clay which is not consistent with the surrounding landscape or soil maps (which show a much sandier parent material.) The area also appears to be growing outwards towards pockets of wetlands to the east; likely a result of clearing the yard to accommodate more waste material at the end of the growing season.
- **Plant Community:** The plant community found within the storage lot is highly disturbed; consisting of 95% non-native and invasive plants. This is likely the result of dumping yard waste from throughout the city in one common place in conjunction with a high disturbance regime. The usual invasives are found throughout the unit including thistles (*Cirsium spp.*), reed canary grass (*Phalaris arundinacea*), phragmites (*Phragmites australis*), dame's rocket (*Hesperis matronalis*) and yellow rocket (*Barbarea spp.*). There also a few exotic escaped landscaping plants including a mature mimosa tree (*Albizia julibrissin*), chamomile (*Anthemis arvensis*), and bermuda-grass (*Cynodon dactylon*); which are typically found in much warmer climates to the south. Several large colonies of Japanese knotweed (*Fallopia japonica*) are scattered throughout as well which have the potential to spread even further with soil disturbance and/or mowing. The presence of these species is more concerning and would require a faster response than the more common invasive plants to keep with the state strategy of early detection and rapid response. *No high quality plants are found within this unit.*
- **Observed and Potential Wildlife:**

- Minimal opportunities for wildlife habitat with the exception of the wetland along the eastern edge of the lot as a potential nesting habitat for Wood Ducks if disturbance and human impact slows drastically.
- **Potential Invasive Species, Pests, Ecological Threats:**
 - Absinthium (*Artemisia absinthium*)
 - Japanese Knotweed (*Fallopia japonica*)
 - Common Mullien (*Verbascum Thapsus*)
 - Moth Mullien (*Verbascum blattaria*)
 - Reed Canary Grass (*Phalaris arundinacea*)
 - Horse Nettle (*Solanum carolinense*)
 - Bermudagrass (*Cynodon dactylon*)
 - Birds Foot Trefoil (*Lotus corniculatus*)
 - Yellow Nutsedge (*Cyperus esculentus*)
 - Canada Thistle (*Cirsium arvense*)
 - Sow Thistle (*Sonchus arvensis*)
 - Bull Thistle (*Cirsium vulgare*)
 - Canada Goldenrod (*Solidago Canadensis*)
 - Velvetleaf (*Abutilon theophrasti*)
 - Phragmites (*Phragmites australis*)
 - Sweet Clover (Yellow) (*Melilotus officinalis*)
 - Sweet Clover (White) (*Melilotus albus*)
 - Miscanthus Grass (*Miscanthus sinensis*)
 - White Mulberry (*Morus alba*)
 - Johnsongrass (*Sorghum halepense*)
 - Bindweed (*Convolvulus arvensis*)
 - Yellow Foxtail (*Setaria pumila*)
 - Jimsonweed (*Datura stramonium*)
 - Yellow Rocket (*Barbarea vulgaris*)
 - Mimosa (*Albizia julibrissin*)
 - Black Locust (*Robinia pseudoacacia*)
 - Dames Rocket (*Hesperis matronalis*)
 - Myrtle (*Vinca minor*)
 - Poison Hemlock (*Conium maculatum*)
 - Asian Bittersweet (*Celastrus orbiculatus*)
- **Outdoor Education Opportunities**
 - Outdoor education is not recommended in this area in its current state due to the presence of several extremely noxious and poisonous plants. These plants include Poison Hemlock, Jimsonweed, Poison Ivy, and Absinthium.
- **Ecological Restoration Opportunities**
 - The most obvious path forward for this unit is to get control of the invasive species by focusing on poisonous and exotic plants first through intensive chemical application.
 - The secondary focus would be on perennial invasive plants including Canada Thistle, Phragmites, Canada Goldenrod, and Asian Bittersweet.
 - If disturbance and further plant inputs are minimized there should be a reduction in the annual and biennial non-native plants.
 - Yard waste could be hot composted in a concentrated area to reduce seed spread into surrounding natural communities. This would require a more formal “pad” for yard waste to be deposited and turned to insure sufficient temperatures to kill seed.
 - Effort should be made to prevent further spread of the yard towards the east to reduce the likelihood of wetland destruction.

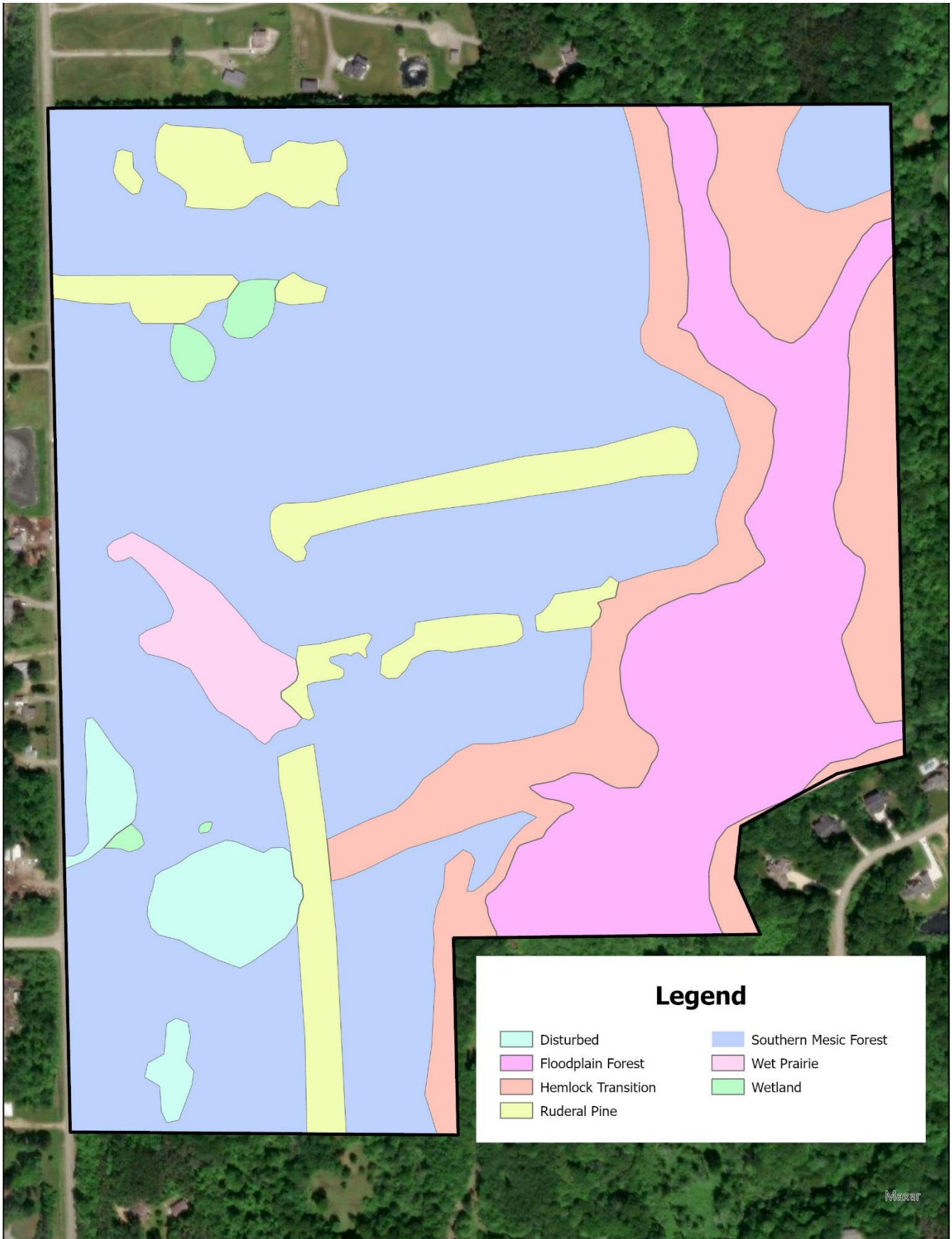


Figure 5: *Photo of disturbed storage yard showing frequent soil disturbance and predominantly invasive and noxious plant species.*

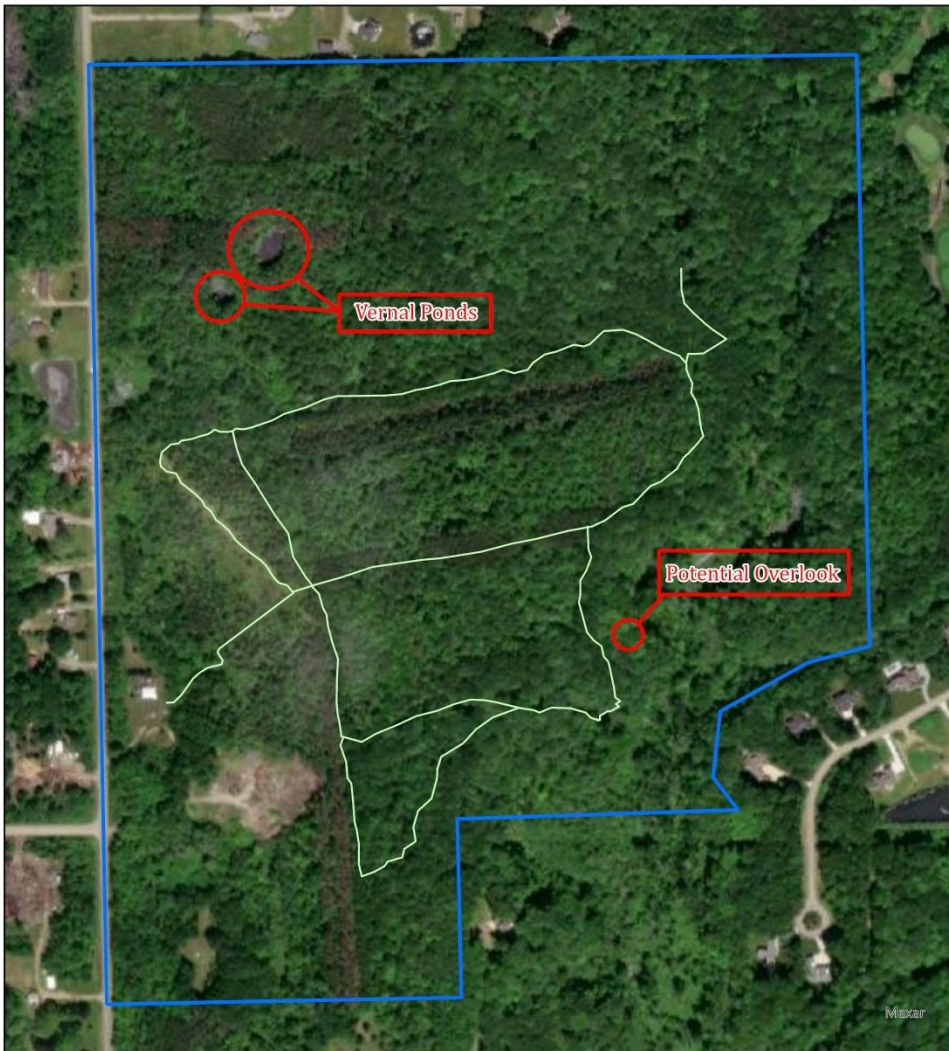



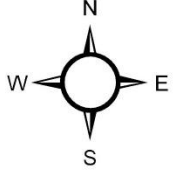
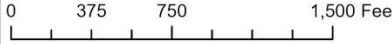
Figure 6: *Photo of large invasive Japanese Knotweed (*Fallopia japonica*) colony. Japanese knotweed has already gained a massive foothold in this area and should be prioritized for management in the near future due to its aggressive nature of growth and ability to quickly outcompete native plant communities.*

Appendix A: Map of Natural Communities

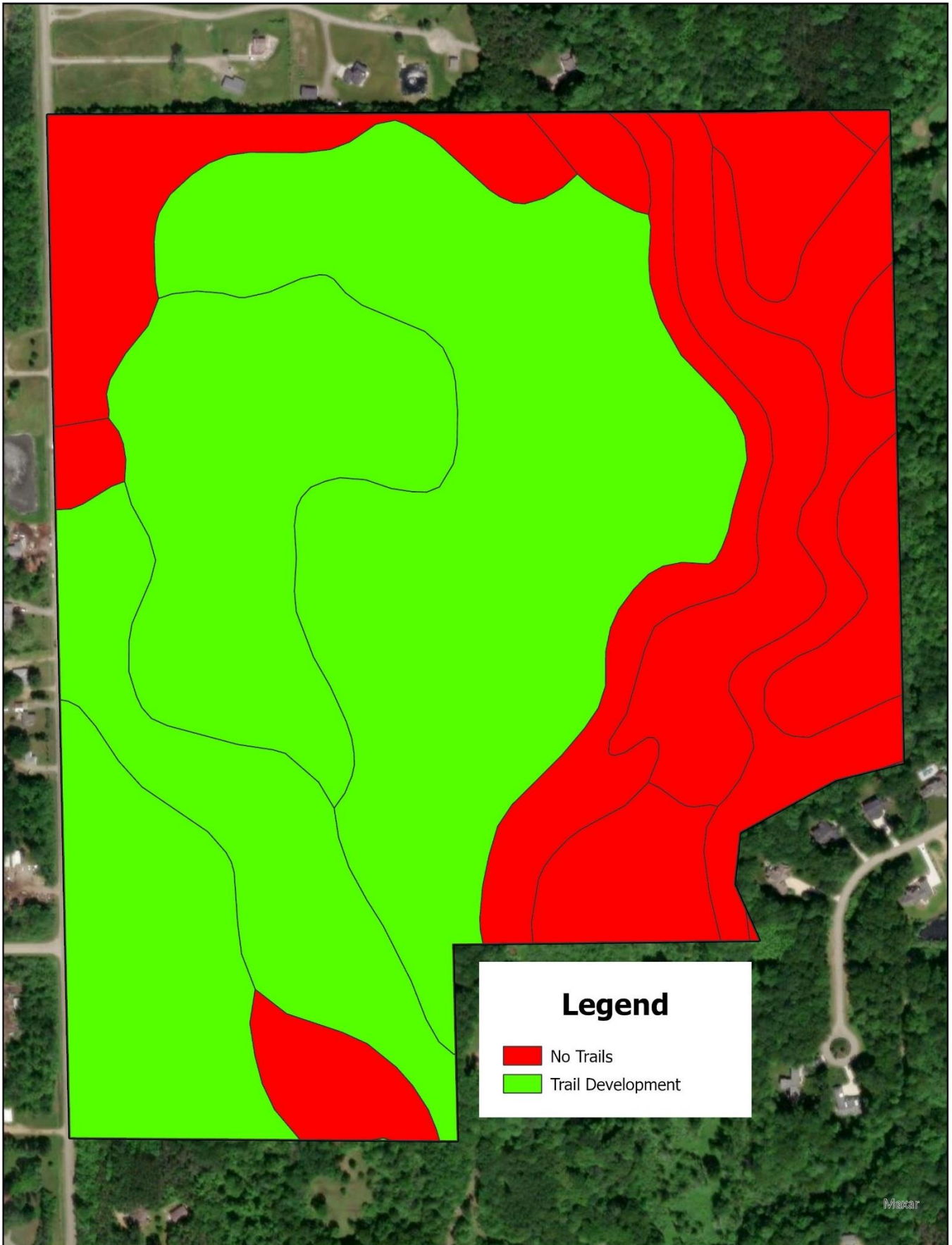


Appendix B: Existing Trail Footprint



63rd Street Former Airport Trail Map
ODC Conservation Services Map Created by: Ben Heerspink Map created on: 3/20/23 Trail marked with GPS on: 3/20/23

 
Property was assessed on March 20, 2023 by ODC Conservation Staff. Remnant trails were mapped utilizing GPS points. The trail as it stands is 2.5 miles long with many opportunities to expand by blazing new trails along the northernmost trail expanding north towards a seasonal pond.

Appendix C: Recommended Trail Development Areas



Appendix D: Plant Inventory & Floristic Quality Index Results – Natural Communities (Eastern half):

Former Airport Natural Area									
Practitioner:	ODC Network								
Conservatism-Based Metrics:									
Total Mean C:	4.1	Species Richness:							
Native Mean C:	4.7	Total Species:		102					
Total FQI:	41.4	Native Species:		89	87.30%				
Native FQI:	44.3	Non-native Species:		13	12.70%				
Adjusted FQI:	43.9	Species Wetness:							
% C value 0:	13.7	Mean Wetness:		1.4					
% C value 1-3:	24.5	Native Mean Wetness:		1.2					
% C value 4-6:	45.1								
% C value 7-10:	16.7								
Native Tree Mean C:	4.9								
Native Shrub Mean C:	5.7								
Native Herbaceous Mean C:	4.5								
Physlogonomy Metrics:									
Tree:	25	24.50%	Duration Metrics:						
Shrub:	10	9.80%	Annual:	3	2.90%				
Vine:	9	8.80%	Perennial:	94	92.20%				
Forb:	46	45.10%	Biennial:	5	4.90%				
Grass:	4	3.90%	Native Annual:	3	2.90%				
Sedge:	4	3.90%	Native Perennial:	85	83.30%				
Rush:	0	0%	Native Biennial:	1	1%				
Fern:	4	3.90%							
Bryophyte:	0	0%							
Species:									
Scientific Name	Family	Acronym	Native?	C	W	Physlogonomy	Duration	Common Name	
<i>Acer platanoides</i>	Sapindaceae	ACEPLA	non-native	0	5	tree	perennial	norway maple	
<i>Acer rubrum</i>	Sapindaceae	ACERUB	native	1	0	tree	perennial	red maple	
<i>Acer saccharinum</i>	Sapindaceae	ACESAI	native	2	-3	tree	perennial	silver maple	
<i>Acer saccharum</i>	Sapindaceae	ACESAU	native	5	3	tree	perennial	sugar maple	
<i>Actaea rubra</i>	Ranunculaceae	ACTRUB	native	7	3	forb	perennial	red baneberry	
<i>Adlumia fungosa</i>	Papaveraceae	ADLFUN	native	4	5	vine	biennial	climbing fumitory	
<i>Agrimonia parviflora</i>	Rosaceae	AGRPAR	native	4	0	forb	perennial	swamp agrimony	
<i>Alisma subcordatum; a. plantago-aquatica</i>	Alismataceae	ALISUB	native	1	-5	forb	perennial	southern water-plantain	
<i>Alliaria petiolata</i>	Brassicaceae	ALLPET	non-native	0	3	forb	biennial	garlic mustard	
<i>Amphicarpaea bracteata</i>	Fabaceae	AMPBRA	native	5	0	vine	annual	hog-peanut	
<i>Anemone virginiana</i>	Ranunculaceae	ANEVIR	native	3	3	forb	perennial	thimbleweed	
<i>Apocynum androsaemifolium</i>	Apocynaceae	APOAND	native	3	5	forb	perennial	spreading dogbane	
<i>Arctium minus</i>	Asteraceae	ARCMIN	non-native	0	3	forb	biennial	common burdock	
<i>Arisaema triphyllum</i>	Araceae	ARITRI	native	5	0	forb	perennial	jack-in-the-pulpit	
<i>Asimina triloba</i>	Annonaceae	ASITRI	native	9	0	tree	perennial	pawpaw	
<i>Atropa belladonna</i>	Solanaceae	ATRBEL	non-native	0	5	forb	perennial	deadly nightshade	
<i>Berberis thunbergii</i>	Berberidaceae	BERTHU	non-native	0	3	shrub	perennial	japanese barberry	
<i>Betula alleghaniensis</i>	Betulaceae	BETALL	native	7	0	tree	perennial	yellow birch	
<i>Betula papyrifera</i>	Betulaceae	BETPAP	native	2	3	tree	perennial	paper birch	
<i>Carex intumescens</i>	Cyperaceae	CXINTU	native	3	-3	sedge	perennial	sedge	
<i>Carex pallescens</i>	Cyperaceae	CXPALL	native	5	0	sedge	perennial	pale sedge	
<i>Carex plantaginea</i>	Cyperaceae	CXPLAN	native	8	5	sedge	perennial	sedge	
<i>Carex radiata; c. rosea</i>	Cyperaceae	CXRADI	native	2	0	sedge	perennial	straight-styled wood sedge	
<i>Carya glabra</i>	Juglandaceae	CARGLA	native	5	3	tree	perennial	pinus hickory	
<i>Carya ovata</i>	Juglandaceae	CAROVA	native	5	3	tree	perennial	shagbark hickory	
<i>Castanea dentata</i>	Fagaceae	CASDEN	native	9	5	tree	perennial	american chestnut	
<i>Celastrus orbiculatus</i>	Celastraceae	CELORB	non-native	0	5	vine	perennial	oriental bittersweet	
<i>Centaurea stoebe; c. maculosa</i>	Asteraceae	CENSTO	non-native	0	5	forb	biennial	spotted knapweed	
<i>Chimaphila maculata</i>	Ericaceae	CHIMAC	native	8	5	shrub	perennial	spotted wintergreen	
<i>Circaea canadensis; c. lutetiana</i>	Onagraceae	CIRCAN	native	2	3	forb	perennial	enchanters-nightshade	
<i>Conium maculatum</i>	Apiaceae	CONMAC	non-native	0	-3	forb	biennial	poison-hemlock	
<i>Cornus florida</i>	Cornaceae	CORFLO	native	8	3	tree	perennial	flowering dogwood	
<i>Dichanthelium clandestinum; panicum c.</i>	Poaceae	DICCLA	native	3	-3	grass	perennial	panic grass	
<i>Diphasiastrum complanatum; lycopodium c.</i>	Lycopodiaceae	DIPCOM	native	5	3	fern	perennial	ground-cedar	
<i>Dryopteris intermedia</i>	Dryopteridaceae	DRYINT	native	5	0	fern	perennial	evergreen woodfern	
<i>Elaeagnus umbellata</i>	Elaeagnaceae	ELALUMB	non-native	0	3	shrub	perennial	autumn-olive	
<i>Elymus hystrix; hystrix patula</i>	Poaceae	ELYHYS	native	5	3	grass	perennial	bottlebrush grass	
<i>Eurybia macrophylla; aster m.</i>	Asteraceae	EURMAC	native	4	5	forb	perennial	big-leaved aster	
<i>Eutrochium fistulosum; eupatorium f.</i>	Asteraceae	EUTFIS	native	8	-3	forb	perennial	hollow-stemmed joe-pye-weed	
<i>Eutrochium maculatum; eupatorium m.</i>	Asteraceae	EUTMAC	native	4	-5	forb	perennial	joe-pye-weed	
<i>Fagus grandifolia</i>	Fagaceae	FAGGRA	native	6	3	tree	perennial	american beech	
<i>Fraxinus americana</i>	Oleaceae	FRAAME	native	5	3	tree	perennial	white ash	
<i>Fraxinus pennsylvanica</i>	Oleaceae	FRAPEN	native	2	-3	tree	perennial	red ash	
<i>Galium circaeans</i>	Rubiaceae	GALCIR	native	4	3	forb	perennial	white wild licorice	
<i>Geranium maculatum</i>	Geraniaceae	GERMAC	native	4	3	forb	perennial	wild geranium	
<i>Geum canadense</i>	Rosaceae	GEUCAN	native	1	0	forb	perennial	white avens	
<i>Geum virginianum</i>	Rosaceae	GEUVIR	native	6	3	forb	perennial	pale avens	
<i>Hamamelis virginiana</i>	Hamamelidaceae	HAMVIR	native	5	3	shrub	perennial	witch-hazel	
<i>Laportea canadensis</i>	Urticaceae	LAPCAN	native	4	-3	forb	perennial	wood nettle	
<i>Leersia oryzoides</i>	Poaceae	LEECORY	native	3	-5	grass	perennial	cut grass	
<i>Ligustrum vulgare</i>	Oleaceae	LIGVUL	non-native	0	3	shrub	perennial	common privet	
<i>Lindera benzoin</i>	Lauraceae	LINBEN	native	7	-3	shrub	perennial	spicebush	
<i>Liriodendron tulipifera</i>	Magnoliaceae	LIRTUL	native	9	3	tree	perennial	tulip tree	
<i>Maianthemum canadense</i>	Convallariaceae	MAICAN	native	4	3	forb	perennial	canada mayflower	
<i>Maianthemum racemosum; smilacina r.</i>	Convallariaceae	MAIRAC	native	5	3	forb	perennial	false spikenard	
<i>Menispermum canadense</i>	Menispermaceae	MENCAE	native	5	0	vine	perennial	moonseed	
<i>Mimulus ringens</i>	Phrymaceae	MIMRIN	native	5	-5	forb	perennial	monkey-flower	
<i>Mitchella repens</i>	Rubiaceae	MITREP	native	5	3	forb	perennial	partridge-berry	
<i>Monotropa uniflora</i>	Ericaceae	MONOUN	native	5	3	forb	perennial	indian-pipe	
<i>Onoclea sensibilis</i>	Onocleaceae	ONOCSEN	native	2	-3	fern	perennial	sensitive fern	
<i>Orobanche uniflora</i>	Orobanchaceae	OROUNI	native	8	5	forb	perennial	cancer root	
<i>Osморhiza berteroi; o. chilensis</i>	Apiaceae	OSMBER	native	5	3	forb	perennial	sweet-cicely	
<i>Parthenocissus quinquefolia</i>	Vitaceae	PARQUI	native	5	3	vine	perennial	virginia creeper	
<i>Persicaria punctata; polygonum p.</i>	Polygonaceae	PERPUN	native	5	-5	forb	annual	smartweed	
<i>Persicaria virginiana; polygonum v.</i>	Polygonaceae	PERVIR	native	4	0	forb	perennial	jumpseed	
<i>Phalaris arundinacea</i>	Poaceae	PHAAARU	native	0	-3	grass	perennial	reed canary grass	

Phryma leptostachya	Phrymaceae	PHRLEP	native	4	3	forb	perennial	lopseed
Phytolacca americana	Phytolaccaceae	PHYAME	native	2	3	forb	perennial	pokeweed
Pilea pumila	Urticaceae	PILPUM	native	5	-3	forb	annual	clearweed
Pinus resinosa	Pinaceae	PINRES	native	6	3	tree	perennial	red pine
Pinus strobus	Pinaceae	PINSTR	native	3	3	tree	perennial	white pine
Podophyllum peltatum	Berberidaceae	PODPEL	native	3	3	forb	perennial	may-apple
Polystichum acrostichoides	Dryopteridaceae	POLACR	native	6	3	fern	perennial	christmas fern
Prunus serotina	Rosaceae	PRUSER	native	2	3	tree	perennial	wild black cherry
Quercus alba	Fagaceae	QUEALB	native	5	3	tree	perennial	white oak
Quercus rubra	Fagaceae	QUERUB	native	5	3	tree	perennial	red oak
Quercus velutina	Fagaceae	QUEVEL	native	6	5	tree	perennial	black oak
Rosa multiflora	Rosaceae	ROSMUL	non-native	0	3	shrub	perennial	multiflora rose
Rubus allegheniensis	Rosaceae	RUBALL	native	1	3	shrub	perennial	common blackberry
Saponaria officinalis	Caryophyllaceae	SAPOFF	non-native	0	3	forb	perennial	bouncing bet
Sassafras albidum	Lauraceae	SASALB	native	5	3	tree	perennial	sassafras
Saururus cernuus	Saururaceae	SAUCER	native	9	-5	forb	perennial	lizards-tail
Smilax rotundifolia	Smilacaceae	SMIROT	native	6	0	vine	perennial	common greenbrier
Solanum dulcamara	Solanaceae	SOLDUL	non-native	0	0	vine	perennial	bittersweet nightshade
Solidago canadensis	Asteraceae	SOLCAN	native	1	3	forb	perennial	canada goldenrod
Solidago flexicaulis	Asteraceae	SOLFLE	native	6	3	forb	perennial	zigzag goldenrod
Solidago gigantea	Asteraceae	SOLGIG	native	3	-3	forb	perennial	late goldenrod
Solidago rugosa	Asteraceae	SOLRUG	native	3	0	forb	perennial	rough-leaved goldenrod
Symplocarpus foetidus	Araceae	SYMFOE	native	6	-5	forb	perennial	skunk-cabbage
Thalictrum thalictroides; anemonefl. t.	Ranunculaceae	THATHA	native	8	3	forb	perennial	rue-anemone
Tilia americana	Malvaceae	TILAME	native	5	3	tree	perennial	basswood
Toxicodendron radicans	Anacardiaceae	TOXRAD	native	2	0	vine	perennial	poison-ivy
Trientalis borealis	Myrsinaceae	TRIBOR	native	5	0	forb	perennial	star-flower
Trillium erectum	Trilliaceae	TRIERE	native	7	3	forb	perennial	stinking benjamin; red trillium
Trillium grandiflorum	Trilliaceae	TRIGRA	native	5	3	forb	perennial	common trillium
Trillium sessile	Trilliaceae	TRISES	native	9	3	forb	perennial	toadshade
Tsuga canadensis	Pinaceae	TSUCAN	native	5	3	tree	perennial	hemlock
Ulmus americana	Ulmaceae	ULMAME	native	1	-3	tree	perennial	american elm
Viburnum acerifolium	Adoxaceae	VIBACE	native	6	5	shrub	perennial	maple-leaved viburnum
Viburnum prunifolium	Adoxaceae	VIBPRU	native	7	3	shrub	perennial	black-haw
Viola sororia	Violaceae	VIOSOR	native	1	0	forb	perennial	common blue violet
Vitis labrusca	Vitaceae	VITLAB	native	7	3	vine	perennial	fox grape

Disturbed Communities (Western half of the property):

Disturbed Former Airport									
Practitioner:	DDC Network								
Conservatism-Based Metrics:		Species Richness:							
Total Mean C:	1.3	Total Species:		88					
Native Mean C:	2.8	Native Species:		39	44.30%				
Total FQI:	12.2	Non-native Species:		49	55.70%				
Native FQI:	17.5	Species Wetness:							
Adjusted FQI:	18.6	Mean Wetness:		2.2					
% C value 0:	60.2	Native Mean Wetness:		1					
% C value 1-3:	23.9								
% C value 4-6:	15.9								
% C value 7-10:	0								
Native Tree Mean C:	3.7								
Native Shrub Mean C:	3								
Native Herbaceous Mean C:	2.4								
Physiognomy Metrics:		Duration Metrics:							
Tree:	18	20.50%	Annual:	9	10.20%				
Shrub:	8	9.10%	Perennial:	71	80.70%				
Vine:	6	6.80%	Biennial:	8	9.10%				
Forb:	49	55.70%	Native Annual:	3	3.40%				
Grass:	3	3.40%	Native Perennial:	36	40.90%				
Sedge:	3	3.40%	Native Biennial:	0	0%				
Rush:	1	1.10%							
Fern:	0	0%							
Bryophyte:	0	0%							
Species:									
Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name	
<i>Abutilon theophrasti</i>	Malvaceae	ABUTHE	non-native	0	3	forb	annual	velvet-leaf	
<i>Acer negundo</i>	Sapindaceae	ACENEG	native	0	0	tree	perennial	box-elder	
<i>Acer nigrum; a. saccharum</i>	Sapindaceae	ACENIG	native	4	3	tree	perennial	black maple	
<i>Acer platanoides</i>	Sapindaceae	ACEPLA	non-native	0	5	tree	perennial	norway maple	
<i>Acer saccharum</i>	Sapindaceae	ACESAU	native	5	3	tree	perennial	sugar maple	
<i>Achillea millefolium</i>	Asteraceae	ACHMIL	native	1	3	forb	perennial	yarrow	
<i>Alliaria petiolata</i>	Brassicaceae	ALLPET	non-native	0	3	forb	biennial	garlic mustard	
<i>Allium canadense</i>	Alliaceae	ALLCAN	native	4	3	forb	perennial	wild garlic	
<i>Ambrosia artemisiifolia</i>	Asteraceae	AMBART	native	0	3	forb	annual	common ragweed	
<i>Ambrosia trifida</i>	Asteraceae	AMBTRI	native	0	0	forb	annual	giant ragweed	
<i>Apios americana</i>	Fabaceae	APIAME	native	3	-3	vine	perennial	groundnut	
<i>Artemisia absinthium</i>	Asteraceae	ARTABS	non-native	0	5	forb	perennial	absinth wormwood	
<i>Asclepias syriaca</i>	Apocynaceae	ASCSYR	native	1	5	forb	perennial	common milkweed	
<i>Atropa belladonna</i>	Solanaceae	ATRBEL	non-native	0	5	forb	perennial	deadly nightshade	
<i>Barbarea vulgaris</i>	Brassicaceae	BARVUL	non-native	0	0	forb	biennial	yellow rocket	
<i>Campsis radicans</i>	Bignoniaceae	CAMRAD	non-native	0	0	vine	perennial	trumpet-vine	
<i>Carex palleascens</i>	Cyperaceae	CXPALL	native	5	0	sedge	perennial	pale sedge	
<i>Carex vulpinoidea</i>	Cyperaceae	CVVULP	native	1	-5	sedge	perennial	sedge	
<i>Celastrus orbiculatus</i>	Celastraceae	CELORB	non-native	0	5	vine	perennial	oriental bittersweet	
<i>Centaurea stoebe; c. maculosa</i>	Asteraceae	CENSTO	non-native	0	5	forb	biennial	spotted knapweed	
<i>Chenopodium album</i>	Amaranthaceae	CHEALB	non-native	0	3	forb	annual	lamb-quarters	
<i>Cichorium intybus</i>	Asteraceae	CICINT	non-native	0	3	forb	perennial	chicory	
<i>Cirsium arvense</i>	Asteraceae	CIRARV	non-native	0	3	forb	perennial	canada thistle	
<i>Cirsium vulgare</i>	Asteraceae	CIRVUL	non-native	0	3	forb	biennial	bull thistle	
<i>Convolvulus arvensis</i>	Convolvulaceae	CONARV	non-native	0	5	vine	perennial	field bindweed	
<i>Crataegus phaenopyrum</i>	Rosaceae	CRAPHA	non-native	0	0	tree	perennial	washington thorn	
<i>Cynodon dactylon</i>	Poaceae	CYNDAC	non-native	0	3	grass	perennial	bermuda grass	
<i>Cyperus esculentus</i>	Cyperaceae	CYPESC	native	1	-3	sedge	perennial	yellow nutsedge	
<i>Datura stramonium</i>	Solanaceae	DATSTR	non-native	0	5	forb	annual	jimson-weed	
<i>Daucus carota</i>	Apiaceae	DAUCAR	non-native	0	5	forb	biennial	queen-anne's-lace	
<i>Dianthus armeria</i>	Caryophyllaceae	DIAARM	non-native	0	5	forb	annual	depthford pink	
<i>Elaeagnus umbellata</i>	Elaeagnaceae	ELAUUMB	non-native	0	3	shrub	perennial	autumn-olive	
<i>Erechtites hieracifolius</i>	Asteraceae	EREHIE	native	2	3	forb	annual	fireweed	
<i>Eupatorium perfoliatum</i>	Asteraceae	EUPPER	native	4	-3	forb	perennial	boneset	
<i>Euthamia graminifolia</i>	Asteraceae	EUTGRA	native	3	0	forb	perennial	grass-leaved goldenrod	
<i>Filipendula ulmaria</i>	Rosaceae	FILLUL	non-native	0	0	forb	perennial	queen-of-the-meadow	
<i>Fragaria virginiana</i>	Rosaceae	FRAVIR	native	2	3	forb	perennial	wild strawberry	
<i>Fraxinus pennsylvanica</i>	Oleaceae	FRAPEN	native	2	-3	tree	perennial	red ash	
<i>Geum urbanum</i>	Rosaceae	GEUURB	non-native	0	5	forb	perennial	avens	
<i>Glechoma hederacea</i>	Lamiaceae	GLEHED	non-native	0	3	forb	perennial	ground-ivy	
<i>Hesperis matronalis</i>	Brassicaceae	HESMAT	non-native	0	3	forb	perennial	dames rocket	
<i>Hypericum perforatum</i>	Hypericaceae	HYPPER	non-native	0	5	forb	perennial	common st. johns-wort	
<i>Juncus articulatus</i>	Juncaceae	JUNART	native	3	-5	rush	perennial	jointed rush	
<i>Juniperus virginiana</i>	Cupressaceae	JUNVIR	native	3	3	tree	perennial	red-cedar	
<i>Leucanthemum vulgare; chrysanthemum leucanthemum</i>	Asteraceae	LEUVUL	non-native	0	5	forb	perennial	ox-eye daisy	
<i>Ligustrum vulgare</i>	Oleaceae	LIGVUL	non-native	0	3	shrub	perennial	common privet	
<i>Lonicera maackii</i>	Caprifoliaceae	LONMAA	non-native	0	5	shrub	perennial	amur honeysuckle	
<i>Lotus corniculatus</i>	Fabaceae	LOTCOR	non-native	0	3	forb	perennial	birdfoot trefoil	
<i>Lythrum salicaria</i>	Lythraceae	LYTSAL	non-native	0	-5	forb	perennial	purple loosestrife	
<i>Maianthemum racemosum; smilacina r.</i>	Convallariaceae	MAIRAC	native	5	3	forb	perennial	false spikenard	
<i>Marrubium vulgare</i>	Lamiaceae	MARVUL	non-native	0	3	forb	perennial	horehound	
<i>Matricaria chamomilla; m. recutita</i>	Asteraceae	MATCHA	non-native	0	5	forb	annual	false chamomile	
<i>Mellilotus albus</i>	Fabaceae	MELALB	non-native	0	3	forb	biennial	white sweet-clover	
<i>Mellilotus officinalis</i>	Fabaceae	MELLOF	non-native	0	3	forb	biennial	yellow sweet-clover	
<i>Morus alba</i>	Moraceae	MORALB	non-native	0	3	tree	perennial	white mulberry	
<i>Parthenocissus quinquefolia</i>	Vitaceae	PARQUI	native	5	3	vine	perennial	virginia creeper	
<i>Phragmites australis var. americanus</i>	Poaceae	PHRAUM	native	5	-3	grass	perennial	reed	
<i>Phytolacca americana</i>	Phytolaccaceae	PHYAME	native	2	3	forb	perennial	pokeweed	
<i>Pinus resinosa</i>	Pinaceae	PINRES	native	6	3	tree	perennial	red pine	
<i>Pinus sylvestris</i>	Pinaceae	PINSYL	non-native	0	3	tree	perennial	scotch pine	
<i>Plantago lanceolata</i>	Plantaginaceae	PLALAN	non-native	0	3	forb	perennial	english plantain	
<i>Populus deltoides</i>	Salicaceae	POPDEL	native	1	0	tree	perennial	cottonwood	
<i>Prunella vulgaris</i>	Lamiaceae	PRUVUL	native	0	0	forb	perennial	self-heal	
<i>Prunus serotina</i>	Rosaceae	PRUSER	native	2	3	tree	perennial	wild black cherry	
<i>Quercus rubra</i>	Fagaceae	QUERUB	native	5	3	tree	perennial	red oak	
<i>Quercus velutina</i>	Fagaceae	QUEVEL	native	6	5	tree	perennial	black oak	

Rhamnus cathartica	Rhamnaceae	RHACAT	non-native	0	0	tree	perennial	common buckthorn
Rhus typhina	Anacardiaceae	RHUTYP	native	2	3	shrub	perennial	staghorn sumac
Robinia pseudoacacia	Fabaceae	ROBPSE	non-native	0	3	tree	perennial	black locust
Rosa multiflora	Rosaceae	ROSMUL	non-native	0	3	shrub	perennial	multiflora rose
Rudbeckia hirta	Asteraceae	RUDHIR	native	1	3	forb	perennial	black-eyed susan
Rumex crispus	Polygonaceae	RUMCRI	non-native	0	0	forb	perennial	curly dock
Salix discolor	Salicaceae	SALDIS	native	1	-3	shrub	perennial	pussy willow
Salix nigra	Salicaceae	SALNIG	native	5	-5	tree	perennial	black willow
Sassafras albidum	Lauraceae	SASALB	native	5	3	tree	perennial	sassafras
Solanum carolinense	Solanaceae	SOLCAR	non-native	0	3	forb	perennial	horse-nettle
Solidago canadensis	Asteraceae	SOLCAN	native	1	3	forb	perennial	canada goldenrod
Solidago gigantea	Asteraceae	SOLGIG	native	3	-3	forb	perennial	late goldenrod
Solidago juncea	Asteraceae	SOLJUN	native	3	5	forb	perennial	early goldenrod
Sonchus oleraceus	Asteraceae	SONOLE	non-native	0	3	forb	annual	common sow-thistle
Sorghum halepense	Poaceae	SORHAL	non-native	0	3	grass	perennial	johnson grass
Taraxacum officinale	Asteraceae	TAROFF	non-native	0	3	forb	perennial	common dandelion
Toxicodendron radicans	Anacardiaceae	TOXRAD	native	2	0	vine	perennial	poison-ivy
Trifolium pratense	Fabaceae	TRIPRA	non-native	0	3	forb	perennial	red clover
Trifolium repens	Fabaceae	TRIREP	non-native	0	3	forb	perennial	white clover
Verbascum thapsus	Scrophulariaceae	VERTHA	non-native	0	5	forb	biennial	common mullein
Viburnum acerifolium	Adoxaceae	VIBACE	native	6	5	shrub	perennial	maple-leaved viburnum
Vinca minor	Apocynaceae	VINMIN	non-native	0	5	shrub	perennial	periwinkle

Client:	City of Saugatuck	Date:	07/01/23
Project No.:	23-0038	Project Manager:	Jared Secor/Erik Cronk
Project Name:	Blue Star Trail Design	Client Manager:	Roger Marks/Erik Cronk
Project Address:	Allegan County, MI	Project Start Date:	07/01/2023

PROJECT LOCATION: Blue Star Highway, City of the Village of Douglas, City of Saugatuck, Saugatuck Township (Allegan County)

GOALS & OBJECTIVES: Design Services for approximately 5800+/- ft. of trail corridor starting at the intersection of Blue Star Highway and Washington Street, then running North to Holland Street with a gap in the middle where the existing Blue Star Trail is presently located.

SCOPE (including copy of key contract terms):

1. Preliminary Design—from completion of the initial design phase to approximately 65% complete design, such that final trail routing is finalized and approved by the Project and Stakeholder Teams and the Construction Documents phase can commence with certainty.
2. Construction Documents—from design development through to the point where final plans and bid documents are complete and ready for advertisement for bidding by contractors.
3. Bidding Phase—from bid advertisement through bid opening, tabulations and recommendation for award.
4. Construction Engineering
 - a. Construction Administration: Office Administration of the construction contract, pay request, change orders, and other documentation.
 - b. Construction Observation and Testing: Field observation and testing services.
5. Public Outreach—all phases of the work will require various forms of public and community outreach, depending on the project location and property ownership circumstances. This may vary from public information meetings, targeted group meetings to individual property owner meetings.

Work Plan

Task I – Design

1. The design process will commence with a kick-off meeting held with Project Team officials, stakeholders and other team members to review past activities, gather existing data for review, explore project goals, identify the stakeholders for the project, review the scope and discuss the critical elements of the proposed improvements, including schedule, hours, and budget, and the Project Team’s critical success factors specific to this project.
2. Base plans will be prepared in accordance with MDOT standards using the current version. The plans will be prepared using English units in accordance with Project Team and MDOT requirements at scales approved by the Project Team.
3. At the completion of the topographic and pickup survey, the base plans will be prepared and utility locations received will be placed on the plans.
4. Coordination with the utility companies will continue through the design phase.

PROJECT MANAGEMENT PLAN

Project Description: Blue Star Trail Preliminary Design Phase

5. We will identify potential right-of-way issues (permanent and temporary) based on the City's assessor maps and as-constructed drawings and completed survey. The general information will be provided for the C Project Team ity's use in securing the property required.
6. Meet with Project Team staff on a monthly basis during the design phase to update progress and submit a written progress report on a monthly basis, which will identify work that was completed, work to be completed in the next period, budget status and decisions needed from the Project Team.
7. Utility Coordination: From the prepared base mapping prepare a preliminary conflict analysis matrix. Conduct a preliminary utility coordination meeting, if required, to coordinate the potential and known conflicts. Where conflicts cannot be resolved through design mitigation, clearly notify the utility companies of their need to relocate and the required relocation completion date.
8. Preliminary Pathway Design: Prepare preliminary plans and specifications (special provisions) according to MDOT's required format and a preliminary opinion of probable construction cost for submittal to the Project Team. Meet with the Project Team to review the preliminary design package.
9. Preliminary Maintenance of Traffic Design: Prepare preliminary maintenance of traffic (vehicular and pedestrian) plans and specifications (special provisions). Meet with the Project Team to review the preliminary design package.
10. Preliminary Permanent Pavement Marking Design: No pavement marking changes are anticipated.
11. SESC/SHPO/MDOT Permit: Prepare draft Soil Erosion Sedimentation Control, SHPO and MDOT Use of State Trunkline permits for Project Team review and comment. Finalize and submit the permit applications. The City of Saugatuck will sign as the permit applicant and pay directly the required application fee(s).
12. Preliminary Plan (75% +/-)/Grade Inspection Submittal: Prepare a Preliminary Plan package of drawings, special provisions, and preliminary engineer's estimate for C Project Team ity review. Upon Project Team review and approval, submit the Grade Inspection Package to MDOT LAP.
13. Grade Inspection Meeting: Attend the Grade Inspection meeting with the Project Team and MDOT LAP Engineer.
14. Final Design: Prepare final design package in accordance with MDOT LAP format, including plans, specifications and special provisions, as well as opinion of probable construction cost.
15. Final Plans: Prepare final plans including the necessary information and quantities ready for MDOT LAP review and bidding.
16. Project Design Phase Meetings: Attend the following meetings during the course of the project: (1) project kick-off, (1) preliminary plan review, (2) utility coordination with the Project Team and utility companies, (1) maintenance of traffic review meeting, and (2) Project Team coordination meetings.

Task II – Construction Engineering

We anticipate the construction duration for the projects as follows:

1. Estimated construction time is 7 weeks and is anticipated to be constructed in 2025. A majority of the path construction does not impact motoring public. We assume our on-site representatives will be on the projects for 9 hours/day, five days a week.

PROJECT MANAGEMENT PLAN

Project Description: Blue Star Trail Preliminary Design Phase

2. C2AE will provide engineering staff for project management, office administration, construction surveying, SESC site checks and coordination of material testing including plant inspection, construction observation. The office administrator will be responsible for the preparation of all MDOT required documentation utilizing Field Manager software.
3. PSI will perform on-site and off-site material testing requirements. Specifically, their role will be to provide material gradations, HMA inspection, and compressive strength tests for concrete. PSI or C2AE will perform density checks of the subgrade and aggregate base material, as well as trench backfill.
4. Our inspectors are qualified and have worked on several federally-aided projects in the past. Most importantly, our field representatives will communicate with the property owners and other Contractors during all phases of construction.
5. As-constructed plans showing the final configuration of each project will be prepared for the pathway as constructed. As-built plans will be prepared in accordance with the Project Team’s standards in PDF format. Check prints will be submitted 90 days following completion of construction operations.

Work Task Descriptions

1. Schedule and attend pre-construction and bi-weekly construction progress meetings.
2. Provide construction surveying and layout.
3. Provide a full-time resident project representative in conformance with MDOT requirements.
4. Provide office administration for documentation in accordance with MDOT requirements utilizing Field Manager. Schedule materials testing requirements. Complete project closeout in accordance with MDOT Standards.
5. Provide project management throughout the project duration.
6. As-constructed plans depicting the final project configuration will be provided in accordance with Project Team standards in PDF format.

FINANCIAL PLAN (budget):

Design Phase	\$49,010	T&M, NTE
Construction Engineering Phase	\$89,896	T&M, Estimated
Topographic Survey	\$13,500	LS
Archaeological Survey	\$12,444	LS

TOTAL ESTIMATED FEES \$164,900

TEAM ORGANIZATION, RESOURCES, RESPONSIBILITIES:

- C2AE
 - Roger Marks, Client Manager
 - Erik Cronk, Client Manager/Project Manager
 - Jared Secor, Project Manager

PROJECT MANAGEMENT PLAN

Project Description: Blue Star Trail Preliminary Design Phase

- Walker Bryan, Site Civil Design
- Gabe Weaver, Site Civil Design

- Tri-Community Committee
 - Ryan Heise (Main Point of Contact), Manager, City of Saugatuck
 - Holly Leo, TCC Chair, City of Saugatuck
 - Garnet Lewis, City of Saugatuck
 - Daniel Defranco, Township Manager, Saugatuck Township
 - Brenda Marcy, Saugatuck Township
 - Rich LaBombard, Manager, City of the Village of Douglas
 - Cathy North, City of the Village of Douglas
 - Jerry Donovan, City of the Village of Douglas
 - Nancy Kimble, Friends of the Blue Star Trail
 - Richard Donovan, Friends of the Blue Star Trail

- Key Stakeholders
 - Craig Atwood, Managing Director, Allegan County Road Commission
 - Greg Janik, Fire Chief, City of Saugatuck
 - Steve Kent, Douglas Police Chief
 - Lt. Brett Ensfield, County Sheriff
 - Jim Searing, Community Recreation
 - Dr. Tim Travis – School Superintendent
 - Scott Kierzek—Safe routes to school

QA/QC PLAN (Schedule/QA/QC Responsibility): Preliminary design and cost estimate alternatives will be reviewed by C2AE QA/QC staff as the project proceeds. Typical review intervals are 35%, 65% and 95% completion.

QUALITY DEFINITION/CLIENT APPROVAL PROCESS: The Client approval process will typically include initial vetting and approval by the TCC, and then approval by each of the individual municipality's boards.

CONTRACT AMENDMENT: Changes in project scope that would warrant a contract amendment will first be discussed with the TCC. If agreed, a written amendment will be submitted for approval by the Municipalities.

COMMUNICATION PLAN: Erik Cronk is the lead point of contact for design elements and project plans. Jared Secor to oversee scheduling, billing and internal project planning for C2AE. Please copy Erik, Jared, and Roger on all project communication.

Monthly project progress reports will be submitted to the TCC. Designated TCC members would be encouraged to share the progress reports with their respective TCC member boards.

POTENTIAL RISK PLAN: The TCC and C2AE will try to identify project risks as early as possible in the alternative development/review process to provide adequate time for resolution.

cc: *TCC Board Members*
Internal C2AE: EC, JS, RM, WB, GW, KM

Client: City of Saugatuck
Project No.: 23-0038
Project Name: Blue Star Trail Design
Project Phase: Design

Date: 08/01/2023
Project Manager: Jared Secor/Erik Cronk
Client Manager: Roger Marks/Erik Cronk

Project Start Date: July 2023
Project Completion Date: Fall/Winter 2025
Period Covered: July 2023

THE WORK ACCOMPLISHED IN THE DEFINED PERIOD CONSISTED OF:

- Archaeological Survey—80% complete
- Topographical Survey—90% complete
- July 2023 MDOT TAP Quarterly Report

THE ANTICIPATED WORK ELEMENTS IN THE NEXT PERIOD:

- Kickoff meeting with stakeholders
- Completion of Archaeological Survey
- Completion of Topographical survey
- Begin preparing base plans and utility coordination
- Assist with MNRTF project agreement execution

SCOPE CHANGES MADE DURING DEFINED PERIOD: N/A

BUDGET STATUS (% COMPLETE): \$7,466.55, 4.5% JTD billed

SCHEDULE STATUS:

Task	Milestone Date	Status
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Review MDOT Letting Schedule Dates

INPUT NEEDED FROM CLIENT:

- Desired letting schedule for design milestones
- Design Elements
 - Bridge/approach
 - Cemetery Rd./66th St. crossing
- MDOT TAP Grant additional info/MNRTF trust fund information

CLIENT INPUT, DECISIONS AND DIRECTIVES:

REALIZED OR ANTICIPATED CONCERNS: Anticipated scheduled from previous TAP Quarterly Report(s) needs to be adjusted

VALUE ADDED:

cc: EC, JS, RM

Meeting Minutes

Project: Blue Star Trail Design
Meeting: Project Kick-off
Date: Tuesday, August 8, 2023

THOSE IN ATTENDANCE

Walker Bryan	C2AE	Ryan Heise	City of Saugatuck
Erik Cronk	C2AE	Holly Leo	City of Saugatuck
Roger Marks	C2AE	Garnet Lewis	City of Saugatuck
Jared Secor	C2AE	Daniel Defranco	Saugatuck Township
Gabe Weaver	C2AE	Brenda Marcy	Saugatuck Township
Kevin Makarewicz	C2AE	Richard Donovan	Friends of Blue Star Trail
		Nancy Kimble	Friends of Blue Star Trail

ITEMS DISCUSSED

Schedule

1. Target Bidding Date
 - a. Bid Letting Date of 10/04/2024 selected.
 - b. Milestone Dates based on 10/04/24 Letting Date:
 - i. Submit Section 106 and NEPA Documentation to LAP Environmental: 1/6/24.
 - ii. Submit Grade Inspection (GI) Documents to LAP: 05/06/24.
 - iii. Target Grade Inspection Meeting Date: 06/05/24.
 - iv. Submit Final Property Acquisition Certification: 07/05/24.
 - v. Submit Complete Biddable Package to LAP: 07/19/24.
 - vi. Final Bid Proposal Package sent to Specs & Estimates: 08/16/24.
 - c. Scheduled for 2025 Construction
2. Meeting Schedule
 - a. Monthly progress meetings as needed through preliminary design.
 - b. Next Meeting: Tuesday, September 19, 2023, 8:00 AM via Zoom

If there are any corrections or additions to the above meeting minutes, please provide written notification, within five days from today (8/14/2023). Please do not hesitate to call if there are any questions or concerns.

Design Elements

1. 66th St./Cemetery Rd. Intersection crossing
 - a. Residence located at 6602 Cemetery Rd. to relocate driveway from 66th to Cemetery Rd. clear of intersection.
 - b. No portion of trail to include cemetery parcel north of Cemetery Rd./East of 66th St.
2. Bridge
 - a. Stakeholders request that bridge design feature aesthetic qualities—landscapes, view of the water, etc.
3. Roundabout at Old Allegan Rd.
 - a. Allegan CRC to add roundabout at Old Allegan Rd./Blue Star Highway intersection.
 - 1) Includes portion of red section labeled 'Separated Trail Timber Boardwalk' on pg. 3 of preliminary plan.
 - b. C2AE to review roundabout design to determine project overlap.

Funding

1. MNTRF funding information expected to be available by 3rd week of September.



Parks and Public Works Agenda Item Report

FROM: Ryan Heise, City Manager

MEETING DATE: August 22nd, 2023

SUBJECT: Public Art – Canary in the Coal Mine

DESCRIPTION:

Saugatuck is a proud member of the “Arts Coast.” Ms. Maryjo Lemanski, has been facilitating public arts in the tri-community area for many years, and has presented to City Council an art piece titled, “Canary in a Coal Mine.” The artist that created this piece, previously had an art piece in the Mize Rose Garden that was damaged and the City was able to recover some fund through an insurance claim. *Canary in the Coal Mine* was presented to City Council for approval; Council appeared to be grateful for the art piece, but needed two things to occur: 1) Additional funding, minimizing City expenditures and 2) For the Parks and Public Works Committee to review and make a recommendation on placement; additional funding has been secured. Understanding that it will take thoughtful consideration on placement, at a minimum the PPW Committee should decide if they agree that the City should accept the piece, with placement to be determined and recommended at a late date.

LEGAL REVIEW:

NA

SAMPLE MOTIONS:

None at this time

2023 has been a good year for public art in Saugatuck.

All of the current sculptures have been cleaned.

QR codes are being developed and installed in the near future.

The education component of the codes will engage viewers

The new CVB brochure which provides a trail to the sculptures

The CVB has taken over the care and maintenance of the public art

Empty Revisited by Shawn Phillip Morin was damaged a few years ago and has been removed from the Rose Garden.

Shawn viewed the condition of the work. Any repair would destroy the integrity of the piece.

An insurance claim was filed and funds were received that can provide seed money for a replacement

An artist's work that has been integrated into a permanent sculpture collection should follow protocol for a replacement piece.

Morin provided images of two works that would fit the collection focus and enhance the current works. His previous works were stone which can be a fragile material for an outdoor work.

Morin is currently working in a new direction, Welded painted steel.

Some of his earlier works he has temporarily installed to gauge the public reaction to the works.

These new works have been received great reviews and there is strong support for them.



Canary in a Coal Mine has been proposed for the City of Saugatuck. It measures 11' in height and can be elevated even higher with a taller base. The bright yellow sculpture will be a prominent focus at any site where it is installed. The cost of the piece is \$4,500. Shawn will provide free installation and delivery (asking for mileage)

“Canary in a Coal Mine” is phrase that began being used in 1911 when the coal miners would take a canary into a mine. The bird would fly out of the mine when the bird sensed carbon monoxide, an environmental danger that could potentially deadly. In 1987, the British coal miners ceased bringing canaries into the mines, yet the phrase is still being used.

The message that Shawn is sending in this sculpture is that **our environment in Saugatuck is in danger and continues down the path of destruction.** Without action and awareness of the current situation the environment dangers that will surround us will become deadly. **We need a canary to wake up all who ignore their carbon foot print.**

A question regarding the appropriateness of bringing this particular work to the current Saugatuck public art collection.

Of all the sculptures in the world, why would this sculpture be selected?

It is replacement for a sculpture created by the same sculptor.

The colorful, bright yellow work is bringing energy to a predominately muted sculpture collection.

The work is solid and well constructed by a well known national artist and is priced considerably lower than most his work and other comparable painted steel our door work.

The theme of the sculpture speaks to environmental issues that relate to the same challenges faced in Saugatuck.

Canary in a Coal Mine is phrase that began being used in 1911 when the coal miners would take a canary into a mine. The bird would fly out of the mine when the bird sensed carbon monoxide, an environmental danger that could potentially be deadly.



The yellow canary (*Crithagra flaviventris*) is a small passerine bird in the finch family



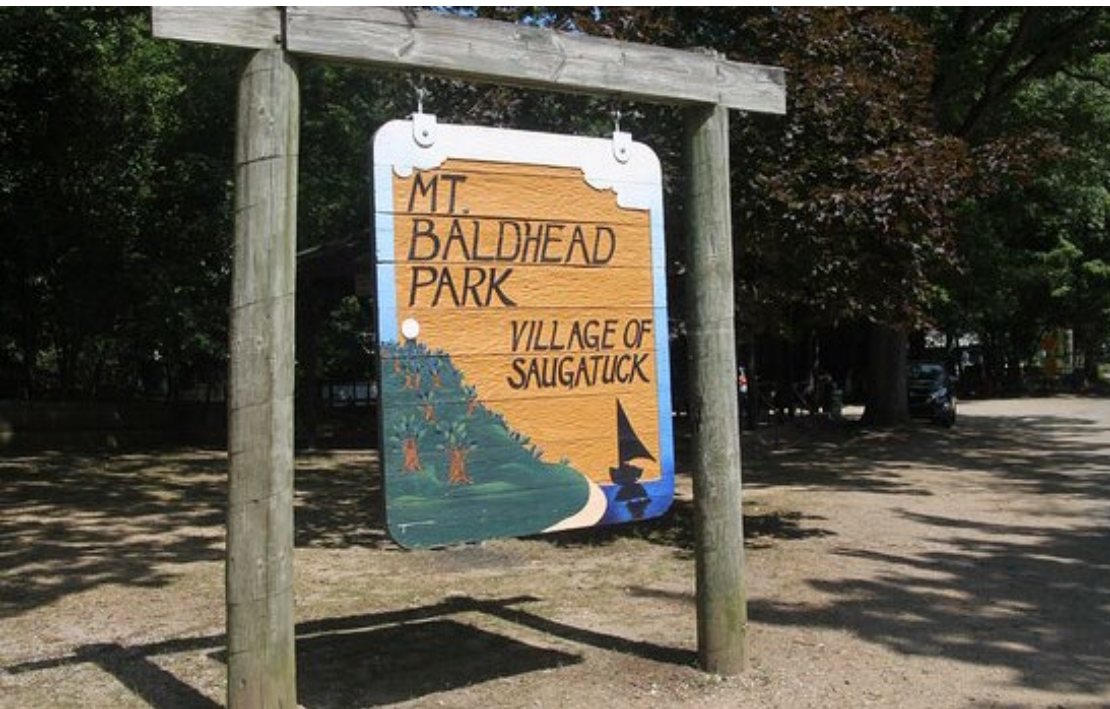
The American **goldfinch** (*Spinus tristis*) is a small North American bird in the finch family found in Michigan

The **domestic canary**, often simply known as the **canary** (*Serinus canaria forma domestica*^[5]), is a domesticated form of the wild canary, a small songbird in the finch family.

In 1987, the British coal miners ceased bringing canaries into the mines, yet the phrase is still being used. The canary in this work is sending a danger sign is that our environment is being destroyed. Without action and awareness of the current situation the environment dangers will surround us and will become deadly. We need a canary to wake up all who ignore their carbon foot print

.Proposed sites for **Canary in a Coal Mine** would be in a natural environment that is endangered by climate change and abuse.

Oval Beach (near the sign) would relate to the fragility of Lake Michigan



**Mt Baldhead
Park** bringing the
delicate balance
of the dune
environment



River Bluff Park calls for an awareness of the forested areas

Saugatuck Sign at the corner of Blue Star and Holland St.
emphasizing the importance of protecting our national resources in Saugatuck.



SAUGATUCK PUBLIC ART INVENTORY

SCULPTURE NUMBER FOR PURPOSES OF THIS SHEET ONLY	SCULPTURE NAME	ARTIST	LOCATION
1	Candy Man	John Neering	Water St in front of Bentley Inn
2	Sunning Bear	Gert Olsen	North of Candy Man along waterfront
4	Big Temptation	Romero Britto	Butler and Main along Main St
5	Girl With Puppet	Patricia Daggett	Butler between Main and Hoffman
6	Cyclists	William Tye	Butler South of Mason in garden
7	Whispers	Lameck Bonjisi	Butler South of Mason in garden
8	Fountainhead	Clyde Ball	Butler South of Mason in garden
9	Family Of Man IV	Cynthia McKean	Butler and Culver in Coghlin Park
10	Kickstart	Kevin Barret	Culver St in SCA Garden
11	Family Group	Don Drumm	Culver St in SCA Garden
12	Untitled	Johnny Blue	Culver St in SCA Garden
13	Not Sevens	Zack Wallerius with help from Cynthia Mckean	Elizabeth St Saugatuck High School
14	Check	Gert Olsen	Butler St in front of City Hall
15	Mobius	Jason Quigno	Culver St in SCA Garden