Restoring Forests for Carbon Sequestration Planting in Lucas County, OH
Initial Project Design Document

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PROTOCOL REQUIREMENTS

Project Operator (Section 1.1)
Identify a Project Operator for the project. A Project requires one Project Operator, which can be an entity organized and licensed under the laws of its jurisdiction or a governmental body. This is the entity who takes legal responsibility for the project and its reporting.

Commit to 26-year Project Duration in the Project Implementation Agreement (Section 1.3, 2.2)
Sign the Project Implementation Agreement. This is the 26-year agreement between the Project Operator and City Forest Credits (the "Registry") for an urban forest carbon project.

Project Location (Section 1.4)
Project must be located in or along the boundary of one of the following:

A. "Urban Area" per Census Bureau maps;
B. The boundary of any incorporated city or town created under the law of its state;
C. The boundary of any unincorporated city, town, or unincorporated urban area created or designated under the law of its state;
D. The boundary of any regional metropolitan planning agency or council established by legislative action or public charter;
E. The boundary of land owned, designated, and used by a municipal or quasi-municipal entity for source water or watershed protection;
F. A transportation, power transmission, or utility right of way, provided the right of way begins, ends, or passes through some portion of above criteria.

Ownership or Eligibility to Receive Potential Credits (Section 1.7)
The Project Operator must demonstrate ownership of property and eligibility to receive potential credits by meeting at least one of the following:

A. Own the land, the trees, and potential credits upon which the Project trees are located; or
B. Own an easement or equivalent property interest for a public right of way within which Project trees are located, own the Project trees and credits within that easement, and accept ownership of those Project trees by assuming responsibility for maintenance and liability for them; or
C. Have a written and signed agreement from the landowner granting ownership to the Project Operator of any credits for carbon storage or other benefits delivered by Project trees on that landowner's land. If Project trees are on private property, this agreement, or notice thereof, must be recorded in the property records of the county in which the land containing Project trees is located.

Defining the Project Area (Section 1.5)
Project Operators may include more than one planting site in a project. The initial planting of trees for all properties in a project must occur within a 36-month period or less. Project Operators may include multiple properties under one project.

Additionality (Section 4)
Project Operators must demonstrate compliance with the following additionality requirements:

- A Legal Requirements Test that declares city trees planted due to an enacted law or ordinance not eligible (Section 1.8);

- Either 1) a project-specific baseline or 2) the current version of the Registry's performance standard baseline developed in adherence with the WRI GHG Protocol (CFC Standard);
- Sign and comply with a Project Implementation Agreement with the Registry that requires a 26-year Project Duration.

Project Operators must also sign an Attestation of Additionality stating that its 26-year Project Duration commitment is additional to and longer than any commitment it makes to non-carbon project tree plantings.

Planting Designs and Quantification for Credits (Section 1.2, 10, Appendix A)
All Projects must use one of three different methods for quantifying CO_2. The quantification method used depends on the planting design. The Registry has developed spreadsheets and methods for Project Operators. The quantification methods include:

- Single Tree Quantification Method: trees planted in a dispersed or scattered design that are planted at least 10 feet apart (i.e. street trees). This method requires tracking of individual trees and tree survival for sampling and quantification.

- Clustered Quantification Method: trees planted at least 10 feet apart but are relatively contiguous and designed to create canopy over an area (i.e. park-like settings). This method requires tracking change in canopy, not individual tree survival.

- Area Reforestation Quantification Method: tree planting areas greater than 5 acres and where many trees are planted closer than 10 feet. Higher tree mortality is expected and the goals are to create canopy and a forest ecosystem. Project Operators have several quantification models to choose from, all of which produce a carbon index on a per-acre basis.

Attestation of No Net Harm and No Double Counting (Section 5)
Project Operators must sign an attestation that no project shall cause net harm and no project shall seek credits on trees, properties, or projects that have already received credits. The Project Operator must submit documentation showing no overlap of Project Trees or Project Area with any other registered urban forest carbon project.

Social Impacts (Section 11)
Project Operators will describe how the Project impacts contribute towards achievement of the global UN Sustainable Development Goals (SDGs). The Registry will supply a template to evaluate how the Project aligns with the SDGs.

Validation and Verification by Third-Party Verifiers (Sections 12)
Project compliance and quantification must be verified by a third-party verifier known as a Validation and Verification Body approved by the Registry. Protocol Appendix B provides more detail.

Issuance of Ex Ante Carbon Forward Removal Credits to Project Operator (Section 6)
The forecasted amount of CO_2 stored during the project duration is the value from which the Registry issues ex ante Carbon Forward Removal Credits™. To ensure performance of the credits, the Registry issues credits at five times during the 26-year Project Duration:

- 10% of projected credits after planting
- 30% of projected credits at Year 4
- 30% of projected credits at Year 6
- 10% of projected credits at Year 14
- Remaining credits issued based on quantification of CO_2e at Year 26

Credits for Reversal Pool Account (Section 6.2)
The Registry will issue 95% of Project credits earned and requested and will hold 5% in the Registry's Reversal Pool Account.

Understand Reversals (Section 8)
If the Project Area loses credited carbon stock, the Project Operator must return or compensate for those credits if the tree loss is due to intentional acts or gross negligence of Project Operator. If tree loss is due to fire, pests, or other acts of god (i.e., not due to the Project Operator's intentional acts or gross negligence), the Registry covers the reversed credits from its Reversal Pool Account of credits held back from all projects.

Commit to Monitoring and Reporting (Section 7)
Project Operators must submit an annual monitoring report to the Registry every year for the Project Duration. The reports must be in writing, and the Project Operator must attest to the accuracy of the reports.

Tree Sampling, Measurement, and Imaging Requirements (Appendix A)
To ensure performance of the credits, Project Operators must commit to the following at Years 4, 6, 14, and 26 based on the appropriate quantification method.

1) Single Tree
    a. Initial Credit: Use the carbon quantification tool which contains a worksheet called "Data Collection" for use in tracking each tree. In that file or another tree inventory system, document the GPS coordinates for each tree planted.
    b. Years 4 and 6: Project Operators must generate a random sample of project tree sites using the Single Tree Quantification Tool. Project Operators must visit those sampled tree sites and collect data on whether the sample contains a live tree, standing dead tree, or no tree. Provide geocoded photos or imaging of a minimum sample of 20% of the trees. The tracking file includes a column where each tree is assigned a unique serial number to help with tracking each coordinate and tree picture or image.
        i. Based on this data, the number and species of project trees is adjusted and a new CO2 projected amount by Year 26 is generated.
    c. Year 14: Project Operators must follow the same process as stated above for Years 4 and 6, except they must also measure DBH on the sample of trees. The DBH will be used to ensure growth curve consistent with the projected CO2 storage at Year 26.
        i. If the actual growth curves of project trees are less than was projected, the number of credits issued at Year 14 will be adjusted downward.
    d. Year 26: Project Operators must generate a random sample of project trees and measure DBH on the sample of trees. The DBH will be used to calculate CO2 storage at that time. Project Operators must also submit geocoded photos of the sampled trees.

i. Credits may be issued based on the actual CO2 storage at Year 26, minus credits already issued.

2) Clustered
   a. Initial Credit: Use the carbon quantification tool and input data. In addition, Project Operators must provide maps of the site, with boundaries, as well as a map showing the site within a larger context of land area, such as within a neighborhood, city, or region. Project Operators must document the planting through photos or imaging. Select points and take geo-coded photos that when taken together capture the newly planted trees in the Project Area. If site is rectilinear, take a photo at each of the corners. If the site is large, take photos at points along the perimeter looking into the Project Area. If necessary to capture the trees, take photos facing each of the cardinal directions while standing in the middle of the Project Area. If site is nonrectilinear, identify critical points along property boundaries and take photographs at each point facing in towards the middle of the site. Next, take photographs from the middle of the Project Area facing out at each cardinal direction.
   b. Year 4: Project Operators provide images of the Project Area from any telemetry, imaging, remote sensing, i-Tree Canopy, or UAV service, such as Google Earth and estimate the area in tree canopy cover (acres). Imaging from Google Earth with leaf-on may be used. Project Operators will calculate the percent of canopy cover from the Google Earth imaging. Projects can use i-Tree Canopy and point sampling to calculate canopy cover. Using i-Tree Canopy, continue adding points until the standard error of the estimate for both the tree and non-tree cover is less than 5%. i-Tree Canopy will supply you with the standard errors. If tree canopy cover is determined using another approach, such as image classification, a short description of the approach should be provided, as well as the QA/QC measures that were used. A tree cover classification accuracy assessment should be conducted, as with randomly placed points, and the percentage tree cover classification accuracy reported.
      i. If the canopy coverage equals or exceeds 2.8% (400 trees per acre with an average canopy area of 3.14 square feet per tree (2-foot diameter of canopy) is 2.8% of an acre), then the credits projected in the Clustered Quantification Tool may be issued. If canopy coverage is below 2.8%, then the number of credits issued is reduced by the same percentage as the canopy coverage falls below 2.8%.
   c. Year 6: Project Operators must follow the same process as stated above for Year 4.
      i. If the canopy coverage equals or exceeds 11.5% (400 trees per acre with an average canopy area of 12.56 square feet per tree (4-foot diameter of canopy) is 11.5% of an acre), then the credits projected in the Clustered Parks Quantification Tool may be issued. If canopy coverage is below 11.5%, then the number of credits issued is reduced by the same percentage as the canopy coverage falls below 11.5%.
   d. Year 14: Project Operators must follow the same process as stated above for Years 4 and 6.

i. If the canopy coverage equals or exceeds 46% (400 trees per acre with an average canopy area of 50 square feet per tree (8-foot diameter of canopy) is 46% of an acre), then the credits projected in the Clustered Quantification Tool may be issued. If canopy coverage is below 46%, then the number of credits issued is reduced by the same percentage as the canopy coverage falls below 46%.

e. Year 26: Project Operators must follow the same process as stated above for Years 4, 6, and 14.
    i. If the canopy coverage equals 100% of the Project Area at project outset, the credits projected in the Clustered Quantification Tool may be issued. If canopy coverage is below 100% of the Project Area, then the number of credits issued is reduced by the same percentage as the canopy coverage falls below 100%.

3) Area Reforestation
    a. Initial Credit: Project Operators must use local data or the GTR tables to demonstrate projected carbon storage by Year 26. In addition, Project Operators must provide maps of the site, with boundaries, as well as a map showing the site within a larger context of land area, such as within a neighborhood, city, or region. Project Operators must document the planting through photos or imaging. Select points and take geo-coded photos that when taken together capture the newly planted trees in the Project Area. If site is rectilinear, take a photo at each of the corners. If the site is large, take photos at points along the perimeter looking into the Project Area. If necessary to capture the trees, take photos facing each of the cardinal directions while standing in the middle of the Project Area. If site is nonrectilinear, identify critical points along property boundaries and take photographs at each point facing in towards the middle of the site. Next, take photographs from the middle of the Project Area facing out at each cardinal direction.
    b. Year 4: Project Operators must either conduct a physical tree count using plots or use imaging to determine canopy coverage at Year 4.
        i. If the canopy coverage equals or exceeds 2.8% (400 trees per acre with an average canopy area of 3.14 square feet per tree (2-foot diameter of canopy) is 2.8% of an acre), then the credits projected in the Quantification Tool may be issued. If canopy coverage is below 2.8%.
    c. Year 6: Project Operators must either conduct a physical tree count using plots or use imaging to determine canopy coverage at Year 6.
        i. If the canopy coverage equals or exceeds 11.5% (400 trees per acre with an average canopy area of 12.56 square feet per tree (4-foot diameter of canopy) is 11.5% of an acre), then the credits projected in the Quantification Tool may be issued. If canopy coverage is below 11.5%, then the number of credits issued is reduced by the same percentage as the canopy coverage falls below 11.5%.
    d. Year 14: Project Operators must either conduct a physical tree count using plots or use imaging to determine canopy coverage at Year 6.
        i. If the canopy coverage equals or exceeds 46% (400 trees per acre with an average canopy area of 50 square feet per tree (8-foot diameter of canopy) is

46% of an acre), then the credits projected in the Quantification Tool may be issued. If canopy coverage is below 46%, then the number of credits issued is reduced by the same percentage as the canopy coverage falls below 46%.

e. Year 26: Project Operators must either conduct a physical tree count using plots or use imaging to determine canopy coverage at Year 26.
    i. If the canopy coverage equals 100% of the Project Area at project outset, the credits projected in the Clustered Parks Quantification Tool may be issued. If canopy coverage is below 100% of the Project Area, then the number of credits issued is reduced by the same percentage as the canopy coverage falls below 100%.

INSTRUCTIONS

Project Operators must complete and submit this Initial Credit Project Design Document (PDD) to request credits after the last tree in a project has been planted. City Forest Credits then reviews this PDD as part of the validation process along with all other required project documents. An approved third-party verifier then does an independent check of all documents and compliance with the Protocol known as verification. An amendment to the Project Design Document will need to be submitted for future verification at years 4, 6, 14, and 26.

The Protocol Requirements below are a list of eligibility requirements for informational purposes which are also found in more detail in the CFC Afforestation/Reforestation Protocol Version 11, dated February 24, 2023.

Project Operators should enter data and supporting attachments starting on page 9 under Project Overview where you find "[Enter text here]" as thoroughly as possible and provide numbered attachments for maps and other documentation (ex: 1 – Regional Map). Keep all instructions in the document.

Below is a list of documents that are needed to complete a successful project:

1. Regional Map
2. Project Area Map
3. Project Area Geospatial Data (shapefile or KML file)
4. Geocoded Photos – before planting
5. Geocoded Photos – after planting
6. Attestation of Land Ownership or Agreement to Transfer Credits
7. Attestation of Planting
8. Attestation of Planting Affirmation
9. Attestation of Additionality
10. Attestation of No Net Harm and Attestation of No Double Counting of Credits
11. No Double Counting Evidence
12. Carbon Quantification Initial Credits Tool
13. Tree Data (as appropriate per quantification method. For Cluster, list of species planted, and quantity. For Area Reforestation, list of species planted, quantity, and documentation supporting projected carbon storage)
14. Planting Design Map (for cluster ONLY – general depiction of which species were planted where)
15. I-Tree Canopy Baseline report
16. I-Tree Canopy baseline data points
17. Co-Benefit Quantification Initial Credits Tool
18. Social Impact Report
19. Project or Performance Standard Baseline
20. Quantifying Carbon Dioxide Storage and Co-Benefits for Urban Tree Planting Projects (Appendix A)

PROJECT OVERVIEW

Project Name: Restoring Forests for Carbon Sequestration Planting Project in Lucas County, OH

Project Number: 069
Project Type: Planting Project (under the Afforestation and Reforestation Protocol – version 12, dated February 29, 2024)
Project Start Date: November 4, 2024
Project Location: Lucas County, Ohio

Project Operator Name: Metropolitan Park District of the Toledo Area (Metroparks Toledo)
Project Operator Contact Information: Zuri Carter, zuri.carter@metroparkstoledo.com, (419) 407-9700

Project Description
Describe overall project goals as summarized in the Project Application (2 paragraphs max). Include how many trees were planted and number of acres planted, where trees were planted, and the date range for when trees were planted.

The Restoring Forests for Carbon Sequestration Planting Project was a project undertaken by Metroparks Toledo, starting in the spring of 2022. A total of 10 parcels were included in plantings done throughout the spring of 2022 until the fall of 2024, starting with the first trees being planted April 1st, 2022, and with the last tree being planted November 4th, 2024. Prior to these plantings, the preserves had various uses. Secor Metropark's planting site was a golf course originally, Oak Openings' site was farmland, Side Cut was a low-mow field, Ravine Park I was mowed turf, Ravine Park II was unmanaged with woody invasives and noxious weeds, and Glass City Metropark's planting site was a brownfield prior to planting. Now that all of these properties are planting sites, the forest can be expanded and increased.

The 6 planting sites are scattered across 4 Metroparks that add up to 51.78 acres of Project Area, all owned and operated by Metroparks Toledo. Each planting project area is located within one of the Metroparks' existing preserves. Across the 6 sites, 25,703 trees were planted, with the majority falling into the category of oak-hickory forest type. The Metroparks' Natural Resources Division began seeking funding to support the long-term maintenance of the tree plantings and connected with Western Reserve Land Conservancy to learn more about their experience with City Forest Credits. This partnership began with the registration of Metroparks Toledo's planting projects into the carbon market.

LOCATION (Section 1.4)

Project Location
Describe the city, town, or jurisdiction where the Project is located. State which urban location criteria is met from Protocol Section 1.4.

The project areas are all owned by Metroparks Toledo and located in Lucas County, Ohio, within a planning area for a metropolitan planning agency or entity, Toledo Metropolitan Area Council of Governments (TMACOG). TMACOG was formed as a voluntary association organized on May 31, 1968 and established under Chapter 167 of the Ohio Revised Code and the Michigan Urban Cooperation Act No. 7 of 1967.

The bylaws can be found here: https://dfig7j11pjx8o.cloudfront.net/documents/TMACOG-BYLAWS-ADOPTED-ON-01-19-24_2024-01- 24-151200_pins.pdf.

Project Area Maps

Provide three maps of the Project Area that illustrate the location: geospatial location, regional, and detailed. Maps should include project title, relevant urban or town boundaries, and indicate where trees were planted as a defined Project Area, and a legend. Include numbered filename of attachments (Ex: 1 Regional Map).

- Project Area Map
  Location of planting sites for Single Tree, boundaries of Project Area for Cluster or Area Reforestation, provide as KML, KMZ, or shapefile format
  Attachment: 1 Restoring Forests for Carbon Sequestration Planting Shapefiles

- Regional Map
  Attachment: 2 Restoring Forests for Carbon Sequestration Planting Regional Map

- Planting Design Map
  Attachment: 3 Restoring Forests for Carbon Sequestration Planting Project Area Maps

- Geo-coded Photos of Project Site, before and after planting

  Select points and take geo-coded photos that when taken together capture the newly planted trees in the Project Area. If site is rectilinear, take a photo at each of the corners. If the site is large, take photos at points along the perimeter looking into the Project Area. If necessary to capture the trees, take photos facing each of the cardinal directions while standing in the middle of the Project Area. If site is nonrectilinear, identify critical points along property boundaries and take photographs at each point facing in towards the middle of the site. Next, take photographs from the middle of the Project Area facing out at each cardinal direction. Provide photos as individual JPG files and/or embedded in a KML file.

  Attachment: 4 Restoring Forests for Carbon Sequestration Planting Geotagged Photos

OWNERSHIP OR ELIGIBILITY TO RECEIVE POTENTIAL CREDITS (Section 1.7)

Project Operator must demonstrate ownership of potential credits or eligibility to receive potential credits. If the Project Operator is not the same as the landowner of the Project Area, provide agreement(s) between Project Operator and landowner authorizing Project Operator to execute this project. Include relevant documentation including numbered filename as an attachment.

Name of landowner of Project Area and explanation:

Metroparks Toledo, a public park district consisting of parks, trail networks, and nature preserves for the citizens of Lucas County.

If there are multiple landowners, complete the following table. If not, delete the table:

Landowner	Parcel Number	Description/Notes *Include Project Area acres for each parcel*

Metroparks Toledo	75-00227, 75-00225	10.12 (Oak Openings)
Metroparks Toledo	18-65708	2.75 (Ravine Park I)
Metroparks Toledo	18-67511	8.06 (Ravine Park II)
Metroparks Toledo	78-95001, 78-04854, 78-04607	22.6 (Secor)
Metroparks Toledo	18-87701, 18-87678	3.96 (Glass City)
Metroparks Toledo	35-00695	4.29 (Side Cut)
	Total Project Area	51.78

Attachment: 5 Restoring Forests for Carbon Sequestration Planting Attestation of Land Ownership

PROJECT DURATION (Section 1.3, 2.2)

Project Operator commits to the 26-year project duration requirement through a signed Project Implementation Agreement with City Forest Credits and agrees to the statement below.

Project Operator has committed to the 26-year project duration and signed a Project Implementation Agreement with City Forest Credits on June 26, 2025.

ATTESTATION OF PLANTING AND PLANTING AFFIRMATION (Section 3)

Complete and attach the following attestations: 1) Attestation of Planting, including supporting documentary evidence of how trees were paid for and who planted them such as invoices and event photos, 2) Attestation of Planting Affirmation, signed by a representative of a participating organization that can attest to the tree planting. Provide any additional notes as relevant.

Project Operator has signed the Attestation of Planting and provided supporting documentary evidence of planting. Several organizations that participated in the tree planting, Williams Forestry & Associates, Bauer Lawn Maintenance, and the volunteer coordinator for Metroparks Toledo have signed Planting Affirmations.

Attachment: 6a Restoring Forests for Carbon Sequestration Planting Project Attestation of Planting
Attachment: 6b Restoring Forests for Carbon Sequestration Planting Project Attestation of Planting Affirmation_Glass CityRavine
6c Restoring Forests for Carbon Sequestration Planting Attestation of Planting Affirmation_SecorOakRavine
6d Restoring Forests for Carbon Sequestration Planting Attestation of Planting Affirmation_Sidecut

ADDITIONALITY (Section 4)

Additionality is demonstrated by the Project in several ways, as described in the City Forest Credits Standard Section 4.9.2 and Afforestation and Reforestation Protocol. Complete and attach 1) Attestation of Additionality and 2) Project-specific baseline or Performance Standard Baseline. If Project Operator elects to use it, the Performance Standard Baseline is provided as Attachment 13 to this PDD.

Additionality is demonstrated by Project Operators per the Protocol in the following ways and in the Attestation of Additionality.

- Project trees are not required by law or ordinance to be planted (Protocol Section 1.8). See Attestation of Planting.
- The Project did not plant trees on sites that were forested and then cleared of trees within the prior ten years (Protocol Section 1.9)
- Project trees are additional based on a project-specific baseline attached to this PDD.
- Project Operator has signed a Project Implementation Agreement with City Forest Credits for 26 years.
- The 26-year Project Duration commitment is additional to and longer than any commitment our organization makes to non-carbon project tree plantings.
- Project Operator has signed the Attestation of Additionality.
- The revenue from the sale of carbon credits will play a material role in the successful and durable storage of Project Trees' carbon stock by providing funding that will help ensure the establishment and long-term health of Project Trees. Funding from carbon credits will support the management and stewardship of the properties. The revenue generated from carbon credit sales will support Metroparks Toledo as they allow for regular monitoring and maintenance of the planted trees.

This project is part of a restoration plan to gain more carbon sequestration through forestry. Western Reserve Land Conservancy is providing support and assistance during the crediting process and City Forest Credits was able to confirm the alignment of carbon credits with the project's goals.

Attachment: 7a Restoring Forests for Carbon Sequestration Planting Attestation of Additionality

Baseline Measurement
To analyze tree growth in the project area, random point sapling was used to estimate baseline percent canopy cover. I-Tree Canopy reports were conducted for four of the planting sites: Oak Openings, Secor, and Ravine Parks I and II (these sites were completed as one i-Tree Canopy Report). Based on the sampling, 1.06% of the Project Areas were classified as "Tree Cover" at the time of baseline sampling.

Attachment: 7b Restoring Forests for Carbon Sequestration Planting Baseline Canopy Analysis

To assess baseline canopy trends in the Lucas County, Ohio region, we analyzed data from the USA NLCD Tree Canopy Cover CONUS dataset using raster analysis tools in ArcGIS Pro. Our analysis focused on the Toledo Metropolitan Area Council of Governments (TMACOG), aligning with the geographies of our planting sites.

Results indicate an increase in regional tree canopy from 8.137% in 2011 to 8.650% in 2021, an absolute increase of 0.513% over ten years. This equates to a relative increase of approximately 6.306% in that timeframe, or an estimated annual increase of 0.051% total regional canopy cover. Projecting this trend linearly over the 26-year crediting period of this project results in an estimated baseline canopy increase of an additional 1.334% absolute regional canopy cover without intervention. Due to this increase, this project applies a regional canopy adjustment deduction to ensure all trees that are credited are additional.

PLANTING DESIGN AND CARBON QUANTIFICATION DOCUMENTATION (1.2, 10, Appendix A)

Describe the planting design and appropriate quantification method for the project – Single Tree, Clustered, or Area Reforestation. Include the project's climate zone and data collection. Outline the estimated total number of credits to be issued to the project over 26 years as well as the amount to be issued upon successful validation and verification in Year 1. Attach the quantification tool and provide the data you have collected for Project Trees.

Total number of trees planted	25,703
Project area (acres)	51.78
Total number of trees per acre	496.38
Credits attributed to the project (tCO2e)	6,313
GHG Emissions, Adjusted for Canopy Baseline	6,246
Credits after mortality deduction (20% [N/A if Area Reforestation])	N/A
Regional Canopy adjustment deduction	83
Contribution to Registry Reversal Pool Account (5%) (tCO2e)	308
Total credits to be issued to the Project Operator (tCO2e)	5,854
Total credits requested to be issued in Year 1 (10% of above)	585

GHG Assertion:
Project Operator asserts that the Project results in GHG emissions mitigation of 5,854 tons CO_2e over the 26-year Project Duration. Project Operator will provide imaging of canopy growth over the Project Area, quantify 5,854 tons CO_2e, and submit documentation for validation, verification, and credit issuance at Years 4, 6, 14, and 26, per the Tree Planting Protocol and Afforestation Planting Design and Quantification Method.

Project Operator asserts that, per Protocol guidelines, 10% of the Project GHG emissions mitigation is issued after initial tree planting, or 585 CO_2e.

Explanation of Planting Design:
The Project Area was planted using the Area Reforestation planting design with 25,703 trees across 51.78 acres of old agricultural and mowed turf land that is being restored to forested habitat. The 51.78 acres of planted trees consist mostly of Oak-Hickory trees, with the greatest number of trees being Bur Oak and Pin Oak.

Tree planting was performed by hand in the spring and fall seasons when soil and moisture conditions are suitable for planting. The tree planting was planted in accordance with the planting guidelines set forth by the Ohio Division of Forestry. Tree species were chosen based on the natural forestry types that existed before the sites were mowed and transformed from their original state.

Four of the six plantings were completed in Spring 2022, one occurred in Spring 2023, and the final planting was completed throughout spring and fall of 2024.

Attachments:

8a Restoring Forests for Carbon Sequestration Planting Initial Crediting Quantification Tool
8b Restoring Forests for Carbon Sequestration Planting Tree Planting Data
9a Restoring Forests for Carbon Sequestration Planting Project iTree Canopy Report_Oak Openings
9b Restoring Forests for Carbon Sequestration Planting Project iTree Canopy Report_Secor
9c Restoring Forests for Carbon Sequestration Planting Project iTree Canopy Report_Ravine Park I & II
9d Restoring Forests for Carbon Sequestration Planting Project iTree Raw data_Oak Openings
9e Restoring Forests for Carbon Sequestration Planting Project iTree Raw data_Secor
9f Restoring Forests for Carbon Sequestration Planting Project iTree Raw data_Ravine Park I & II
9g Restoring Forests for Carbon Sequestration Planting Baseline Canopy Analysis

CO-BENEFITS QUANTIFICATION DOCUMENTATION (Section 10 and Appendix A)

Summarize co-benefit quantification per year and provide supporting documentation. The Cluster Initial Credit tool includes a Co-Benefits Quantification calculator for quantifying rainfall interception, reduction of certain air compounds, and energy savings. For Area Reforestation, the Co-benefits Quantification calculator will be provided as a separate document.

Ecosystem Services	***Resource Units***	***Value***
Rainfall Interception (m3/yr)	5,737.1	$15,005.86
Air Quality (t/yr)	1.3375	$3,241.62
Cooling – Electricity (kWh/yr)	61,325	$4,654.55
Heating – Natural Gas (kBtu/yr)	32,526	$337.96
Grand Total ($/yr)		**$23,239.99**

Co-benefits were quantified using CFC's Co-Benefits Quantification Calculator. These ecosystem services represent values in avoided costs of **$23,239.99** annually when the trees reach 25 years of age.

Attachment: 10 Restoring Forests for Carbon Sequestration Planting Project Cobenefit calculator

ATTESTATION OF NO DOUBLE COUNTING OF CREDITS AND NO NET HARM (Section 5)

Complete and attach the following attestation: 1) Attestation of No Double Counting of Credits and Attestation of No Net Harm. Provide a map that includes both the Project Area and the closest registered urban forest afforestation or reforestation project based on the registered urban forest planting project database KML/Shapefile provided by CFC to demonstrate that the Project does not overlap with any existing urban forest carbon projects.

Project Operator has mapped the Project Trees against the registered urban forest planting project database and determined that there is no overlap of Project Area or Project Trees with any registered urban forest afforestation or reforestation carbon project.

Project Operator has signed the Attestation of No Double Counting of Credits and No Net Harm on June 3, 2025.

Attachment: 11a Restoring Forests for Carbon Sequestration Planting Project Attestation No Double Counting and No Net Harm

Attachment: 11b Restoring Forests for Carbon Sequestration Planting Project No Double Counting Map

SOCIAL IMPACTS (Section 11)

Project Operators shall use the Carbon Project Social Impacts template to evaluate how their Project aligns with the UN Sustainable Development Goals (SDGs). CFC will provide the template. Summarize the three to five main SDGs attributed to this Project.

These planting projects will have immense benefits for the local wildlife habitat, ecosystem services, and provide the Metroparks with continued forested areas to be used for hiking and recreational public use. The impacts relate to several Sustainable Development Goals, listed below:

Goal 3: Good Health and Well-Being - The increased parkland and forest cover will allow for more recreational activities, encouraging locals to hike and use the parks for exercise, improving overall health and wellbeing. The increased canopy will provide shade in the future once the trees have grown to a fuller capacity, allowing those who hike and enjoy the parks to be in the shade when the trees are in bloom.

Goal 6: Clean Water and Sanitation - The planted trees will serve as another stormwater runoff mitigation tool, absorbing runoff and excess nutrients before they can reach waterways. This is especially significant to Toledo, being a city on Lake Erie that consistently is impacted by algae blooms and their drinking water being compromised as a result. With increased planting of trees and other buffers, algae blooms can be expected to decrease, and Lake Erie can grow towards being a healthy freshwater system.
Goal 13: Climate Action - The surrounding area provides habitat for several species, including Sandhill Cranes, Blanding's turtle, spotted turtle, several species of Lepidoptera and Odonata, Eastern Hognose snake, and wild lupine that are important to the Karner Blue Butterfly. Lucas County is located in the Mississippi Flyway with the western edge of the Atlantic Flyway being particularly significant for bird migratory routes. These reforestation efforts will be instrumental as stop-over habitat for species during their migratory seasons. With more habitat protected, these species can thrive and provide sufficient ecosystem balance.

Attachment: 12 Restoring Forests for Carbon Sequestration Planting Social Impacts Report

MONITORING AND REPORTING (Section 7)

Throughout the Project Duration, the Project Operator must report on tree conditions across the Project Area through annual reports and with more detailed data at Years 4, 6, 14, and 26.

Monitoring Reports

Project Operator is required to submit an annual monitoring report on the anniversary of the date of the first Verification Report. For example, if the verification report is dated January 31, 2023, the first monitoring report will be due by January 31, 2024 and each January 31st thereafter for the duration of the project. CFC will provide the due dates for future monitoring reports to Project Operators after the first verification report is approved. Project Operators must submit reports in writing and must attest to the accuracy of the reports. The reports must contain any changes in eligibility status of the Project Operator and any significant tree loss. The information includes updates to land ownership, changes to project design, changes in implementation or management and changes in tree or canopy loss.

Future Project Design Documents and Reporting
Project Operator is required to submit an updated Project Design Document at Years 4, 6, 14, and 26, as well as sampling, measurement of trees or canopy coverage, and/or quantification of CO_2e. Project Operators will submit the updated documentation for request of credit issuance in lieu of a monitoring report that year.

Monitoring Plans
Confirm and describe your plans for annual monitoring of this project and specifics on how sampling, measurement, and imaging (see Protocol Requirements and Appendix A) will be conducted based on your project's quantification method.

As part of this project, the project area is owned and monitored by Metroparks Toledo. The registration of this planting as a carbon credit project will allow there to be additional revenue to support the preservation and frequent monitoring of the restored project area.

The Project Area will be regularly visited to monitor tree health and any maintenance needs. On most of the planting sites, many of the trees were tubed or wrapped to protect against external environmental factors, such as harm from animals. Metroparks Toledo intends to use aerial imagery for additional monitoring of the site and tracking tree growth, but given the planned vegetation coverage of the restored area, the use of drones may be utilized for monitoring of tree health and growth in canopy.

Metroparks Toledo has a professional team dedicated to property management and the stewardship of its restoration sites. Staff members will visit the Restoring Forests for Carbon Sequestration Planting Project regularly, walking the project area and property in their entirety to ensure that the trees are maintained and functioning as designed.

PROJECT OPERATOR SIGNATURE
Signed on July 29 in 2025, by Zurijanne Carter, Chief Natural Resources Officer, for Metroparks Toledo.


Signature

ZURIJANNE CARTER
Printed Name

419-407-9700
Phone

zuri.carter@metroparkstoledo.com
Email

ATTACHMENTS

Update the attachments list as appropriate for your project.

1 Restoring Forests for Carbon Sequestration Planting Shapefiles
2 Restoring Forests for Carbon Sequestration Planting Regional Map
3 Restoring Forests for Carbon Sequestration Planting Project Area Maps
4 Restoring Forests for Carbon Sequestration Planting Geotagged Photos
5 Restoring Forests for Carbon Sequestration Planting Project Attestation of Land Ownership
6a Restoring Forests for Carbon Sequestration Planting Project Attestation of Planting
6b Restoring Forests for Carbon Sequestration Planting Project Attestation of Planting Affirmation_Glass CityRavine
6c Restoring Forests for Carbon Sequestration Planting Attestation of Planting Affirmation_SecorOakRavine
6d Restoring Forests for Carbon Sequestration Planting Attestation of Planting Affirmation_Sidecut
7a Restoring Forests for Carbon Sequestration Planting Attestation of Additionality
7b Restoring Forests for Carbon Sequestration TMACOG Regional Canopy Analysis
8a Restoring Forests for Carbon Sequestration Planting Initial Crediting Quantification Tool
8b Restoring Forests for Carbon Sequestration Planting Tree Planting Data
9a Restoring Forests for Carbon Sequestration Planting Project iTree Canopy Report_Oak Openings
9b Restoring Forests for Carbon Sequestration Planting Project iTree Canopy Report_Secor
9c Restoring Forests for Carbon Sequestration Planting Project iTree Canopy Report_Ravine Park I & II
9d Restoring Forests for Carbon Sequestration Planting Project iTree Raw data_Oak Openings
9e Restoring Forests for Carbon Sequestration Planting Project iTree Raw data_Secor
9f Restoring Forests for Carbon Sequestration Planting Project iTree Raw data_Ravine Park I & II
9g Restoring Forests for Carbon Sequestration Planting Baseline Canopy Analysis
10 Restoring Forests for Carbon Sequestration Planting Project Cobenefit calculator
11a Restoring Forests for Carbon Sequestration Planting Project Attestation No Double Counting
11b Restoring Forests for Carbon Sequestration Planting Project No Double Counting Map
12 Restoring Forests for Carbon Sequestration Planting Social Impacts Report
13 Performance Standard Baseline Methodology
14 Quantifying Carbon Dioxide Storage and Co-Benefits for Urban Tree Planting Projects

Attachment 13

PERFORMANCE STANDARD BASELINE METHODOLOGY (Standard, Section 4)

There is a second additionality methodology set out in the WRI GHG Protocol guidelines – the Performance Standard methodology. This Performance Standard essentially allows the project developer, or in our case, the developers of the protocol, to create a performance standard baseline using the data from similar activities over geographic and temporal ranges.

The common perception, particularly in the United States, is that projects must meet a project specific test. Project-specific additionality is easy to grasp conceptually. The 2014 Climate Action Reserve urban forest protocol essentially uses project-specific requirements and methods.

However, the WRI GHG Protocol clearly states that either a project-specific test or a performance standard baseline is acceptable.[1] One key reason for this is that regional or national data can give a more accurate picture of existing activity than a narrow focus on one project or organization.

Narrowing the lens of additionality to one project or one tree-planting entity can give excellent data on that project or entity, which data can also be compared to other projects or entities (common practice). But plucking one project or entity out of its regional or national context ignores all comparable regional or national data. And that regional or national data may give a more accurate standard than data from one project or entity.

By analogy: one pixel on a screen may be dark. If all you look at is the dark pixel, you see darkness. But the rest of screen may consist of white pixels and be white. Similarly, one active tree-planting organization does not mean its trees are additional on a regional basis. If the region is losing trees, the baseline of activity may be negative regardless of what one active project or entity is doing. Here is the methodology described in the WRI GHG Protocol to determine a Performance Standard baseline, together with the application of each factor to urban forestry:

Table 2.1 Performance Standard Factors

WRI Performance Standard Factor	As Applied to Urban Forestry
Describe the project activity	Increase in urban trees
Identify the types of candidates	Cities and towns, quasi-governmental entities like utilities, watersheds, and educational institutions, and private property owners
Set the geographic scope (a national scope is explicitly approved as the starting point)	Could use national data for urban forestry, or regional data
Set the temporal scope (start with 5-7 years and justify longer or shorter)	Use 4-7 years for urban forestry
Identify a list of multiple baseline candidates	Many urban areas, which could be blended mathematically to produce a performance standard baseline

[1] WRI GHG Protocol, Chapter 2.14 at 16 and Chapter 3.2 at 19.

The Performance Standard methodology approves of the use of data from many different baseline candidates. In the case of urban forestry, those baseline candidates are other urban areas.[2]

As stated above, the project activity defined is obtaining an increase in urban trees. The best data to show the increase in urban trees via urban forest project activities is national or regional data on tree canopy in urban areas. National or regional data will give a more comprehensive picture of the relevant activity (increase in urban trees) than data from one city, in the same way that a satellite photo of a city shows a more accurate picture of tree canopy in a city than an aerial photo of one neighborhood. Tree canopy data measures the tree cover in urban areas, so it includes multiple baseline candidates such as city governments and private property owners. Tree canopy data, over time, would show the increase or decrease in tree cover.

Data on Tree Canopy Change over Time in Urban Areas

The CFC quantitative team determined that there were data on urban tree canopy cover with a temporal range of four to six years available from four geographic regions. The data are set forth below:

Table 2.2 Changes in Urban Tree Canopy (UTC) by Region (from Nowak and Greenfield, 2012, see footnote 7)

City	Abs Change UTC (%)	Relative Change UTC (%)	Ann. Rate (ha UTC/yr)	Ann. Rate (m2 UTC/cap/yr)	Data Years
EAST					
Baltimore, MD	-1.9	-6.3	-100	-1.5	(2001–2005)
Boston, MA	-0.9	-3.2	-20	-0.3	(2003–2008)
New York, NY	-1.2	-5.5	-180	-0.2	(2004–2009)
Pittsburgh, PA	-0.3	-0.8	-10	-0.3	(2004–2008)
Syracuse, NY	1.0	4.0	10	0.7	(2003–2009)
Mean changes	-0.7	-2.4	-60.0	-0.3	
Std Error	0.5	1.9	35.4	0.3	
SOUTH					
Atlanta, GA	-1.8	-3.4	-150	-3.1	(2005–2009)
Houston, TX	-3.0	-9.8	−890	-4.3	(2004–2009)
Miami, FL	-1.7	-7.1	-30	-0.8	(2003–2009)
Nashville, TN	-1.2	-2.4	-300	-5.3	(2003–2008)
New Orleans, LA	-9.6	-29.2	−1120	-24.6	(2005-2009)
Mean changes	-3.5	-10.4	-160.0	-7.6	
Std Error	1.6	4.9	60.5	4.3	
MIDWEST					
Chicago, IL	-0.5	-2.7	-70	-0.2	(2005–2009)

[2] See Nowak, et al. *"Tree and Impervious Cover Change in U.S. Cities,"* Urban Forestry and Urban Greening, 11 (2012), 21-30

City	Abs Change UTC (%)	Relative Change UTC (%)	Ann. Rate (ha UTC/yr)	Ann. Rate (m2 UTC/cap/yr)	Data Years
Detroit, MI	-0.7	-3.0	-60	-0.7	(2005–2009)
Kansas City, MO	-1.2	-4.2	-160	-3.5	(2003–2009)
Minneapolis, MN	-1.1	-3.1	-30	-0.8	(2003–2008)
Mean changes	-0.9	-3.3	-80.0	-1.3	
Std Error	0.2	0.3	28.0	0.7	
WEST					
Albuquerque, NM	-2.7	-6.6	-420	-8.3	(2006–2009)
Denver, CO	-0.3	-3.1	-30	-0.5	(2005–2009)
Los Angeles, CA	-0.9	-4.2	-270	-0.7	(2005–2009)
Portland, OR	-0.6	-1.9	-50	-0.9	(2005–2009)
Spokane, WA	-0.6	-2.5	-20	-1.0	(2002–2007)
Tacoma, WA	-1.4	-5.8	-50	-2.6	(2001–2005)
Mean changes	-1.1	-4.0	-140.0	-2.3	
Std Error	0.4	0.8	67.8	1.2	

These data have been updated by Nowak and Greenfield.[3] The 2012 data show that urban tree canopy is experiencing negative growth in all four regions. The 2018 data document continued loss of urban tree cover.

Table 3 of the 2018 article shows data for all states, with a national loss of urban and community tree cover of 175,000 acres per year during the study years of 2009-2014.

To put this loss in perspective, the total land area of urban and community tree cover loss during the study years totals 1,367 square miles – equal to the combined land area of New York City, Atlanta, Philadelphia, Miami, Boston, Cleveland, Pittsburgh, St. Louis, Portland, OR, San Francisco, Seattle, and Boise.

Even though there may be individual tree planting activities that increase the number of urban trees within small geographic locations, the performance of activities to increase tree cover shows a negative baseline. The Drafting Group did not use negative baselines for the Tree Planting Protocol, but determined to use baselines of zero.

Deployment of the Performance Standard baseline methodology for a City Forest Planting Protocol is supported by conclusions that make sense and are anchored in the real world:

- With the data showing that tree loss exceeds gains from planting, new plantings are justified as additional to that decreasing canopy baseline. In fact, the negative baseline would justify as additional any trees that are protected from removal.
- Because almost no urban trees are planted now with carbon as a decisive factor, urban tree planting done to sequester carbon is additional;
- Almost no urban trees are currently planted with a contractual commitment for monitoring. Maintenance of trees is universally an intention, one that is frequently reached when budgets

[3] Nowak et al. 2018. "Declining Urban and Community Tree Cover in the United States," *Urban Forestry and Urban Greening,* 32, 32-55

are cut, as in the Covid-19 era. The 25-year commitment required by this Protocol is entirely additional to any practice in place in the U.S. and will result in substantial additional trees surviving to maturity;

- Because the urban forest is a public resource, and because public funding falls far short of maintaining tree cover and stocking, carbon revenues will result in additional trees planted or in maintenance that will result in additional trees surviving to maturity;
- Because virtually all new large-scale urban tree planting is conducted by governmental entities or non-profits, or by private property developers complying with governmental regulations (which would not be eligible for carbon credits under our protocol), and because any carbon revenues will defray only a portion of the costs of tree planting, there is little danger of unjust enrichment to developers of city forest carbon projects.

Last, The WRI GHG Protocol recognizes explicitly that the principles underlying carbon protocols need to be adapted to different types of projects. The WRI Protocol further approves of balancing the stringency of requirements with the need to encourage participation in desirable carbon projects:

Setting the stringency of additionality rules involves a balancing act. Additionality criteria that are too lenient and grant recognition for "non-additional" GHG reductions will undermine the GHG program's effectiveness. On the other hand, making the criteria for additionality too stringent could unnecessarily limit the number of recognized GHG reductions, in some cases excluding project activities that are truly additional and highly desirable. In practice, no approach to additionality can completely avoid these kinds of errors. Generally, reducing one type of error will result in an increase of the other. Ultimately, there is no technically correct level of stringency for additionality rules. GHG programs may decide based on their policy objectives that it is better to avoid one type of error than the other.[4]

The policy considerations weigh heavily in favor of "highly desirable" planting projects to reverse tree loss for the public resource of city forests.

[4] WRI GHG Protocol, Chapter 3.1 at 19.

Attachment 14

QUANTIFYING CARBON DIOXIDE STORAGE AND CO-BENEFITS FOR URBAN TREE PLANTING PROJECTS (Appendix A)

Introduction

Ecoservices provided by trees to human beneficiaries are classified according to their spatial scale as global and local (Costanza 2008) (citations for Part Two are listed in References). Removal of carbon dioxide (CO_2) from the atmosphere by urban forests is global because the atmosphere is so well-mixed it does not matter where the trees are located. The effects of urban forests on building energy use is a local-scale service because it depends on the proximity of trees to buildings.

To quantify these and other ecoservices City Forest Credits (CFC) has relied on peer-reviewed research that has combined measurements and modeling of urban tree biomass, and effects of trees on building energy use, rainfall interception, and air quality. CFC has used the most current science available on urban tree growth in its estimates of CO_2 storage (McPherson et al., 2016a). CFC's quantification tools provide estimates of co-benefits after 25 years in Resource Units (i.e., kWh of electricity saved) and dollars per year. Values for co-benefits are first-order approximations extracted from the i-Tree Streets (i-Tree Eco) datasets for each of the 16 U.S. reference cities/climate zones (https://www.itreetools.org/tools/i-tree-eco) (Maco and McPherson, 2003). Modeling approaches and error estimates associated with quantification of CO_2 storage and co-benefits have been documented in numerous publications (see References below) and are summarized here.

Carbon Dioxide Storage

Project Operators must use one of three different methods for quantifying carbon dioxide (CO2) storage in urban forest carbon projects. Selection of the quantification method depends on the planting project design:

- Single Tree Method - trees planted in a dispersed or scattered design and that are planted at least 10 feet apart (i.e. street trees). This method requires tracking of individual trees and tree survival for sampling and quantification.
- Clustered Method - to trees planted at least 10 feet apart but are relatively contiguous and designed to create canopy over an area (i.e park-like settings). This method requires tracking change in canopy, not individual tree survival
- Area Reforestation Method – tree planting areas greater than 5 acres and where many trees are planted closer than 10 feet. Higher tree mortality is expected and the goals are to create canopy and a forest ecosystem. Project Operators have several quantification models to choose from, all of which produce a carbon index on a per-acre basis.

In all cases, the estimated amount of CO2 stored 26-years after planting is calculated. The forecasted amount of CO2 stored during this time is the value from which the Registry issues ex ante Carbon Forward Removal Credits.TM

To ensure performance of the credits, the Registry issues Carbon Forward Removal Credits at five times during the 26-year Project Duration:

- 10% after planting
- 30% in Year 4, after sampling and mortality check or imaging and calculating canopy
- 30% in Year 6, after sampling and mortality check or imaging and calculating canopy

- 10% in Year 14, after measuring sampled trees or imaging and calculating canopy and
- "True-up" credits at the end of the initial Project Duration in Year 26, when CO2e is quantified from tree measurement and final credits are issued for CO2e stored minus credits already issued.

The mortality checks at Years 4 and 6 correspond to nationality mortality data that shows increased survival rates after three years and six years.

The Registry will issue 95% of Project Credits earned and will hold 5% of total credits in the Registry's Reversal Pool Account. This 5% Reversal Pool Account deduction is applied in all three quantification methods before calculation of any crediting, with these funds going into a program-wide pool to insure against unavoidable reversals due to catastrophic loss of trees.

All ex-ante Carbon Forward Removal Credits convert to ex post City Forest Carbon+ Credits at Year 26 and are marked in the registry of credits.

Scientific Basis for Carbon Dioxide Quantification

Estimates of stored (amount accumulated over many years) and sequestered CO_2 (i.e., net amount stored by tree growth over one year) are based on the U.S. Forest Service's recently published technical manual and the extensive Urban Tree Database (UTD), which catalogs urban trees with their projected growth tailored to specific geographic regions (McPherson et al. 2016a, b). The products are a culmination of 14 years of work, analyzing more than 14,000 trees across the United States. Whereas prior growth models typically featured only a few species specific to a given city or region, the newly released database features 171 distinct species across 16 U.S. climate zones. The trees studied also spanned a range of ages with data collected from a consistent set of measurements. Advances in statistical modeling have given the projected growth dimensions a level of accuracy never before seen. Moving beyond just calculating a tree's diameter or age to determine expected growth, the research incorporates 365 sets of tree growth equations to project growth.

Users select their climate zone from the 16 U.S. climate zones (Fig. 1). Calculations of CO_2 stored are for a representative species for each tree-type that was one of the predominant street tree species per reference city (Peper et al., 2001). The "Reference city" refers to the city selected for intensive study within each climate zone (McPherson, 2010). About 20 of the most abundant species were selected for sampling in each reference city. The sample was stratified into nine diameter at breast height (DBH) classes (0 to 7.6, 7.6 to 15.2, 15.2 to 30.5, 30.5 to 45.7, 45.7 to 61.0, 61.0 to 76.2, 76.2 to 91.4, 91.4 to 106.7, and >106.7 cm). Typically 10 to 15 trees per DBH class were randomly chosen. Data were collected for 16 to 74 trees in total from each species. Measurements included: species name, age, DBH [to the nearest 0.1 cm (0.39 in)], tree height [to the nearest 0.5 m (1.64 ft.)], crown height [to the nearest 0.5 m (1.64 ft.)], and crown diameter in two directions [parallel and perpendicular to nearest street to the nearest 0.5 m (1.64 ft.)]. Tree age was determined from local residents, the city's urban forester, street and home construction dates, historical planting records, and aerial and historical photos.

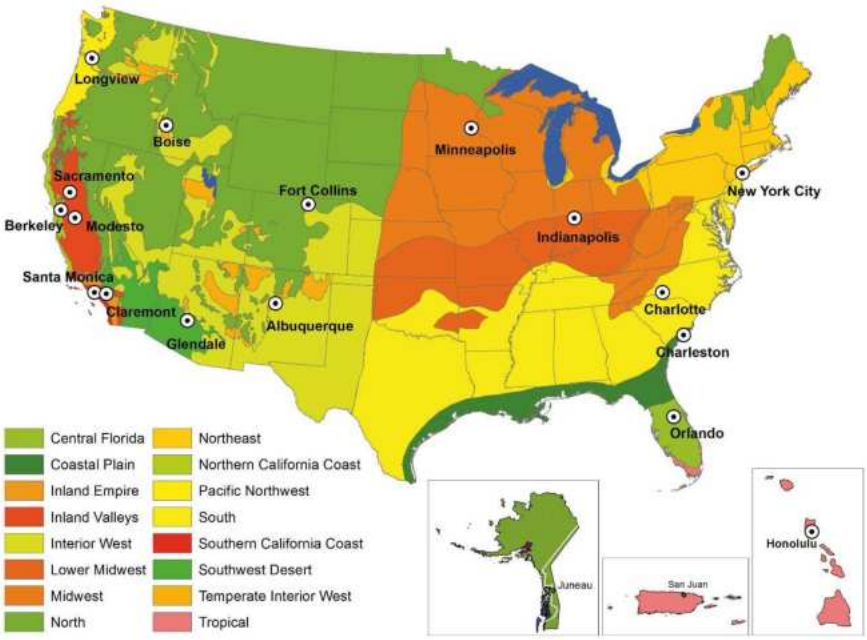

Figure 1. Climate zones of the United States and Puerto Rico were aggregated from 45 Sunset climate zones into 16 zones. Each zone has a reference city where tree data were collected. Sacramento, California was added as a second reference city (with Modesto) to the Inland Valleys zone. Zones for Alaska, Puerto Rico and Hawaii are shown in the insets (map courtesy of Pacific Southwest Research Station).

Species Assignment by Tree-Type

Representative species for each tree-type in the South climate zone (reference city is Charlotte, NC) are shown in Table 1. They were chosen because extensive measurements were taken on them to generate growth equations, and their mature size and form was deemed typical of other trees in that tree-type. Representative species were not available for some tree-types because none were measured. In that case, a species of similar mature size and form from the same climate zone was selected, or one from another climate zone was selected. For example, no Broadleaf Evergreen Large (BEL) species was measured in the South reference city. Because of its large mature size, *Quercus nigra* was selected to represent the BEL tree-type, although it is deciduous for a short time. *Pinus contorta*, which was measured in the PNW climate zone, was selected for the CES tree-type, because no CES species was measured in the South.

Table 1. Nine tree-types and abbreviations. Representative species assigned to each tree-type in the South climate zone are listed. The biomass equations (species, urban general broadleaf [UGB], urban general conifer [UGC]) and dry weight density (kg/m^3) used to calculate biomass are listed for each tree-type.

Tree-Type	Tree-Type Abbreviation	Species Assigned	DW Density	Biomass Equations
Brdlf Decid Large (>50 ft)	BDL	*Quercus phellos*	600	*Quercus macrocarpa* [1.]
Brdlf Decid Med (30-50 ft)	BDM	*Pyrus calleryana*	600	UGB [2.]
Brdlf Decid Small (<30 ft)	BDS	*Cornus florida*	545	UGB [2.]
Brdlf Evgrn Large (>50 ft)	BEL	*Quercus nigra*	797	UGB [2.]

Brdlf Evgrn Med (30-50 ft)	BEM	*Magnolia grandiflora*	523	UGB [2.]
Brdlf Evgrn Small (<30 ft)	BES	*Ilex opaca*	580	UGB [2.]
Conif Evgrn Large (>50 ft)	CEL	*Pinus taeda*	389	UGC [2.]
Conif Evgrn Med (30-50 ft)	CEM	*Juniperus virginiana*	393	UGC [2.]
Conif Evgrn Small (<30 ft)	CES	*Pinus contorta*	397	UGC [2.]
[1.] from Lefsky, M., & McHale, M.,2008. [2] from Aguaron, E., & McPherson, E. G., 2012				

Calculating Biomass and Carbon Dioxide Stored

To estimate CO_2 stored, the biomass for each tree-type was calculated using urban-based allometric equations because open-growing city trees partition carbon differently than forest trees (McPherson et al., 2017a). Input variables included climate zone, species, and DBH. To project tree size at 25-years after planting, we used DBH obtained from UTD growth curves for each representative species.

Biomass equations were compiled for 26 open-grown urban trees species from literature sources (Aguaron and McPherson, 2012). General equations (Urban Gen Broadleaf and Urban Gen Conifer) were developed from the 26 urban-based equations that were species specific (McPherson et al., 2016a). These equations were used if the species of interest could not be matched taxonomically or through wood form to one of the urban species with a biomass equation. Hence, urban general equations were an alternative to applying species-specific equations because many species did not have an equation.

These allometric equations yielded aboveground wood volume. Species-specific dry weight (DW) density factors (Table 1) were used to convert green volume into dry weight (7a). The urban general equations required looking up a dry weight density factor (in Jenkins et al. 2004 first, but if not available then the Global Wood Density Database). The amount of belowground biomass in roots of urban trees is not well researched. This work assumed that root biomass was 28% of total tree biomass (Cairns et al., 1997; Husch et al., 2003; Wenger, 1984). Wood volume (dry weight) was converted to C by multiplying by the constant 0.50 (Leith, 1975), and C was converted to CO_2 by multiplying by 3.667.

Error Estimates and Limitations

The lack of biometric data from the field remains a serious limitation to our ability to calibrate biomass equations and assign error estimates for urban trees. Differences between modeled and actual tree growth adds uncertainty to CO_2 sequestration estimates. Species assignment errors result from matching species planted with the tree-type used for biomass and growth calculations. The magnitude of this error depends on the goodness of fit in terms of matching size and growth rate. In previous urban studies the prediction bias for estimates of CO_2 storage ranged from -9% to +15%, with inaccuracies as much as 51% RMSE (Timilsina et al., 2014). Hence, a conservative estimate of error of ± 20% can be applied to estimates of total CO_2 stored as an indicator of precision.

Co-Benefit: Energy Savings

Trees and forests can offer energy savings in two important ways. In warmer climates or hotter months, trees can reduce air conditioning bills by keeping buildings cooler through reducing regional air temperatures and offering shade. In colder climates or cooler months, trees can confer savings on the fuel needed to heat buildings by reducing the amount of cold winds that can strip away heat.

Energy conservation by trees is important because building energy use is a major contributor to greenhouse gas emissions. Oil or gas furnaces and most forms of electricity generation produce CO_2 and other pollutants as by-products. Reducing the amount of energy consumed by buildings in urban areas is one of the most effective methods of combatting climate change. Energy consumption is also a costly burden on many low-income families, especially during mid-summer or mid-winter. Furthermore, electricity consumption during mid-summer can sometimes over-extend local power grids leading to rolling brownouts and other problems.

Energy savings are calculated through numerical models and simulations built from observational data on proximity of trees to buildings, tree shapes, tree sizes, building age classes, and meteorological data from McPherson et al. (2017) and McPherson and Simpson (2003). The main parameters affecting the overall amount of energy savings are crown shape, building proximity, azimuth, local climate, and season. Shading effects are based on the distribution of street trees with respect to buildings recorded from aerial photographs for each reference city (McPherson and Simpson, 2003). If a sampled tree was located within 18 m of a conditioned building, information on its distance and compass bearing relative to a building, building age class (which influences energy use) and types of heating and cooling equipment were collected and used as inputs to calculate effects of shade on annual heating and cooling energy effects. Because these distributions were unique to each city, energy values are considered first-order approximations.

In addition to localized shade effects, which were assumed to accrue only to trees within 18 m of a building, lowered air temperatures and windspeeds from increased neighborhood tree cover (referred to as climate effects) can produce a net decrease in demand for winter heating and summer cooling (reduced wind speeds by themselves may increase or decrease cooling demand, depending on the circumstances). Climate effects on energy use, air temperature, and wind speed, as a function of neighborhood canopy cover, were estimated from published values for each reference city. The percentages of canopy cover increase were calculated for 20-year-old large, medium, and small trees, based on their crown projection areas and effective lot size (actual lot size plus a portion of adjacent street and other rights-of-way) of 10,000 ft^2 (929 m^2), and one tree on average was assumed per lot. Climate effects were estimated by simulating effects of wind and air-temperature reductions on building energy use.

In the case of urban Tree Preservation Projects, trees may not be close enough to buildings to provide shading effects, but they may influence neighborhood climate. Because these effects are highly site-specific, we conservatively apply an 80% reduction to the energy effects of trees for Preservation Projects.

Energy savings are calculated as a real-dollar amount. This is calculated by applying overall reductions in oil and gas usage or electricity usage to the regional cost of oil and gas or electricity for residential customers. Colder regions tend to see larger savings in heating and warmer regions tend to see larger savings in cooling.

Error Estimates and Limitations

Formulaic errors occur in modeling of energy effects. For example, relations between different levels of tree canopy cover and summertime air temperatures are not well-researched. Another source of error stems from differences between the airport climate data (i.e., Los Angeles International Airport) used to model energy effects and the actual climate of the study area (i.e., Los Angeles urban area). Because of

the uncertainty associated with modeling effects of trees on building energy use, energy estimates may be accurate within ± 25 percent (Hildebrandt & Sarkovich, 1998).

Co-Benefit: Rainfall Interception

Forest canopies normally intercept 10-40% of rainfall before it hits the ground, thereby reducing stormwater runoff. The large amount of water that a tree crown can capture during a rainfall event makes tree planting a best management practice for urban stormwater control.

City Forest Credits uses a numerical interception model to calculate the amount of annual rainfall intercepted by trees, as well as throughfall and stem flow (Xiao et al., 2000). This model uses species-specific leaf surface areas and other parameters from the Urban Tree Database. For example, deciduous trees in climate zones with longer "in-leaf" seasons will tend to intercept more rainfall than similar species in colder areas shorter foliation periods. Model results were compared to observed patterns of rainfall interception and found to be accurate. This method quantifies only the amount of rainfall intercepted by the tree crown, and does not incorporate surface and subsurface effects on overland flow.

The rainfall interception benefit was priced by estimating costs of controlling stormwater runoff. Water quality and/or flood control costs were calculated per unit volume of runoff controlled and this price was multiplied by the amount of rainfall intercepted annually.

Error Estimates and Limitations

Estimates of rainfall interception are sensitive to uncertainties regarding rainfall patterns, tree leaf area and surface storage capacities. Rainfall amount, intensity and duration can vary considerably within a climate zone, a factor not considered by the model. Although tree leaf area estimates were derived from extensive measurements on over 14,000 street trees across the U.S. (McPherson et al., 2016a), actual leaf area may differ because of differences in tree health and management. Leaf surface storage capacity, the depth of water that foliage can capture, was recently found to vary threefold among 20 tree species (Xiao & McPherson, 2016). A shortcoming is that this model used the same value (1 mm) for all species. Given these limitations, interception estimates may have uncertainty as great as ± 20 percent.

Co-Benefit: Air Quality

The uptake of air pollutants by urban forests can lower concentrations and affect human health (Derkzen et al., 2015; Nowak et al., 2014). However, pollutant concentrations can be increased if the tree canopy restricts polluted air from mixing with the surrounding atmosphere (Vos et al., 2013). Urban forests are capable of improving air quality by lowering pollutant concentrations enough to significantly affect human health. Generally, trees are able to reduce ozone, nitric oxides, and particulate matter. Some trees can reduce net volatile organic compounds (VOCs), but others can increase them through natural processes. Regardless of the net VOC production, urban forests usually confer a net positive benefit to air quality. Urban forests reduce pollutants through dry deposition on surfaces and uptake of pollutants into leaf stomata.

A numerical model calculated hourly pollutant dry deposition per tree at the regional scale using deposition velocities, hourly meteorological data and pollutant concentrations from local monitoring stations (Scott et al., 1998). The monetary value of tree effects on air quality reflects the value that society places on clean air, as indicated by willingness to pay for pollutant reductions. The monetary value of air quality effects were derived from models that calculated the marginal damage control costs

of different pollutants to meet air quality standards (Wang and Santini 1995). Higher costs were associated with higher pollutant concentrations and larger populations exposed to these contaminants.

Error Estimates and Limitations

Pollutant deposition estimates are sensitive to uncertainties associated with canopy resistance, resuspension rates and the spatial distribution of air pollutants and trees. For example, deposition to urban forests during warm periods may be underestimated if the stomata of well-watered trees remain open. In the model, hourly meteorological data from a single station for each climate zone may not be spatially representative of conditions in local atmospheric surface layers. Estimates of air pollutant uptake may be accurate within ± 25 percent.

Conclusions

Our estimates of carbon dioxide storage and co-benefits reflect an incomplete understanding of the processes by which ecoservices are generated and valued (Schulp et al., 2014). Our choice of co-benefits to quantify was limited to those for which numerical models were available. There are many important benefits produced by trees that are not quantified and monetized. These include effects of urban forests on local economies, wildlife, biodiversity and human health and well-being. For instance, effects of urban trees on increased property values have proven to be substantial (Anderson & Cordell, 1988). Previous analyses modeled these "other" benefits of trees by applying the contribution to residential sales prices of a large front yard tree (0.88%) (McPherson et al., 2005). We have not incorporated this benefit because property values are highly variable. It is likely that co-benefits reported here are conservative estimates of the actual ecoservices resulting from local tree planting projects.

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Attachments

Attestation of land ownership

Project Area Maps

Regional Area Map

Attestations of Planting

Attestations of Planting Affirmation

Attestation of No Double Counting and No Net Harm

Attestation of Additionality

Credit Quantification Initial Credit Tool

Tree Planting Data

Social Impacts

Baseline Canopy Analysis

i-Tree Canopy Reports & Data

Attestation of Land Ownership

Restoring Forests for Carbon Sequestration in Lucas County, Ohio
Attestation of Land Ownership

I am the Chief Natural Resources Officer of the Metropolitan Park District of the Toledo Area and make this Attestation regarding the ownership of land upon which the Metropolitan Park District of the Toledo Area (Metroparks Toledo) is the Project Operator of an afforestation or reforestation project Restoring Forests for Carbon Sequestration in Lucas County, Ohio.

1. Land Ownership

The Metropolitan Park District of the Toledo Area (Metroparks Toledo) is the owner in fee simple of the land identified in Section 2 and in Exhibit A.

2. Subject Lands

The Property upon which the Restoring Forests for Carbon Sequestration in Lucas County, OH Project is planting trees and which is the subject of this Attestation is specified in Exhibit A.

Signed on **June 3** in 2025, by Zurijanne Carter, Chief Natural Resources Officer, for Metropolitan Park District of the Toledo Area.

Signature

ZURIJANNE CARTER

Printed Name

419-407-9700

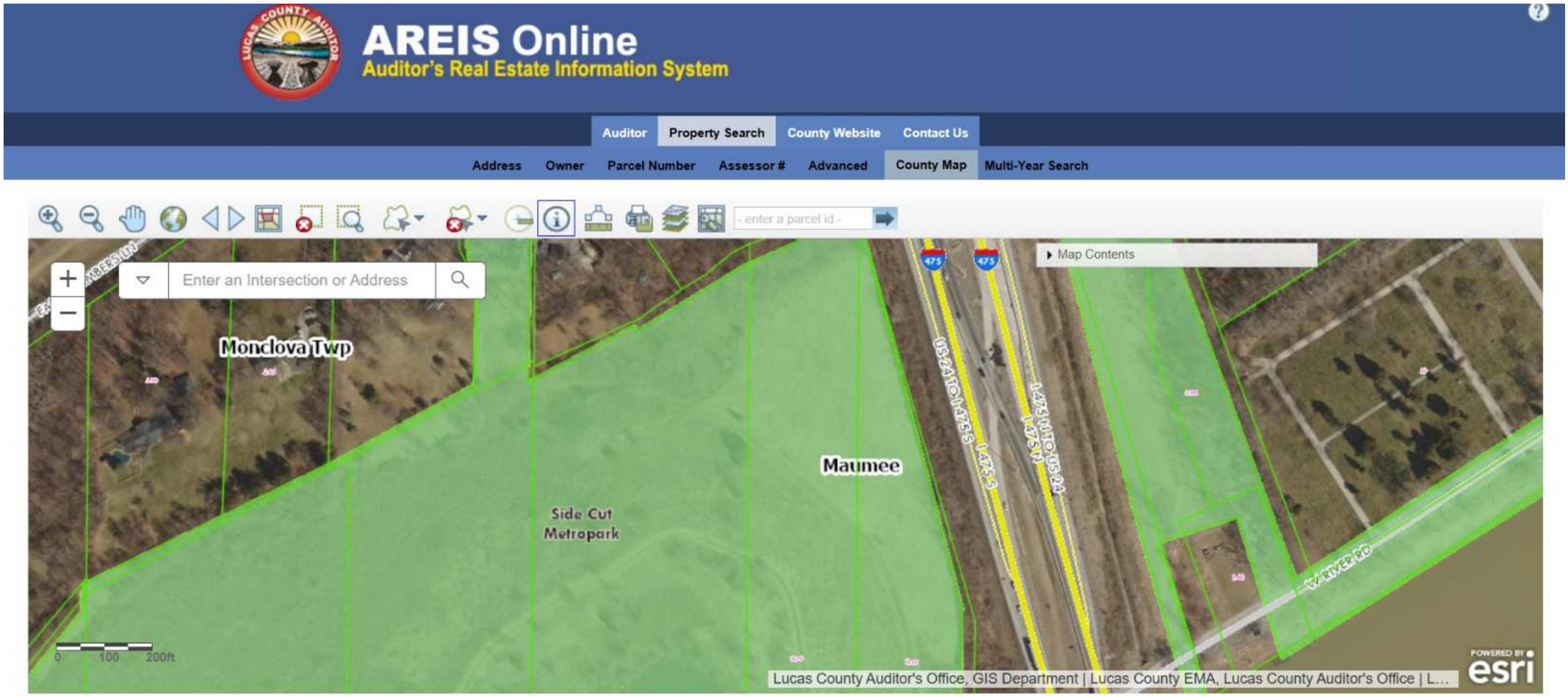
Phone

zuri.carter@metroparkstoledo.com

Email

Exhibit A

[Insert specification of property, including maps, legal description, and/or other reasonably specific delineations of the property upon which the project is taking place]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Auditor
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County Website
Contact Us
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Parcel Number
Assessor #
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County Map
Multi-Year Search
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Map Contents
Monclova Twp
Maumee
Side Cut
Metropark
US-24 to I-475 S
I-475 S
I-475 N to US-24
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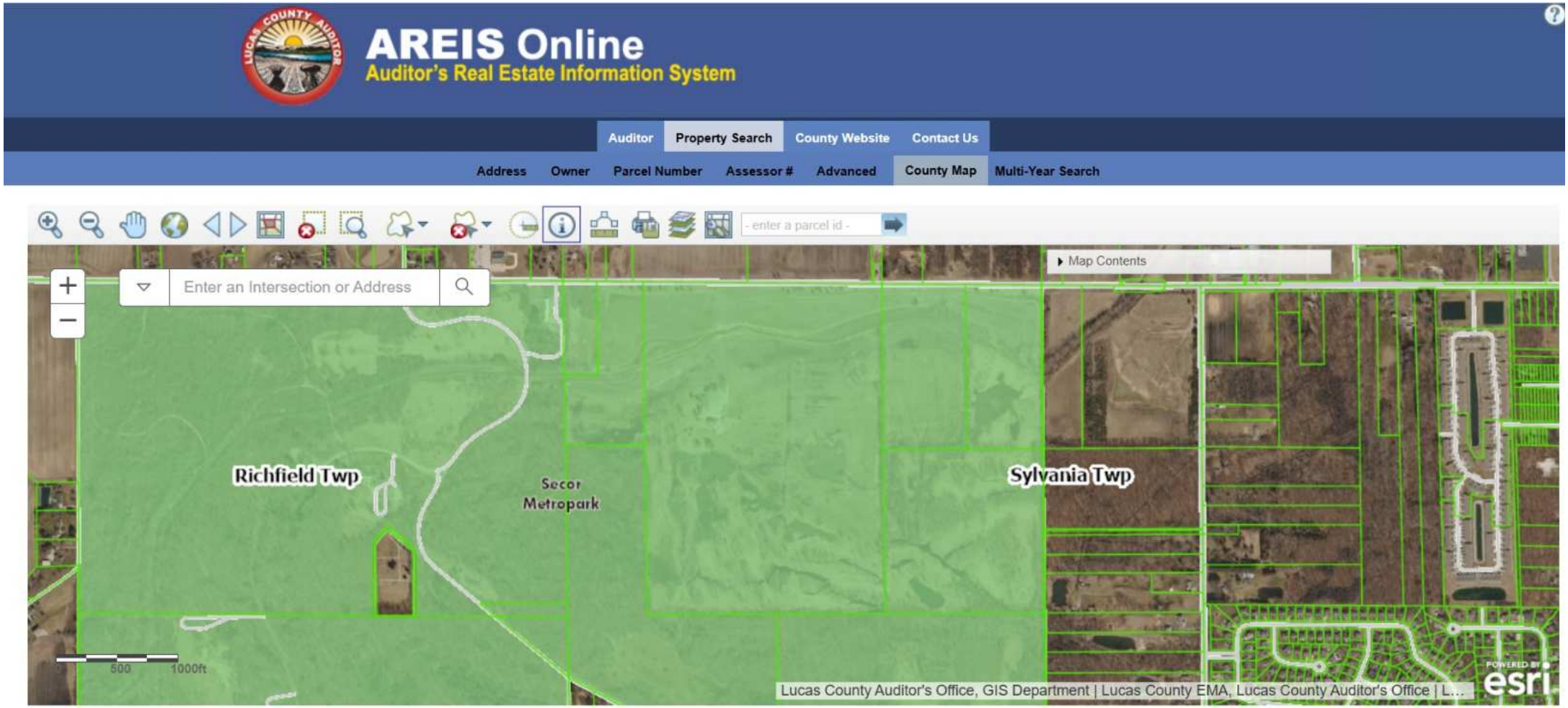
AREIS Online
Auditor's Real Estate Information System
Auditor
Property Search
County Website
Contact Us
Address
Owner
Parcel Number
Assessor #
Advanced
County Map
Multi-Year Search
- enter a parcel id -
Map Contents
Enter an Intersection or Address
Richfield Twp
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Metropark
Sylvania Twp
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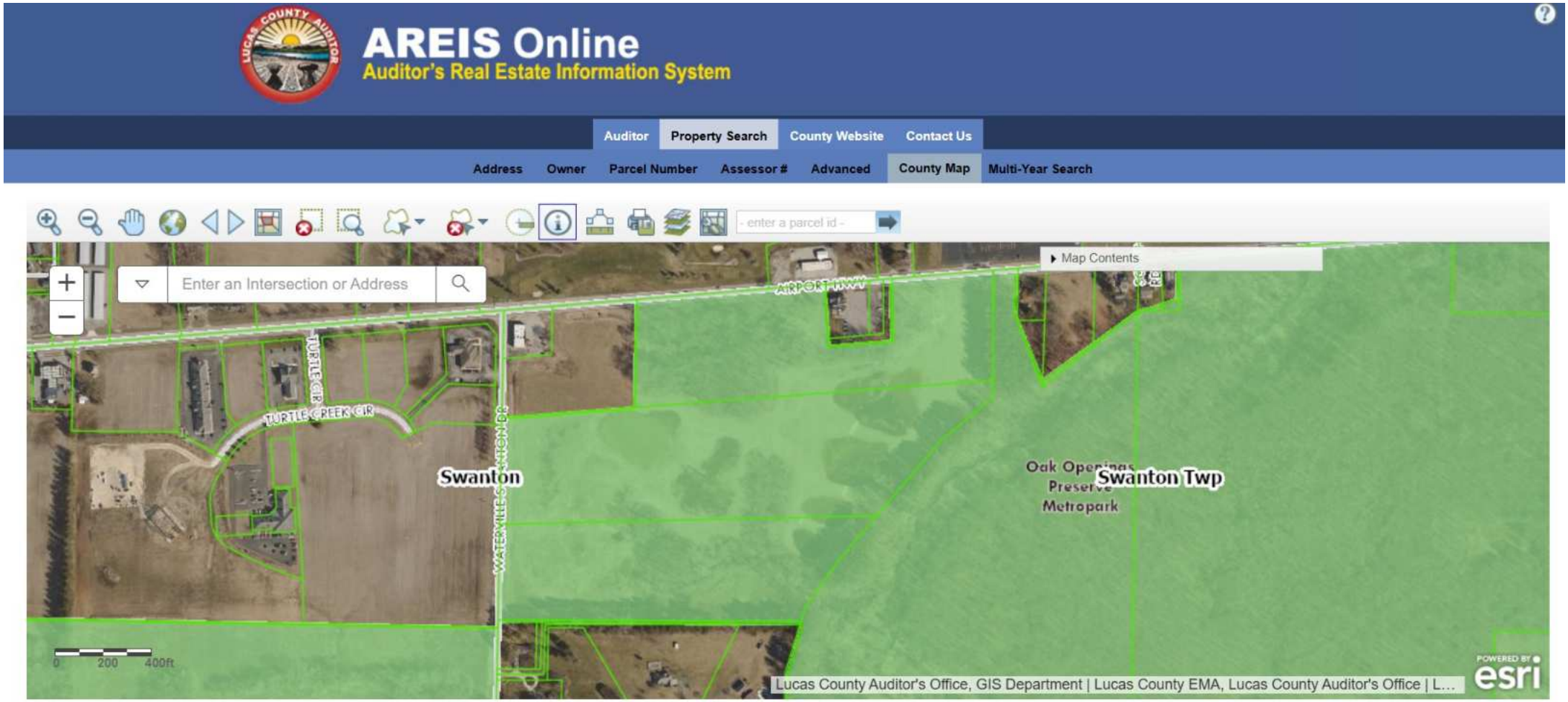
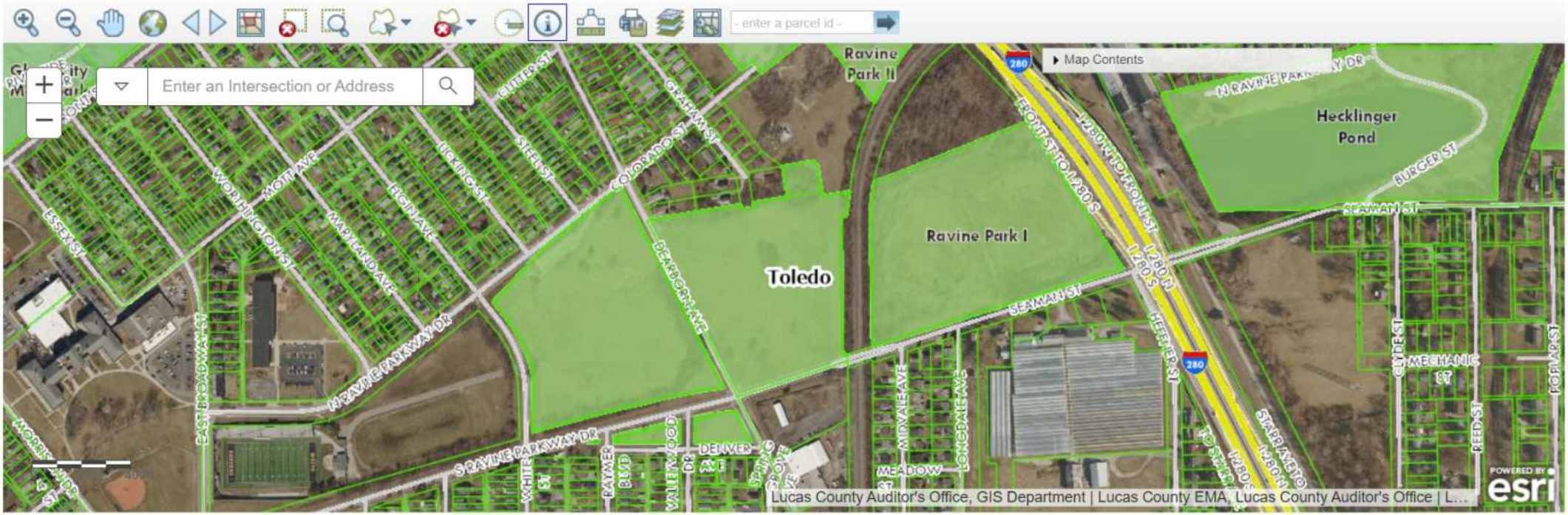

AREIS Online
Auditor's Real Estate Information System
Auditor
Property Search
County Website
Contact Us
Address
Owner
Parcel Number
Assessor #
Advanced
County Map
Multi-Year Search
- enter a parcel id -
Enter an Intersection or Address
Map Contents
AIRPORT HWY
TURTLE CIR
TURTLE CREEK CIR
WATERVILLE SWANTON RD
Swanton
Swanton Twp
Oak Openings Preserve Metropark
0
200
400ft
Lucas County Auditor's Office, GIS Department | Lucas County EMA, Lucas County Auditor's Office | L...
esri

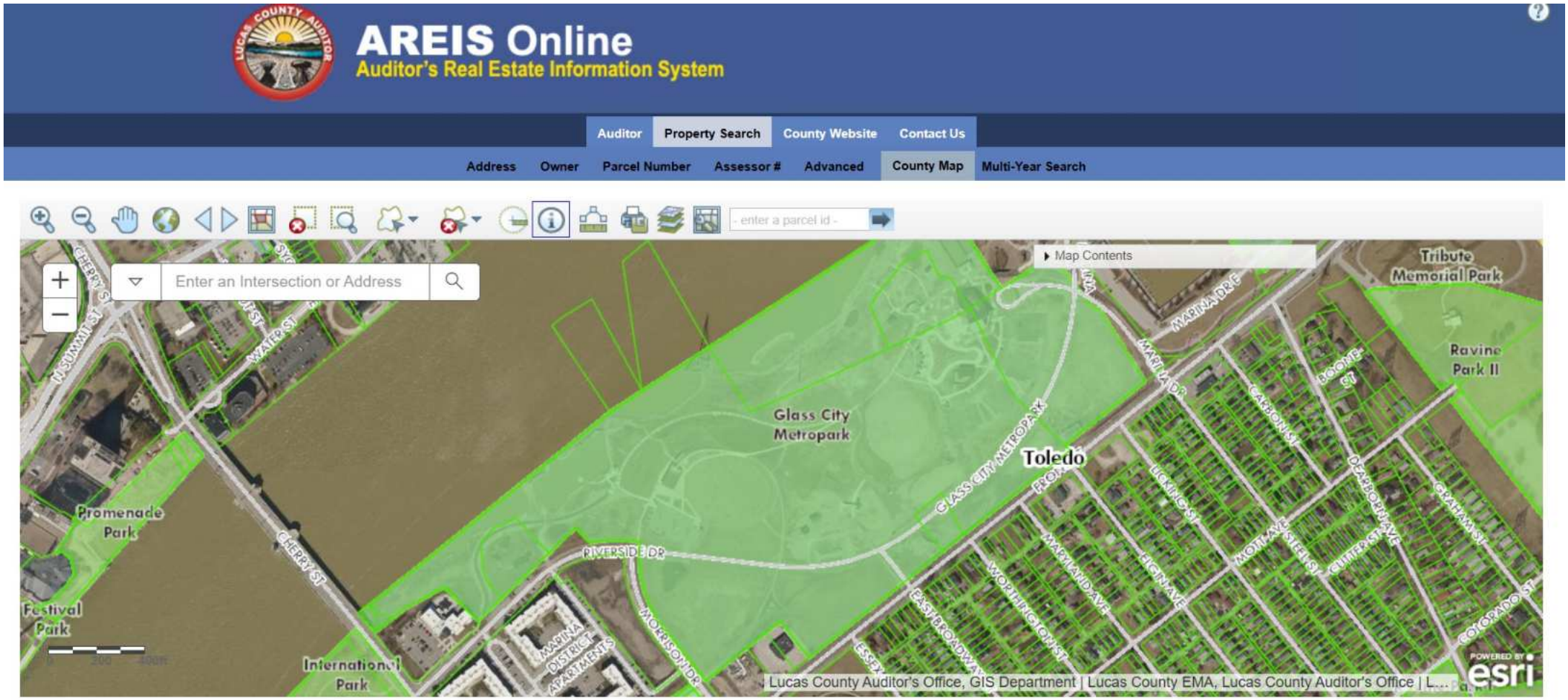
AREIS Online

Auditor's Real Estate Information System

Auditor | Property Search | County Website | Contact Us

Address | Owner | Parcel Number | Assessor # | Advanced | County Map | Multi-Year Search




AREIS Online
Auditor's Real Estate Information System
Auditor
Property Search
County Website
Contact Us
Address
Owner
Parcel Number
Assessor #
Advanced
County Map
Multi-Year Search
- enter a parcel id -
Enter an Intersection or Address
Map Contents
Glass City Metropark
Toledo
Promenade Park
Festival Park
International Park
Tribute Memorial Park
Ravine Park II
CHERRY ST
RIVERSIDE DR
GLASS CITY METROPARK
MARINA DR
MARYLAND AVE
EAST BROADWAY
ESSEX
Lucas County Auditor's Office, GIS Department | Lucas County EMA, Lucas County Auditor's Office | L...
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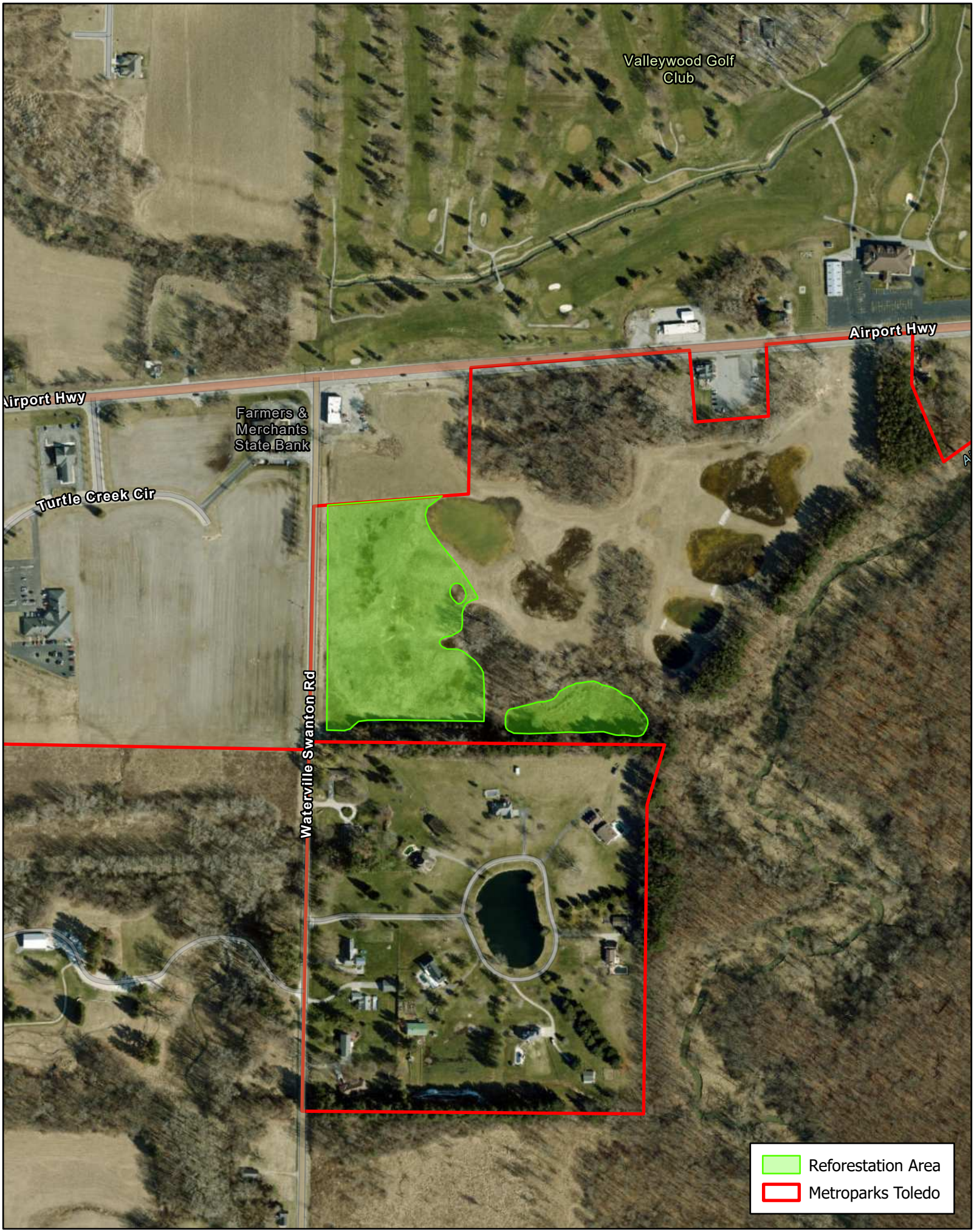
Project Area Maps

Oak Openings Preserve Metropark (10.12 ac, 6600 trees)

MPDTA 2/20/2025 JB

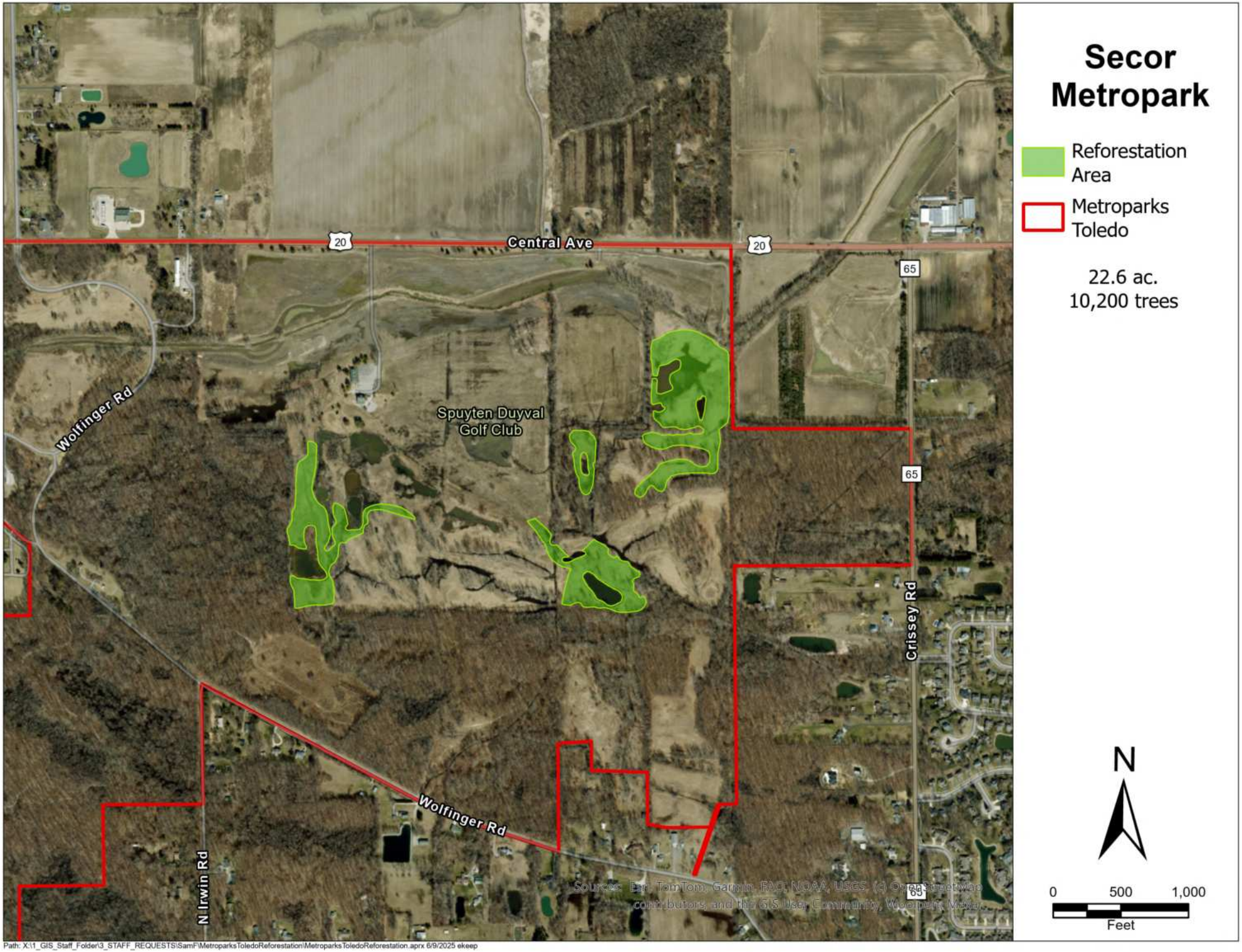


Ravine Park I (2.75 ac, 1520 trees)

MPDTA 2/20/2025 JB

Ravine Park II (8.06 ac, 3650 trees)

MPDTA 2/20/2025 JB



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Glass City Metropark (3.96 ac, 2117 trees)

MPDTA 2/20/2025 JB

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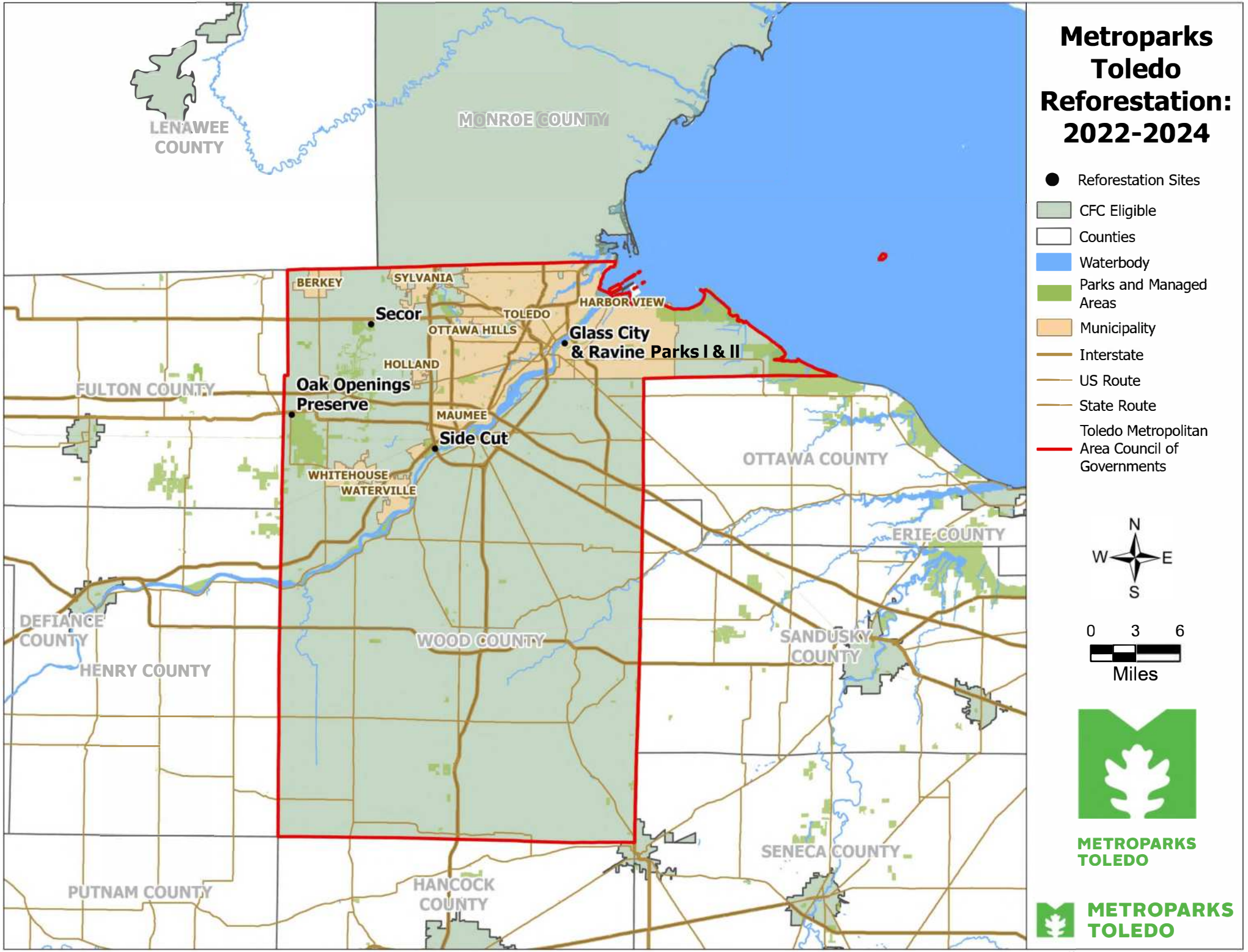
Regional Area Maps


Metroparks Toledo Reforestation: 2022-2024
Reforestation Sites
CFC Eligible
Counties
Waterbody
Parks and Managed Areas
Municipality
Interstate
US Route
State Route
Toledo Metropolitan Area Council of Governments
LENAWEE COUNTY
MONROE COUNTY
BERKEY
SYLVANIA
Secor
TOLEDO
HARBOR VIEW
OTTAWA HILLS
Glass City & Ravine Parks I & II
HOLLAND
Oak Openings Preserve
FULTON COUNTY
MAUMEE
Side Cut
WHITEHOUSE
WATERVILLE
OTTAWA COUNTY
ERIE COUNTY
DEFIANCE COUNTY
WOOD COUNTY
SANDUSKY COUNTY
HENRY COUNTY
SENECA COUNTY
PUTNAM COUNTY
HANCOCK COUNTY
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METROPARKS TOLEDO
METROPARKS TOLEDO

Attestation of Planting

CITY FOREST CREDITS

Restoring Forests for Carbon Sequestration in Lucas County, Ohio
Project Operator Attestation of Planting

I, the undersigned Project Operator for the Planting Project named Restoring Forests for Carbon Sequestration in Lucas County, Ohio and submitted to City Forest Credits by application dated April 15, 2025, attest to the following in order to confirm the planting of trees under this Project:

- Trees planted were not required by any law or ordinance to be planted;
- Trees were planted under this project on the following date (s): March 2022 and November 4, 2024
- The organizations or groups that participated in the planting event(s) are listed in the attached documents;
- Planting events are shown in photos attached, which can include photos of tree stock and planting activities;
- The number of trees planted by species are, to a reasonable certainty, 25,703.

These planting numbers are confirmed by one or more of the following supporting and attached documents:

1. Invoices for trees planted, or
2. Invoices or a statement from the party who funded the tree purchase or supplied the trees attesting to the number of trees purchased, or
3. Any reporting to the owner or public body regarding the planting, invoices, costs, or other data regarding the planting, or
4. Any other reliable estimate of trees planted that is approved by the Registry

Signed on June 24 in 2025, by Tim Gallaher, for Metroparks Toledo.

Tim Gallaher
Signature

Tim Gallaher
Printed Name

419-461-0571
Phone

Tim.gallaher@metroparkstoledo.com
Email

Exhibit A

Organizations that participated in the plantings of the trees for this project include:

- Williams Forestry Associates;
- Bauer Lawn Maintenance Inc.

Planting photos and invoices on following pages.

Glass City

Oak Openings

Ravine Park I

Ravine Park II

Secor

SideCut

Side Cut Fall planting 2022 from the BCNN gravel bed area.

Red oak: 36
Black cherry: 55
Burr oak: 201
White oak: 28
Pin oak: 26
Swamp chestnut: 38
Walnut: 32

ALPHA NURSERIES, INC.

3737 --65TH ST.
HOLLAND, MI 49423

Phone: 269/857-7804 Fax: 269/857-8162

E-mail: sales@alphanurseries.com

Sold To: Metroparks Toledo
Tim Gallaher
5100 West Central Ave
Toledo, OH 43558

P.O. Secor Phase 2

Invoice# 2420225

Scheduled Delivery	3/24/2022
Ship via	UPS
Phone	419/461-0571
Cell	
Fax	
Email	tim.gallaher@metroparkstoledo.com
Invoice Date	2/4/2022
Order number	**M62**

Terms: ***Full Payment due 2 weeks prior to shipment OR at pickup--check or money order only.***
No Credit or Debit cards accepted.

Qty	Size	Age	Species	Class	Coeffic.	Price	Total
800	12-18"	1-0, 2-0	Black Gum	Seedlings		0.680	544.00
600	12-18"	1-0, 2-0	Bur Oak	Seedlings		0.590	354.00
200	6-12"	2-0, 3-0	Shagbark Hickory	Seedlings	1.50	0.870	261.00
200	12-18"	1-0, 2-0	White Flowering Dogwood	Seedlings	1.50	0.690	207.00

1800 Total Plants

* Spring 2022

Subtotal	$1,366.00
Discounts	$0.00
Shipping	$204.90
Total	$1,570.90
Less Deposit Paid	$0.00
Balance Due	**$1,570.90**

P.O. 2021002589

ALPHA NURSERIES, INC.

3737 –65TH ST.
HOLLAND, MI 49423

Phone: 269/857-7804 Fax: 269/857-8162

E-mail: sales@alphanurseries.com

Sold To: Metroparks Toledo
Tim Gallaher
5100 West Central Ave
Toledo, OH 43558

P.O. Secor phase 2 - 2 of 2

Invoice# 2420229

Scheduled Delivery	3/24/2022
Ship via	UPS
Phone	419/461-0571
Cell	
Fax	
Email	tim.gallaher@metroparkstoledo.com
Invoice Date	2/4/2022
Order number	**M73**

Terms: ***Full Payment due 2 weeks prior to shipment OR at pickup--check or money order only.***
No Credit or Debit cards accepted.

Qty	Size	Age	Species	Class	Coeffic.	Price	Total
200	12-18"	2-0	Bitternut Hickory	Seedlings	1.50	1.180	354.00
600	6-12"	1-0, 2-0	Shellbark Hickory	Seedlings		0.920	552.00

800 Total Plants

* Spring 2022

Subtotal	$906.00
Discounts	$0.00
Shipping	$135.90
Total	$1,041.90
Less Deposit Paid	$0.00
Balance Due	**$1,041.90**

P.O. 2021003098

ALPHA NURSERIES, INC.

3737 –65TH ST.
HOLLAND, MI 49423

Phone: 269/857-7804 Fax: 269/857-8162

E-mail: sales@alphanurseries.com

Sold To: Metroparks Toledo
Tim Gallaher
5100 West Central Ave
Toledo, OH 43558

P.O. H2Ohio

Invoice# 2420224

Scheduled Delivery	3/24/2022
Ship via	UPS
Phone	419/461-0571
Cell	
Fax	
Email	tim.gallaher@metroparkstoledo.com
Invoice Date	2/4/2022
Order number	M61

Terms: ***Full Payment due 2 weeks prior to shipment OR at pickup--check or money order only.***
No Credit or Debit cards accepted.

Qty	Size	Age	Species	Class	Coeffic.	Price	Total
200	12-18"	1-0, 2-0	Basswood, (Am. Linden)	Seedlings	1.50	1.460	438.00
700	12-18"	1-0, 2-0	Black Gum	Seedlings		0.680	476.00
700	12-18"	1-0, 2-0	Bur Oak	Seedlings		0.590	413.00
200	6-12"	1-0	Hackberry	Seedlings	1.50	0.520	156.00
200	6-12"	2-0, 3-0	Shagbark Hickory	Seedlings	1.50	0.870	261.00
0	12-18"	1-0, 2-0	Swamp White Oak	Seedlings			
100	12-18"	1-0, 2-0	White Flowering Dogwood	Seedlings	1.50	0.690	103.50

2100 Total Plants

* Spring 2022

Subtotal	$1,847.50
Discounts	$0.00
Shipping	$277.13
Total	$2,124.63
Less Deposit Paid	$0.00
Balance Due	**$2,124.63**

P.O. 202100 2587

Page 1 of 1

ALPHA NURSERIES, INC.

3737 –65TH ST.
HOLLAND, MI 49423

Phone: 269/857-7804 Fax: 269/857-8162

E-mail: sales@alphanurseries.com

Sold To: Metroparks Toledo
Tim Gallaher
5100 West Central Ave
Toledo, OH 43558

P.O. H2 Ohio - 2 of 2

Invoice# 2420228

Scheduled Delivery	3/24/2022
Ship via	UPS
Phone	419/461-0571
Cell	
Fax	
Email	tim.gallaher@metroparkstoledo.com
Invoice Date	2/4/2022
Order number	**M74**

Terms: ***Full Payment due 2 weeks prior to shipment OR at pickup--check or money order only.***
No Credit or Debit cards accepted.

Qty	Size	Age	Species	Class	Coeffic.	Price	Total
400	12-18"	2-0	Bitternut Hickory	Seedlings	1.25	1.180	590.00
400	6-12"	1-0, 2-0	Shellbark Hickory	Seedlings	1.25	0.920	460.00

800 Total Plants

* Spring 2022

Subtotal	$1,050.00
Discounts	$0.00
Shipping	$157.50
Total	$1,207.50
Less Deposit Paid	$0.00
Balance Due	**$1,207.50**

P.O. 2021002908

ALPHA NURSERIES, INC.

3737 –65TH ST.
HOLLAND, MI 49423
Phone: 269/857-7804 Fax: 269/857-8162
E-mail: sales@alphanurseries.com

Sold To: Metroparks Toledo
Tim Gallaher
5100 West Central Ave
Toledo, OH 43558

P.O. Glass City

Invoice# 24202211

Scheduled Delivery	3/24/2022
Ship via	UPS
Phone	419/461-0571
Cell	
Fax	
Email	tim.gallaher@metroparkstoledo.com
Invoice Date	2/4/2022
Order number	**M63**

Terms: ***Full Payment due 2 weeks prior to shipment OR at pickup--check or money order only.***
No Credit or Debit cards accepted.

Qty	Size	Age	Species	Class	Coeffic.	Price	Total
100	12-18"	1-0, 2-0	American Beech	Seedlings	1.50	0.850	127.50
100	12-18"	1-0, 2-0	Black Gum	Seedlings	1.50	0.680	102.00
100	12-18"	1-0, 2-0	Bur Oak	Seedlings	1.50	0.590	88.50
100	6-12"	2-0	Kentucky Coffeetree	Seedlings	1.50	0.760	114.00
200	12-18"	1-0	Northern Catalpa	Seedlings	1.50	0.690	207.00
100	12-18"	2-0	Ohio Buckeye	Seedlings	1.50	0.930	139.50
100	12-18"	2-0	Red Maple	Seedlings	1.50	0.650	97.50
100	12-18"	1-0, 2-0	White Flowering Dogwood	Seedlings	1.50	0.690	103.50

900 Total Plants

* Spring 2022

Subtotal	$979.50
Discounts	$0.00
Shipping	$146.93
Total	$1,126.43
Less Deposit Paid	$0.00
Balance Due	**$1,126.43**

P.O. 2021002592

ALPHA NURSERIES, INC.

3737 –65TH ST.
HOLLAND, MI 49423

Phone: 269/857-7804 Fax: 269/857-8162

E-mail: sales@alphanurseries.com

Sold To: Metroparks Toledo
Tim Gallaher
5100 West Central Ave
Toledo, OH 43558

P.O. Ravine Park FA

Invoice# 2420226

Scheduled Delivery	3/24/2022
Ship via	UPS
Phone	419/461-0571
Cell	
Fax	
Email	tim.gallaher@metroparkstoledo.com
Invoice Date	2/4/2022
Order number	M64

Terms: *Full Payment due 2 weeks prior to shipment OR at pickup--check or money order only.*
No Credit or Debit cards accepted.

Qty	Size	Age	Species	Class	Coeffic.	Price	Total
200	7-10"	2-0	White Pine	Seedlings		0.627	125.40
100	12-18"	1-0, 2-0	American Beech	Seedlings	1.50	0.850	127.50
100	12-18"	1-0, 2-0	Black Gum	Seedlings	1.50	0.680	102.00
100	6-12"	2-0	Kentucky Coffeetree	Seedlings	1.50	0.760	114.00
200	12-18"	1-0	Northern Catalpa	Seedlings	1.50	0.690	207.00
100	12-18"	2-0	Ohio Buckeye	Seedlings	1.50	0.930	139.50
200	12-18"	2-0	Red Maple	Seedlings	1.50	0.650	195.00
100	12-18"	1-0, 2-0	White Flowering Dogwood	Seedlings	1.50	0.690	103.50

1100 Total Plants

* Spring 2022

Subtotal	$1,113.90
Discounts	$0.00
Shipping	$167.09
Total	$1,280.99
Less Deposit Paid	$0.00
Balance Due	**$1,280.99**

202100 2588

ALPHA NURSERIES, INC.

3737 –65TH ST.
HOLLAND, MI 49423

Phone: 269/857-7804 Fax: 269/857-8162

E-mail: sales@alphanurseries.com

Sold To: Metroparks Toledo
Tim Gallaher
5100 West Central Ave
Toledo, OH 43558

P.O. Cannal Lands

Invoice# 2420227

Scheduled Delivery 3/24/2022
Ship via UPS
Phone 419/461-0571
Cell
Fax
Email tim.gallaher@metroparkstoledo.com
Invoice Date 2/4/2022

Order number **M65**

Terms: ***Full Payment due 2 weeks prior to shipment OR at pickup--check or money order only.***
No Credit or Debit cards accepted.

Qty	Size	Age	Species	Class	Coeffic.	Price	Total
200	12-18"	1-0, 2-0	Bur Oak	Seedlings	1.50	0.590	177.00
200	12-18"	1-0	Northern Catalpa	Seedlings	1.50	0.690	207.00
100	12-18"	2-0	Ohio Buckeye	Seedlings	1.50	0.930	139.50
100	12-18"	2-0	Red Maple	Seedlings	1.50	0.650	97.50

600 Total Plants

* Spring 2022

Subtotal	$621.00
Discounts	$0.00
Shipping	$93.15
Total	$714.15
Less Deposit Paid	$0.00
Balance Due	**$714.15**

P.O. 2021002586

Cold Stream Farm LLC
8585 North Stephens Rd
Free Soil, MI 49411

Confirmation / Invoice

Order Date	Invoice #
11/17/2021	166594

Bill To

Metroparks Toledo
Tim Gallaher
4139 Girham Rd.
Swanton, OH 43558

Ship To

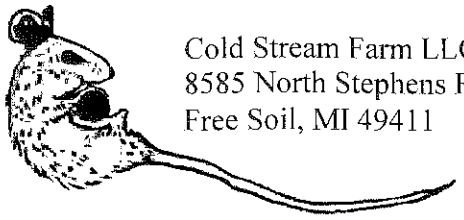
Metroparks Toledo
Tim Gallaher
4139 Girham Rd.
Swanton, OH 43558

Order Pick Up

Ship Date Note
Spring

Qty	Description	Rate	Amount
	RAVINE PARK FA		
200	Basswood, American, 6-12" (6.46 / 4.04 / 2.84 / 2.03 / 1.77)	2.03	406.00
200	Oak, Chinquapin 6-12" (6.42 / 5.13 / 1.60 / .96 / -)	0.96	192.00
200	Hackberry, 6-12" (6.94 / 4.13 / 2.38 / 1.54 / 1.24)	1.54	308.00
100	Maple, Sugar, 6-12" (6.09 / 4.62 / 1.59 / 1.12 / .84)	1.12	112.00
200	Oak, Swamp White, 6-12" (7.83 / 4.62 / 1.62 / 1.10 / .87)	1.10	220.00

Sales Tax (0.0%)	
Total	
Payments/Credits	
Balance Due	



Cold Stream Farm LLC
8585 North Stephens Rd
Free Soil, MI 49411

Confirmation / Invoice

Order Date	Invoice #
11/17/2021	166594

Bill To

Metroparks Toledo
Tim Gallaher
4139 Girham Rd.
Swanton, OH 43558

Ship To

Metroparks Toledo
Tim Gallaher
4139 Girham Rd.
Swanton, OH 43558

P.O. 2022000538

Order Pick Up

Ship Date Note

Spring

Qty	Description	Rate	Amount
	Subtotal		1,238.00
	2-3' or shorter, 15% shipping ($9.75 minimum) to Zip Codes 4xxxx	15.00%	185.70

Call (231) 464-5809 if specific shipping dates are required.
Guarantee: Stock is guaranteed fresh and healthy upon delivery. Please inspect your plants immediately upon delivery. If the plants are not wanted for any reason, they should be returned within 1 week, otherwise contact Cold Stream Farm immediately for alternate return instructions. Shipping cost is the responsibility of the customer. Restocking fees may apply to returned orders.
FALL EVERGREEN SHIPMENTS ARE NOT GUARANTEED due to the significance of environmental factors. EVERGREENS OVER 24" ARE NOT GUARANTEED. All deciduous and spring shipped evergreens under 24" are guaranteed to leaf or bud out. Guarantee does not extend past bud/leaf break. All claims for stock failing to leaf or bud must be made before June or within 30 days of delivery. Store credit on account will be provided for all approved claims. Store credit can be used toward either the purchase of replacement stock or any alternate species.

Sales Tax (0.0%)	$0.00
Total	$1,423.70
Payments/Credits	$0.00
Balance Due	$1,423.70

Cold Stream Farm LLC
8585 North Stephens Rd
Free Soil, MI 49411

Confirmation / Invoice

Order Date	Invoice #
11/17/2021	166599

Bill To

Metroparks Toledo
Tim Gallaher
4139 Girham Rd.
Swanton, OH 43558

Ship To

Metroparks Toledo
Tim Gallaher
4139 Girham Rd.
Swanton, OH 43558

P.O. 2022000538

Order Pick Up

Ship Date Note

Spring TBD

Qty	Description	Rate	Amount
	H2Ohio		
1,300	Oak, Swamp White, 6-12" (7.83 / 4.62 / 1.62 / 1.10 / .87)	0.87	1,131.00
	Subtotal		1,131.00
	2-3' or shorter, 15% shipping ($9.75 minimum) to Zip Codes 4xxxx	15.00%	169.65

Call (231) 464-5809 if specific shipping dates are required.
Guarantee: Stock is guaranteed fresh and healthy upon delivery. Please inspect your plants immediately upon delivery. If the plants are not wanted for any reason, they should be returned within 1 week, otherwise contact Cold Stream Farm immediately for alternate return instructions. Shipping cost is the responsibility of the customer. Restocking fees may apply to returned orders.
FALL EVERGREEN SHIPMENTS ARE NOT GUARANTEED due to the significance of environmental factors. EVERGREENS OVER 24" ARE NOT GUARANTEED. All deciduous and spring shipped evergreens under 24" are guaranteed to leaf or bud out. Guarantee does not extend past bud/leaf break. All claims for stock failing to leaf or bud must be made before June or within 30 days of delivery. Store credit on account will be provided for all approved claims. Store credit can be used toward either the purchase of replacement stock or any alternate species.

Sales Tax (0.0%)	$0.00
Total	$1,300.65
Payments/Credits	$0.00
Balance Due	$1,300.65

Cold Stream Farm LLC
8585 North Stephens Rd
Free Soil, MI 49411

Confirmation / Invoice

Order Date	Invoice #
11/17/2021	166598

Bill To

Metroparks Toledo
Tim Gallaher
4139 Girham Rd.
Swanton, OH 43558

Ship To

Metroparks Toledo
Tim Gallaher
4139 Girham Rd.
Swanton, OH 43558

Order Pick Up

Ship Date Note
Spring TBD

Qty	Description	Rate	Amount
	Secor Phase 2		
200	Plum, American, 1-2' (6.94 / 5.07 / 2.38 / 1.52 / 1.13)**********	1.52	304.00
500	Basswood, American, 6-12" (6.46 / 4.04 / 2.84 / 2.03 / 1.77)	1.77	885.00
200	Hackberry, 6-12" (6.94 / 4.13 / 2.38 / 1.54 / 1.24)	1.54	308.00
800	Maple, Sugar, 6-12" (6.09 / 4.62 / 1.59 / 1.12 / .84)	0.84	672.00
1,300	Oak, Swamp White, 6-12" (7.83 / 4.62 / 1.62 / 1.10 / .87)	0.87	1,131.00

Sales Tax (0.0%)	
Total	
Payments/Credits	
Balance Due	

Cold Stream Farm LLC
8585 North Stephens Rd
Free Soil, MI 49411

Confirmation / Invoice

Order Date	Invoice #
11/17/2021	166598

Bill To

Metroparks Toledo
Tim Gallaher
4139 Girham Rd.
Swanton, OH 43558

Ship To

Metroparks Toledo
Tim Gallaher
4139 Girham Rd.
Swanton, OH 43558

P.O. 2023000538

Order Pick Up

Ship Date Note

Spring TBD

Qty	Description	Rate	Amount
	Subtotal		3,300.00
	2-3' or shorter, 15% shipping ($9.75 minimum) to Zip Codes 4xxxx	15.00%	495.00

Call (231) 464-5809 if specific shipping dates are required.
Guarantee: Stock is guaranteed fresh and healthy upon delivery. Please inspect your plants immediately upon delivery. If the plants are not wanted for any reason, they should be returned within 1 week, otherwise contact Cold Stream Farm immediately for alternate return instructions. Shipping cost is the responsibility of the customer. Restocking fees may apply to returned orders.
FALL EVERGREEN SHIPMENTS ARE NOT GUARANTEED due to the significance of environmental factors. EVERGREENS OVER 24" ARE NOT GUARANTEED. All deciduous and spring shipped evergreens under 24" are guaranteed to leaf or bud out. Guarantee does not extend past bud/leaf break. All claims for stock failing to leaf or bud must be made before June or within 30 days of delivery. Store credit on account will be provided for all approved claims. Store credit can be used toward either the purchase of replacement stock or any alternate species.

Sales Tax (0.0%)	$0.00
Total	$3,795.00
Payments/Credits	$0.00
Balance Due	$3,795.00

INVOICE FOR TREE SEEDLINGS **Payment Method: MAKE CHECKS PAYABLE TO DIVISION OF FORESTRY**

Vallonia State Nursery

2782 W Co. Rd. 540 S
P.O. Box 218
Vallonia, IN 47281
Approved by State Board of Accounts 1998

☐ IF CHECK ENCLOSED, PAY THIS AMOUNT: $948.15
If you wish to purchase using a Credit Card, please call the Nursery Call Center at (812) 358-3621. We are no longer allowed to collect Credit Card payment information.

ORDER NO: 18774

COUNTY: OUT OF STATE

SOLD TO:
TOLEDO METRO PARKS
5100 W CENTRAL AVE

TOLEDO, OH 43615
(419) 461-0571

PLEASE DETACH TOP OF FORM AND RETURN WITH PAYMENT

Quantity	Species	Unit Price	Price
300	BLACK CHERRY 1-0	$0.34800	$104.40
200	BLACK WALNUT 1-0	$0.34800	$69.60
400	BUR OAK 2-0	$0.40550	$162.20
0	CHINKAPIN OAK 1-0 (OUT OF STOCK)	$0.34800	$0.00
100	RED OAK 1-0	$0.34800	$34.80
200	PIN OAK 1-0	$0.34800	$69.60
100	SCARLET OAK 1-0	$0.34800	$34.80
100	SHUMARD OAK 1-0	$0.34800	$34.80
0	SWAMP WHITE OAK 1-0 (OUT OF STOCK)	$0.34800	$0.00
300	SYCAMORE 1-0	$0.34800	$104.40
400	TULIPTREE 1-0	$0.34800	$139.20
200	WHITE OAK 1-0	$0.34800	$69.60
300	NORWAY SPRUCE 3-0	$0.38250	$114.75

RAVINE PARK FA

This online service is provided by a third party working in partnership with the State. The purchase price includes the third party's costs to operate, maintain and enhance the State's computer gateway, IN.gov and eCommerce services. This is made possible through a contract administered under the authority of the Indiana Office of Technology (IOT) as designated in EDS # D20-7-0981.

IF YOU WERE NOT BILLED FOR A SPECIES THAT YOU REQUESTED ON THE ORDER FORM, WE WERE SOLD OUT WHEN YOUR ORDER WAS RECEIVED. WE ARE SORRY.

*** If paying with Cash, Check, Money Order, the total amount due**

Subtotal:	$938.15
Sales Tax:	$0.00
Handling Cost:	$10.00
Shipping Cost:	$0.00
Portal Fee:	$19.89
Amt. Due (Credit Card):	$968.04
Amt. Due (Check/Cash):	$948.15 *
Payment Due Date:	11-30-2021

For Office Use Only Order Number: 18774
STANDARD
1/28/2022 **Paid**
Tax Exempt #: 571138357

SHIPPING METHOD: Buyer Pick Up - Vallonia
SHIPPING LOCATION: Vallonia
Phone: (812) 358-3621

THANK YOU

INVOICE FOR TREE SEEDLINGS **Payment Method: MAKE CHECKS PAYABLE TO DIVISION OF FORESTRY**

Vallonia State Nursery

2782 W Co. Rd. 540 S
P.O. Box 218
Vallonia, IN 47281
Approved by State Board of Accounts 1998

☐ IF CHECK ENCLOSED, PAY THIS AMOUNT: $1,601.60
If you wish to purchase using a Credit Card, please call the Nursery Call Center at (812) 358-3621. We are no longer allowed to collect Credit Card payment information.

ORDER NO: 18777

COUNTY: OUT OF STATE

SOLD TO:
TOLEDO METRO PARKS
5100 W CENTRAL AVE

TOLEDO, OH 43615
(419) 461-0571

PLEASE DETACH TOP OF FORM AND RETURN WITH PAYMENT

Quantity	Species	Unit Price	Price
600	BLACK CHERRY 1-0	$0.34800	$208.80
200	BLACK WALNUT 1-0	$0.34800	$69.60
0	BUR OAK 2-0 (OUT OF STOCK)	$0.40550	$0.00
400	RED OAK 1-0	$0.34800	$139.20
800	PIN OAK 1-0	$0.34800	$278.40
0	SWAMP WHITE OAK 1-0 (OUT OF STOCK)	$0.34800	$0.00
600	SYCAMORE 1-0	$0.34800	$208.80
800	TULIPTREE 1-0	$0.34800	$278.40
800	WHITE OAK 1-0	$0.34800	$278.40
200	AMERICAN PLUM	$0.32500	$65.00
200	REDBUD 1-0	$0.32500	$65.00

SECOR PHASE 2

This online service is provided by a third party working in partnership with the State. The purchase price includes the third party's costs to operate, maintain and enhance the State's computer gateway, IN.gov and eCommerce services. This is made possible through a contract administered under the authority of the Indiana Office of Technology (IOT) as designated in EDS # D20-7-0981.

IF YOU WERE NOT BILLED FOR A SPECIES THAT YOU REQUESTED ON THE ORDER FORM, WE WERE SOLD OUT WHEN YOUR ORDER WAS RECEIVED. WE ARE SORRY.

*** If paying with Cash, Check, Money Order, the total amount due**

Subtotal:	$1,591.60
Sales Tax:	$0.00
Handling Cost:	$10.00
Shipping Cost:	$0.00
Portal Fee:	$32.89
Amt. Due (Credit Card):	$1,634.49
Amt. Due (Check/Cash):	$1,601.60 *
Payment Due Date:	11-30-2021

For Office Use Only Order Number: 18777
STANDARD
1/28/2022 **Paid**
Tax Exempt #: 571138357

SHIPPING METHOD: Buyer Pick Up - Vallonia
SHIPPING LOCATION: Vallonia
Phone: (812) 358-3621

THANK YOU

INVOICE FOR TREE SEEDLINGS **Payment Method: MAKE CHECKS PAYABLE TO DIVISION OF FORESTRY**

Vallonia State Nursery
2782 W Co. Rd. 540 S
P.O. Box 218
Vallonia, IN 47281

Approved by State Board of Accounts 1998

☐ IF CHECK ENCLOSED, PAY THIS AMOUNT: $1,387.09
If you wish to purchase using a Credit Card, please call the Nursery Call Center at (812) 358-3621. We are no longer allowed to collect Credit Card payment information.

ORDER NO: 26531

COUNTY: OUT OF STATE

SOLD TO:
TOLEDO METRO PARKS
5100 W CENTRAL AVE

TOLEDO, OH 43615
(419) 461-0571

PLEASE DETACH TOP OF FORM AND RETURN WITH PAYMENT

Quantity	Species	Unit Price	Price
300	BLACK CHERRY 1-0	$0.39000	$117.00
400	BLACK WALNUT 1-0	$0.39000	$156.00
700	BUR OAK 1-0	$0.39000	$273.00
600	PIN OAK 1-0	$0.39000	$234.00
400	RED OAK 1-0	$0.39000	$156.00
0	SYCAMORE 1-0 (OUT OF STOCK)	$0.39000	$0.00
400	SWAMP WHITE OAK 1-0	$0.39000	$156.00
500	WHITE OAK 1-0	$0.39000	$195.00

P.O. 20230027 03

MPT REPLANTS

This online service is provided by a third party working in partnership with the State. The purchase price includes the third party's costs to operate, maintain and enhance the State's computer gateway, IN.gov and eCommerce services. This is made possible through a contract administered under the authority of the Indiana Office of Technology (IOT) as designated in EDS # D20-7-0981.

IF YOU WERE NOT BILLED FOR A SPECIES THAT YOU REQUESTED ON THE ORDER FORM, WE WERE SOLD OUT WHEN YOUR ORDER WAS RECEIVED. WE ARE SORRY.

*** If paying with Cash, Check, Money Order, the total amount due**

Subtotal:	$1,287.00
Sales Tax:	$90.09
Handling Cost:	$10.00
Shipping Cost:	$0.00
Portal Fee:	$26.62
Amt. Due (Credit Card):	$1,415.71
Amt. Due (Check/Cash):	$1,387.09 *
Payment Due Date:	11-10-2023

For Office Use Only Order Number: 26531
STANDARD
10/20/2023
Tax Exempt #:

SHIPPING METHOD: Buyer Pick Up - Vallonia
SHIPPING LOCATION: Vallonia
Phone: (812) 358-3621

THANK YOU

INVOICE FOR TREE SEEDLINGS **Payment Method: MAKE CHECKS PAYABLE TO DIVISION OF FORESTRY**

Vallonia State Nursery

2782 W Co. Rd. 540 S
P.O. Box 218
Vallonia, IN 47281
Approved by State Board of Accounts 1998

☐ IF CHECK ENCLOSED, PAY THIS AMOUNT: $502.95
If you wish to purchase using a Credit Card, please call the Nursery Call Center at (812) 358-3621. We are no longer allowed to collect Credit Card payment information.

ORDER NO: 18775

COUNTY: OUT OF STATE

SOLD TO:
TOLEDO METRO PARKS
5100 W CENTRAL AVE

TOLEDO, OH 43615
(419) 461-0571

PLEASE DETACH TOP OF FORM AND RETURN WITH PAYMENT

Quantity	Species	Unit Price	Price
200	BLACK CHERRY 1-0	$0.34800	$69.60
100	BLACK WALNUT 1-0	$0.34800	$34.80
100	BUR OAK 2-0 (PARTIAL FULFILLMENT)	$0.40550	$40.55
100	RED OAK 1-0	$0.34800	$34.80
100	PIN OAK 1-0	$0.34800	$34.80
0	SWAMP WHITE OAK 1-0 (OUT OF STOCK)	$0.34800	$0.00
300	SYCAMORE 1-0	$0.34800	$104.40
300	TULIPTREE 1-0	$0.34800	$104.40
200	WHITE OAK 1-0	$0.34800	$69.60

GLASS CITY

This online service is provided by a third party working in partnership with the State. The purchase price includes the third party's costs to operate, maintain and enhance the State's computer gateway, IN.gov and eCommerce services. This is made possible through a contract administered under the authority of the Indiana Office of Technology (IOT) as designated in EDS # D20-7-0981.

IF YOU WERE NOT BILLED FOR A SPECIES THAT YOU REQUESTED ON THE ORDER FORM, WE WERE SOLD OUT WHEN YOUR ORDER WAS RECEIVED. WE ARE SORRY.

*** If paying with Cash, Check, Money Order, the total amount due**

Subtotal:	$492.95
Sales Tax:	$0.00
Handling Cost:	$10.00
Shipping Cost:	$0.00
Portal Fee:	$11.03
Amt. Due (Credit Card):	$513.98
Amt. Due (Check/Cash):	$502.95 *
Payment Due Date:	11-30-2021

For Office Use Only Order Number: 18775
STANDARD
1/28/2022 **Paid**
Tax Exempt #: 571138357

SHIPPING METHOD: Buyer Pick Up - Vallonia
SHIPPING LOCATION: Vallonia
Phone: (812) 358-3621

THANK YOU

INVOICE FOR TREE SEEDLINGS **Payment Method: MAKE CHECKS PAYABLE TO DIVISION OF FORESTRY**

Vallonia State Nursery

2782 W Co. Rd. 540 S
P.O. Box 218
Vallonia, IN 47281
Approved by State Board of Accounts 1998

☐ IF CHECK ENCLOSED, PAY THIS AMOUNT: $840.60
If you wish to purchase using a Credit Card, please call the Nursery Call Center at (812) 358-3621. We are no longer allowed to collect Credit Card payment information.

ORDER NO: 18776

COUNTY: OUT OF STATE

SOLD TO:
TOLEDO METRO PARKS
5100 W CENTRAL AVE

TOLEDO, OH 43615
(419) 461-0571

PLEASE DETACH TOP OF FORM AND RETURN WITH PAYMENT

Quantity	Species	Unit Price	Price
400	BLACK CHERRY 1-0	$0.34800	$139.20
0	BUR OAK 2-0 (OUT OF STOCK)	$0.40550	$0.00
200	RED OAK 1-0	$0.34800	$69.60
600	PIN OAK 1-0	$0.34800	$208.80
0	SWAMP WHITE OAK 1-0 (OUT OF STOCK)	$0.34800	$0.00
400	SYCAMORE 1-0	$0.34800	$139.20
200	TULIPTREE 1-0	$0.34800	$69.60
400	WHITE OAK 1-0	$0.34800	$139.20
200	REDBUD 1-0	$0.32500	$65.00

H2OHIO

This online service is provided by a third party working in partnership with the State. The purchase price includes the third party's costs to operate, maintain and enhance the State's computer gateway, IN.gov and eCommerce services. This is made possible through a contract administered under the authority of the Indiana Office of Technology (IOT) as designated in EDS # D20-7-0981.

IF YOU WERE NOT BILLED FOR A SPECIES THAT YOU REQUESTED ON THE ORDER FORM, WE WERE SOLD OUT WHEN YOUR ORDER WAS RECEIVED. WE ARE SORRY.

*** If paying with Cash, Check, Money Order, the total amount due**

Subtotal:	$830.60
Sales Tax:	$0.00
Handling Cost:	$10.00
Shipping Cost:	$0.00
Portal Fee:	$17.75
Amt. Due (Credit Card):	$858.35
Amt. Due (Check/Cash):	$840.60 *
Payment Due Date:	11-30-2021

For Office Use Only Order Number: 18776
STANDARD
1/28/2022 **Paid**
Tax Exempt #: 571138357

SHIPPING METHOD: Buyer Pick Up - Vallonia
SHIPPING LOCATION: Vallonia
Phone: (812) 358-3621

THANK YOU

Attestations of Planting Affirmation

CITY FOREST CREDITS

Restoring Forests for Carbon Sequestration in Lucas County, Ohio
Attestation of Planting Affirmation

I, the undersigned working on behalf of Bauer attest and confirm that tree planting(s) occurred on the following dates under the project named in the City Forest Credits Registry Restoring Forests for Carbon Sequestration in Lucas County, Ohio by the Project Operator, Metropolitan Park District of the Toledo Area (Metroparks Toledo).

Trees were planted under this project on the following date(s): Fall 2022

The approximate number of trees planted is: 2,687 trees for Glass City Metropark and Ravine Park Areas

Signed on June 27 in 2025, by Brian Butler for Bauer Lawn Maintenance Inc.

Brian Butler
Signature

Brian Butler
Printed Name

419-280-3626
Phone

brian@bauerlawn.com
Email

Restoring Forests for Carbon Sequestration in Lucas County, Ohio
Attestation of Planting Affirmation

I, the undersigned working on behalf of Williams Forestry & Associates attest and confirm that tree planting(s) occurred on the following dates under the project named in the City Forest Credits Registry Restoring Forests for Carbon Sequestration in Lucas County, Ohio by the Project Operator, Metropolitan Park District of the Toledo Area (Metroparks Toledo).

Trees were planted under this project on the following date(s): Spring 2022

The approximate number of trees planted is: 10,200 tree for Secor Expansion; 6,600 trees for Oak Openings H2Ohio; 4,600 trees for Ravine Park Areas

Signed on June 25 in 2025, by Patricia Hollingshead for Williams Forestry & Associates.

Signature

Patricia Hollingshead/Office Mgr., Williams Forestry & Associates
Printed Name

740-352-5981
Phone

pat@wfatrees.com
Email

CITY FOREST CREDITS

Restoring Forests for Carbon Sequestration in Lucas County, Ohio
Attestation of Planting Affirmation

I, the undersigned working on behalf of MetroParks Toledo (company name) attest and confirm that tree planting(s) occurred on the following dates under the project named in the City Forest Credits Registry Restoring Forests for Carbon Sequestration in Lucas County, Ohio by the Project Operator, Metropolitan Park District of the Toledo Area (Metroparks Toledo).

Trees were planted under this project on the following date(s): Spring and Fall 2024

The approximate number of trees planted is: 1,616 trees for Side Cut MetroPark

Signed on June 30 in 2025, by Shannon Hughes for Metroparks Toledo (company name).

Signature

Shannon Hughes

Printed Name

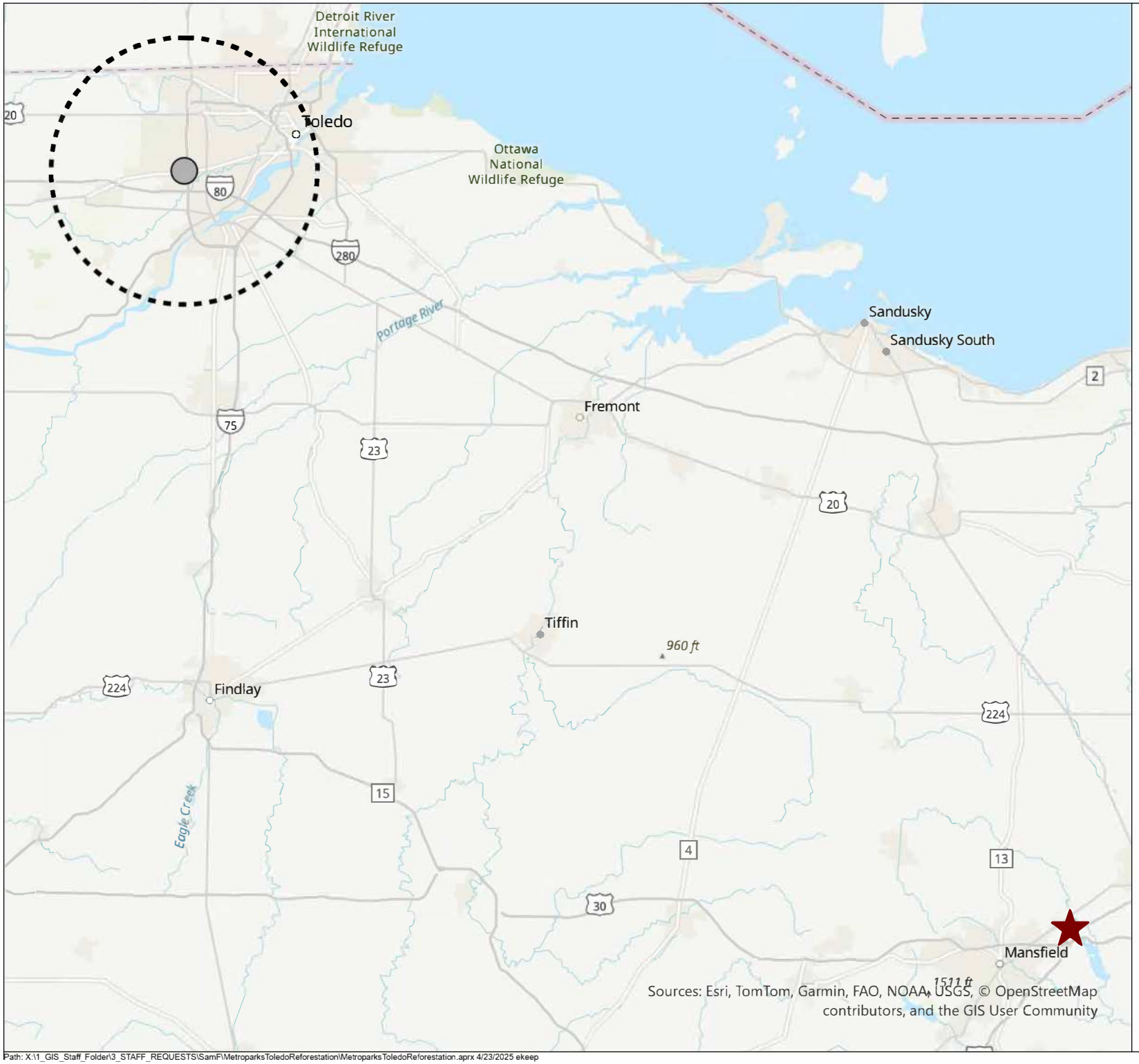
419-360-2599

Phone

Shannon.hughes@metroparkstoledo.com

Email

Attestation of No Double Counting and No Net Harm



No Double Counting Map

- Project Central Location
- Existing Planting Projects
- 10 Mile Buffer

0 5 10
Miles

N
W E
S

Western Reserve Land Conservancy
land • people • community

Path: X:\1_GIS_Staff_Folder\3_STAFF_REQUESTS\SamF\MetroparksToledoReforestation\MetroparksToledoReforestation.aprx 4/23/2025 ekeep

Restoring Forests for Carbon Sequestration in Lucas County, Ohio
Attestation of No Double Counting of Credits and No Net Harm

I am the Chief Natural Resources Officer of the Metropolitan Park District of the Toledo Area (Metroparks Toledo) and make this attestation regarding no double counting of credits and no net harm from this tree planting project, Restoring Forests for Carbon Sequestration in Lucas County, Ohio.

1. Project Description

The Project that is the subject of this Attestation is described more fully in both our Application and our Project Design Document (PDD), both of which are incorporated into this Attestation.

2. No Double Counting by Applying for Credits from another Registry

Metroparks Toledo has not and will not seek credits for CO_2 for the project trees or for this project from any other organization or registry issuing credits for CO_2 storage.

3. No Double Counting by Seeking Credits for the Same Trees or Same CO_2 Storage

Metroparks Toledo has not and will not apply for a project including the same trees as this project nor will it seek credits for CO_2 storage for the project trees or for this project in any other project or more than once. Metropolitan Park District of the Toledo Area has checked the location of the Project Area against registered urban forest carbon afforestation and reforestation projects. Project Operator has determined that there is no overlap of Project Area or Project Trees with any registered urban forest carbon afforestation and reforestation project.

4. No Net Harm

The trees planted in this project will produce many benefits, as described in our Application and PDD. Like almost all urban trees, the project trees are planted not for harvest but for the benefits they deliver to people, communities, and the environment as living trees in a metropolitan area.

The project trees will produce many benefits and will not cause net harm. Specifically, they will not:

- Displace native or indigenous populations
- Deprive any communities of food sources
- Degrade a landscape or cause environmental damage

Signed on **June 3** in 2025, by Zurijanne Carter, Chief Natural Resources Officer, for Metropolitan Park District of the Toledo Area.

Zurijanne Carter

Signature

419-407-9700

Phone

zuri.carter@metroparkstoledo.com

Email

Attestation of Additionality

Restoring Forests for Carbon Sequestration in Lucas County, Ohio
Attestation of Additionality

I am the Chief Natural Resources Officer of the Metropolitan Park District of the Toledo Area (Metroparks Toledo) and make this attestation regarding additionality from this tree planting project, Restoring Forests for Carbon Sequestration in Lucas County, Ohio.

- Project Description
  - The Project that is the subject of this attestation is described more fully in both our Application and our Project Design Document (PDD), both of which are incorporated into this attestation.
- Legal Requirements Test (Protocol Section 1.8)
  - Project trees are not required by law or ordinance to be planted.
- The Project did not plant trees on sites that were converted out of a forest use or that were cleared of healthy trees and then planted with project trees (Protocol Section 1.9)
- Project-Specific Baseline or Performance Standard Baseline
  - Project trees are additional based on a project specific baseline. See PDD; or
  - Project trees are additional based on the Performance Standard baseline; see attached baseline to the PDD.
- Project Implementation Agreement for Project Duration
  - Metroparks Toledo has signed a Project Implementation Agreement with City Forest Credits for 26 years.
- The 26-year Project Duration commitment is additional to and longer than any commitment Metropolitan Park District of the Toledo Area makes to non-carbon project tree plantings.
- The revenue from the sale of carbon credits will play a material role in the successful and durable storage of Project Trees' carbon stock by providing funding that will help ensure the establishment and long-term health of Project Trees. Carbon credit revenue will be used to help pay for maintenance and establishment of the plantings.

Signed on June 24 in 2025, by Zurijanne Carter, Chief Natural Resources Officer, for Metropolitan Park District of the Toledo Area (Metroparks Toledo).

Zurijanne Carter
_____
Signature

ZURIJANNE CARTER
_____
Printed Name

419-407-9700
_____
Phone

zuri.carter@metroparkstoledo.com
_____
Email

Carbon Quantification Initial Crediting Tool

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Directions

1) On Table 1, fill out the Site/Stand Name, Forest Type(dropdown options), and Acreage columns.

2) Indicate the number of acres eligible to claim soil carbon (have been tilled for 3 of the past 10 years) in Table 2.

3) Indicate the amount of baseline canopy cover on the planting sites (default for estimate is 0.05%).

Table 1. Planting Plan

Site/Stand Name	Forest Type	Acreage	tC/acre
	Oak Hickory	51.78	35
		51.78	

Table 2. Soil Carbon (acres tilled for 3 of the last 10 years)

Acreage
0

Table 3. Baseline canopy cover

Percent existing canopy	Estimated regional % canopy change after 26
0.0106	0.013341

Table 1. GHG Emissions

	Acres	Tonnes Carbon/Acre	Uncertainty Deduction	CO2 index (tCO2e/acre)	GHG Emissions (tCO2e)	Baseline Canopy Cover	GHG Emissions, Adjusted for Canopy Baseline	Soil carbon (23.3 tCO2e /acre)	GHG Emissions (trees + soil carbon)	Regional Canopy adjustment deduction	5% Buffer Pool Deduction	Grand Total CO2 w/ Deductions (t)	10% Year 0 10% CO_2 (t)	30% Year 4 30% CO_2 (t)	30% Year 6 30% CO_2 (t)	10% Year 14 10% CO_2 (t)	20% Year 26 20% CO_2 (t)	sumcheck
Total GHG Reductions	51.78	35.0	5%	121.9166667	6,313	0.0106	6,245.93	-	6,245.93	83	308	5,854.00	585.40	1,756.20	1,756.20	585.40	1,170.80	5,854
Acres eligible for soil carbon	0									**Carbon Credits**		5854	585	1756	1756	585	1172	5854
												308.11	30.81	92.43	92.43	30.81	61.62	308
										Buffer Credits		308	31	92	92	31	62	308

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Directions
1) Use i-Tree Canopy, or another tool, to estimate the amount of deciduous and coniferous tree cover area (acres) (Cell C20 and D20).
2) Use i-Tree Canopy, or another tool, to estimate the amount of non-tree cover area (acres) (Cell F20) in the project area.
3) In Cell G20 the total area of the project is calculated (acres). Prompt i-Tree Canopy to provide an estimate of the project area by clicking on the gear icon next to the upper right portion of the image and selecting ”Report By Area.”
4) Total Project Area, cell G17 should equal 100%.

Table 3. Anticipated Tree Cover

	Deciduous Tree	Coniferous Tree	Total Tree	Non-Tree Cover	Total Project Area
Percent (%)	100%	0%	100%	0%	100%
Area (sq miles)	0.081	0.000	0.081	0.000	0.08
Area (m2)	209,545	0	209,545	0	209,545
Area (acres)	51.78		51.78	0.00	51.78

Using the information you provide on tree canopy cover, the tool provides estimates of co-benefits in Resource Units and $ per year.

Table 2. Co-Benefits per year with current tree canopy cover.

Ecosystem Services	Resource Units Totals	Total $
Rain Interception (m3/yr)	5,737.1	$15,005.86
Air Quality (t/yr)		
O3	0.7484	$2,223.57
NOx	0.1843	$547.56
PM10	0.3970	$448.37
Net VOCs	0.0078	$22.13
Air Quality Total	1.3375	$3,241.62
Energy (kWh/yr & kBtu/yr)		
Cooling - Elec.	61,325	$4,654.55
Heating - Nat. Gas	32,526	$337.96
Energy Total ($/yr)		$4,992.51
Grand Total ($/yr)		$23,239.99

Tree Planting Data

Year	Season	Planting Area	Type	Sheltered	Acres	Number of Trees	Approx. Spacing (ft)	Current Designation - Forest	Lucas Co. Parcel #
2022	Spring	Oak Openings Preserve	Bare root	Yes	10.12	6600	8	oak-hickory	75-00227, 75-00225
2022	Spring	Ravine Park I	Bare root	Yes	2.75	1520	9	oak-hickory	18-67508
2022	Spring	Ravine Park II	Bare root	No	8.06	3650	10	oak-hickory	18-67511
2022	Spring	Secor	Bare root	Yes	22.60	10200	10	oak-hickory	78-95001, 78-04854, 78-04607
2023	Spring	Glass City	Bare root	Yes	3.96	2117	9	oak-hickory	18-87701, 18-87678
2024	Spring & Fall	Side Cut	Bare root	Yes	4.29	1616	8	oak-hickory	35-00695
				Total	51.78	25703			

Baseline Canopy Analysis

Table 1. Canopy Data

Geography	Year	Sum (Canopy Area, m2)	Area (m2)
TMACOG	2011	363774339	4470471000
TMACOG	2021	386712828	4470471000

Table 2. Canopy Change 2011 to 2021

Absolute % Change	0.513%
Relative % Change (2011 base)	6.306%
Year Difference	10.00
Estimated Absolute % Annual Change	0.051%

Table 3. Predicted Baseline Change

Project Duration (Years)	26
Estimated Baseline Canopy Change	1.334%

Percent Canopy
8.137%
8.650%

Social Impacts

City Forest Carbon Project
Social Impacts

UN Sustainable Development Goals

The 17 United Nations Sustainable Development Goals (SDGs) are an urgent call for action and global partnership among all countries, representing key benchmarks for creating a better world and environment for everyone. Well-designed and managed urban forests make significant contributions to the environmental sustainability, economic viability and livability of cities. They help mitigate climate change and natural disasters, reduce energy costs, poverty and malnutrition, and provide ecosystem services and public benefits. See more details in the CFC Carbon Project Social Impact Reference Guide.

Instructions

This template sets out all relevant SDGs and lists various urban forest project activities that fall within each SDG. Evaluate the SDGs to determine how your carbon project provides social impacts that may contribute towards achievement of the global goals. Check the box(es) that contain one of your project activities and describe in no fewer than two sentences how your project activities align with the corresponding SDG. On page 12, select the icon for three to five of the most relevant SDGs to your project and provide any additional information.

SDG 3 - Good Health and Well Being

Goal: Ensure healthy lives and promote well-being for all at all ages.

Examples of project activities include, but are not limited to:

- ☒ Plant or protect trees to reduce or remove air pollutants
- ☐ If planting trees, select trees for reduced pollen counts and irritant production
- ☒ Plant or protect trees to create shade, provide UV exposure protection, reduce extreme heat negative effects, and/or reduce temperatures to relieve urban heat effects
- ☒ Design project to buffer sounds, optimize biodiversity, or create nature experiences
- ☐ Locate project near vulnerable populations, such as children or elderly
- ☒ Locate project near high volume roads to screen pollutants
- ☒ Locate project near people to encourage recreation, provide new parks or green space, or otherwise promote an active lifestyle
- ☐ Locate project near schools, elderly facilities, or mental health services to promote nature-based wellness, attention restoration, or other mental well-being
- ☒ Locate project in area with conditions of project-defined high inequity to trees, such as at schools, affordable or subsidized housing, formerly redlined neighborhoods, areas with high property vacancy rates, or area with high proportion of renters
- ☒ Reduce stormwater runoff or improve infiltration rates
- ☐ Design project to reduce human exposure to specific pollutants or toxins
- ☐ Other

Increased access to forests and green space will allow for improved mental and physical health in the surrounding communities.

SDG 6 - Clean Water and Sanitation

Goal: Ensure availability and sustainable management of water and sanitation for all

Examples of project activities include, but are not limited to:

- ☐ Research and assess environmental injustices related to water in project area
- ☒ Locate project near high-traffic roads or to otherwise improve, mitigate, or remediate toxic landscapes near water
- ☐ Protect or plant trees to improve historically or culturally important sites related to water that have been degraded and/or neglected
- ☒ Reduce stormwater by planting or protecting trees
- ☒ Plant forested buffers adjacent to streams, rivers, wetlands, or floodplains
- ☐ Prevent soil erosion by protect steep slopes
- ☒ Improve infiltration rates
- ☒ Improve, mitigate, or remediate toxic landscapes and human exposure to risk
- ☐ Drought resistance, such as selecting appropriate water-efficient trees for project climate zone
- ☐ Other

The trees being protected will ensure that they continue to offer ecosystem services and serve as a buffer to adjacent wetlands, also filtering out nutrients and toxins.

SDG 8 - Decent Work and Economic Growth

Goal: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Examples of project activities include, but are not limited to:

- ☐ Community participation in project implementation, including such things as providing access to financial resources for ongoing community-based care
- ☒ Emphasize local hiring and support small businesses
- ☐ Promote local economic opportunities through workforce training, career pathway development, or other employment
- ☐ Other

As many of the trees were planted by Metroparks Toledo, there were also many that were planted by local contractors, establishing a local employment and hiring opportunity.

SDG 10 - Reduced Inequalities

Goal: Reduce inequalities within and among countries

Examples of project activities include, but are not limited to:

- ☒ Provide connections and cohesion for social health, such as create or reinforce places that promote informal interactions, engage local residents and users in tree management, include symbolic or cultural elements, or other events
- ☐ Research, understand, and design to address understand historic and current sociocultural inequities, community health conditions, environmental injustices, or prior local greening efforts in community
- ☐ Locate project near vulnerable populations, such as children or elderly, to provide air quality improvements or buffer against extreme heat effects
- ☒ Locate project in high-density residential areas or where there is a lack of trees to improve access and promote an active lifestyle
- ☐ Locate project near schools, elderly facilities, or mental health services to promote nature-based wellness, attention restoration, or other mental well-being
- ☒ Locate project in area with conditions of project-defined high inequity to trees, such as at schools, affordable or subsidized housing, formerly redlined neighborhoods, areas with high property vacancy rates, or area with high proportion of renters
- ☒ Locate project near high-traffic roads or to otherwise improve, mitigate, or remediate toxic landscapes
- ☐ Protect or plant trees to improve historically or culturally important sites that have been degraded and/or neglected
- ☒ Community engagement in project design, including such things as engaging and respecting existing relationships and social networks, community cultural traditions, and public participation methods that are empowering and inclusive
- ☐ Community participation in project implementation, including such things as addressing and removing barriers to participation, promote ongoing community-based care and access to financial resources
- ☒ Emphasize local hiring and support small businesses
- ☐ Research and consider potential for gentrification and displacements
- ☐ Promote local economic opportunities through workforce training, career pathway development, or other employment
- ☐ Other

Toledo has been a city with reduced accessibility to green space and true tree canopy, allowing this project to work to reduce that inequality and provide more nature for the community.

SDG 11 - Sustainable Cities and Communities

Overall: Make cities inclusive, safe, resilient, and sustainable.

Examples of project activities include, but are not limited to:

- ☒ Plant or protect trees to reduce or remove air pollutants
- ☐ If planting trees, select trees for reduced pollen counts and irritant production
- ☐ Locate project near high volume roads to screen pollutants
- ☐ Locate project near vulnerable populations, such as children or elderly
- ☒ Plant or protect trees to create shade, provide UV exposure protection, reduce extreme heat negative effects, and/or reduce temperatures to relieve urban heat effects
- ☒ Locate project near people to encourage recreation, provide new parks or green space, or otherwise promote an active lifestyle
- ☒ Design project to improve wellness and mental health, such as planting trees to buffer sounds, optimize biodiversity, optimize views from buildings, or create nature experiences
- ☐ Locate project near schools, elderly facilities, or mental health services to promote nature-based wellness, attention restoration, or other mental well-being
- ☒ Provide connections and cohesion for social health, such as create or reinforce places that promote informal interactions, engage local residents and users in tree management, include symbolic or cultural elements, or other events
- ☐ Research, understand, and design to address understand historic and current sociocultural inequities, community health conditions, environmental injustices, or prior local greening efforts in community
- ☒ Locate project in area with conditions of project-defined high inequity to trees, such as at schools, affordable or subsidized housing, formerly redlined neighborhoods, areas with high property vacancy rates, or area with high proportion of renters
- ☒ Community engagement in project design, including such things as engaging and respecting existing relationships and social networks, community cultural traditions, and public participation methods that are empowering and inclusive
- ☐ Community participation in project implementation, including such things as addressing and removing barriers to participation, promote ongoing community-based care and access to financial resources
- ☐ Other

Toledo is a busy city with this project located near some roads with high amounts of traffic and congestion. These planted trees can filter out the air pollutants from heavy congestion and continuously provide surrounding neighborhoods with access to green space.

SDG 12 - Responsible Production and Consumption

Goal: Ensure sustainable consumption and production patterns

Examples of project activities include, but are not limited to:

- ☐ Plant or protect trees to create shade or reduce temperatures to relieve urban heat effects
- ☒ Provide cooling benefits and energy savings by shading impervious surfaces such as streets or parking lots, or planting trees on south and west sides of buildings
- ☐ Other

The planted trees can provide cooling benefits and energy savings for the region, particularly by Glass City Metropark, as there is a high population within close proximity to that planting site.

SDG 13 - Climate Action

Goal: Take urgent action to combat climate change and its impacts.

Examples of project activities include, but are not limited to:

- ☒ Plant or protect trees to reduce or remove air pollutants
- ☐ Plant or protect trees to create shade or reduce temperatures to relieve urban heat effects
- ☐ Promote community capacity for social and climate resilience by engaging local residents or users in tree management, or other events to connect people to the project
- ☐ Reflect cultural traditions and inclusive engagement for climate resilience
- ☐ Design project to improve soil health
- ☒ Provide cooling benefits and energy savings by shading impervious surfaces such as streets or parking lots, or planting trees on south and west sides of buildings
- ☒ Plant or protect trees to reduce stormwater runoff
- ☐ Select water-efficient trees for climate zone and drought resistance
- ☒ Create and/or enhance wildlife habitat
- ☐ Other

The planting sites will offer a nature-based solution to climate-related issues by sequestering carbon and reducing stormwater runoff that could eventually flow into Lake Erie.

SDG 14 - Life Below Water

Goal: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Examples of project activities located in areas with marine ecosystems include, but are not limited to:

- ☒ Locate project near high-traffic roads or to otherwise improve, mitigate, or remediate toxic landscapes near water
- ☒ Plant or protect trees in project areas to reduce stormwater runoff
- ☒ Plant forested buffers adjacent to streams, rivers, wetlands, or floodplains
- ☐ Prevent soil erosion into by protecting steep slopes
- ☒ Improve infiltration rates
- ☒ Improve, mitigate, or remediate toxic landscapes and human exposure to risk
- ☐ Drought resistance, such as selecting appropriate water-efficient trees for project climate zone
- ☒ Enhance wildlife habitat, such as riparian habitat for fish, birds, and other animals
- ☐ Other

As the planting sites are near the Lake Erie watershed, there can be expected mitigation of toxic algae blooms and other nutrient-related water issues. This will ensure that Toledo's drinking water remains safe and unaffected by the surrounding industrialized environment.

SDG 15 - Life on Land

Goal: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Examples of project activities include, but are not limited to the following with increased functionality of green infrastructure:

- ☒ Plant or protect trees to reduce stormwater runoff
- ☐ Select water-efficient trees for climate zone and drought resistance
- ☒ Create and/or enhance wildlife habitat to improve local biodiversity
- ☒ Plant forested buffers adjacent to streams, rivers, wetlands, or floodplains
- ☐ Prevent soil erosion by protect steep slopes
- ☒ Improve infiltration rates
- ☐ Other

Increased forestland will improve wildlife habitat and local biodiversity, allowing the surrounding ecosystems to flourish.

SDG 17 - Partnerships for the Goals

Overall: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Examples of project activities include, but are not limited to:

- ☐ Promote community connections and capacity for social resilience by engaging local residents or users in tree management, or other events to connect people to the project
- ☒ Community engagement in project design, including such things as engaging and respecting existing relationships and social networks, community cultural traditions, and public participation methods that are empowering and inclusive
- ☐ Community participation in project implementation, including such things as addressing and removing barriers to participation, promote ongoing community-based care and access to financial resources
- ☐ Other

This project created a partnership between Metroparks Toledo and Western Reserve Land Conservancy throughout the carbon crediting registration of the planting sites.

Summary of Project Social Impacts

The increased parkland and forest cover will allow for more recreational activities, encouraging locals to hike and use the parks for exercise, improving overall health and wellbeing. The increased canopy will provide shade in the future once the trees have grown to a fuller capacity, allowing those who hike and enjoy the parks to be in the shade when the trees are in bloom.

The planted trees will serve as another stormwater runoff mitigation tool, absorbing runoff and excess nutrients before they can reach waterways. This is especially significant to Toledo, being a city on Lake Erie that consistently is impacted by algae blooms and their drinking water being compromised as a result. With increased planting of trees and other buffers, algae blooms can be expected to decrease, and Lake Erie can grow towards being a healthy freshwater system.

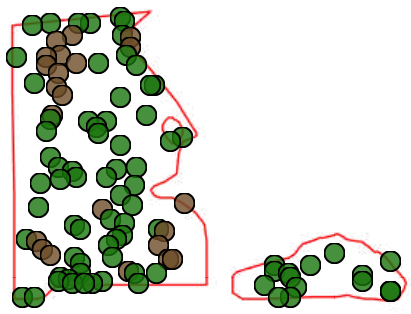
The surrounding area provides habitat for several species, including Sandhill Cranes, Blanding's turtle, spotted turtle, several species of Lepidoptera and Odonata, Eastern Hognose snake, and wild lupine that are important to the Karner Blue Butterfly. Lucas County is located in the Mississippi Flyway with the western edge of the Atlantic Flyway being particularly significant for bird migratory routes. These reforestation efforts will be instrumental as stop-over habitat for species during their migratory seasons. With more habitat protected, these species can thrive and provide sufficient ecosystem balance.

i-Tree Canopy Reports & Data

i-Tree Canopy Report

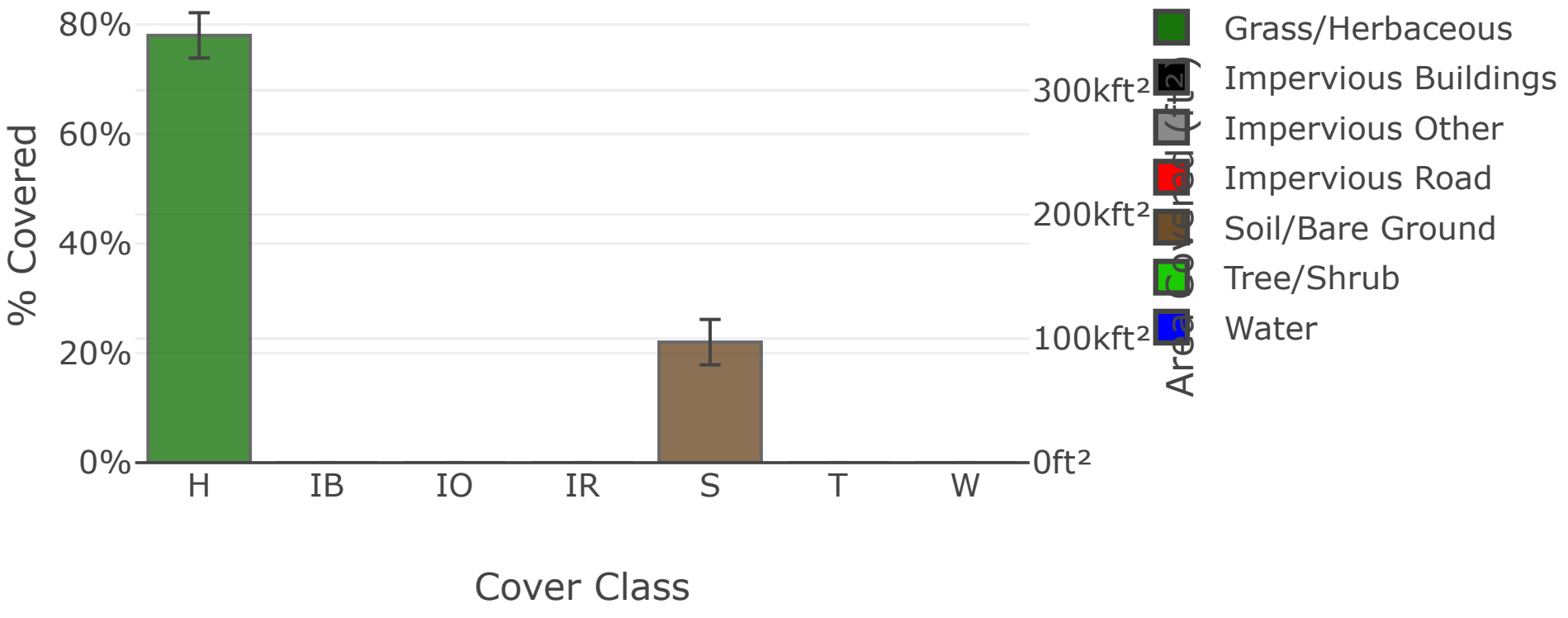
i-Tree Benefits and Cover Assessment

Estimated using random sampling statistics on 5/9/2025



Google

Land Cover



Abbr.	Cover Class	Description	Points	% Cover ± SE	Area (ft²) ± SE
H	Grass/Herbaceous		78	78.00 ± 4.14	344271.17 ± 18283.73
IB	Impervious Buildings		0	0.00 ± 0.00	0.00 ± 0.00
IO	Impervious Other		0	0.00 ± 0.00	0.00 ± 0.00
IR	Impervious Road		0	0.00 ± 0.00	0.00 ± 0.00
S	Soil/Bare Ground		22	22.00 ± 4.14	97102.13 ± 18283.73
T	Tree/Shrub		0	0.00 ± 0.00	0.00 ± 0.00
W	Water		0	0.00 ± 0.00	0.00 ± 0.00
Total			**100**	**100.00**	**441373.30**

Tree Benefit Estimates: Carbon (English units)

Description	Carbon (oz)	±SE	CO_2 Equiv. (oz)	±SE	Value (USD)	±SE
Sequestered annually in trees	0.00	±0.00	0.00	±0.00	$0	±0
Stored in trees (Note: this benefit is not an annual rate)	0.00	±0.00	0.00	±0.00	$0	±0

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Amount sequestered is based on 1.006 oz of Carbon, or 3.690 oz of CO_2, per ft²/yr and rounded. Amount stored is based on 25.273 oz of Carbon, or 92.667 oz of CO_2, per ft² and rounded. Value (USD) is based on $0.01/oz of Carbon, or $0.00/oz of CO_2 and rounded. (English units: oz = ounces, ft² = square feet)

Tree Benefit Estimates: Air Pollution (English units)

Abbr.	Description	Amount (oz)	±SE	Value (USD)	±SE
CO	Carbon Monoxide removed annually	0.00	±0.00	$0	±0
NO2	Nitrogen Dioxide removed annually	0.00	±0.00	$0	±0
O3	Ozone removed annually	0.00	±0.00	$0	±0
SO2	Sulfur Dioxide removed annually	0.00	±0.00	$0	±0
PM2.5	Particulate Matter less than 2.5 microns removed annually	0.00	±0.00	$0	±0
PM10*	Particulate Matter greater than 2.5 microns and less than 10 microns removed annually	0.00	±0.00	$0	±0
Total		**0.00**	**±0.00**	**$0**	**±0**

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Air Pollution Estimates are based on these values in oz/ft²/yr @ $/oz/yr and rounded:
CO 0.000 @ $0.01 | NO2 0.002 @ $0.00 | O3 0.018 @ $0.00 | SO2 0.002 @ $0.00 | PM2.5 0.001 @ $0.15 | PM10* 0.006 @ $0.06 (English units: oz = ounces, ft² = square feet)

Tree Benefit Estimates: Hydrological (English units)

Abbr.	Benefit	Amount (oz)	±SE	Value (USD)	±SE
AVRO	Avoided Runoff	0.00	±0.00	$0	±0
E	Evaporation	0.00	±0.00	N/A	N/A
I	Interception	0.00	±0.00	N/A	N/A
T	Transpiration	0.00	±0.00	N/A	N/A
PE	Potential Evaporation	0.00	±0.00	N/A	N/A
PET	Potential Evapotranspiration	0.00	±0.00	N/A	N/A

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Hydrological Estimates are based on these values in oz/ft²/yr @ $/oz/yr and rounded:
AVRO 2.638 @ $0.00 | E 217.689 @ N/A | I 218.775 @ N/A | T 337.326 @ N/A | PE 1,655.167 @ N/A | PET 1,655.167 @ N/A (English units: oz = ounces, ft² = square feet)

About i-Tree Canopy

The concept and prototype of this program were developed by David J. Nowak, Jeffery T. Walton, and Eric J. Greenfield (USDA Forest Service). The current version of this program was developed and adapted to i-Tree by David Ellingsworth, Mike Binkley, and Scott Maco (The Davey Tree Expert Company)

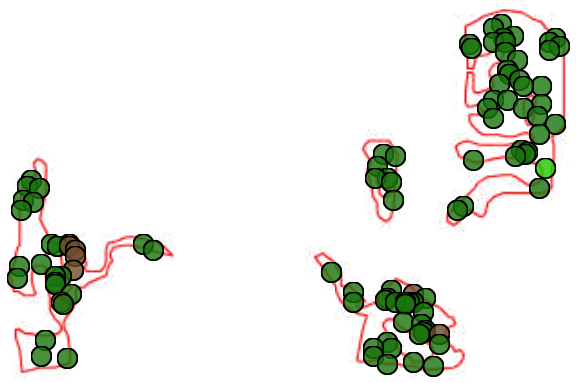
Limitations of i-Tree Canopy

The accuracy of the analysis depends upon the ability of the user to correctly classify each point into its correct class. As the number of points increase, the precision of the estimate will increase as the standard error of the estimate will decrease. If too few points are classified, the standard error will be too high to have any real certainty of the estimate.

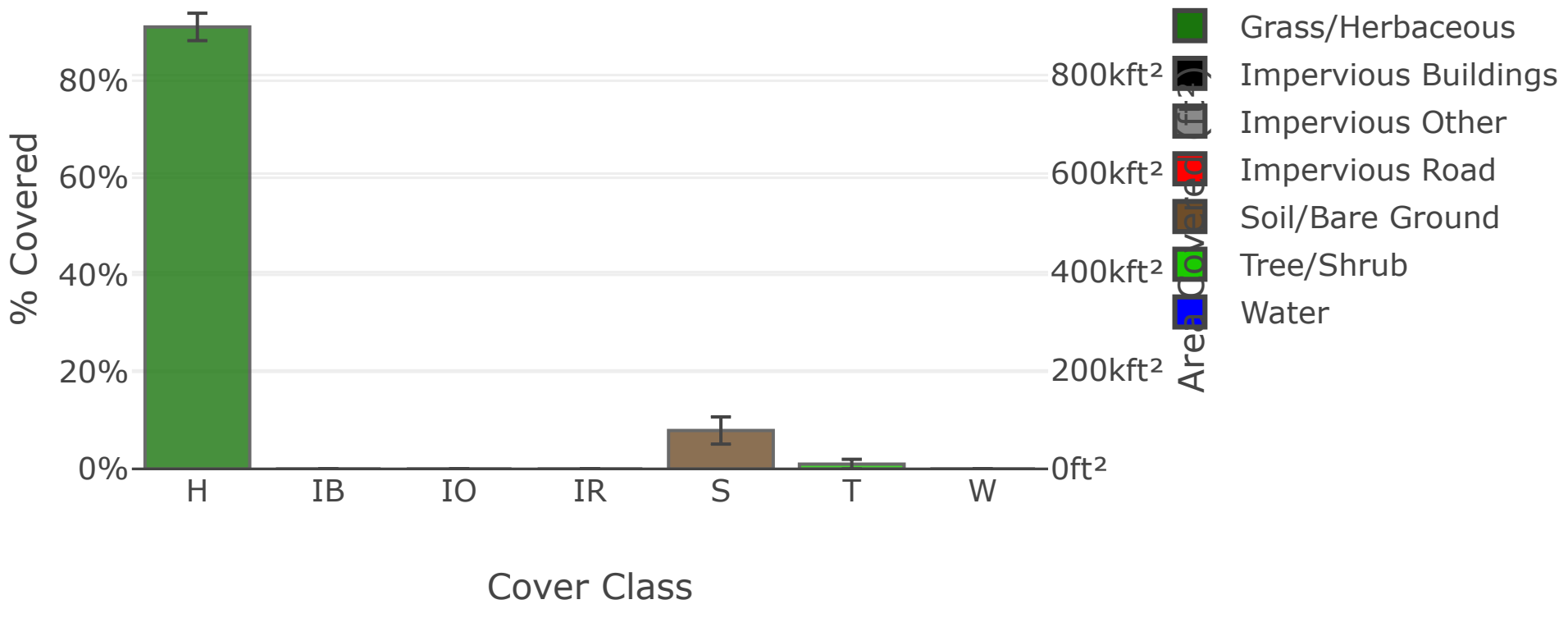
i-Tree Canopy Report

i-Tree Benefits and Cover Assessment

Estimated using random sampling statistics on 6/4/2025



Land Cover



Abbr.	Cover Class	Description	Points	% Cover ± SE	Area (ft²) ± SE
H	Grass/Herbaceous		92	91.09 ± 2.83	897674.75 ± 27937.38
IB	Impervious Buildings		0	0.00 ± 0.00	0.00 ± 0.00
IO	Impervious Other		0	0.00 ± 0.00	0.00 ± 0.00
IR	Impervious Road		0	0.00 ± 0.00	0.00 ± 0.00
S	Soil/Bare Ground		8	7.92 ± 2.80	78058.67 ± 27597.91
T	Tree/Shrub		1	0.99 ± 0.99	9757.33 ± 9757.33
W	Water		0	0.00 ± 0.00	0.00 ± 0.00
Total			**101**	**100.00**	**985490.75**

Tree Benefit Estimates: Carbon (English units)

Description	Carbon (lb)	±SE	CO_2 Equiv. (lb)	±SE	Value (USD)	±SE
Sequestered annually in trees	611.53	±611.53	2,242.27	±2,242.27	$132	±132
Stored in trees (Note: this benefit is not an annual rate)	15,357.78	±15,357.78	56,311.85	±56,311.85	$3,323	±3,323

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Amount sequestered is based on 0.063 lb of Carbon, or 0.230 lb of CO_2, per ft²/yr and rounded. Amount stored is based on 1.574 lb of Carbon, or 5.771 lb of CO_2, per ft² and rounded. Value (USD) is based on $0.22/lb of Carbon, or $0.06/lb of CO_2 and rounded. (English units: lb = pounds, ft² = square feet)

Tree Benefit Estimates: Air Pollution (English units)

Abbr.	Description	Amount (oz)	±SE	Value (USD)	±SE
CO	Carbon Monoxide removed annually	3.25	±3.25	$0	±0
NO2	Nitrogen Dioxide removed annually	16.25	±16.25	$0	±0
O3	Ozone removed annually	172.77	±172.77	$1	±1
SO2	Sulfur Dioxide removed annually	16.23	±16.23	$0	±0
PM2.5	Particulate Matter less than 2.5 microns removed annually	8.54	±8.54	$1	±1
PM10*	Particulate Matter greater than 2.5 microns and less than 10 microns removed annually	61.39	±61.39	$4	±4
Total		**278.43**	**±278.43**	**$6**	**±6**

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Air Pollution Estimates are based on these values in oz/ft²/yr @ $/oz/yr and rounded:
CO 0.000 @ $0.01 | NO2 0.002 @ $0.00 | O3 0.018 @ $0.00 | SO2 0.002 @ $0.00 | PM2.5 0.001 @ $0.15 | PM10* 0.006 @ $0.06 (English units: oz = ounces, ft² = square feet)

Tree Benefit Estimates: Hydrological (English units)

Abbr.	Benefit	Amount (gal)	±SE	Value (USD)	±SE
AVRO	Avoided Runoff	201.12	±201.12	$2	±2
E	Evaporation	16,594.22	±16,594.22	N/A	N/A
I	Interception	16,677.04	±16,677.04	N/A	N/A
T	Transpiration	25,714.11	±25,714.11	N/A	N/A
PE	Potential Evaporation	126,172.04	±126,172.04	N/A	N/A
PET	Potential Evapotranspiration	126,172.04	±126,172.04	N/A	N/A

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Hydrological Estimates are based on these values in gal/ft²/yr @ $/gal/yr and rounded:
AVRO 0.021 @ $0.01 | E 1.701 @ N/A | I 1.709 @ N/A | T 2.635 @ N/A | PE 12.931 @ N/A | PET 12.931 @ N/A (English units: gal = gallons, ft² = square feet)

About i-Tree Canopy

The concept and prototype of this program were developed by David J. Nowak, Jeffery T. Walton, and Eric J. Greenfield (USDA Forest Service). The current version of this program was developed and adapted to i-Tree by David Ellingsworth, Mike Binkley, and Scott Maco (The Davey Tree Expert Company)

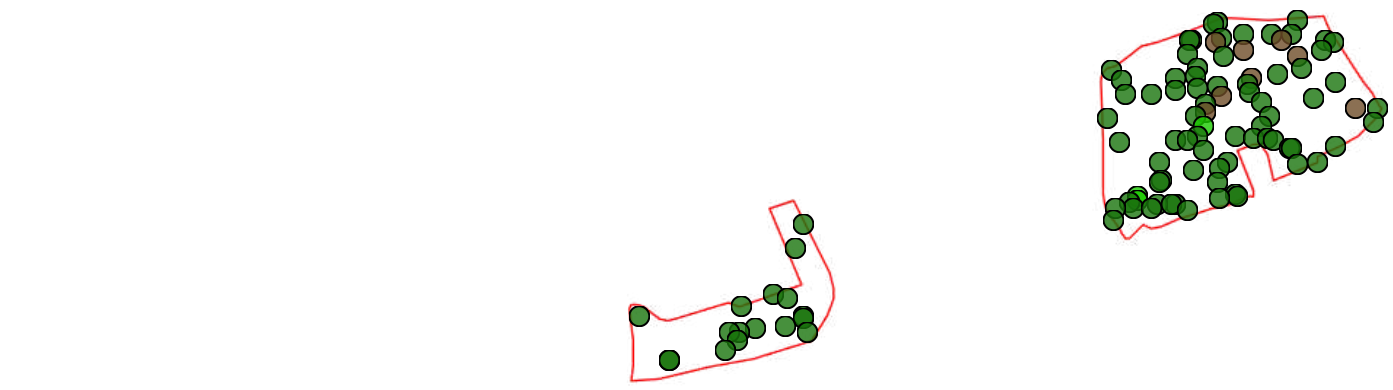
Limitations of i-Tree Canopy

The accuracy of the analysis depends upon the ability of the user to correctly classify each point into its correct class. As the number of points increase, the precision of the estimate will increase as the standard error of the estimate will decrease. If too few points are classified, the standard error will be too high to have any real certainty of the estimate.

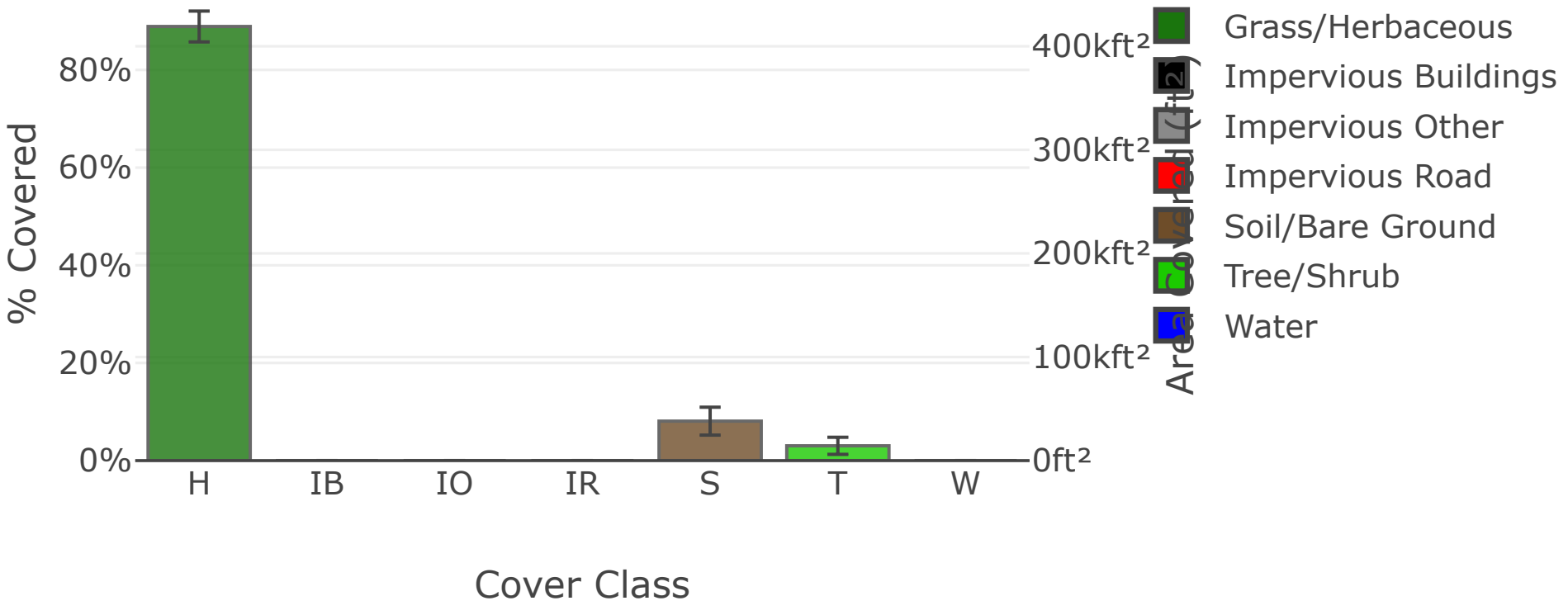
i-Tree Canopy Report

i-Tree Benefits and Cover Assessment

Estimated using random sampling statistics on 5/12/2025



Land Cover



Abbr.	Cover Class	Description	Points	% Cover ± SE	Area (ft²) ± SE
H	Grass/Herbaceous		88	88.89 ± 3.16	419065.24 ± 14890.83
IB	Impervious Buildings		0	0.00 ± 0.00	0.00 ± 0.00
IO	Impervious Other		0	0.00 ± 0.00	0.00 ± 0.00
IR	Impervious Road		0	0.00 ± 0.00	0.00 ± 0.00
S	Soil/Bare Ground		8	8.08 ± 2.86	38096.84 ± 13469.27
T	Tree/Shrub		3	3.03 ± 1.75	14286.32 ± 8248.21
W	Water		0	0.00 ± 0.00	0.00 ± 0.00
Total			**99**	**100.00**	**471448.40**

Tree Benefit Estimates: Carbon (English units)

Description	Carbon (lb)	±SE	CO_2 Equiv. (lb)	±SE	Value (USD)	±SE
Sequestered annually in trees	895.38	±516.95	3,283.05	±1,895.47	$194	±112
Stored in trees (Note: this benefit is not an annual rate)	22,486.27	±12,982.45	82,449.66	±47,602.33	$4,865	±2,809

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Amount sequestered is based on 0.063 lb of Carbon, or 0.230 lb of CO_2, per ft²/yr and rounded. Amount stored is based on 1.574 lb of Carbon, or 5.771 lb of CO_2, per ft² and rounded. Value (USD) is based on $0.22/lb of Carbon, or $0.06/lb of CO_2 and rounded. (English units: lb = pounds, ft² = square feet)

Tree Benefit Estimates: Air Pollution (English units)

Abbr.	Description	Amount (oz)	±SE	Value (USD)	±SE
CO	Carbon Monoxide removed annually	4.76	±2.75	$0	±0
NO2	Nitrogen Dioxide removed annually	23.79	±13.74	$0	±0
O3	Ozone removed annually	252.96	±146.05	$1	±1
SO2	Sulfur Dioxide removed annually	23.76	±13.72	$0	±0
PM2.5	Particulate Matter less than 2.5 microns removed annually	12.50	±7.22	$2	±1
PM10*	Particulate Matter greater than 2.5 microns and less than 10 microns removed annually	89.89	±51.90	$5	±3
Total		**407.67**	**±235.37**	**$8**	**±5**

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Air Pollution Estimates are based on these values in oz/ft²/yr @ $/oz/yr and rounded:
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Tree Benefit Estimates: Hydrological (English units)

Abbr.	Benefit	Amount (gal)	±SE	Value (USD)	±SE
AVRO	Avoided Runoff	294.47	±170.01	$3	±2
E	Evaporation	24,296.63	±14,027.66	N/A	N/A
I	Interception	24,417.88	±14,097.67	N/A	N/A
T	Transpiration	37,649.61	±21,737.01	N/A	N/A
PE	Potential Evaporation	184,736.27	±106,657.54	N/A	N/A
PET	Potential Evapotranspiration	184,736.27	±106,657.54	N/A	N/A

Currency is in USD and rounded. Standard errors of removal and benefit amounts are based on standard errors of sampled and classified points. Hydrological Estimates are based on these values in gal/ft²/yr @ $/gal/yr and rounded:
AVRO 0.021 @ $0.01 | E 1.701 @ N/A | I 1.709 @ N/A | T 2.635 @ N/A | PE 12.931 @ N/A | PET 12.931 @ N/A (English units: gal = gallons, ft² = square feet)

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Id	Cover Clas	Description	Latitude	Longitude
1	Grass/Herbaceous		41.58001	-83.8716
2	Grass/Herbaceous		41.57922	-83.8728
3	Grass/Herbaceous		41.58051	-83.8722
4	Soil/Bare Ground		41.58026	-83.8726
5	Grass/Herbaceous		41.57873	-83.872
6	Grass/Herbaceous		41.57863	-83.8724
7	Grass/Herbaceous		41.57891	-83.8719
8	Grass/Herbaceous		41.57903	-83.8728
9	Grass/Herbaceous		41.57972	-83.8721
10	Soil/Bare Ground		41.57906	-83.8712
11	Soil/Bare Ground		41.57862	-83.8714
12	Grass/Herbaceous		41.57992	-83.8719
13	Grass/Herbaceous		41.57905	-83.8718
14	Grass/Herbaceous		41.57847	-83.8726
15	Soil/Bare Ground		41.57901	-83.8721
16	Grass/Herbaceous		41.57851	-83.8715
17	Soil/Bare Ground		41.57885	-83.8715
18	Soil/Bare Ground		41.57869	-83.8728
19	Soil/Bare Ground		41.57993	-83.8726
20	Grass/Herbaceous		41.57972	-83.8723
21	Grass/Herbaceous		41.58056	-83.8719
22	Grass/Herbaceous		41.58052	-83.8724
23	Grass/Herbaceous		41.5786	-83.869
24	Grass/Herbaceous		41.57974	-83.8727
25	Grass/Herbaceous		41.58053	-83.8719
26	Grass/Herbaceous		41.57832	-83.873
27	Soil/Bare Ground		41.5801	-83.8726
28	Grass/Herbaceous		41.57881	-83.8719
29	Grass/Herbaceous		41.58042	-83.8719
30	Soil/Bare Ground		41.57852	-83.8718
31	Soil/Bare Ground		41.58037	-83.8726
32	Grass/Herbaceous		41.57977	-83.8716
33	Grass/Herbaceous		41.57944	-83.8727
34	Grass/Herbaceous		41.57877	-83.872
35	Grass/Herbaceous		41.58026	-83.8719
36	Grass/Herbaceous		41.58019	-83.8722
37	Soil/Bare Ground		41.58018	-83.8724
38	Soil/Bare Ground		41.57862	-83.8714
39	Soil/Bare Ground		41.58039	-83.8718
40	Grass/Herbaceous		41.57965	-83.8727
41	Grass/Herbaceous		41.57935	-83.8726
42	Grass/Herbaceous		41.57842	-83.8722
43	Grass/Herbaceous		41.5785	-83.8718

44	Grass/Herbaceous	41.57847	-83.8701
45	Grass/Herbaceous	41.57866	-83.8696
46	Grass/Herbaceous	41.57844	-83.8693
47	Grass/Herbaceous	41.57967	-83.8722
48	Grass/Herbaceous	41.57831	-83.8701
49	Grass/Herbaceous	41.57886	-83.8715
50	Grass/Herbaceous	41.57963	-83.8722
51	Grass/Herbaceous	41.57844	-83.8726
52	Grass/Herbaceous	41.58003	-83.8728
53	Grass/Herbaceous	41.57877	-83.8729
54	Grass/Herbaceous	41.57842	-83.8724
55	Grass/Herbaceous	41.57934	-83.872
56	Grass/Herbaceous	41.57836	-83.869
57	Grass/Herbaceous	41.57925	-83.8726
58	Grass/Herbaceous	41.57893	-83.872
59	Grass/Herbaceous	41.57836	-83.869
60	Grass/Herbaceous	41.57858	-83.8724
61	Grass/Herbaceous	41.58017	-83.8718
62	Grass/Herbaceous	41.57846	-83.8725
63	Grass/Herbaceous	41.57831	-83.8728
64	Grass/Herbaceous	41.57843	-83.8723
65	Soil/Bare Ground	41.57999	-83.8726
66	Grass/Herbaceous	41.5783	-83.8702
67	Grass/Herbaceous	41.5785	-83.8724
68	Grass/Herbaceous	41.57839	-83.87
69	Grass/Herbaceous	41.57953	-83.8719
70	Soil/Bare Ground	41.58032	-83.8718
71	Grass/Herbaceous	41.58051	-83.8727
72	Grass/Herbaceous	41.5785	-83.8701
73	Grass/Herbaceous	41.57913	-83.8719
74	Soil/Bare Ground	41.58017	-83.8727
75	Grass/Herbaceous	41.57889	-83.8724
76	Grass/Herbaceous	41.5805	-83.8729
77	Grass/Herbaceous	41.5784	-83.8704
78	Soil/Bare Ground	41.58024	-83.8727
79	Grass/Herbaceous	41.57845	-83.8721
80	Grass/Herbaceous	41.57936	-83.8718
81	Grass/Herbaceous	41.58024	-83.873
82	Grass/Herbaceous	41.57927	-83.8721
83	Grass/Herbaceous	41.57956	-83.8714
84	Grass/Herbaceous	41.57922	-83.8718
85	Grass/Herbaceous	41.57886	-83.8724
86	Soil/Bare Ground	41.57873	-83.8715
87	Soil/Bare Ground	41.57876	-83.8728

88	Soil/Bare Ground	41.57864	-83.8727
89	Grass/Herbaceous	41.57927	-83.8724
90	Soil/Bare Ground	41.58041	-83.8724
91	Grass/Herbaceous	41.57857	-83.8699
92	Grass/Herbaceous	41.57932	-83.8724
93	Grass/Herbaceous	41.57857	-83.8703
94	Grass/Herbaceous	41.58001	-83.8716
95	Soil/Bare Ground	41.57977	-83.8727
96	Grass/Herbaceous	41.57959	-83.8713
97	Grass/Herbaceous	41.57849	-83.8693
98	Grass/Herbaceous	41.57863	-83.872
99	Grass/Herbaceous	41.57841	-83.8717
100	Grass/Herbaceous	41.57852	-83.8703
101		41.58016	-83.8731

Id	Cover Clas	Description	Latitude	Longitude
1	Grass/Herbaceous		41.65046	-83.5044
2	Grass/Herbaceous		41.65097	-83.5041
3	Grass/Herbaceous		41.65089	-83.5044
4	Grass/Herbaceous		41.65019	-83.505
5	Grass/Herbaceous		41.65096	-83.505
6	Grass/Herbaceous		41.65039	-83.5035
7	Grass/Herbaceous		41.6489	-83.5099
8	Grass/Herbaceous		41.65084	-83.5052
9	Grass/Herbaceous		41.64892	-83.5097
10	Grass/Herbaceous		41.65083	-83.5044
11	Grass/Herbaceous		41.65063	-83.505
12	Grass/Herbaceous		41.64868	-83.5106
13	Grass/Herbaceous		41.64976	-83.5092
14	Grass/Herbaceous		41.65116	-83.5036
15	Tree/Shrub		41.65055	-83.5049
16	Grass/Herbaceous		41.65037	-83.504
17	Grass/Herbaceous		41.651	-83.5059
18	Grass/Herbaceous		41.65123	-83.505
19	Soil/Bare Ground		41.65116	-83.5045
20	Grass/Herbaceous		41.64992	-83.5052
21	Grass/Herbaceous		41.65026	-83.5046
22	Grass/Herbaceous		41.65113	-83.5051
23	Grass/Herbaceous		41.6508	-83.5057
24	Grass/Herbaceous		41.65044	-83.5042
25	Grass/Herbaceous		41.65085	-83.505
26	Grass/Herbaceous		41.64998	-83.5047
27	Grass/Herbaceous		41.65047	-83.5045
28	Grass/Herbaceous		41.64894	-83.5094
29	Grass/Herbaceous		41.65026	-83.5054
30	Grass/Herbaceous		41.64876	-83.51
31	Grass/Herbaceous		41.65124	-83.5036
32	Grass/Herbaceous		41.65125	-83.505
33	Grass/Herbaceous		41.65021	-83.5047
34	Grass/Herbaceous		41.65069	-83.503
35	Grass/Herbaceous		41.6501	-83.5047
36	Grass/Herbaceous		41.65011	-83.5053
37	Grass/Herbaceous		41.64903	-83.5092
38	Grass/Herbaceous		41.65125	-83.5047
39	Grass/Herbaceous		41.6499	-83.5057
40	Grass/Herbaceous		41.64999	-83.5045
41	Grass/Herbaceous		41.64992	-83.5054
42	Grass/Herbaceous		41.64901	-83.5092
43	Tree/Shrub		41.64995	-83.5056

44	Grass/Herbaceous	41.65088	-83.5047
45	Tree/Shrub	41.64998	-83.5056
46	Grass/Herbaceous	41.64989	-83.5054
47	Grass/Herbaceous	41.65101	-83.5049
48	Grass/Herbaceous	41.65091	-83.5035
49	Grass/Herbaceous	41.65054	-83.5043
50	Grass/Herbaceous	41.65128	-83.5045
51	Grass/Herbaceous	41.65046	-83.5049
52	Grass/Herbaceous	41.65111	-83.5047
53	Grass/Herbaceous	41.65077	-83.5037
54	Grass/Herbaceous	41.65136	-83.5048
55	Grass/Herbaceous	41.65128	-83.5039
56	Grass/Herbaceous	41.65046	-83.5042
57	Grass/Herbaceous	41.65063	-83.5042
58	Grass/Herbaceous	41.64921	-83.5095
59	Grass/Herbaceous	41.65074	-83.5043
60	Soil/Bare Ground	41.65066	-83.5049
61	Grass/Herbaceous	41.65094	-83.5052
62	Grass/Herbaceous	41.65041	-83.5058
63	Grass/Herbaceous	41.65044	-83.5052
64	Grass/Herbaceous	41.64902	-83.5109
65	Soil/Bare Ground	41.65112	-83.5039
66	Grass/Herbaceous	41.6491	-83.5098
67	Grass/Herbaceous	41.65026	-83.5037
68	Grass/Herbaceous	41.64868	-83.5106
69	Soil/Bare Ground	41.65124	-83.5041
70	Soil/Bare Ground	41.6507	-83.5033
71	Grass/Herbaceous	41.65025	-83.5039
72	Grass/Herbaceous	41.65062	-83.5059
73	Grass/Herbaceous	41.6501	-83.5054
74	Soil/Bare Ground	41.65093	-83.5044
75	Grass/Herbaceous	41.64957	-83.5093
76	Grass/Herbaceous	41.65036	-83.5049
77	Soil/Bare Ground	41.65079	-83.5047
78	Grass/Herbaceous	41.65059	-83.5031
79	Grass/Herbaceous	41.64989	-83.5058
80	Grass/Herbaceous	41.65	-83.5045
81	Grass/Herbaceous	41.65037	-83.504
82	Grass/Herbaceous	41.64988	-83.5051
83	Grass/Herbaceous	41.65138	-83.5047
84	Grass/Herbaceous	41.6489	-83.51
85	Grass/Herbaceous	41.65101	-83.5038
86	Soil/Bare Ground	41.65122	-83.5048
87	Grass/Herbaceous	41.6489	-83.5091

88	Grass/Herbaceous	41.6498	-83.5058
89	Grass/Herbaceous	41.65091	-83.5058
90	Grass/Herbaceous	41.65081	-83.5054
91	Grass/Herbaceous	41.64994	-83.5057
92	Grass/Herbaceous	41.64916	-83.5094
93	Grass/Herbaceous	41.6514	-83.5039
94	Grass/Herbaceous	41.65128	-83.5042
95	Grass/Herbaceous	41.65044	-83.5051
96	Grass/Herbaceous	41.65072	-83.5049
97	Grass/Herbaceous	41.64884	-83.5099
98	Grass/Herbaceous	41.64992	-83.5052
99	Grass/Herbaceous	41.65122	-83.5035
100		41.64998	-83.5045

Id	Cover Clas Description	Latitude	Longitude
1	Grass/Herbaceous	41.66804	-83.7749
2	Grass/Herbaceous	41.67124	-83.7679
3	Grass/Herbaceous	41.66709	-83.7766
4	Grass/Herbaceous	41.66947	-83.7697
5	Grass/Herbaceous	41.66649	-83.777
6	Grass/Herbaceous	41.66614	-83.7691
7	Grass/Herbaceous	41.66707	-83.7692
8	Grass/Herbaceous	41.66956	-83.7668
9	Grass/Herbaceous	41.66644	-83.7685
10	Grass/Herbaceous	41.67027	-83.7664
11	Grass/Herbaceous	41.67066	-83.7668
12	Grass/Herbaceous	41.67133	-83.7671
13	Grass/Herbaceous	41.66911	-83.7696
14	Grass/Herbaceous	41.66738	-83.7767
15	Grass/Herbaceous	41.66613	-83.7696
16	Grass/Herbaceous	41.66907	-83.7773
17	Grass/Herbaceous	41.6675	-83.7776
18	Grass/Herbaceous	41.6671	-83.7704
19	Grass/Herbaceous	41.67077	-83.767
20	Grass/Herbaceous	41.6671	-83.7691
21	Grass/Herbaceous	41.66799	-83.7767
22	Grass/Herbaceous	41.67035	-83.7674
23	Grass/Herbaceous	41.6671	-83.7692
24	Soil/Bare Ground	41.6671	-83.7766
25	Grass/Herbaceous	41.66946	-83.7669
26	Grass/Herbaceous	41.66727	-83.7704
27	Grass/Herbaceous	41.66621	-83.7765
28	Grass/Herbaceous	41.66623	-83.7699
29	Grass/Herbaceous	41.66675	-83.7689
30	Grass/Herbaceous	41.66663	-83.7689
31	Grass/Herbaceous	41.66638	-83.7696
32	Grass/Herbaceous	41.66648	-83.7696
33	Grass/Herbaceous	41.66768	-83.7775
34	Grass/Herbaceous	41.66623	-83.7771
35	Grass/Herbaceous	41.66716	-83.7696
36	Grass/Herbaceous	41.67128	-83.7674
37	Grass/Herbaceous	41.67056	-83.7663
38	Grass/Herbaceous	41.66904	-83.7696
39	Grass/Herbaceous	41.67117	-83.7678
40	Grass/Herbaceous	41.66712	-83.7695
41	Grass/Herbaceous	41.6676	-83.7709
42	Grass/Herbaceous	41.67129	-83.7671
43	Grass/Herbaceous	41.67133	-83.766

44	Grass/Herbaceous	41.67122	-83.7659
45	Grass/Herbaceous	41.67083	-83.7671
46	Grass/Herbaceous	41.67114	-83.7662
47	Grass/Herbaceous	41.67061	-83.7672
48	Grass/Herbaceous	41.67136	-83.7669
49	Grass/Herbaceous	41.66866	-83.768
50	Grass/Herbaceous	41.66995	-83.766
51	Grass/Herbaceous	41.67005	-83.7674
52	Grass/Herbaceous	41.66753	-83.7766
53	Grass/Herbaceous	41.66898	-83.7773
54	Soil/Bare Ground	41.66761	-83.7764
55	Grass/Herbaceous	41.66939	-83.7678
56	Grass/Herbaceous	41.66661	-83.769
57	Soil/Bare Ground	41.66723	-83.7691
58	Soil/Bare Ground	41.66802	-83.7765
59	Grass/Herbaceous	41.67156	-83.7672
60	Soil/Bare Ground	41.66794	-83.7763
61	Soil/Bare Ground	41.668	-83.7765
62	Grass/Herbaceous	41.66871	-83.7772
63	Grass/Herbaceous	41.66609	-83.7686
64	Soil/Bare Ground	41.66659	-83.7685
65	Grass/Herbaceous	41.6671	-83.7692
66	Grass/Herbaceous	41.66893	-83.7664
67	Grass/Herbaceous	41.66742	-83.7768
68	Grass/Herbaceous	41.67099	-83.7668
69	Soil/Bare Ground	41.66784	-83.7763
70	Tree/Shrub	41.66926	-83.7662
71	Grass/Herbaceous	41.67034	-83.7671
72	Grass/Herbaceous	41.66751	-83.7768
73	Grass/Herbaceous	41.6695	-83.7666
74	Grass/Herbaceous	41.6686	-83.7681
75	Grass/Herbaceous	41.66665	-83.7688
76	Grass/Herbaceous	41.67127	-83.7662
77	Grass/Herbaceous	41.6686	-83.7775
78	Grass/Herbaceous	41.66893	-83.7771
79	Grass/Herbaceous	41.66802	-83.7769
80	Grass/Herbaceous	41.67057	-83.7667
81	Grass/Herbaceous	41.6701	-83.7664
82	Grass/Herbaceous	41.66694	-83.7689
83	Grass/Herbaceous	41.66948	-83.7667
84	Grass/Herbaceous	41.67021	-83.7667
85	Grass/Herbaceous	41.66874	-83.7775
86	Grass/Herbaceous	41.67113	-83.7671
87	Grass/Herbaceous	41.66909	-83.7699

88	Grass/Herbaceous	41.66796	-83.7747
89	Grass/Herbaceous	41.66773	-83.777
90	Grass/Herbaceous	41.67022	-83.7675
91	Grass/Herbaceous	41.67151	-83.7673
92	Grass/Herbaceous	41.66723	-83.7764
93	Grass/Herbaceous	41.66946	-83.7695
94	Grass/Herbaceous	41.6673	-83.7696
95	Grass/Herbaceous	41.66716	-83.7688
96	Grass/Herbaceous	41.66639	-83.7699
97	Grass/Herbaceous	41.66979	-83.7664
98	Grass/Herbaceous	41.66876	-83.7695
99	Grass/Herbaceous	41.66679	-83.7693
100	Grass/Herbaceous	41.66928	-83.7699
101	Grass/Herbaceous	41.66715	-83.7697
102		41.66677	-83.7699