

How Can Incorporating a Working
Arboretum Into an Existing Farm and
Community Garden Benefit The
People of Anderson Township.

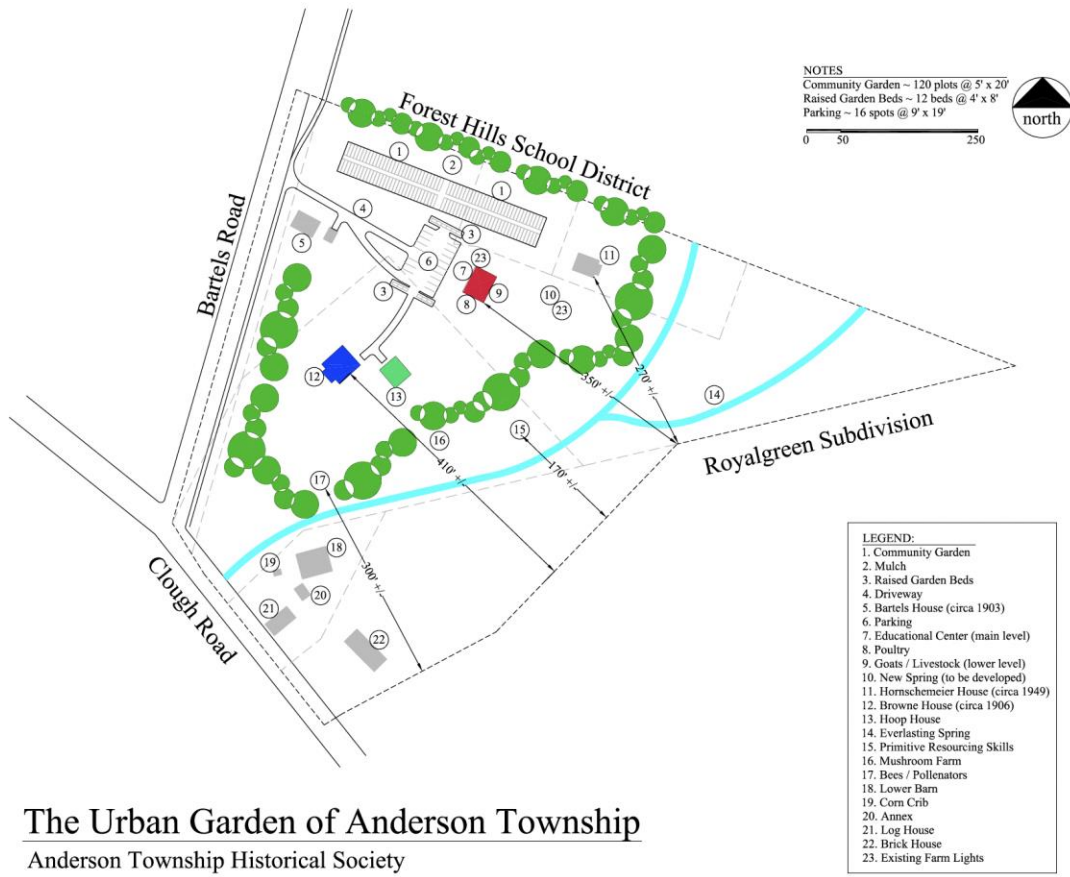
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The Urban Garden of Anderson Township
 Anderson Township Historical Society

Image 1: Anderson Township Historical Society Site Map (Credit: Anderson Township Historical Society)

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Image Credit: Lesley Gressle

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Horticulture Courses Taken:

University of Cincinnati 2023-2025:

- Course: HORT 4092: Senior Capstone Project Instructor: Professor Stevie Famulari
Term: Spring 2025 Notable Course Content: Worked on capstone project to incorporate an arboretum into the Anderson Urban Farm.
- Course: HORT 2012: Agriculture Ecology Instructor: Dr. Tania Burgos Hernandez
Term: Spring 2025 Notable Course Content: Learned about both current and historical agricultural and planting practices used in our society.
- Course: HORT 1011L: Horticulture Chemistry Instructor: Assistant Professor Brian Grubb
Term: Spring 2025 Notable Course Content: Learned about the various chemical aspects of horticulture, plant science, and various aspects needed by plants in order to grow in the landscape.
- Course: HORT 4020: Horticulture Crop Physiology Instructor: Dr. Dan Petersen
Term: Fall 2024 Notable Course Content: Learned about the various diseases that affect the plants, shrubs, and trees in both our area and beyond.
- Course: HORT 2033: Herbaceous Ornamentals 2 Instructor: Jim Hansel
Term: Summer 2024 Notable Course Content: Continued to gain knowledge about the use of ornamental herbaceous plants in a garden or landscape.
- Course: HORT 2031: Woody Ornamentals 2 Instructor: CZBG Director of Horticulture Steve Foltz
Term: Spring 2024 Notable Course Content: Continued to gain knowledge on both the common and botanical names of various trees and shrubs found in our area.

- Course: HORT 1011: Horticulture Science 2 Instructor: Jim Hansel Term: Spring 2024 Notable Course Content: Continued to gain knowledge on the botanical science of plants found in our region.
- Course: HORT 3050: Landscape History to 1900 Instructor: Professor Stevie Famulari Term: Fall 2023 Notable Course Content: Learned about the history of various types of landscapes as well as how suburban expansion has affected the types of landscapes we have in our country.
- Course: HORT 3042: Urban Landscape 2: Agriculture Instructor: Assistant Professor Brian Grubb Term: Fall 2023 Notable Course Content: Learned about various types of agriculture practices in an urban setting.
- Course: HORT 1030: Native Plants 1 Instructor(s): Assistant Professor Brian Grubb and Jim Hansel Term: Fall 2023 Notable Course Content: Continued to gain knowledge on both the common and botanical names of many native plants, trees, and shrubs growing in the Cincinnati Area.

Cincinnati State 2019-2023:

- Course: Special Project Instructor: Professor Brian Hooten Term: Spring 2023 Notable Course Content: Began the research work on the woody trees and shrubs at the Anderson Urban Farm that will be incorporated into this capstone project.
- Course: LH215: Arboriculture Instructor Davey Tree Care Manager Joe Shaw Term: Fall 2022 Notable Course Content: Learned about tree care and maintenance and how to perform these tasks safely and properly.
- Course: Irrigation Design and Install Instructor: Tom Barrett Term: Fall 2022 Notable Course Content: Learned how to put together an irrigation system for a particular area or landscape.
- Course: LH205: Landscape Pests Instructor: Professor Heather Augustine Term: Spring 2022 Notable Course Content: Learned about the native and introduced landscape pests that live in the Cincinnati Area and attack plants, trees, and shrubs growing here.

- Course: LH140: Landscape Management Instructor: Professor Heather Augustine
Term: Spring 2022 Notable Course Content: Learning how to put together a comprehensive landscape management plan.
- Course: LH125: Turfgrass Management Instructor: Professor Heather Augustine
Term: Fall 2021 Notable Course Content: Gained the ability to identify both the common and botanical names of common types of turf grass and weeds that grow or are grown in the Cincinnati Region.
- Course: LH130: Woody Plant ID Instructor: Samuel Mark Deacon Term: Fall 2021
Notable Course Content: Running list and memorization of all common woody trees and shrubs growing in the Cincinnati Region. This includes both the common and botanical names.
- Course: LH120: Soil Science Instructor: Professor Heather Augustine Term: Fall 2021
Notable Course Content: Lab on soil testing.
- Course: Landscape Construction Instructor: Samuel Mark Deacon Term: Summer 2021
Notable Course Content: Paver Walkway Install Project at Boone County Arboretum in Union, KY.
- Course: LH135: Herbaceous Plant ID Instructor: Greenhouse Manager Kelly Wanstrath
Term: Summer 2021 Notable Course Content: Running PowerPoint of common herbaceous plants both native and not grown in the Cincinnati Region. This includes both the common and botanical names.
- Course: LH151: Landscape Design 1 Instructor: Samuel Mark Deacon Term: Spring 2020
Notable Course Content: Final Design Project of Instructor's Own Yard.
- Course: LH110: Horticulture Science/Applied Botany Instructor: Professor Heather Augustine
Term: Spring 2020 Notable Course Content: Lecture on general plant biology and cell structure in how wood is different from other types of plant tissue.

Abstract and Keywords:

Abstract:

This project consists of taking an existing property in Anderson Township, Ohio that serves as an urban farm and community education center and incorporating a working arboretum into it. The project consists of a ten-year timeline of how the arboretum can be incorporated into the existing property with necessary upgrades. The property has existing trees and shrubs planted on it. This research illustrates the benefits of an arboretum.

Keywords:

- **Arboretum:** A place where trees, shrubs, and herbaceous plants are cultivated for scientific and educational purposes.



Image 2: Mount Airy Arboretum located in Cincinnati's Mount Airy Forest, the largest of the Cincinnati Parks. Image Credit: City of Cincinnati

- **Green Space:** Community space consisting of land (such as parks) rather than buildings.



Image 3: An example of an urban green space. Image Credit: iStock

- **Shrub:** A low usually several-stemmed woody plant.



Image 4: Some shrubs in a landscape. As one can see, shrubs are woody plants with foliage and woody stems but are not as tall as trees. Also as shown, there are few to no branches on the bottoms of the shrubs. Image Credit: Agronomic Lawn Management

- **Tree:** A woody perennial plant having a single, usually elongated main stem generally with few or no branches on its lower part.



Image 5: A tree is a tall woody plant with a single main stem and as shown, there are typically few to no branches on the lower part. Image Credit: Eco Tree

- **Woody Plants:** Woody plants are perennials (plants that live more than two years) that create stiff structures above ground that they use throughout their lives. (See photographic examples of woody plants e.g. shrubs and trees above)

Definitions sourced from Merriam Webster's Dictionary and Great Plains Nature Center.

Problem Statement:

How would the incorporation of an arboretum into a property that is currently serving as a historical urban farm and historical/nature education center benefit the people of Anderson Township and the people who will visit and use the property?



Image 6: A small tree planted at the Anderson Urban Farm in 2021. Image Credit: Ben Gressle

Project Justification:

Anderson Township is a suburban community in a midwestern US state located just outside of Cincinnati. These types of communities sprang up in large numbers starting in the 1950s after World War II and the post-war Baby Boom.

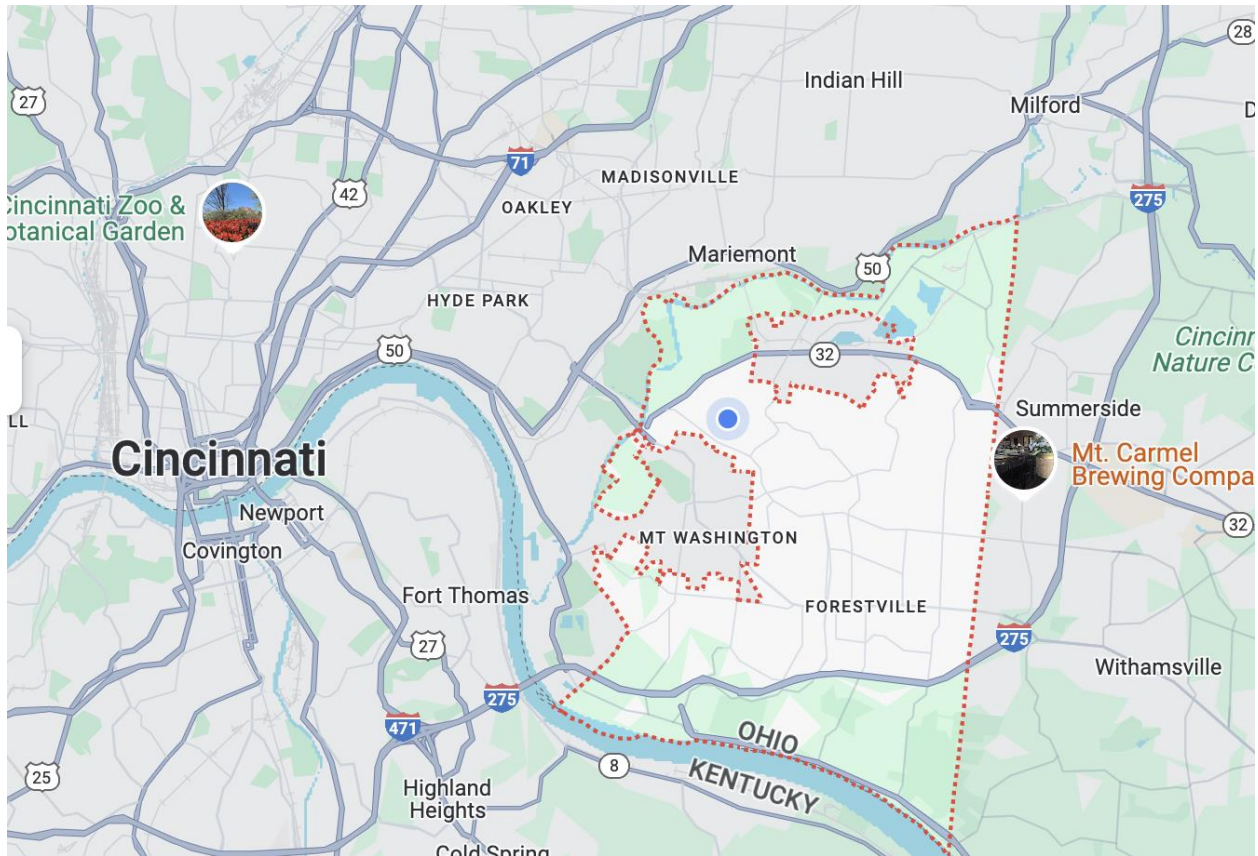


Image 7: A map outlining the limits of Anderson Township, Hamilton County, Ohio in red lines. The township is the southeasternmost civil township in Hamilton County and is primarily located east of the Little Miami River and is bordered to the east by the border with Clermont County. (Image Credit: Google Maps)

Former forests, fields, and other natural environments have since been transformed into buildings, pavements, and subdivisions in the decades since the war. In addition, it is proven that the color green helps to reduce anxiety in people, and being out in nature around green plants and trees can, therefore, help with this.

Having buildings and pavement with a noticeable lack of green spaces adds to the stress and anxiety of the people in the community. Therefore, the community within Anderson Township and beyond could benefit from the creation of this space within an existing space that is already serving great benefit to the community as of now.

PROPOSAL:

User/Client Description:

The client for this arboretum integration project is the Anderson Township Historical Society Incorporated (ATHS), along with their wholly owned Anderson Urban Farm. This organization is 100% volunteer run and is incorporated as a 501c3 tax-exempt nonprofit business.

The organization is run by an executive board that consists of a President, Vice President, Secretary, Treasurer, and six trustees. The general body, referred to as the general membership, elects these officers to serve for three-year terms with three of the six trustees elected for one year. The age range of these board members is traditionally 70+ years old.

Immediately below the executive board are seven standing committees that carry out the specified operations of the ATHS. One of these standing committees is responsible for overseeing the Urban Farm while another oversees real properties owned and operated by the ATHS. These two aforementioned standing committees would be tasked with overseeing arboretum operations as this would fall within the jurisdiction of both.

This project is proposed to be owned by ATHS as it would be on their owned property. The users of the property would be both members of the ATHS as well as members of the general public. These individuals who frequent the property were noted to mostly consist of persons aged 40+ with small and school-aged children also often seen on the property (birth to age 13/14 approximately).

Peak property usage is dependent on the weather as well as the prime season for activity on the property, which is typically between mid-spring and late fall each year. Peak usage can be all day during the above-mentioned peak season of the year. This is particularly the case when the community gardens on-site are in season, and gardeners of the above-mentioned age range come to the property and tend to plants being grown in their rented garden plots.



Image 8: Garden plots at Urban Farm. Image Credit: Ben Gressle

Parking facilities exist on-site for both sides of the property. A driveway and parking area made of ground-up asphalt is present on the Urban Farm property with driveway parking available in certain circumstances.



Image 9: Parking lot and picnic tables. Image Credit: Ben Gressle

The lower property features a fully paved parking lot. During special events taking place on the Urban Farm property, a neighboring Knights of Columbus hall has entered into an agreement with the AHS to allow for overflow parking in both their paved and gravel parking lots across the street from the site.



Image 10: K of C parking lot. Image Credit: Ben Gressle



Image 11: K of C gravel parking lot. Image Credit: Ben Gressle

Lower property events use a neighboring office building's paved parking lot for overflow parking. As with the Urban Farm property, ATHS also has an agreement with the ownership of the lower office building to use their lot for overflow parking. This office building, The Hunter Building located at 6600 Clough Pike, is connected to the lower property of ATHS via a wooded walkway.



Image 12: Office building parking lot. Image Credit: Ben Gressle

Major Project Elements:

The site of this project features several elements throughout the property. The Urban Farm features a ground-up asphalt driveway, a parking lot made of the same material, picnic benches, and tables, a bulletin board (under construction), several defined pathways, nature trails through the wooded areas, and porch spaces attached to the historic homes on the property that is usable by the public (the homes are owned by ATHS and are unoccupied as of current).



Image 13: A picnic area with a tree near the Urban Farm's Chicken Coop. Image Credit: Ben Gressle



Image 14: A picnic area at the Urban Farm. Image Credit: Ben Gressle



Image 15: Porch on farmhouse. Image Credit: Ben Gressle



Image 16: View from the porch. Image Credit: Ben Gressle



Image 17: A hiking trail cutting through the woodlands behind the main Urban Farm property. Image Credit: Ben Gressle

Site Inventory Analysis- Quantitative

Tree and shrub species on the site include the following:



- *Acer rubrum* - Red Maple: Image Credit: Tennessee Wholesale Nursery
- *Acer rubrum* 'October Glory' - October Glory Red Maple:



Image Credit: Arbor Day

Foundation



- *Acer saccharinum* - Silver Maple:
Credit: Britannica

Image



- *Acer saccharum* - Sugar Maple:
Tree Experts

Image Credit: Bartlett

- *Acer x. fremanii* - Hybrid Freeman Maple:



Image Credit:

Halifax Tree Project



- *Berberis vulgaris* - Common Barberry:

Image Credit: Go Botany



- *Buxus* sp. - Boxwood:

Wholesale Nursery Company

Image Credit:



- *Cercis canadensis* - Eastern Redbud:
Credit: Arbor Day Foundation

Image



- *Celtis occidentalis* - Hackberry:
iTrees

Image Credit:



- *Corylus avellana* - Hazelnut/Common Filbert:
Image Credit: Fast Growing Trees



- *Fagus grandifolia* - American Beech:
Credit: Bates College

Image



- *Gleditsia triacanthos* - Honey Locust:
Credit: Texas A&M Forest Service

Image

- *Gleditsia triacanthos* var. *inermis* - Thornless Honey Locust Variety:



Image Credit: Spencer Creek Nursery

- *Hydrangea quercifolia* - Oak-Leaved Hydrangea:



Image Credit: Martha Stewart



- *Ilex opaca* - American Holly:
Arbor Day Foundation

Image Credit:



- *Juglans nigra* - Black Walnut:
Mother Earth News

Image Credit:



- *Juglans regia* - Common/English Walnut:
Image Credit: Britannica



- *Ligustrum* spp. - Privet: Image Credit:
Nashville Tree Conservation Corps



- *Lindera benzoin* – Spicebush: Image Credit:
Gardeninacity



- *Liriodendron tulipifera* - Tulip Poplar Tree:
Image Credit: Maryland Biodiversity Project



- *Morus alba* - White Mulberry:
North Carolina State University

Image Credit:



- *Pinus strobus* - White Pine:
Arboretum

Image Credit: The Morton



- *Quercus palustris* - Pin Oak:
Carolina Nature

Image Credit:



- *Rhododendron* sp. - Azalea:

Image Credit: Garden Crossings



- *Taxus x. media* - Anglojap Yew:

Image Credit: University of Connecticut



- *Thuja plicata* - Western Arborvitae:

Image Credit: Little Red Nursery



- *Ulmus americana* - American Elm:
Credit: National Park Service

Image

Site Summary:

Quantitative Review:

The site of this project is an 11-acre historical property featuring both a historic farm and an early homestead. It is located at 2550 Bartels Rd. Cincinnati, OH 45244, and extends into 6550 Clough Pike Cincinnati, OH 45244. It is located in Anderson Township, which is the southeasternmost civil township located within Hamilton County, Ohio.



Image 18: This is the entrance to the Anderson Urban Farm as seen from Bartels Road. As one can see, this property features many trees, shrubs, herbaceous plants, and other types of greenery. (Image Credit: Google Maps)

Only a fraction of the 11-acre property is usable space as the rest of the space, while still owned by the Anderson Township Historical Society, is undeveloped woodland passed through by a ravine with a creek in the center and is not regularly used.



Image 19: An example of the wooded area that is not regularly used by visitors and members of ATHS. A creek runs through the center of a heavily wooded ravine with rugged rocks and hilly terrain. Image Credit: Ben Gressle

The property is broken into two halves-, an upper half which is the “Urban Farm,” and the lower half, which is the “Log House”- dominated by the historic 18th-century Miller-Leuser Log House, one of the first permanent single-family homes in the area.

The upper Urban Farm side of the property features a total of 140 feasible specimens of trees and shrubs. 84 of these are trees while the remaining 56 are shrubs.

The upper property features an abundance of black walnut and hackberry trees, along with other species.

The lower property features more shrubs than trees with a total of only 15 feasible trees and 53 shrubs for an overall total of 68 specimens.

Site Maps:

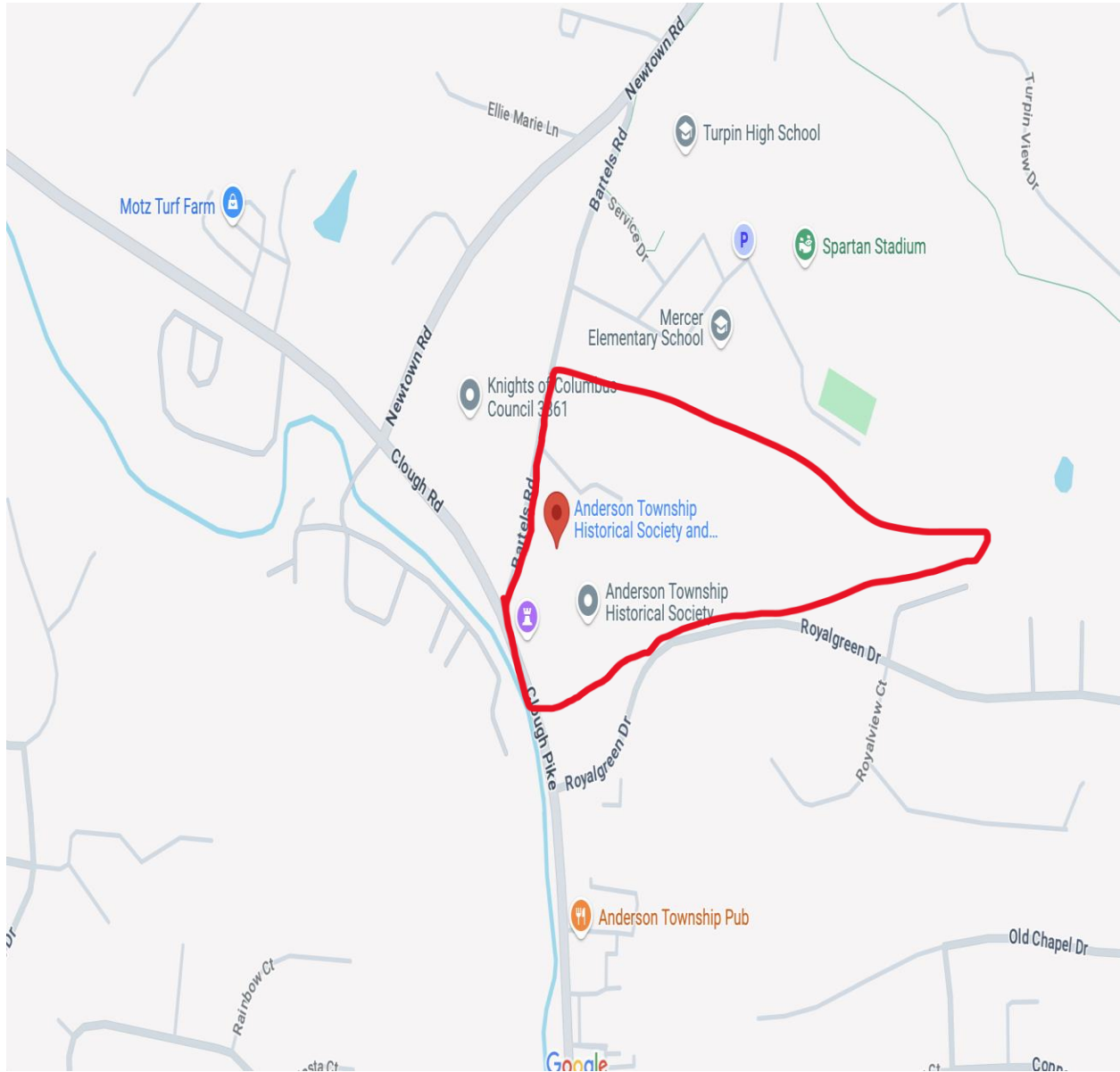


Image 20: An overview of the property on Google Maps without any other layer enabled (streets, borders, local businesses, and land use) The approximate boundaries of the ATHS Property are outlined in red. (Image Credit: Google Maps)

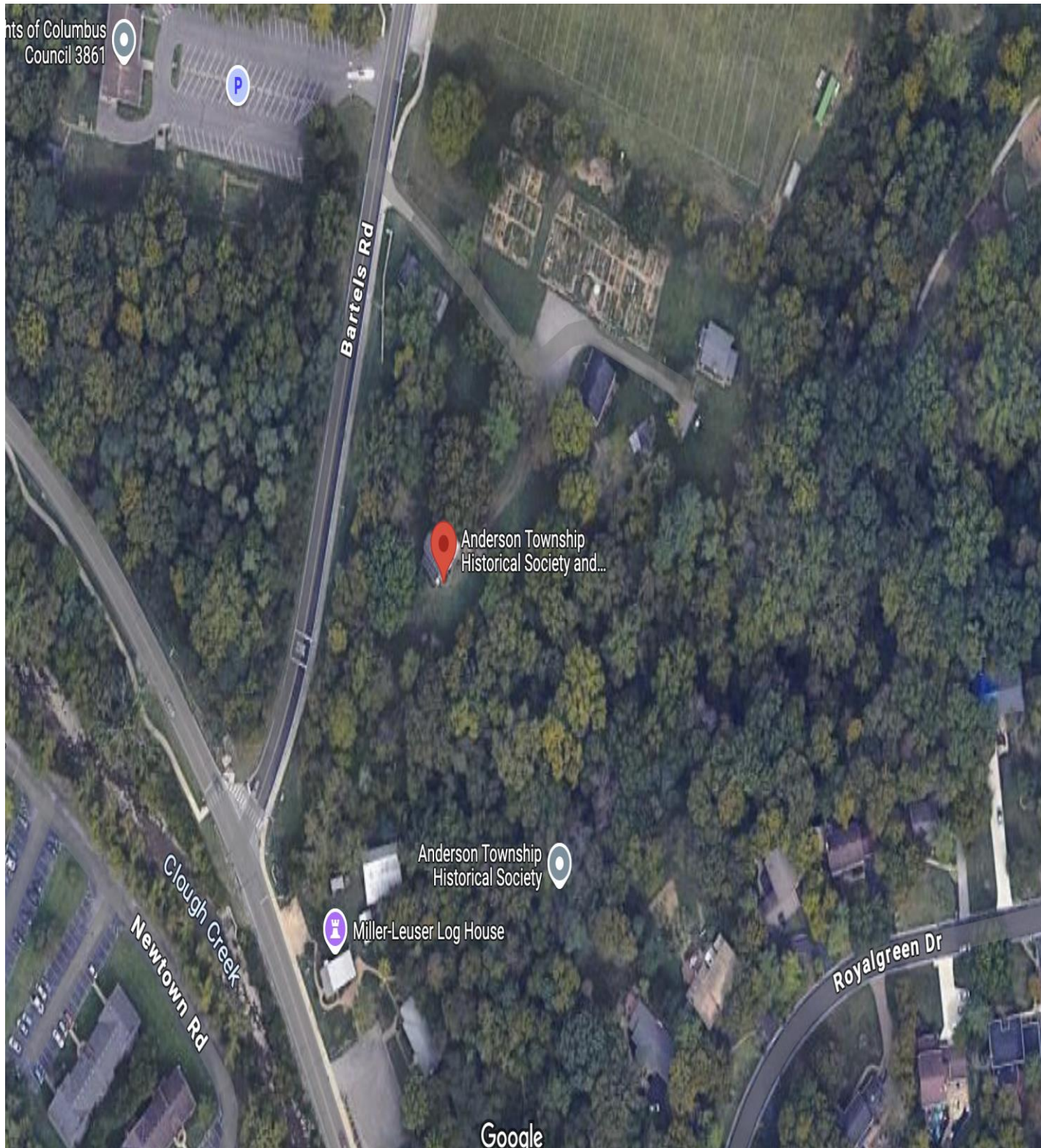


Image 21: An aerial satellite image from Google Maps of the property and the surrounding area. (Image Credit: Google Maps)



Image 22: This is a map image of the property and surrounding parcels from CAGIS. This map shows property and parcel lines/borders. (Image Credit: CAGIS)



Image 23: Miller-Leuser Log House as seen from Clough Pike. This house is the centerpiece of the “Lower Property“. (Image Credit: Google Maps)

Even though there are functionally “two properties”, the land is owned as a continuous parcel. It is the sole remnant of a much larger property that once stretched all the way to the present-day intersection of Newtown Road and Ohio State Route 32.

The lower property is a house museum and is primarily used for tours of the historic house, along with the gardens and surrounding grounds.



Image 24: Memory Garden Space located next to the Miller-Leuser Log House. Note the Eastern Redbud tree *Cercis canadensis* present in this garden space. Image Credit: Ben Gressle

The Anderson Township Historical Society is headquartered in a ranch-style house next door. This functions as both an office and a museum.



Image 25: Brick House Research Center- ATHS Headquarters along with surrounding trees
Image Credit: Ben Gressle

The upper property is a working farm used for community gardening, education, live music events, and other events that happen throughout the year. It also functions as a sort of unofficial park for people's enjoyment. It consists of three houses and a 100+ year old bank barn.



Image 26: This big red barn located at the Anderson Urban Farm is a bank barn that is 100+ years old. It was moved to its current location at some point in the last century, but records detailing this have not been entirely accurate. This structure is a bank barn, which means that it has a basement but is not entirely underground. This is the centerpiece of the Urban Farm property. Image Credit: Ben Gressle

Both halves of the continuous property feature an abundance of trees, shrubs, gardens, and other green spaces.



Image 27: A large White Pine *Pinus strobus* located on the Urban Farm Property Image
Credit: Ben Gressle



Image 28: A large American Beech *Fagus grandifolia* on the Urban Farm property. Image Credit: Ben Gressle

Buildings on the upper property include three houses on the upper property: a small four-room house on the front of the property, a cinder-block kit house on the rear of the property, and a large two-story farmhouse on the south side of the property, and a large bank barn in the center of the property. A single road made of ground-up asphalt runs through the center of the site, passing through a small parking lot made of the same material. This lot also serves as a common area for events taking place throughout the year. A chicken coop is also located on the property, which houses a small flock of hens,

and the property also features picnic tables, community garden beds both in-ground and raised, garden waste dumps, a memorial bench dedicated to my father, and portable toilets. Two concrete pads are also located on-site, which were the former location of sheds/garages that have been demolished. None of these buildings cast significant shadows over planting and green spaces on the property.

The lower property features the landmark Log House, which is surrounded by gardens, a wooden corn crib, a tobacco barn, a large metal shed covered with wood siding, a ranch-style house that serves as the ATHS headquarters, and a parking lot. Gravel pathways cut through this side of the property. This lower property is bounded by a creek.



Image 29: A view of the lower property. The Equipment Barn is on the right-hand side of the image while the rear of the Miller-Leuser Log House is on the left side. Straight ahead is the corn crib and historic outhouse. Image Credit: Ben Gressle

The property is comprised of multiple parcels (See Image 22), with these parcels owned by ATHS and, therefore, are treated as one continuous parcel.



Image 30: Natural scenery around the Brick House Research Center. Image Credit: Ben Gressle

The overall property is bounded to the southwest by Clough Pike, which is a busy main road in Anderson Township and to the west by Bartels Road, a road that connects Clough Pike with Newtown Road, another busy thoroughfare. The Bartels Road boundary is also bounded by Knights of Columbus Hall Council 3861. The property is bordered to the northeast by a campus consisting of Turpin High School and Mercer Elementary School owned by the Forest Hills Local School District. Specifically, the part of the school board-owned property that borders this site is the soccer fields for the high school. To the east, the property is bounded by a residential neighborhood. A very steep slope does exist between the upper and lower properties. A trail has been created with a skid steer loader to connect the two properties through the wooded slope. However, this trail route does include an incomplete creek crossing that currently requires walking through the creek itself. Another way to go between the two properties without driving is to take the paved sidewalk along the roadways bordering the properties.



Image 31: An image looking northeast on Bartels Road from the Urban Farm property. The front entrance and softball fields of Turpin High School can be seen on the upper right-hand side of the image. Image Credit: Ben Gressle



Image 32: Some of the smaller trees along the northern property line of the ATHS/Urban Farm property. As one can see, the campuses of Turpin High School and Mercer Elementary School are visible in the background. Image Credit: Ben Gressle

The property is subject to the typical weather patterns of the Greater Cincinnati Area. This includes hot, humid summers, mild to cold winters with varying precipitation, and springs and falls with wildly variable weather conditions throughout both of these seasons.

Qualitative Review:

This property is bounded by residential and commercial areas on all sides. The area of the township is primarily wooded but features residences and businesses in the neighboring areas. The property is a getaway from the hustle and bustle of the neighboring regions, with both an open space for people to get some sunshine as well as areas that feel woody, lush, and serene. The flatness of the main property sides makes for an easy walk throughout the property, but the steep slope and limited options make getting between the two properties a bit difficult, which would be challenging for certain people given the fact that the property is frequently visited by the elderly. The creek crossing for one of these routes is also downright dangerous as it involves climbing over large rocks and slabs and may feature rushing water, which could be hazardous. The other route is easier, but on both routes, going from the lower to upper property is very tiring compared to the other way around.

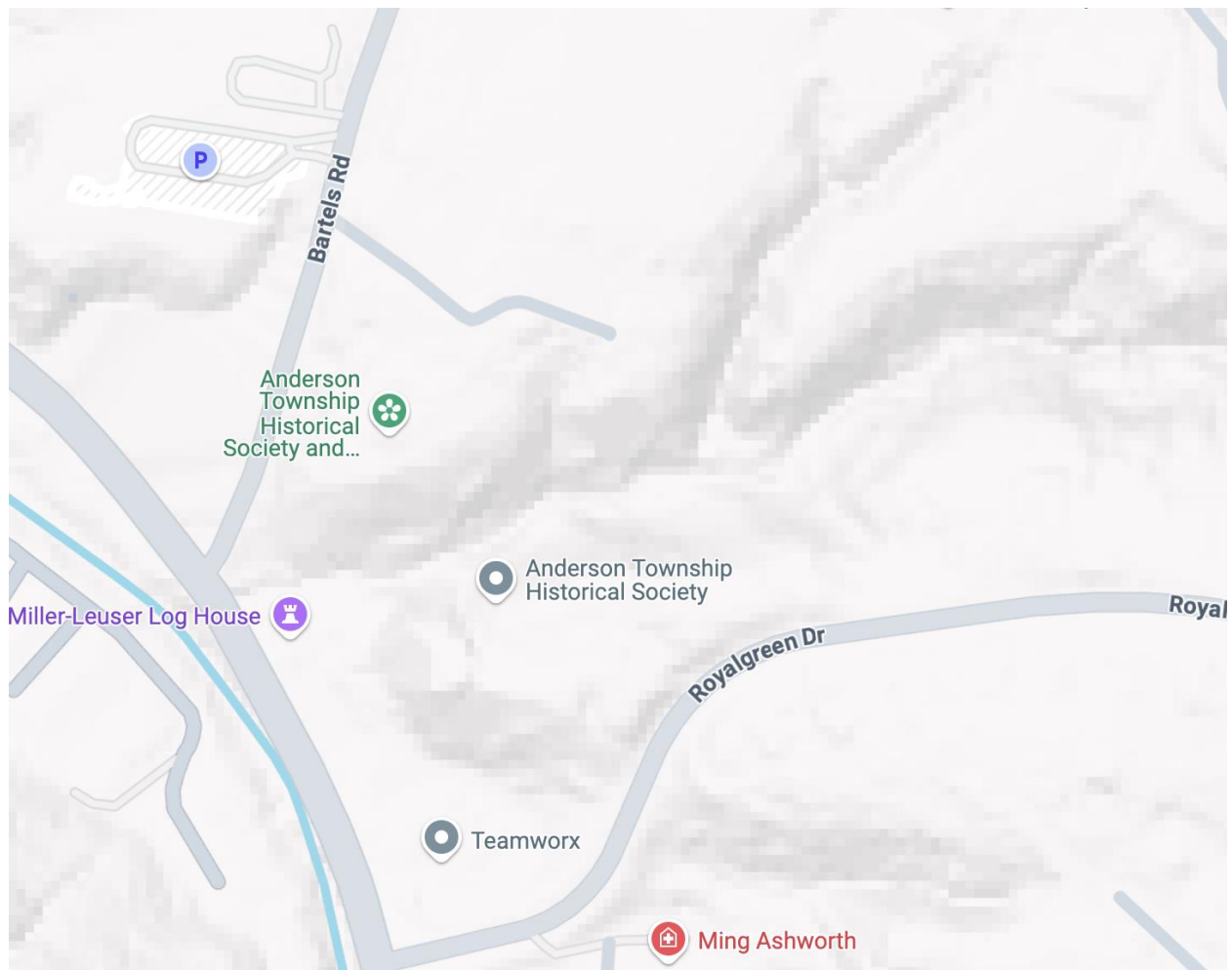


Image 33: A Google Maps view of the property with the topographic layer enabled showing the general topography of the site. Image Credit: Google Maps.

Water hits the properties with even distribution, and the trees benefit from that and are not suffering due to any lack of water. One of the specimens, an American Beech Tree (*Fagus grandifolia*), has been struggling over the past two years due to stress caused by the weight of motor vehicles over its root system. Restrictions have been imposed in response to this, as well as a ban on driving off the main parking lot and roadway/driveway to preserve this tree and allow it to recover.

Case Studies and Literature Review:

Case Study/Literature Review #1:

This first case study examines the benefits of visiting botanical gardens. Arboretums fall within that category. The title of the case study is “Benefits of botanical garden visitation: A means-end study” and was published in the journal titled “Urban Forestry & Urban Greening”.

The highlights of this case study indicate that plants were the most meaningful attribute of a botanical garden, that new experiences, learning, stress relief, and relaxation were the most meaningful consequences of visiting these places, and transference and improved quality of life were the most mentioned values in the case study.

Botanical gardens have been a part of human society for a very long time. Botanical gardens started in Europe as “physic gardens” during the 16th century. Public interest in visiting these gardens grew during the 19th century as the growing urban middle class wanted to recreate the recreational pursuits of the upper class.

However, not much was known about garden visitors and the exact benefits that they received from visiting these locations. Therefore, this case study aims to identify the attributes, consequences, and values as well as the interrelationships of these values

when it comes to visiting these gardens. The study also examines the difference in outcomes across visitor subgroups.

The study was conducted during the spring and summer of 2011. The sample population analyzed consisted of people over the age of 18 visiting botanical gardens. The researchers approached all of the visitor groups during this timeframe and asked participants to participate in a one-on-one interview. 83 interviews were conducted in a relaxing and neutral outdoor setting near the entrance of the botanical garden. 40 interviews were the minimum amount required to achieve an effective means-end study. The total of 83 interviews conducted surpassed this amount.

A demographic questionnaire was provided to each participant in addition to the interview itself. All participants completed this questionnaire, but 5 of them chose not to advance to the main interview after completing it, citing a lack of time on their end as reasoning for this.

Interviewers took notes and used a digital voice recorder to record participants' verbal responses to questions. After each participant provided the first three answers, the interviewers then asked a series of open-ended questions using the laddering technique which is a technique that assists participants in moving from concrete attributes to more abstract values.

Participants indicated the above-stated highlights: that the plants were a very valuable attribute to the garden, that visiting the space provided relaxation, and that their visit to the space was meaningful from an educational standpoint.

Racially, the participants were white/Caucasian while some smaller percentages were Hispanic/Latino, Persian, and Bi-Racial.

The means-end findings of the study indicate that the attributes that most participants valued were activities, botanic gardens, friends and family, garden management, garden spaces, location, physical environment, plants, and wildlife.

The consequences of value were escape, fun, new experiences and learning, new perspective, personal improvement, shared experience, spending time outdoors, and stress relief and relaxation.

The main value perspectives were fun and enjoyment of life, improved quality of life, self-awareness, sense of belonging, sense of place, transference, and warm relationships with others.

Case Study/Literature Review #2:

The second case study examines 10 years of fostering collaborations, professionalism, and the advancement of planting and preserving arboreta around the world in a global network. This specifically examines ArbNet, a program that accredits arboreta all around the world.

The study first examines the history of arboreta and their impact on human society. They have existed for a long time and have often been in association with botanical gardens, cemeteries, and universities as a way to educate people about trees or to provide the public with a place to enjoy a peaceful experience.

Despite how important trees are, the world loses about 15 billion trees each year. People are clearly unaware of the essential benefits that trees provide. This is especially true in cities where a majority of the population in the US lives.

In response to this, the Morton Arboretum near Chicago, knew that people needed access to tree-focused gardens to truly value trees for what they provide and to encourage planting and preservation of trees everywhere.

The Morton Arboretum collaborated with Botanic Gardens Conservation International and the American Public Gardens Association to establish ArbNet on April 29th, 2011. This helped to foster the establishment and professionalism of arboreta; identify arboreta capable of participating or collaborating in certain scientific, collections, or conservation activity; and advance the planting and conservation of trees.

ArbNet is best known for its arboretum accreditation program. This is a program where arboreta from all around the world are accredited by a specific level. These are leveled 1 through 4 based on certain criteria. These criteria are as follows:

- Arboretum Plan
- Organizational of Governance Group
- Labeled Tree and Woody Plant Taxa Totals
- Staff or Volunteer Support
- Public Dimension
- Collections Policy
- Collaboration with Other Arboreta
- Collections Data Sharing with Networked Collections
- Agenda for Tree Science, Planting, and Conservation
- Collections Conservation
- Conservations Role in Global Tree Campaign

Over the past decade, ArbNet has accredited more than 470 arboreta across 35 countries.

Most of the arboreta accredited by ArbNet are conventional arboreta, which are simply collections of trees and shrubs to study and display to the public. More recently however, arboreta have been integrating trees and shrubs into various other types of landscapes to meet the changing industry standards. Therefore, modern arboreta can be incorporated into properties that were not thought of historically as arboreta. These include corporate campuses, zoos, research institutes, schools, retirement communities, and municipal tree collections.

The study then goes on to outline exactly how ArbNet supports the global arboretum community in tree science and conservation actions. These categories are compiled into a table that lists topics such as: actions ArbNet can support, examples of past and current ArbNet initiatives, and future directions.

In conclusion, the case study article sums up how ArbNet has supported the global arboreta community during its past decade in existence on its 10th anniversary in April of 2021.

The article sums this up perfectly with the following passage: “For the past decade, ArbNet has supported the global community of arboreta by defining industry standards, recognizing achievements, funding critical tree conservation and research projects, facilitating networking and partnerships, and providing resources, guidance, and opportunities for growth. Looking forward, ArbNet will continue to build on the success of its first 10 years. ArbNet is poised to support all interested arboreta to pursue their mission, grow professionally, and connect with the global arboretum community to advance the planting, study, and conservation of trees. However, as any network is only as strong as the scope and diversity of invested and active participants, ArbNet will focus on increasing the number and types of accredited arboreta, supporting regional network leadership in biodiversity hotspots, and working more closely with other tree-focused organizations to facilitate collaboration and the exchange of ideas, experiences, and perspectives. To help ArbNet reach fuller potential, we aspire to increase funding, capacity, and awareness of this service to the botanical community, amplify the voices of all participants in the network, and increase the public recognition that arboreta and botanical gardens are a key part of the solution to the current plant extinction crisis”.

Lastly, the article states how ArbNet will continue to grow its programs and focus on new science in the future to support the community. These future efforts do face a challenge, however, as at least 30% of current tree species are threatened with the

possibility of extinction. However, ArbNet and its efforts will help to mitigate this risk and preserve the tree species for generations to come.



Image 34: Scenery at the Urban Farm. Image Credit: Ben Gressle

Case Study/Literature Review #3:

The third case study titled "Personal Benefits of Public Open Space: A Case Study in Boston's Arnold Arboretum" was based in Boston's Arnold Arboretum in 1992. For 25 days,

researchers made observations of individuals in the park. They aimed to use their findings to address the lack of documentation on benefits that urban parks produce and how they serve the people.

The study found that the most common activities of individuals in the park were strolling, conversing, and looking at the scenery (smith). The most common uses of the park were on sunny days and afternoons, particularly on weekends. The authors noted that these activities were personal benefits directly to the individuals involved. The authors also discussed the importance of quantity of use and diversity of use as criteria for the success of urban parks.

The authors concluded that the "personal benefits" represent only one category of benefits produced by urban parks. They identified two other categories of benefits that urban parks provide: biophysical and social. They suggested that future research should focus on documenting the range of benefits produced by urban parks.

Case Study/Literature Review #4:

This fourth item is a literature review. The review is titled "Suburbanization in the United States after 1945"

This literature review explores the transformation of suburban life in the United States after 1945. It identifies two distinct phases: the rapid expansion of suburbs between 1945 and 1970, and the subsequent period of diversification and increasing complexity. In the first phase, suburban areas were largely the domain of white, middle-class families, while the second phase saw an influx of diverse social, economic, and demographic groups into suburbia.

The end of World War II triggered a partnership between the government and private sector to alleviate the acute housing shortage. Developers like William Levitt applied wartime mass production techniques to rapidly build new homes.

The suburbs saw the rise of nuclear families, with a distinct division of roles between men and women, which became the new suburban norm.

Government policies such as the National Defense Highway Act and the FHA's loan programs promoted suburban development, favoring white, middle-class families and systemically excluding African American families, thereby shaping the racial and economic landscape of suburbia.

The shift of people and resources to suburban areas led to a decline in urban centers, resulting in urban decay and the economic expansion of suburbs.

The rapid growth of suburbs triggered a fierce debate between those who saw suburbs as the embodiment of the American dream and those who criticized their perceived homogeneity and negative impact on American society.

Then, during the 1970s to present, this era witnessed economic changes such as the decline of manufacturing and the rise of the service sector, leading to increased economic disparity and volatility in both urban and suburban areas.

The influx of capital into real estate markets led to the rapid expansion of suburbs and the development of large suburban cities like Irvine, California. However, this growth also led to issues such as urban sprawl, traffic congestion, and a growing housing affordability crisis.

After 1970, American suburbs experienced rapid social diversification, breaking away from the predominantly white, middle-class image of the previous era. This transformation was driven by factors such as new waves of immigration, the aging of the baby boomers, the women's rights movement, and the LGBTQ+ rights movement, leading to a shift in the traditional image of "suburbia".

With the growth of suburban areas, "edge cities" emerged as key economic hubs, marking the increasing dominance of suburbs over urban centers . These suburban edge cities became home to major industries, retail centers, and business headquarters, further solidifying the economic importance of suburbs in the national economy.

Case Study/Literature Review #5:

This second literature review is titled “Rethinking Highways for Healthy Communities”. The review focuses on the significant negative impacts that highway construction, particularly in urban areas, has had on communities and the environment. It advocates for a shift in thinking about highway planning and design, emphasizing the need to prioritize community health, equity, and environmental sustainability.

Problems with highways as shown in this literature review include the following:

- Community disruption as highways often divide neighborhoods, physically separating residents from essential services, jobs, and social connections. This disruption can lead to social isolation, decreased community cohesion, and a decline in local businesses. Historically, highway construction has disproportionately impacted low-income and minority communities, leading to displacement and environmental injustice.
- Environmental degradation as highways contribute significantly to air and noise pollution, negatively affecting public health. They increase stormwater runoff, carrying pollutants into waterways and degrading water quality. The destruction of green spaces and natural habitats reduces biodiversity and ecosystem services. Increased vehicle traffic leads to higher greenhouse gas emissions, contributing to climate change.
- Health impacts as air pollution from vehicle emissions is linked to respiratory illnesses, cardiovascular disease, and other health problems. Noise pollution can cause stress, sleep disturbances, and hearing loss. Reduced walkability and cycling ability due to highway infrastructure can discourage physical activity, contributing to obesity and related health issues. The creation of heat islands, where dark pavement absorbs more solar radiation, is also a concern.
- Economic impacts because while highways can facilitate goods movement, they can also lead to the decline of local businesses and the erosion of local tax bases. The costs associated with addressing the health and environmental impacts of highways can be substantial.

The solution to this problem as stated by the EPA is as follows:

- Community engagement by Involving residents and stakeholders in the planning process to ensure that their needs and concerns are addressed and by prioritizing equity and environmental justice by giving voice to historically marginalized communities.
- Engaging in context-sensitive solutions by designing highways that are tailored to the specific context of the surrounding community and environment. In addition, people can consider alternative transportation modes, such as public transit,

walking, and biking. Lastly, consideration of highway removal, or highway capping to reconnect communities can be done by governments and authorities across the country to collectively help to reduce the impact caused by highways.

- Environmental sustainability can also be achieved by minimizing the environmental footprint of highways by reducing air and noise pollution, managing stormwater runoff, and protecting green spaces. Another solution in this regard is by promoting the use of sustainable materials and construction practices.
- Steps can also be done to promote health by designing highways that promote physical activity and access to healthy environments, as well as reducing exposure to air and noise pollution, and improving the walkability, and the ability to bike in the surrounding area.
- These solutions can also lead to economic revitalization by investing in infrastructure that supports local businesses and economic development. This can also be achieved by creating vibrant and walkable communities that attract residents and businesses.

In essence, the EPA encourages a shift from viewing highways solely as transportation corridors to recognizing their profound impact on communities and the environment. By adopting a more thoughtful and integrated approach to highway planning, we can create healthier, more equitable, and more sustainable communities.

Historical Context of The Topics of The Research:

During the 1950s and later, specifically after World War II, the Baby Boom Generation began. This generation saw a mass influx of births, more so than any previous generation before it. As a result of this influx, human society changed to accommodate the boom in population worldwide. Specifically here in the United States, this led to the rise in suburban communities sprawling outwards from the centers of the major cities. These spaces that were now being overtaken and encroached by this new development used to feature green spaces which included forests. The suburban expansion caused a major loss of these spaces in place of houses, buildings, roads, etc.

In addition, this suburban expansion also led to the rise of the Interstate Highway System during the late 1950s and throughout the 1960s. These massive highways cut through the country to facilitate fast and efficient road travel nationwide. Highways came with the side-effect of causing destruction to green spaces that had existed previously. This destruction is not just confined to urban and suburban areas but also to some rural communities between major metropolitan areas due to the fact that the highways have caused mass commercial development along them to take advantage of the traffic travelling through. Therefore, green spaces can be endangered nationwide in the modern era. See below for a photographic example of how natural spaces in Anderson Township are under threat of development:



Image 35: Street view image taken on Clough Pike in Anderson Township. This is an open field surrounded by forests and was once home to local wildlife of all kinds, along with native plants and trees. This photo is from 2019. (Image Credit: Google Maps)



Image 36: This is a street view photo of the exact same location as above from September of 2024. In 2020 to 2021, a senior living community was developed and built on this formerly natural site, effectively ruining the green space that was once here.

At the Anderson Township Historical Society, we are aware of these effects, and the Urban Farm property is preserved as one of the last remaining working farms left in Anderson Township. This is due to the fact that Anderson Township had a very rich history in agriculture before it underwent massive suburbanization in the latter half of the 20th century.

In addition, this site serves as an important piece of green space which is not only endangered by suburban development in the area, but also in historical context since Anderson Township is actually the first “Greenspace Township” to be incorporated in the State of Ohio.



Image 37: Ohio Historical Sign at Anderson Township Entrance Along OH 125 (Beechmont Ave.) Near Mt. Washington. This sign was removed within the past 10 years to make way for, ironically, a building development at the site. (Image Credit: Google Maps)

Project Goal(s):

The goal of this project is to theoretically integrate a functioning arboretum within the grounds of the Anderson Township Historical Society and Urban Farm. All tree and shrub specimens growing on the property would be labeled, catalogued, and data would be provided to members of the public or members of the ATHS for educational and informational purposes.

Trees and shrubs would be physically planted on the property and maintained over time. The goal of this is to incorporate many trees and shrubs into a property that already serves as a social space for the Anderson Township community.

Therefore, another goal of this project is to enhance the atmosphere of the space to provide for a peaceful space to socialize, garden, and attend events, along with educational opportunities to raise awareness on just how much trees and shrubs do to provide for human society.

Program Requirements:

Specifically, various quantitative factors will need to be considered to ensure the success of this project. Spatially, this project pertains to an overall piece of land that encompasses a total of roughly 11 acres, of which 7 to 9 acres are usable space.

The property is primarily used as a public community space for gardening, education, historical preservation, and enjoying nature. There are no official hours of operation on the property, but it is considered to be open from dawn to dusk each day. Most regular activities on the property occur on a seasonal basis with the peak season being from March/April through October/November. Despite this, the property is open to the public year-round. Special events take place periodically throughout this aforementioned season.

As this is an arboretum consisting of trees and shrubs that grow under the typical environmental conditions found in the Cincinnati area, the site already features the ideal environment for this project to occur. This is true both in terms of weather as well as land conditions.

Materials needed for this project include aluminum tree tags as well as necessary materials needed to write on these tags or engrave into them. This is where the identifying information about the tree or shrub will be found. This information will consist of both the botanical and common names of the tree or shrub as well as an index number that will show its position in the arboretum catalog.

Paper and board materials as well as a place to mount this would also be necessary to show educational materials to visitors to the space. Digital space and or a website would also be a consideration to allow for digital access to the arboretum catalog along with all relevant information about the tree and shrub specimens found on-site.

The light quality of the space is adequate to support the growth of the trees and shrubs growing on-site. This is notable given the fact that this is a native arboretum focused on the trees and shrubs growing in the native conditions found in the Cincinnati region.

The space also features a balance of color with different colors and textures amongst the plants, trees, and shrubs on the site with varying color throughout the year with the changing seasons.

Within the project, there are differing physical spaces that correlate due to the different environments and feelings one has when being present in each space. This arboretum project aims to place emphasis on this concept with the types of trees catalogued in each space as well as any related amenities found within each space.

This project is going to be using resources that already exist, the amount of materials and items that would need to be purchased is expected to keep costs at a relative minimum. Through estimation of what would be needed along with the approximate cost of said items, the preliminary budget for this project is \$1,500, with that amount subject to change or adjustment.



Image 38: More scenery at the Urban Farm. Image Credit: Ben Gressle

Process Documentation:

Project Solution:

Reference List:

- Webster's Dictionary
- Anderson Township Historical Society
- Google Maps
- <https://gpnc.org/woody-plants/>
- <https://cagis.hamilton-co.org/cagisonline/>

Keyword Photos:

- <https://www.cincinnati-oh.gov/cincyparks/visit-a-park/find-a-parkfacility/mt-airy-arboretum/>
- <https://www.scenic.org/2022/07/27/the-importance-of-green-spaces/>
- <https://www.fertilizewithalm.com/our-story/our-blog/prep-trees-shrubs-healthy-spring>
- <https://ecotree.green/en/blog/what-is-a-tree>

Tree Photos:

- <https://www.tennesseewholesalenursery.com/blogs/news/red-maple-autumns-most-brilliant-tree>
- <https://shop.arboday.org/october-glory-maple-2>
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- <https://gardeninacity.com/2012/08/30/spicebush-berries/>
- <https://www.marylandbiodiversity.com/species/1473>
- <https://plants.ces.ncsu.edu/plants/morus-alba/>
- <https://mortonarb.org/plant-and-protect/trees-and-plants/eastern-white-pine/>
- <https://www.carolinanature.com/trees/qupa2.html>
- <https://www.gardencrossings.com/product/perfecto-mundo-epic-pink-azalea/>
- <https://plantdatabase.uconn.edu/detail.php?pid=496>
- <https://www.littlerednursery.com/products/15green-giant-arborvitae>
- <https://www.nps.gov/articles/000/cny-treephenology-americanelm.htm>

Appendix/Index: