

University of Wisconsin-Oshkosh



# Urban Forestry in Oshkosh Wisconsin

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# Table of Contents

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<b>Table of Contents</b>	<b>1</b>
<b>Executive Summary</b>	<b>3</b>
<b>Background</b>	<b>4</b>
<b>Recommended Action</b>	<b>4</b>
Short Term:	4
Long Term:	5
<b>Benchmarking</b>	<b>6</b>
A. Hudson, Wisconsin	6
B. Stevens Point, Wisconsin	7
C. Milwaukee, Wisconsin	8
D. Bloomington, Indiana	8
E. Durham, North Carolina	9
F. Auburn, Alabama	10
<b>Urban Forestry Protocol</b>	<b>11</b>
<b>Costs</b>	<b>11</b>
DNR Urban Forestry Grant	12
<b>Significance of Sustainability</b>	<b>13</b>
Environmental	13
Storing Carbon	13
Releasing Oxygen	13
Reducing Stormwater Runoff	14
Increasing Biodiversity	14
Reducing Noise Pollution	15
Economic	15
Social	16
Mental Health	16
Physical Health	17
Community Cohesion	17
Faster Recovery	17
Environmental Justice	18
<b>Stakeholders</b>	<b>18</b>
I. Brad Spanbauer	18

II. Advisory Park Board	19
III. Shannon Davis-Foust	19
IV. Lisa Mick	20
V. Raymond Maurer	20
VI. Margy Davey	21
VII. Paul Ziemann	22
VIII. Dan Traas	23
IX. Matthew Arsenault	23
X. Travis Derks	23
<b>Barriers</b>	<b>24</b>
<b>Conclusion</b>	<b>26</b>
<b>Works Cited</b>	<b>27</b>
<b>Appendix A: Duke Urban Forestry Protocol</b>	<b>31</b>
<b>Appendix B: i-Tree Ecosystem Analysis</b>	<b>32</b>
<b>Appendix C: DNR Urban Forestry Grant</b>	<b>34</b>

# Executive Summary

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Urban forests are forests that are located in or near cities or towns. As the world's population continues to grow and urbanization expands, natural green spaces are being sacrificed for urban building. However, the City of Oshkosh can aid in this large-scale issue by implementing an urban forest to benefit both humans and nonhumans. This project examines both the positive and negative implications of creating an urban forest in Oshkosh, by researching and considering critical aspects such as benchmarking, costs, the significance of sustainability, stakeholders, and possible barriers

The city of Oshkosh currently has a number of parks including Menominee Park and South Park, but no specific urban forested area. To expand upon Oshkosh's previous sustainability efforts, an urban forest should be created in the new Lakeshore Park which is located along the Fox River. In order to achieve the full potential of creating an urban forest, this report makes both short- and long-term recommendations. Short-term recommendations include using existing budgets to plant trees with high carbon sequestration potential, and planting trees following the Duke Urban Forestry Protocol (see Appendix A). Long-term recommendations include registering Lakeshore Park as a carbon sequestration zone when trees reach maturity, and increasing tree canopy by 67 percent.

This report consists of benchmarking research of both to provide examples of areas who have already achieved the creation of an urban forest and have witnessed its implications. Upfront costs and information regarding follow-up maintenance costs were identified, as well as the significance of sustainability which compromises environmental, economic, and social aspects. Prominent stakeholders within the Oshkosh community and surrounding areas were determined, interviewed, and provided input that this is a viable project. Lastly, possible barriers to implementing an urban forest in Oshkosh's Lakeshore Park were noted. Although this project found that there are significant upfront costs and various potential barriers when creating an urban forest in Oshkosh, conclusions were made showing that these negative implications are outweighed by the many social, environmental, and economic benefits. This creation can pave the way forward for other future sustainability goals within the city.

## Background

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Oshkosh has a number of beautiful parks that cater to the various needs of its citizens. However, one of these needs has not been met. Traditional parks are peaceful places of relaxation, but they are missing a connection to nature. An urban forest meets that need as well as provides a different type of outdoor experience for park goers. Urban forests are a collection of trees that grow in a city, town, or community close to humans. These have the benefit of bringing a natural setting closer to a large population. Wisconsin has a multitude of wonderful state parks, forests, and wildlife preserves. However, most of these require means of transportation as well as the time to properly enjoy them. People who do not have one or both of those things may find it difficult to properly enjoy the benefits of a natural setting. Providing that natural setting to people who ordinarily would not have access to it is a step in the right direction for social equity. Currently, in Oshkosh, the urban tree canopy is lacking at only 18%. The City has an opportunity to increase this by 49% as recommended by the DNR (i-Tree Analysis).

Global warming is a problem of titanic proportions. While a single forest won't have much of an impact, it sets a precedent for other cities to improve upon their own urban forest programs. A dedicated forest can pull far more carbon from the atmosphere than single trees planted around Oshkosh. Forests pull carbon as well as pollutants from the air, which leaves us with cleaner, more breathable air. As global citizens, it is our responsibility to prove that we see global warming as a serious issue and are taking steps to combat it.

## Recommended Action

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Our recommendations for the city of Oshkosh are:

### Short Term:

1. Create an urban forest in the new Lakeshore Park. Using the already existing budget to choose specific types of trees to target the most carbon we could potentially sequester. Increased amounts of native trees that do well at the

sequestration of carbon and help to decrease the city of Oshkosh's carbon emissions.

2. Plant these trees in areas where they can have multiple purposes. The west side of the park along Highway 41 and along N Koeller St are the two areas suggested for focusing on new tree development. Shown below in red are where the trees should be focused. These areas were chosen for a reduction of noise pollution from cars and other vehicles, an increased positive experience in the park as an escape from unnatural sites, such as the highway traffic, and increased beautification of a natural environment.
3. Also recommended is to follow a protocol while planting this urban forest so that when it comes time in the future the city can easily register this area as a carbon sequestration zone. The protocol we suggest is specific guidelines set forth by the Duke Carbon Offset Initiative in their Urban Forestry Protocol. (See both Urban Forestry Protocol and Appendix A for more information).

#### Long Term:

4. Register Lakeshore Park as a carbon sequestration zone when the trees are mature enough to have a substantial impact on carbon reduction. This would create economic capital in the carbon trade market. Not only do trees reduce carbon emissions, but they also play a large role in ecological health, human mental and physical health, and decreased energy costs, along with many other benefits.
5. Increase Oshkosh city tree canopy to 67% to reach maximum benefits for the city. (DNR i-tree Assessment). Currently, the city is at an 18% tree canopy and an assessment that was done in the city said there is a potential to increase this number by 49% in many areas. (See Appendix B for more information).



West Park- Lakeshore Park Plan

## Benchmarking

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For benchmarking research the main goal was to find areas similar to Oshkosh with an urban forest, and understand how it works within the community.

### **A. Hudson, Wisconsin**

Hudson, Wisconsin has urban forestry as its main goal of engagement with the community. In 2010, the city created an Urban Forestry Board in order to engage with the community, and understand their needs within the city. The board also sought community help to

create and set goals, as well as budgets for an urban forest in Hudson. This board was then able to find matching grants through the Wisconsin DNR to conduct an inventory of trees, assess the health conditions of the trees, and create an Emerald Ash Borer preparedness plan, as well as an urban forest management plan. The grant awarded was an urban forestry startup grant. This grant allowed the city of Hudson to understand the existing trees as well as their likelihood to survive in the coming years. These efforts helped create a guide to the planting and maintenance of the urban forest within the community. There are now over 7,000 trees being managed in Hudson, Wisconsin. These trees are comprised of “20% street and terrace trees, and 80% on private property, allowing the urban forest to be within the community and residential areas” (Urban Forestry- Hudson).

Hudson also provides a tree of the year program, in which each year they select two trees to be sold at a discounted rate to increase tree biodiversity within the community, and promote urban forestry. Urban forestry within the community has allowed Hudson to be honored by Tree City USA each year since 2010. Tree City USA also provides frameworks for cities around the world to help manage their tree resources. The city of Hudson found the trees within the urban forest to be a vital asset to the community by helping with stormwater management, reducing energy consumption, carbon sequestration of pollutants, and increasing property values. With all things considered it was found the trees gain a minimum of \$3 for every \$1 spent. By implementing urban forestry in Hudson, Wisconsin they have not only improved the community but also gained the label of Tree City USA.

### **B. Stevens Point, Wisconsin**

A second location that is similar to the layout of Oshkosh with a college campus, and an urban forest, was the city of Stevens Point, Wisconsin. The city had to put efforts forth in order to get urban forestry implemented within the community. The first steps that were taken by the city and the city forester were to assess the benefits of the trees within the community. It was found that an urban forest can help with reducing storm runoff, removing carbon from the atmosphere, reducing energy and natural gas use, and increasing property values. With these benefits in mind, the city went forth with implementing an urban forest. As stated in Stevens Point’s urban forestry management plan it was found that “The City of Stevens Point receives \$1.74 in benefits for every \$1 spent on its municipal forestry program”. Also, since 2007 the



Stevens Point forestry department paired with the University of Wisconsin- Stevens Point has been assessing the benefits of the 7,100 trees in the community and found a benefit of \$4,856,426 from the trees. Having the benefits in mind the city decided to allocate funding to plant new trees yearly and currently the allocated amount is \$20,000 yearly.

### **C. Milwaukee, Wisconsin**

Milwaukee's urban forest is a great large-scale example of what Lakeshore Park could be transformed into with the help of tree planting. In 1991, the Milwaukee Urban Forestry Fund was created to improve the city and the individuals living in it. To help support various tree planting projects in the city, donations can be made to the fund through the city's annual UPAF/VISIONS Campaign. Milwaukee's urban forest contains over 3.4 million trees which are located on both private and public land (Urban Forestry Fund). One of the most well-known areas within the urban forest is the Havenwoods State Forest, which consists of 237 acres of grasslands, woodlands, and wetlands (Havenwoods State Forest). As of 2008, the most common tree species in Milwaukee included European buckthorn, green ash, and boxelder—which have since become more diverse—and roughly 67% of the trees were measured to be under six feet (i-Tree Ecosystem Analysis, 4).

Milwaukee's urban forest provides many social, environmental, and economic benefits to its community. Social aspects include improving individuals' overall health by reducing sickness and aiding in healing time, increasing attentiveness and learning in children, and reducing stress and mental fatigue. The urban forest also assists in environmental ways by absorbing pollutants, storing carbon, releasing oxygen, reducing stormwater runoff, providing habitat for wildlife, combating the heat island effect by lowering temperatures, and more. Lastly, Milwaukee's urban forest provides various economic benefits in communities including enhancing property values and lowering summer cooling and winter heating energy costs (Urban Forestry Fund).

### **D. Bloomington, Indiana**

This fourth urban forest example in Bloomington, Indiana differs from the above locations based on the fact that these urban forests are located on privately-owned residential properties. Although Bloomington, Indiana is quite far from Oshkosh, Wisconsin, they share a

similar population size. Bloomington has a population of just over 79,000 individuals, while Oshkosh's population sits around 66,700 (Bloomington population; Oshkosh population). Over 100 different urban forests on residential properties have been recorded, which are across 14 various neighborhood associations. These associations vary in the management of tree species, and most properties differ in size and development age; some properties contain less than five trees, while others have over 50. Characteristics of trees like tree species richness, diversity, density, diameter, and carbon storage are logged and kept track of through the use of an i-tree Eco model. Although some land only contains a few trees, as a whole, the urban forests appear to be relatively diverse with the most abundant tree species constituting only 10% of the total population. Most of the trees, however,—over 55%—are considered to be “smaller” trees, which do not store as much carbon as old, large trees (Schmitt-Harsh et al.).

### **E. Durham, North Carolina**

Another example of a city a little farther away from Wisconsin, but with a different perspective on forestry is Durham, North Carolina. This small city is also home to Duke University. Durham has a specific department designated for urban forestry. This department's main goal is everything tree-related in the city. This city has specific duties and goals that would be good for the city of Oshkosh to strive for as well. The urban forestry department is in charge of planting, pruning, and maintenance of trees. This department also works closely with Duke University and the Duke Carbon Offset Initiative (see Urban Forestry Protocol section below for more information).

One of these urban forestries' main purposes is to increase tree cover in the city of Durham. In order to do this, the city has committed to planting 1,500 new trees every year until 2025 (*Durhamnc.Gov*). This number of trees was not random; Durham had a tree canopy assessment done, by Savatree and the University of Vermont, to figure out what they needed to plant to not only maintain but increase the tree canopy. This study looked at increasing neighborhoods with low to no tree canopy, replacing dead or dying trees, and placing trees in areas like city right-of-ways and terraces. One of the main purposes for doing this is to increase environmental justice throughout the communities. Along with the added benefits of sequestering carbon emissions, decreased urban heat island effect, increased insolation in winter, and benefits to both humans and the environment.

The other program that the urban forestry department has is a tree request program. There has been interest from community members and residents who would like to see more trees so the urban forestry department came out with a request form. This gives city residents the power to have trees placed on their front terraces or out in right-of-way areas near their residences. Oshkosh could expand the memorial tree program to include the option for native trees in areas of the city, residential or otherwise, that may be lacking in the tree canopy. This also would give residents a voice in what happens on their street or their terrace.

#### **F. Auburn, Alabama**

The University of Auburn, Alabama has an urban forest called the Davis Arboretum. The city of Auburn is a college town just like Oshkosh and has a comparable population size. The campus has 237 hectares of maintained land, and the Davis Arboretum is 5.5 hectares. The arboretum emphasizes native trees but has expanded to native shrubs and other herbaceous plants. It is used for recreation, conservation, and research. One study by Marin et al. compared the difference in carbon sequestration and pollution reduction between the arboretum and the maintained land covering the rest of the campus. The original estimates predicted that the arboretum would store ~15% of the carbon that the rest of the campus stored. Despite making up only 2% of the total land, the arboretum stored nearly six times more carbon than the maintained spaces on campus. The arboretum more than makes up for the space it takes by removing far more carbon from the atmosphere than the maintained landscapes do.

The arboretum also removed more pollution than the campus. “On average, the maintained landscapes on the campus were estimated to remove 12.5 kg/year/ha of air pollution (\$67/ha). The Davis Arboretum was estimated to remove 102 kg/year/ha of air pollution (\$548/ha), or ~8 times more on a per ha basis” (Martin et al., 2012, 269) The natural removal of pollutants provided by forests offset the potential costs of installing and caring for them. It is far more cost-efficient to utilize forest cover to remove carbon and pollutants from the atmosphere than through more complicated means.

# Urban Forestry Protocol

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As mentioned in the recommended action section, we are proposing that the city of Oshkosh follows the Duke Urban Forestry Protocol when implementing this project in order to eventually establish an urban forest that can easily apply for carbon sequestration credits. The Duke Protocol was created by the Duke Carbon Offset Initiative. This is a group of individuals who run different programs and projects that are helping to decrease carbon emissions. The protocol can be a great place for the city to start their urban forest, especially because the protocol is used for more small-scale projects. Specifically, it lays out the methodology for measuring an urban forest and some of the benefits that go along with it. This protocol is designed to be a starting point for urban forestry projects with a goal of carbon sequestration. It is designed to make sure that a carbon offsets generated from projects are actually meeting offset goals (Duke Carbon Offset Initiative, 3). While it may not be an exact fit for the city of Oshkosh it can give some ideas as to how an urban forest implementation and measuring can be started and carried out. It also is one of the accepted protocols for many carbon offset programs. This means that later when the trees are more mature and are able to hold and sequester enough carbon to sell, trade, or earn credits applying for offset programs would be easy. See Appendix A for more information on the Duke Urban Forestry Protocol.

## Costs

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In order to have new trees planted in the Oshkosh community the cost to plant a single tree would be \$400 to \$600. In order to hire a new maintenance worker to help maintain the trees, it would cost \$70,000 to \$75,000 based on the experience of the worker. This information was provided by Oshkosh parks director Raymond Maurer. There is also assistance available for tree maintenance from the Taking Root Fund through the Oshkosh Area Community Foundation which can help provide aid or seasonal workers.

Lakeshore park plan has already allocated around \$575,000 to planting native trees and shrubbery. The way that this budget could be broken up could support the planting of many trees in a specific location in this park to create an urban forest. This could account for a significant amount of trees to be placed in Lakeshore Park. There is also a DNR grant that is for urban forestry projects. The costs for planting and maintenance of urban forests can vary wildly depending on what planting stock is used. Seedlings will be cheaper than saplings, and saplings will be cheaper than mature trees. Per acre, planting costs can vary from \$12,000- \$60,000. Likewise, maintenance costs will vary based on any unexpected events during the tree's lifespans. Maintenance per acre per year could cost anywhere from \$3,000- \$20,000. Price can vary so much because the cost is applied to fix whatever is ailing the forest. For example, disease prevention and removal might be simple and cheap if no disease spreads through the forest. Storm damage and broken/damaged tree removal are only applicable when heavy storms are present to cause said damage. The major upfront costs are planting seeds of saplings and irrigating them until they are self-sufficient. Cost estimates provided by Dan Traas of Ranger Services Inc.

## DNR Urban Forestry Grant

The Sustainability Advisory Board could apply for this funding to provide more money for an urban forest project. There are two different grants that we could apply for through the DNR. One is the Regular Urban Forestry Grant and the other is the Startup Grant. The Regular Grant is up to \$25,000 to implement a new innovative urban forestry project. Our proposal would fall under a new innovative project as there were no plans for an urban forest in Lakeshore Park prior (WI DNR). While there is a requirement of a 50/50 match to the grant the city already does have money for the tree planting and can match funding if allocated correctly. The other grant available through the DNR is the Startup Grant. This grant is up to \$5,000 and is specific to the startup of potential community tree programs, the teaching of tree maintenance, and other beginning urban forestry-related activities. While this may not directly be related to our project, it can be beneficial for a community tree program or to educate more of the park's staff on specific forestry knowledge that would be valuable if and when it is needed.

# Significance of Sustainability

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## Environmental

Urban forests, especially urban forests implemented near bodies of water, have the potential to provide the city of Oshkosh and its inhabitants with a wide array of ecological benefits. Some of these include: capturing and storing carbon which aids in reducing temperatures, releasing oxygen, reducing stormwater runoff, increasing biodiversity, and reducing noise pollution.

### **Storing Carbon**

One of the most important aspects of trees is that they act as carbon sinks. Carbon sinks are any reservoir—whether natural or unnatural—that capture and store carbon dioxide for an indefinite period of time. The United States Department of Agriculture stated, “by weight, dried tree material is about 50 percent carbon” (Forest Carbon). Due to the fact that roughly 50 percent of trees are made up of carbon, they reduce the amount of carbon being released into the atmosphere, and in part remove pollutants from the air. Greenhouse gases/heat-trapping gasses like carbon dioxide, which are released through human activity such as the burning of fossil fuels, get trapped in the atmosphere where they contribute to rising temperatures (Climate Change Indicators). The presence of trees and their ability to catch and store carbon aid in reducing temperatures and issues like the heat island effect, which occurs when urbanized areas have much higher temperatures than their surrounding areas. For example, areas with trees can have temperatures 20-45 degrees cooler than areas without (Using Trees).

### **Releasing Oxygen**

Urban forests also improve the environment by releasing oxygen into the atmosphere. According to the United States Forest Department, “urban forests in the coterminous United States are estimated to produce  $\approx$ 61 million metric tons (67 million tons) of oxygen annually, enough oxygen to offset the annual oxygen consumption of approximately two-thirds of the U.S. population” (Nowak et al.). Considering that urbanization is expected to continue expanding and

green spaces will continue to decrease, the creation of urban forests is crucial for the production of oxygen. Through the process of photosynthesis and help from energy produced by the sun, trees absorb carbon dioxide and water, and convert them into chemical compounds like sugars which feed them. This chemical reaction produces oxygen which is then released back into the atmosphere by trees (Stancil).

### **Reducing Stormwater Runoff**

Another benefit of urban forests is that they aid in reducing stormwater runoff. Stormwater runoff occurs when excess rainfall is unable to be absorbed on surfaces like lawns and roads, and instead washes off into nearby bodies of water such as streams, rivers, lakes, etc. As the excess stormwater travels across surfaces it also often picks up harmful pollutants such as oil, pesticides, bacteria, and metals, which then end up in local waterways (Soak Up the Rain). This runoff can result in issues like erosion, flooding, and even cause habitats of species to be damaged or completely destroyed.

However, the issue of stormwater runoff can be avoided with the help of trees and their ability to capture and store rainfall. Trees have the potential to capture about 15 percent of rainfall and store it in their canopies, which can then be released through the process of evapotranspiration, aiding in a cooling effect (Urban Forests & Stormwater). By capturing excess stormwater runoff, trees also absorb pollutants through their roots and “...transform pollutants into less harmful substances” (Stormwater to Street Trees, 1).

### **Increasing Biodiversity**

Urban forests can also greatly increase biodiversity by providing habitat for species. As species continue to become threatened, vulnerable, endangered, and even extinct, providing areas where they can thrive is especially important. As stated on the World Wildlife Fund’s website, their 2020 Living Planet Report found that there has been a 68 percent biodiversity loss within the last 50 years (Living Planet Report).

With the help of properly planned forested areas in or near cities/towns, biodiversity that has been lost can possibly be rebuilt. When urban forests are created near bodies of water, they have the potential to connect various types of ecosystems with one another, and contribute to increasing biodiversity on a much larger scale. An urban forest in Lakeshore Park could support

different ecosystems and their inhabitants such as deer, fox, coyotes, raccoons, opossums, skunks, geese, ducks, amphibians, plants and fungi, and even microscopic organisms like bacteria.

### **Reducing Noise Pollution**

Lastly, forests in urban areas can reduce noise pollution, which is often described as an invisible danger. Noise pollution is the unwanted sound from human activity—like machine work and transportation vehicles—which impacts the health and well being of organisms. According to the Institute for Environmental Solutions, when trees are placed in strategic areas they can act as noise buffers and decrease noise by up to five to ten decibels, which is about 50 percent (Benefits of Urban Forests). Due to the fact that the Wittman Regional Airport is located in the city of Oshkosh, the creation of an urban forest could greatly benefit both the city's human and nonhuman species. Creating the urban forest specifically in Lakeshore Park is important to consider for the reason that the park is located along the Fox River which faces noise pollution from boat travel.

### **Economic**

There are many different economic benefits to having an urban forest. While there are significant start-up costs associated with tree planting and maintenance the city already has some funds set aside. The other benefits can pay for this in no time. One of the biggest benefits economically is the lower electrical costs associated with having trees around. Trees act as shields from the wind, insulation for both heat and cold, and a source of shade in the summer. The need to run your heater and air conditioning during different times of the year could be significantly reduced with more trees around. This would lead to lower costs which are favorable to most. A significant decrease in the use of natural gas to power homes and businesses is another benefit of increased tree cover. Urban forests pay for themselves pretty quickly in the economic benefits they provide (Galik et. al.). Another benefit that falls into the economics of urban forests is increased beautification which can lead to increased property values. This can also lead to an increased amount of interest in a city and more people, to a certain extent, can lead to a flourishing economy. Carbon sequestration can also provide people and cities with an economic incentive. There are programs to register urban forests with potential secure carbon



credits that can be sold to produce revenue for the city. These credits will only increase as the trees mature and are able to hold more carbon. Overall, urban forests and increasing Oshkosh's tree canopy will have significant economic benefits especially, towards a more sustainable city.

## Social

The social benefits of urban forests are numerous. Urban forests provide an escape from the mundane, as well as providing mental and physical health benefits. Forests offer peace of mind, space for physical activities, and opportunities for social interaction.

### **Mental Health**

For people that spend much of their time at work, even a short amount of time in a natural setting can improve mood and mental well-being. The University of Sheffield in the United Kingdom performed a study attempting to track how much green areas alter our mood. In the study, students were asked to sit in a lecture hall and view powerpoints that featured one of four sets of images, centered around a theme. The first was a collection of images that featured buildings, cars, and roads. The next, a grass park with a winding path and some sparse trees. The third set of images featured much denser tree cover, with only a few areas of just grass. Finally, the last section was dense, wild forest on a nature trail, with very few gaps. Right before these slides came up, the students were asked to watch a movie designed to stress them out, with tense situations and graphic violence. After the movie, the students were shown the slides and asked to imagine themselves walking around or sitting on benches in the pictures provided. Throughout this process, the students reported on their moods and used keywords to describe how they were feeling as well as to describe how the pictures shown made them feel. Generally the three groups with natural views recovered from the stressful situation quicker than the group that viewed the city. "Reactions to the urban street were predominantly negative (64%), while reactions to the parkland (80%), tended woodland (75%) and wild woods (77%) were predominantly positive." (Van den Berg et al., 2014, 179) Forests and green spaces in general activate a sense of peace and calmness within us. We are biologically hard-wired to feel at ease within them.

## **Physical Health**

Forests encourage a variety of physical health benefits as well. A survey in Tokyo of an elderly community tracked survival rates for seniors while tracking factors like if there was room to take a stroll, if the streets were lined with trees, if the community felt safe, etc. Results showed that a high quality living environment correlated to a longer lifespan. Meaning, residents who took in sunlight and had room to walk around trees had a higher survival rating. For example, one of the questions the seniors were asked was if their residences had parks and tree lined streets near them. Their possible answers were plenty, some, little, and very little. Over the course of five years, the survival rating for seniors with “plenty” as their answer was 74.2%. Seniors who answered “very little” only had a survival rating of 66.2% (Takano et al. 2002). There are many factors that result in changes to our lifespans, but the benefits of living near green spaces leave little to interpretation. Even controlling for factors like sex and living situation, there is a direct link between access to green spaces and living longer.

## **Community Cohesion**

Forests can bring out different types as well, which improves community cohesion. People who are interested in trees, birds, or insects would have more reason to visit a forest than a normal park. The social benefit to parks in general is that they provide opportunities for social interactions. At a playground, parents can expect to find other parents with their own children. In a forest, you can expect to meet hikers, bikers, and nature enthusiasts. Providing a venue for social interaction to happen fosters a greater sense of community.

## **Faster Recovery**

More natural views are associated with faster recovery rates and improved mood. In a study by Ulrich in 1984, a study was done that compared two groups of hospital patients. One group had a view of the side of a brick building, the other group had a view of a group of deciduous trees. Nurses reported more positive attitudes from the second group, while the brick wall group needed more encouragement and were more prone to behaviors like crying. By comparison, the tree view group had shorter stays, needed fewer prescriptions, and had fewer complications. Overall, the evidence is clear that natural settings improve mood and mental health.

## Environmental Justice

Minority communities are three times more likely to live in an area without access to natural areas than white communities (Rowland-Shea et al. 2020). With respect to the social pillar of sustainability, it is our duty to keep facts like this in mind. Parks are a public service, and it falls to us to ensure they are distributed evenly and are of similar quality. An important thing to note regarding UGS and different racial groups is the perception of them as “belonging” to one group or another. This often discourages certain groups from engaging with an UGS they otherwise might have due to feeling uncomfortable there. (More about this on page 24 in the barriers section.)

## Stakeholders

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### I. Brad Spanbauer

Brad Spanbauer is the Director of Sustainability at the University of Wisconsin- Oshkosh and a member of the Sustainability Advisory Board. He supports this initiative to increase the tree canopy in Oshkosh, specifically, he would like to see this increased by 25%. He already is involved in increasing tree cover on campus. Oshkosh is recognized by the Tree Higher Education Initiative because of our tree management plan and committee. The campus continues to strive for more sustainability and planting trees is one of those steps. Brad also recognizes that parks are great areas for human recreation but tree density within the parks could increase. One of many benefits Brad discussed was the role nature plays in students' well-being. Increased tree cover can have a positive impact on students' mental health and well-being on campus and this could translate to community members. Increased amounts of trees could lead to better health and wellness for Oshkosh residents. Another benefit would be better insolation in the city of Oshkosh (discussed more on pages 16 & 17). The only hesitation Brad has about this project is making sure that trees are being placed in a well-thought area, such that they are not blocking agriculture or solar panels, as well as making sure the trees are native to Wisconsin.

## **II. Advisory Park Board**

The Oshkosh advisory park board is responsible to inform and advise with the city manager, city council, city planning commission, and any other parks administration on all matters related to parks, open spaces, or recreation. That being said it was vital to talk with the board to understand their perspective on implementing urban forestry in Oshkosh. Anthony Dirth who is vice-chair of the advisory board stated the board is very open to new ideas as long as they are fully thought out. All areas from cost to who would be doing the work need to be covered in the proposal before the board will give full support. The approval of the advisory board is not necessary for projects to move forth, but it is beneficial to have their support. Anthony also stated that the more benefits being shown for the community, then the more likely there will be support from the community as well as the advisory board.

## **III. Shannon Davis-Foust**

Shannon Davis-Foust is a member of both the UW-Oshkosh community, as well as the Fox Valley Area. She is the current president of the Fox Valley Area Wild Ones: Native Plants, Natural Landscapes chapter which promotes sustainable landscaping practices to preserve biodiversity by restoring and establishing native plant communities. Shannon is also a senior lecturer at the University of Wisconsin-Oshkosh where she educates students on the topics of environmental studies and biology, and is an affiliate of the campus' Sustainability Institute for Regional Transformations. Her main research focuses include habitat restoration, invasive species, and native and aquatic environments.

Shannon is an individual/part of a group that would be indirectly affected by the implementation of an urban forest in Oshkosh. Considering Shannon's expertise and knowledge of environmental ecosystems, she is in support of increased tree planting/the creation of an urban forest because of the significant benefits it would provide. Some of these benefits include increasing the natural storage of carbon in trees, offering habitat for species which would increase biodiversity, improving water quality, and helping to moderate the climate. A specific human-related aspect that Shannon discussed pertains to increased mental health benefits. Being surrounded by forests/trees can decrease levels of cortisol and adrenaline which are chemicals that contribute to stress (Immerse Yourself). Through these various positive effects explained by

Shannon who is well educated on the topic, environmental ecosystems, as well as humans could greatly benefit from an urban forest (Shannon Davis-Foust).

#### **IV. Lisa Mick**

Lisa Mick is an affiliate of UW-Oshkosh's Sustainability Institute where she works as the supervisor of grounds and automotive facilities management. Lisa's interests include chemical-free landscaping, sustainability education, bees, and outdoor classrooms, along with being heavily involved with on-campus planting and landscaping. Due to her background, Lisa believes that urban forests have an array of benefits such as producing oxygen, providing a cooling effect through tree canopy cover, and helping to support the various species that live in the area—human and nonhuman. Lisa feels that the UW-Oshkosh campus has provided an excellent example of what green spaces should look like on off-campus spaces because they have balance. On-campus land has a variety of open grassy spaces, plants, trees, and animals, as well as different landscape types.

Lisa mentioned a few scenarios in which urban forests could potentially harm some aspects of the environment, like providing too much tree canopy cover and homes for invasive species—which are discussed in the barriers section on pages 25-27 as well. If there are too many trees planted in open areas they can produce too much shade. This could hinder plant species from growing, creating a negative impact on the species that depend on those plants. Forests can also become home to invasive species which Wisconsin already has numerous species of. Lisa supports the creation of an urban forest in Oshkosh because the benefits outweigh the possible negative implications, but believes the forest would need some form of maintenance to ensure its success. She also believes that this hard work and dedication to the environment will not only help the current planet and its species, but will also be beneficial to the generations to come (Lisa Mick).

#### **V. Raymond Maurer**

Raymond Maurer is the parks director in Oshkosh, Wisconsin. He is responsible for overseeing maintenance in the parks as well as making sure all parks are running properly. Raymond would be considered a key stakeholder seeing as his approval is needed to go forth with any changes made in the parks, as well as it would impact his workload if Oshkosh did

become an urban forest. Raymond described urban forestry as more than trees but that it also includes terrace trees, shrubbery, watersheds, and public areas like parks. With this definition in mind, Raymond would consider Oshkosh as already containing an urban forest, and does not see the challenge in stating that Oshkosh already promotes urban forestry. Raymond mentioned that he and the Oshkosh parks department are big supporters of the benefits that come along with urban forestry. There is a native tree list provided by the memorial tree fund that lists trees that are preferred to be planted in Oshkosh, but the type of tree being planted does depend on the location the tree is being planted in since factors such as underground wires, pipelines, and overhead electrical lines need to be taken into consideration. To ensure public safety while having an urban forest, maintenance is required to keep trees in healthy, viable conditions. This includes natural pruning by removal of hazards, dead and broken down branches, diseased branches, and raising branches for equipment clearance.

A few barriers that Raymond mentioned was that in order to plant more trees in the newly designed and in-progress park of Lakeshore is that it is in fact already in progress. He stated that the parks board reached out for community recommendations back in 2019, so new changes may be hard to implement. Though he did add that the ways parks are being used are much different after the pandemic than it was being used pre-pandemic. Continuing on, Raymond said the cost of trees and hiring a new maintenance worker (price is outlined under the cost section) would be an extensive part of the forestry division budget for the year, but he did not say it would be impossible.

## **VI. Margy Davey**

The approval and support of the Sustainability Board is crucial to the success of this project. Margy Davey is the chair of the Sustainability Advisory Board and a member of the Rental Housing Advisory Board, so her input is paramount to the viability of our proposed project. She would like to see some more heavily forested areas in Oshkosh so long as there was a variety of different tree species. Her attitude towards the idea that natural spaces like forests and prairies improve mood and mental health is a supportive one. She mentioned that the project should get as much outside funding secured as possible, as any source of funding outside of taxpayer money increases the likelihood that a project will be considered seriously. Providing solid evidence of the mental and physical health benefits of urban forests would also aid our

cause. When asked about potential sponsors, she proposed that we consider Oshkosh Defense on the basis that they might wish to help the planet they helped to destroy. The park around their headquarters could be a potential location for an urban forest.

## **VII. Paul Ziemann**

Paul Ziemann is the city arborist for the city of Stevens Point, Wisconsin. His job includes the planting and maintenance of trees, as well as advising on diseased trees in the area. Based on his job description and knowledge Paul would be considered an expert stakeholder on the topic of urban forestry. When asked what urban forestry in Stevens Point all entails, Paul described that it is an understanding of all potential diseases that may come with an urban forest as well as any woody type vegetation or even turf. Paul also stated that the community largely backed urban forestry since 1976, because back in the 1960s and 70s' there was a dutch elm disease that killed many trees, and the community was very excited to bring trees back into the community. Starting in 1976 Stevens Point was named Tree City USA thanks to the community and city's support of urban forestry. Now the forestry department has a budget included with the parks department budget of \$2 million to continue to gain benefits from their urban forest. This money allows the city to maintain 400 acres of parkland on top of many acres of parkland left in their natural wooded state. Paul said in order to keep the urban forest growing tree planting is important, but also the type of tree matters. Due to the Dutch elm disease, still, present elm trees are no longer planted, and there is a list of safe native trees to be planted stated on the Stevens Point forestry website. On Stevens Point's forestry website there is also an in-depth comprehensive managed forest plan that is updated every 5-7 years with new methods, and practices for maintaining trees, as well as updated vacant lot spaces that could be potentially transformed into an urban forest area. These plans are a good baseline for other locations that are considering urban forestry and want to understand the maintenance from an exciting location.

Paul was very interested in learning more about the potential for carbon sequestration in the urban forest within Stevens Point. Through the conversation, Paul learned and understood the benefits and potential gains for the city. This information allowed Paul to talk with the city planner and now the funding is in the works to bring carbon sequestration within an urban forest to Stevens Point, Wisconsin!

**VIII. Dan Traas**

Dan Traas is the owner of Ranger Services Inc out of Appleton, Wisconsin. He has worked in urban forestry his entire career, and has “written over a hundred Urban Forestry plans for Communities, provided training, consulting to municipalities, DNR, Dept. of Ag, Universities, private companies, etc”. He has extensive experience with planting and maintaining forests, and his experience will be invaluable to determining if our project is viable. He is knowledgeable about what people like and expect in their forests. For example, certain tree species such as oaks, maples, and pines are preferred. People also like mature forests that avoid crowding. He recognizes that urban forests do have negative aspects to keep in mind. Some of these include invasive species, vandalism, crime, litter, homelessness, and a negative perception of wooded areas. It is important to keep forests well maintained so people do not begin to view them as wild, unkempt, dangerous places. However, he listed various benefits of urban forests which are explained in the benefits section of this report. (p. 15-18)

**IX. Matthew Arsenault**

Matthew Arsenault is the Program Manager for the Duke Carbon Offset Initiative (DCOI). He has a master's degree in public policy with a focus on energy and the environment from Duke University. The Duke Carbon Offset Initiative is a program through Duke University which is focused on lowering carbon emissions. He also is one of the writers and developers of the Duke Urban Forestry Protocol. Matthew is not affected by this project at all but is going to be a key person to talk to if using the urban forestry protocol in Oshkosh. He can help give information on the specific guidelines and regulations there are to setting up an urban forest and registering it for specific carbon sequestration credits.

**X. Travis Derks**

Travis Derks is the newly appointed city forester for the city of Oshkosh. His answers are limited based on the fact he recently started the position himself and is working to gather all the information available to him. His responsibilities include maximizing tree cover in Oshkosh, as well as maintaining healthy trees in order to gain maximum benefit from the trees within the community. Travis has valuable knowledge of the trees that would work best for the Oshkosh community, but unfortunately due to the high demands of his workload this time of year we were



unable to get any information from him at this time. It would be useful to reach out to him rather than the parks director in regards to the types of trees and locations they should be placed when pursuing urban forestry in Oshkosh.

## Barriers

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Some potential barriers to urban forests include accessibility, attitudes of potential visitors, and negative perceptions of forested areas. For people who are not in good physical shape, a forested area may appear more daunting than a traditional grass park. If park visitors are not interested in physical activity, they likely would not enjoy a forested area that might be more difficult to move through. Accessibility is something to keep in mind, on the level of personal physical ability as well as transportation. Like any park, ease of access is important in attracting visitors. People living near a park will visit it more often than those who must travel for the same experience. Policies like mass transportation can help mitigate this problem. While people living near a park may use it more often, living near a park generates more traffic. Homeowners might not appreciate it if their once quiet neighborhood is suddenly filled with people going to or using a nearby park.

There are psychological barriers as well as physical ones. If people perceive a park to be meant for a certain social class they might be less willing to use it. Similar to how when you wander into a restaurant and begin to feel uncomfortable as you realize it is much fancier than you anticipated. While the realm of public parks doesn't have any inherent reason that people from all walks of life could not utilize said parks, the public perception of them is important. Safety is another potential psychological barrier. If the perception of a forest is that it is a dangerous place where crime takes place, there will undoubtedly be increased opposition to its planting. Careful measures must be taken to ensure the forest appears both safe and well maintained.

Other barriers mentioned specifically by stakeholders Shannon Davis-Foust and Lisa Mick include maintenance of the urban forest, obstructing citizens' views of the area, providing too much canopy cover, and introducing invasive species. Shannon shared that the most common barriers she encounters in her line of work come from the city's citizens. Although natural urban

forests do not need much maintenance after their creation, urban forests that citizens will spend time in require some care. Open grassy areas near the urban forest would need to be mowed, and the forest itself would require clean-up if invasive species take over the space, or if trees need to be removed or trimmed. For example, if a storm were to come through the city of Oshkosh and knock down tree limbs, individuals may not want to be responsible for cleaning up the area, and the clean up could become costly. Shannon also discussed the fact that if the urban forest were to be created near a body of water, citizens may have some hesitation because they would not want the view of the water to be obstructed by trees. They may instead prefer to have more of a manicured, open green space where they can take in the sights (Shannon Davis-Faust).

Lisa Mick explained other possible barriers including the urban forest providing too much shade and creating a home for invasive species. If too many trees were to be planted in the urban forest, the canopy cover could end up providing too much shade. With canopy cover becoming too significant, plants and landscapes like prairies that require sunlight would be negatively affected. The space would need to have a balance between trees and open, grassy areas. Urban forests can also be areas where invasive species thrive. A study conducted in eight different southeastern cities in Virginia, Georgia, and Florida in 2016 concluded that urban forests can have higher rates of non-native, invasive, and unclassified trees (Blood et al., 9). Due to the fact that Wisconsin currently has a variety of invasive species like garlic mustard, buckthorn, thistles, dame's rocket, and many more, it is crucial that the area be monitored and maintained to some extent to avoid possible introductions and takeovers (Lisa Mick).

Another significant barrier is the costs associated with the planting of trees. As talked about in the cost section it is no cheap endeavor to go into and then add an extra part of the park to maintain. As well as the cleanup of damaged and trimming and maintenance of trees consistently. We suggested that an urban forest be placed into the plans of the Lakeshore Park but have run into pushback since the park plan is already created and the funds have already been allocated and planned for. This might pose a significant challenge to change these plans since they were drawn up in 2019.

## Conclusion

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Throughout this proposal many different topics and statistics were discussed about urban forestry. Lakeshore Park would be the perfect location to start an urban forest project. Oshkosh could be a place of significant sustainability goals through urban forestry benefits. This includes environmental aspects such as removing carbon from the atmosphere and increasing biological diversity in the area. Urban forestry can also help benefit the economy of Oshkosh by lowering the usage of electricity, and natural gas within homes, and city buildings. There are also potential social benefits that are not limited to improving mental health and reducing recovery time from surgeries or other illnesses. The benefits listed are just a few potential benefits that come along with urban forestry. Urban forestry in Oshkosh would also provide the potential for economic benefits if the urban forest is a certified carbon sequestration zone. This would allow Oshkosh to keep improving its green goals for the community as well as give companies the option to buy carbon offset credits. Carbon credits offer companies the opportunity to produce goods at higher rates without having to worry about their environmental impact because the urban forest will be capturing large amounts of carbon that the company would be producing. Carbon sequestration through an urban forest is a goal to work towards as a benefit to the environment and community. Creating an urban forest within the Oshkosh community can create so many benefits that are shown through benchmarking of other locations, and those benefits can be a reality in Oshkosh once the city makes the steps towards creating urban forestry within the community.

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## Appendix A: Duke Urban Forestry Protocol

Listed below is the link to the Urban Forestry Protocol developed and created by the Duke Carbon Offset Initiative. A program run through Duke University which implements projects related to decrease carbon emissions.

<https://static1.squarespace.com/static/57d1b5afc534a562b142a538/t/5ed117ceab1d9162b64bfba7/1590761437362/Urban+Forestry+Carbon+Offset+Protocol+3.0>



# Appendix B: i-Tree Ecosystem Analysis

## City of Oshkosh

### Urban Tree Canopy (UTC) Analysis



#### What is the Urban Forest and Urban Tree Canopy?

The **Urban Forest** consists of all public and private trees and shrubs in our community. This includes trees in yards, parks, open spaces, along streets and other land where trees are present. One way to understand the value of urban forests is by envisioning the layer of leaves, branches and tree stems when viewed from above. This layer is called **Urban Tree Canopy (UTC)**.

#### Why is Urban Tree Canopy important?

While we may not think of city trees as a typical "forest," these trees provide valuable services and benefits.

##### Trees in our community:

- Reduce storm water runoff
- Lower summer air temperatures
- Reduce air pollution
- Reduce heating and cooling costs
- Enhance property values
- Provide wildlife habitat
- Improve health and wellbeing
- Improve learning and concentration
- Provide aesthetic benefits

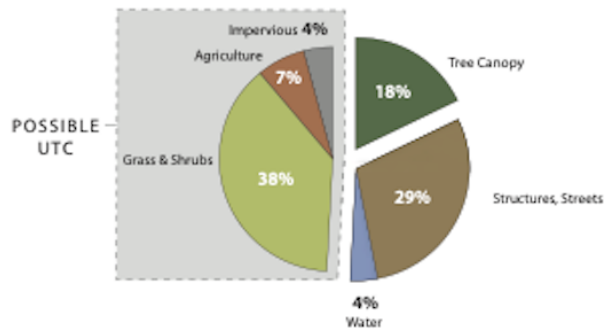
UTC benefits can be quantified. A single large tree can provide approximately \$76 in average annual net benefits, \$3,000 in benefits over a 40-year period. An increase in UTC brings an associated increase in benefits.



#### How much Urban Tree Canopy does Oshkosh have?

##### UTC analysis for Oshkosh shows<sup>1</sup>:

- An existing tree canopy of 18% (3,124 acres)
- Trees could potentially cover an additional 48% (8,302 acres) of the city's land surface. These "Possible UTC" areas include grass, agriculture land, and impervious surfaces (e.g., parking lots, paved playgrounds & ROW).
- The remaining 33% (5,732 acres) of the city's area is buildings, streets, water and other permanent features and is generally unsuited to UTC improvement.



Many factors determine where best to plant urban trees. UTC analysis shows where additional trees will have the greatest positive impact.

##### UTC analysis for other metropolitan areas shows:

Green Bay Metro Area <sup>2</sup> :		Fox Valley Metro Area <sup>3</sup> :	
Tree Canopy.....	24%	Tree Canopy.....	20%
Possible UTC.....	56%	Possible UTC.....	55%

<sup>1</sup> Analysis was conducted using iTree Canopy. iTree Canopy offers a quick and easy way to produce a statistically valid estimate of land cover types (e.g., tree cover) using aerial images available in Google Maps. The iTree Suite is a free state-of-the-art, peer-reviewed software suite from the USDA Forest Service. [www.itreetool.org](http://www.itreetool.org)

<sup>2</sup> Allouez, Ashwaubenon, Bellevue, DePere, Green Bay, Hobart, Howard

<sup>3</sup> Appleton, Greenville, Kaukauna, Kimberly, Little Chute, City of Menasha, Town of Menasha, Neenah

## Why should Oshkosh set goals for UTC?

As urban development expands, it is increasingly important to balance growth with environmental wellbeing. To maximize UTC benefits, communities should set goals to protect, maintain and enhance their entire urban forest. Careful planning and goal setting are necessary to retain as much mature tree canopy as possible in areas with development pressure and to expand and sustain canopy in already urbanized areas. UTC goals can emphasize environmental quality (stormwater, air quality, carbon offsets), livability and economic vitality.

Though many communities have adopted land use strategies to mitigate sprawl, few have developed land cover strategies like UTC to mitigate urbanization effects.



### Additional Resources

Urban Tree Canopy Assessment, Northern Research Station, USDA Forest Service, <http://nrs.fs.fed.us/urban/utc/>

Watershed Forestry Resource Guide, Urban Tree Canopy, <http://www.forestsforwatersheds.org/urban-tree-canopy/>

Urban Natural Resources Institute, <http://www.unri.org/webcasts/archive/march-2011a/>

Society of Municipal Arborists, Urban Forestry BMPs, <http://www.urban-forestry.com/sma-urban-forestry-bmps>

### How to Set UTC Goals

Effective UTC goal setting requires involvement and commitment by municipal leaders and staff, local business community, neighborhood groups and citizens. The process generally includes four steps:

- **Assess Current UTC**
  - Can use iTree Canopy Analysis or GIS to arrive at UTC baseline.
- **Assess Possible UTC**
  - Identify opportunities on both public and private land.
- **Adopt Goals Based on Assessments**
  - If possible, institutionalize goals in appropriate ordinances, policies, or community master plan.
- **Develop Implementation Plan**
  - Identify strategies to meet goals based on available resources, political climate and stakeholder needs. Produce timeline and identify parties responsible for each strategy.

### Potential Strategies to Implement UTC Goals

- **Plant New Trees**
  - Identify and prioritize planting sites community-wide.
  - Assess species diversity needs.
  - Identify how trees will be maintained.
- **Protect & Maintain Existing Trees**
  - Adopt tree protection ordinance and conservation easements.
  - Produce a tree management plan.
  - Ensure proper pruning in utility corridors.
- **Minimize & Restore UTC Lost to Age, Mortality & Land Conversion**
  - Specify strategies within Comprehensive Land Use Plan (e.g. Smart Growth).
  - Adopt subdivision, zoning, and landscaping ordinances.
  - Identify impact from EAB and potential management strategies.
- **Promote Public Education & Awareness**
  - Promote tree benefits (e.g., community website, newsletter, water bill insert)
  - Promote proper tree planting (e.g., Arbor Day, workshops)
  - Develop or participate in campaigns (e.g., First Downs for Trees, Taking Root in Oshkosh)



Wisconsin Department of Natural Resources  
dnr.wi.gov



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# Appendix C: DNR Urban Forestry Grant

## 2022 DNR Urban Forestry Grant Recipients

**Northeast** – Tracy Salisbury, Urban Forestry Coordinator, 2984 Shawano Avenue, Green Bay, WI 54313

Phone: (920)366-6833 [Tracy.Salisbury@Wisconsin.gov](mailto:Tracy.Salisbury@Wisconsin.gov)

Algoma, City of	\$23,297.06	2022 Tree Management & Inventory Update
Brandon, Village of*	\$5,000.00	Tree Removal
Cleveland, Village of*	\$4,652.50	Urban Forestry Management Plan & Tree Inventory Update
Harrison, Village of*	\$1,750.00	Street Tree Ordinance/Policy
Ledgeview, Town of*	\$5,000.00	Town of Ledgeview UF Management Plan & Town Gold Course Tree Inventory
Manitowoc, City of	\$19,887.87	1 +1 = 2 One Ash Tree + One stump removed = two trees planted & Tree for Tree Program
New Holstein, City of*	\$5,000.00	Removal & Replacement of Ash Trees in Kiwanis Park
Omro, City of*	\$5,000.00	Omro UF Management Program Project
Omro, City of^	\$50,000.00	Catastrophic Storm Grant
Ripon, City of	\$19,922.50	Inventory, Operations Plan & EAB Mgmt. Project
Ripon, City of^	\$50,000.00	Catastrophic Storm Grant
Waupaca, City of	\$11,851.00	Tree Planting/Ash Replacement/CTMI & Chainsaw Safety Training

## REGULAR URBAN FORESTRY GRANTS

Regular urban forestry grants support projects that improve a community's capacity to manage its trees. Cities, villages, towns, counties, tribes and 501(c)(3) nonprofit organizations in or conducting their project in Wisconsin may apply for a regular urban forestry grant.

**Application deadline is Oct. 1** for projects to be completed between Jan. 1 and Dec. 31 of the coming year. Resolution required with application.

## ABOUT

Grants range from \$1,000 to \$25,000 and require a 50–50 match (total project cost range is \$2,000 to \$50,000).

The project sponsor must initially fund 100% of project costs with cash, in-kind contributions and/or donations. Upon completion, the project sponsor requests reimbursement for 50% of eligible costs (501(c)(3) nonprofit organizations may request an advance when a grant is awarded).

Projects begin Jan. 1 and must be completed within one calendar year.

## ELIGIBLE PROJECTS AND COSTS

Projects must relate to community tree management, maintenance or education within Wisconsin cities, villages or other areas of concentrated development.

Eligible project components include, but are not limited to:

- tree inventory or canopy assessment;
- urban forestry strategic or management plan;
- urban forest pest response, storm response or risk reduction plan;
- tree ordinance development/revision;
- public outreach;
- staff or volunteer training;
- tree board or volunteer group development; and
- tree planting, maintenance and removal.

Ineligible projects include, but are not limited to:

- construction projects (such as trails, fences, shelters, buildings and site grading) not directly related to planting;
- land clearing or stump removal projects not directly related to tree planting or removal; and
- land or boundary surveys or title search, appraisal, sale or exchange of real property.

Eligible costs are those necessary for completing the project and incurred during the project period. Costs must be documented, reasonable and consistent with the project scope. Examples include:

- salaries and fringe benefits of people working directly on the project;
- cost of services, supplies, equipment or facilities used on the project; and
- value of labor, services, supplies, equipment or facilities donated to the project by third parties.

## APPLICATION STEPS

- Obtain a resolution from your governing body designating a representative to file the application and handle all grant actions on behalf of the applicant.
  - [Sample Resolution \[doc\]](#)
- Complete application form [8700-298 \[PDF\]](#).
- Complete Urban Forestry Partner Verification form [8700-298A \[PDF\]](#) for each project partner (not for hired service providers).

501(c)(3) organizations must include a copy of their constitution, bylaws or articles of incorporation, unless already on file with the DNR urban forestry program.

Review the [urban forestry grant application guide \[PDF\]](#) for more details.

Follow link for more information.

<https://dnr.wisconsin.gov/topic/urbanforests/grants/regular>