City of Rochester
URBAN FOREST MASTER PLAN
Fourth Edition 2024

DRAFT

Introduction

In 2024, the City of Rochester's Urban Forest Master Plan was updated for a fourth edition. This edition reviews the unique history of urban forestry in Rochester, examines the benefits of trees to the community, and assesses the current health and diversity of the urban forest. Rochester's urban forest policy is discussed in detail, as well as the City's initiatives to address current issues such as environmental justice and climate change. Finally, the plan poses a series of challenges and recommendations for the preservation and expansion of Rochester's urban forest, consistent with feedback from public engagement.

Executive Summary

Trees have been vitally important to Rochester since the city's founding. Charles Sprauge Sargent, the first director of Harvard University's Arnold Arboretum, called Rochester a city in a forest. Almost as quickly as trees were cut in the early settlement to make room for roads and structures, they were replanted for shade and decoration. The prominent flour miller, Hervey Ely, planted sugar maples along Washington Street in the 1830's; Josiah Bissel, a nurseryman, did the same along East Avenue in the 1840's. H. E. Hooker, owner of Hooker Brothers Nursery, recognized that street trees enhanced the value of residential properties when, as the developer of Oxford Street, he designed a mall and planted it with magnolias.

Many horticultural nurseries operated in Rochester in the 19th century. Ellwanger and Barry built the largest nursery in the world on 650 acres along Mount Hope Avenue.

The Rochester Parks Commission, at its first meeting in 1888, decided to hire Fredrick Law Olmsted to design a park system for the city. His major efforts include Genesee Valley Park, Maplewood Park, Highland Park, and Seneca Park. In 1894, the Parks Commission was empowered to care for existing street trees, and shortly thereafter, began planting them as well. The commission evolved into the Department of Parks in
1915.

In the 1950's, the Forestry Division was mobilized to remove elm trees infected with Dutch elm disease. A second challenge for Forestry occurred with the ice storm in 1991, which destroyed 14,000 public trees in the city. Additional events, including the Labor Day windstorm of 1998, the April 2003 ice storm, the arrival of Emerald Ash Borer in 2011 and a windstorm in March 2017 continue to impact the urban forest.

In 2023, the Forestry Division embarked on a 3-year tree planting initiative with two main objectives – 1.) increase the City tree inventory from 64,000 trees to 70,000 trees, and 2.) address disparities in street tree stocking by allocating plantings in such a way to increase the tree stocking level to 85% across all City quadrants.

Health and Diversity of Rochester's Urban Forest

As of 2024, The City's managed urban forest includes over 67,000 trees along city streets and in parks and cemeteries.

- 40 percent are young (less than 12-inch diameter)
- 60 percent are mature (greater than 12-inch diameter)
- 13 percent are in excellent condition
- 41 percent are in good condition
- 46 percent are in fair to poor condition

Stocking is a measure of the number of existing trees as a percentage of sites available to plant trees. The current street tree stocking level is 81.9% percent.

There are 173 species with 12 tree genera in excess of 1 percent in the city-managed urban forest. Maples dominate the population at 29 percent. Honeylocusts are second at 10 percent. Oaks and Lindens each constitute 7 percent, with Ash at 5%. London planetree, cherry, and pear also predominate.

Tree Benefits, Public Health, and the Environment

The immensity and beauty of Rochester's urban forest are visible every day, but the benefits are often overlooked. Trees filter toxic pollutants from the air and release life-giving oxygen. They intercept rainfall and slow erosion and storm water runoff. Besides providing shade that cools people, street and structures, trees demonstrably cool the air itself on hot summer days. Cooling and heating energy savings of as much as 25 percent result from properly positioned trees.

Trees enhance the attractiveness of streetscapes, which results in increased property values. Trees reduce urban noise by blocking, absorbing, and diffusing sound waves. And finally, trees soften the hard surfaces of a city and connect us with nature.

In 2023, to further explore and quantify the benefits of trees, the City commissioned Urban Design for Health to study and provide an overview of the impacts of urban tree canopy on public health and the environment.

Elements Influencing Rochester's Urban Forest

Rochester's average temperature is 49° Fahrenheit. With an annual rainfall of 34 inches and snowfall of 93 inches, there is ample moisture for tree growth. This combination of temperature and moisture allows for an extraordinarily broad range of tree species to grow here.

In 2012, Rochester was classified in USDA Plant Hardiness Zone 6A (-10°F to -5°F). At the time of this update, Rochester has moved to Zone 6B (-5°F to 0°F), an indicator of climate change with increasing

annual temperatures. Continued climate change and the resulting changes in hardiness zones may be considerations in species selection, allowing for increased diversity in our urban forest.

Trees have many pests, in most cases however, it is environmentally prudent to allow natural systems to manage pest populations. Some invasive pests, such as Emerald Ash Borer, pose a serious threat to the health of our urban forest and have such prompted a response from the City.

Construction is a major man-made influence affecting the urban forest. Often**,** fifty percent of mature street trees within a street re-construction project are lost within five years. Vandalism and de-icing salts also profoundly affect tree establishment and longevity.

Funding and management practices, along with condition survey and data collection have the most direct man-made influence on our urban forest. Without funding, trees do not get planted, pruned or removed. Planning and organizing workloads, driven by data analysis, provides the foundation for effective management of our forest resource.

Public Engagement

Public engagement was a major component in the development of recommendations in this plan, highlighted by the formation of an Urban Forest Master Plan Advisory Committee. The committee, consisting of community stakeholders, provided vital insight and feedback to inform the plan. Public engagement also included in-person and virtual meetings, an online survey, pop-up and experiential events, and the formation of a Community Tree Ambassador Program.

Rochester's Urban Forest Policy

Rochester's urban forest is healthy and growing in size and grandeur. Citizens and visitors recognize and appreciate the environmental, economic, and social benefits our forest provides for our community and are engaged in its care and renewal. Rochester, a City in a Forest, is known throughout the country as a model in urban forestry stewardship and progressive management. The urban forest was considered an integral part of Rochester 2010: The Renaissance Plan, and impacted seven of the eleven campaigns.

More recently, the Rochester 2034 Comprehensive Plan recognizes the urban forest as an integral part of the City's infrastructure, essential for the well-being of residents. The Rochester 2034 plan recommends utilizing the Urban Forest Master Plan to guide efforts in protecting and expanding our urban forest.

It is the City's responsibility to protect, regulate, and fund the tree planting, maintenance, and removal on city-owned lands or within the public right-of-way in the most social, responsive, environmental and economic manner.

Mature trees will receive periodic pruning to remove potential hazards and promote tree health and longevity. Annual inspections will be performed to identify hazardous conditions. Ideally, one-fifth of the city's trees will be comprehensively inventoried each year. Tree removal will be completed to ensure

public safety, urban forest health, and responsible fiscal management. Stiff monetary fines will be imposed for destructive construction practices. Renewal of our urban forest will be accomplished through annual tree planting. Tree species selected for planting will not exceed 10 percent of the tree population to ensure minimal impact from future events. In 2004, the city adopted a policy of not planting trees of the Fraxinus (ash) genus in response the potential invasion by Emerald Ash Borer (Agrilus planipennis).

Edible fruit tree plantings will be primarily restricted to parks, community gardens, and other open spaces. Fruit trees do not make ideal street trees in the urban environment due to poor soils, narrow tree lawns, and their low branching habit conflicting with clearances. Fruits such as apples, pears, and cherries become problematic with infrastructure and pose threats to public safety.

Pest control will only be used when there is significant risk to a large population of trees, such as the case with the discovery of Emerald Ash Borer (EAB) in 2010. As a result, the Forestry Division has developed and implemented a successful, cost-effective EAB management program, allowing the City to maintain tree canopy and strategize a long-term plan for tree replacement.

Challenges and Recommendations

The Forestry Division, through public engagement and in partnership with the Urban Forest Master Plan Advisory Committee, identified current issues of importance which present challenges to sustaining the City's urban forest. In response to these issues, recommendations were developed to be utilized in the development and implementation of fiscal and operational plans. Annual status reports should be made available. This master plan should be reviewed in five-year increments to evaluate its impact and to revise it as appropriate.

The Legacy of Rochester's Trees

Trees have been vital to Rochester since the city's founding. It was practically an impenetrable forest when the first white settlers arrived. The density of trees made the trip from Stone-Tolan House, now 2370 East Avenue, to the Genesee Falls a difficult, full-day's journey, even utilizing Seneca Indian trails. Today, that four-mile distance can be traversed by car in 10 minutes. Trees then were so plentiful that early settlers built roads from them. Plank Road, though smoothly paved today, bears the name of its original composition. Another wooden highway was what has become East Henrietta Road today.

It was the forest of trees that saved Rochester from total destruction by the British in the War of 1812. The small village of Buffalo, vulnerably located on the flat sandy shores of Lake Erie, was pillaged and burned to the ground on December 30 and 31, 1813. Lewiston was similarly brutally attacked and burned. On May 14, 1814, the British fleet - consisting of eight large ships, several smaller ones, gunboats, and barges - anchored at Lake Ontario off the mouth of the Genesee River.

At the time, Rochesterville was a log cabin village of 300 people. With help from a few neighboring villages, Rochesterville mustered 33 men, 20 horses, and one cannon, and took the entire night to move

its meager assemblage to the area that is now Charlotte. The next day was very foggy, and except for a few shared cannon shots, there was a standoff between the British and Americans.

Reinforcements for the Americans arrived on the second day, but they were woefully inadequate to the British might, so the Americans decided to trick the British by marching in circles in and out of the woods, with files of men passing visibly a number of times through a clearing. The British, not knowing how many troops they faced if they were to land, decided the gains were not worth the battle, and on the third day they sailed to the east. The forest had saved Rochester.

Charles Sprauge Sargent, the first director of Harvard University's Arnold Arboretum, called Rochester a city in a forest. It is an apt description because the area was originally a forest of red, black, and white oaks; beeches; red and sugar maples; basswoods; tulip trees, and white ashes. Settlers gathered butternuts for food from trees that grew along the river.

When the first saw mills were established at the falls on the Genesee River, finished lumber became available, and the architecture that the settlers remembered from their New England background sprouted here. One of the early settlers, Hamlet Scrantom, wrote in 1812, the country is very pleasant and fertile, timbered with oak, chestnut, hickory, black walnut, and white wood, some of enormous size. I saw one white-wood log twelve feet long which produced 1000 feet of clapboards.

In the 1830's, the prominent flour miller Hervey Ely, planted sugar maples and other trees along the west side of Washington Street for, he said, shade and decoration. They were the first trees in Rochester set out for ornament.

Rochester truly awakened to its horticultural potential in the 1840s. After many trees were cut to clear land for building, replanting occurred to decorate and shade city streets and lawns. The many nurseries that developed here were influential in this effort. Josiah W. Bissel, a nurseryman, was responsible for planting the first street trees on both sides of East Avenue in the mid -1840's. They were horsechestnuts. Some people contend that the horses hitched to the trees died from eating the bark of the horsechestnuts. Others maintain that the horsechestnuts died from the horses eating the bark. Perhaps both are true. In any case, the horsechestnuts were replaced with elms, which now, too, have been replaced.

Many developers recognized that street trees enhanced the value of residential properties. H. E. Hooker, owner of Hooker Brothers Nursery, and developer of Oxford Street, designed the street in 1880 with a mall on which he planted a hybrid cross between Chinese white and Japanese purple magnolias, which are noted to this day for their delicate color.

George Ellwanger and Patrick Barry, who built the largest nursery in the world in the middle and late 1800s on 650 acres along Mount Hope Avenue, scoured Europe for fine trees that they could propagate in America. Their efforts can be seen throughout Rochester, particularly in the grand European beeches they developed. These include fern-leafed, copper, purple, and weeping beeches.

At its first organizational meeting on May 7, 1888, the Rochester Parks Commission decided to invite the great American landscape architect, Frederick Law Olmsted, to design a park system for the city. His major efforts included Genesee Valley Park, Highland Park, Seneca Park and Maplewood Park. Olmsted's

concept was to connect the parks to other areas of the city by means of a parkway system. Today, Seneca Parkway is the only element of his original plan that remains substantially as planned.

Rochester was the last municipal park system designed by the renowned Olmsted. After he retired, his firm continued to do work in Rochester, designing Brown Square, Cobbs Hill Park, Jones Square, Susan B. Anthony Park, the University of Rochester quadrangle, and several smaller public spaces.

In its first annual report, the city's Parks Commission mentioned street trees and residents efforts to plant trees in front of their houses. By 1894, the Common Council empowered the Park Commission to care for existing street trees.

Beginning in 1896, the commission's annual reports record areas which had street trees pruned. The reports also document an ongoing battle with tussok moths, commonly called tent caterpillars. Work requested by residents each year far exceeded the Park Commissions ability to accomplish it.

In 1899, the Commission began to plant trees along city streets. By 1915, the Park Commission was abolished and its duties transferred to the newly organized Department of Parks.

In the early 1900s, the influence of Rochester's nurseries was apparent in the species selections made by the city or planted by developers and available to residents at low rates. The Ellwanger and Barry Nursery noted certain trees in its catalogs as suitable for parks, avenues, and streets. These included a wide variety of maples, elms, and poplars along with select species of linden, larch, horsechestnut, and locust designated as suitable. Not surprisingly, these species are still found on city streets, and some continue to be planted.

In the 1950s, the Forestry Division was mobilized to remove elm trees infected by Dutch elm disease. An inventory was completed that was a progressive management approach for the time. The common practice of planting a single type of tree (monoculture) along a street or park unfortunately created favorable conditions for the spread of Dutch elm disease in the American elm. An estimated 20,000 American elms along numerous residential streets and grand boulevards in Rochester were lost to the disease over a 15-year period. As a result, subsequent planting included a diversity of tree species on a street. In the years to come, however, the practice varied depending on the decisions of the City Forester.

The ice storm of 1991 had a great impact on Rochester's urban forest. Approximately 14,000 public trees were removed and subsequently replaced over a four-year period. The ice storm shaped the future of Rochester's urban forest. A tree planting plan was developed to guide the replanting. Key to the plan was integrating a diversity of tree species along a street to minimize the impact of future events. Planting plans were developed for every street with a selection of trees matching a desired visual image and considering the site characteristics.

The City recognizes the value and importance of a healthy and vibrant urban forest, as well as disparities in tree canopy distribution in underserved communities. In 2023, the Forestry Division kicked off the Trees Expansion and Beautification Initiative to expand the urban forest and create an equitable distribution of street trees throughout Rochester.

Rochester's verdant environment of indigenous flora, extensive horticultural nurseries and masterfully designed parks, has had a profound effect on the city in a forest that we know today. The Forestry Division is committed to continuing this legacy of gracious, tree-lined streets and glorious parks.

Transformation of Rochester's Urban Forest

It is the city's responsibility to manage the care of trees located within the city right-of-way and on city properties. This includes trees lining city streets, in our parks and cemeteries, in vacant lots and on other public properties.

As of 2024, the city's managed urban forest includes over 67,000 trees located along city streets and in parks and cemeteries. Included are approximately:
- 56,391 street trees
- 12,454 street sites available to plant trees
- 11,276 park and cemetery trees on 1,076 acres
- ~10,000 trees on vacant lots and other properties

The park tree inventory does not include Ontario Beach Park, Durand Eastman Park, Highland Park, Genesee Valley Park East, and Seneca Park. These five (5) parks are maintained by the County of Monroe under terms of the 1966 City / County Parks Agreement.

In 1998, the first 'Master Plan: A City in a Forest,' included detailed information on the city maintained urban forest. The data used in that information was generated in 1996.   The original inventory data was collected in a DOS-based relational database. With the necessity in 1999 to prepare for the data conversion in anticipation of Y2K, the original provider, ACRT, Inc. was contracted to perform the task. In the migration process, the mapping sub-program of the database was rendered unusable. This led to the slow degradation of data related to park trees, specifically the ability to track work performed on specific trees.

Street trees in the database were associated with an address, making physical location relatively simple. Park trees lacked spatial information. In 2009, the Forestry Division set out to add Geographic Information Systems (GIS) data to the parks tree inventory. The previous parks inventory was contained in the ACRT Tree Manager database under an address location. Each address location contained hundreds to thousands of sites referencing hand drawn and computer generated maps. The maps were outdated, clustered and difficult to read. Many of the maps had not been updated since the mid 1990's. The need for updated spatial information for Parks trees resulted in the creation of a new GIS-based database.

The new parks tree database provided accurate location and information on each tree within City parks. Every park tree in the city has a digital point on an electronic map, each point containing the same information previously stored in ACRT Tree Manager. Points were collected with a handheld GPS and uploaded into ESRI mapping software where they were connected to forms, requests, and records in a database. Trees can now be added, deleted, and modified in the field keeping an up-to-date inventory that can be visually deciphered by crews and technicians.

In 2015, the entire city tree inventory (street trees and parks trees) was migrated to a new GIS database. The new database, modeled after the parks trees GIS database, is connected to a Microsoft Access database, titled Rochester Tree Manager. Tree Manager provides the ability to create and track work requests, work histories, and other critical records required of the operation of the Forestry Division.

State of the Urban Forest

Assessing the state of the urban forest is accomplished by an analysis of the age of the trees, their condition (health) and the stocking rate, which compares the number of existing trees to the number of available planting sites.

Analysis of the evolution of the forest over a decade provides a waypoint in the path laid out in the original master plan. That original document recommended the re-evaluation of the contents and condition of the urban forest on a regular basis. The regular evaluation of benchmarks serves to map the path the urban forest has taken; it is a reflection of the maintenance efforts, it records the impact of natural events (ice, wind and drought) and serves as a guide post on the journey to maintain a healthy urban forest.

Age

The age of Rochester's urban forest is gauged by summarizing the diameter of each tree in the inventory and grouping the summary into six-inch diameter classes. The assumption is that the larger the diameter, the older the tree.

The diameter distribution of an ideal urban forest should have a negatively skewed slope as diameter class increases, indicative of a larger percentage of young trees. The slope should then even out through the larger diameter classes – 31 to 36-inch and greater - indicating a stable middle-aged tree population. Finally, the slope should taper off, indicating the maturing of the urban forest.

In 2012, fifty-four percent of trees were 12" in diameter or less. In 2024, this figure has decreased to forty percent (Figure__). The decrease in the percentage of young trees, along with the increases evident in larger diameter classes, illustrate the aging of the urban forest. Increased tree planting is needed to maintain stocking levels. Although it is desirable for young trees to compose the highest percentage of the urban forest, it must be noted that increased plantings will require increased maintenance needs as trees age.

The number of mature trees, 31 inches and greater in diameter, tapers off as anticipated, mirroring percentages present in the 2012 data. The importance of these large trees cannot be overlooked. They are a link to our past, and provide proof that a species will perform well in similar conditions. These are the proven survivors, and warrant special care and recognition.

Condition

The number, or quantity of trees within the forest is important, but the quality or condition of the trees is critical. The condition of a tree is determined using a tree condition evaluation chart. Points are awarded for factors in six (6) categories: crown development, trunk condition, major branch structure, twig growth rate, insects and disease, and roots. The points accumulate, generating a condition value for the tree. With the change in the number of trees, the percentage of trees within each condition class is compared. (Figure __). Inventory data does not exist for trees on vacant lots, thus they are not included in the chart.

Trees determined to be in 'Excellent' condition exhibit a well-balanced crown, a sound and solid trunk, no defects in branching structure, and twig growth that is typical for the age and species of the tree. These trees show no signs of insect or disease problems, and have no root problems. To be considered 'Excellent' the tree must rate at the top of each variable: it must have a perfect score. Thus statistically, one should expect a very small percentage of trees to fall into this condition rating.

The period between 2012 and 2024, saw a ninety-three percent increase in trees deemed to be in 'Excellent' condition. This increase illustrates the effectiveness of proactive urban forest management - specifically the systematic pruning of street trees and new tree plantings.

Trees in poor condition are utilized as a key performance indicator (KPI) for the Forestry Division, with a goal of five percent of the population or less. In 2024, four percent of trees are deemed to be in poor condition. Annual tree plantings, coupled with removal of poor condition trees make this a realistic and sustainable goal for the future.

Overall, the majority of the urban forest is categorized in fair to good condition, consistent with historical trends. As tree plantings are increased and the forest becomes younger, the percentage of trees in good to excellent condition will increase.

Stocking

Stocking is a measure of the number of existing trees as a percentage of available planting sites. Stocking provides a measure of the forest population stability, as well as canopy distribution. The figure is only calculated for street trees, as sites to plant trees in parks are not inventoried and are most appropriately evaluated using long-term data. In 2012, the stocking rate was 75.7%. In 2022, stocking remained consistent at 76%, with disparities recognized among City quadrants. In response, the Forestry Division embarked on the Trees Expansion and Beautification Initiative to address tree canopy disparities, setting a goal for an equitable stocking rate of 85% across all City quadrants. At the time of this update, the stocking level is 81.9%, with the completion of the initiative scheduled in 2025.

Young Tree Mortality Rate

Beginning in 2001, the Forestry Division undertook the responsibility for planting trees in-house. Initially instituted in an effort to contain rising costs, the process has yielded a decrease in mortality rates. This is attributed to having direct control over tree stock selection and planting methods. The average three-year mortality rate using contracted planting was 15 – 25%. Tree planting with City staff has seen a decrease in the mortality rate at 5-10% after three years. The mortality rate for the 2022 planting was 9% after two years.

Species Diversity

Diversity in the urban forest promotes overall health and longevity by providing protection from large scale pest and disease outbreaks. Dutch elm disease devastated American elm trees throughout eastern cities in the 1950's because the elms were so numerous and lined many city streets. More recently, Emerald Ash Borer has threatened over 3,500 ash trees in our urban forest. As a result, current arboricultural standards recommend that a tree species not exceed ten percent (10%) of the forest population in order to minimize potential losses and to passively control pests attacking a specific species.

There are 173 species with 12 tree genera in excess of 1 percent in the city-managed urban forest (Figure__). Maples dominate the population at 29 percent. Honeylocusts are second at 10 percent. Oaks and Lindens each constitute 7 percent, with Ash at 5 percent. The remaining tree genera constitute 10 percent or less of the total population.

Tree Benefits, Public Health, and the Environment

In 2023, to further explore and quantify the benefits of trees, the City commissioned Urban Design for Health to study and provide an overview of the impacts of urban tree canopy on public health and the environment. Focus areas of the study were:

- *Public Health Benefits of Trees*
    - Increased physical activity
    - Reduced exposure to pollutants
    - Reduced stress
    - Improved attention
    - Trees foster psychological well being
    - Increased social interaction and cohesion

- *Environmental Benefits of Trees*
    - Mitigation of urban heat island
    - Stormwater management
    - Reduction of air and noise pollution

- *Equity and Environmental Justice*
    - Considering equity to ensure fair access to urban vegetation
    - Setting goals for equitable tree distribution
    - Acknowledging cultural differences in planning and engagement
    - Community empowerment

Evidence Review: Health Benefits of the City of Rochester's Urban Reforestation and Tree Expansion can be found in its entirety in Appendix A.

Elements Influencing the Urban Forest

The urban forest is continuously subjected to elements of influence, both man-made and natural. This is no different than a natural forest system. Periodic natural events and urbanization cause tree mortality and create opportunities for rejuvenation. In the urban environment, managing these elements can be accomplished provided the elements are identified, defined, and considered as tasks associated with managing our tree population.

Natural Elements of Influence

Climate and Climate Change

Annual rainfall and temperature ranges of regional climates create environments for various tree species to thrive and others to fail. Rochester's temperate climate has an average rainfall of 34 inches per year and an average snowfall of 93 inches per year, which provides ample moisture for plant growth.

Rochester's average temperature is 49 degrees F.; its average high is 90 degrees F. and average low, 2 degrees F. This places our region in U.S.D.A. hardiness zone 6B (Appendix __ plant hardiness zone map). Interestingly, 30 miles south of Rochester is one hardiness zone colder. Typically, as you travel south climates get warmer and correspondingly so do hardiness zones; however, Lake Ontario moderates temperature extremes and dominates our weather patterns.

These moisture and temperature patterns allow the use of a broader range of tree species than regions with more extreme temperatures and less annual rainfall.

Climate change and the resulting changes in plant hardiness zones may be considerations in future species selection, allowing for increased diversity in our urban forest.

Storms

Rochester regularly experiences high wind events that damage trees. The region experiences an average of one 60 mph gust event per year and twelve events with wind gusts in excess of 25 mph. These wind storms may cause damage to trees by breaking limbs or uprooting trees.

The region experiences an ice storm on average once every seven years, and significant events once every 30 years. The city has had significant ice storms in 1927, two in the 1950s, another in 1991 and most recently in 2003. The 1991 storm was classified as a 100-year event and destroyed 14,000 publicly owned trees worth over $12 million. To remove, replace, and prune damaged trees cost approximately $4.8 million and this event continues to have a long-term impact on forest health. The frequency of these events dictates that tree selections should be made utilizing those with inherently strong branch structure.

After the 1991 ice storm, an Urban Forest Emergency Response Plan was developed to reduce the response time and impact of storm events. The plan has demonstrated its strength on several occasions; most notably the Labor Day wind storm of 1998 and the ice storm of April 2003. More recently, a wind event in March 2017 produced winds in excess of 80 miles per hour, damaging over 300 City-owned trees.

Soils

Rochester soil is classified as urban; however, it is predominantly sand/clay in texture and alkaline in pH. Such composition dictates evaluation of the soil at a planting site, selection of trees that are tolerant of higher pH, and avoidance of trees that prefer acid soils.

Insect and Disease Pests

Insect pest populations fluctuate annually, damaging city trees. In most cases, however, it is environmentally prudent to allow natural systems to control pest populations (Table _). Some of these pests create nuisance problems for adjacent homeowners. Aphids drop sticky honeydew from trees on cars and property. Elm leaf beetles may enter homes to winter. Over time, high pest populations stress a tree and compromise tree health. Control measures may be warranted in these cases; however, current pesticide application laws limit applications along city streets. New reliable injection methods provide cost effective treatment with minimal tree and environmental side effects.

Table _. Common Diseases and Pests of Rochester's Urban Forest

Disease	Insect Pests
Verticillium Wilt	Aphids
Fire Blight	Adelgids
Dutch Elm Disease	Elm Leaf Beetle
Anthracnose	Emerald Ash Borer
Polyporous squamosus	Locust Plant Bug
Ganoderma applanatum	Bees
Ganoderma lucidum	Ants
Nectria	Eriphyd Mites
Eutypella	Viburnum Leaf Beetle
Sooty Mold	

Forestry monitors insect pest populations and the presence of tree diseases. Targeted control measures are used as needed. Large-scale control measures are rarely required. An exception is Dutch elm disease (DED). DED devastated American elm populations throughout American cities including Rochester. An estimated 20,000 American elms were lost in Rochester from the late 1950s through the early 1970's. Large-scale chemical control measures were used in an attempt to control the spread of DED; however, they proved ineffective. Removal of infected trees ultimately proved to be the most effective control measure. This event changed urban tree management from a single-tree management approach to a forest-system approach, which considers the dynamics of influence and interaction within a group of trees and effects on the population as a whole.

The discovery of Asian Longhorned Beetle (*Anoplophora glabripennis*) (ALB) in New York City, Chicago, IL, Rahway, NJ, Worcester, MA, and Toronto, Ontario, Canada, and the potential for an infestation in Rochester led to the implementation of a proactive search for this invasive species in 2000.

Asian Longhorned Beetle on Maple

Posing a greater threat to the urban forest is the discovery of Emerald Ash Borer *(Agrilus planipennis)* (EAB) in seventeen trees within the City of Rochester in 2011. Larvae feed in the phloem and outer sapwood of ash trees, producing galleries that eventually girdle and kill branches and entire trees within a few years. The aggressive invasive nature of this pest, coupled with the large percentage of ash in Rochester's urban forest, led to the prohibition of planting ash by the Forestry Division in 2004.

With the discovery of EAB in Cattaraugus County NY in 2009, the Forestry Division began formulating an EAB management plan. In 2010, 300 Ash trees in poor condition were removed and replaced. Also in 2010, EAB was discovered in Chili, New York within Monroe County. With the discovery of EAB closer to the city limits, the Forestry Division changed direction for managing EAB and acquired additional funding to chemically treat Ash trees that were in fair to excellent condition. An additional 400 poor condition or untreatable trees were removed and replaced in 2011. Beginning in the spring of 2011, Forestry staff chemically treated 4,000 ash trees using a trunk injection method and the pesticide TREE-äge® (*Emamectin Benzoate*). This treatment protects Ash trees from EAB for three years, at which time the trees will need to be treated again. As of 2024, the Forestry Division has successfully implemented 5 cycles of treatment, maintaining tree canopy and the benefits which trees provide. Forestry staff continues to treat and monitor Ash trees and inspect for EAB presence. Research and information is continually updated as many different agencies battle this invasive pest.

Adult Emerald Ash Borer

Man-Made Elements of Influence

In contrast to the tree-friendly environments of our parks and cemeteries, street tree sites present difficult conditions for tree survival. Street trees must co-exist with utilities in the right-of- way. Underground utilities, overhead communication, and electrical distribution lines present potential conflicts. Motor vehicle traffic may cause direct damage by hitting trees, and exhaust fumes may create a stressful environment for tree health. Motor vehicle safety and citizen expectations require the use of de-icing salts during the winter months. Soil compaction from pedestrian traffic and vehicles stresses root systems. Increased summer temperatures, created by heat held and radiated by pavement, increases moisture stress on trees.

These influences increase in intensity as the growing space for trees decreases. Tree lawn width is a measure that can indicate relative degrees of influence, potential management requirements, and restrictions for plant selection. The wider the tree lawn, the more potential growing space there is for trees; stress decreases, and tree health improves.

Almost 36 percent of available street tree sites are located in tree lawns with widths of 5 feet or less (Figure 16).   Narrower tree lawns and overhead utilities necessitate the use of smaller, shorter-lived trees in order to minimize potential conflicts with utilities, and because their growing-space requirements are less than larger trees. Recent street designs aim to decrease paved widths, in turn providing wider tree lawns and increased growing space for trees to thrive to maturity.
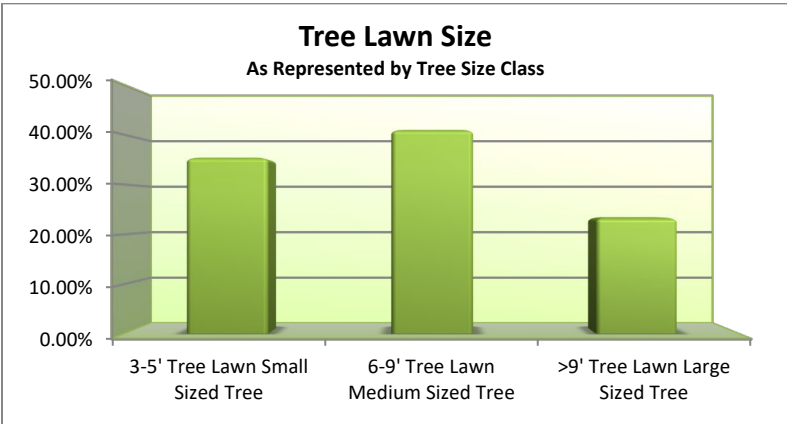

Figure –

Stresses increase along arterial streets. Ambient summer temperatures increase with wider street pavement; air pollution increases with increased traffic; and de-icing salts impact tree longevity. There are approximately 14,000 tree sites along arterial streets.

Tree pits are an additional site feature found along arterial streets. Tree pits are surrounded by concrete, which increases ambient temperatures and reduces usable soil for rooting space and moisture. Tree pits serve as drainage points for winter de-icing salts, greatly increasing the concentration of these salts in the soil. Concrete surrounding trees leaches lime, further increasing the effect of our already high pH-soil. Tree pits in sidewalks constitute less than 3 percent of available street tree sites.

Construction

Construction is a major man-made influence affecting the urban forest. Fifty percent of mature street trees within a construction project are lost within five years. Tree damage and loss is the result of cumulative effects of construction practices. Root cutting, soil compaction, grade changes, stockpiling of soil, and construction debris (Figure 17) all profoundly affect tree health. Backfilling tree lawns with construction debris degrades soil quality, severely impacting tree health and survivability.

Figure __

Utility Improvements

The Department of Environmental Services issues an average of 1,400 work permits annually to conduct work within the city right-of-way. This work includes repair and improvements to underground utilities and usually involves working adjacent to trees. Excavation equipment can damage root zones by severing roots when digging and compacting the soil.

Tree pruning to provide clearance for overhead utilities and street lights also creates additional stress on trees. It can be, and is, avoided by proper tree and site selection used today when planting. However, proper pruning and coordination of pruning activities between the city and utilities is needed to minimize the impact to existing trees.

Suitable protection standards have been developed, and were published as 'Standards for Utility and Construction Work in the Right Of Way and on Public Property which Impacts Street and Public Trees.' Enforcement of these standards is required to prevent unnecessary damage and prolong tree longevity.

In some cases tree removal may be a more desirable management tool to eliminate these conflicts and reduce management costs over the long term.

Vandalism

Vandalism is a widespread problem and causes significant damage to Rochester's urban forest. Trees are damaged by motor vehicles, adults who consider them a nuisance and others who don't appreciate their importance and value. Education and public outreach may aid in curbing vandalism to City trees.

Pollution

Air pollution and de-icing salts have a profound effect on tree longevity. The City of Rochester applies an average of 25,000 tons of sodium chloride and 16,000 gallons of calcium chloride on arterial and collector street each year to control ice and snow. Since significant reductions of either of these materials is not yet practical, the use of tree species that are tolerant of these conditions limits the choice of trees that can be used along these streets.

Funding, Management and Condition Studies

Funding, management practices, and periodic condition studies have the most direct man-made influence on our urban forest. Without funding, trees do not get planted, pruned or removed. Planning and organizing workloads and conducting condition studies provide the foundation for effective and efficient management of our forest resource.

Funding Allocations

The City of Rochester's primary sustained funding source for forestry operations is the operating budget. Allocations have averaged $ $1,076,380 over the last 10 fiscal years (Figure__). Operating funds are allocated for the purchase of small and motor equipment to support operations.

Figure __ 10 year operating budget chart

Capital funds are allocated for Forestry Operations including tree planting, tree removal, and pruning, and have averaged $730,000 over the last 10 fiscal years (Figure __). In fiscal year 2024, additional capital in the amount of $1,650,000 was allocated to fund year one of the Trees Expansion and Beautification Initiative. Allocations have increased for tree planting and pruning over time.

Figure __ 10 year capital budget chart

Capital funding for heavy Forestry equipment is allocated to the Department of Environmental Services. This equipment is needed for in-house staff to complete the various management tasks required. Beginning in 2000, the Forestry Division undertook the responsibility for planting trees in-house. Initially instituted in an effort to contain rising costs, the process yielded additional benefits including improved survival rates and fiscal efficiency

Outside Funding Sources

The Forestry Division has received funding from outside sources. When a 'disaster' is formally declared, the Federal Emergency Management Agency (FEMA) provides reimbursement for recovery activities; providing 75 percent of the covered costs. Funds are also made available from New York State by the State Emergency Management Organization (SEMO), providing 12.5 percent. The remaining 12.5 percent is the responsibility of the city. Beginning with the 2003 ice storm, the Federal Highway Administration (FHWA) also began providing 100 percent reimbursement for covered activities on specific streets.

In 1996, FEMA awarded a grant for tree pruning under the Hazard Mitigation Grant Program, which involves equal amounts of federal and local funding. This program was designated to fund projects in disaster areas in order to minimize the impact of future natural events. The grant funded pruning of 6,000 street trees in fiscal year 1995-1996, and again in fiscal years 1996-1997 and 1997-1998.

The city received reimbursement in excess of $85,000 for Forestry-related expenses from FEMA for the 1998 Labor Day wind storm. The clean-up effort for the April 2003 ice storm resulted in FEMA, SEMO and FHWA reimbursements to the city of $116,000 for Forestry-related work.

In 1991, the Reforest Rochester Trust Fund was established to solicit private donations for tree planting, thereby assisting with the restoration from the ice storm. The fund, which has been utilized to plant upwards of 300 trees, is still in place and has received donations in excess of $50,000. The fund can be used as a vehicle to solicit additional private donations. Tree planting has historically been a popular project that spans economic, social, and political lines, creating unique opportunities. It also generates pressure to plant trees at the expense of maintenance, resulting in long-term management issues.

In 2024, the City received a grant from the USDA Forest Service under the Inflation Reduction Act. This grant, in the amount of $3,000,000, will fund the City's Trees Expansion and Beautification Initiative to expand the urban forest and create an equitable distribution of street tree canopy throughout Rochester.

Management and Condition Studies

The Forestry Division divides Rochester into 39 Forestry Management Units (Appendix__). These units are also used as street maintenance units by the Department of Environmental Services. This standardization helps to coordinate planning and work activities. The Forestry Division maintains a GIS-based inventory of all street, park and cemetery trees. This inventory was first compiled in 1991, and presently one-sixth of the city's street trees are re-inventoried annually. Effective and efficient management requires knowledge of the pertinent variables of the resource.

The inventory identifies the following information for all trees in the City right-of way, parks, and city-owned cemeteries:

- Address
- Street and street block or park/cemetery
- Management Unit
- Relative location on the site
- Tree species
- Tree diameter
- Maintenance need
- Condition of the tree
- Evaluation of the placement of the tree (good to bad)
- Presence of utilities-overhead electric, street lights
- Type of site-tree lawn, brick, grate, or open tree planter
- Width of tree lawn or dimensions of the tree pit
- Whether the site is suitable for a replacement when removed
- Inventory date
- Person conducting inventory

The database also tracks work histories for each tree and creates summarized management reports for planning, budgeting, and work scheduling.

An annual windshield survey is conducted to identify problem street trees for priority pruning or removal. This survey is completed by driving each street in a management area, identifying trees that require remedial pruning and a walk- around inspection of potential tree removals. All inventory information regarding these trees is collected using a mobile device. Additional surveys are done each year to facilitate work planning and operations. Dead trees are identified for removal.

Beginning in the mid-90's, the Forestry Division initiated a program to improve the management of trees in tree pits along arterial streets. The goal was to eliminate poor sites, complete improvements to the pits to improve growing conditions, plant trees that have proven hardy in these sites, and provide an increased level of maintenance for these trees until they are fully established. Unfortunately, establishment of trees in pits has been slow to improve, and the work is ongoing.

In 2003, an inventory of trees at a high risk for loss was completed on city-owned vacant lots. Remediation was performed by Forestry staff in collaboration with DES Special Services personnel. Due to staffing levels and prioritization of work, there is not an accurate inventory of trees on city-owned vacant lots at the time of this update. Formalization of an inventory of trees on these public properties is needed to develop a work plan that efficiently addresses the management needs of these trees.

Public Engagement

The City recognizes public engagement as a necessary and critical component of the planning process. Public engagement included the formation of an Urban Forest Master Plan advisory committee, public meetings, an online survey, an update to the Forestry Division web page, pop up and experiential events, and the formation of a Community Tree Ambassador Program. Engagement feedback was compiled and used to inform both near and long-term recommendations for the management of Rochester's urban forest. A detailed summary of the public engagement process can be found in Appendix____

Urban Forest Master Plan Advisory Committee

This newly formed committee, consisting of community stakeholders, provided vital insight and feedback to inform the plan. Six monthly meetings, held virtually, took place throughout the update process. Discussion topics included updates on progress, public engagement feedback, and ideas for community involvement and education as it pertains to Rochester's urban forest.

Public Meetings

Two series of public meetings were held in each City quadrant, along with two virtual meetings. The first series of meetings introduced the Urban Forest Master Plan update to the public and provided an

opportunity for input. Information from the meetings was compiled, reviewed, and recommendations were developed consistent with feedback.

The second series of meetings introduced recommendations to the public and provided a final opportunity for feedback prior to finalizing the updated plan.

Online Survey

An online Instant Input survey was posted through the duration of public engagement. The survey gathered input on peoples' perception of the urban forest, where trees should be planted and what type, and challenges with the urban forest and the actions the City should take to address. The online survey was well-received. Feedback garnered from the survey was considered in the development of recommendations.

Forestry Division Web Page

The Forestry Division's web page was updated to a Geographic Information Systems-driven dashboard layout, featuring a user-friendly interface with tabs and maps to describe provided services and highlight current forestry initiatives. The page can be viewed on a mobile device, offering the user an opportunity to explore and identify trees on city streets and parks. The new Forestry Division web page can be viewed at: https://www.cityofrochester.gov/forestry-services/

Pop-up Events

Four pop-up events were held at City libraries and Recreation Centers. The events were attended by the project team as well as Community Tree Ambassadors. These events presented an opportunity for the public to engage with the Forestry Division and discuss provided services, tree benefits, and the Urban Forest Master Plan update.

Experiential Events

Tree planting, walking tours, invasive species

Community Tree Ambassador Program

The Community Tree Ambassador program provided the opportunity for door-to-door outreach to build awareness of the Urban Forest Master Plan update. Eight tree ambassadors were selected, with two assigned to each City quadrant. In addition to door-to-door outreach, tree ambassadors were involved in the planning and implementation of pop-up events, tree plantings, walking tours

<u>Rochester's Urban Forest Policy</u>

Rochester's urban forest is healthy and growing in number of trees and grandeur. Citizens and visitors recognize and realize the environmental, economic, and social benefits our forest provides for our community and are engaged in its care and renewal. Rochester, a "City in a Forest," is known throughout the country as a model of urban forestry stewardship and progressive management.

The City of Rochester believes a healthy urban forest is an integral part of the city infrastructure and essential for the well- being of all area residents. It is the city's responsibility to protect, regulate, and fund planting, maintenance, and removal of trees on city owned lands or within the public right-of-way in the most responsive, environmental and economic manner.

Italicized portions of this section designate City of Rochester Forestry Division policies.

MAINTENANCE AND MANAGEMENT

Maintenance and management of our urban forest resource is accomplished by periodic tree pruning, watering, inspection and evaluation, integrated pest management, tree protection, tree removal, and planting.

Forestry Service Delivery

> *Forestry maintenance practices and services will be delivered in an equitable and responsive manner to all areas of the city, regardless of social or economic status of the residents.*

Tree Maintenance

Trees require periodic care. Pruning, watering, and fertilization ensure long-term health, increase longevity, and limit storm damage. As trees grow, limbs may block street lighting or traffic control devices. Providing adequate clearance over the street and sidewalks is necessary for pedestrian and vehicular traffic. These efforts maximize the benefits of trees while limiting the potential negative impacts of the activities and infrastructure in our city.

Young trees and mature trees have different maintenance needs. Young trees grow at a more accelerated rate compared to mature trees. As a result, young trees will receive more frequent care, including pruning to promote strong branching and watering to help them become established.

> *Mature trees will receive periodic pruning to remove potential hazards and promote tree health and longevity.*

Forestry will strive to prune each mature street tree once every six years and young trees once every three years. Mature park trees will be pruned once every seven years. The schedule and standards for this work is detailed in annual work schedules and the "Forestry Standards and Specifications" document.

Assessing the condition and needs of city trees requires periodic inspection.

> *An annual windshield inspection of city trees will be completed to identify hazardous situations for pruning or removal if necessary. In addition, each year, one-sixth of the city's trees will be inventoried.*

All inventory information, including tree condition and maintenance needs, will be updated by a walk-around inspection of each tree. The information will be entered into the GIS inventory as detailed in the "Forestry Technical and Administrative Procedures Manual."

Insect pests and diseases can impact tree health. They are also part of our natural biological system providing ecological benefits.

> *Control measures will only be used when a pest presents a significant risk to a large population of our city trees. When control measures are used, the methods will be biologically sensitive, limited in scope, in accordance with all state and federal laws, and the "Forestry Standards and Specifications."*

Tree Protection

Construction practices have significant impact on tree health. Physical damage to tree roots, soil compaction, and degradation of the soil cause a decline in tree health and can create a threat to public safety.
> *City trees shall be protected through on-site control measures, utilizing alternative construction practices, and stiff monetary fine for violations, as defined in "The Code of the City of Rochester, New York."*

Tree Removal

Tree removal is a necessary management practice to ensure public safety, urban forest health, and responsible fiscal management.

> ***A city tree will only be removed under the following circumstances***:
> **Public Safety**: *When a hazard constitutes removal of more than 50 percent of the live crown or when the structural integrity of the tree is undermined to the point that it is susceptible to wind fall.*
> **Urban Forest Health**: *When tree disease significantly threatens the health of other city trees.*
> **Fiscal Management**: *When alternative tree management practices exceed the value of the tree or will not prolong the tree's life beyond five years.*

Trees considered for removal will be evaluated using the city's tree-removal evaluation as defined in the "Forestry Administrative and Technical Services Manual."

> *Trees that are located in preservation districts, that are of historical significance, or that are rare/large specimens, will be given remedial treatments for preservation until such time as the tree presents an unacceptable threat to public safety.*

> *The resident of the property adjacent to a city tree scheduled for removal will be notified in writing a minimum of two weeks prior to the scheduled removal. The resident will be notified by personal contact or door hanger in cases in which a tree must be removed immediately due to hazardous conditions.*

Tree Planting

Renewal of our urban forest resource is accomplished through tree planting.

> *Tree planting will occur in locations that have the least impact with other features in the right-of-way and in accordance with current urban forestry standards as defined by the "Forestry Standards and Specifications" document.*

Trees planted on an annual basis will strive to exceed annual tree removals in number and will be completed in accordance with the city's Master Tree Planting Plan.

Tree Planting Plan

As history has demonstrated, storms and tree pest infestations are natural events that have an impact on tree health and generally cannot be controlled by human beings. The impact of such events, however, can be mitigated by planning for their occurrence and managing elements in the environment that we can control. Planting a diversity of tree species in our urban forest can help to mitigate the impact of these events by limiting the number of hosts for diseases or other specific events. A diversity of tree species on a street will help to limit the impact on a locality.

> *Tree species selected for planting will not exceed 10 percent of the city's current tree population to ensure minimum impact from future natural events.*

Determination of the percentage will be completed prior to ordering trees for planting. The planting plan for a street will include three to seven species of tree. A focal tree will be selected which can constitute 40 percent of the tree species on the street. Complementary trees will be interspaced with the focal trees and constitute up to 30 percent of the trees along the street. Trees will be selected from the City of Rochester Street Tree List.

Trees grow to varying sizes and shapes (habit). They have various aesthetic characteristics such as showy flowers or fall leaf color. City streets and other potential tree planting locations have physical features above or below the ground that may limit tree selection. Overhead utilities, sidewalks, curbing, buildings, and street lighting may be adversely affected and maintenance costs increased if too large a tree is planted. Conversely, the architectural features on a street can be complemented by thoughtful landscaping. Soil conditions and the area available for root growth impact tree longevity and health as well. The street tree plan will consider these limitations and variables and suggest a selection of trees for a street that match the site limitations and are of the same size, shape, and branching characteristics.

The Street Tree List is comprised of trees that are hardy to the Rochester climate (USDA Zone 6B). Trees are categorized by size, shape, branching, and texture. Physiological limitations are noted for each tree.

> *This list will be reviewed by the City Forester each year and trees added or deleted from the list as the City Forester deems appropriate based on tree species performance.*

The approved list of trees for a street will be used without exception when replanting unless approved by the City Forester. New species potentially suitable in our urban environment will be considered as they become available. Certain species designated for a street may, over time, prove to perform poorly on these sites. Street reconstruction may significantly change site limitations along a street. Street tree plans will be reviewed for each construction project and changes will be made to the planting plan to accommodate changes in street features.

Native Tree Planting

The City recognizes the importance of using native tree species to promote biodiversity, while at the same time using a variety of species to promote diversity in our urban forest. The urban environment, with altered soils and restricted growing space, necessitates the use of a variety of native and non-native species. Species selection, a function of varying factors, is the first step towards ensuring species diversity in the urban forest. A variety of species will continue to be utilized, with an emphasis on the selection of native species where applicable.

Edible Fruit Tree Planting

Edible fruit tree plantings will be primarily restricted to parks, community gardens, and other open spaces. Fruit trees do not make ideal street trees in the urban environment due to poor soils, narrow tree lawns, and their low branching habit conflicting with clearances. Fruits such as apples, pears, and cherries become problematic with infrastructure and pose threats to public safety.

Tree Equity and the Trees Expansion and Beautification Initiative

Background

Disparities exist in Rochester's tree canopy in historically underserved communities. Stocking levels – the number of existing trees as a percentage of available planting sites– are lowest in the Northeast quadrant at 66%, and highest in the Southeast quadrant at 82% (Figure __).

Trees are a considered a resource and an essential component of Rochester's infrastructure. Equitable tree distribution, or tree equity, is vital to the community to ensure equitable access to the myriad of benefits of which trees provide.

Objectives

The City of Rochester recognizes the need for an equitable distribution of resources. In 2023, the Forestry Division embarked on a 3-year tree planting initiative with two main objectives:
- Increase the City tree inventory from 64,000 trees to 70,000 trees
- Address disparities in street tree stocking by allocating plantings in such a way to increase the tree stocking level to 85% across all City quadrants.

The Trees Expansion and Beautification Initiative kicked off in 2023, with 2,000 trees planted over the spring and fall planting seasons. Years 2024 and 2025 will see an additional 2,000 trees planted each year, for a total of 6,000 new street trees planted.

Figure____.   Rochester Street Tree Stocking

Quadrant	Planting Sites	Trees	Total sites	2022 Street Tree Stocking	Initiative Plantings	New Street Tree Total	2025 Street Tree Stocking
NE	4791	9157	13948	66%	2699	11856	85%
NW	3833	12650	16483	77%	1361	14011	85%
SE	4180	18828	23008	82%	721	19549	85%
SW	3675	12699	16374	78%	1219	13918	85%
Total	16479	53334	69813	76%	6000	59334	85%

Initiative Funding

Total costs for the 3-year initiative are estimated at $4.2 million. City funding in the amount of $1.65 million was allocated to fund year one of the project in 2023. In 2024, the Forestry Division obtained grant funding from the USDA Forest Service under the Inflation Reduction Act. This grant, in the amount of $3 million, will fund the remaining two years of the project.

Storm Readiness

Severe weather events require the Forestry Division to be prepared to respond to emergencies 24 hours a day, 7 days a week. The City Forester has the discretion to require staff be placed on standby in the event of a forecasted storm. The City has implemented an emergency contract to provide assistance in more severe events to ensure emergencies are addressed in a timely manner.

Challenges and Recommendations

The Forestry Division, through public engagement and in partnership with the Urban Forest Master Plan Advisory Committee, identified current issues of importance which present challenges to sustaining the City's urban forest. In response to these issues, recommendations were developed to be utilized in the development and implementation of fiscal and operational plans.

Community Engagement, Outreach and Education

The Forestry Division and our community are the stewards of our urban forest. Urban trees provide a sense of place and link our children and residents to the natural environment. Original street tree plantings were initiated by volunteers, and the City continues to support those efforts today.

Near Term

Aim to continue the newly formed Tree Ambassador Program to engage and educate the community on the benefits and value of the urban forest.

Long Term

Increase community involvement with urban forest planning through the promotion of volunteer and educational opportunities.

Explore partnership opportunities with community-based organizations for educational projects and support efforts for establishment, with agreements for long-term maintenance.

Provide the community opportunities for input on tree planting through annual quadrant meetings.

Develop a guidebook for public engagement and volunteer opportunities, in partnership with Neighborhood Service Centers.

Funding

The city has made significant increases in funding for tree maintenance and planting needs in recent years. The capital budget plan also projects incremental funding increases in future fiscal years, representing a strong commitment to these efforts.

Expansion of Rochester's urban forest will come with increased funding requirements for tree maintenance and potential incremental staffing increases. Wages, equipment, and contracted maintenance costs are on the rise, further adding to the need for increased Forestry budget allocations.

Near Term

Utilize recent grant funding to complete the Trees Expansion and Beautification Initiative.

Long Term

Evaluate costs and benefits of contractual tree maintenance versus in-house operations to determine annual budget requests

Demonstrate the need and advocate for increased annual Forestry budget allocations as the urban forest continues expansion.

Continue to seek grant opportunities to secure funding for tree maintenance costs, workforce development, and future Forestry initiatives.

Promote and utilize the Reforest Rochester Fund to supplement tree planting efforts.

Protection and Health

Periodic tree pruning decreases the exposure of the urban forest to weather damage and is the most arboriculturally and fiscally effective method to improve overall tree health. Vandalism, pests, and disease pose threats to the establishment and longevity of urban trees.   Consequently, mitigation of such threats is essential to the health and expansion of the urban forest.

Near Term

Monitor for hazardous conditions, pests and disease, and recommend removal of trees that pose a threat to the public or health of the urban forest.

Long Term

Continue annual rotational tree pruning to minimize storm impacts, mitigate hazards, and promote overall urban forest health.

Explore the use of volunteers, seasonal staff, school interns, and youth workers to complete the pruning tasks of young trees.

Implement pest and disease management plans when there is significant risk to a large population of trees, and management is economically feasible and sustainable.

Continue to explore educational opportunities pertaining to tree benefits, threats to urban forest health, and the effects of vandalism on young trees.

Promote urban forest health through species diversity, emphasizing the selection of native species where applicable.

Review the Forestry Standards and Specifications document and revise as necessary.

Storm Events

Storm events have had and will continue to have a significant impact on the health of the urban forest. Recent trends have shown an increase in the occurrence of damaging wind events, contributing to tree loss and increased demands on Forestry staff.

Near Term

Continued Forestry response to storm events, utilizing an emergency contract as needed to support in-house efforts.

Long Term

Review and update the Urban Forest Emergency Response Plan to guide response, recovery, and minimize the impact of events. The plan should categorize storm events by magnitude of impact, as well as identify the types of damage and prioritization of mitigation.

Documentation of major storm events in a manner suitable for federal re-imbursement requirements.

Construction

Construction practices and utility improvements pose a threat to urban trees, increasing the potential for tree failure due to root and trunk damage. While ordinances and citations for violations are deterrents, they are not sufficient to prevent construction practices that destroy city trees. Clear lines of communication are needed between the Forestry Division, contactors, and City departments to implement tree protection standards that preserve and protect the health of the urban forest.

Near Term

Review plans and enforce current tree protection standards and ordinances to ensure compliance and minimize tree damage and loss during construction activities.

Long Term

Improved communication with City departments to increase enforcement of tree protection standards, ordinances, and issuance of citations.

Explore educational opportunities to increase tree protection awareness and enforcement to protect, preserve, and expand the urban forest.

Perpetuation and Expansion

Declining stocking rates make tree planting is vital component in the perpetuation and expansion of the urban forest. Historically, street widening and development have resulted in the loss of mature trees, diminishing the visual impact and the environmental benefits provided by the urban forest resource. Recent street designs aim to decrease paved widths, in turn providing wider tree lawns and increased

growing space for trees to thrive to maturity. Considerations in street design, coupled with continued tree planting initiatives, will increase stocking rates and expand the urban forest.

It is estimated that 90 percent of urban trees are located on private property. Maintenance and care of trees on private property are not in the City's purview, and there is currently no inventory of these trees. Tree inventory on private property, combined with City tree inventory, could provide a better measure of urban tree canopy, tree benefits provided, and mitigation of potentially hazardous conditions.

Near Term

Strive for "one-for-one" replacement plantings as trees are lost to pests and disease, storms, and construction projects.

Continue the Trees Expansion and Beautification Initiative, along with volunteer planting opportunities, to increase street stocking and address disparities.

Long Term

Explore partnership opportunities with community-based organizations for tree planting projects and initiatives.

Implementation of tree planting requirements for new projects and development in partnership with City Zoning.

Identify opportunities for vacant lot tree planting in consultation with Neighborhood and Business Development.

Identify opportunities for edible fruit tree plantings in parks, community gardens, and other open spaces.

Ascertain tree data on private property through the development of a web-based application for public use.

Review zoning ordinances to evaluate impacts on large trees on private property. Develop guidelines for tree preservation, and provide replacement plantings in the event preservation is not feasible.

Tree Equity

The City recognizes the value and importance of a healthy and vibrant urban forest, as well as disparities in street tree distribution in underserved communities. Equitable distribution of street trees ensures all residents enjoy the myriad of benefits which trees provide.

Near Term

Continue the Trees Expansion and Beautification Initiative, along with volunteer planting opportunities, to increase tree stocking and address disparities.

Allocate tree plantings with a goal to establish equitable tree stocking levels across City quadrants.
Long Term

Aim to increase overall tree stocking levels through tree planting initiatives and partnerships with community-based organizations.

Examine and compare other municipalities' policies and initiatives to address tree equity.

Continue to seek educational opportunities that promote the value and importance of a healthy and expansive urban forest

Parks and Cemeteries

The Forestry Division is tasked with the care and maintenance of over 11,000 trees in city parks and city-owned cemeteries. Management has become remedial in these areas due to a lack of funding, specifically at Mount Hope and Riverside cemeteries, resulting in a decline in tree health. Increased funding would allow for a proactive management approach, improve overall tree health, and allow for the expansion of the urban forest in our parks and cemeteries.

Near Term

Continue to prioritize public safety in parks and cemeteries, mitigating tree concerns as they arise.

Replace trees lost and add new plantings as funding allows.

Long Term

Develop tree management and planting plans for parks and cemeteries, and submit annual budget requests for funding of such.

Identify grant opportunities to supplement City funding in support of management plans.

Consider volunteer and partnership opportunities with community-based organizations to implement management plans, planting initiatives, and educational programs

Promotion of the Urban Forest

Rochester's rich history of urban forest management is under-recognized in promoting visitation and residence in the city. Our trees are an indispensable part our horticultural legacy and deserve recognition as such.

In 2023, Rochester was designated a "Tree City USA" for its 43rd consecutive year by the National Arbor Day Foundation and the National Association of State Foresters. This longstanding designation is a product of the City's commitment to the management and perpetuation of its expansive urban forest.

Near Term

Continue "Tree City USA" designation to embody the City's commitment to urban forest management.

Long Term

Pursue the "Tree City USA" Growth Award, recognizing increased investments in tree care and community engagement, solidifying the desire to build a sustainable community forestry program over the long term.

Identify opportunities to expand the annual Arbor Day celebration, to include events such as festivals, community tree planting, and tree tours.