The City of WORCESTER

Department of Public Works & Parks
Parks, Recreation & Cemetery Division
Forestry Operations
50 Officer Manny Familia Way, Worcester, MA 01605
P | 508-799-1190 F | 508-799-1293
Worcestertrees@worcesterma.gov

URBAN FORESTRY TREE COMMISSION MEETING

Wednesday November 1, 2023 – 5:15 P.M.

Parks, Recreation & Cemetery Administrative Office

Meeting Room A

50 Officer Manny Familia Way Worcester, MA 01605

Or

If you choose to use the Microsoft Teams platform:

1) Go to www.teams.com
2) Enter Meeting ID# 214 315 946 310
3) Enter password: p7GtXB

If you choose to attend via phone:

1) Call 1-469-998-7682
2) Enter Meeting ID#: 485 742 788#

AGENDA

1. Call to Order
2. Attendance (Roll Call)
3. Acceptance of Minutes for the (Roll Call) – September 27, 2023
4. To request a reasonable accommodation or interpretation or submit written comments or questions in advance of the meeting, please contact the Parks, Recreation & Cemetery Division by email at Worcestertrees@worcesterma.gov. Please note that interpretation requests must be received no later than 48 hours in advance of the meeting. Para solicitar una interpretacion razonable, o enviar comentarios o preguntas por escrito por favor comuniquese con la oficina de la Division de Parques, Recreo & Cementerio por correo electronico a Worcestertrees@worcesterma.gov. Por favor note que las solicitudes de interpretacion deberan ser enviadas 48 horas antes de la reunion.
5. Public Participation – Pursuant to Chapter 20 of the Acts of 2021 and in order to ensure active, public engagement, the City of Worcester currently allows for both in person and remote participation at the Urban Forestry Tree Commission meetings. To partake in the "Public Participation" section of this meeting, you may join us directly within the 50 Officer Manny Familia Way Meeting Room A, follow the information above to join via the Teams application or dial the direct line as indicated. If you would like to raise your hand when in the meeting as a call-in user, you may dial *5.

6. Assistant Commissioners Report (See Report Topics Below)

7. Old Business

    - Solar Access (Ted Conna)
    - Planning and Regulatory Services
        - Question regarding Tree Canopy Cover in New Construction
        - Question regarding tree planting in Parking Lots
    - Request of Commissioner Elton to review all existing tree zoning ordinances for the city
    - Request of Commissioner Karoway-Waterhouse on where the final version of the Urban Forestry Master Plan can be found.
    - Request of Commissioner Elton regarding Ash Trees treatment options:

8. New Business

    - Submission of Commissioner Winbourne on Ash Trees
    - Request of Commissioner Elton for an update on existing zoning and planning regulations for trees in the City?
    - Request of Commissioner Elton for an update on tree planting or canopy requirements for development in the city?
    - Request of Commissioner Elton are development plans brought before Planning & Regulatory Services reviewed by anyone from City Forestry?
    - Request of Commissioner Winbourne for an update on the partnership with New England Botanic Garden
    - Request of Commissioner Wobbe for an update on the Miyawaki Forest proposal
    - Request of Commissioner Wobbe on how trees are requested & cared for
    - Request of Commissioner Winbourne for an update on the US Forest Service IRA Grant
    - Request of Commissioner Winbourne for access to the City's US Forest Service grant Proposal
    - Request of Commissioner Winbourne for an update on Urban Forestry Master Plan
    - Request of Commissioner Winbourne for comments submitted on the Urban Forest Master Plan
    - Request of Commissioner Winbourne for the Commission to set goals for the Commission

9. Date of Next Meeting:
    - December 6, 2023
    - January 17, 2024
    - February 28, 2024
    - March 20, 2024
    - April 3, 2024
    - May 1, 2024
    - June 5, 2024

8. Meeting Adjourned (Roll Call)

The City of WORCESTER
Department of Public Works & Parks

Department of Public Works & Parks
Parks, Recreation & Cemetery Division
50 Skyline Drive, Worcester, MA 01605
P | 508-799-1190 F | 508-799-1293
parks@worcesterma.gov

URBAN FORESTRY TREE COMMISSION MEETING MINUTES

Wednesday September 27, 2023 – 6:00 P.M.

Parks, Recreation & Cemetery Administrative Office

Meeting Room A

50 Officer Manny Familia Way Worcester, MA 01605

Or

If you choose to use the Microsoft Teams platform:

1) Go to www.teams.com
2) Enter Meeting ID# 297 065 684 999
3) Enter password: CF5ofd

If you choose to attend via phone:

1) Call 1-469-998-7682
2) Enter Meeting ID#: 878 686 149#

AGENDA

1. Call to Order – Meeting was called to order at 6:03 PM

2. Attendance (Roll Call) –

   - **Commissioners Present:**
     - Alexander Elton
     - Joseph Mogel
     - Robin Wobee

   - **Administration Present:**
     - Robert C. Antonelli, Jr. Assistant Commissioner
     - Brian Breveleri, Urban Forester and Supervisor of Forestry
     - Milagros Pacheco, Staff Assistant III
     - Denis Tucker – Working Foreman

3. Acceptance of Minutes for June 7, 2023. Commissioner Elton made a motion to approve the minutes. Second by Commissioner Wobbe. All were in favor, Minutes were approved. 3 – 0.

4. To request a reasonable accommodation or interpretation or submit written comments or questions in advance of the meeting, please contact the Parks, Recreation & Cemetery Division by email at Worcestertrees@worcesterma.gov.

Please note that interpretation requests must be received no later than 48 hours in advance of the meeting. Para solicitar una interpretacion razonable, o enviar comentarios o preguntas por escrito por favor comuniquese con la oficina de la Division de Parques, Recreo & Cementerio por correo electronico a Worcestertrees@worcesterma.gov. Por favor note que las solicitudes de interpretacion deberan ser enviadas 48 horas antes de la reunion.

5. Public Participation – Pursuant to Chapter 20 of the Acts of 2021 and in order to ensure active, public engagement, the City of Worcester currently allows for both in person and remote participation at the Urban Forestry Tree Commission meetings. To partake in the "Public Participation" section of this meeting, you may join us directly within the 50 Officer Manny Familia Way Meeting Room A, follow the information above to join via the WebEx application or dial the direct line as indicated. If you would like to raise your hand when in the meeting as a call-in user, you may dial *3.

6. Assistant Commissioners Report (See Report Topics Below)

7. Old Business

    - Solar Access (Ted Conna)
        - Assistant Commissioner Antonelli stated that Mr. Conna wasn't present at the meeting, and that it was up to the Commission if they wanted to leave it or file it until it comes up again.
    - Planning and Regulatory services
        - Questions regarding Tree Canopy Cover in New Construction
        - Question regarding tree planning in Parking Lots
            - Assistant Commissioner Antonelli stated these items will be discussed once Planning and Regulatory Services can attend the meeting.

8. New Business
    - Request of Commissioner Elton to review the purpose of the Urban Forest Tree Commission
        - Commissioner Elton asked why the Urban Forest Tree Commission wasn't involved in the planning or discussion of the Newton Ave North project.
        - Assistant Commissioner provided information from the Manager's Office on what was approved and the ordinances. As well as roles and responsibilities. Antonelli stated that in October of 2021 a recommendation went to the Council for the Development of the Commission, in January of 2022 it was approved, appointments started on July of 2022 and the first meeting was in November of 2022.
        - Commissioner Elton inquired if reviewing the Newton Ave North Project was not under what their duties and responsibilities are.
        - Assistant Commissioner Antonelli explained that Newton Ave North was an impetus for the development of this Commission initially, but Newton Ave North had begun before the Urban Forestry Tree Commission had started or had members, therefore all communication was direct to the City Council and that continued as the project moved along. He added that going forward if any tree issues come up, he envisioned it would go to the Urban Forestry Tree Commission first.
        - Ms. Debbie Carey gave suggestions to the Urban Forestry Tree Commission.

- Request of Commissioner Elton regarding Ash Trees:
    - Number of Ash Trees
    - Number of Ash Trees broken down by size & condition
    - Explanation as to why the city has chosen not to treat any of these trees for ALB
    - Have treatment options been clearly explained to the Friends of Newton Hill
    - Have treatment options been clearly explained to other resident organizations
        - Commissioner Elton spoke about the Ash Trees in Worcester and the concern about the trees because of the Emerald Ash Borer. He indicated Newton Hill had about 30 Ash Trees that are in danger and should be treated with pesticides to avoid the EAB infestation. He also commented that he wanted the people that live in that area have to opportunity to advocate, he said he knows that Friends of Newton Hill receive grants for other things going on in that space. He added that he was surprised that Worcester only had 395 Ash trees and that it seemed that number should be higher.
        - Assistant Commissioner Antonelli explained that the 395 number is based on trees that are within the right of way or close to the right of way, it doesn't include high concentration in Parks or Conservation land. He also explained that when the Asian Longhorned Beetle came to Worcester, the city tried treating the trees with pesticides, however neighborhoods and community activist has concerns. Many individuals did not all have the same opinion on the benefits and challenges of using these products. Some thought pesticides would be the answer others thought pesticides were killing the bees and reducing pollination. He added that there are no resources available for it, it would have to be an additional appropriation. Further discussion was held about the possibility of treating trees with pesticides. Assistant Commissioner Antonelli suggested having a special discussion with public comment. There were further discussions about funding, or funding opportunities.
        - Mr. Paul Popinchalk spoke on behalf of Newton Hill he said he lives in the area, and they take care of park and the trails. He offered his help to look for grant opportunities to help funding for trees. There were further discussions about street trees and tree planting and resources.
- Request of Commissioner Elton regarding why plans for Newton Ave North not presented to the Commission
- Request of Commissioner Elton to review all existing tree zoning ordinances for the city
- Request of Commissioner Karoway-Waterhouse on where the final version of the Urban Forestry Master Plan can be found.

9. Date of Next Meeting:
    - November 1, 2023
    - December 6, 2023

- January 17, 2024
- February 28, 2024
- March 20, 2024
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- May 1, 2024
- June 5, 2024

10. Meeting Adjourned (Roll Call)

ASSISTANT COMMISSIONER'S REPORT:

1. General:

- Urban Forestry Master Plan Update
  - Update on status – final document is not currently available
    - Assistant Commissioner Antonelli discussed the internal review of the final document to be completed within a few weeks.
    - Commissioner Elton had some questions about the internal review, what it was and who was involved.
    - Assistant Commissioner Antonelli explained that it's a review between Mr. Antonelli and Brian Breveleri which will be reviewed by the City Manager. It's easier to read with pictures and making sure the format is correct.
    - Debby Carey with Mass Audubon shared that the word final made her nervous, as she thought there would be another version that would be available for further comment. She thought there would be another public hearing.
    - Mr. Antonelli said he could change the wording to a "final draft" rather than final document, he explained that there will be multiple opportunities for additional comments, before it goes to City Council, but that further down the road there will be a final document.
  - The first draft of the Urban Forestry Master Plan which can be found here: NA
    Trees in the City - Right Tree, Right Place | City of Worcester, MA (worcesterma.gov)
  - The Urban and Community Forestry (UCF) Inflation Reduction Act Notice of Funding Opportunity which can be found here:
    - Assistant Commission Antonelli informed the Commission that the grant was not received. He also shared that he invited John O'Dell from Sustainability and Resilience to a meeting to discuss where it went wrong or what happened.

    Urban Forests | US Forest Service (usda.gov)

- Door Hanger - NA
- Tree Commission attending neighborhood meetings –
  - Assistant Commissioner Antonelli brought up the neighborhood meetings to see if the Commission wanted to entertain the attending of the neighborhood meetings. Commissioner Elton stated that as issues arise or public discussions need to happen, to discuss the Master Plan or a discussion needs to happen with the neighborhood he would be available. Commissioner Wobbe stated that she may also participate, but that it may be challenging on an as needed basis since there are 12 meetings. Commissioner Mogel suggested reaching out to several different neighborhood groups to have one meeting where they can all attend. There was further discussion and requests, no final decision was made.
- Tree replacement policy - NA
  - Request Only
  - Mandated replacement

- Neighborhood Based Urban Heat Risk Assessment - NA
- Worcester Now | Next online survey
    - NA
- Green Worcester Advisory Committee
    - NA
- Planting –
    - Spring 2023 Planting –
        - Commissioner Wobbe asked for an update on tree planning initiatives, Fall planting.
            - Assistant Commissioner Antonelli explained that there was no Fall planting, and that they planted 267 trees in the Spring & Summer Seasons, as well as 87 trees that were planted by DCR.
- Customer Service Update
    - Customer Service Contact Information 508-929-1300 &/or 311
- Street Resurfacing Opportunities & Challenges – NA
- Zoning Ordinance Discussion – Assistant Commissioner Antonelli stated that after Commissioner Elton's request to discuss the Zoning Ordinance further, he asked Michelle Smith from Planning & Regulatory Services to one of the Urban Forestry Tree Commission meetings. However, her schedule of meetings with the Planning board were conflicting with the Urban Forestry Tree Commission meetings, therefore Mr. Antonelli asked if it was feasible to change the time of one of the meetings to start at 5:00 PM for her to be able to attend. There was a minor discussion, and it was agreed, Mr. Antonelli would reach out to Michelle Smith and set up the meeting date & time.
- Worcester Ordinance Relative to the Protection of Public Trees - NA
- Partnerships –
    - New England Botanical Garden @ Tower Hill - NA
- Grant Applications –
    - NA
- Economic Development Initiatives –
    - NA
- Forestry Vandalism & Graffiti –
    - NA
- Donations –
    - NA
- Pests –
    - ALB (Asian Longhorned Beetle) - NA
    - EAB (Emerald Ash Borer) - NA
    - Spotted Lanternfly – Contact information was added to the Commission meeting package.
    - Elm Zigzag Sawfly – An Article was included in the Commission meeting package.
- Forestry Operations –
    - Tree City USA – NA
    - Arbor Day –
        - April 26, 2024
        - April 27, 2024 – Festival
- Budget – Operational & Capital – NA
    - Parks, Recreation & Cemetery Division – Ordered a new bucket truck and 2 pick-up trucks to be received in 2024.
    - Capital Improvement Program – Update
    - City Five Point Financial Plan – NA
- Misc.
    - Commissioner Wobbe and Ms. Debbie Carey had questions about the Miyawaki Forest trees the City of Worcester is receiving.
    - Assistant Commissioner Antonelli explained that it was not on the agenda so it could not be discussed. He offered to add it to the following agenda.
- Commissioner Elton made a motion to adjourn. Second by Commissioner Wobbe. All were in favor. Motion was approved 3 – 0. Meeting was adjourned at 7:09 PM.

A copy of this full meeting will be available to view and listen to at:
www.worcesterma.gov/city-clerk/public- meetings/agendas-minutes

Urban Forestry Tree Commission – April 12, 2023

DRAFT proposal for City of Worcester policy on avoiding public shade tree/solar access conflicts

Submitted by Ted Conna

Rationale:

The city estimates that more than 2500 solar systems have been installed in Worcester since 2012. As more homes add solar hot water and photovoltaic panels, there will be a need to protect their access to the sunlight that powers their sustainable energy systems. In many cases, city street trees may begin to shade the panels as they grow larger. The city should develop a policy and protocols to avoid this problem and to deal with it when it arises, so that these two public sustainability benefits, a healthy urban forest and solar energy production, can be balanced in a rational, consistent way and conflicts are minimized.

Solar energy, and solar electricity in particular, is expected to play a big role in the transition away from fossil fuels. I am a zealous proponent of protecting of our urban forest, but it is important to note that the now-dominant alternative to siting solar panels on the rooftops of buildings is siting them in what were once natural or pastoral landscapes—forests, fields, and farmland. If we don't want the latter impact—and the negative views of solar that come with it—we need to prioritize siting solar above parking lots (where it provides a shading benefit), on disturbed land, along highways and railroads, and on top of buildings: big box stores, schools, factories, and yes, homes. And there is a public awareness benefit to having solar arrays visible in all our neighborhoods. At the same time, the many benefits of our urban forest must also be recognized, promoted, and protected.

Draft Proposal:

1) Avoiding tree/solar conflicts: This should be the easy part. Both the city's Right Tree, Right Place guidelines and the permitting process for solar installations should be updated so that both discourage present and future shading impacts on solar collectors by both public and private trees. As a matter of policy, the city should not plant trees in locations where the mature tree would shade solar collectors, and this might also include prime sites for future solar installations. Property owners, if they want a tree planted, should be informed of future shading impacts (both positive and negative). If the property owner still wants the tree, they have no basis to complain later about shading impacts. Likewise, property owners or installers seeking permits to install new solar collectors should be informed (as part of the permitting process) of present and future shading impacts. These common-sense steps to avoid tree/solar conflicts should not be controversial, and should minimize the need for 2) and 3) below.

2) Existing trees/existing solar installations - Preserving solar access: The city should also decide to what degree it will maintain existing city trees to preserve solar access as the trees grow, since there are likely to be hundreds of existing solar sites in the city where this is or will become an issue. Assuming the city will do so, if/when an existing city tree began to shade a solar installation, the owner would follow the existing Tree Ordinance and contact the Tree Warden through the Customer Service Center, and if appropriate, the city would begin to prune the tree periodically to maintain solar access. The city should

have a policy on whether or not to charge the property owner for this work. Obviously, such pruning would not have priority over emergency tree work, but it would be given enough priority that solar collectors do not end up in shadow for more than 1 hour per day during the peak solar production hours of 9am-3pm solar time between March 1 and October 1 of the year.

3) Existing trees/new solar installations: Should a property owner want an existing city tree or trees pruned or removed to allow solar access for a new solar installation, an application would be made to the Tree Warden through the Customer Service Center. In the case of public shade trees, the existing city Tree Ordinance and state Shade Tree law (Chapter 87) would be followed: that is, a public hearing would be held before any tree is removed. Approval of the tree work would be at the discretion of the Tree Warden, using appropriate metrics that account for the sustainability value of both the tree(s) and the proposed solar installation. Factors to be considered would include the size and health of the tree, shading impacts (both positive and negative), carbon sequestration provided by the tree, carbon emissions reduction provided by the solar array, etc. Mature, healthy public trees should not be removed, but there may be cases where the sustainability value of the solar installation outweighs the sustainability value of not altering a tree or trees. Using science-based metrics to evaluate that should prevent undue tree loss.

If approved, the city would issue a permit for the tree work, but tree work would not be allowed until after the solar system was installed. The property owner would pay the cost of the tree work, plus, in the case of tree removal, the cost of planting a replacement tree for each one removed, in another suitable location. Incurring tree removal and replacement costs will likely dissuade most homeowners from wanting to remove trees, but having a clear protocol for this situation should help minimize tree/solar conflicts.

Solar collectors not oriented to face within 45 degrees of true south would not qualify. The city should not encourage solar installations that are poorly oriented and will have sub-optimal performance.

Issues to be resolved:

Jurisdiction: Tree Warden is the final authority; does the Urban Forestry Tree Commission play a role?

Who pays the cost of tree pruning to maintain solar access?

What solar installations would qualify? (minimum size? orientation? etc.)

How much shade is tolerable, and when (time of day, time of year)? (Even partial shade can eliminate all the electricity production from a solar electric panel).

What metrics will be used to compare the sustainability benefits of trees vs. solar installations? (Note: Paul Popinchalk cited numerous resources for this at the UFTC meeting on 11/30/22).

dcr
Massachusetts

June 8, 2023

Eric Flint, Conservation Planner
City of Worcester
Div. of Planning & Regulatory
455 Main Street, Room 404
Worcester, MA 01608

Dear Mr. Flint,

On behalf of Governor Maura Healey and Energy and Environmental Affairs Secretary Rebecca L. Tepper, I am pleased to announce that the Department of Conservation and Recreation (DCR) has selected your project entitled, "Resource Assessment for Urban Forests in Conservation Lands" for a Massachusetts DCR Urban and Community Forestry Challenge Grant. Your project has been approved for $40,000.

The DCR received fourteen applications totaling $282,562 in grant requests. Using funds from the USDA Forest Service, the DCR can award grant funds to all fourteen of the applicants in this round of grants. These projects include strategic tree planting and preservation in communities, engaging and building citizen advocacy and stewardship in the community, establish wood banks, and revitalizing collaborative, community-based inventory, and management plans of the urban forest. These are all important goals of DCR's Urban and Community Forestry Program, as we remain committed to assisting our local community partners in managing our shared forest resources.

I would like to extend my congratulations and best wishes for a successful project. Should you require any additional information or assistance, please contact Julie Coop, Julie.Coop@mass.gov. We look forward to working with you.

Sincerely,

Peter Church

Peter Church
Director of Forest Stewardship

COMMONWEALTH OF MASSACHUSETTS · EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston, MA 02114-2199
617-626-1250 617-626-1351 Fax
www.mass.gov/dcr

Maura T. Healey
Governor
Kimberley Driscoll
Lt. Governor

Rebecca L. Tepper, Secretary
Executive Office of Energy & Environmental Affairs
Brian Arrigo, Commissioner
Department of Conservation & Recreation

department of Conservation and Recreation | dcr

Massachusetts DCR Urban and Community Forestry Challenge Grant Application Face Sheet

Application Deadline: Emailed and post-marked on or before November 1

Environmental Justice ☑

Applicant (Entity Name): City of Worcester
(*First-time applicant* ☑)

Contact Person: Eric Flint, Conservation Planner

Phone: 508-688-0569

Email: FlintE@worcesterma.gov

Mailing Address:
Attn: Eric Flint
City of Worcester Division of Planning & Regulatory Services
455 Main Street, Room 404
Worcester, MA 01608

Short Project Title: Resource Assessment for Urban Forests on Conservation Lands

Project Summary: **In the following space**, briefly describe the project, including what you expect to be developed, produced, performed, and/or implemented. The project must relate to urban and community forestry:

We seek to fund a resource assessment for approximately 700 acres of urban forest located on properties under the care and custody of the Worcester Conservation Commission. The project would include an Urban Tree Canopy Assessment, which would provide land cover & heat island mapping as well as identification of ecosystem services, tree health, and opportunities for planting. A subsequent analysis of the assessment would identify select properties for further evaluation, define goals for property functions, and establish criteria for baseline reporting. Site visits would be conducted to gather details on existing conditions, and baseline reports & management recommendations would be developed. This project would enable informed decision making as we look to take a more active role in the management of our natural resources moving forward.

Please list any project partners: Mass Audubon & the Greater Worcester Land Trust

Grant Request ($) +	Match ($) +	Volunteer Value ($) =	Total Project Cost
$ 40,000	$ 10,000	$ n/a	$ 50,000

Please attach a more detailed budget indicating sources of match, details of expenses, etc.

This application has the support of the entity that is applying.

Signature of Authorized Agent

11/1/2022
Date

Peter Dunn, Chief Development Officer
Printed Name and Title

Mail original to: Julie Coop, DCR Urban Forestry State Coordinator, 251 Causeway St., Suite 600, Boston, MA 02114 and email a copy to: Julie.Coop@mass.gov

The City of WORCESTER

Executive Office of Economic Development
Division of Planning and Regulatory Services
City Hall, 455 Main Street, Rm 404, Worcester, MA 01608
P | 508-799-1400 F | 508-799-1406
planning@worcesterma.gov

November 1, 2022

Julie Coop
DCR Urban and Community Forestry State Coordinator
251 Causeway St., Suite 600
Boston, MA 02114

RE: Application for the DCR Urban & Community Forestry Challenge Grant

Dear Ms. Coop:

The City of Worcester's Division of Planning & Regulatory Services is pleased to submit this application for the DCR Urban & Community Forestry Challenge Grant. Please find the following items enclosed as part of this application:

- Application Narrative
- Detailed Budget
- Project Timeline
- Letters of Support

We very much hope to be selected as an awardee, and would be happy to answer any questions you might have regarding our application.

Thank you,

Michelle M. Smith
Assistant Chief Development Officer - Planning & Regulatory Services

Eric Flint
Conservation Planner

Application Narrative

Background

The City of Worcester is New England's second largest city, home to over 206,518 people, and is experiencing the fastest population growth of any large city in the commonwealth. With such growth comes the loss of private shade trees and canopy cover in favor of development. In recent years, the climate crisis has only pronounced the importance of urban tree canopies in Worcester as identified through the City's Municipal Vulnerability Preparedness and Green Worcester Plans. The importance of forests in regulation of extreme temperatures in the urban environment, cooling air temperatures or runoff, or improving air quality is critically important in Worcester's urban context, specifically in the face of our changing climate. Today more than ever, we see prolonged periods of stress on our urban canopies in drought, while we rely on them to absorb and slow runoff in extreme precipitation events. Despite the common understanding of the importance of urban forests in adapting to climate change, many of Worcester's urban forests have been neglected.

Earlier this year, the City completed and adopted an Open Space and Recreation Plan Update, in which the City of Worcester Conservation Commission and the Planning Division have been tasked with helping achieve several goals including the enhancement of natural resources within the City. Part of achieving this goal, involves the management, improvement, and restoration of existing natural resources on city properties, including one of the most important resources for our community, our urban forests.

The Conservation Commission is the custodian of approximately 827 acres of land, most of which is forested, and ±587 acres of which are located within mapped Environmental Justice (EJ) areas. While there are baseline reports for some of these properties, much of the information regarding existing conditions is outdated, and many sites have no information at all. The City's forests have been significantly impacted by the Asian Longhorned Beetle and the Emerald Ash Borer, and are at threat of infestations from the Spotted Lanternfly. More data is needed to quantify these impacts as well overall forest health. A history of limited capacity and resources for management has led to the aging of our urban forests with no proactive management. However, this is changing. With the recent Green Worcester and Open Space and Recreation Plans there is renewed interest in Worcester's urban forests as resources and tools to further equity and climate resilience.

Over the next few years, the Planning Division and Conservation Commission seek to further develop understanding of the existing conditions of natural resources on city owned, Conservation Commission held land throughout the City, and to use this to develop and implement informed strategies for resource management that seek to improve the function of the ecosystem services they provide. In the case of our urban forests, some of these key services include heat mitigation, improvement to water quality, wildlife habitat, air filtration, and providing equitable access to nature. Thousands of the City's residents live within walking distance to the urban forests on Conservation Commission properties, and many more enjoy the benefits they provide. Developing and implementing effective management strategies could improve not only the health of our urban forests, but of our community as a whole.

Project Description

Through the DCR Urban and Community Forestry Challenge Grant, we seek to fund a Resource Assessment of approximately 827 acres of urban forest located on properties that are functionally under the care and custody of the Worcester Conservation Commission. The project would include the following components, or phases:

Phase 1. Urban Tree Canopy (UTC) Assessment: The consultant firm would produce land cover and heat island mapping, identify ecosystem benefits using iTree Eco, assess tree health, and identify planting opportunities for the full cohort of Conservation Commission held properties (±800 ac). Such data will be made available to the city in usable forms and will also reference the value of such conserved land to support further investigation.

Phase 2. Analysis of UTC Assessment: The project team would meet to review the results of the initial assessment, set goals for the functions of the different properties, identify priority properties located within mapped EJ areas of the city for further evaluation in Phase 3, and identify components to be used for baseline reporting for these properties.

Phase 3. Site Visits: The consultant firm would visit the properties identified during the analysis stage, gather details on the current conditions (including dominant tree species, habitat type, geographic features, invasive species, pest/disease issues, etc.), and confirm functional goals for the properties based on field observations. *The specific number of properties visited will vary depending on the size of the parcels selected to be visited, but 100% of which will be located within EJ areas.*

Phase 4. Baseline Report & Management Recommendations: The consultant firm would produce reports describing existing conditions at properties for which site visits were conducted, 100% of which will be in EJ areas. This would include a discussion of the current function for a given site, and the goals for its function going forward. Recommendations would be provided for maintaining or improving the properties' functions, based on the assessments conducted, and would include the identification of potential funding sources for strategies identified for maintenance. This recommendation template would be made available to the city in an editable form to enable staff and volunteers to replicate further as resources may allow.

Phase 5. Review and Acceptance: At the conclusion of the project, the findings of this work would be shared with the community as a whole. Specifically, staff will coordinate review and approval of the final report at a recorded public meeting of the Conservation Commission, staff will prepare a press release for distribution to area media outlets and post the final report on the City's website for the public to access. Staff will also distribute the report to city staff in key departments. A summary of Key findings would be translated into a FAQ in Spanish to improve equitable access to the information.

Staff Requirements:

The Planning Division staff would prepare a RFQ and select a qualified firm with a certified arborist to conduct this assessment in accordance with the requirements of Ch. 30B, and would serve to oversee the contract management and coordinate with the consultant at regular meetings and/or via e-mail. Staff will facilitate collaboration with and support from the City's Tree Warden, the Conservation Commission members, and other community partners such as the Greater Worcester Land Trust (GWLT) and Mass Audubon as appropriate. The city's law department and administrative staff may assist in contract management and review and processing of invoices, etc.

Community partners such as the GWLT and Mass Audubon, as holders of conservation restrictions on some properties to be analyzed and abutting landowners in some areas, would be involved most in the Phase 2 analysis stage - where the initial assessment is reviewed and properties are selected for further field evaluation. Their involvement at this stage would be important, as they have a wealth of knowledge about property use and acquisition purposes and many management recommendations resulting from this project may involve partnering with these groups to amplify implementation.

Evaluation and Accomplishments:

In evaluating the success of this project at its conclusion, we would expect a final report to include:

a. Mapping and assessment of approximately 827 acres of tree canopy throughout the city based on Lidar and other available spatial data conducted via desktop analysis (data provided in .gdb format with .lyr files with defined symbology for import into ArcGIS). This should include data on canopy cover, heat island mapping, tree health, and ecosystem benefits.
b. Canopy mapping data provided for iTree Eco input
c. Identification of goals for the function of these different properties
d. Baseline reports and management template
e. Baseline reports and written management recommendations for the selected group of properties where site visits occurred within EJ areas (minimum 3 sites or 100 acres).
f. Potential sources of funding for the implementation of the recommended management strategies
g. Involvement of a minimum of 6 community partners, from 3 different organizations, in Phase 2.

The accomplishment of the work will be amplified by the goals and baseline report and management template deliverable. This tool can be used by staff, community partners, and volunteers to further the work of the project in collecting data to better understand existing resources without additional financial resources. Similarly, the funding source lists will enable staff to quickly begin implementation of strategies seeking our additional financial resources where needed to ensure the city's urban forests continue to be or are restored to excellency.

Sustainability & Maintenance:

Management recommendations resulting from the project would likely be implemented via a variety of sources. When it comes to funding, the City would seek to pursue any grant opportunities identified in the report - such as grants for preparation of a specific forest management plan. While historically there has been a limited operating budget for the management of Conservation Commission properties, the recently updated Open Space and Recreation Plan identifies budgeting additional funds for conservation land management as an action item. The project will not only further this goal, but it will identify specific actionable management strategies/needs that builds capacity for city staff to then budget for implementation costs of in future municipal budget cycles. Additionally, the City would look to partner with non-profit and community organizations like GWLT and Mass Audubon, Worcester Green Corps and/or Worcester Tree Initiative, whenever possible, to implement strategies and may consider the use of volunteers for certain recommendations.

The Conservation Commission will serve to evaluate progress toward the goals identified in the plans annually. Staff will aim to fund at least 1 strategy from each management plan, each fiscal year, depending on the costs of implementation.

Conclusion:

The City's urban forests on conservation commission lands provide equitable access to nature for thousands of the City's residents along with a wealth of other ecosystem services at the community level. Given the lack of information on the existing conditions of these natural resources, this project would provide critical information needed to take an active role in the management of these properties. This funding would provide the critically important next step to help us fund the necessary management strategies for of a handful of Conservation Commission controlled forests in EJ areas. Award of this application will help the City to ensure the quality of these urban forests is maintained and improved for the benefit of all Worcesterites and for generations to come in the face of our changing climate.

Schedule/Timeline

This form, at minimum, should include the key or milestone activities of the project. These activities should also be addressed in the budget, including both paid and volunteer activities.

What will be done?	Who will do it?	When will it be started and completed	Evaluation / Documentation
Selection of a qualified consultant firm with a certified arborist to conduct the resource assessment.	City of Worcester Planning Division ("Planning Division")	Start: Jul. 2023 End: Aug. 2023	Obtain 3 quotes; selection of a qualified firm
Conduct an Urban Tree Canopy (UTC) Assessment	Selected Consultant Firm	Start: Aug. 2023 End: Sep. 2023	Creation of land cover and heat island mapping; identification of ecosystem services, tree health, and planting opportunities for each property
Analysis of UTC Assessment and goal development for urban forest management	Selected Consultant Firm, Planning Division, GWLT, Mass Audubon, Conservation Commission members, Tree Warden	Start: Sep. 2023 End: Oct. 2023	Review of findings from the UTC; identification of functional goals for all properties; selection of priority properties for further evaluation.
Site Visits for selected properties	Selected Consultant Firm	Start: Oct. 2023 End: Nov. 2023	Conduct visits for all selected properties, gather details on current conditions
Development of Baseline Reports and Management Recommendations for selected properties	Selected Consultant Firm	Start: Nov. 2023 End: Feb. 2024	Produce reports describing existing conditions, identifying functional goals, provide management recommendations, identify sources of funding for implementation of management recommendations.
Review and adoption/ratification of Final Report	Planning Division & Conservation Commission	Start: Feb. 2024 End: Feb. 2024	Review and endorsement of the completed work by Conservation Commission vote at a recorded public meeting.
Publication of Final Report and distribution to the public	Planning Division & City Manager's Office	Start: Mar. 2024 End: Mar. 2024	Issue a press release regarding report completion; post report on City website for public consumption; translate a 1 page FAQ into Spanish to increase available information.

Detailed Budget Form
DCR Urban and Community Forestry Challenge Grant

dcr
Massachusetts

CATEGORY	DCR GRANT	CASH MATCH	IN-KIND MATCH	DESCRIPTION / SOURCE
SALARY				
Planning Division and Parks Department (Tree Warden) Staff		$2,000		Employee time spent directly supporting the project. Hourly wage varies by positions, payroll documentation to be provided along with log of hours spent to provide exact figures. Tax Levy funds.
CONTRACTUAL				
UTC Assessment	$10,000	$2,000		Amount to be spent on the services of a consultant firm with a certified arborist (sources: $10,000 – DCR grant / $2,000 – from City budget)
Analysis of UTC Assessment	$13,500	$2,000		Amount to be spent on the services of a consultant firm with a certified arborist (sources: $13,500 – DCR grant / $2,000 – from City budget)
Site Visits	$6,500	$1,000		Amount to be spent on the services of a consultant firm with a certified arborist (sources: $6,500 – DCR grant / $1,000 – from City budget)
Baseline Reports and Management Recommendations	$10,000	$2,500		Amount to be spent on the services of a consultant firm with a certified arborist (sources: $10,000 – DCR grant / $2,500 – from City budget)
MATERIALS				
N/A – digital				N/A – Digital materials
ADMINISTRATION				
Planning Division, Administrative, and Legal Staff		$500		Employee time spent directly supporting the project. Hourly wage varies by positions, payroll documentation to be provided along with log of hours spent to provide exact figures. Tax Levy Funds.
TOTAL	**$40,000**	**$10,000**	**$0**	**TOTAL PROJECT COST=$50,000**

The City of
WORCESTER
Department of Public Works & Parks

Department of Public Works & Parks
Forestry Operations
50 Officer Manny Familia Way, Worcester, MA 01605
P | 508-799-1190 F | 508-799-1293
Worcestertrees@worcesterma.gov

October 31, 2022

Julie Coop
DCR Urban and Community Forestry State Coordinator
251 Causeway St., Suite 600
Boston, MA 02114

RE: Letter of Support - City of Worcester - Application for the DCR Urban & Community Forestry Grant

Dear Ms. Coop:

As the Tree Warden for the City of Worcester, I would like to express my support for the City's application for the DCR Urban & Community Forestry Challenge Grant.

A canopy resource assessment of trees located on Conservation Commission owned parcels would provide much needed information about some of the large, forested pockets within our urban environment, and could guide potential management strategies moving forward.

While I will not be directly involved with the resource assessment that would be conducted if funding is awarded. I understand that a certified arborist from a consulting firm would be overseeing the work and I would plan to make our Forestry Operations available if the project team requests guidance on any issues they encounter along the way.

Thank you, please feel free to contact me if you need further information or have questions.

Sincerely,

Robert C. Antonelli, Jr., CPRP
Assistant Commissioner/ Tree Warden

The City of
WORCESTER
Conservation Commission

October 31, 2022

Julie Coop
DCR Urban and Community Forestry State Coordinator
251 Causeway St., Suite 600
Boston, MA 02114

RE: Letter of Support - City of Worcester - Application for the DCR Urban & Community Forestry Grant

Dear Ms. Coop:

On behalf of the City of Worcester's Conservation Commission, I am pleased to offer this letter of support for the City's application for the DCR Urban & Community Forestry Challenge Grant.

This grant would fund a tree canopy resource assessment, which would provide us with much needed information regarding the current condition of the urban forests under the care and custody of the Conservation Commission. During the nearly 15 years since the Asian Longhorn Beetle was discovered in Worcester, the subsequent eradication effort has reshaped the vegetation of many conservation and recreation properties in the city in ways that has not been studied.

The subsequent analysis and development of recommendations would aid in taking a more active role in the management of our properties, which the Commission has been tasked with in the recently updated Open Space and Recreation Plan. This would also allow us to better understand the health of the many conservation areas in the city and prioritize the maintenance and care of our urban forest.

This work would be conducted by a qualified consultant firm overseen by staff within the City's Division of Planning and Regulatory Services. The Commission would provide support, feedback, and input throughout the process.

The Worcester Conservation Commission supports this grant application and would look forward to seeing this work completed if funded.

Thank you,

Joseph Charpentier
Worcester Conservation Commission Chair

The Greater Worcester Land Trust

4 Ash Street, Worcester, Massachusetts 01608-2156
www.gwlt.org | 508-795-3838

October 31, 2022

To Whom It May Concern,

My name is Colin Novick and I serve as the Executive Director of the Greater Worcester Land Trust (GWLT). This is a letter of strong support for the City of Worcester's application to the Urban & Community Forest Program.

GWLT is a conservation partner of the City of Worcester in general, and more particularly the Worcester Conservation Commission. Together we have conserved 20 properties in the City of Worcester including over 145 acres of land held by GWLT with a conservation restriction running to the ConCom, and 220 acres of land held by the ConCom with a conservation restriction running to GWLT.

The City of Worcester has seen significant disruption to the forest by the Asian Longhorn Beetle and the Emerald Ash Borer, and we are on the edge of seeing damage resulting from the recently arrived Spotted Lantern Fly. Local invasive plants impacting our forest include: Norway maple, Ailanthus, Phragmites, Garlic mustard, Bittersweet, Japanese barberry and Japanese knotweed, among others.

The City of Worcester needs an established baseline of forest health which would make it possible to draft an overall management plan or individual stewardship plans for particular areas. Our ability to think strategically about stewardship and management is deeply undermined by not having this baseline. Furthermore, the City of Worcester Forestry Division largely focuses our municipal tree inventory work on street trees and rarely looks to the interior in a City with significant forest cover. Additionally, the Conservation Commission is seeking to expand their role in the active use and management of the conservation areas in their portfolio and this effort would be a great help to this end as well.

Having this information makes it possible for the Conservation Commission to expand its role at a critical moment of the expansion for the planning and conservation staff in the City. We would like to be able to seize this moment of opportunity.

Thank you so very much for your consideration. If there is any additional information we can provide, or questions we can answer, please do not hesitate to contact me at colin@gwlt.org or 508-795-3838.

Sincerely,

Colin M.J. Novick
Executive Director

Mass Audubon
Broad Meadow Brook Conservation
Center & Wildlife Sanctuary

October 31, 2022

To Whom It May Concern,

On behalf of Mass Audubon, I am writing to support the City of Worcester's application to the Urban & Community Forest Program. Broad Meadow Brook Wildlife Sanctuary is surrounded by environmental justice neighborhoods, and the City holds roughly 30% of the 435 acres contained within the Sanctuary, which is managed overall by Mass Audubon through a collaborative partnership with the City and National Grid, the third landowner.

The Sanctuary's 5-mile trail network includes 1.5 miles of accessible trails and is clearly mapped and signed. In fact, 18,000 visitors come annually to walk and experience this urban forest. Worcester residents, Greater Worcester Land Trust members, and Mass Audubon members may visit at no cost, and the City bus pulls right up to the Visitor Center. Neighborhood access trails exist in every section where homes abut the sanctuary boundary. It is truly a community asset.

The Sanctuary's forests have been spared Asian Longhorn Beetle, but are impacted by multi-pronged challenges of drought, spongy moth infestation, and emerald ash borer. Invasive plants including garlic mustard, bittersweet, Japanese barberry and Japanese knotweed are here, and spotted lanternfly is on its way. The loss of mature oaks and ashes is noticeable.

Now is a prime time to take a baseline analysis of forest health and get a management plan in place and underway. Thank you for seriously considering the City of Worcester's application.

Martha Gach, Conservation Coordinator and Education Manager

414 Massasoit Road, Worcester, MA 01604
508-753-6087 . massaudubon.org/broadmeadowbrook

Report on status of Ash (*Fraxinus*) trees in Worcester, 2022.
Created by Commissioner Dr. Joy Winbourne on September 25, 2023

There are 395 trees labeled as Ash. Two are labeled as 'Ash' and two are labeled as 'European Ash'. There are 110 'Green Ash' and 281 'White Ash'. Below are figures showing the number of Green and White Ash trees across different DBH sizes or the diameter of the tree at 1.3 meters height in inches (Figure 1) and broken out by District (Figure 2). Additionally there is a map showing the location of all Ash trees in the city (all 395) color coded by their DBH (diameter in inches at 1.3 meters height).

Figure 1. Histograms showing the spread in size of White and Green Ash trees in Worcester based on DBH (or the diameter of the tree at 1.3 meters).

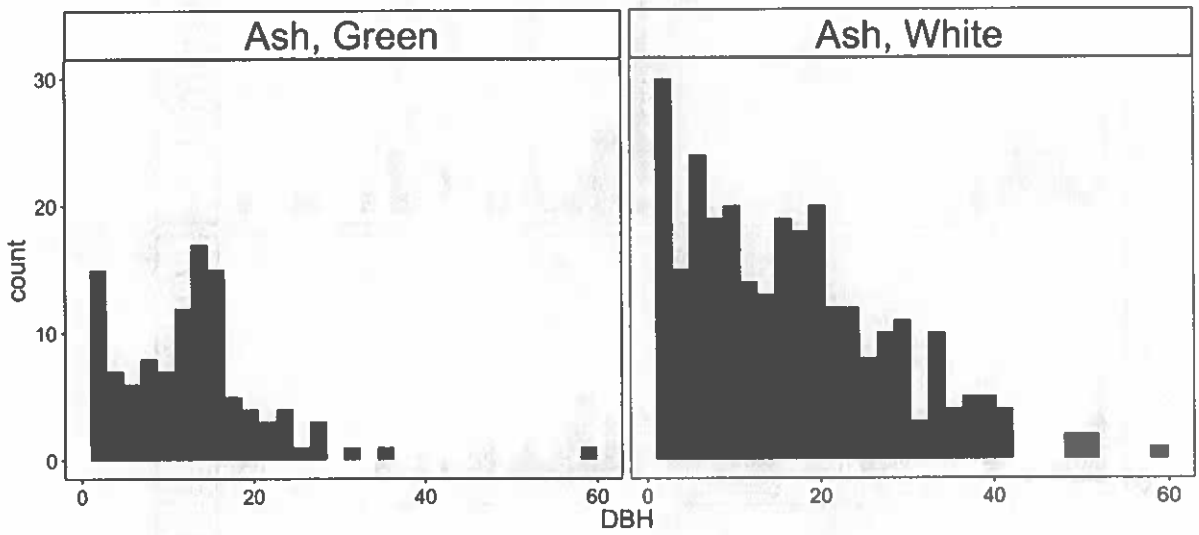


Figure 2. Histograms showing the spread in size of White and Green Ash trees (DBH) in Worcester by District.

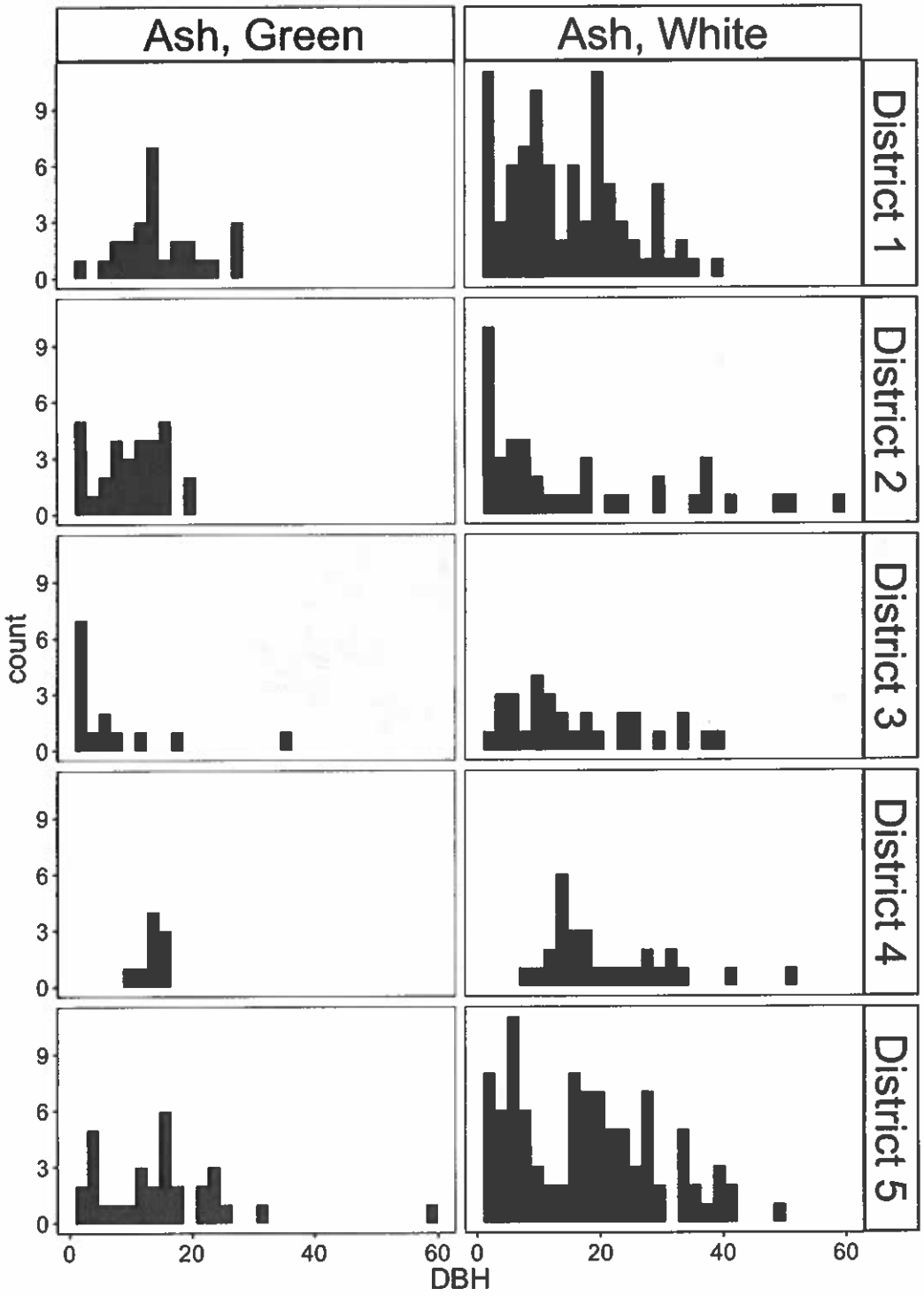
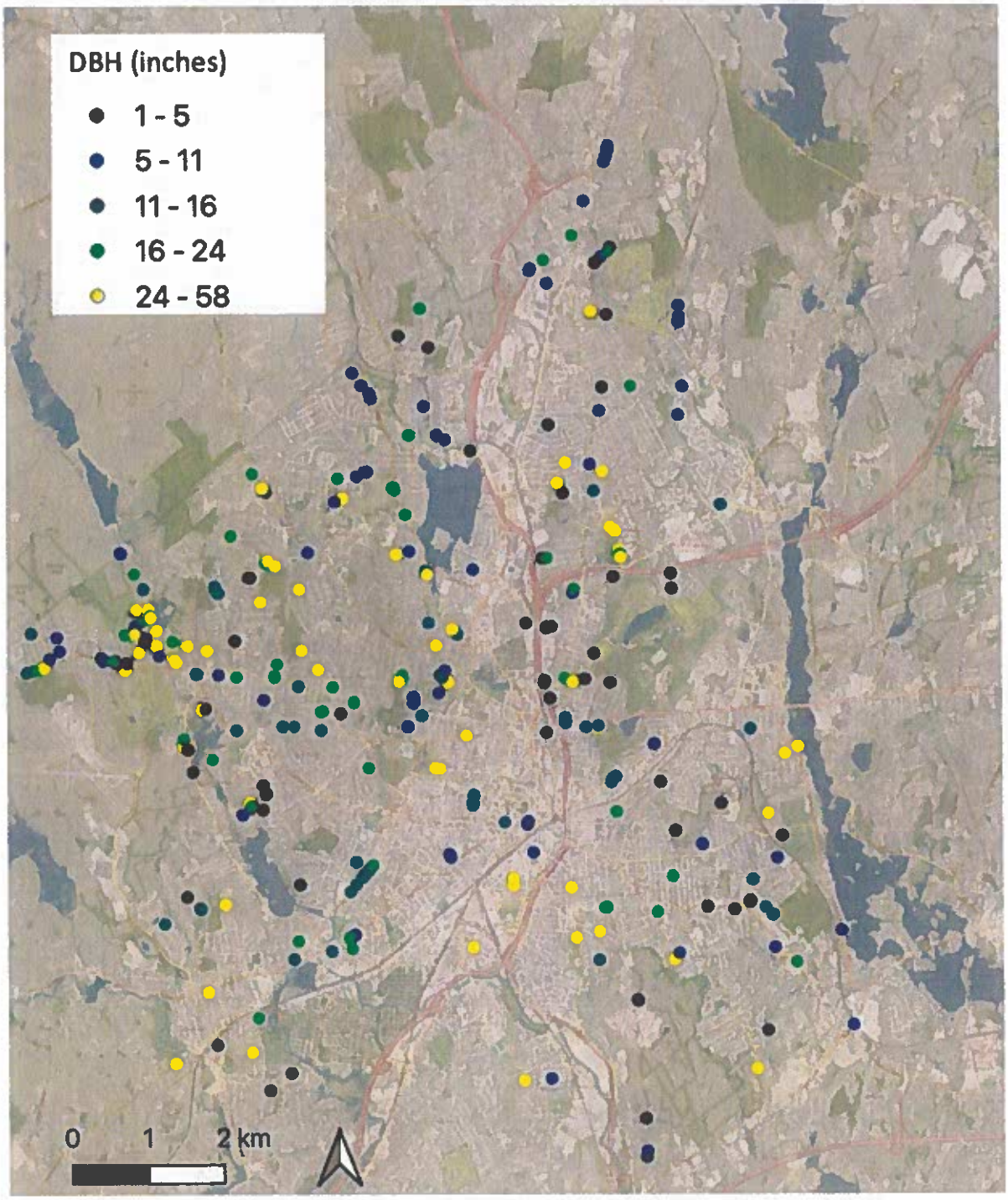


Figure 3. Map of the Location and size of all 395 Ash trees in Worcester



The City of WORCESTER

Department of Sustainability & Resilience
City Hall, 455 Main Street, Room 108, Worcester, MA 01608
GreenWorcester@worcesterma.gov
www.worcesterma.gov

USDA Forest Service Urban & Community Forestry - Inflation Reduction Act

USDA-FS-2023-UCF-IRA-01

Project Narrative

Project Title: Worcester' Urban Forest Common Good Project

Project Applicant: City of Worcester[1]

Project Scope Alignment:

The project focuses solely on the EJ areas of the city, which has been determined through multiple, rigorous analyses to be disproportionately affected by the lack of urban tree canopy, a high percentage of impervious surfaces, the resultant high urban heat island effect, and increased pollution levels as compared to most other sections of the city. We are seeking a grant match waiver and plan to subaward 80% of the award to one or more community organizations to do the work of building up the urban tree canopy in both public and private spaces, as well as assisting private landowners in the EJ area with maintaining existing trees and extending their life span. Community engagement, long-term planning, education and outreach, and green jobs training are other key project strategies. Due to a shortage of trees in existing, local commercial nurseries (especially with the anticipated demand increase due to this large grant opportunity country-wide), to meet our planting goals, we plan to establish a nursery that will be also be used as a training grounds for the Urban Forest Academy. We hope to become a successful model for other community forestry programs.

Quarter of the City's Area is in EJ: Worcester is Massachusetts' New England's second largest city, with about a quarter of its area located in the Justice40 Climate and Economic Justice area (see *Additional Proposal Information attachments* for the **map**). While many areas of the city have a healthy urban forest, the city's core, which also overlaps with the EJ area, has a multitude of impervious areas and suffers from a lack of a healthy tree canopy, which directly contributes to the heat island effect. This project closely aligns with the goals of the Justice40 as it will focus all of the grant funding received towards Environmental Justice neighborhoods.

Experience with Deforestation (ALB pest): Ironically, one of the strongest qualifications the city has for this grant is the lessons learned in its response to the Asian Longhorned Beetle (ALB) crisis that began in 2008. The City is deeply familiar with an impact the lack of an urban tree canopy can have on a neighborhood. Affected neighborhoods lost up to 90% of their urban forest canopy along streets and in yards (predominantly maple trees), thereby increasing surface temperatures per a study published by Clark University in 2013. With the help of USDA and MA DCR, Worcester has replanted tens of thousands of trees lost to ALB while increasing the diversity of its community forest.

Recent Forestry, Sustainability and Resilience Planning and Capacity Building: The City has maintained focus on sustainability and resilience for years, especially as seen through the lenses of equity, health and prosperity. Since 2019, it completed a Green Worcester Plan, established the Department of Sustainability and Resilience and the Department of Transportation and Mobility,

[1] **Project Summary:** The Green Worcester Plan's vision is for Worcester to become "the greenest mid-sized city in America." To help advance this vision, the Worcester's Urban Forest Common Good Project will focus on our urban forest growth, resilience and health through thoughtful tree planting and maintenance. Our goal is to plant 3,000 public and 4,000 private trees in the areas that are home to disadvantaged communities. The City will build on existing, rich community relationships to do most of the work, including engagement to build tree benefits awareness and support, and providing a foundation for forestry green jobs for our youth.

established an Urban Forest Tree Commission and convened a Green Worcester Advisory Committee. The GWP has an ambitious vision of becoming the greenest mid-sized city in America by 2050 and sets out numerous goals and projects to get there, with a substantial, uniform tree canopy being a key component. Additionally, in 2023, the city completed a resilience study focused on urban heat. The 2023 Heat Risk Assessment demonstrated the impact the lack of urban forest has on urban heat and, consequently, human health, and suggested that expanding the tree canopy to 50% throughout the city would significantly reduce public health risks from heat. Lastly, the City is finalizing its Urban Forestry Master Plan (focusing on street trees) based on street trees; inventory and assessment work by the Davey Resources Group.

Alignment with Other Plans: The goals of this project align well with the MA State Forest Action Plan which lists Worcester as an important focus area for urban forestry work. This project also aligns well with the Ten-Year Urban and Community Forestry Action Plan to increase equitable access to the urban tree canopy, broaden community engagement, and improve community resilience. This project also implements one of the key recommendations of the 2023 MA Resilient Lands Initiative to launch a community-led greening initiative to improve community health by reducing urban heat island impacts in an EJ neighborhood. This plan acknowledges a theme repeated by many grassroots advocates across the state that government funding rarely funds the implementation of grassroots led plans.

Please see *Additional Proposal Information attachments* for the 9 letters of support from community organizations, state and federal delegation officials!

Implementation Strategy/Methodology/Timeline:

Strategy 1: Establish a Well-Rounded Interdisciplinary Team to Do the Work:

20% of the Grant (City led tasks):

1) Hire a Project Manager/Grant Administrator, an Assistant Project Manager/Grant Administrator, and a Nursery Overseer
2) Establish and grow the current Worcester Technical High School's Environmental Science Program's Urban Forest Academy Program and integrate its work with the City's Community Partners' work
3) Convene and administer Urban Forest Taskforce, that will meet at least monthly and will promote information exchange and deepen collaboration opportunities
4) Contract with Subject Matter Experts, to support community work:
    a. Environmental Services Firm (to develop a planting plan for the grant term and afterwards and to provide similar advisory services)
    b. Communication/Graphic Design Firm (to support community engagement work)
    c. Landscape Design Firm (to develop a 2-mile Greenway Design through the EJ area)

80% of the Grant (Community led tasks):

5) Bid and execute grant subrecipient agreements with Urban Forest Community Partner/s for:
    a. Public tree planting and maintenance using hired arborists, crews, and apprentices

b. Private tree planting and maintenance using hired arborists, crews, and apprentices

c. Invasive species removal and reforestation using hired arborists, crews, and apprentices

d. Subcontract work with an arborist to identify tree maintenance/removal needs as requested by private landowners in the EJ area

e. Subcontract work with a private tree company (with local apprenticeship requirement) to complete the above work that requires heavy equipment

f. Manage community members to conduct new plantings' establishment maintenance (training and payment of stipends)

6) Bid out and execute grant subrecipient contracts/agreements with Urban Forest Community Engagement partner, education, awareness, and buy-in. The partner will hire and support an Urban Ecologist (or similar) and at least two Urban Forest Advocates from the neighborhoods.

7) Bid out and execute grant subrecipient contracts/agreements with a Tree Planting Program Monitoring and Evaluation partner to assess and determine actual tree benefits, as well as public attitudes toward trees and successful engagement strategies

Results/Outcomes

- All of Section 2 Strategies completed by the end of year one (1).

➢ *See Budget, Budget Narrative for more information*

➢ *See Additional Proposal Information attachments for more information: Gantt Chart, Project Team Chart, Project Activities & Activities Chart.*

Strategy 2: Develop Sustainable and Resilient Forest Planting Plans within Environmental Justice neighborhoods; Build Community Buy-In; and Invest in creating a Tree Nursery(s) to Enable Timely Plan Implementation

A collaborative team will work on developing the plan for planting approximately 3,000 public trees in the EJ area. An Environmental Services Firm will be employed to provide expertise related to investigating feasible locations for new trees in challenging urban environments, and then proposing species that meet the city's goals of sustainability, health, resilience (sufficient canopy), species diversity, and more. Locations for public street trees, including shaded walking routes to schools, parks and grocery stores, will be emphasized. Their work will be informed by the robust engagement of the community (facilitated by the Community Engagement Partner and Communication/Design Firm) for both planting location ideas, as well as education about benefits and values of trees. This will be an opportunity to identify engaged community members so they can participate in tree planting and maintenance activities (reimbursed via a stipend). Any and all ideas related to urban canopy by the community will be considered for feasibility, especially the ones with multiple co-benefits, including food forests, orchards, pavement removal, stormwater flooding mitigation, Miyawaki Forests, and more.

The team will also assist in identifying areas in the city (preferably with existing public ownership) that can be used as a nursery(s) to provide trees for the EJ area plantings, as we anticipate insufficient numbers and availability of wanted tree species. This will also serve as a training ground for emerging arborists in our community (via the Urban Forest Academy, other students and community members).

Urban Forest Academy: We will develop the urban forestry academy with community input. It will include a series of classes and trainings at Worcester Technical High School and at community locations to incorporate local knowledge of forest canopy needs into the work of this grant.

Tasks:

1) Community Engagement Plan (for Years 1-5), that may be adjusted based on the finding of the parallel Project Monitoring and Evaluation project.
2) Plan: Planting Plan for Public Street Trees (informed by the Urban Forestry Master Plan and Street Tree Inventory), with Supplemental "Long Term Management and Budget Strategy Plan" (including consideration of City Forest Carbon Credits).
3) Plan: Canopy Assessment and Management Plan for 3 Public Conservation Areas (3 locations in EJ areas)
4) Plan: Tree Inventory, Urban Tree Canopy Assessment Canopy Assessment and Management Plan for the 22 Public Parks in EJ areas
5) Plan: Recommended plan for assessing tree health and recommending new species on private properties
6) Plan: Recommended plan for preferred nursery species to be planted, meeting the project goals
7) Draft updated Tree Protection Ordinance

Evaluation:

- Feedback will be received at community meetings and via a survey at the completion of teach Plan by the monitoring and evaluation community partner.

➢ *See Budget, Budget Narrative (including deliverable), and Associated Gantt Chart (timelines)*

Results/Outcomes:

- Six (6) Plans created
- Results learned via yearly monitoring and evaluation process will be analyzed to improve the plans as they are implemented. Overview of results and recommendations will be made public.
- Draft Tree Ordinance created

Strategy 3: Planting and Maintaining Urban Forests in EJ Areas

Based on the developed plan (Strategy 2), and led by Urban Forest Community Partner/s, in partnership with community members and the Urban Forest Academy (facilitated by the Urban Forest Community Engagement partners), significant tree planting will take place over the next 4 years, followed by careful maintenance, in accordance with the long term management plan (see Strategy 2).

Tasks:

1) Public trees – existing trees' maintenance (pruning, stump removal, etc.)
2) Public trees – new trees planting and establishment maintenance (including training needs for youth tree planting and care teams)

3) Private trees – existing trees' maintenance (including training needs for youth tree planting and care teams)
4) Private trees – new trees planting and establishment maintenance planting – using the successful Greening the Gateway City Program model in Massachusetts, which is responsible planting 35,000 trees in more than 20 small cities across MA.
5) Invasive species removal and reforestation
6) Install and maintain (new/existing) Green Infrastructure projects (using grant funds as appropriate)
7) Planting and maintaining tree saplings at the established nursery/ies

Community members engaged via Strategy 2, will participate in ongoing maintenance of the new plantings, and will be reimbursed via a stipend.

Nurseries: Plan and install a nursery(s) that will serve Environmental Justice neighborhoods.

Expand the offering of trees for planting to include climate adapted species and species that produce food that if desired by community members. The Community Forest Committee works with the Worcester Horticultural Society, the Worcester Technical High School, and the City to choose a suitable site(s) and install water, fencing, equipment storage, etc. for a tree nursery(s). The nursery(s) will largely be created and maintained via youth crews, students and project partners to produce up to 1,000 trees ready for planting in the EJ neighborhoods each year into the future.

Evaluation/Monitoring: Program monitoring consists of a two-tiered process involving: (a) environmental monitoring and tree health assessment; and (b) assessment of policy implementation, including public perception of, and resident engagement in the tree planting program. Performance of a policy assessment through interviews and surveys of implementing staff/agencies, and businesses and residents in planting areas, as well as linking tree health to other social conditions and policy factors (e.g., comparing across EJ neighborhoods or areas by assessing if there are different tree outcomes, and then determine if there are policy practice differences, or other differences in the community responses).

Results/Outcomes:

1. Number of trees planted each year consistent with total grant planting goals
2. Community feedback will be received at meetings and via a survey at the completion of year 1 and periodically thereafter as part of the evaluation and monitoring work. The data will be analyzed to determine successes and weaknesses in the design and implementation of the program. Corrections will be made each year as needed based on the analysis.
3. Annual follow-up Tree Planting Program Monitoring and Evaluation using established tree health assessments from I-Tree.
4. Using I-Tree data, evaluate real time tree canopy increase and future tree canopy increase due to tree maturation. Data will be made public.
5. Evaluate tree survivability.
6. Quantify number of community members trained with regards to tree benefits, proper tree planting and establishment care.

Strategy 4: Greenways Design

Building on the City's recently completed Master Plan and developing Mobility Action Plan, we will identify potential Greenway and Green Streets networks within the EJ area that can be developed into green corridors connecting high traffic areas (neighborhood nodes, schools, parks, lakes, employment center). This is a visionary project, requiring a phased approach. Conducting a feasibility study and design of such an asset would well prepare the city to pursue future funding for implementation.

This project will involve the community in visioning sessions and to review and provide input on location and design.

Results/Outcomes:

- Completed Greenways design

Capability and Capacity:

The city's key contact is the Department of Sustainability and Resilience and its multi-disciplinary and seasoned staff.

- John Odell, Chief
- Luba Zhaurova, Director of Projects
- Jessica Davis, Project Manager
- Sarah Mount, Analyst

Assistant City Staff:

- Division of Parks
- Division of Planning & Regulatory Services (and Conservation Commission)
- Worcester Public Schools
- Department of Transportation & Mobility
- Department of Public Health
- Green Worcester Advisory Committee
- Worcester Urban Forest Tree Commission

See Budget for proposed full-time temporary positions:

- Principal Project Manager/Grant Administrator
- Assistant Project Manager/Assistant Grant Administrator
- Nursery Overseer

See Additional Proposal Information attachments for more information, including Project Team Chart and Project Activities & Activities Chart.

Communications Plan:

Detailed Communication Plan will be developed with the assistance of the Community Engagement partners (subrecipients) and the Communication/Design Firm.

It will be wide-reaching and inclusive plan based on the input of community members learned during the multiple planning efforts noted in Section II, Strategies 2 and 3 above. The plan will develop multiple contact points via direct and social media interactions with the goal of "meeting people where they are." Using the five most common languages used in Worcester, the Communications Plan will be multi-focused and engage residents early and often over the term of the grant. The Plan will include these central attributes: (1) establishing goals; (2) defining key audiences; (3) identifying key messages; (4) creating a tactical outreach plan; and (5) specifying a timeline for moving forward.

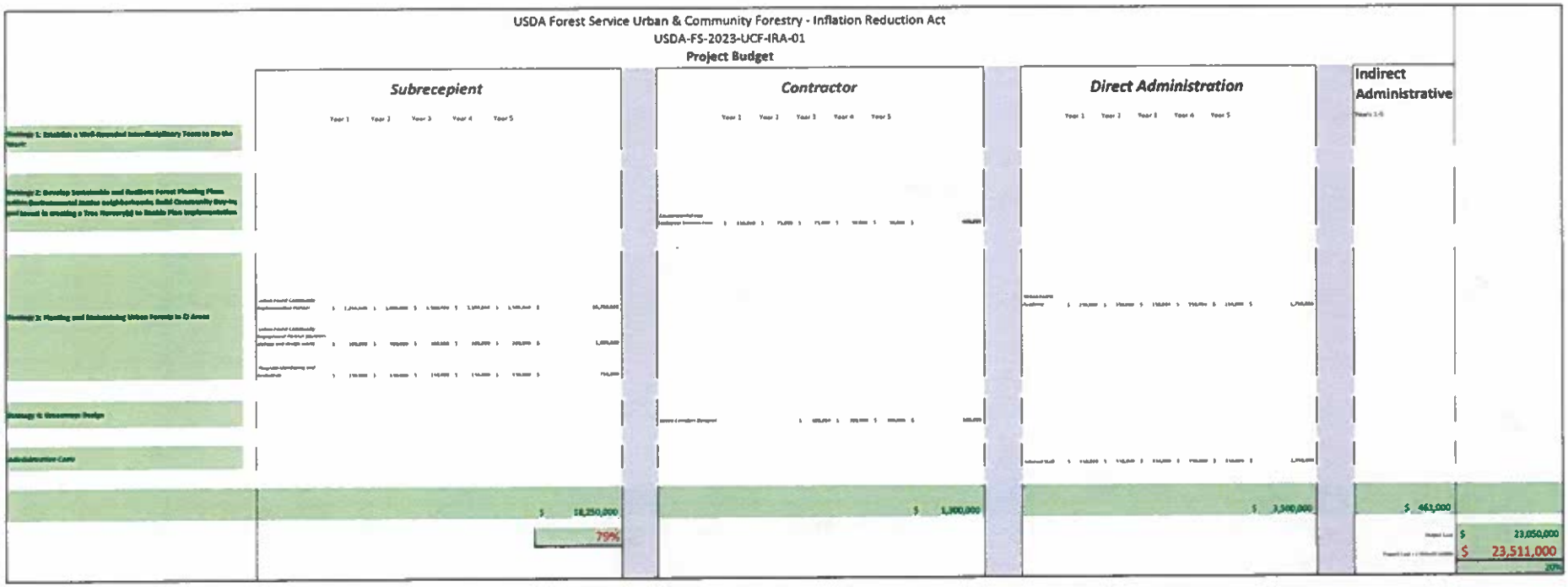
Evidence of Disadvantaged Community Status for projects requesting Match Waiver (if applicable):

All the benefits of the project will take place in or be allocated to the environmental justice areas of the city as defined by the White House Council on Environmental Quality Climate and Economic Justice Screening Tool (CEJST). (see Additional Proposal Information attachments for more information: Maps of EJ area in Worcester). All work will be tracked using this same tool. For example, all grant funded tree plantings will occur in the federally defined EJ area. All trees grown at the nursery will be used in the fed EJ area for the term of the grant. All grant funded planning and communication work will be based and targeted in the fed EJ area too. The city shall pass through the cost match waiver to any sub-awardees that perform the work.

USDA Forest Service Urban & Community Forestry - Inflation Reduction Act

USDA-FS-2023-UCF-IRA-01

Project Budget



The City of WORCESTER

Department of Sustainability & Resilience
City Hall, 455 Main Street, Room 108, Worcester, MA 01608
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USDA Forest Service Urban & Community Forestry - Inflation Reduction Act
USDA-FS-2023-UCF-IRA-01

Budget Narrative

Project Title: Worcester' Urban Forest Common Good Project
Project Applicant: City of Worcester[1]

See Additional Proposal Information attachments:

- Budget
- Project Narrative
- Project Team Chart
- Project Team and Activities Chart
- Gantt Chart

The City respectfully seeks a match waiver requirement as all the planned work will benefit EJ communities (26% of the city's area).

80% of the grant:

1) Grant Subrecipients: Community Organizations / Nonprofits:

A. Urban Forest Community Implementation Partner

Public Trees / Public Properties in the EJ Areas:

Tree Planting:

Year 1: 300 trees x $1,000.00 per tree =	$300,000.00
Year 2: 600 trees x $1,000.00 per tree =	$600,000.00
Year 3: 700 trees x $1,000.00 per tree =	$700,000.00
Year 4: 700 trees x $1,000.00 per tree =	$700,000.00
Year 5: 700 trees x $1,000.00 per tree =	$700,000.00
Total:	**$3,000,000.00**

This includes tree purchase, planting and watering for 3 years

Priority Prune:

[1] **Project Summary:** The Green Worcester Plan's vision is for Worcester to become "the greenest mid-sized city in America." To help advance this vision, the Worcester's Urban Forest Common Good Project will focus on our urban forest growth, resilience and health through thoughtful tree planting and maintenance. Our goal is to plant 3,000 public and 4,000 private trees in the areas that are home to disadvantaged communities. The City will build on existing, rich community relationships to do most of the work, including engagement to build tree benefits awareness and support, and providing a foundation for forestry green jobs for our youth.

Year 1: 673 trees x $500.00 per tree = $336,500.00

Routine Prune:

Year 2: 727 trees x $500.00 per tree = $363,500.00
Year 3: 727 trees x $500.00 per tree = $363,500.00
Year 4: 727 trees x $500.00 per tree = $363,500.00
Year 5: 272 trees x $500.00 per tree = $363,500.00
Total: **$1,790,500.00**

Number of Trees based on Davey Tree recently completed analysis of existing public street trees

Young Tree Prune:

Year 1: 355 trees x $150.00 per tree = $53,250.00
Year 2: 955 trees x $150.00 per tree = $143,250.00
Year 3: 1055 trees x $150.00 per tree = $158,250.00
Year 4: 1055 trees x $150.00 per tree = $158,250.00
Year 5: 1055 trees x $150.00 per tree = $158,250.00
Total: **$671,250**

Number of Trees based on Davey Tree recently completed analysis of existing public street trees Plus new trees planted each year starting in year 2

Removal:

Year 1: 325 trees x $1,580.00 per tree = $513,500.00
Year 2: 325 trees x $1,580.00 per tree = $513,500.00
Total: **$1,027,000.00**

Remove invasive species (if infestation in EJ located park or conservation lands)

- 2500 total person hours (500/year) @ $60 hour = **$150,000**

Stipend for the community members for ongoing establishment maintenance of new tree plantings (300 hours per year for 4.5 years 1350 hrs @ $20/hr.) = **$27,000**

Public Total = $6,665,750

Private Trees / Private Properties in the EJ Areas:

Plant and Maintain New Plantings - 4000 new trees plantings, $600/tree = **$2,400,000**

This includes tree purchase, planting and watering for 3 years

Maintain (trim, weed, etc.) existing trees (if heavy equipment is not needed)

- Specific number still TBD – estimated cost over 4.5 years is **$4,400,000**

Remove invasive species (if infestation)

- 5000 total person hours (1000/year) @ $60 hour = **$300,000**

Remove large hazardous trees/branches when heavy equipment is needed. Replant 3 new:1 lost ratio, as conditions allow.

- Specific number still TBD – estimated cost over 4.5 years is **$1,400,000**

Stipend for the community members for ongoing establishment maintenance of new tree plantings

- (600 hours per year for 4.5 years 2700 hrs @ $20/hr.) = **$54,000**

Private Total = $8,554,000

Community Engagement over five years = **$1,775,000**

- Communicate Advocates
- Community Engagement Strategy development
- Content development
- Graphic design of materials for engagement, education, raising awareness
- Refreshments for the events

Design new and maintain existing Green Infrastructure projects = **$350,000**

Establish new Tree Nursery(s) - Equipment rentals and saplings **$150,000**

Program monitoring over grant term - $150k/yr for 5-years = **$750,000**

Program monitoring consists of a two-tiered process involving: (a) environmental monitoring and tree health assessment; and (b) assessment of policy implementation, including public perception of, and resident engagement in the tree planting program
Year 1 *Initial data gathering at the end of planting year #1 to inform practices in year two*

(a) Measure tree health and local environmental conditions – surface and air temperature, and air quality (Ozone and PM 2.5) in planting areas
(b) Assessment of initial opinions of residents, staff and other stakeholders

Year 2 *Identify gaps in tree planting effectiveness in relation to tree health outcomes and public participation*

(a) Measure tree health and local environmental conditions – surface and air temperature, and air quality (Ozone and PM 2.5) in planting areas
(b) Re-assessment of residents, staff and other stakeholder opinions
(c) Stakeholder summit, using knowledge gained after two years of data collection to make recommendations around further planting, policy implementation

Year 3 *Engagement with local schools, environmental partners and community groups*

(a) Measure tree health and local environmental conditions – surface and air temperature, and air quality (Ozone and PM 2.5) in planting areas

(b) Re-assessment of residents, staff and other stakeholder opinions

Year 4 *Assess and build capacity for ongoing tree stewardship*

(a) Model future impacts of tree planting

(b) Engage stakeholder partners in assessment of policy and ideas for further community involvement

Year 5 *Final Policy Assessment*

Performance of a policy assessment through interviews and surveys of implementing staff/agencies, and businesses and residents in planting areas, as well as linking tree health to other social conditions and policy factors (e.g., comparing across EJ neighborhoods or areas by assessing if there are different tree outcomes, and then determine if there are policy practice differences, or other differences in the community responses).

Total 80% Costs ~ **$18,250,000**

20% of the grant:

2) **Contracted Costs include:**

A. Environmental and Ecological Services Firm to develop plans for the Strategy 2:

- Plan: Planting Plan for Public Street Trees (informed by the Urban Forestry Master Plan and Street Tree Inventory), with Supplemental "Long Term Management and Budget Strategy Plan" (including consideration of City Forest Carbon Credits).
- Plan: Canopy Assessment and Management Plan for 3 Public Conservation Areas (3 locations in EJ areas)
- Plan: Tree Inventory, Urban Tree Canopy Assessment Canopy Assessment and Management Plan for the 22 Public Parks in EJ areas
- Plan: Recommended plan for assessing tree health and recommending new species on private properties
- Plan: Recommended plan for preferred nursery species to be planted, meeting the project goals
- Draft updated Tree Protection Ordinance

Total Costs = **$400,000**

B. Green Corridors Designer

Building on the City's recently completed Master Plan and developing Mobility Action Plan, we will identify potential Greenway and Green Streets networks within the EJ area that can be developed into green corridors connecting high traffic areas (neighborhood nodes, schools, parks, lakes, employment center). This is a visionary project, requiring a phased approach. Conducting a feasibility study and design of such an asset would well prepare the city to pursue future funding for implementation.

This project will involve the community in visioning sessions and to review and provide input on location and design.

*See **MassDOT Calculator** to explain cost estimates for design work of such a 2-mile greenway in the EJ area.*

Total Costs estimate = **$900,000**

3) **Direct Staff Costs include:**

A. **Temporary (5 year) staff):**

- Project Manager / Grant Administrator (100% - add 35% fringe), FT Temporary (5-yr) Position
- Assistant Project Manager (100% - add 35% fringe), FT Temporary (5-yr) Position
- Nursery Overseer, FT Temporary (5-yr) Position

B. **A portion of existing staff's time:**

- John Odell, Chief of DSR - 10%
- Luba Zhaurova, Director of Projects - 10%
- Jessica Davis, Project Manager - 10%
- Sarah Mount, Analyst - 5%

Direct Staff Costs are Estimated at $350,000/year

Over 5 years the total cost = **$1,750,000**

C. **Urban Forest Academy out of the Worcester Technical High School:**

- Stipends for the Academy participants when working in the field ($20/hour every planting season)
- 4 Instructors (120 hrs/program/year), 1 Principal Instructor, 1 Curriculum Development Specialist
- Small educational equipment for students (GPS units, tree measurement tools, etc.)
- SAF certification fees for students
- Bus transportation for students
- Small refrigerator for seeds to generate saplings

Estimated costs are $350,000 per year – over 5 years total = **$1,750,000**

Total 20% Costs = $4,800,000

4) **Indirect Administrative Costs are 2%. - $461,000**

Summation

80% costs = 18,250,000

20% costs = $4,800,000

Indirect costs = $461,000

Total Costs (rounded) = $23,511,000

Shared Used Path Design Guide

Cost Estimator

PROJECT COST SUMMARY

Project Name: Worcester EJ Zone Greenway (2 miles)
Project Location: Worcester, MA

PROJECT CATEGORY				ESTIMATED PRICE
Path	Length: 10,560 ft	Width: 10 ft		$4,548,000.00
	# Segments: 2	# Intersections: 20		
Structures				$604,600.00
Landscaping Restoration & Enhancements				$812,300.00
Lighting & Security				$476,200.00
CONSTRUCTION COST				
Traffic Control	*Assume 4% of construction cost*		TTCP COST	$227,400.00
			SUBTOTAL	$6,668,500.00
			Contingency (assume 15%)	*$1,000,275.00*
			CONSTRUCTION COST	$7,668,775.00 **
Cost Escalation	Construction Year: 2025		**CONSTRUCTION TOTAL**	**$8,369,690.00**
Assumed 4.47% increase in costs per year			**COST PER MILE**	**$4,184,850.00**

***Use this estimated cost on PIF forms - escalation is already included on the MassDOT Website*

NON-CONSTRUCTION COSTS (NOT ESCALATED)			
Survey	*Based on existing conditons*	SURVEY COST	$150,000.00
Design	*Assume 10% of construction cost*	DESIGN COST	$772,890.00
		PROJECT TOTAL	**$9,292,580.00**

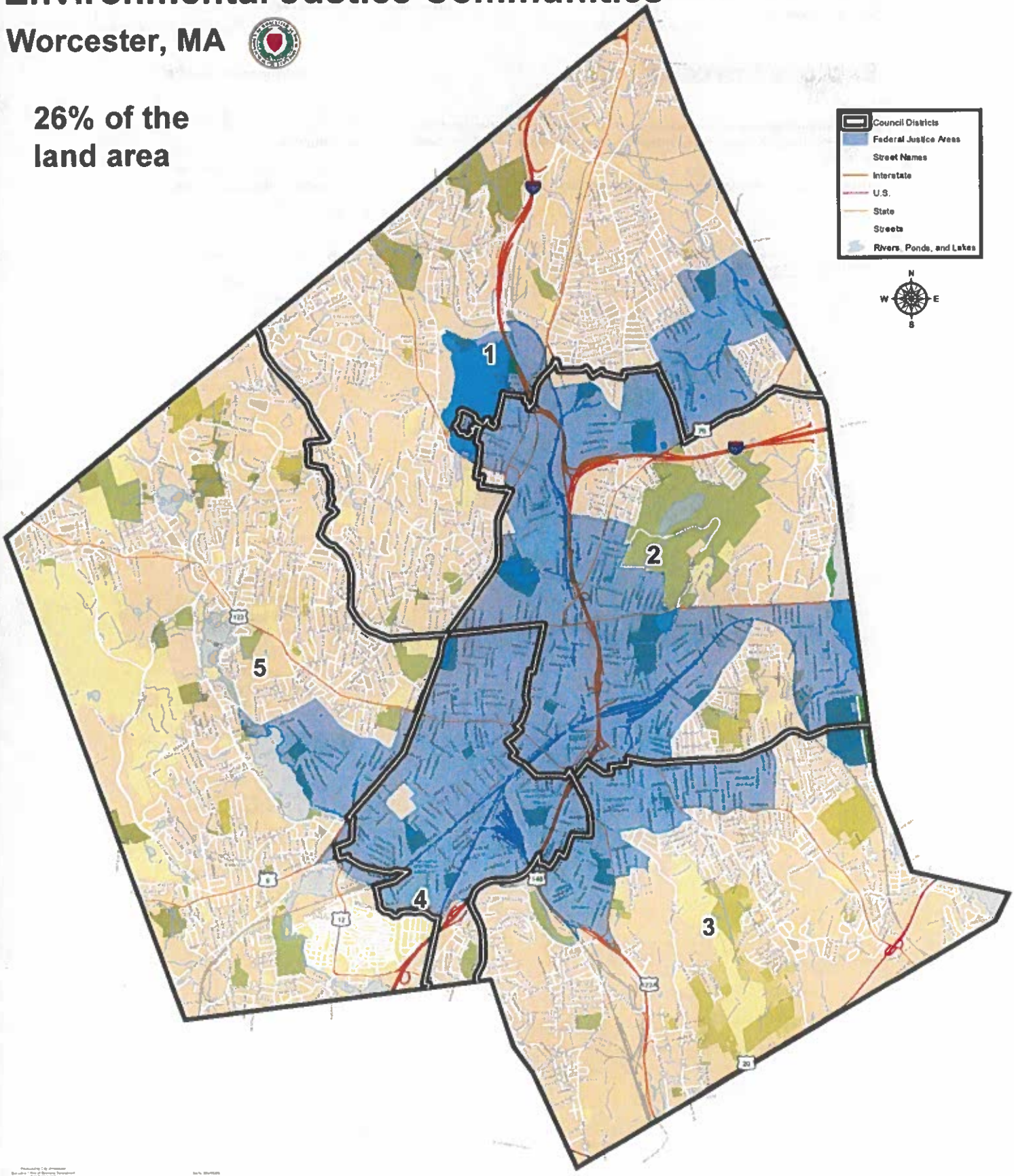
Click to Generate Error/Informational Warning Report

-Costs for ROW and permitting are not included in this estimate.
-Environmental mitigation from paving a parking lot may be required. Cost not included.
-Your project includes culverts and/or bridges. Please consult a structural engineer for more accurate costs.

City of Worcester
Environmental Justice Communities

Worcester, MA

26% of the land area



This tool has been updated. The 1.0 version of the tool was released on Nov 22, 2022.

Explore the map

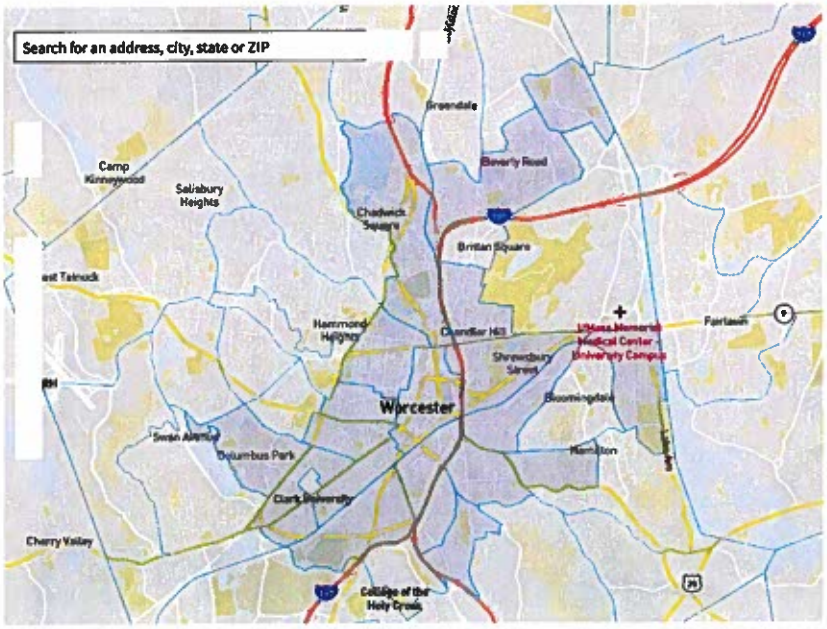
Share data sources with CEQ

Census tracts that are overburdened and underserved are highlighted as being disadvantaged on the map. Federally Recognized Tribes, including Alaska Native Villages, are also considered disadvantaged communities.

Zooming in and selecting shows information about each census tract.

Get the data

Download the data with documentation and shapefile from the downloads page.



How to use the map:

Zoom in +, search, or locate yourself and select to see information about any census tract.

Things to know:

The tool uses census tracts. Census tracts are a small unit of geography. They generally have populations of between 1,200 - 8,000 people.

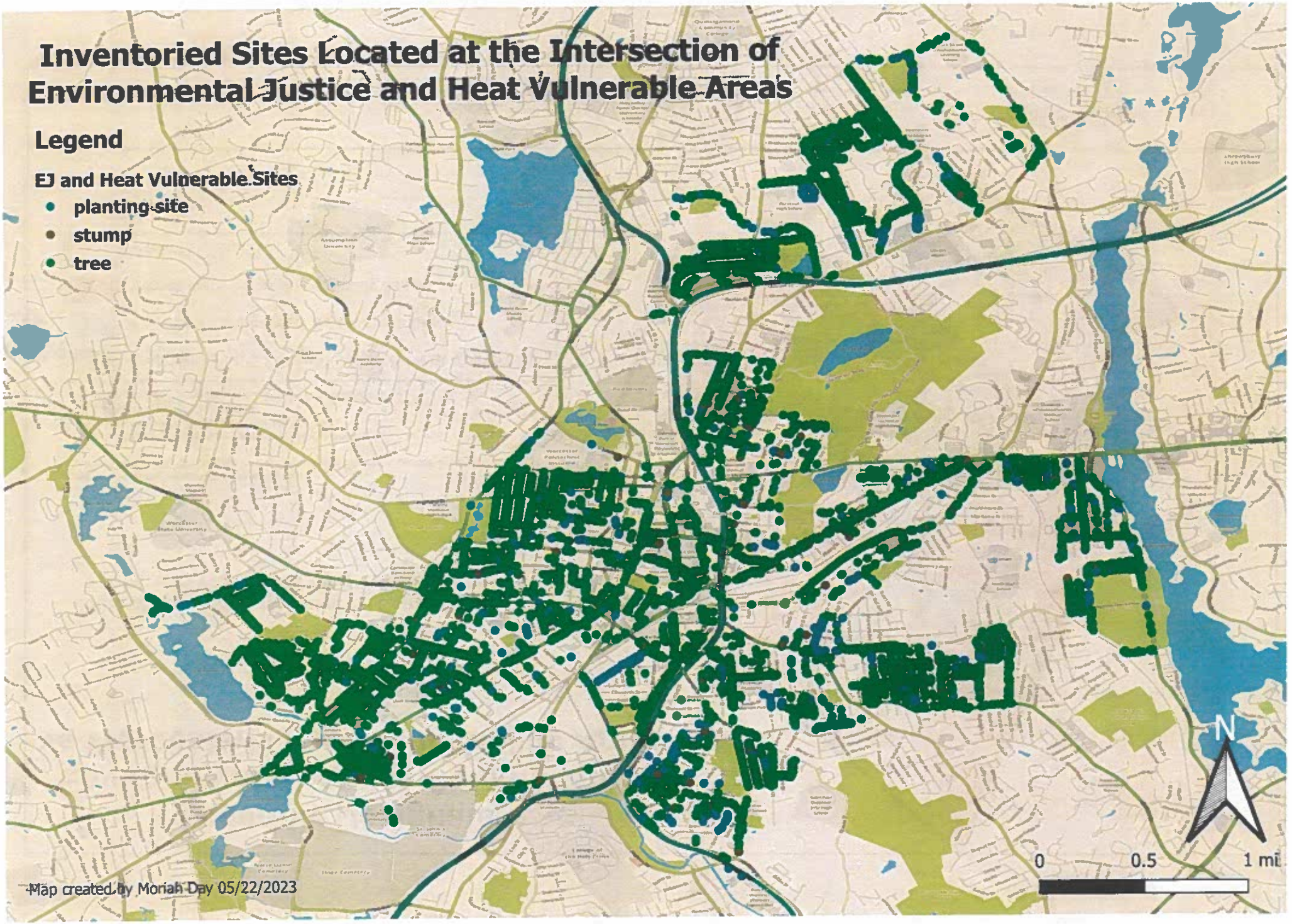
Communities that are disadvantaged live in tracts that experience burdens. These tracts are highlighted on the map.

The tool ranks most of the burdens using percentiles. Percentiles show how much burden each tract experiences when compared to other tracts.

Thresholds, or cutoffs, are used to determine if communities in a tract are disadvantaged. Certain burdens use percentages or a simple yes/no.

Land within the boundaries of Federally Recognized Tribes and point locations for Alaska Native Villages are highlighted on the map. These communities are also considered disadvantaged.

Help improve the tool


Inventoried Sites Located at the Intersection of Environmental Justice and Heat Vulnerable Areas
Legend
EJ and Heat Vulnerable Sites
planting site
stump
tree
N
0
0.5
1 mi
Map created by Moriah Day 05/22/2023

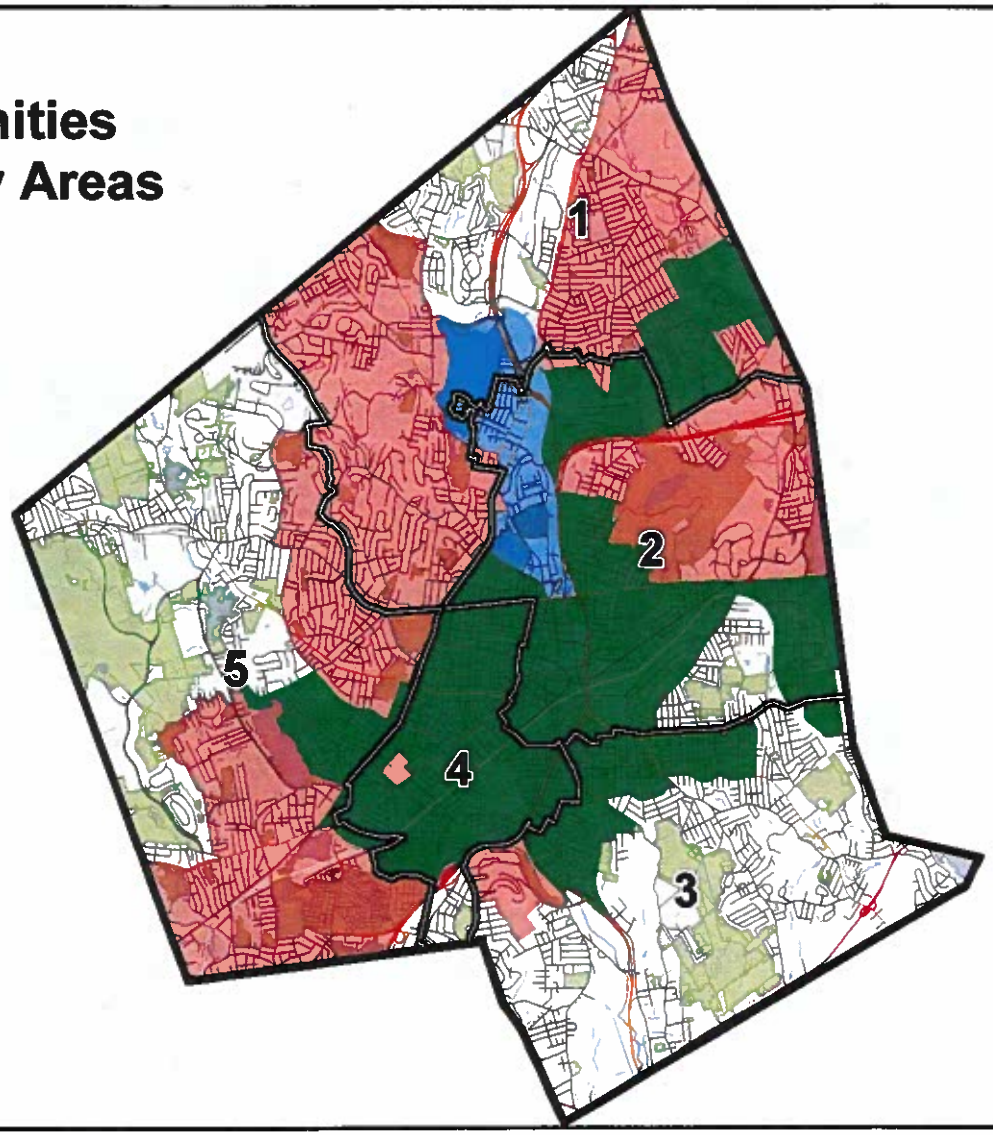
Federally Designated Environmental Justice Communities vs Worcester's Heat Vulnerability Areas

86% of Federally Designated EJ Communities overlap with Worcester's Heat Vulnerability areas.

NOTE: Federally Designated Environmental Justice Community are defined by the Climate and Economic Justice Screening Tool.

For the purposes of this map, Heat Vulernability areas are defined as areas with low AC Prevelance and high levels of heat-related mortality. (Worcester Heat Risk Assessment. City of Worcester, 2022)

- Overlap - Fed EJ Communities & Heat Vulnerability
- Federally Designated EJ Communities
- Worcester's Heat Vulnerability Areas
- Council Districts



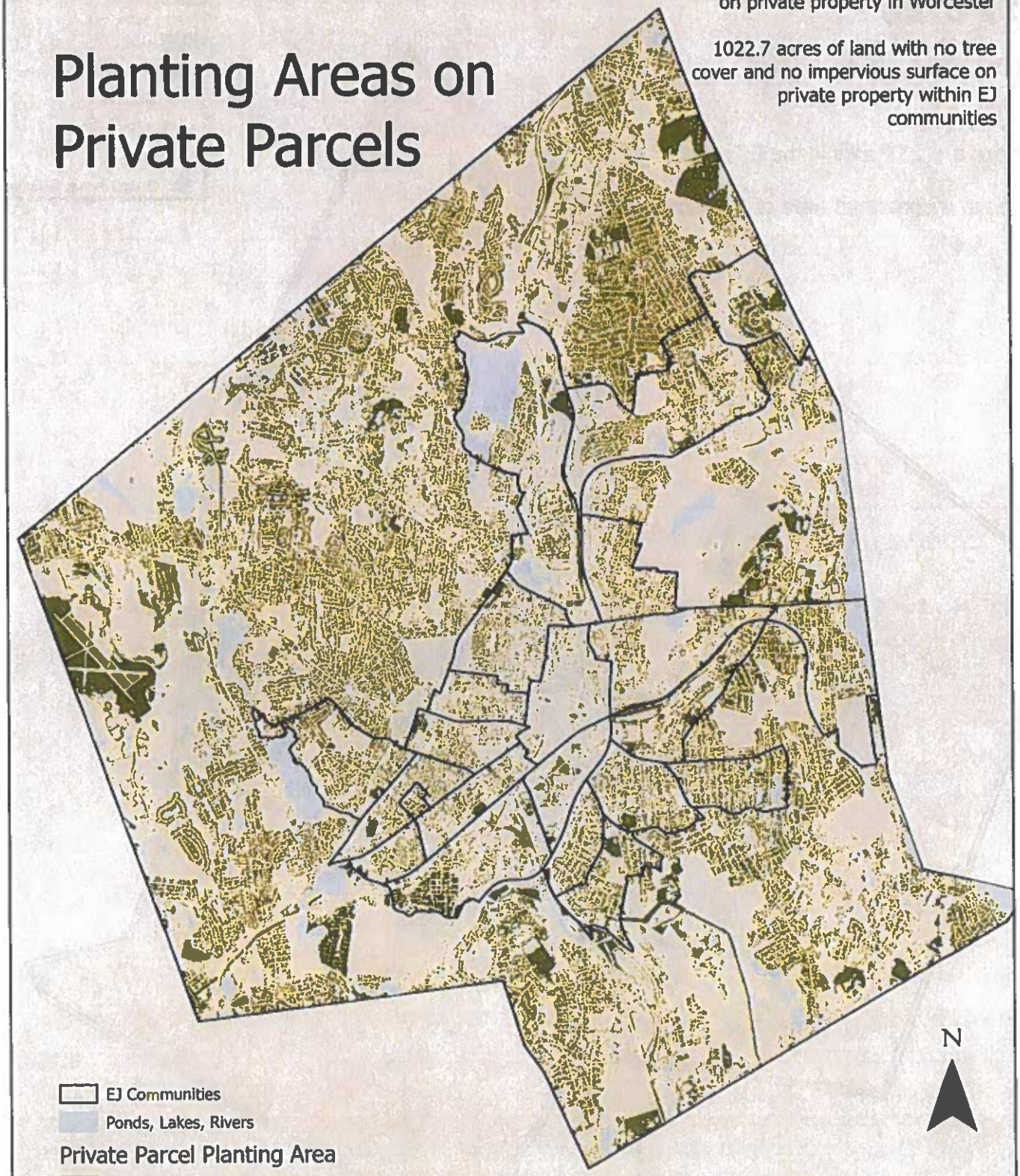
May 10, 2023

1 inch = 5,158 feet

Planting Areas on Private Parcels

4682.8 acres of land with no tree cover and no impervious surface on private property in Worcester

1022.7 acres of land with no tree cover and no impervious surface on private property within EJ communities



EJ Communities

Ponds, Lakes, Rivers

Private Parcel Planting Area

No Tree Cover or Impervious Surface

N

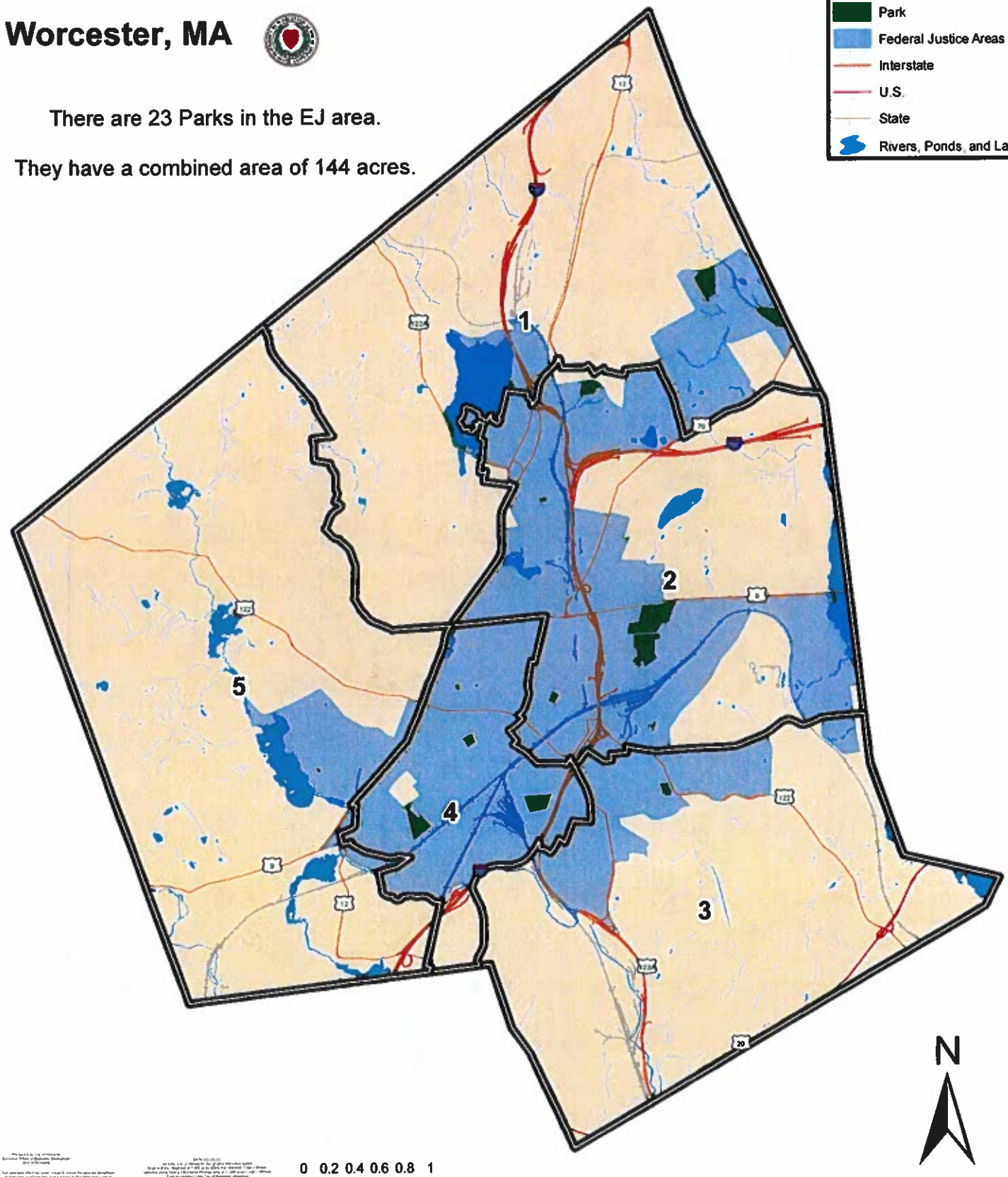
0 0.5 1 2 Miles

City of Worcester
Environmental Justice Communities and Parks

Worcester, MA

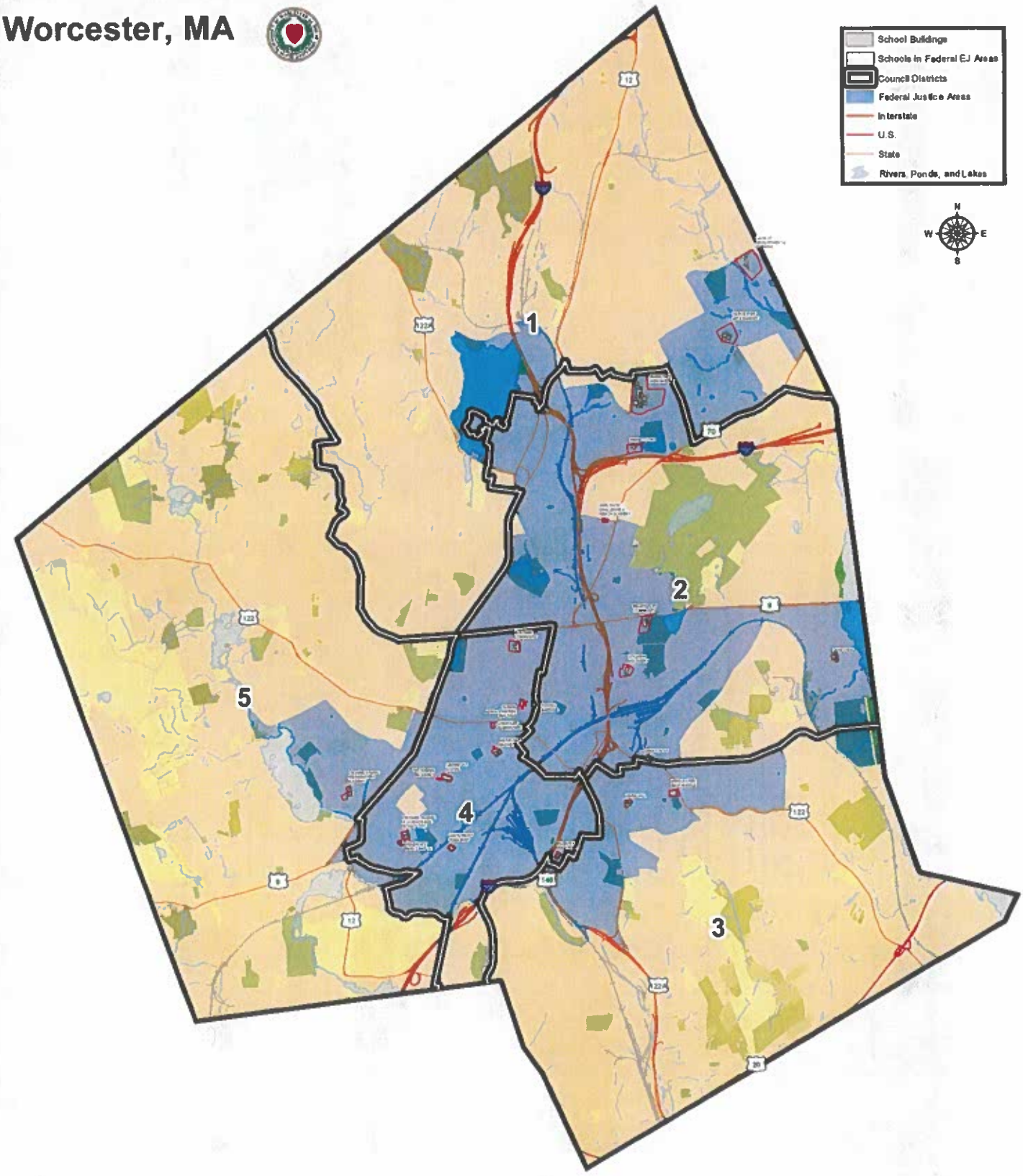
There are 23 Parks in the EJ area.

They have a combined area of 144 acres.



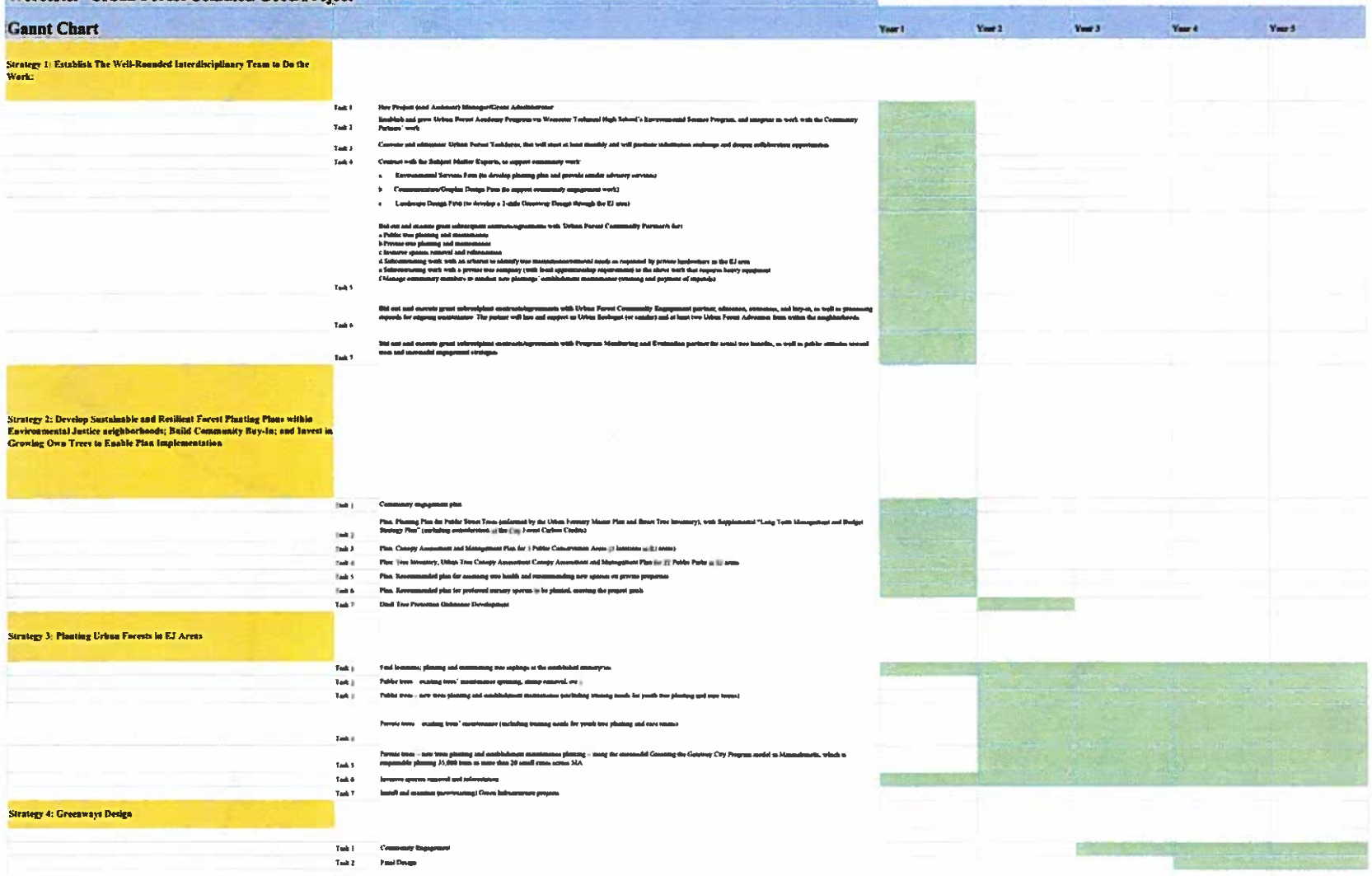
City of Worcester
Environmental Justice Communities and Public Schools

Worcester, MA



Worcester' Urban Forest Common Good Project

Gannt Chart



WORCESTER' URBAN FOREST COMMON GOOD PROJECT: STRATEGIES, ACTIVITES & PROJECT TEAM

	PLANNING & ASSESSMENTS ACTIVITIES	IMPLEMENTATION ACTIVITIES & KEY PLAYERS RESPONSIBLE	
STRATEGY 1: *Community Tree Program: Enhance Public Trees in Federal EJ Areas* (Street Trees & Municipal Properties)	1. Create Planting Plan for Public Trees (~4,000 in Fed EJ areas) (led by Environmental & Ecological Services firm with input from the community) 2. Tree Benefits & Public Attitudes (led by Program Monitoring and Evaluation Partner - Local University) 3. Develop Tree Protection Ordinance 4. Complete Tree Inventory and Urban Tree Canopy Assessment at 25 Parks' locations 5. Complete Urban Tree Canopy Assessment and Long Range Plan for three Conservation Commission properties	1. Plant & Maintain New Plantings 2. Maintain (trim, weed, etc.) existing trees (if heavy equipment isn't needed) 3. Remove invasive species (if infestation) and reforest 4. Remove hazardous branches and trees; replace with new ones - 3:1 ratio, as conditions allow 5. Establish and run a plant nursery to support replanting efforts	→ UF Community Implementation Partner WPS UF Academy Community Engagement Partner Community Members
		1. Remove hazardous branches and trees; replace with new ones - 3:1 ratio, as conditions allow, when heavy equipment is needed	→ UF Community Implementation Partner's subcontracted arborist for evaluation UF Community Implementation Partner's subcontracted tree company + UF Academy apprentices
STRATEGY 2: *Community Tree Program: Enhance Private Trees on PRIVATE Properties in Federal EJ areas*	1. Create Planting Plan for Private Trees (~3,000 in Fed EJ areas) (led by Environmental & Ecological Services firm with input from the community) 2. Tree Benefits & Public Attitudes (led by Program Monitoring and Evaluation Partner - Local University) 3. Recommended plan for assessing tree health and recommending new species on private properties	1. Plant & Maintain New Plantings 2. Maintain (trim, weed, etc.) existing trees (if heavy equipment is not needed) 3. Remove invasive species (if infestation) 4. Remove hazardous branches and trees; replace with new ones - 3:1 ratio, as conditions allow 5. Establish and run a plant nursery to support replanting efforts	→ UF Community Implementation Partner WPS UF Academy Community Engagement Partner Community Members
		1. Remove hazardous branches and trees; replace with new ones - 3:1 ratio, as conditions allow (when heavy equipment is needed)	→ UF Community Implementation Partner's subcontracted arborist for evaluation UF Community Implementation Partner's subcontracted tree company + UF Academy apprentices
		1. Install and maintain (new/existing) Green Infrastructure projects	→ UF Community Implementation Partner's subcontracted tree company + UF Academy apprentices Community Members
STRATEGY 3: *Plan & Design Green Corridors*	1. Planning & Design 2. Community Engagement		→ UF Steering Taskforce Green Corridor Designers

WORCESTER' URBAN FOREST COMMON GOOD PROJECT - PROJECT TEAM

CITY STAFF

NEW Worcester Public Schools' Urban Forest Academy
Will work collaboratively with the Urban Forest Community Partner; focus on private tree plantings

City's Project Manager/ Grant Administrator
Hired (5-year temp) staff to report to DSR

City's Assistant Project Manager/ Grant Administrator
Hired (5-year temp) staff to report to DSR

Nursery Overseer

Current City Staff (%) for Steering Taskforce, Overseeing Consultants, Budget Office, etc.
(direct and indirect admin)

GRANT SUBRECIPIENTS & THEIR CONTRACTORS/CONSULTANTS

Urban Forest Community Implementation Partner/s

Foresters & Maintenance crew:
plantings & maintenance

Private Contractors:
large/hazardous tree trimming or removal, with a local apprenticeship requirement

Certified Arborist:
Planting plan implementation & private tree removal assessment

Urban Forest Community Engagement Partner

Urban Ecologists
educate the public through engagement & participation in events & plantings

Urban Forest Advocates
(members of the community)

Communication Strategy & Graphic Design Consultant:
support community engagement efforts

Program Monitoring & Evaluation Partner

Local University:
Monitor & evaluate tree benefits, engagement impact, & community attitutes

CITY'CONSULTANTS

Environmental & Ecological Services Firm

Environmental and Ecological Consultant:
tree planting plan; canopy assessments; tree protection ordinance

Landscape Architect:
tree planting plan; canopy assessments; green infrastructure design

Green Corridors Designer

URBAN FOREST STREERING TASKFORCE:

CITY—DSR, DPW&P, DPRS, DTM, DPH

COMMUNITY ADVISORS AND STAKEHOLDERS

OTHER PARTNERS

Congress of the United States

Washington, DC 20510

May 24, 2023

USDA-FS-UCF
The Honorable Randy Moore
Chief of the U.S. Department of Agriculture's Forest Service
U.S. Forest Service
1400 Independence Ave., SW
Washington, D.C. 20250

Dear Chief Moore,

We write to express support for the City of Worcester's application to the United States Department of Agriculture's (USDA) Forest Service Urban & Community Forestry grant program. Worcester's vision is to be home to a healthy urban forest for all, with an equitable distribution of climate-resilient trees, a growing canopy shading heat islands, and cooling corridors that connect our neighborhoods. If awarded this grant, the city will work to foster public investment, public-private partnerships, and robust community involvement to maximize tree plantings and best-practice stewardship of its urban forest and ensure a sustainable and resilient environment for future generations.

Aligning closely with the goals of the Biden Administration's Justice40 Initiative, the grant will focus exclusively on Environmental Justice (EJ) areas in the city. These EJ neighborhoods of Worcester, representing over one-fourth of the city, have been affected over the last several decades by development, the Asian Longhorn Beetle (ALB) infestation, and minimal city funds for tree maintenance and replacement. As a result, residents in many EJ areas experience high health threats from heat, asthma, and localized flooding due to low tree cover. With help from USDA and the Massachusetts Department of Conservation and Recreation, Worcester has replanted thousands of trees lost to ALB and has begun increasing the diversity of its community forest. However, EJ neighborhoods still have significantly less canopy cover than other areas of the city. Consequently, the City's 2023 Heat Risk Assessment found they are at a severe risk from future heat waves and concluded that expanding the city's tree canopy to 50% would significantly reduce public health risks from heat.

With this grant funding, the City will tackle these issues through a multifaceted approach that includes planting 8,000 trees, pruning 20,000 existing young trees, and properly maintaining existing trees. The City will also establish at least one tree nursery and two food forests to

cultivate a healthy, resilient tree ecosystem. Finally, the City will create a plan to maximize resources after the grant funding expires to ensure the program's sustainability and launch an urban forestry academy to train future urban forestry crews.

This proposal aligns well with state and local planning efforts focused on expanding the city's tree community forestry programs and is instrumental in addressing environmental injustice in the city. We respectfully request your full and fair consideration for this application which will provide Worcester with the tools necessary to sustain and create equitable and resilient neighborhoods. Thank you for your attention to this request.

Sincerely,

Elizabeth Warren
United States Senator

Edward Markey
United States Senator

James P. McGovern
Member of Congress

THE GENERAL COURT OF MASSACHUSETTS
STATE HOUSE. BOSTON 02133-1053

May 31, 2023

The Honorable Randy Moore
Chief of the U.S. Department of Agriculture's Forest Service
U.S. Forest Service
1400 Independence Ave., SW
Washington, D.C. 20250

RE: Notice of Funding Opportunity: USDA-FS-2023-UCF-IRA-01 Grants.gov

Dear Chief Moore,

As the City of Worcester General Court Delegation, we write to encourage you to give due consideration to the USDA Forest Service Urban & Community Forestry (IRA) grant application submitted by the City of Worcester. Worcester's envisions a healthy, climate-resilient urban forest that will benefit its entire community, including equitable distribution of trees, enhanced shading in heat islands, and cooling corridors that connect our neighborhoods. We will foster and leverage public investment, public-private partnerships, and community involvement to maximize our rate of tree plantings and ensure best-practice stewardship to provide a sustainable and resilient urban forest for current and future generations.

The IRA grant would closely align with the goals of the Justice40 Initiative and focus exclusively on Environmental Justice (EJ) areas in the city. Worcester's EJ neighborhoods represent over one quart of the City's land area and have been adversely impacted over the last several decades by development, the Asian Longhorn Beetle (ALB) disaster, and insufficient funds for tree maintenance and replacement. As a result, many of these EJ areas suffer from disproportionately low tree cover, and residents face elevated risk of heat-related illness, asthma, and localized flooding. Worcester has replanted thousands of trees lost to ALB and is increasingly diversifying its community forest with the help of USDA and MA DCR. However, the EJ neighborhoods still have significantly less canopy cover than other areas of the city and are at higher risk from future heat waves, as found in the 2023 Heat Risk Assessment, which concluded that expanding the city's tree canopy to 50% would significantly reduce public health risks from heat.

Our grant proposal addresses these issues through a multi-pronged approach with an overarching theme of community-led projects. More specifically, based on a heat threat analysis and USFS, state, and city forest plans, , we expect this initiative to result in 8,000 new trees being planted, 20,000 young trees being pruned and cared for, improved maintenance for existing trees, at least one new tree nursery and two new food forests, a tailored plan to sustain needed resources after the grant period expires, and launching an urban forestry academy to train future urban forestry crews.

The goals of this project also align well with three important initiatives:

- The MA State Forest Action Plan, which lists Worcester as an important focus area for urban forestry work.
- The Ten-Year Urban and Community Forestry Action Plan to increase equitable access to urban tree canopy, broaden community engagement, and improve community resilience.
- The 2023 MA Resilient Lands Initiative, specifically implementing one of its key recommendations of the: to launch a community-led greening initiative to improve community health by reducing urban heat island impacts in an EJ neighborhood.

This plan also acknowledges and addresses a concern repeated by many grassroots advocates across the state that government funding rarely funds the implementation of their grassroots-led programs. Furthermore, the timing of this grant fits well with the recent release of Worcester's draft Urban Forestry Plan based on inventory and assessment work by Davey Resources Group.

For all the above reasons, we respectfully request your full and fair consideration for this application that will provide the City of Worcester with the tools necessary to sustain and create equitable and resilient neighborhoods. Thank you for your attention to this request.

Sincerely,

Robyn Kennedy

Robyn K. Kennedy
State Senator
1st Worcester District

Michael O. Moore
State Senator
2nd Worcester District

Mary S. Keefe
State Representative
15th Worcester District

David H.A. LeBoeuf
State Representative
17th Worcester District

James J. O'Day
State Representative
14th Worcester District

Daniel M. Donahue
State Representative
16th Worcester District

John J. Mahoney
State Representative
13th Worcester District

museum of science and nature

John Odell
Chief of the Department of Sustainability & Resilience
City of Worcester
455 Main Street, Room 108
Worcester, MA 01608

Dear Mr. Odell:

On behalf of the EcoTarium, it is my pleasure to offer this letter of support for the City of Worcester and its application to the US Forest Service (USFS) Inflation Reduction Act grant program.

The Worcester Natural History Society, Inc. (dba EcoTarium) is a longtime partner to the City of Worcester and has collaborated on numerous projects including land conservation, vernal pool documentation, cyanobacteria monitoring of waterways and ponds, community COVID vaccination, and many educational initiatives to benefit students and families in the Worcester Public Schools. Representatives of the EcoTarium have participated in the planning meetings for this grant application and we look forward to the potential to collaborate on this new and exciting project to the benefit of environmental justice designated neighborhoods in Worcester, MA.

The City of Worcester has been a leader in developing and sharing insights into how tree planting programs in underserved neighborhoods can engage those communities from a grassroots, community-led perspective through its Urban Forestry Plan and street-tree census activities. This proposal represents the vitally important next steps that must be taken in partnership with the residents of Worcester's Environmental Justice Communities (EJCs) to address the loss of urban trees, a situation exacerbated by the disastrous Asian Longhorn Beetle infestation which stripped many parts of this community of its tree canopy. Residents in EJCs are four times as likely to experience extreme heat conditions during summer heatwaves, as well as local flooding that impacts residences and businesses. The proposal plans to foster public investment, public-private partnerships, and community engagement to maximize tree planting success and best-practice stewardship.

The proposed goal to plant 8,000 trees, prune and care for 20,000 young trees, maintain mature trees, and create a tree nursery and two food forests, will help address the critical condition of our urban trees, and develop the resources required to maintain the program over the long-term. Furthermore, the goal to launch an urban forestry academy to train future urban forestry crews is a novel and exciting prospect to enhance long-term community engagement and sustain our urban forests. The EcoTarium is pleased to be a partner in the urban forestry academy as it aligns with the mission of the EcoTarium and our teen environmental science education programs.

We wish you every success in this application and look forward to planning and participating in this exciting project to benefit the health and wellbeing of the community.

Sincerely,

Noreen Johnson Smith, MPH
President and CEO

Mass Audubon

United States Forestry Service
1400 Independence Ave SW
Washington, D.C.

May 26, 2023

RE: Letter of Support

To Whom It May Concern:

Mass Audubon is pleased to support the City of Worcester's request for funding from the US Forestry Service (USFS) Inflation Reduction Act. As a longtime partner, we have full confidence in the City of Worcester's capacity to execute this vision and are prepared to lend our team and expertise to this project.

Worcester's vision is to be home to a healthy urban forest for all, with an equitable distribution of climate-resilient trees, a growing canopy shading heat islands, and cooling corridors that connect our neighborhoods. With partners like Mass Audubon, the City of Worcester's Department of Sustainability and Resilience will foster public investment, public-private partnerships, and robust community involvement to maximize tree plantings and best-practice stewardship of our urban forest, to ensure a sustainable and resilient environment for generations to come.

The mission of Mass Audubon is to protect the nature of Massachusetts for people and for wildlife. Mass Audubon protects more than 40,000 acres of land throughout Massachusetts, saving birds and other wildlife, and making nature accessible to all. Our education, advocacy, conservation science, land protection, and urban forestry experts are sought out across the state to support and lead ecological projects as well as community outreach initiatives.

In Worcester, Broad Meadow Brook Conservation Center and Wildlife Sanctuary serves as Mass Audubon's hub in Central Massachusetts. Our 435-acre wildlife sanctuary is partially owned by the City of Worcester and engages more than 17,000 community members each year. As the largest urban wildlife sanctuary in New England, our programs serve people of all ages – from preschoolers and families to students to senior citizens – and promote the natural resources and wildlife found in this urban area. Through extensive collaborations with community organizations and educational institutions, Mass Audubon offers programs on a variety of natural history topics.

Mass Audubon and our Worcester-based team have a long and robust history of collaboration and advocacy with the City of Worcester. Since 1991, we have stewarded and managed City land at Broad Meadow Brook Wildlife Sanctuary, ensuring that all Worcester residents are able to access it for free and providing ecological management of this critical urban wildlife corridor. In recent years, we were a part of the team to pass the strong Green Worcester Plan as well as a member of Urban Master Tree Plan community partner sessions.

We are so grateful that US Forest Service is offering this opportunity to advance tree planting in a most powerful way within urban communities and neighborhoods. I encourage you to favorably consider the City of Worcester's proposal.

Sincerely,

Jennifer M. Madson
Regional Director, Central
Mass Audubon
414 Massasoit Road, Worcester, MA 01604
jmadson@massaudubon.org | 860-670-1015 (cell) | 978-481-7333 (office)

CLARK UNIVERSITY

CHALLENGE CONVENTION.
CHANGE OUR WORLD.

John Odell
Chief, Dept. of Sustainability & Resilience
City of Worcester
455 Main Street, Room 108
Worcester, MA 01608

May 26, 2023

Dear Mr. Odell,

It is a great pleasure to submit this letter in support of the City of Worcester and its application to the US Forest Service (USFS) Inflation Reduction Act grant program. Clark University is committed to conduct evaluation and monitoring activities through the Human-Environment Regional Observatory Program (HERO) and the faculty members who co-direct it in the Graduate School of Geography – Professor Deborah Martin and Professor John Rogan. The HERO program has been in existence for twenty-four years, providing non-profits, municipalities, and state resource management agencies with monitoring evaluation support in the areas of urban forest health assessment, tree planting evaluation, resident participation in tree planting programs, and policy assessment. The HERO program has collaborated with the City of Worcester on numerous projects concerning urban heat island mitigation and stormwater flood prediction, and we look forward to the potential to collaborate on this new and exciting project. The HERO program has been especially effective in gaining key insights into how tree planting programs in underserved communities can engage those communities from a grassroots, participatory perspective.

The proposal is vitally important to the residents of Worcester within Environmental Justice Communities (EJCs). Residents in EJCs are four times as likely to experience extreme heat conditions during summer heatwaves, as well as local flooding that impacts residences and businesses. The proposal plans to foster public investment, public-private partnerships, and community engagement to maximize tree planting success and best-practice stewardship. The goal to plant 8,000 trees, pruning and care for 20,000 young trees, maintenance of mature trees, and the creation of a tree nursery and two food forests, should certainly develop the resources required to maintain the program over the long-term. Additionally, the goal to launch an urban forestry academy to train future urban forestry crews is a novel and exciting prospect of the proposal. Lastly, the timing of the proposal fits well with the recent release of Worcester's draft Urban Forestry Plan based on inventory and assessment work by Davey Resources Group.

We wish you success and look forward to planning and participating in this exciting project.

Sincerely,

Yuko Aoyama
Associate Provost and Dean of Research and Graduate Studies

Sponsored Programs and Research
950 Main Street • Worcester, MA 01610-1477 USA • 508-793-7765 • clarku.edu

New England Botanic Garden
AT TOWER HILL

May 24, 2023

To whom it may concern:

The New England Botanic Garden at Tower Hill (NEBG) enthusiastically supports the City of Worcester in their application for a USDA Forest Service Urban and Community Forestry Program grant. The City of Worcester's vision is to be home to a healthy urban forest for all, with an equitable distribution of climate-resilient trees, a growing canopy shading heat islands, and cooling corridors that connect our neighborhoods.

The City of Worcester has a track record of utilizing community partners such as NEBG to improve the urban canopy. Following the devastation of removing 30,000 urban trees due to an Asian Longhorned Beetle (ALB) pest infestation, the City of Worcester, in collaboration with the USDA has systematically replanted the trees that were lost over the last decade. Our organization helped in the initial replanting efforts and for the past six years, NEBG has worked under contract with the City of Worcester to help with the ongoing maintenance of newly planted trees- pruning and watering new street trees with high school and college-aged interns, as well as educating citizens about the benefits of trees and teaching about trees and environmental justice in Worcester Public Schools.

We have greatly valued the partnership that we have had with the City of Worcester and are committed to the continued goals of improving the City's urban canopy. The City's commitment to creating an equitable urban forest and focusing on environmental justice neighborhoods is inspiring. Working with the newly released Urban Forestry Master Plan and updated street tree inventory as their guides, 8,000 trees will be planted, 20,000 young trees will be cared for, and existing trees will be maintained. They are also committed to establishing a diverse canopy that will not be as susceptible to pest and disease threats. To aid in this, they will establish at least one urban tree nursery to grow their own diverse nursery stock.

The City's proposed work will complement NEBG's own USDA Forest Service Urban and Community Forestry Program grant that will provide similar services not only in the City of Worcester, but throughout Worcester County. As a botanic garden, we have the horticultural expertise to offer the technical skills to help plant, prune, and maintain trees, as well as run a productive tree nursery. We also have extensive experience in educational outreach related to urban forestry, sustainability, and climate resilience that will enable us to offer programs to educate citizens about the benefits of trees, fostering a positive public attitude about the urban forest and a culture of stewardship. NEBG is proud to be a current partner of the City of Worcester and we look forward to expanding our partnership with this grant opportunity.

Sincerely,

Grace C. Elton

Grace Elton
CEO, New England Botanic Garden at Tower Hill
gelton@nebg.org

REGIONAL ENVIRONMENTAL COUNCIL

May 30, 2023

To Whom It May Concern:

I am writing on behalf of the Regional Environmental Council of Central MA (REC) in support of the City of Worcester's application to the US Forest Service (USFS) Inflation Reduction Act grant program. The REC has collaborated with the City of Worcester on numerous projects over the past five decades, including open space preservation, waste management and recycling, childhood lead poisoning prevention, community garden initiatives, helping develop Worcester's first climate action plan and it's "Green Worcester" sustainability and resistance strategic plan, and helping create the "Worcester Tree Initiative" in response to the Asian Long Horned Beetle Infestation in 2009.

The REC is a 51-year-old community-based environmental justice and food justice nonprofit organization in the city of Worcester. If the proposal is successful, we look forward to collaborating on this new and exciting project. We especially value the opportunity for underserved communities and environmental justice neighborhoods to benefit from this proposed effort, and we will lend our support to helping ensure that tree planting programs in underserved communities effectively engage those communities.

The proposal is vitally important to the residents of Worcester within Environmental Justice Communities (EJCs). Residents in EJCs are four times as likely to experience extreme heat conditions during summer heatwaves, as well as local flooding that impacts residences and businesses. The proposal plans to foster public investment, public-private partnerships, and community engagement to maximize tree planting success and best-practice stewardship. We are supportive of the project goals: to plant 8,000 trees, prune and care for 20,000 young trees, maintain mature trees, create a tree nursery and two food forests, and create an urban forestry academy to train future urban forestry crews. We believe these outcomes will be important in improving our community's capacity to sustain the tree planting program beyond the funding period. The timing of the proposal fits well with the recent release of Worcester's draft Urban Forestry Plan.

We wish you success and look forward to planning and participating in this exciting project. Please feel free to contact me with any questions at 508-799-9139 or director@recworcester.org.

Sincerely,

Steven Fischer
Executive Director

Main South Community Development Corporation
875 Main Street
Worcester, Massachusetts 01610
(508) 752-6181 / FAX (508) 797-4514

J. Stephen Teasdale, Executive Director
Hilda Ramirez, President

May 31, 2023

Randy Moore
Chief, US Forest Service
1400 Independence Avenue, SW
Washington, D.C. 20250-0003

Dear Mr. Moore,

On behalf of the Main South CDC (MSCDC), I write to express our support for the City of Worcester to receive funding through the US Forest Service's (USFS) Inflation Reduction Act grant program. With over 35 years of experience working with the Main South neighborhood of Worcester, we are acutely aware of the environmental justice issues affecting our community. Main South census tracts represent multiple Environmental Justice (EJ) populations as defined by the Commonwealth of Massachusetts through minority, low-income, and English isolation status. These EJ communities experience disproportionate adverse effects of extreme weather and climate change, for example more dangerous heat conditions, local flooding, and destructive invasive species activity such as the Asian Longhorn Beetle. The City's initiative offers a unique opportunity to make our community greener and more climate resilient — and, importantly, to address the disparities in environmental justice within our city.

MSCDC is excited to see the goals of the City of Worcester's proposal be realized through this Forest Service grant. Funding will support a comprehensive plan to expand and maintain the city's urban tree canopy. In addition to the maintenance of existing trees in the area, this grant would allow Worcester to plant 8,000 new trees; prune and attend to 20,000 young trees; and establish a tree nursery, two food forests, and a local urban forestry academy. The City's 2023 Heat Risk Assessment, carried out by the Urban Climate Lab, concluded that expanding Worcester's tree canopy to 50% would significantly mitigate the public health risks of heat. This plan would bring together community members, institutions, and stakeholders to create lasting grassroots partnerships that benefit the residents and land of our vibrant community.

We look forward to future collaboration with the City of Worcester on this and future urban forestry initiatives. Thank you for your consideration.

Sincerely,

Steve Teasdale
Executive Director, Main South CDC
875 Main Street, Worcester, MA 01610

Elizabeth Fleming
Worcester Native Plant Initiative
% 27 Maplewood Road
Worcester, MA. 01602

To Whom It May Concern,

I am writing in support of the City of Worcester's application to the USFS for a grant funded by the Inflation Reduction Act. There is no greater need during this time of hastening climate change than the planting of trees to reduce the heat island effect found in a large percentage of the city as well as to alleviate some of the severe effects of flooding during storms in these same areas.

As one of the organizers of the Worcester Native Plant Initiative, a grassroots volunteer organization that came into existence 18 months ago and now has close to 1,000 members, I can attest to the fact that citizens in Worcester are ready to roll up their sleeves and support the work that would be funded by this grant. Our group has largely focused our plantings on the heat island areas of the city and have seen the significant and immediate impact we have had on the environment as well as the profound positive impact these plantings have had on the residents of the neighborhoods. We are committed, as is the City of Worcester, to addressing the disparities in tree cover in our city. We hope to continue this work and be able to have an even greater impact with this grant.

Thank you for your consideration.

Sincerely,
Elizabeth Fleming
Worcester Native Plant Initiative

The City of WORCESTER

Department of Public Works & Parks
Parks, Recreation & Cemetery Division
Forestry Operations
50 Officer Manny Familia Way, Worcester, MA 01605
P | 508-799-1190 F | 508-799-1293
Worcestertrees@worcesterma.gov

ASSISTANT COMMISSIONER'S REPORT:

1. General:

- Urban Forestry Master Plan Review
  - The second draft of the Urban Forestry Master Plan which can be found here: Trees in the City - Right Tree, Right Place | City of Worcester, MA (worcesterma.gov)
  - The Urban and Community Forestry (UCF) Inflation Reduction Act Notice of Funding Opportunity which can be found here: City of Worcester application attached Urban Forests | US Forest Service (usda.gov)
- DCR Informational Flyers – Update
- USDA Tree Owners' Manual – Update
- DCR Urban & Community Forestry Grant Application - Update
- Door Hanger - NA
- Tree Commission attending neighborhood meetings – Update
  - Neighborhood Response Team | City of Worcester, MA (worcesterma.gov)
- Tree replacement policy - NA
  - Request Only
  - Mandated replacement
- Neighborhood Based Urban Heat Risk Assessment - NA
- Worcester Now | Next online survey - NA
- Green Worcester Advisory Committee -NA
- Planting –
  - Spring 2024 Planting - NA
- Customer Service Update
  - Customer Service Contact Information 508-929-1300 &/or 311
- Street Resurfacing Opportunities & Challenges – NA
- Zoning Ordinance Discussion - NA
- Worcester Ordinance Relative to the Protection of Public Trees - NA
- Partnerships –
  - New England Botanical Garden @ Tower Hill - NA
- Grant Applications –
  - Commonwealth of Massachusetts Grant
- Economic Development Initiatives –
  - NA
- Forestry Vandalism & Graffiti –
  - NA
- Donations –
  - NA
- Pests –
  - ALB (Asian Longhorned Beetle) - NA
  - EAB (Emerald Ash Borer) - NA
  - Spotted Lanternfly - NA
  - Elm Zigzag Sawfly – NA

- Forestry Operations –
    - Tree City USA – NA
    - Arbor Day –
        - April 26, 2024
        - April 27, 2024 – Festival
- Budget – Operational & Capital – NA
    - Parks, Recreation & Cemetery Division – NA
    - Capital Improvement Program – NA
    - City Five Point Financial Plan – NA
- Misc.

The City of WORCESTER

Department of Public Works & Parks
Parks, Recreation & Cemetery Division
Forestry Operations
50 Officer Manny Familia Way, Worcester, MA 01605
P | 508-799-1190 F | 508-799-1293
Worcestertrees@worcesterma.gov

URBAN FORESTRY TREE COMMISSION MEETING

Wednesday November 1, 2023 – 6:00 P.M.

Parks, Recreation & Cemetery Administrative Office

Meeting Room A

50 Officer Manny Familia Way Worcester, MA 01605

Or

Virtual with Teams

ASSISTANT COMMISSIONER'S REPORT

GENERAL

CARING FOR NEW TREES

dcr
Massachusetts

Newly planted trees need care, especially in the first two to three years after planting

Watering

New trees need lots of water. Watering with a garden hose at low volume or utilizing a soaker hose is ideal since it allows water to slowly infiltrate the soil. Less frequent, but thorough watering is more beneficial to root development than frequent shallow watering. Tree roots need oxygen. Over-watering is just as problematic as under-watering. Test the soil moisture by using a trowel to dig two inches into the soil. Use your fingers to feel the soil in the small trench you created. If it is dry, it is time to water. You can use a hose at the base of the tree, with water on low or purchase watering bags that you fill for a slow soaking.

It is hard to say exactly how much to water your tree, but 15 gallons once per week is a good starting place for trees that are approximately 1.5 inches in caliper. If your tree is larger than that, or if the weather is hot and dry, increase the amount of water or water twice a week. Water your tree for the first two years after planting. Begin watering when the ground thaws and until the ground freezes.

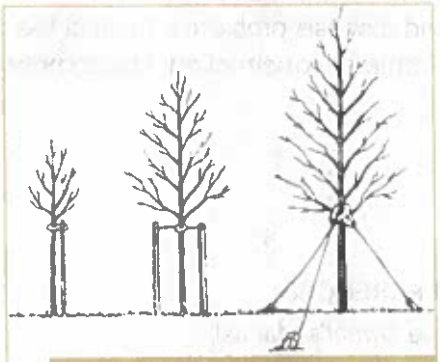
What about lawn sprinklers and rainfall?
Lawn sprinklers do not provide the deep watering that trees need. Natural rainfall often isn't enough.

Slow watering with a hose

A watering bag placed around its own stake. Bags can also be placed around the trunk, but be sure to monitor the trunk for moisture and insect problems.

Tree Stabilization

Tree stabilization may be necessary in windy areas or for trees without an adequate root system. Tree stabilization may consist of stakes, guys, and other materials. Here we describe a method using stakes, but there are a variety of systems out there, with varying costs and amounts of labor required. If you are using stakes, use 2 to 3 stakes, placed just inside the edge of the mulch ring and wide nylon or canvas straps, tied loosely around the trunk. For an unstable root ball, use 1-3 stakes attached low on the trunk. Remove all stakes after 1 year.



Staking techniques, ISA, bugwood.org #5377056

Trunk Guards

If winter damage to the trunk by rodents or rabbits is a concern, install a trunk guard made of plastic tubing, hardware cloth, or wire fencing. Allow 1-4 inches of space around the trunk and ensure it is tall enough to protect in snow. Remove in spring.

Mulching

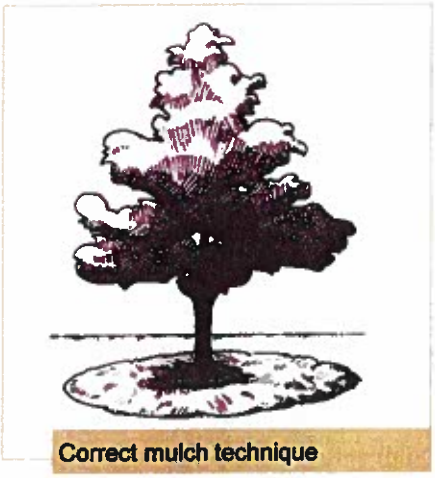
Mulch is any woody or herbaceous material spread over the root zone of a plant. Mulch can be aged wood chips, shredded bark, pine needles, composted leaves, composted grass clippings, and other organic material.

Why mulch?

Mulch reduces the shortcomings of urban sites by replicating natural processes of the forest. Mulch increases available nutrients and water retention, buffers soil temperatures, and provides root protection. Mulch also reduces root-zone erosion potential, soil compaction, weed growth, and prevents lawnmower, string trimmer, and other machinery damage.

How to use mulch.

Place mulch in a ring at least 3 inches away from the tree trunk, at a depth of 2-4 inches, and ideally out to the tree crown. When in doubt use the 3-3-3 method, mulching 3 inches high, 3 inches away from the trunk, in a 3-foot ring. Occasionally, you may need to pull mulch away from the trunk of the tree as the mulch settles around the trunk. Raking away old mulch before applying new mulch helps maintain correct mulch depth.



Correct mulch technique

This poor practice is commonly seen in the landscape and is harmful to trees.

Fertilizing

New trees typically do not require fertilization. Only use fertilizer if a soil test indicates a deficiency. For information on testing your soil, contact the UMass Soil and Plant Nutrient Testing Lab, 413-545-2311 or https://soiltest.umass.edu/. Improper use of fertilizer can damage your tree and the environment.

Pruning and Periodic Inspection

Prune only dead and broken branches at planting. After 2 years, you may begin structural pruning. Your tree will likely require pruning every 1-2 years to establish and maintain proper structure. If your tree is within 10 feet of utility lines, or you need to use a ladder or chainsaw, contact an arborist. For guidance on tools, techniques, and safety, see The Tree Owner's Manual, pages 18-23. Periodically, inspect the tree for insect and disease problems. Protect the tree from lawn mowers and string trimmers, construction, soil compaction, and road salt.

Bureau of Forestry

Urban & Community Forestry Program

Massachusetts Department of Conservation and Recreation

251 Causeway Street, Suite 600
Boston, MA 02114

www.mass.gov/dcr/ucf

In Partnership with the Massachusetts Tree Wardens' & Foresters' Association, this factsheet series is funded in part by a grant from the USDA Forest Service.

dcr MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION

REFERENCES:

Tree Owner's Manual, www.treeownersmanual.info

Tree Planting Best Management Practices. 2014. 2nd ed. Champaign, IL: International Society of Arboriculture

Arbor Day Foundation Videos www.arborday.org/trees/video-library.cfm

New Tree Planting. 2011. International Society of Arboriculture, www.treesaregood.com/treecare/resources/new_treeplanting.pdf

GREENING THE GATEWAY CITIES

dcr
Massachusetts

Planting Trees for Energy and Environmental Justice

The Massachusetts Greening the Gateway Cities Program (GGCP) is an environmental and energy efficiency program designed to reduce household heating and cooling energy use by increasing tree canopy cover in urban residential areas in the state's Gateway Cities.

GGCP is a partnership between the Executive Office of Energy and Environmental Affairs (EEA), the Department of Conservation and Recreation (DCR) Urban & Community Forestry Program, the Department of Energy Resources (DOER), the US Forest Service, and the Department of Housing and Community Development (DHCD), along with Gateway Cities and local grassroots organizations. The program plants trees (ranging from 6ft to 10ft tall) with a goal of covering 5% of the target neighborhoods in new tree canopy cover. Trees are planted by DCR Bureau of Forestry and Urban & Community Forestry crews hired from local communities.

Chelsea

GGCP is based on current research, which includes on-the-ground tree and energy measurements in Worcester and other northern climate cities. These studies show that tree canopy brings the greatest benefits when established over an entire neighborhood area, by lowering wind speeds and reducing summertime air temperature, in addition to the benefits of direct shading. All households in a neighborhood benefit, not just the ones with trees directly adjacent.


DCR forester with a homeowner

This program targets the parts of Gateway Cities that have lower tree canopy, older housing stock, higher wind speeds, and a larger renter population. In addition, plantings are concentrated in Environmental Justice neighborhoods, to benefit those most in need. Within planted areas temperature, energy use, and other information is tracked to document the energy savings new trees provide residents over time.

Neighborhood Level Canopy Cover is Important

Concentrating tree plantings in target areas maximizes energy savings. Trees near a home directly shade structures, significantly lowering surface temperatures, while trees up to 1,500 feet away from a home still provide a benefit. Program goals are to plant 5 trees per acre, which will reduce the Urban Heat Island effect, and decrease summer air temperatures in city neighborhoods through shading and increased transpiration. Additionally, in the winter months, mature tree trunks and branches help to randomize wind patterns and decrease heat loss by air infiltration in poorly insulated homes.

In high-density urban neighborhoods, planting an average of 5 trees per acre (roughly one third of a block) will provide benefits to 15-25 households, depending on building density. Most trees are planted in yards where they grow quickly with the care provided by residents. Planting this number of trees will increase canopy by an estimated 1% in eight years, and 5% in 30 years. Return on investment is realized as soon as 15 years, after which additional energy savings are realized for the life of the trees.

Benefits Beyond Energy Savings

Large-scale urban plantings provide local employment and economic activity. Tree planting is the only energy efficiency program where almost all of the investments stay in the local economy by hiring local planting crews and growing trees at local nurseries. In addition, healthy urban forest ecosystems improve the water quality of our rivers and bays, the air we breathe, the stability of our neighborhoods, and our sense of community and individual pride.

How Do I Get Involved?

To see if you currently live in one of our active Gateway City planting zones, contact your local GGCP office. If eligible, a DCR forester will come to your property and help determine the best location and species of tree for energy efficiency. Trees are provided free of charge and DCR crews will plant the trees for you. To receive a tree, you must agree to a two year watering commitment, to ensure the tree's survival.

Planting Seasons

Trees are typically planted from April-June in the spring season and September-November in the fall season. Foresters conduct site visits year-round. Call your local GGCP office to schedule an appointment. Leave your name, address (including city) and telephone number, and a forester will respond to schedule a visit.

Bureau of Forestry

Urban & Community Forestry Program

Massachusetts Department of Conservation and Recreation

251 Causeway Street, Suite 600
Boston, MA 02114

www.mass.gov/dcr/ucf

In Partnership with the Massachusetts Tree Wardens' & Foresters' Association, this factsheet series is funded in part by a grant from the USDA Forest Service.

Additional Information: The GGCP is funded by EEA and DOER. GGCP is administered by the DCR Bureau of Forestry. Please contact DCR's Urban and Community Forestry Program with any questions or comments concerning the Greening the Gateway Cities Program at 617-626-1250.

dcr MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION

Contact Your Local GGCP Office

The Greening the Gateway Cities Program is currently planting in the following locations:

Brockton
617-626-1503

Chelsea
617-626-1459

Chicopee
617-626-1473

Everett
617-626-1459

Fall River
617-626-1571

Fitchburg
617-626-1514

Haverhill
617-626-1516

Holyoke
617-626-1473

Leominster
617-626-1514

Lowell
617-626-1516

Lynn
617-626-1502

Malden
617-626-1456

New Bedford
617-626-1571

Quincy
617-626-1570

Revere
617-626-1459

Salem
617-626-1502

Taunton
617-626-1503

Westfield
617-626-1473

Worcester
617-626-1570

Pittsfield
617-626-1515

Additional GGCP trees are being planted by contractors working in the cities of:

Lawrence
978-974-0770 Ext 7016

Springfield
413-736-3111

GROWING YOUR COMMUNITY FOREST

dcr Massachusetts

Developing a community tree planting program

Look out your window. Drive through your town. Can you find large, beautiful trees? Many Massachusetts communities are blessed to have many older, stately community trees that add character to our communities and improve the environment. Most of those trees are there because people planted them.

Now imagine what your town would look like without any of these trees! We owe a debt of gratitude for these pillars of green in our communities to the hard work, vision, and foresight of those who came before us. They recognized the social, economic, and environmental benefits of community trees and forests and made sure that they left this valuable legacy to future generations. Indeed, Massachusetts is thought to have held the first recorded public shade tree planting in the western hemisphere when, in 1646, all the residents of Boston Town gathered to plant a double row of American elms along the peninsula that connected Boston to the mainland.

Now it is your turn to leave the same legacy to our future and improve our community forests through tree planting.

Why Develop a Community Tree Planting Program?

- Trees help clean the air and water.
- Trees provide shade and reduce the urban heat island effect.
- Community plantings can bring neighbors and residents together and strengthen communities.
- Trees beautify our communities.
- Most communities remove more public trees than they plant.
- Tight municipal budgets have resulted in fewer trees planted in recent years.
- We owe it to the future.

Types of Community Tree Planting Programs

Municipal Planting Models

The most common type of planting program is one that is municipally sponsored and organized and is implemented by paid town forestry staff. In this type of program, municipal forestry staff (or contractors) will inspect locations for planting, select a species, plant a tree when resources allow, and maintain that tree. Often these types of programs are primarily responsive to requests for trees from residents. Sometimes, public officials or citizen tree boards will identify and target areas for planting.

Advantages: Professional forestry staff oversee the entire tree planting operation. They can ensure that the right tree is planted in the right place, that trees are planted properly and that they get appropriate maintenance. This type of program also requires relatively little community outreach.

Disadvantages: The disadvantages are that the town bears all the costs of planting and maintenance, including labor, and that it encourages little community involvement.

Adopt-A-Tree Models

These types of planting programs are joint partnerships between municipal forestry staff (or a municipality and a local non-profit) and citizens. For example, the town may advertise the availability of free or shared-cost trees to residents interested in planting and caring for street trees. Interested residents sign-up and fill out a site inspection sheet or have the site inspected by forestry personnel. These residents then come to a central location to receive training in tree planting and care and receive an appropriate species to plant. Residents commit to maintaining these trees.

Advantages: Costs for planting and maintaining the trees are shared between municipality and citizens. Forestry personnel can still ensure that the right trees are planted in the right place. These programs train residents in tree care and engage residents in community forestry.

Disadvantages: Forestry staff must give up some control over where, whether, and how the trees are planted and maintained. With this type of program, it is also difficult (but still possible) to target certain areas that may be in more need of planting. It may be challenging to equitably distribute trees this way. Communities should monitor distribution and assess for equity.

Organized Community Planting Models

A municipality, tree board, or non-profit group organizes neighborhood residents to complete a neighborhood tree planting. Forestry staff inspects the sites and recommends species. The forestry staff, tree board, or non-profit group provides the trees, on-site training, and supervision to community volunteers on the planting day. Residents commit to caring for the trees.

Advantages: Municipalities, non-profit groups, and citizens share all costs of tree planting and maintenance. Professional staff maintains control over species selection and provides supervision at the planting to ensure correct planting procedures. Neighborhood plantings of this type can be targeted to areas of need and bring residents together, strengthening the sense of community and positive achievement.

Disadvantages: This type of program requires fairly extensive community outreach and organization up front and during plantings.

Holyoke

Bureau of Forestry

Urban & Community Forestry Program

Massachusetts Department of Conservation and Recreation

251 Causeway Street, Suite 600
Boston, MA 02114

www.mass.gov/dcr/ucf

In Partnership with the Massachusetts Tree Wardens' & Foresters' Association, this factsheet series is funded in part by a grant from the USDA Forest Service.

INVESTING IN THE URBAN AND COMMUNITY FOREST

dcr Massachusetts

Trees are valuable investments in our communities

Usually, as town officials, we think about our municipal trees primarily in terms of what they cost. Yet, when we invest in stocks or funds, how many of us think of these assets only in terms of the fees, rather than their total portfolio value? When we consider new fire trucks or municipal buildings, we weigh both the costs and the benefits. It is time we do the same for our community trees and forests.

Trees are one of the most valuable investments we can make in our communities. They provide varied benefits and, as trees grow, their benefits multiply. And yet, trees rarely get credit for the benefits they provide, because these benefits rarely show up in our tree budget.

It is said that education is a critical investment, because a good education will yield tenfold down the road. It is the same with trees. What's more, trees don't move to the sunbelt for a better job when they grow up.

Reading

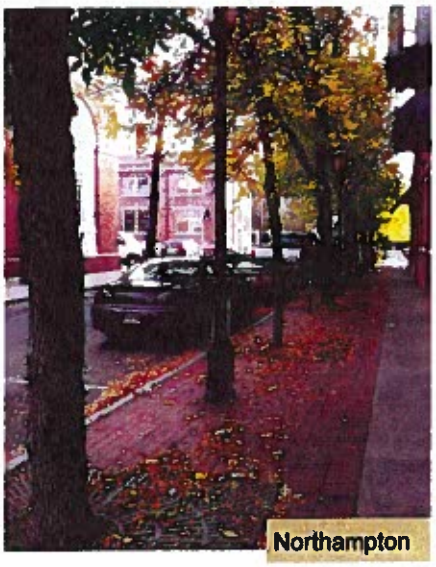
Amherst

What Are These Benefits of the Municipal Forest? And Where Do They Show Up in the Town Budget?

- **Trees contribute to local tourism, a more stable economy**, and **higher tax revenues**.
- Over 3 million people travel to Massachusetts each fall, just to see fall foliage, generating $3.5 billion to our economy.
- Shoppers would **rather shop on tree-lined streets** and commercial areas.
- **A beautiful, resilient municipal forest can raise property values,** property taxes, and transfer taxes.
- People would rather buy a house in a community with beautiful tree-lined streets and a tree-lined downtown, than in one without trees. Research has shown that roughly 7%-15% of property value is attributable to the trees and landscaping, and that means **7%-15% of local taxes**.
- **The municipal forest contributes to tree and forestry-related businesses,** including sugaring, nursery, landscaping, and tree work.
- **Trees reduce stormwater management and drinking water costs.**
- Trees in a community can **reduce runoff** by 20%, and peak storm water flow by 30%, thus significantly reducing the risks and costs of flooding.
- Trees also contribute significantly to **cleaner water** and lower drinking water costs.
- **Trees help clean the air,** reducing ozone, sulfur dioxide, nitrogen dioxide, and carbon dioxide.
- **Residents collect and grow food** from trees and community gardens.
- **Trees provide beauty,** offer serenity, raise the quality of life for our citizens, and help build community.

Some Aspects of a Strong Municipal Forestry Program

Consider investing in the environmental, economic, and social future of your community by strengthening your municipal tree and forest program in the following areas.


Northampton

Let us help you:

Understand and Plan for your Trees and Forests:

- Complete a public tree inventory, survey, or assessment.
- Set clear and tangible objectives for your program.
- Lay out policies to protect and manage the municipal forest, in a way that reduces costs and increases the investment.
- Move your community away from "reactive" urban forest management toward a more "pro-active" approach.

Invest:

- Put local fiscal resources into good planning, management, planting, and maintenance of the municipal forest. Invest between $2 and $5 per capita.

Encourage Citizen Involvement:

- Establish a citizen tree board or tree committee.
- Involve citizen volunteers in a tree inventory or survey.
- Create a volunteer planting and watering program.

Institute Staff and Citizen Training:

- Train your staff and citizens to be good stewards of your community forest.

Become a Tree City USA:

- Whether you are a town or city, seek recognition as a Tree City USA community and garner public attention and national recognition for your commitment to community trees and forests.
- Already a Tree City USA? Take it to the next level with a Tree City USA Growth Award or become accredited with the Society of Municipal Arborists' Accreditation Program.

First Steps You Can Take to Improve Your Municipal Forestry Program

1. Set objectives. Bring together your Tree Warden, town leaders, active citizens, and forestry professionals to brainstorm initial objectives and actions to improve your program.
2. Form a tree board or committee.
3. Contact DCR's Urban & Community Forestry Program for assistance.

Bureau of Forestry

Urban & Community Forestry Program

Massachusetts Department of Conservation and Recreation

251 Causeway Street, Suite 600
Boston, MA 02114

www.mass.gov/dcr/ucf

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dcr MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION

PROTECTING TREES DURING CONSTRUCTION AND ROAD WORK

dcr Massachusetts

Community trees are a vital public utility

Trees are an important part of a community's infrastructure that can be damaged during municipal construction and maintenance activities, leading to hazardous conditions and increased costs. Tree wardens and public works staff can work together to protect trees and minimize costs to the community.

Amherst

Roadside community trees are a vital public utility.

Just as roads perform a necessary transportation function, wires conduct electricity, and pipes move water, roadside trees provide a host of community benefits. Community trees help reduce stormwater flows and mitigate flooding, filter the air, reduce heating and cooling costs, contribute to property values, add to community character, and beautify the landscape — strengthening the social and economic vitality of our towns and cities.

Community trees are under the control of the tree warden.

Under Massachusetts General Law, Chapter 87:

- All trees within the public way or on the boundaries thereof are defined as public shade trees.
- The tree warden is responsible for the care, control, protection, and maintenance of all public shade trees, and shall enforce the provisions of law for protecting these trees.
- The tree warden may make regulations for the care and preservation of public shade trees and establish fines.
- No other person may plant, trim, cut, or remove a public shade tree without permission of the tree warden. *This includes the cutting of roots during construction.*
- **No person, including the tree warden, may remove any healthy tree, greater than one-and-one-half inches in diameter, without a public hearing.**

The importance of roots and bark

Roots and bark are two vital organs for trees. Roots take up water, oxygen, nutrients, and provide stability. Bark transports water, food, and nutrients to the rest of the tree. If these are damaged, a tree will decline and may die.

- Most tree roots are in the top two feet of soil.
- A large portion of absorbing roots are outside the "dripline" of the tree.
- The inner bark serves as part of the vascular system for the tree.
- Roots are rarely observed growing under existing paved roads.

Some suggested guidelines for protecting trees

Prior to construction or road improvement activities:

- Be involved early. The tree warden should have a process for being informed of upcoming construction activities early in the planning stages.
- The tree warden and public works staff should meet on site to discuss the type of work to be completed and collaboratively develop strategies for protecting desirable trees and groupings of trees.

PROTECTING TREES DURING CONSTRUCTION

Protect roots:

- Ideally, steps should be taken to protect the "critical root zones" of desirable trees.
- The radius of the "critical root zone" is determined by multiplying the diameter of a tree in inches, by feet. In other words, a 10-inch diameter tree will have a 10-foot radius "critical root zone." Do not just protect to the "dripline" of the tree.
- Roots are rarely observed to travel under existing paved roads.
- The "critical root zone" should be protected by placing hard fencing around the zone. Snow fencing is often moved.
- Within this protected zone, there should be no activity and no storage of vehicles, equipment, and supplies. These activities cause soil compaction.
- Avoid any kind of trenching or soil disturbance close to the trunk of the tree.
- It may not always make sense to protect the full "critical root zone," especially for roadside trees. In these cases, the tree warden and highway staff should work together to establish a "zone of tree protection" that makes sense.

Protect the bark:

- If the "critical root zone" is protected, then the bark should be protected. However, sometimes bark still gets damaged during construction and maintenance activities.
- Work with staff and contractors to be sure everyone understands the importance of bark and the need to protect bark from nicks, scrapes, and gouges.
- Fences and well-defined tree protection zones can help protect bark.
- You may want to additionally mark or flag trees that could be in danger of injury from equipment, including trees that may be damaged during routine snow removal.

Protect against changes in grade:

- Changes in grade can be as damaging to tree roots as cutting, trenching, or soil compaction, and may eventually lead to tree decline and death.
- Make sure that the grade is not changed within the identified tree protection zone.
- You may want to inspect and restore changes in grade that result from normal road maintenance activities, such as snow removal and road re-grading.

Amherst

ADDITIONAL RESOURCES:

Fite, Kelby and E. Thomas Smiley. 2016. Best Management Practices - Managing Trees During Construction. **2nd ed. ISA.**

Penn State Extension. 2017. A Guide to Preserving Trees in Development Projects.

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dcr MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION

SELECTING TREES FOR YOUR URBAN AND COMMUNITY FOREST

dcr Massachusetts

Advice and ideas for small, medium, and large trees in your community

Trees and Community Character

Trees say so much about the character of a community. The choices we make in selecting trees for public landscapes and streetscapes will determine the nuances of that character. Appropriate tree choices can also minimize future maintenance needs and increase the likelihood that trees will reach their mature potential.

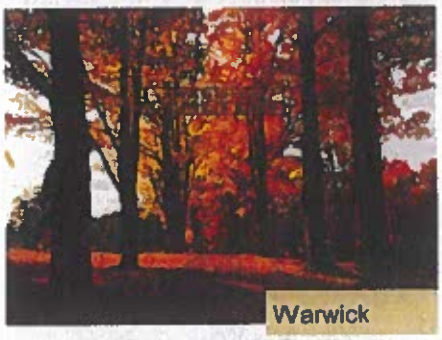
Plant the Right Tree in the Right Place!

This is the most important concept to understand whenever you are considering planting trees. Every tree has certain needs and characteristics (mature size, growth habit, light requirements, soil needs, etc.), and every planting site has characteristics (growing space, obstructions, soils, light patterns, topography, etc.). Before planting any tree, you should do your best to make sure the tree is compatible with the site. Consider the size of the tree at maturity. "Tougher" trees should be matched to less hospitable sites. Large, native, and less abundant species should be used to diversify the urban forest. Trees native to Massachusetts provide benefits to insects and wildlife that non-native trees may not. They also provide a sense of place. Plant native trees when and where possible, but always consider site characteristics and species diversity. For example, red maple is native but is overplanted in many communities. Consider other species if it is overused in your community. Visit a local arboretum to see a variety of trees at their mature sizes. You should also visit your local nursery and hand-pick the best trees for your community.

Get to Know the Nuances of Your Community Forest

Get to know how trees grow in your community by observing them over different seasons. Make note of attractive mature specimens thriving in town or nearby. Communities should consider developing their own list of recommended streetscape trees based on the needs and character of the community, the existing environmental conditions, and the capacity for maintenance. A tree inventory or survey can help you identify what currently exists in your community forest and help guide species selection.

Use the species list on this factsheet as a starting point. Consult the references listed, or others, to find out more about the trees. Finally, browse local nursery catalogs to determine availability and visit them early to find the very best tree for your community.



Warwick

ADDITIONAL RESOURCES:

Dirr, Michael and Keith Warren. *The Tree Book: Superior Selections or Landscapes, Streetscapes, and Gardens*. Timber Press, 2019.

UConn Plant Database, www.hort.uconn.edu/plants/.

i-Tree Species, https://spespecies.itreetools.org/.

Bureau of Forestry

Urban & Community Forestry Program

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Some Suggested Trees for Massachusetts

Large Trees:

Consider these only in areas with adequate rooting space and without any overhead wires or other obstructions.

- **Red maple** *Acer rubrum*
- **Sugar maple** *Acer saccharum*
- **Red horsechestnut** *Aesculus x carnea*
- **River birch** *Betula nigra*
- **Hackberry** *Celtis occidentalis*
- **Katsura** *Cercidiphylum japonicum*
- **Turkish filbert** *Corylus colurna*
- **Ginkgo (male only)** *Ginkgo biloba*
- **Honeylocust** *Gleditsia triacanthos var. inermis (thornless)*
- **Kentucky Coffeetree** *Gymnocladus dioicus*
- **Sweetgum** *Liquidambar styraciflua*
- **Tulip tree** *Liriodendron tulipifera*
- **Cucumbertree** *Magnolia acuminata*
- **Dawn redwood** *Metasequoia glyptostroboides*
- **Black gum** *Nyssa sylvatica*
- **London planetree** *Plantanus x acerifolia*
- **Swamp white oak** *Quercus bicolor*
- **Scarlet oak** *Quercus coccinea*
- **Pin oak** *Quercus palustris*
- **Red oak** *Quercus rubra*
- **English oak** *Quercus robur*
- **Japanese pagoda tree** *Styphnolobium japonicum*
- **Korean mountain ash** *Sorbus alnifolia*
- **Bald cypress** Taxodium distichum
- **Basswood** Tilia americana
- **Silver linden** Tilia tomentosa
- **Little-leaf linden** Tilia cordata
- **American elm** Ulmus americana
- **American elm & hybrid elm cultivars**

KEY:

- Fruitless cultivars available
- Short longevity
- Native to Massachusetts
- Hardy in stressed sites
- Native to eastern U.S. (though not MA)

Medium Trees:

Plant near power lines or other obstructions WITH CAUTION

- **Amur maackia** *Maackia amurensis*
- **American hornbeam** *Carpinus caroliniana*
- **Yellowwood Cladastris** *kentuckea (syn. C. lutea)*
- **American hophornbeam** *Ostrya virginiana*
- **Accolade cherry** *Prunus sargentii 'Accolade'*
- **Sargent cherry** *Prunus sargentii*
- **Kwanzan cherry** *Prunus serrulata 'Kwanzan'*
- **Higan cherry** *Prunus subhirtella*

Small Trees:

Appropriate for planting near power lines or in small spaces

- **Hedge maple** *Acer campestre*
- **Serviceberry** *Amelanchier sp.*
- **Eastern redbud** *Cercis canadensis*
- **Kousa dogwood** *Cornus kousa*
- **Cornelian cherry** *Cornus mas*
- **Washington hawthorn** *Crataegus phaenopyrum*
- **Crabapple** *Malus sp.*
- **Sweet bay magnolia** *Magnolia virginiana*
- **Canada Red Select Chokecherry** *Prunus virginiana 'Schubert'*

Park Trees:

For areas with ample space away from pedestrian and motorized traffic

- **Paperbark maple** *Acer griseum*
- **Horsechestnut** *Aesculus hippocastanum*
- **Shagbark hickory** *Carya ovata*
- **Chinese chestnut** *Castanea mollissima*
- **American beech** *Fagus grandifolia*
- **Carolina silverbell** *Halesia tetraptera (syn. H. carolina)*
- **Butternut** *Juglans cinerea*
- **Black walnut** *Juglans nigra*
- **Eastern white pine** *Pinus strobus*
- **Japanese black pine** *Pinus thunbergii*
- **American sycamore** *Platanus occidentalis*
- **White oak** *Quercus alba*
- **Bur oak** *Quercus macrocarpa*
- **Japanese stewartia** *Stewartia pseudocamellia*

Invasive Trees

(DO NOT PLANT)

Illegal to import, propagate, or sell in Massachusetts. (Authorized under General Laws Chapter 128)

- **Norway maple** *Acer platanoides*
- **Sycamore maple** *Acer pseudoplatanus*
- **Tree of heaven** *Ailanthus altissima*
- **Amur corktree** *Phellodendron amurense*
- **Black locust** *Robinia pseudoacacia*

Trees that have shown invasive tendencies: Plant with caution. Not recommended for planting where they may spread into natural areas

- **Amur maple** *Acer ginnala*
- **Goldenraintree** *Koelreuteria paniculata*
- **Japanese tree lilac** *Syringa reticulata*

SETBACK TREE PLANTINGS

dcr Massachusetts

One Tool for Improving Management of Your Urban and Community Forest

What is setback planting?

Setback planting refers to the practice of planting public trees, for the common good, beyond the public right-of-way on private property.


Greenfield

What laws govern setback planting, and are setback trees "public shade trees?"

Massachusetts General Law (MGL) Chapter 87, Section 7, specifically allows towns and cities to plant trees within 20 feet of the public right-of-way, provided that written permission from the adjoining property owner is obtained first. MGL. Chapter 87, Section 1 states that trees planted under this provision are defined as "public shade trees" and thus protected by all sections of MGL Chapter 87.

Why consider setback plantings?

The public right-of-way often contains various obstructions and hazards for trees. Limited soil volume, compacted soils, overhead wires, underground utilities, sidewalks, road salt, and passing vehicles all significantly hinder a tree's ability to thrive and survive. These conditions limit the selection of trees that can be safely and appropriately planted within these zones.


Springfield

Setback plantings allow public tree managers more flexibility in working with residents to plant "the right tree in the right place." They can provide trees with more growing space and better conditions under which to survive, and achieve their full potential.

According to the experiences of Tree Wardens around Massachusetts who have been engaging in setback plantings within their communities, setback trees tend to be healthier, more vigorous, develop better canopies and root areas, and receive better care by adjacent property owners than trees planted in similar situations within the right-of-way.

Additional advantages to setback planting include:

- Setback planting can allow for a **partnership** between municipal tree managers and private owners and help make the most of public tree care tax dollars and resources.
- It is an effective way to **work with residents** in selecting and planting the "right tree for the right place." Resident commitment to take pride and care for "their" trees is therefore amplified.
- There is less chance for tree disfigurement as a result of **fewer conflicts with utilities**.
- This also results in potentially **improved electrical and other utility reliability**.

How does setback planting work in practice in different communities?

Brookline: The Town of Brookline has a formal setback planting program. Brookline actively advertises their "Back-of-Sidewalk" program. Property owners interested in a setback tree apply for a tree and sign a formal agreement. Under this program, the town (with input from the owner) will select, plant, and maintain the tree as a public tree for a period of five years. After the initial five-year period, the property owner assumes full ownership and stewardship of the tree. The town provides property owners with information on tree care during this initial period.

Concord: The Town of Concord engages in setback tree planting each spring and fall. Town tree managers have found that in most cases, the area beyond the public right-of-way provides the best conditions for trees to thrive. They work with property owners throughout Town to gain verbal permission for planting, or respond to requests from property owners, and together, town tree managers and property owners select the appropriate location and species for tree plantings. The Town provides the property owner with educational materials on proper tree care, pruning standards, tips on hiring an arborist, and other issues regarding the tree care, including avoiding mulch volcanoes, weed whip and lawn mower damage, and problems with compaction, etc. After two years, the tree is considered a private tree, property owners are expected to take on the ownership and stewardship of the tree, but they do need town permission to remove the tree for any reason.

Worcester: In 2010, the City of Worcester began its Adopt-a-Tree Program, whereby residents could request a set-back tree. Residents sign up for a tree and sign a consent form. Once that is approved, the Tree Warden will offer a species and recommend a location. When everyone agrees on species and location, the Department of Public Works and Parks comes to plant the tree. Following the planting, all maintenance is carried out by the resident.

Northampton: The City of Northampton began its Setback Tree Program in 2016 Property owners submit a request for a tree and the Tree Warden visits the site to discuss location, species, and maintenance. The property owner then signs a permission and agreement form that is notarized and filed at the Registry of Deeds. It states that the tree (s) shall be a protected public shade tree under the provisions of MGL, Chapter 87. It also grants permission for the Tree Warden or their designee to enter the property to care for the tree. The local nonprofit Tree Northampton works with the resident to schedule the planting date and plant the tree.

What are the potential disadvantages of setback planting?

Tree Wardens engaged in setback plantings cite few disadvantages to the practice. However, some of the potential disadvantages may include:

- Loss of some streetscape design opportunities such as traffic calming, creating a barrier between pedestrian and vehicular traffic, and creating a tunnel-like design.
- Some loss of municipal control or protection of setback trees.
- The challenges of educating property owners in proper tree care.
- The potential to favor planting in neighborhoods where setbacks are possible and overlook neighborhoods or areas where setbacks are not possible.

Bureau of Forestry

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TREE BOARDS AND COMMITTEES

dcr
Massachusetts

Citizens working together for a healthier community forest

A tree committee or tree and forest board is a citizen-led group that works with local public officials to improve the health of the urban and community forest through advocacy, education, management, plantings, and maintenance activities.

Tree committee members, municipal officials and staff, and other volunteers gather at the annual DCR Tree City USA Forum and Award Ceremony for learning, recognition, and networking.

Why Have a Tree Committee?

There are many benefits to having a tree committee in your community.

Such committees can:

- **Advocate** for better public tree and forest management and for more public support for urban and community forestry.
- **Get Work Done.** They may help complete an inventory, education campaign, planting program, tree ordinance, or may water or prune newly planted trees.
- **Bring in Additional Resources** for town trees and forests. Committees help apply for grants, solicit private donations, organize fundraisers, and advocate for larger budgets.
- **Reduce Conflicts.** Committees can help reduce potential conflicts by providing a forum for reviewing complaints, addressing safety issues, and supporting tree warden decisions.
- **Help Raise Public Awareness.** Citizen committees can be quite successful at educating residents about the importance of trees and urban forestry and at raising public awareness of the needs of trees and forests.
- **Improve your Urban and Community Forest.** Taken together, all these benefits result in an improved urban and community forest for your city or town.

How Do Tree Committees Form?

Some tree committees have been around for decades. Others form when the tree warden or town officials see the need for more citizen involvement in forestry. Most are advisory to the town and tree warden, but some have the authority of the tree warden.

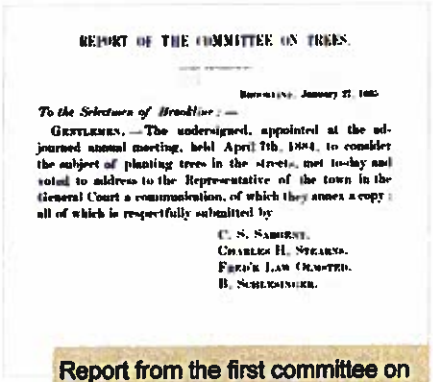
Most tree committees in Massachusetts form when a group of citizens wants to get more involved in forestry. In most cases, these groups go to the Mayor or Select Board and ask that an officially recognized tree committee be appointed.

Talk to your tree warden. Talk to local officials. Talk to other interested and knowledgeable residents. Ask how a citizen tree committee could help in your community. See if you can get one started.

Tips for Successful Tree Boards and Committees

- Try to build a board that is representative of the diversity of your community.
- Look for members with some area of expertise (arborist, communications specialist, grant writer, etc.). Some members should have knowledge of trees, forestry, and arboriculture.

- Find members who are interested in working positively with all constituents and especially with the tree warden, town commissions, and other public officials.
- Start with some easily achievable projects. Some tree committees have found that difficult projects (like writing a new tree ordinance or conducting a full inventory) often result in frustration and produce little to show for the effort.
- Rotate your leadership and membership often. This helps groups guard against "burn-out" and continually brings in new ideas.
- Make sure that all members are committed to finding solutions, not just identifying problems.



REPORT OF THE COMMITTEE ON TREES.

To the Selectmen of Brookline: —

GENTLEMEN, — The undersigned, appointed at the adjourned annual meeting, held April 7th, 1884, to consider the subject of planting trees in the streets, met to-day and voted to address to the Representative of the town in the General Court a communication, of which they annex a copy; all of which is respectfully submitted by

C. S. SARGENT.
CHARLES H. STEARNS.
FREDK LAW OLMSTED.
B. SCHLESINGER.

Report from the first committee on trees in the nation in Brookline, 1885. The Committee became official in 1886.

Examples of Tree and Forest Committees in Massachusetts

Town of Brookline: Established in 1886, the Brookline Tree Planting Committee is the oldest continuous tree planting committee in the nation. The Select Board appoints the three-member committee that advises the tree warden on tree selection and placement.

Town of Monson: This Committee formed following the tornado of June 1, 2011 and provides leadership, education, and resources for residents replanting trees following the tornado. The Committee meets once a month, and, in addition to replanting, works to advocate for trees in the community through development of a tree ordinance and management plan and through educational programming for residents.

Town of Amherst: The Amherst Public Shade Tree Committee works to preserve, protect, and promote the town's public shade trees and its urban forestry goals. Since 1978 the Committee has played a key role in the Town's successful application to state and national grants, run regular tree planting programs, and participates in the review of projects that impact the Town's urban forest. They work with the DPW, Conservation Commission, Planning Department and frequently support surrounding communities with their public shade tree programs.

City of Greenfield: The Greenfield Tree Committee is a non-profit, volunteer group of concerned citizens, operating under the umbrella organization, the Connecticut River Conservancy. The group's purpose is to promote a strong and resilient urban forest in the City of Greenfield by facilitating the planting of trees along public ways and by educating the public on the value of trees and the need for their care and maintenance. The Committee raises funds and works closely with the Greenfield Department of Public Works in an advisory and supportive capacity.

REFERENCES:

Tree Board University
www.treeboardu.org

Tree Board Handbook
https://shop.arborday.org/tree-board-handbook

Bureau of Forestry
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TREE CITY USA IN MASSACHUSETTS

dcr Massachusetts

A national recognition program for towns and cities of all sizes

TREE CITY USA is an awards program that provides public attention and national recognition for local commitments to community trees and forests. It is sponsored by the Arbor Day Foundation and administered in Massachusetts by the Department of Conservation and Recreation Urban and Community Forestry Program.

Any City or Town Can Be a Tree City USA. A Tree City USA is a community of any size that has been formally recognized for its commitment to plant, maintain, and manage tree resources. Tree City USA communities range in population from less than 30 to the millions, all over the country.

The Tree City USA designation brings official recognition from the DCR and the Arbor Day Foundation. More importantly, it provides recognition that your city or town has established trees as a priority and has made good decisions about the management of these resources. It fosters a sense of pride and good will toward the appearance and livability of your community.

Earning the Title

Being awarded the Tree City USA designation requires that communities meet four standards defined by the Arbor Day Foundation. They are:

- **A Tree Board or Department:** This can be a forestry department, a tree warden, or a volunteer tree board or committee that oversees the community's annual work plan.
- **A Tree Care Ordinance:** An ordinance will designate the tree board or department and determine policies for planting, maintaining, and removing public trees. Mass. Gen. Laws Chapter 87 will be accepted if it has been adopted by the municipality.
- **Minimum Community Forestry Annual Budget of $2 per Capita:** All work related to the management of community trees (e.g., planting, tree removal, and maintenance), as well as administrative and equipment expenses and in-kind services are allowable in this budget.
- **Arbor Day Observance and Proclamation:** Arbor Day observances, usually on or around the last Friday in April, give civic leaders, residents, and children occasion to plant trees and celebrate the gifts community trees offer all year long. An official Mayoral or Select Board proclamation is also required.

TREE CITY USA®

Springfield

Tree City USA Mass. Facts

- Longest-running Tree City USA: Wellesley
- Percent of population living in a Tree City USA community: >50%
- Smallest: <1,000 residents
- Largest: ~ 700,000 residents
- Newest Tree City USA: It could be your community!

TREE CITY USA

We Can Help You Become a Tree City USA

- If your community is just beginning to develop a community forestry program, we can help you and your tree committee assess your resources and prioritize your needs. Such planning activities can help build constituencies leading to Tree City USA designation.
- Our Challenge Grants can provide support for the development of management plans, tree committees, or tree surveys and inventories.
- We can provide sample ordinances, model proclamations, and additional information to help you design your own program that meets Tree City USA standards.

Perks and Honors

Promotional items are awarded to Tree City USA communities, including a flag, road signs, and a plaque. Displayed proudly around town, these will remind residents and visitors that your community has earned the honor of Tree City USA. The DCR Urban and Community Forestry Program holds an annual forum and ceremony to present awards and distribute promotional materials. Presentations of awards can also be done in your community if you wish.

In addition, the Urban and Community Forestry Program at the Department of Conservation and Recreation gives preference to grant applicants that are from Tree City USA communities.

For those accomplished communities that have surpassed basic Tree City USA standards, the Growth Award recognizes exceptional growth and imagination in community forestry.

About Applying

Applications are due annually on December 31, but don't wait to prepare the application. Many communities will work a year or more before becoming eligible. Contact the Urban and Community Forestry Program for guidance.

REFERENCES:

Learn more about Tree City USA at the Arbor Day Foundation
www.arborday.org/programs/treecityusa/

If you would like to find out about other recognition programs from the Arbor Day Foundation, go to www.arborday.org/programs.

Bureau of Forestry

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dcr MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION

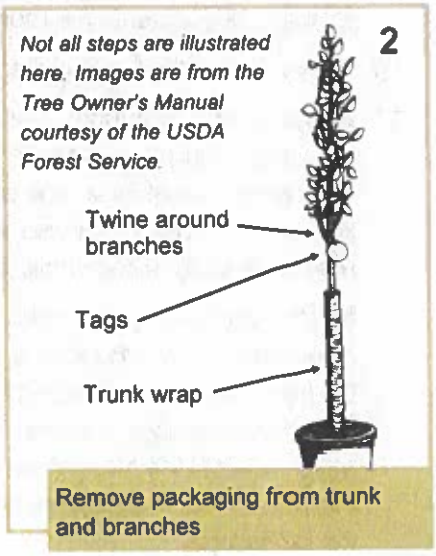
TREE PLANTING 101

dcr Massachusetts

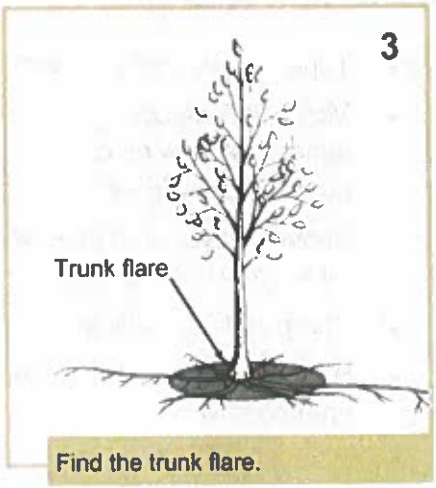
Steps for successful tree planting

This factsheet picks up after you have selected an appropriate site for your tree and an appropriate species for the site. For information on site and tree selection, go to www.treesaregood.org/treeowner

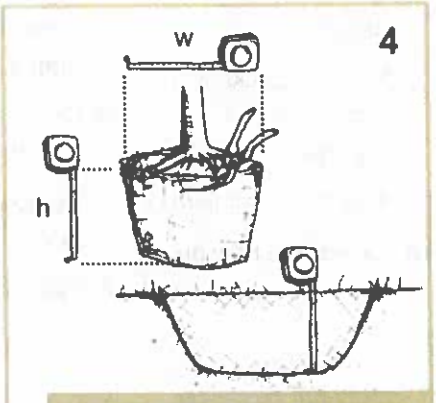
1. **Move the tree to its planting site.** Carry the tree by its container or root ball (not the trunk).
2. **Remove packaging from trunk and branches.** Check the canopy for twine. Leave root packaging in place for now.
3. **Find the trunk flare.** The trunk flare is where the trunk expands at the base of the tree and starts to curve. It is where structural roots become distinct from the trunk. When the tree is planted, the flare should be at or just above the finished grade. On your tree, there may be excess soil on top of the trunk flare. You may have to remove soil from the top of the root ball to identify the flare. You can gently probe the root ball with a chaining pin, skewer, screwdriver, or wire to locate structural roots.
4. **Determine how deep and wide to dig.** Call Dig Safe (811) before you dig. Measure from the bottom of the container/root ball to the flare. The depth of the planting hole should be no greater than this. Measure the approximate width of the root ball and make your hole 2 to 3 times as wide. In hard, compacted soil, the hole should be closer to 3 times as wide.
5. **Dig a hole to the dimensions from Step 4.** Break up compacted soil and then dig the hole ONLY as deep as the root system. Do not loosen the soil at the bottom of the hole. If the sides appear smooth or "glazed," use a shovel to rough up the sides.
6. **Remove packaging from the root ball.** For container trees, this means removing the tree from the container. For balled and burlapped trees (B&B), this means removing the burlap and wire basket. If it seems like the B&B root ball will fall apart, place the tree in the hole and then remove packaging. For in-ground fabric containers/grow bags, this means removing all of the fabric or bag.
7. **Remove roots.** Remove all small roots above the main root system with a hand pruner. Examine the main root system for roots that extend out but then turn to the side or back toward the trunk. Prune these roots at the point where they turn. You may want to dedicate a pair of hand pruners for this purpose.
8. **Place the tree in the hole.** Roll or place the tree in the center of the hole. Be careful and make sure you have enough helpers. Check the depth of the root flare and adjust hole depth, if necessary. Examine the tree from two sides, 90° apart. Is the trunk straight? Are branches facing the way you want? You can backfill with a little soil to help stabilize the tree as you check the placement.



Remove packaging from trunk and branches



Find the trunk flare.



Measure from bottom to flare and measure width to determine how deep and wide to dig.

9. **Backfill** with the same soil or amend as recommended by a soil test. Once the tree is stabilized, continue to backfill with the soil that you dug out. Partway through the backfilling process, water the tree to help remove air pockets and reduce future settling. Continue to backfill. To aid in watering, you can build a low (<3 in.) soil berm around the edge to help guide water to the root ball.
10. **Water.** Water thoroughly after planting.
11. **Prune critical branches, but no others.** Prune only broken or dead branches. You may also want to remove competing leaders, if present. Most trees should have one central leader. If there are two or more leaders, choose the one you want and remove the other(s) Note: You may have to do some of this work before placing the tree in the hole.
12. **Mulch.** Use an organic mulch. Place mulch in a ring at least 3 inches away from the tree trunk, at a depth of 2-4 inches, and ideally out to the tree crown. When in doubt use the 3-3-3 method, mulching 3 inches high, 3 inches away from the trunk, in a 3-foot-wide ring. Do not apply mulch against the trunk of the tree so that it appears like a volcano; this is incorrect and detrimental to the tree, though is often observed in the landscape.

Materials Needed

- Tape measure or yard stick
- Metal skewer, coat hanger, stout wire, or pointed screwdriver
- Shovel, spade, iron rake, wire rake, crow bar
- Sharp knife or scissors
- Hand pruner – bypass type, pruning saw
- Water supply
- Mulch for a 3-inch layer over the planting area
- Large-gauge wire cutter (for B&B trees)
- Hand saw if containerized and the main root system is more than 1 inch below the soil surface

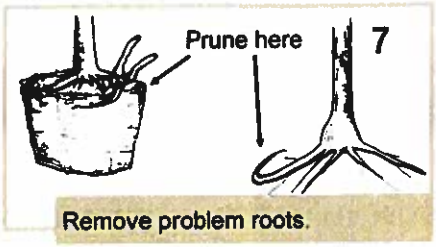
STEPS

1. Move the tree to its planting site.
2. Remove packaging from trunk and branches.
3. Find the trunk flare.
4. Determine how deep and wide to dig.
5. Dig* a hole to the dimensions from Step 4.
6. Remove packaging from the root ball.
7. Remove problem roots.
8. Place tree in the hole.
9. Backfill with the same soil or amend as recommended by a soil test.
10. Water.
11. Prune critical branches only.
12. Mulch.

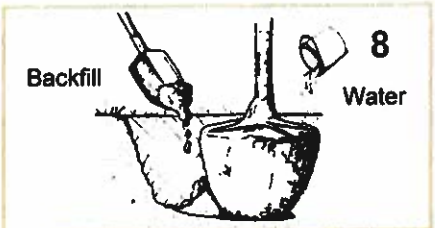
REFERENCES:

For more details (and information on whether to stake your tree) visit: www.fs.usda.gov/naspf/publications/ tree-owners-manual-national-edition

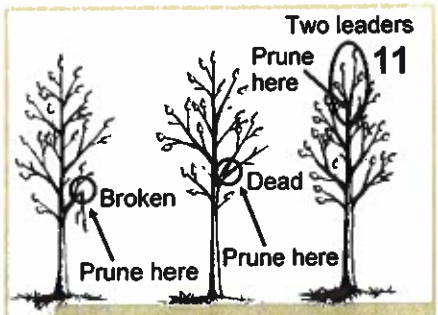
*** Before you dig, call DigSafe to have underground utilities marked. It's the law. Dial 811.**



Remove problem roots.



Find the trunk flare.



Prune critical branches, but no

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TREES AND OUR HEALTH

dcr Massachusetts

Explore Current Research on How Trees Improve Public Health

Importance of Nearby Nature

Metro nature - including trees, parks, gardens, and natural areas - enhances the quality of life in cities and towns. The experience of nature improves human health and well-being in many ways. Urban forests reduce a variety of health issues, such as respiratory diseases and skin cancer, and promote an active lifestyle, which can reduce obesity.

Health is not just an outcome of what goes into your body, but what is experienced outside of it as well.

Urban greenspaces promote walking and other outdoor activities.

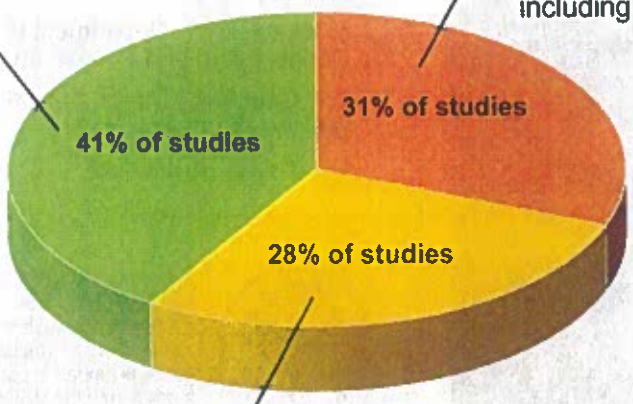
Trees & Human Health: Research

Dr. Kathleen Wolf at the University of Washington has led the way in reviewing studies, conducting her own research, and compiling the information into a research compendium website called **Green Cities: Good Health**. https://depts.washington.edu/hhwb/

A literature review of 201 authoritative studies about urban trees and human health can be broken down into a few big categories:

Reducing Harm:
Trees mitigate conditions that can compromise health, including air pollution, noise, and extreme heat.

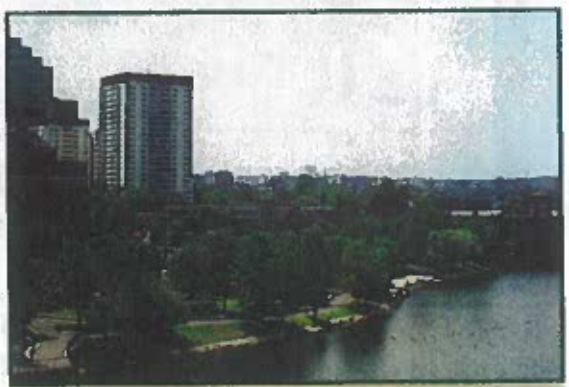
Restoring Capacities:
Trees promote improved psychological and physiological functioning, including stress recovery.



Building Capacities:
Trees facilitate conditions of wellness for both individuals and communities, such as encouraging physical activity and providing settings for social interaction.

Source: Wolf, K.L., S.T. Lam, J.K. McKeen, G.R.A. Richardson, M. van den Bosch, and A.C. Bardekjian. 2020. Urban trees and human health: A scoping review. International Journal of Environmental Research and Public Health 17(12):4371.

Nearby nature provides cooler temperatures and lowers detrimental Urban Heat Island effects.



Urban greenspaces can reduce particulate matter related mortality by 2.7% - 8.7%
Source: Planting Healthy Air, TNC 2016

TREES AND HEALTH: LITERATURE EXAMPLES

Reducing Harm

The positive human health effects of air pollution removal by community trees and forests across the United States is $6 billion annually.

Nowak, D., et al. Environmental Pollution, Vol. 193, Oct. 2014, pp. 119-129.

Restoring Capacities

Exposure to nearby nature can effectively reduce stress, particularly if initial stress levels are high. Simply having a view of nature produces recovery benefits.

Roe, J.J., C.W. Thompson, P.A. Aspinall, M.J. Brewer, E.I. Duff, D. Miller, R. Mitchell, and A. Clow. 2013. Green Space and Stress: Evidence From Cortisol Measures in Deprived Urban Communities. International Journal of Environmental Research and Public Health 10, 9:4086-4103.

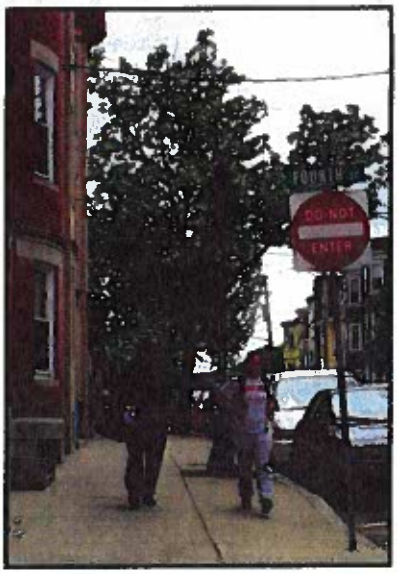
Building Capacities

Research confirms that the availability of parks, trails, and nature can positively affect attitudes toward being active and encourage physical activity and shows that when people exercise in natural environments, they do so for longer and at greater intensities.

Wolf, K.L. 2008. City Trees, Nature and Physical Activity: A Research Review. Arborist News 17, 1:22-24.

Prescribing Nature

In 2010, the Washington, DC Department of Health and the American Academy of Pediatrics launched the DC Park Rx program to encourage physicians to "prescribe" nature to patients to increase physical activity and prevent chronic disease and obesity, especially among the city's lower income residents. https://www.parkrx.org/



MORE INFORMATION:

Healthy Trees Healthy Lives: healthytreeshealthylives.org/

Vibrant Cities Lab: www.vibrantcitieslab.com/human-health/

Green Cities Good Health, Univ. of Washington: depts.washington.edu/hhwb/

Healthy Trees, Healthy Lives

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URBAN AND COMMUNITY FORESTRY IN MASSACHUSETTS

dcr Massachusetts

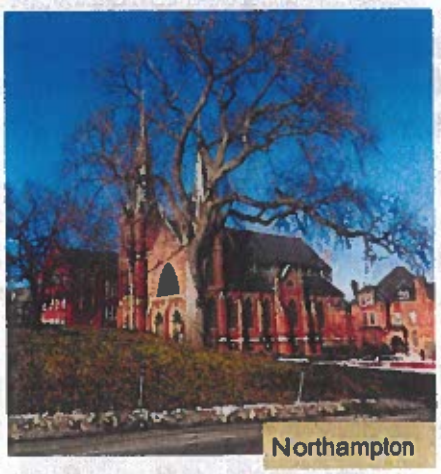
How the Urban & Community Forestry Program can work with your community

What We Do

The Massachusetts Urban and Community Forestry Program (UCF) assists communities and organizations in protecting, growing, and managing community trees and forests. The goal of UCF is to improve the environment and enhance the livability of all Massachusetts communities.

UCF works with communities of all sizes to provide:

- Annual Grants
- Technical assistance
- Training
- Recognition awards



Northampton

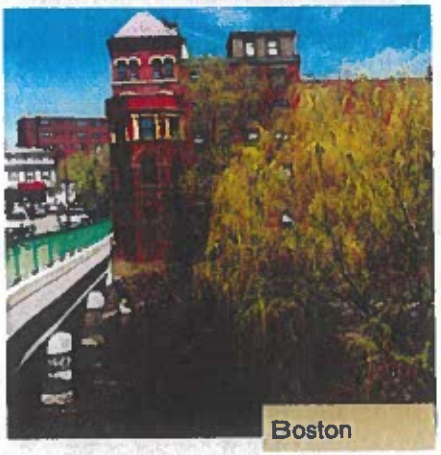
What are Urban and Community Forests?

Urban and community forests are the trees, plants, and associated ecosystems anywhere people are – country roads in rural towns, developments in the suburbs, or densely populated neighborhoods in cities. Our landscape is a continuum from rural forest to city center. We all live, work, play, and learn all along this continuum.

Boston

Urban and Community Forestry is Not Just about Trees.
Trees and shrubs along streets, in parks, or in cultivated landscapes are prominent features of the urban forest. But there's more to a forest than just trees. The other plants, soils, air, and water that are part of the community make up an ecological system that supports wildlife, a clean environment, and a healthy home for humans.

The Urban Forest Affects the Quality of Our Lives.
The health of urban and community forest ecosystems affects the quality of the water we drink, the air we breathe, the stability of our neighborhoods, our mental health, and our sense of community. Trees provide a variety of benefits in our communities, from mitigating stormwater runoff, capturing particulate matter on their leaves, to shading buildings and reducing summertime energy usage, and more.



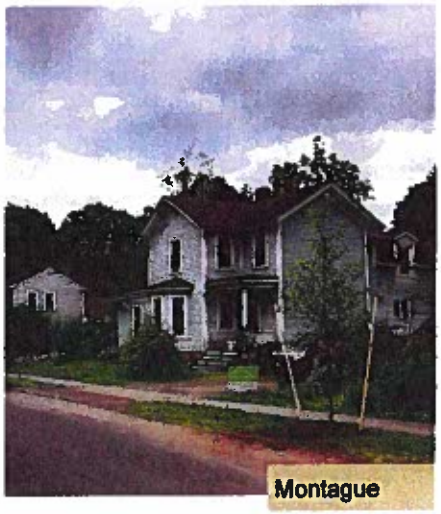
Boston

Community Forestry Builds Stronger Communities.
The most important aspect of Urban and Community Forestry is "community." Planting trees, gardening, teaching young people about nature, or creating a land use plan all bring diverse members of

our communities together. They strengthen our bond to the landscape and improve the well-being of the community. As our urban and community forests grow, so too does our sense of pride, our local economy, and our quality of life.

An excellent urban and community forestry program uses coordinated community resources to effectively protect, grow, and manage community trees. Coordination helps maximize the social, economic, and environmental benefits that the urban and community forest provides.

The Massachusetts UCF Program and the USDA Forest Service have developed criteria that can help indicate a strong program. In fact, the USDA Forest Service monitors each state's performance based on how many communities are meeting these standards.


Montague

What Makes a Strong Urban and Community Forestry Program?

- **Management Plans:** Based on a resource assessment that guides the development of the urban forest resource.
- **Professional Staffing:** Degree in natural resource management, International Society of Arboriculture or Massachusetts Certified Arborist, Massachusetts Qualified Tree Warden.
- **Ordinances/ Policies/Regulations:** UCF program follows and enforces all local or statewide laws that focus on protecting urban forest.
- **Advocacy & Advisory Organizations:** Actively work with a tree commission or non-profit organization chartered to advocate for the community's urban forest.
- **Inter-Agency Coordination:** Regularly coordinate with multiple agencies (planning board, highway department, conservation commission, utilities, and others).
- **Tree City USA:** A strong UCF program will have achieved Tree City USA status.

The Massachusetts DCR Urban and Community Forestry Program is supported by a grant from the USDA Forest Service.

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WHAT IS A TREE INVENTORY?

dcr
Massachusetts

The key to understanding your urban and community forest

A **tree inventory** is a record of location and characteristics of individual trees and, sometimes, characteristics of their environs, within a defined geographic area. For municipalities, tree inventories typically include street trees and trees in parks or other municipally owned properties. Conducting a tree inventory is the first step to developing a comprehensive urban forest management program.

There are three main types of inventories: sample, partial, and complete.

- A **sample inventory** is conducted on a random sample of street segments, blocks, road miles, or area to provide an estimate for the urban forest. Typically, the sample is 3-10%. The sample can also be stratified.
- A **partial inventory** is conducted on a specific non-random area. It may be a **geographic** area, such as a downtown. It may be a **phased** inventory where different areas are collected at different times, with the goal of each phase eventually comprising a complete inventory. A **survey** collects a few attributes over a large area, even the entire municipality. Surveys are often conducted by vehicle.
- A **complete inventory** includes all street trees, sometimes all park trees and trees on municipal properties, and often includes available planting locations and stumps.

Partial and complete inventories are often linked with work-order management systems. These may be integrated with a work-order management system the municipality uses for other infrastructure.

Why Conduct a Tree Inventory?

- Communicate the importance of a strong municipal forestry program
- Develop management and policy recommendations
- Understand the distribution of species in the urban forest
- Determine the overall condition of trees
- Identify vacant tree planting sites
- Quantify the dollar value and benefits of the urban forest
- Use as the foundation for a management plan

Any of these types of inventories may be updated on a periodic or a continuous basis. To be most effective, an inventory should be linked to a geographic information system (GIS) and be updated regularly. Inventories range in cost from a few thousand dollars to upwards of $40,000. The DCR Urban and Community Forestry Challenge Grant is available to help fund tree inventories. Major drivers of cost include the number of trees inventoried and the number of attributes collected. The attributes should tie to the goals for the inventory. At a minimum, attributes should include, tree location, species, size, and condition, but others may be useful as well, including tree risk rating, pests, maintenance needs, or site conditions.

What Kind of Inventory?

A **complete inventory** is ideal for those communities that have:

- An existing street tree inventory in need of updating
- Tree maintenance staff who want to become more efficient and develop an inventory-based management program
- An in-house GIS system
- Staff available to manage the data as trees are planted, maintained, or removed

WHAT IS A TREE INVENTORY?

A **complete inventory** can help:

- Improve work-scheduling and cyclical maintenance
- Improve the ability to respond to storm damage and estimate costs
- Enhance efficiency when responding to constituent requests
- Locate all trees of a single species; for example, to aid in planning for and responding to a pest or disease outbreak

A **partial tree inventory** can do all the things listed above, but on a limited geographic basis.

A **tree survey** can help:

- Establish a foundation for a more detailed inventory
- Seek grant funds for developing a more comprehensive program
- Create a system for tree risk management (in a limited visual tree risk assessment)
- Determine the number of potential tree planting sites throughout the community

A **sample tree inventory** is most appropriate for communities that:

- Seek to build support and investment from their local government
- Need to develop an advocacy network for community trees
- Have staff / student / tree committee / volunteer time to conduct the inventory
- Are willing to develop strategies in response to the results

A Note on Qualifications

Trained volunteers can successfully conduct tree inventories, but for inventories that include tree risk assessment, we recommend using a qualified arborist. In addition to possessing an arborist certification, a qualified arborist should hold the Tree Risk Assessment Qualification from the International Society of Arboriculture.

The type you choose should be appropriate to your community's:

- **GOALS:** What are the reasons and expected outcomes for conducting a tree inventory?
- **RESOURCES:** What monetary and staff resources are available to accomplish and utilize the inventory?
- **DATA MANAGEMENT:** How will your community manage the data once collected?

Combining Types of Inventories

If you need to get the big picture for your whole community, but have particular goals for a specific area, you can combine inventory types. For example, you may want a limited visual tree risk assessment (a type of partial tree inventory) for the whole community so you can implement a tree risk management program. You could also conduct a geographically limited inventory of the business district to help improve the management of trees in that area.

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CONSERVATION AND RECREATION
LEGACY TREE PROGRAM
We would like
to know of any
large, historic or
unique trees in
your community!
For more information and to nominate, visit:
mass.gov/guides/massachusetts-legacy-tree-program

Transporting Your Tree

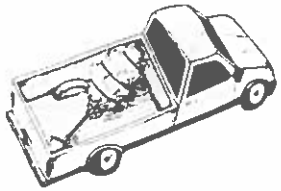
Moving your tree is easiest if the branches are tied.

Do not lift by the trunk if the roots are packaged with soil in a container or burlap. Instead, lift the root ball (see the sidebar on How to Move Your Tree, p. 6).

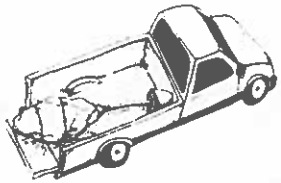
If your tree has leaves and will be sticking out the back of a vehicle, the crown should be wrapped with a sheet, tarp, or burlap.

Wrap branches with a sheet or tarp!

Tree fits in bed



Tree hangs out back of vehicle



Storing Your Tree Until Planting

Keep the soil around the roots moist to the touch. Store in a shady spot.

For bare root trees, pack wet newspapers, sawdust, or mulch around the roots, and wrap them in a big plastic bag. Plant the tree as soon as possible (within 2 days). The biggest risk to bare root trees is the roots drying out.

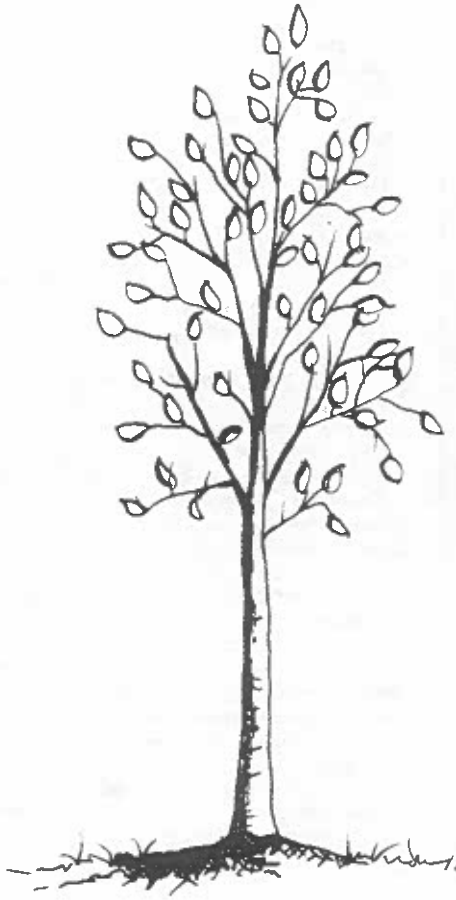
For balled-and-burlapped or containerized trees, if you cannot plant the tree within 24 hours, water the roots well and either cover the entire root ball with mulch or wrap the root ball in plastic or a tarp. Keep the soil moist to the touch.

Before you leave the Nursery or Garden Center, write down:

- **Where tree was purchased**
- **Date of purchase**
- **Warranty period (years)**
- **Type of tree (species)**
- **Mature height and width**

USDA

United States Department of Agriculture



Tree Owner's Manual

www.treeownersmanual.info

Forest Service
Eastern Region
State and Private Forestry
NA-FR-01-10
July 2010
Slightly Revised August 2019

Tree Owner's Manual

www.treeownersmanual.info

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Important Precautions

WARNING: To reduce the risk of personal injury or permanent damage to your tree, read and follow these important precautions:

- ❑ Do not dig until you are sure there are no buried utilities. Call the free utility marking service at 1-888-258-0808 (p. 5).
- ❑ Never prune trees or branches that are within 10 feet of utility lines; contact your local utility company.
- ❑ Keep lawn mowers and weed whips away from the base of your tree.
- ❑ Do not tie string, ribbon, wire, or pet leashes around the trunk or branches.
- ❑ Do not allow construction activities (digging, repaving, grading, building) within the Protected Root Zone (p. 24).
- ❑ Do not top your tree (p. 23).
- ❑ When hiring an arborist, select someone who has general liability insurance of at least $1 million per occurrence and $2 million aggregate (p. 28).
- ❑ Check with your city or town to see if there are laws regarding planting and pruning.
- ❑ If you cannot prune your tree with both feet on the ground, hire an arborist (p. 28).
- ❑ Do not let children climb trees that have branches within 25 feet of a power line.
- ❑ Do not nail or screw anything into your tree.

These symbols are used throughout this manual:

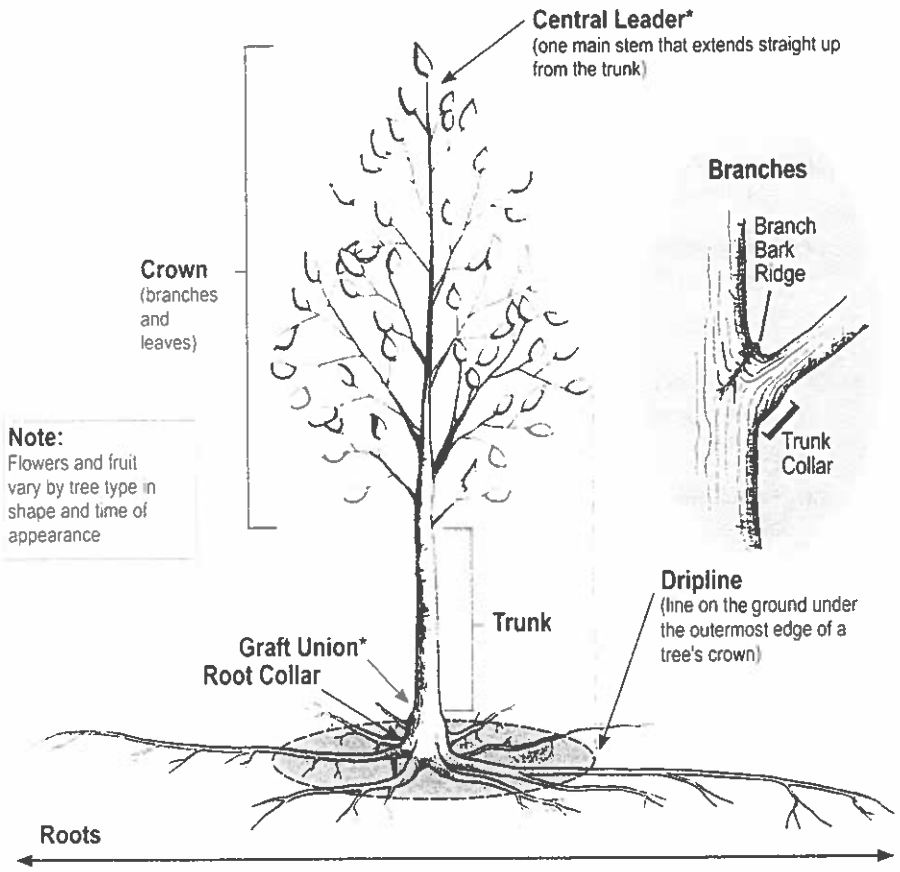
⚠ = Potential for personal injury or legal issues

= Potential for permanent damage to tree

> > > > > > > Save this manual for future reference. < < < < < < <

Model Information and Parts Diagram

Broad-leaved Model
(has flat leaves, but is not a palm)

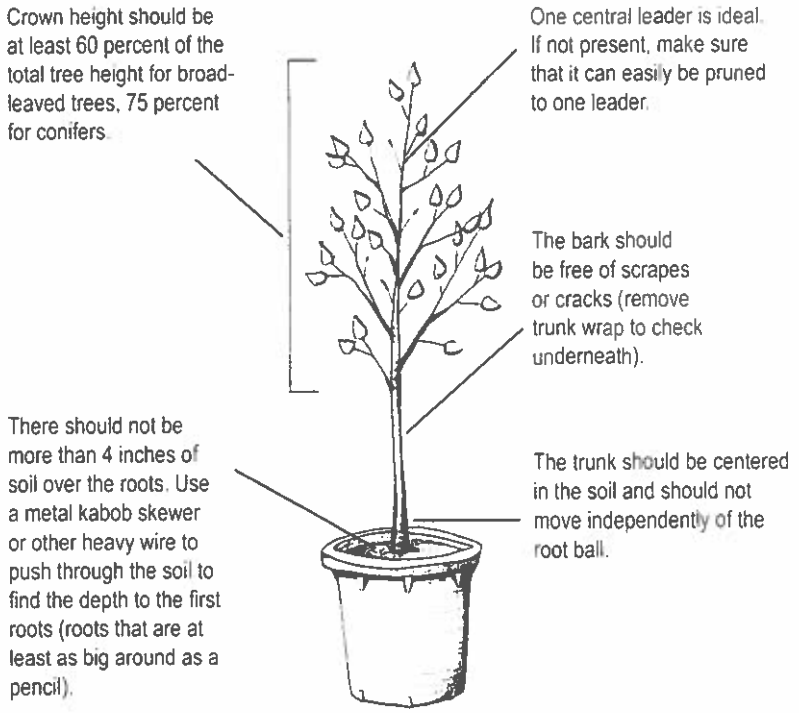


Palm Model
(has fronds for leaves)

Palms only grow leaves from one spot—the top of the trunk.

*Not present on all trees

Select a high-quality tree at the nursery



Additional Sources of Information

Tree Owner's Manual website	www.treeownersmanual.info
Your State Forestry Agency	www.stateforesters.org
International Society of Arboriculture	www.treesaregood.org
University Extension Service	www.eXtension.org
American Forests	www.americanforests.org
Arbor Day Foundation	www.arborday.org
Tree Care Industry Association	www.treecaretips.org
U.S. Forest Service	www.fs.usda.gov/R9

Buying a New Tree

Decide on the type of tree

TIP: Search the web for "tree selector" to find tree types that will fit your site.

Check for aboveground and belowground conflicts (p. 4-5). Then examine these important factors:

Location
If within 25 feet of overhead utility wires, choose a tree that will not get taller than 30 feet.

Cold Hardiness
Find your cold hardiness zone by contacting the University Extension Service, garden center, or searching the web for "USDA Hardiness Zone."

Soil Drainage
Check how quickly water soaks into the ground by digging a hole 18 inches deep and filling it with water. Let it drain completely. Refill it with water, and time how long it takes for the water to drain.

Less than 2 hours = Very Fast
18 hours or more = Very Slow

Soil pH
Use a pH meter (for sale at garden centers) or get a soil test (contact University Extension Services).

Sun Exposure
Is the area mostly sunny, mostly shady, or partly sunny?

Fill out the following worksheet to help choose a tree for your site.

Cold Hardiness Zone (write in)

_____

Soil Drainage (circle one):

Very fast | Medium | Very slow

Soil pH (circle one):

5.5 6.0 6.5 7.0 7.5 8.0 8.5

Acidic — Alkaline

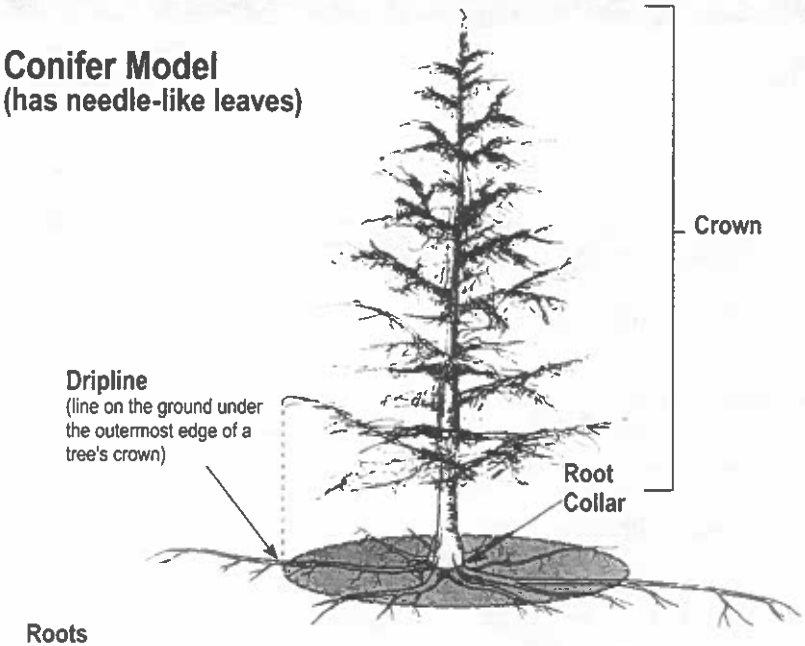
Sun Exposure (circle one):

Mostly sunny | Morning or afternoon sun | Mostly shady

Desired tree features (check all):

- ❑ Spring flowers
- ❑ Summer flowers
- ❑ Autumn leaf color
- ❑ Attract birds
- ❑ No messy fruit
- ❑ Provide shade
- ❑ Short
- ❑ Medium
- ❑ Tall

Conifer Model
(has needle-like leaves)



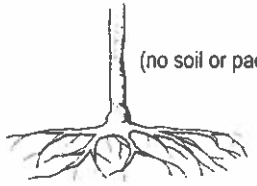
Packaging

Roots
Your tree has been packaged in one of the following ways:

Balled and burlapped/ boxed

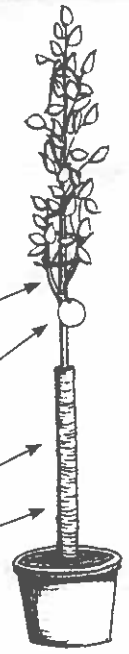
Containerized

Bare root



(no soil or packaging)

Trunk and Branches



Pre-Installation (Preparing to Plant)

Materials

- ❑ Tape measure
- ❑ Phone

Instructions

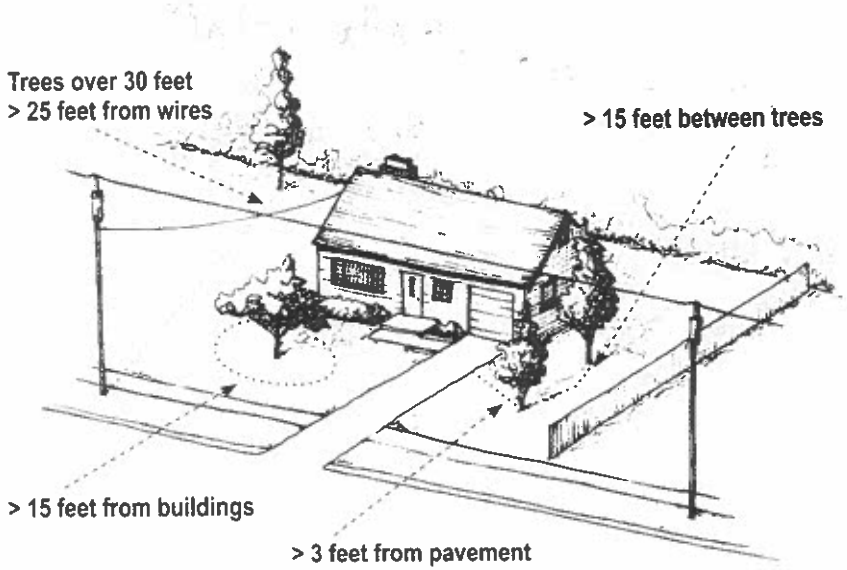
Step 1: Check above ground.

Your tree will grow.
Do not plant your tree where it will interfere with buildings, overhead utility lines, pavement, or intersection sightlines as it gets bigger.

Make sure your planting spot is at least. . .

- ❑ 3 feet from pavement or fencing on all sides
- ❑ 15 feet from buildings or other trees
- ❑ 25 feet from overhead electric wires, if your tree will grow taller than 30 feet.

If your tree will grow taller than 30 feet, do not plant it within 25 feet of overhead electric wires.



Removal and Disposal

Whole Tree

Electricity flows through branches.
If the tree or branches are within 10 feet of utility lines, contact your local utility company for information on assistance in removal.

To remove a large tree, hire an arborist. If you are interested in having the tree milled into lumber, try contacting your city forester/tree warden, local woodworkers or technical schools.

Disposing of debris:
Option 1: The arborist can remove the wood for you.
Option 2: If you or someone you know could use the tree for firewood, ask the arborist to cut and leave the wood for you in moveable chunks. If you do not know anyone who needs firewood, consider advertising it on community bulletin boards (e.g., at local grocery stores).

Insects and diseases are hitch hikers.
Many insects and diseases can be spread by moving firewood. To be safe, do not transport firewood to another town.

Trimmings

Check with your city or town for compost sites that accept tree branches and leaves.

Leaves

If you live in the city, keep leaves out of the street to avoid clogging storm sewers and polluting water (nutrients from leaves get leached into the storm drains, which typically lead directly to lakes and rivers). Leaves can be used as mulch around your trees and in your garden beds or taken to your city's compost site. Check with your city to find out if they will collect leaves left on the curb in the autumn.

In the Event of an Emergency

Large branch or tree on the ground
If it is near a downed utility line, do not go near the tree! Call the utility company. If it is in the street, contact the city. If it is in your yard, call an arborist to have it removed.

Tree or branches on utility line
Stay away from the tree! Call your utility company.

Branches broken, still hanging in the crown
Call an arborist (p. 28) to have the "hangers" removed, and make clean cuts at a lateral branch or bud (p. 2, 19).

Ice coating and weighting the branches
Stay in a protected area, out from underneath the branches. Some limbs may break. Once the ice is gone, check for safety (p. 17), and call an arborist if necessary. Many branches return to their original state after severe bending.

Tree hit by vehicle
If possible, get the license plate number, name, and insurance information of the driver. Document the tree's injuries with photographs. Contact an arborist to evaluate the damage (p. 28).

Wounded trunk
Use a scissors or hand pruner (p. 19) to cut off any loose bark. Monitor health (p. 17). Do not apply "wound paint."

Chemical spill around tree
Call an arborist (p. 28), asking for someone with experience in soil contamination.

Root severed
Photograph and call an arborist to assess safety and make treatments as necessary.

Flooding
Monitor the trunk to see if it begins to lean in one direction. Check the ground area around the roots to see if the soil or grass has lifted. If so, contact an arborist right away for a safety assessment. Monitor the tree's health over time (p. 17). It may take a year or more for symptoms to appear.

Lightning or storm damage
Call an arborist to assess safety and make necessary treatments.

Trunk nicked by lawn care equipment (weed trimmer or lawn mower)
Stop doing that! Create a mulch ring around the tree to eliminate grass (p. 16), or use a trunk protector (p. 14).

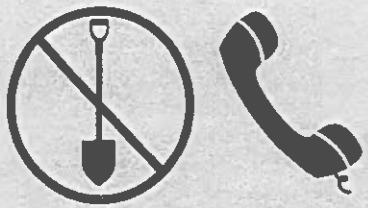
Step 2: Check below ground.

⚠ **It's the law to call (in most states).**

⚠ **Shocks can be deadly.**

At least 72 hours in advance of planting, call the underground utility locating service in your area to be sure that there are no buried utilities where you want to plant. Most services will mark utilities (e.g., electric, cable, gas) for free.

Call before you dig!
1-888-258-0808



Step 3: Check laws.

Some government agencies have laws governing tree planting, care, and removal. Check with your town or municipality to be sure that you are complying with these regulations and landscape ordinances.

Will Your Tree Become a "Public Tree," Under the Control of Your City or Town?

Public trees are those located on municipal property or within the road right-of-way (ROW)–regardless of who planted the tree.

The ROW is an extension of your city's or town's control beyond the street edge, oftentimes reaching 10 feet or more beyond the pavement.

Trees located within the ROW are under the jurisdiction of the municipality.

In these cases, state or local laws may dictate the type and location of trees that can be planted in the ROW. Check with your city or town regarding ordinances or policies pertaining to public trees.

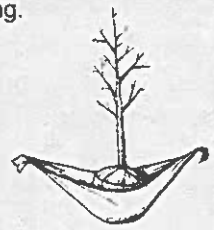
Installation (Planting)*

How to Move Your Tree

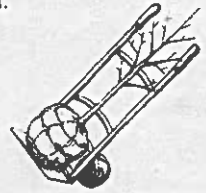
Carry your tree by its root package (ball or container)—not the trunk! Steady it by holding the lowest part of the trunk.

Large containerized trees may be tipped onto the bottom edge and rolled.

For balled-and-burlapped trees, you may find it easiest to place tarps or ropes under the ball as a sling.



A dolly or other cart may also be used.



Protect the trunk. Even a small wound on a young tree can cause permanent damage.

Materials

- ❑ Tape measure or yard stick
- ❑ Metal skewer, coat hanger, stout wire, or pointed screwdriver
- ❑ Shovel
- ❑ Sharp knife or scissors
- ❑ Hand pruner—*bypass* type (p. 19)
- ❑ 5 gallons of water
- ❑ 4-5 cubic feet of organic mulch (one wheelbarrow load or two large bags)
- ❑ Large-gauge wire cutter if balled and burlapped or boxed
- ❑ Hand saw if containerized and the main root system is more than 1 inch below the soil surface (Step 4). An inexpensive folding pruning saw works well, but any saw would work.

Instructions

If you have NOT yet read the section on Pre-Installation (Preparing to Plant), do so now.

Do not dig until Step 6.

*Hargrave, R., Johnson, G., Zins, M. 2002. Planting trees and shrubs for long-term health. St. Paul, MN: University of Minnesota Extension Service. 12 p.

Other Sources of Help

Arborists can provide good information about the health of your tree, and many communities have city foresters that may be of assistance. In addition, most land grant universities have an Extension service for answering tree health questions (see phone numbers listed below).

Alabama (Auburn University)
(334) 844-5507

Alaska (University of)
(907) 474-2423

Arkansas (University of)
(501) 676-3124

Colorado (State University)
(970) 491-6950

Connecticut (University of)
(877) 486-6271

Delaware (University of)
(302) 831-1390

Florida (University of)
(352) 392-1795

Georgia (University of)
(229) 386-7495

Illinois (University of)
(217) 333-0519

Indiana (University of)
(765) 494-7071

Iowa (State University)
(515) 294-0581

Kansas (State University)
(785) 532-1385

Kentucky (University of)
(859) 257-8949

Louisiana (State University)
(225) 578-4562

Maine (University of)
(800) 287-0279

Maryland (University of)
(800) 342-2507

Massachusetts (University of)
(413) 545-3208

Michigan (State University)
(517) 355-4536

Minnesota (University of)
(612) 624-3020 or
(612) 625-1275

Mississippi (State University)
(662) 325-2146

Missouri (University of)
(573) 882-3019

Montana (State University)
(406) 994-5150

Nebraska (University of)
(402) 472-8725

New Hampshire (University of)
(603) 862-3200

New Jersey (Rutgers University)
(732) 932-9140

New Mexico (State)
(575) 646-1965

New York (Cornell University)
(607) 255-7850

North Carolina (State University)
(919) 515-3619

North Dakota (State University)
(701) 231-7854

Ohio (State University)
(614) 292-5006

Oklahoma (State University)
(405) 744-9417

Oregon (State University)
(541) 737-3472

Pennsylvania (Penn State University)
(814) 865-2204

Puerto Rico (University of)
(787) 837-3905

Rhode Island (University of)
(401) 874-2900

South Carolina (Clemson University)
(864) 656-2677

South Dakota (State University)
(605) 688-5543

Tennessee (University of)
(615) 835-4572

Texas (A&M University)
(979) 845-8032

U.S. Virgin Islands (University of)
(340) 693-1083

Utah (State University)
(435) 797-2435

Vermont (University of)
(802) 656-0493

Virginia (Tech)
(540) 231-6758

Washington (State University)
*Contact County Extension Office

West Virginia (University of)
(304) 293-6023

Wisconsin (University of)
(608) 262-2863

Wyoming (University of)
(307) 766-2397

Troubleshooting

If you see:	Potential cause:	You should:
TRUNK		
A flat-sided trunk at the base of the tree	Encircling root restricting the flow of water and nutrients between the roots and rest of the tree	Excavate to check for encircling root (see p. 15)
Bark damage near the bottom of the tree	Rodent or string trimmer	Apply mulch/trunk guard to protect from future damage (see p. 14, 16)
An elm tree with liquid oozing from the trunk	Slime flux or wetwood	Not worry about health
BRANCHES		
An elm tree with bright yellow leaves on one or two branches	Dutch elm disease	Immediately call the University* or an arborist
Webs in the branches or webs covering the tips of branches	Fall webworm or Eastern tent caterpillar	Not worry about health
Many branch tips snipped off and laying on the ground	Squirrel damage	Not worry about health
Black clumps on branches of a cherry tree	Black knot	Call for advice*
Very little growth	Many	Call for advice*
Hole in trunk or branches	Many	Call for advice*
LEAVES		
Leaves sticky and covered with a black velvety coating (like soot)	Piercing, sucking insect and sooty mold	Not worry. Hose down the leaves to get rid of sap.
Leaves wilted	Many	Call for advice*
Spots on leaves	Many	Call for advice*
Small leaves	Many	Call for advice*
Sparse leaves	Many	Call for advice*
Yellow or brown leaves	Many	Call for advice*
Holes in leaves	Insect feeding	Not worry about health
Bumps on leaves	Many	Not worry about health

*Call an arborist or your University plant diagnostic service (next page).

Step 1. Move the tree.

Young trees are not 2 by 4's.
Do not lift or carry your tree by its trunk (unless bare root). See the sidebar on How to Move Your Tree.

Step 2. Remove trunk and branch packaging.

Remove trunk wrap, twine around the branches, labels, and nursery stake. Leave any root packaging in place for now.

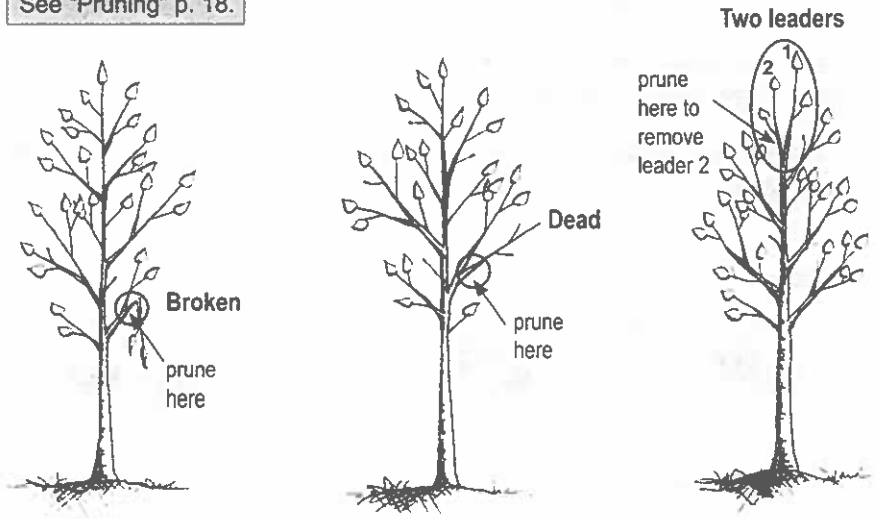
Step 3. Prune critical branches and no others!

Prune only branches that are broken, dead, or competing as a leader. Most trees should have one central leader (p. 2-3). If there are two or more leaders, choose which one you want to remain and remove the other(s).

Minimize pruning at the time of planting!
Trees need as many leaves as possible to recover from transplant shock (leaves produce the tree's food).

Do not prune oaks in the spring or early summer if you live in an area with oak wilt (see map, p. 21)!

See "Pruning" p. 18.



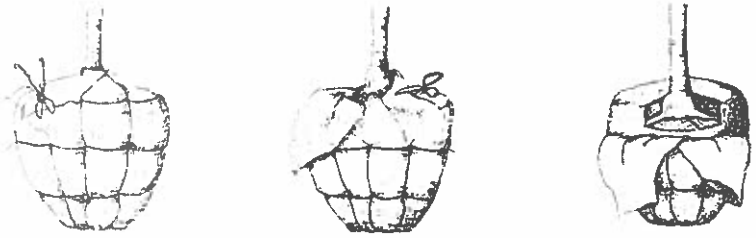
Step 4. Find the main root system, and remove excess soil.

Remove soil from the top of the root ball until the top of the main root system is exposed. There should be several roots at least as big around as a pencil extending in opposite directions from the trunk. You may have to remove 2-4 inches of soil before finding the main roots.

TIP: Probe the soil ball with a wire, kabob skewer, or screwdriver to find the main root system and estimate how much soil to remove. If the roots are located more than 4 inches deep, return the tree to the place of purchase.

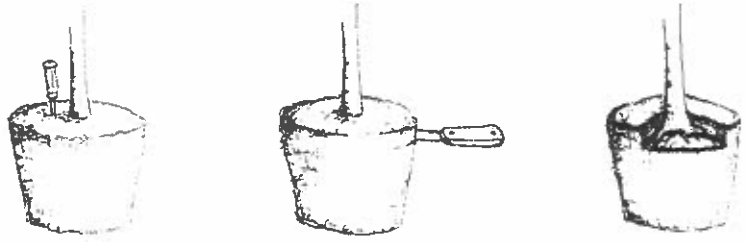
Bare root trees: There is no soil or root packaging to remove.

Balled-and-burlapped trees: Remove the top of the root ball packaging. Cut any twine from around the trunk taking care not to nick the bark. Then bend the wire basket back off the top of the ball. Remove soil from the top of the root ball until the main root system is found. You may have to cut some of the wire. Leave the rest of the wire basket in place until the tree is put in the ground.



Containerized trees: Remove the entire container. Pull or cut the soil off the top of the root ball until the main root system is found.

TIP: A saw works well to remove the top layer of soil. Be careful not to cut into the trunk.



Record of Service

Record work completed on your trees. Use the tree letter from the record on page 27.

Tree ID	Date:	Type of Maintenance Completed:	Work Performed By:	Date of Next Service:

How to Hire an Arborist*

You can find arborists listed in the phone directory, usually under "Tree Service." When selecting an arborist, look for the following qualifications:

- ❑ **Education** (degree in arboriculture, urban forestry, forestry, horticulture)
- ❑ **Membership in Professional Organization(s)**
  Organizations include the International Society of Arboriculture (ISA), Tree Care Industry Association (TCIA), American Society of Consulting Arborists (ASCA), and your state's arborist association. Such membership demonstrates a willingness to stay current on techniques and information.
- ❑ **ISA Certification or State Certification/License**
  Certified or State-licensed arborists are experienced professionals who have passed an examination and meet requirements for on-going education.
- ❑ **Proof of Insurance**
  A reputable arborist carries personal and property damage insurance ($1 million per occurrence, $2 million aggregate) and worker's compensation insurance ($1 million). If an arborist is uninsured, homeowners could be held responsible for damages and injuries that occur as a result of the tree work. Request certificates, and phone the insurance agency to verify. Ask if the entire job will be performed by employees of the tree care company bidding the job. If not, ask for insurance certificates from all independent contractors as well.
- ❑ **Necessary Permits and Licenses**
  Some governmental agencies require contractors to apply for permits, a license, or both, before they are able to work. Be sure contractors comply with any local, state, provincial, or national laws.

Other Advice

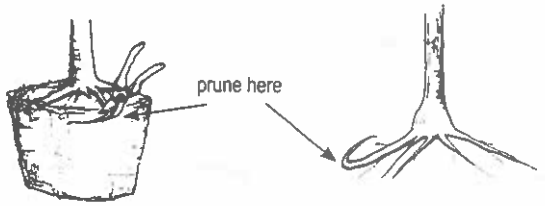
- **Ask for references and speak to former clients.**
- **Get more than one estimate.**
- **Do not automatically accept the lowest bid.**
- **Never pay in advance.**
- **Be wary of door-to-door sales.** These are especially common after storms. Know that good arborists perform only accepted practices and wear safety equipment. For example, topping a tree and using climbing spikes for pruning are unacceptable. Safety equipment includes hard hats and ear protection.
- **Get it in writing.** When will the work be started and completed? Who will be responsible for clean-up? What is the hourly rate for additional work?

*Adapted, with permission, from: International Society of Arboriculture. 2004. Why hire an arborist? Champaign, IL. 4p.

Step 5. Remove problem roots.

A. Remove all small roots above the main root system with a hand pruner.

B. Examine the main root system for roots that extend out but then turn to the side or back towards the trunk. Prune these roots at the point where they turn.

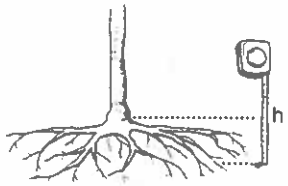


Step 6. Determine how deep and wide to dig.

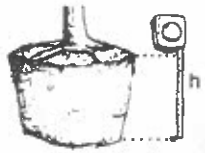
A. Measure the height of the remaining root ball. This is exactly how deep you should dig the hole.

B. Measure the approximate width of the root ball or root system. Multiply this by 2, or if your soil is hard (clay or compacted), by at least 3. This is how wide you should dig the hole.

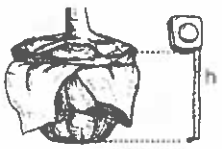
Bare root
(roots spread out flat on the ground)



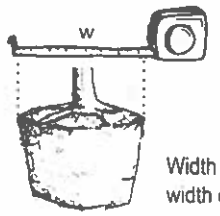
Containerized
(excess soil removed)



Balled and burlapped
(excess soil removed)



h = depth of planting hole

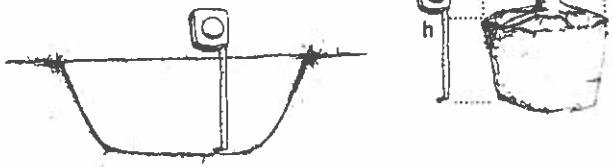


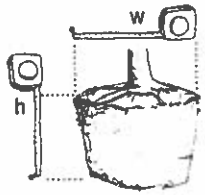
Width of hole should be 2-3 times the width of the root ball

Step 7. Dig a hole.

Do not put a $100 tree in a $10 hole. The dimensions of the hole are very important in determining the survival of your tree. Dig the hole ONLY as deep as the root system (NO deeper!).

HOLE DEPTH = height of root ball (h)
HOLE WIDTH = width of root ball (w) × 2 or 3



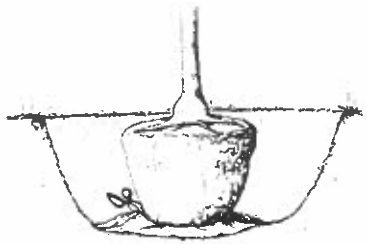


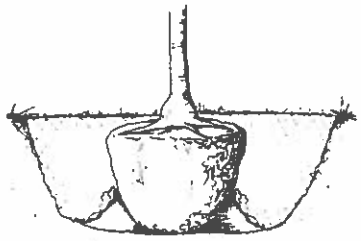
Step 8. Put the tree in the hole.

If the tree has a heavy root ball, slide it into the hole, and straighten the trunk.

Step 9. For balled-and-burlapped trees, remove root ball packaging.

Balled-and-burlapped trees: Without loosening the root ball, cut, peel back, and remove as much of the wire basket and burlap as possible (at least the top third).

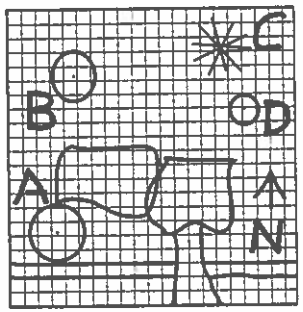




A root ball should remain a root ball. If it starts to fall apart as you take off the wire and burlap, backfill the hole with enough soil to stabilize it. Then carefully remove the wire and burlap, and backfill as you go to keep the root ball intact.

Sketch the location of your house and all trees on your property. Label each tree with a letter (A, B, C, etc.) to match the record on the opposite page (use a pencil to draw). Each square can represent 2, 5, or 10 feet, depending on the size of your yard.

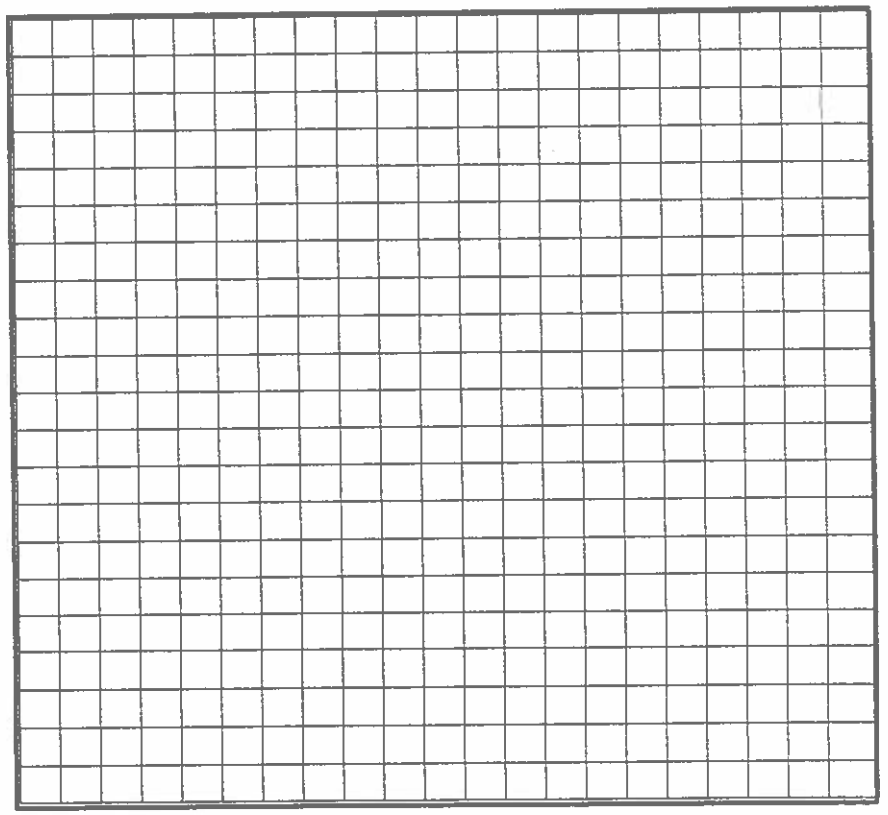
Sample:



Key:

Broad-leaved

Conifer



Record of Tree Types and Locations

Use this space to keep a record of trees planted on your property. Map tree locations on p. 27.

ID	Tree Type/ Species	Where Purchased	Date Purchased	Date Planted	Warranty Period	Mature Height	Max Width
A	heritage river birch	greens nursery	4/29/07	5/01/07	1 year	40-50'	50'

Step 10. Backfill with the same soil.

Make sure the trunk is straight. Put the original soil back in the hole, breaking up large clods, and working it in with your hands or a shovel.

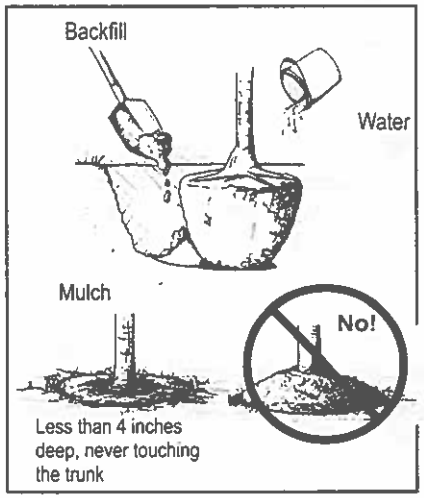
Step 11. Water.

Water the root ball and entire backfilled area.

Step 12. Mulch.

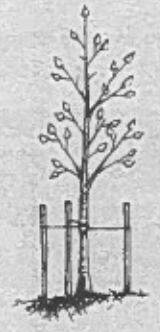
Put a 2-4 inch layer of mulch over the backfilled area. Pull mulch away from the trunk so that none touches the bark.

Mulch becomes soil.
There should never be more than 4 inches of mulch over the roots. Too much can prevent the roots from getting necessary oxygen.



To Stake or Not to Stake

Some trees need to be staked to remain standing straight in their new planting site. Stake only if the root ball is unstable or the trunk is bending. Use wide nylon, canvas straps, or nylon stockings wrapped around one side of the trunk. The tree should not be tied tightly.



If the root ball is unstable, use 1-3 stakes attached LOW on the trunk.

If the trunk is bending, use 1 stake attached HIGHER (at least 6 inches below the first set of branches).

Remove stakes after 1-2 years.

Maintenance Schedule

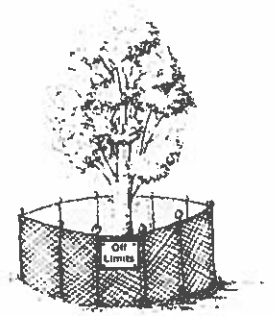
Follow this maintenance schedule for the life of your tree. Detailed instructions are on the pages indicated in parentheses. Use regionally adapted or native plants to reduce water and other maintenance needs for the life of the tree.

Type of Care	Timeline			
	At planting	Years 1 to 3	Years 4 to 10	After 10 years
Water (p. 13)	5 gallons	Correct amount is *critical* from spring through autumn and during dry winters →	As needed →	
Mulch (p. 16)	2-4 inches deep, not against trunk	Check and adjust level in spring →	→	→
Protect Trunk (p. 14)	As needed →	Check in spring and autumn →	→	N/A
Stake (p. 11)	*Only* if needed →	Check in spring and autumn. Remove after 1-2 years.	N/A	N/A
Clean Root Collar (p. 15)	Uncover at planting	Clean root collar every year →	→	→
Check for Encircling Roots (p. 9, 15)	Check before planting (p. 9)	N/A	Check every 4-5 years (p. 15) →	→
Check Health (p. 17, 35)	Select a healthy tree (p. 35)	Inspect leaves, branches, crown and trunk every year (p. 17) →	→	→
Check Safety (p. 17)	N/A	Inspect in summer, winter, and after storms (p. 17) →	→	→
Prune* (p. 7, 18-23)	Prune only critical branches or to eliminate extra leaders (p. 7)	Prune lightly in Year 2 or 3 (p. 18-23)	Every 3 years	Fruit trees every 1-3 years, other broad-leaved trees every 5 years, conifers only as needed

*For some tree types, pruning or removal during certain times of the year can increase the likelihood of disease transmission. See p. 20 for details.

N/A—not applicable

The activities listed below all negatively impact tree roots. To protect your trees, define the Protected Root Zone (PRZ), and keep these activities away from this area, at a minimum.



Storing Materials and Moving Equipment

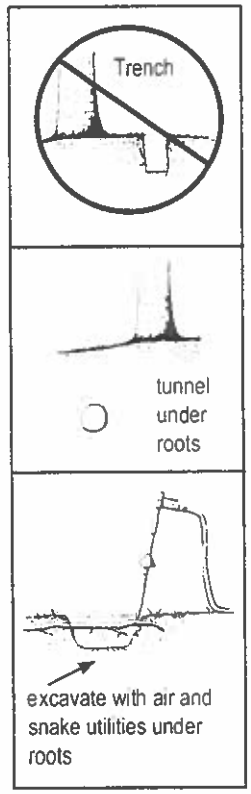
Soil compaction is one of the main killers of urban trees. Stockpiling building materials, using heavy machinery, and excessive foot traffic all compact the soil. To minimize damage, install orange polypropylene or chain link fencing and post "Off Limits" signs around the PRZ of the trees you plan to save. Check the fence often to be sure that it is still intact and serving as a barrier.

Changing the Grade

Adding or removing as little as 2 inches of soil in the PRZ can kill a tree. To minimize damage, consult an arborist about methods to protect the roots if fill needs to be added or soil needs to be removed within the PRZ.

Excavating

If utility or irrigation lines cannot be relocated outside the tree's PRZ, reduce root damage by requiring tunneling under the tree's root system (instead of trenching through it). Specialized equipment that blows soil away from the roots using compressed air allows utilities to be placed with very little root damage. Otherwise soil tunneling equipment can be used, reducing root damage by up to 25 percent compared with trenching.



For all digging operations, insist that exposed roots be cut cleanly to promote quick wound closure and regeneration. Vibratory plows, chain trenchers, stump grinders, and hand tools do a better job at this than bulldozers and backhoes.

Avoid excavating during hot, dry weather; keep the plants well watered before and after digging; and cover exposed roots with soil, mulch, or damp burlap as soon as possible.

Paving

To minimize damage, keep walkways at least 3 feet from the anticipated mature trunk.

Protecting Trees from Construction Damage*

Are you planning to build or remodel a home? Are you going to expand or pave your driveway? Are your city's streets, curbs, sidewalks, and buried utilities about to be widened, modernized, or replaced? Before construction begins, consider the impact on trees.

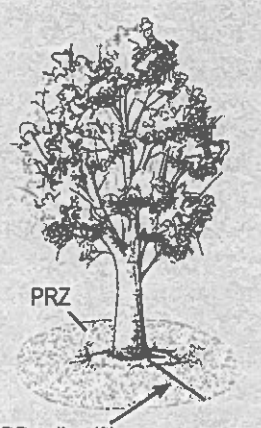
Careful tree protection will help you avoid the expense and heartache of later repairing or removing trees that were located too close to construction activities (see "How Close is Too Close?" below). Depending on the type of construction and proximity to trees, you may be able to protect the trees yourself, or it may be best to consult with an arborist to design, implement, and enforce a tree protection plan.

Start planning early. To minimize costs and increase the likelihood of successful tree preservation, start tree protection planning as soon as possible.

How Close Is Too Close? Defining The Protected Root Zone (PRZ)

The tree's Protected Root Zone (PRZ) can be identified as follows:

1. Measure the diameter (width) of the trunk at chest height, to the nearest inch. To do this, either wrap a tape measure around the trunk and divide that number by 3 or hold a yard stick up to the trunk and approximate the distance.
2. Multiply that number by 1.5 for mature or stressed trees or by 1.0 for young, healthy trees. Express the result in feet.
3. Measure that distance from the trunk of the tree. The area within this radius is the Protected Root Zone (PRZ).



*Adapted, with permission, from: Johnson, G. 1999. Protecting trees from construction damage: a homeowner's guide. St. Paul, MN: University of Minnesota Extension. 21 p.

Maintenance Instructions

Watering*

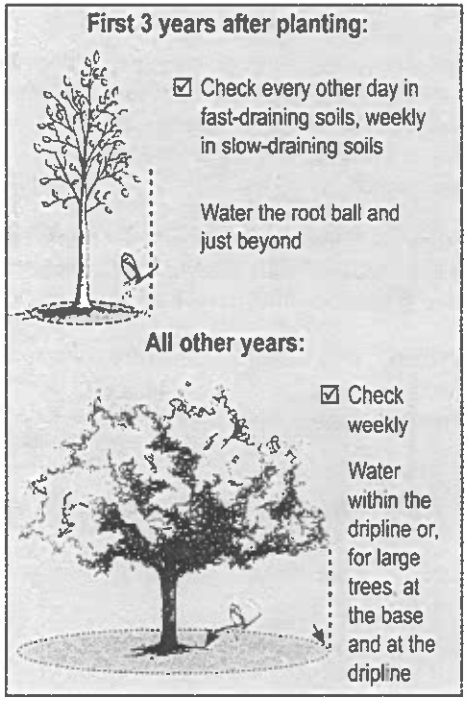
An important factor in tree survival is providing water at the correct frequency. The first 3 years are most critical, but pay attention to watering needs throughout the tree's life. In arid environments most trees will have to be watered throughout the growing season and during dry winters for life unless they are native to that area.

How often and how much?

Frequency depends on water uptake by plants, surface evaporation, and soil drainage. Soils that drain quickly will require more frequent watering than those that drain slowly. To determine your soil's drainage rate, see p. 34. The best way to know how often and how much to water is to check the soil moisture at 6 inches below the surface. Water when dry.

First 3 years after planting: If the soil is dry, provide about 2 gallons of water per diameter inch of the trunk.

All other years: Because soil type and weather conditions influence the demand for water, irrigation schedules and amounts vary.



Tree roots need oxygen. Soil saturated with water for more than 24 hours can prevent roots from getting oxygen. Therefore, watering too much is as dangerous as watering too little (and is harder to correct).

Where? Water the root ball and just beyond. For large trees, focus watering on the area within 6 feet of the trunk and at the dripline.

When? Start checking soil moisture and watering when necessary in early spring, and continue until the soil freezes. For mild climates, water as needed during dry winters. For winter watering, choose warm days above freezing to ensure water soaks into the ground.

*Gilman, E. 1997. Trees for urban and suburban landscapes. Albany, NY: Delmar Publishers. 662 p.

Installing a Trunk Guard

Trunk Protection

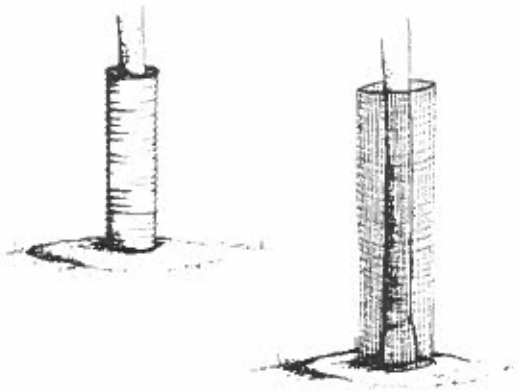
Young broad-leaved trees have thin bark that can easily be damaged by animals and equipment (most commonly string trimmers and lawn mowers). Mulch does a great job of keeping grass (and therefore grass-cutting equipment) away from trunks, but rodents such as rabbits and mice like to chew on young bark (usually low on the trunk). Deer also scrape tree trunks with their antlers.

To prevent long-term damage associated with trunk wounding, install plastic tubing or hardware cloth (stiff wire fencing with 1/4-1/2 inch mesh squares) around the trunk. The tube should be big enough around to allow 1-4 inches of space between it and the trunk. It should be 1-3 feet tall (extending above the anticipated snow depth) for small rodents and as tall as possible for deer.

How? Wrap the tube around the trunk, taking care not to scratch the bark. Use a few pieces of wire to keep the tube closed. Push the tube into the ground or mulch less than an inch. Attach it to one or two stakes if necessary.

When? At a minimum, the trunk should be protected during the winter months (apply early in the autumn to prevent deer scraping). Protection can be applied anytime and left on all year round, as long as it does not touch the bark.

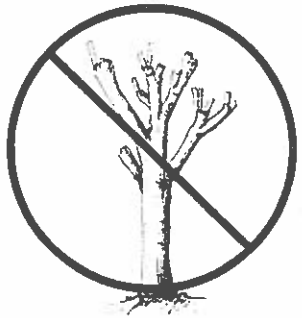
Your tree will grow.
As the tree grows, the tube will need to be enlarged and eventually removed.



Topping*: (Also called stubbing, heading, tipping, hat-racking, dehorning, or roundover)

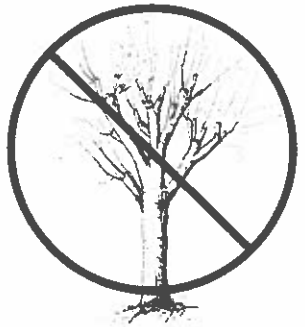
Topping is not pruning.
Topping is the indiscriminate removal of branch ends. Topping injures and ultimately results in early failure or death of a tree.

TIP: If the end of the branch must be removed, cut it back to a side branch that is at least one-third (preferably one-half) the diameter of the branch being cut.



Topped tree

Myth: Topping will make the tree easier to maintain.
Truth: Topped trees can regain their original height quickly, often in 2 years. A topped tree will require more attention than a properly pruned tree because of the fast growing, loosely attached shoots that form.



Topped tree with regrowth

Myth: Topping invigorates a tree.
Truth: Topping immediately injures a tree and starts it on a downward spiral. Topping wounds expose the tree to decay and invasion from insects and disease. While a tree may survive topping, its life span will be significantly reduced.

Myth: Topped trees will add value to your property.
Truth: Topped trees lack natural beauty and may actually reduce your property values. Also, a topped tree can become hazardous and cause property damage, making it a liability.

*Adapted, with permission, from the "Experts Agree: Don't Top Your Tree" campaign which was developed by the Missouri Community Forestry Council and Forest ReLeaf of Missouri, with financial assistance currently provided by the Missouri Department of Conservation.

Pruning Young Trees*

Pruning a young tree saves money. Removing small branches is fairly easy compared with waiting until limbs are large, when pruning can be costly and a bigger risk to the tree. Correctly pruning a tree when it's young will help it develop a strong, well-balanced crown. Prune to have the following:

A. Branches that are well-attached to the trunk
Branches with a branch bark ridge (bark pushed out at the point where the branch attaches to the trunk) are less likely to break off in wind or heavy ice or snow. Branches that are less than half the diameter of the trunk are also less likely to break off in storms.

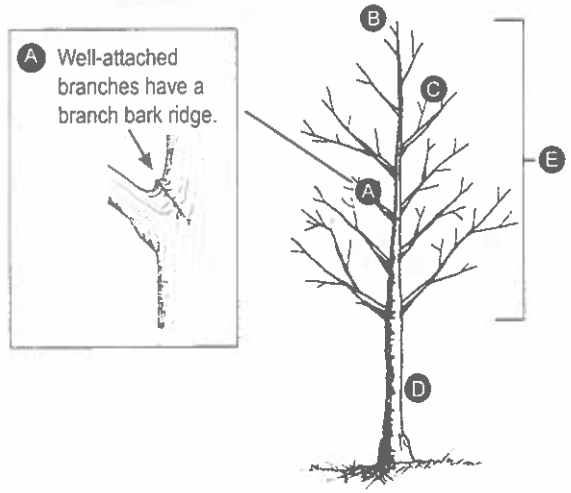
B. One central leader
Most trees will be strongest if they have one central leader (instead of multiple). Unless your tree is an arborvitae or fruit tree, choose one leader to keep, and prune off the competitors.

C. Good spacing between branches
Vertical space between branches should eventually be 12 inches for fruit or small-statured trees and 18 inches for medium- and large-stature broad-leaved trees. Try to space branches equally around the tree.

D. Enough clearance between the ground and first branch
As a tree grows taller, branches remain at the same height. Branches located low on the trunk may get in the way of sidewalk paths or lawn mowing as the tree gets bigger. Over time, gradually remove low branches.

E. Good crown height
The crown of a broad-leaved tree should be at least 60 percent of the total tree height.

Do not remove more than 25 percent of the tree's live branches (and therefore leaves) during one growing season.

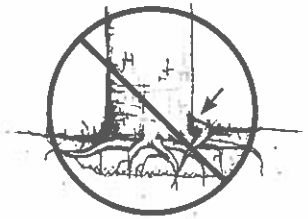


*Gilman, E. 2002. An illustrated guide to pruning, 2d ed. Albany, NY: Delmar Publishers. 330 p.

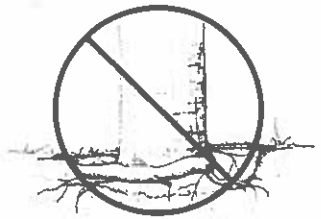
Preventing and Correcting Encircling Roots*

Problem

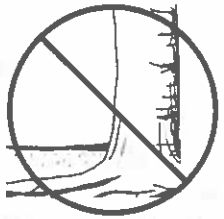
Roots that encircle the trunk will likely cause health or safety problems later. Make sure that soil or mulch is never piled against the root collar.



Root likely to become a problem (when trunk and root meet)



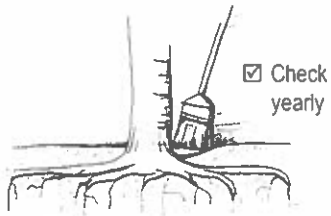
Problem root already touching the trunk



Covering the root collar with soil or mulch encourages encircling roots

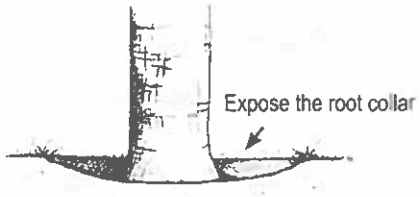
How to Prevent

Plant at correct depth (see Planting Steps 4-7, p. 8-10). Annually clean the root collar by removing soil and mulch.



How to Monitor and Correct

Every 3-4 years, check for roots that encircle the trunk. Use a hand trowel to loosen and remove the soil around the base of the tree until the first set of roots is found.



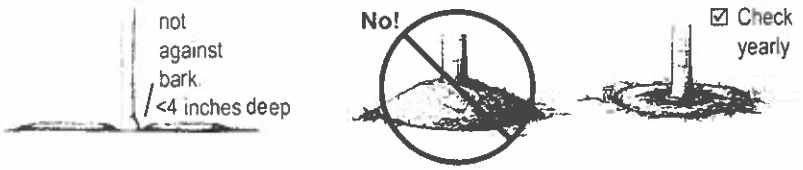
TIP: Removing soil with a wet-dry vacuum speeds the work without harming the roots.

If a tree has an encircling root, leave the top of the root exposed, and consult an arborist regarding treatment. When caught early, this can be an inexpensive and effective way to save your tree.

*Johnson, G.; Fallon, D. 2007. Stem girdling roots: the underground epidemic killing our trees. St. Paul, MN: University of Minnesota.

Mulching

Maintain a ring of organic mulch around the tree (the wider the better). Organic materials like wood chips and leaves are best. Wood chips will take longer to break down and, therefore, will not require replacement as often. In arid regions, do not use rock or gravel as mulch unless the trees are adapted to dry, rocky environments.



TIP: Newspaper kills grass.
If there is grass in the area that needs to be mulched, put a 5-page layer of newspaper over the grass, and then add mulch on top (this will help keep the grass from growing up through the mulch).

Mulch becomes soil.
There should never be more than 4 inches of mulch over the roots. Too much mulch or soil can prevent oxygen from reaching the roots.

Fertilizing

Apply nitrogen fertilizer ONLY if diagnosis by an arborist indicates that it is necessary.

Apply other fertilizers ONLY if a soil test shows that nutrients are lacking.

Do not overdose.
Fertilizer that is not absorbed by the tree has the potential to alter the soil or leach out and pollute groundwater, rivers, ponds, and lakes. Overdosing with fertilizer can harm your tree.

Applying "weed and feed" to your lawn might injure or kill your tree.
Most combination weed killers and lawn fertilizers will injure trees. Do not use anything that states it will kill broad-leaved weeds (it can harm broad-leaved trees as well). Preemergent herbicides are safe to use near most trees, but always check the label.

In some cases, a long-term plan to change the soil pH may be necessary.

FIRE BLIGHT

Range: All counties in the United States

Types of trees: mountain-ash, apple, crabapple, hawthorn, pear, flowering quince, pyracantha

Pruning guidelines: Avoid pruning from the time that spring flowers emerge until leaves drop. If pruning must be done on these tree types during disease-transmission times, sanitize pruning tools before each branch is pruned. Use rubbing alcohol, or household bleach diluted 1 to 9 with water. Tools should be immersed in the solution, preferably for 1-2 minutes. Bleach is corrosive to metal, so tools should be thoroughly cleaned with soap and water after each use.

OAK WILT

Range: See map below

Types of trees: oaks

Pruning guidelines: Avoid pruning from early spring through early summer (April, May, and June in the Lakes States). Check with your plant diagnostic clinic (see page 31 for phone numbers) to get exact dates for your area. If pruning must be done on oaks during disease-transmission times, immediately apply wound paint after the cut is made.

Wound dressings are not necessary in any other case. In fact, they may be harmful.

How Often

Beginning 2 years after planting, prune broad-leaved trees lightly every year or every other year. After 10 years, frequency of pruning depends on the type of tree and amount of shade the canopy receives.

Do not remove more than 25 percent of the tree's live branches (and therefore leaves) at any one time.

Tree Type	First 10 years	10+ Years After Planting
Fruit trees	Once every 1-2 years	Once every 1-3 years
Broad-leaved trees	Once every 1-2 years	Once every 4-7 years*
Conifer trees	Only as needed**	Only as needed**
Palms	Once every 3-6 months in tropical climates, annually otherwise***	

* Pruning lightly and more frequently is better than pruning heavily and less often.
** Conifer trees usually need pruning only if they are diseased or their branches need to be raised up from the ground. In either case, prune off the entire branch (p. 19).
*** Prune only dead or dying fronds. If fruit is a problem, remove flower stalks or fruit clusters as needed.

Removal of the following can be done every year:

- Broken, dead, or rubbing branches
- Competing leaders
- Branches sprouting from the base of the trunk.

Time of Year

Winter is the best time of year to prune because branches are easy to see, diseases cannot be spread, and there is minimal stress to the tree. But for most trees, pruning can be done at any time. Exceptions are trees that are prone to fire blight or oak wilt.

Trees susceptible to fire blight include mountain ash, apple, crabapple, hawthorn, pear, flowering quince, and pyracantha. Trees susceptible to oak wilt include most oaks. To minimize disease infection of these types of trees, follow the pruning guidelines on the next page.

Checking Tree Health

Tree health can be difficult to determine, but checking your tree yearly may help you notice problems as they appear.

Is the current year's growth much less than past years' growth? Fast growth does not mean good health, but a dramatic reduction in growth rate may be an indication of poor health.

TIP: Look at the branch tips or tree top. Current year's branches will typically be smaller in diameter and a different color.

Also inspect the size, color, and distribution of the leaves. Look at individual leaves as well as the whole crown for differences between branches or sections of the crown.

Inspect the base of the trunk for damage (e.g., from rodents or string trimmers).

Also inspect the base of the tree to see if there is a flat side to the trunk.

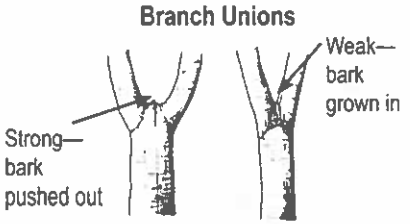
If anything is found, follow the guidance in the Troubleshooting section, p. 30-31.

Checking Tree Safety

Healthy trees can fall down.
A tree may be green and lush, but that does not guarantee that it is structurally safe.

Inspect trees anytime, but especially after storms. Examine the crown, branches, trunk, and area around the roots for these common dangers:

- Broken, dead, or hanging branches
- Cracks, fungi, and cavities
- Weak trunk or branch unions
- Encircling root compressing the trunk (a flat-sided trunk at the ground level is a good indicator). See illustration above.
- Recent lean (especially if the soil or grass has lifted on one side).



If anything is found, or if in doubt, contact an arborist, p. 28.

Pruning*

Pruning can be dangerous work. Follow these safety precautions to be sure you are around to enjoy your tree.

⚠ **Electricity flows through branches.**
Never prune trees or branches that are within 10 feet of utility lines; instead contact your local utility company.

⚠ **Ladders and trees do not mix.**
If pruning cannot be done with both feet on the ground, hire an arborist (p. 28).

⚠ **Chainsaws cut limbs.**
If power equipment is required, hire an arborist (p. 28).

The main reasons for pruning trees are safety, health, and esthetics. Pruning can encourage trees to develop a strong structure and reduce the likelihood of damage during severe weather.

Pruning for safety involves removing branches that could fall and cause injury or property damage, trimming branches that interfere with lines of sight on streets or driveways, and removing branches that grow into utility lines.

Pruning for health involves removing diseased or insect-infested wood, thinning the crown to increase airflow and reduce some pest problems, and removing crossing and rubbing branches.

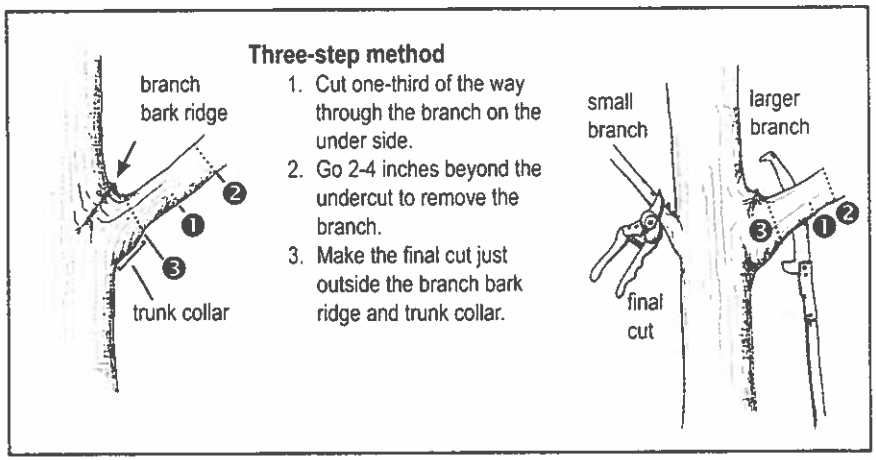
Pruning for esthetics involves enhancing the natural form and character of trees or stimulating flower production.

*Except where noted, this section has been adapted in part, from: Bedker, P.; O'Brien, J.; Mielke, M. 1995. How to prune trees. [Newtown Square], PA: USDA Forest Service Northeastern Area. 30 p.

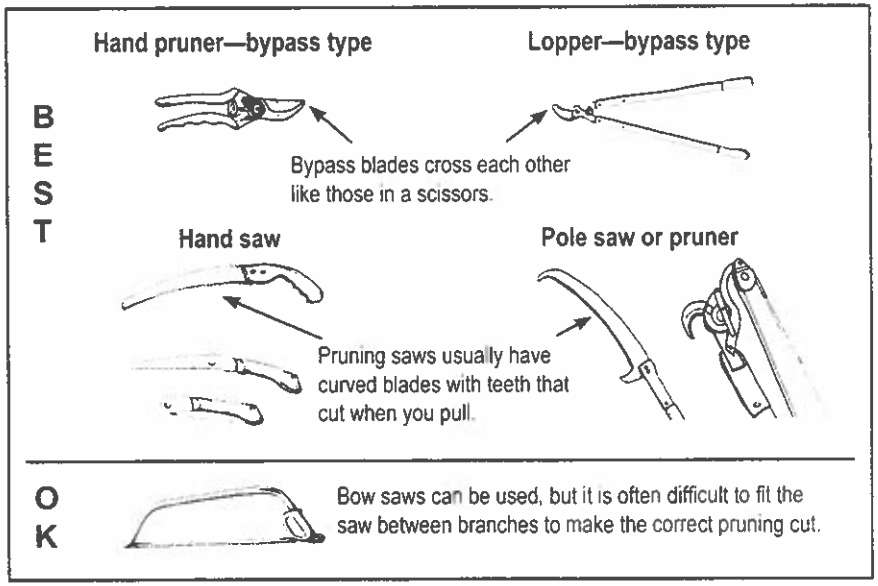
Where to Cut

Support the branch with one hand while you make the cut to prevent the bark from ripping. If the branch is too large to support, use the three-step method (see details below).

For the final cut, look for the branch bark ridge and trunk collar. Begin the cut just outside of the branch bark ridge, and angle down away from the trunk. Stay close to the trunk collar without cutting into it (see images below).



Pruning Tools



Eric D. Batista
City Manager

CITY OF WORCESTER

cm2023oct12114419 Attachment for Item # 9.35 H

October 17, 2023

TO THE WORCESTER CITY COUNCIL

COUNCILORS:

I respectfully request City Council's consideration, deliberation, and adoption of the attached resolution to accept and expend a Fiscal Year 2024 Grant in the amount of One Hundred Fifty Thousand Dollars And No Cents ($150,000.00) from the Commonwealth of Massachusetts, Executive Office of Energy and Environmental Affairs, Department of Conservation & Recreation to continue tree planting and maintenance in Worcester as received from Jay J. Fink, P.E., Commissioner, Department of Public Works & Parks and forwarded for the information of your Honorable Body. No additional city positions are required to implement this grant.

The City of Worcester continues its ongoing battle with the effects of the Asian Longhorned Beetle (ALB), the Emerald Ash Borer and now the Lantern Fly. Worcester is home to the largest ALB infestation on the continent and more than 35,000 trees have been removed since the identification of the beetle in 2008. Worcester's urban forest has been seriously affected and some formerly tree-lined neighborhoods are just now coming back, but much work is still ahead.

The City of Worcester is grateful for this allocation in the FY24 state budget as it is critical to our efforts to combat these pernicious pests and replant our Urban Forest. Working with community partners, we can ensure the health and vitality of the city's trees.

Respectfully submitted,

Eric D. Batista
City Manager

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TELEPHONE (508) 799-1175 | FAX (508) 799-1208
EMAIL: citymanager@worcesterma.gov

CITY OF WORCESTER, MASSACHUSETTS
Department of Public Works and Parks

Jay J. Fink, P.E.
Commissioner of Public
Works and Parks

To: Eric D. Batista, City Manager

From: Jay J. Fink, P.E., Commissioner of Public Works and Parks

Date: October 6, 2023

Re: Finance Request

I respectfully recommend adoption of a resolution to accept and expend a Fiscal Year 2024 Grant from the Commonwealth of Massachusetts, Executive Office of Energy and Environmental Affairs, Department of Conservation & Recreation to continue tree planting and maintenance in Worcester.

The Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs, Department of Conservation and Recreation is authorized within the FY24 state budget, to supply the City of Worcester with up to $150,000 that shall be expended for the purpose of tree replanting and maintenance in Worcester. Funding will be used for tree replanting in the City of Worcester and to continue combating the effects of the Asian Longhorned Beetle. Funding will also be used for the care and maintenance of replanted trees. No additional city positions are required to implement this grant.

As per the resolution, I respectfully request this Department, under the direction of the City Manager, be authorized to accept, appropriate and expend these funds under Project # PRJ-100056 and Grant Account GRT-1000554, from the Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs, Department of Conservation and Recreation.

Sincerely,

Jay J. Fink, P.E.
Commissioner of Public Works and Parks

20 EAST WORCESTER STREET WORCESTER, MASSACHUSETTS 01604
TELEPHONE (508) 929-1300
E-Mail: dpw@worcesterma.gov

A RESOLUTION TO ACCEPT AND EXPEND A FISCAL YEAR 2024 GRANT IN THE AMOUNT OF NOT LESS THAN $150,000 WITH AND FROM THE COMMONWEALTH OF MASSACHUSETTS, EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS, DEPARTMENT OF CONSERVATION AND RECREATION TO CONTINUE TREE PLANTING AND MAINTENANCE IN WORCESTER

WHEREAS: The Fiscal Year 2024 Massachusetts State budget includes line item, "that not less than $150,000 shall be expended for the purpose of tree re-planting in Worcester."; and

WHEREAS: Funding from the State budget will be used for tree replanting and maintenance in the City of Worcester and to continue combating the effects of the Asian Longhorned beetle ("ALB"); and

WHEREAS: Funding will be used for the care and maintenance of replanted trees; and

WHEREAS: The City has disseminated a request for proposals in order to contract out tree replanting services; and

WHEREAS: Worcester is home to the largest ALB infestation on the continent and more than 35,000 trees have been cut down since the identification of the beetle in 2008; and

WHEREAS: This tree planting and maintenance will enhance the quality of our urban forest and is a win-win for neighborhoods and residents throughout the city.

NOW, THEREFORE BE IT RESOLVED, *that:*

1. That the City Manager be and is hereby authorized to accept and expend the Grant with and from the Commonwealth of Massachusetts, Executive Office of Energy and Environmental Affairs, Department of Conservation and Recreation.
2. That the City Treasurer, under the direction of the City Manager, be and is hereby authorized to accept and appropriate these funds into the DPW&P account for tree replanting and maintenance in the City of Worcester.
3. That the City Manager be and hereby authorized to take such other actions as are necessary to carry out the terms, purposes, and conditions of this grant to be administered by the Department of Public Works and Parks; Parks, Recreation and Cemetery Division.

In City Council **October 17, 2023**

Resolution adopted by a yea and nay vote of Nine Yeas and No Nays

A Copy. Attest:

Nikolin Vangjeli
City Clerk

cm2023oct12114419

CITY OF WORCESTER

RESOLVED:

Recommend adoption of a resolution to file, accept, and expend a grant in the amount of One Hundred Fifty Thousand Dollars And No Cents ($150,000.00) from the Commonwealth of Massachusetts, Executive Office of Energy and Environmental Affairs, Department of Conservation and Recreation, to support the City's tree planting and maintenance program.

Neighborhood Groups

	Neighborhood Group	District	Meeting Schedule	Location	Officer in Charge
1	Burncoat/Greendale Neighborhood	1	1st Thursday @ 6pm	St. Michael's On-The Heights 340 Burncoat St	PO Anthony Lombardozzi
2	Lincoln Village Neighborhood	1	1st Thursday at 4 p.m.	Victoria Building, 116 Country Club Boulevard	PO Lisa Carlson
3	Green Island Neighborhood	4	1st Thursday at 4:30 p.m.	Green Island Neighborhood Center, 50 Canton Street	PO Sean Lovely
4	PACT Neighborhood	4	1st Thursday at 5:30 p.m.	Neighborhood Network Center, 301 Pleasant Street	PO Bruce Carter, Jr.
5	Webster Square Neighborhood	5	1st Thursday at 7 p.m.	Our Lady of Angels Church, 1222 Main Street	PO Christopher Santley
6	Seabury Heights Apartments Neighborhood	2	1st Wednesday at 4 p.m.	Seabury Heights Apartments, 240 Belmont Street	PO Michael Higgins
7	Stratton Hill Neighborhood	1	1st Wednesday at 6 p.m.	Strattin Hill Park Apartments, 161 West Mountain St	PO Anthony Lombardozzi
8	Tatnuck Square Neighborhood	5	2nd Monday at 6:30 p.m.	First Congregational Church, 1070 Pleasant Street	PO Bruce Carter, Jr.
9	Holy Cross and College Hill Community Alliance Neighborhood	3	2nd Thursday ar 5:30pm	College of Holy Cross, Hogan Center, 1 College St	PO Peter Bissonnette
10	Emanuel Village Apartments Neighborhood	3	2nd Thursday at 4p.m	Emanuel Villag Apartments, 59 Evelyn Street	PO Christopher Santley
11	Main South Beacon Brightly Neighborhood	4	2nd Thursday at 5:30 p.m.	Y.M.C.A., 766 Main Street	PO Alex Maracallo
12	South Lenox Street Neighborhood	5	2nd Thursday at 6 p.m.	First Congregational Church, 1070 Pleasant Street	PO Michael Higgins
13	Saxon Road Neighborhood	1	2nd Wednesday at 5:30 p.m.	Congregation Beth Israel, 15 Jamesbury Drive	PO Lisa Carlson
14	Newton Square Neighborhood	5	2nd Wednesday at 6:30 p.m.	Blessed Sacrament Church, 551 Pleasant Street	PO Michael Higgins
15	Lake View Neighborhood	2	2nd Wednesday at 7 p.m.	Lakeview Congregational Church, 115 Coburn Avenue	PO Christopher Cutliffe
16	Upsala Street Neighborhood	3	3rd Thursday at 4p.m	Upsala Elder Apartments, 36 Upsala Street	PO Sean Lovely
17	Brown Square Neighborhood	2	3rd Wednesay @7pm	Brown Square Civic Club 639 Franklin St	PO Christopher Cutliffe
18	Kilby St., Gardner St. and Hollis St. Neighborhood	4	3rd Wednesday at 5:30 p.m.	Main South CDC, 875 Main Street	PO Anthony Lombardozzi

19	Grafton Hill Neighborhood	3	3rd Wednesday at 6 p.m	Mass Audubon Society, 414 Massasoit Road	PO Peter Bissonnette
20	Indian Lake Neighborhood	2	3rd Wednesday at 6 p.m.	Panera Bread, 120 Gold Star Boulevard	PO Lisa Carlson
21	Columbus Park Neighborhood	5	4th Thursday @6:00pm	Stearns Tavern, 72 Coes St	PO Christopher Santley
22	Shrewsbury Street Neighborhood	2	4th Thursday at 7 p.m.	Mount Carmel Apartments, 50 Shrewsbury Street	PO Sean Lovely
23	Whittier Terrace Neighborhood	4	4th Wednesday at 4 p.m.	Whittier Terrace, 86 Austin Street	PO Alex Maracallo
24	Quinsigamond Village Neighborhood	3	4th Wednesday at 5:30p.m	The Journey Community Church, 46 Greenwood Street	PO Christopher Cutliffe
25	East Mountain Street Neighborhood	1	Currently Not Meeting	Salem Covenant Church, 215 Mountain Street East	TBA
26	Hammond Heights Neighborhood	1	Currently Not Meeting	Bancroft Tower, 26 Massachusetts Avenue	PO Lisa Carlson
27	Harlow Street Neighborhood	2	Currently Not Meeting	Saint Bernard's Church, 236 Lincoln Street	PO Peter Bissonnette
28	Illinois Street Neighborhood	4	Currently Not Meeting	Worcester Diocese, 51 Illinois Street	PO Thomas Hurley
29	Knight Street Neighborhood	3	Currently Not Meeting	New Horizons Apartments, 20 Benson Avenue	PO Peter Bissonnette
30	Pasadena Parkway Neighborhood	1	Currently Not Meeting	St. Joan of Arc Church, 570 Lincoln Street	TBA
31	Vietnamese Neighborhood	3	Currently Not Meeting	Worcester Senior Center, 128 Providence Street	PO Duy Chau
32	Coes Pond Village Neighborhood	5	Currently Not Meeting	Coes Pond Village 39 First Street	PO Christopher Cutliffe
33	Green Hill Neighborhood	2	Last Monday at 6:30 p.m.	Saint Bernard's Church, 236 Lincoln Street	PO Anthony Lombardozzi

	Neighborhood Group	District	Meeting Schedule	Location	Officer in Charge
	WHA Community Meetings				
1	Lafayette Place Apartments Community Meeting	4	1st Tuesday at 4:30 p.m	Lafayette Place (WHA) 2 Lafayette Street	PO Sean Lovely
2	Lincoln Park Tower Apartments Community Meeting	2	2nd Monday at 1 p.m.	Lincoln Park Tower Apartments (WHA) 11 Lake Avenue Worcester	PO Patrick Bennett
3	Belmont Tower Apartments Community Meeting	2	2nd Thursday at 3:30 p.m	Belmont Tower Apartments (WHA), 40 Belmont Street	TBA
4	Great Brook Valley Community Meeting	1	2nd Thursday at 5:30 p.m.	Great Brook Valley (WHA), 180 Constitution Avenue	TBA
5	Curran Terrace Community Meeting	3	2nd Tuesday at 1 p.m	Curran Terrace (WHA), 201 Providence Street	TBA
6	Booth Apartments Community Meeting	1	2nd Tuesday at 1 p.m.	Booth Apartments (WHA), 1 Haven Lane	TBA
7	Pleasant Tower Apartments Community Meeting	4	2nd Wednesday at 1 p.m.	Pleasant Tower Apartments (WHA), 275 Pleasant Street	PO Lisa Carlson
8	Webster Square Tower East Community Meeting	4	3rd Thursday at 1:30 p.m.	Webster Square Towers East (WHA), 1050 Main Street	PO Peter Bissonnette
9	Webster Square Tower West Community Meeting	4	3rd Thursday at 2:30 p.m.	Webster Square Towers West (WHA), 1060 Main Street	PO Peter Bissonnette
10	Murray/Wellington Apartments Community Meeting	4	3rd Tuesday at 1 p.m.	Murray Apartments (WHA) 50 Murray Avenue	PO Peter Bissonnette
11	Addison Apartments Community Meeting	3	3rd Tuesday at 3 p.m	Addiison Apartments (WHA) 2 Addison Street	TBA
12	Mill Pond Apartments Community Meeting	5	3rd Tuesday at 3 p.m.	Mill Pond Apartments (WHA) 600 Mill Street	PO Thomas Hurley
13	Elm Park Tower Apartments Community Meeting	4	3rd Wednesday at 1 p.m.	Elm Park Tower Apartments (WHA), 425 Pleaseant Street	PO Michael Higgins
14	Mayside Apartments Community Meeting	4	3rd Wednesday at 1 p.m.	Mayside Apartments (WHA) 20 May Street	TBA
15	Greenwood Gardens Community Meeting	3	4th Tuesday at 1 p.m.	Greenwood Gardens (WHA) 327 Greenwood Street	PO Patrick Bennett
16	Mount Carmel Apartments Neighborhood	3	4th Thursday at 3p.m.	Mount Carmel Apartments, 50 Shrewsbury Street	PO Sean Lovely

WPD CALENDAR

The following is the Police Department Calendar for Worcester, MA. If you need help with finding your neighborhood group or would like to start one, please call 508-799-8664 and view our **Neighborhood Response Team** page. To view all events throughout the City, please visit our Municipal Calendar.

WEEK VIEW | MONTH VIEW | LIST VIEW | VIEW BY TYPE | SEARCH | ICAL

« 2022 January February March April May June July August September October November December 2024 »

December 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6 4:00 PM Seabury Heights Apartments Neighborhood Meeting 6:00 PM Stratton Hill Neighborhood Meeting	7 4:00 PM Lincoln Village Neighborhood Meeting 7:00 PM Webster Square Neighborhood Meeting	8	9
10	11	12	13 5:30 PM Saxon Road Neighborhood Meeting 6:30 PM Newton Square Neighborhood Meeting	14 4:00 PM Emanuel Village Apartments Neighborhood Meeting 5:30 PM Main South Beacon Brightly Neighborhood Meeting 6:00 PM South Lenox Street Neighborhood Meeting 6:00 PM Burncoat/Greendale Neighborhood Meeting	15	16
17	18	19	20 6:00 PM Indian Lake Neighborhood Meeting	21 6:00 PM Mill St Area Neighborhood Meeting	22	23
24	25 6:30 PM Green Hill Neighborhood Meeting	26	27 4:00 PM Whittier Terrace Neighborhood Meeting	28 6:00 PM Columbus Park Neighborhood Meeting	29	30

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« 2022 **January** **February** **March** **April** **May** **June** **July** **August** **September** **October** **November** **December**

~~2024~~ »

November 2023

Sunday Saturday	Monday	Tuesday	Wednesday	Thursday	Friday
				1 **4:00 PM** Seabury Heights Apartments Neighborhood Meeting	2 **4:00 PM** Lincoln Village Neighborhood Meeting **5:30 PM** PACT Neighborhood Meeting **7:00 PM** Webster Square Neighborhood Meeting
3	4	5	6	7	8 **5:30 PM** Main South Beacon Brightly Neighborhood Meeting **5:30 PM** Saxon Road Neighborhood Meeting **6:30 PM** Newton Square Neighborhood Meeting	9 **4:00 PM** Emanuel Village Apartments Neighborhood Meeting **6:00 PM** South Lenox Street Neighborhood Meeting **6:00 PM** Burncoat/Greendale Neighborhood Meeting
10	11	12	13 **6:00 PM** Tatnuck Square Neighborhood Meeting **6:30 PM** Firearms Basic Safety Course	14 17 20	15 18 21	16 **6:00 PM** Mill St Area Neighborhood Meeting 19 22 **4:00 PM** Whittier Terrace Neighborhood Meeting
23 **6:00 PM** Columbus Park Neighborhood Meeting	24	25	26	27 **6:30 PM** Firearms Basic Safety Course **6:30 PM** Green Hill Neighborhood Meeting	28 30	29