

Newton Tree Ordinance:

*Updates to better protect public health
& the environment*

*Newton City Council
Programs & Services Committee
September 21, 2022*

Agenda

- Thank you Marc Welch,
Marie Lawlor & Jen Wilson!
Mtg since Sept 2021
- Moratorium
- Why is ordinance is needed
- Current vs Proposal
- Photos
- FAQ
- Discussion



Temporary Moratorium: Why?

Why: To prevent a rush on tree removals to beat a stronger ordinance

- Have already seen examples since August 23 Boston Globe article
- Moratorium would give the City Council time to debate & deliberate without risking wholesale tree destruction in the meantime.
- Cambridge instituted a moratorium prior to their successful tree ordinance passage in June 2021.
- Newton's Urban Tree Commission voted to endorse the temporary moratorium (Sept. 16, 2022).

City Council Passes Legislation Protecting Trees in Cambridge



Cambridge Mayor Mark C. McGovern listens to comments from the audience regarding the proposed tree moratorium. The city council voted for the moratorium Monday evening at City Hall in Central Square. By [Brendan J. Chapuis](#)

By Declan J. Knieriem, Crimson Staff Writer
February 26, 2019

Cambridge City Council passed an amendment that will impose a one year moratorium on cutting down trees in the city as part of an ongoing conservation effort at its weekly meeting Monday.

Temporary Moratorium: what it would do

- a) Effective [date], no tree having a diameter of six (6) inches or greater shall be removed on land identified in Sec. 21-82(a) **nor on any exempt lot** for a period of **one year** unless sooner repealed or amended by the City Council.

“land identified in Sec. 21-82(a)” means land not owned by local, state or federal government; i.e. is privately owned



Definition of “Exempt lot” under current tree ordinance

Exempt lot: A lot which meets all of the following criteria:

- (1) The lot is occupied and used primarily as a dwelling for up to four families at the time any protected tree(s) are removed.
- (2) The lot owner at the time of protected tree removal has owned the lot continuously for a minimum of ninety (90) days prior to the removal of any protected tree(s).
- (3) The existing structure on the lot remains occupied as a dwelling with a person or persons living in it for eighteen consecutive months from the date any protected tree(s) are removed.
- (4) The lot remains owned by the same person for eighteen consecutive months from the date any protected tree(s) are removed.

Temporary Moratorium, cont.

- This limitation **shall not apply** to tree removal permits issued prior to its effective date, **nor to removal of any tree determined by the tree warden to be dead, diseased, in danger of falling, dangerously close to existing structures, causing disruption of public utility service, causing drainage problems or passage problems upon rights-of-way, or posing a threat to pedestrian or vehicular safety.**

Documentation shall be provided by a Certified Arborist utilizing industry-approved Risk Tree Evaluation method along with any additional forms or documentation required by the Tree Warden. The procedures of Sec. 21-84 shall apply to emergency removal of hazardous trees.



TM

Temporary Moratorium, cont.

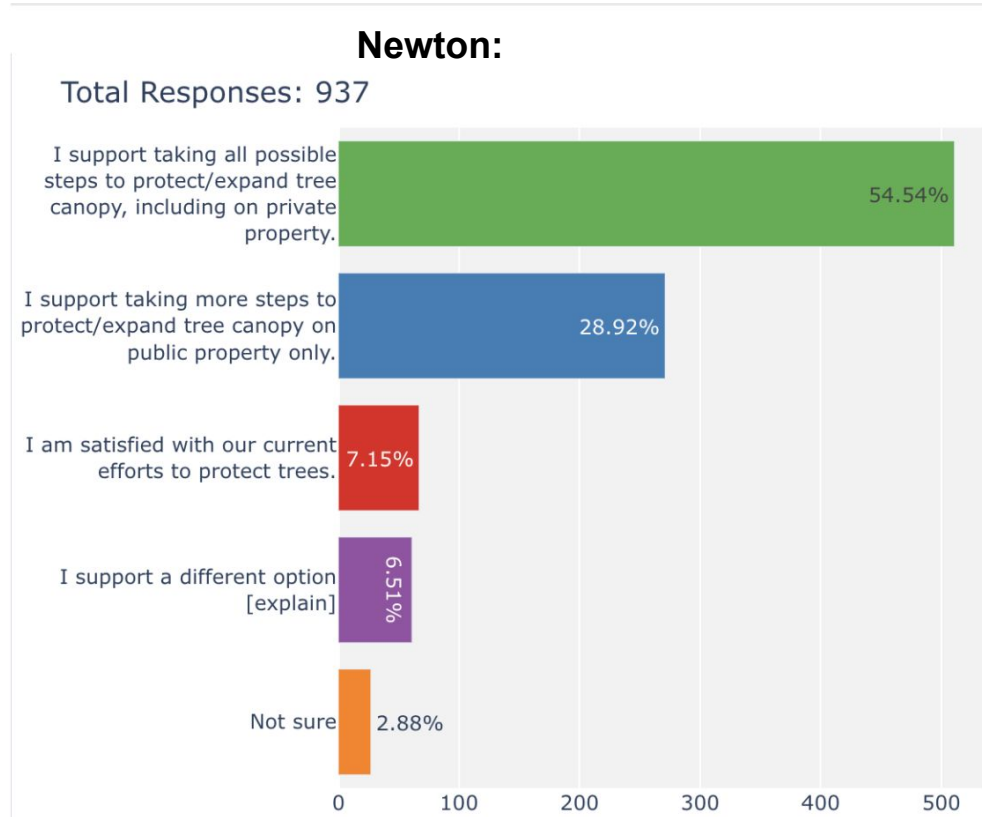
- (b) **Regulations for projects with special permits remain in effect.**
- (c) Any violation of the provisions of Sec. 21-91 (a) shall be subject to the penalties set forth in Sec. 21-89 and shall be subject to the provisions of Sec. 21-85 and Sec. 21-86.

Sec. 21-85 = Tree replacement rules

Sec. 21-86 = Tree replacement fund

Sec. 21-89 = Penalties

2021: Support for expanding tree protections



What will continue, without City Council action



BEFORE - August 28



AFTER - September 4

56 Upland Rd, Waban



56 Upland Rd, Waban: 5 red oaks, 2 white pines, 1 hemlock, total over 900 years of age, cut in one day

40 Fernwood Rd, West Newton, July + Aug 2017



April 2022 webinar: “Trees as a Public Good”



State Senator Cynthia Creem:

- Filed “Municipal Reforestation Act” - to achieve 60% tree cover in every Mass city + town

“Trees are a vital public good. Trees aren’t simply an aesthetic enhancement, but they are a critical piece of urban infrastructure... Trees help us deal with far more than just heat. They sequester carbon, filter the air, reduce energy bills, provide habitat for wildlife, remediate soil, absorb stormwater runoff, and promote better mental health.”

A Livable Commonwealth: Trees as a Public Good



Michelle Wu
Mayor of Boston

Cynthia Stone Creem
MA Senate Majority Leader

Linda Coombs
Author & Historian, Aquinnah Wampanoag

Yvonne Lalyre
Friends of Melnea Cass Boulevard

Marc R Welch
Newton City Forester

Quinton Zondervan
Cambridge City Councilor

Bob Leverett
American Forest Senior Advisor

Moderator: **Melissa J. Brown**, ORMA Climate Crisis Working Group

7pm, April 21, 2022

Hosts: **Mass Call2Action & ORMA Climate Crisis Working Group**

Cosponsors:
250 MA, Berkshire Environmental Action Team, Boston Urban Forest Friends, Climate Action Now, Crane Lodge Woods Coalition, Earth Action, Elders Climate Action-MA, The Enviro Show, Extinction Rebellion Boston, Extinction Rebellion Western Mass, Friends of Melnea Cass Blvd, Green Newton, Greenvet, Jewish Climate Action Network, Massachusetts Forest Watch, Mass Peace Action, MA Sierra Club Forest Protection Team, Muddy Water Initiative, No Fracked Gas in Mass, Progressive Mass, Restore the North Woods, Save the Pine Barrens, Speak for the Trees, United Neighbors of Lower Roxbury, Wendell State Forest Alliance

Democratic Committees of Acton, Arlington, Bedford, Belmont, Billerica, Boston Ward 4, 11, 19, Roxborough, Braintree, Cambridge Ward 6, Cohasset, Concord, Hanson, Kingston, Lenox, Lincoln, Maynard, Newton, Scituate, Walham, Watertown, Wayland, Wellfleet, Weston, Weymouth

https://www.youtube.com/watch?v=MWUNFXxSK_w

TODAY: Mayor Wu major tree announcement



For Immediate Release: Wednesday, September 21, 2022
Contact: Press Office, 617-635-4461



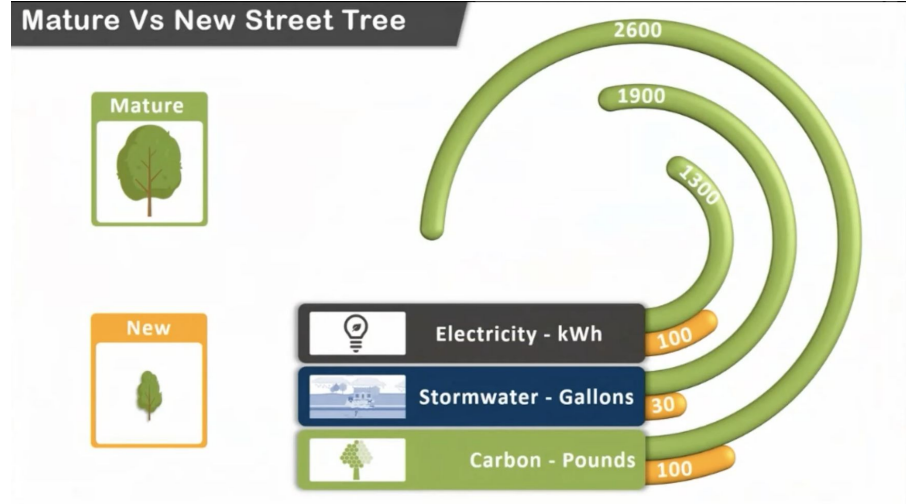
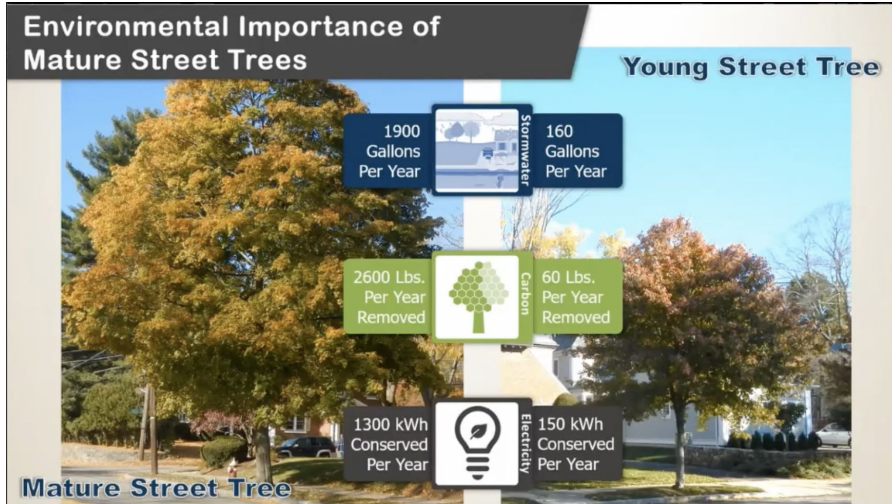
City of Boston
Mayor Michelle Wu

MAYOR WU ANNOUNCES NEW FORESTRY DIVISION AND URBAN FOREST PLAN TO ENHANCE AND PROTECT CITY'S TREE CANOPY

Arnold Arboretum of Harvard University to donate 10 dawn redwood trees to City to be planted across the City

BOSTON - Wednesday, September 21, 2022 - Today, Mayor Michelle Wu announced efforts to bolster the City of Boston's tree canopy to enhance livability and public health throughout Boston's neighborhoods. As part of today's announcement, Mayor Wu is launching a new Forestry Division within the Boston

April 2022 webinar: “Trees as a Public Good”



“Our average mature [30+ yrs] tree provides exponentially more benefit than our young trees. As a tree grows its benefits increase dramatically.... Our existing mature trees are critical to the environment. Efforts should be made to prolong mature street trees by regularly caring for them.” - *Marc Welch, Newton City Forester*

Tree Ordinance update: Why necessary?

Newton is Losing Tree Canopy

Street Trees

- Over the last 50 years, Newton lost 50% of its street tree canopy
- Over 70% remaining street trees “fair” or “poor” condition

Canopy Coverage in Newton

- 48% of total land (2018 report)
 - 55.5% of tree canopy is on residential properties
- 20% loss of forested land in last 25 years

Why Tree Loss?

- Disease
- Gas leaks (80% of Newton’s gas mains are leak prone)
- Storm damage
- Removal for development.

Data is not kept on loss of private trees, but private trees are subject to the same conditions as public trees.

Source: [Newton Open Space and Recreation Plan, 2020-2027](#) (2020), pp. 59-60, 72; [Newton Climate Vulnerability Assessment and Adaptation and Resiliency Action Plan](#) (2018), pp. 29-30, 51



**Newton’s Open Space and Recreation Plan
2020-2027**



Prepared per the requirements of the Mass. Exec. Office of Energy and Environmental Affairs
September 1, 2020

Newton Climate Plan: Tree loss a “key concern”

- “One key concern in Newton is the **continued loss of trees** to development and the loss of street trees to disease and gas leaks. Trees play a critical role in mitigating climate change and cooling local areas. Compromised water quality, extremes of water quantity, and resulting impacts on aquatic life are also of concern.”

City of Newton Climate Vulnerability Assessment and Adaptation and Resiliency Action Plan

First Edition, April 2018



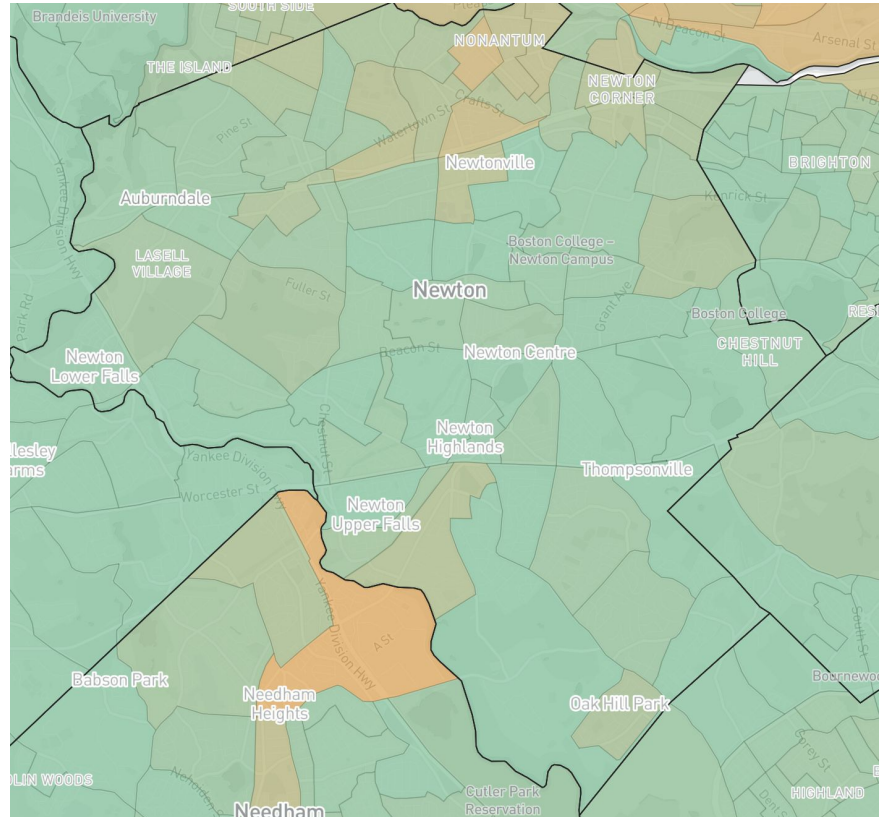
Prepared for
City of Newton
1000 Commonwealth Avenue
Newton, Massachusetts 02459
www.newtonma.gov
Ruthanne Fuller, Mayor



Prepared by
Metropolitan Area Planning Council
60 Temple Place, 6th Floor
Boston, Massachusetts 02111
www.mapc.org

Inequity in Tree Canopy Distribution

- Nonantum: 53
- Newtonville: 59 - 71
- Newton Upper Falls: 76 - 87
- Newton Centre: 91
- Waban: 100



Inequity in tree canopy distribution, cont.



92 Dalby St, Nonantum
(Oct 2020)



56 Upland Rd, Waban
(July 2022)

Inequity in tree canopy distribution, cont.



Wachusett Rd, Chestnut Hill
(Sept 2022)



Upham St, West Newton
(Sept 2022)

Trees cool the air

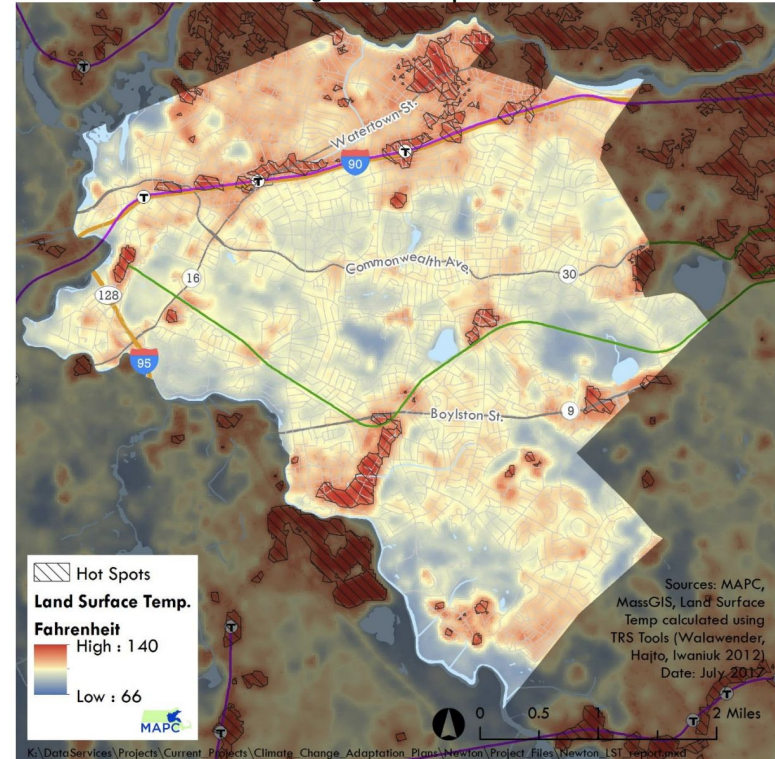
- Paved vs natural cover: 1–7°F higher in daytime, 2–5°F higher at night.
- Increased risk of heat-related illnesses.
- More trees = more shade = reduced energy consumption
 - Only 3 trees can save \$100–\$250 in energy costs annually!

Heat is a business issue too:

- 40% of Newton businesses are in “hot spots”
- ~1800 Newton employees work outside

Sources: [Newton Climate Vulnerability Assessment and Adaptation and Resiliency Action Plan](#), [Arbor Day Foundation](#)

Figure 18. Heat Impacts



Land Surface Temperature on July 13th, 2016, when high temperature at Logan Airport was 92 degrees Fahrenheit.

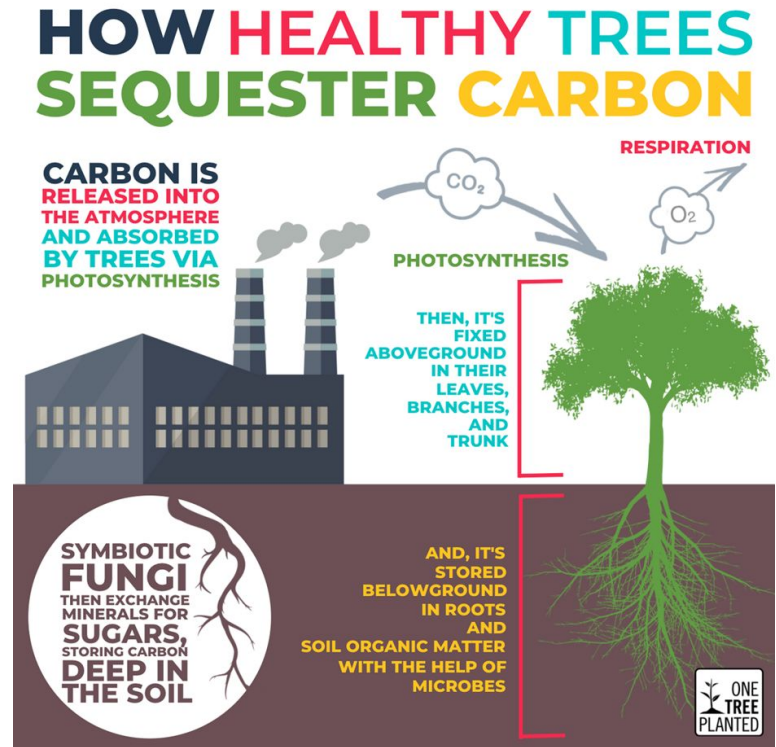
Trees clean the air, reduce GHG emissions

Estimates of annual air pollution removal by Newton's total tree canopy:

- Carbon monoxide = 2,848 lbs.
- Nitrogen dioxide = 73,467 lbs.
- Ozone = 208,445 lbs.
- Sulfur dioxide = 15,158 lbs.
- Particulate matter = 36,881 lbs.

This cleaning function is especially important for those living within 500 feet of a highway (Mass Pike, Rte 9, 128)

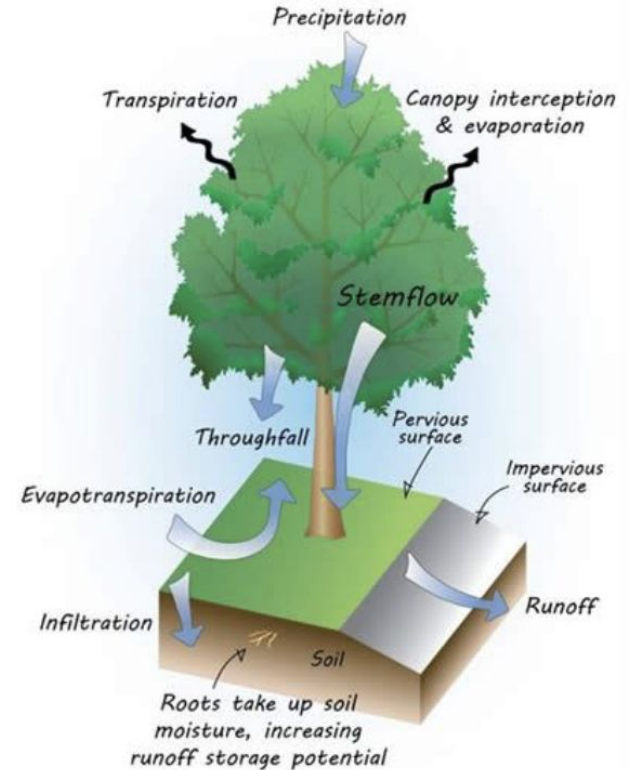
Source: [Newton Climate Vulnerability Assessment and Adaptation and Resiliency Action Plan](#), pp. 26, 29



<https://onetreepanted.org/blogs/stories/how-trees-clean-air>

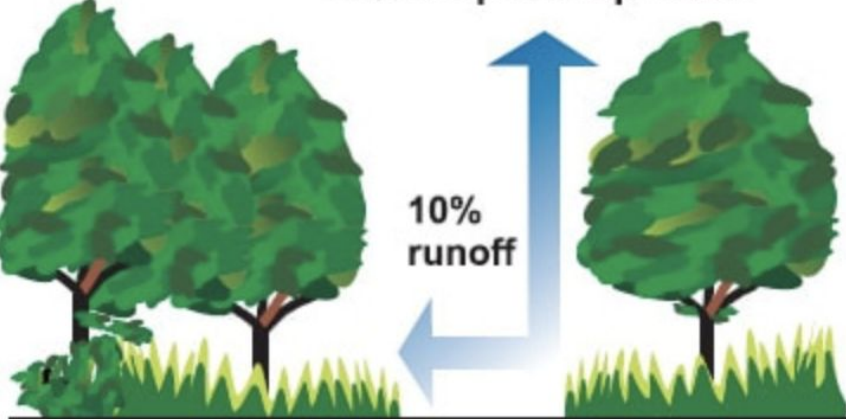
Trees absorb stormwater, improve water quality

- Trees absorb water through their roots, and the water is used to nourish and build the tree's structure. Water that doesn't stay in the tree is released into the air through the leaves in a process known as evapotranspiration.
- 90M gallons of stormwater runoff per year are avoided due to Newton's tree canopy!
- Climate change means more intense storms that our stormwater pipes cannot handle – leading to more flooding



Natural cover vs. built environment

40% evapotranspiration



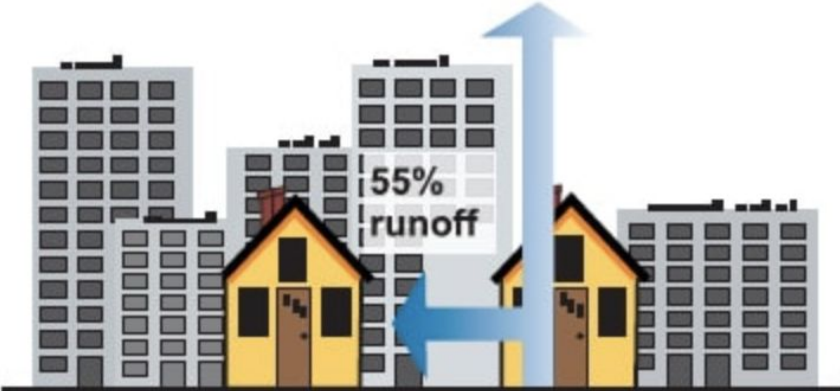
10% runoff

25% shallow infiltration

25% deep infiltration

Natural Ground Cover

30% evapotranspiration



55% runoff

10% shallow infiltration

5% deep infiltration

75%-100% Impervious Cover

Trees provide habitat for wildlife



Photos by Pete Gilmore

Trees buffer sound



September 2017



September 2019

Meg Ward, 957 Washington St, Newtonville:

I live directly across the street from the Mass Pike. There has always been a wall of foliage along the pike. In summer of 2018, DOT came into our neighborhoods and literally cut away ALL the trees and greenery. In a matter of hours, we were left with a barren view of a highway. I cannot underscore enough how profound the negative impact on our residence and neighborhood. The noise from traffic has become so amplified that you can't hold a conversation outside the house without raising your voice to near shouting. You could immediately feel the increase in heat as it radiated off the asphalt from the Pike. Our house felt like it was baking in an oven and my window air conditioner set on High was no longer sufficient for cooling my entire condo unit. Lastly, the air quality – which I didn't think could possibly get worse, did. Soot will accumulate on surfaces in a matter of hours, not days. I had to buy a second air purifier because having just one could no longer clean the air in my 586 square foot condo which is important as I suffer from asthma.

Trees provide mental health benefits



HARVARD
T.H. CHAN

SCHOOL OF PUBLIC HEALTH

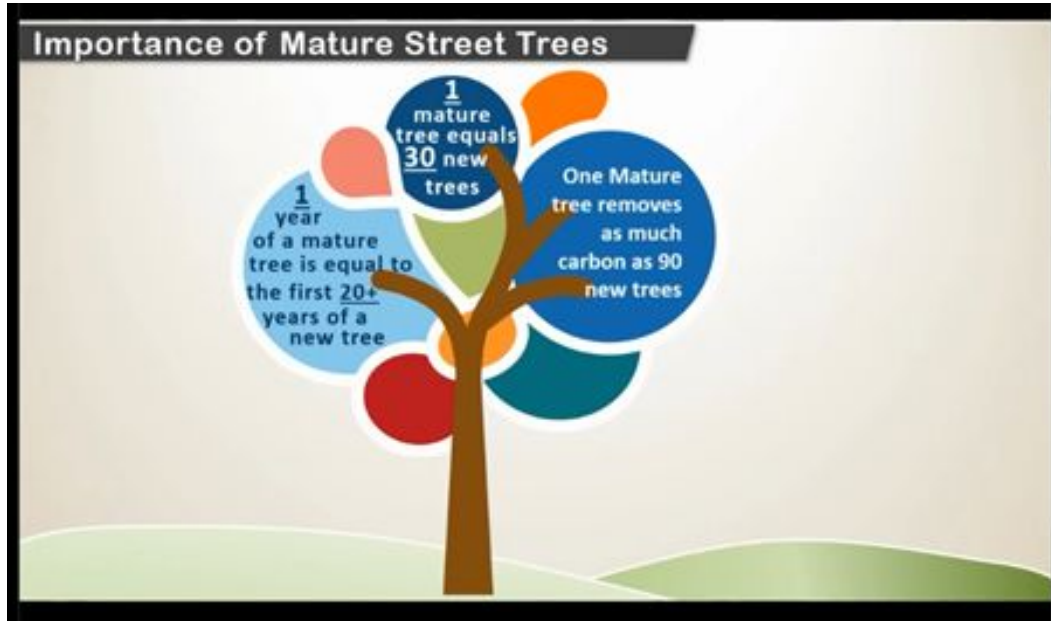
[Home](#) > [News](#) > [In the News](#) > [2021](#) > The health benefits of trees

The health benefits of trees

A growing body of research shows that regularly spending time around trees provides a wide range of human health benefits, from lowering [stress](#) to improving cognition to boosting longevity, according to experts.

In a September 8, 2021, interview on WBUR’s Radio Boston, [Peter James](#), assistant professor in Harvard T.H. Chan School of Public Health’s [Department of Environmental Health](#), said that trees’ effects on us “translate into long-term changes in the incidence of [depression](#), anxiety, cognitive decline, and [chronic diseases](#) including [cardiovascular disease](#) and [cancer](#).”

Why can't we just provide replacement trees?



- "Mature" tree = at least 30 yrs old
- Cannot plant 30:1 ratio of replacement trees on most lots
- Lost eco- and health services compound
Cut mature tree's services would have grown during those lost decades

We don't have 20 - 30 years!

- Time left to limit global warming to 1.5°C = 6 years, 303 days
<https://climateclock.world/science>

Marc Welch, "Environmental Importance of Mature Street Trees," [webinar presentation](#), April 21, 2022

How we measure trees: DBH & caliper inches



Caliper inches –
for young trees
Measure diameter
6" above ground



Diameter at Breast Height (DBH)
Measure diameter 4 ft 6 inches above ground (diameter
tape does the math), or use a regular tape measure &
divide by Pi (3.14159).

New tree



2" caliper

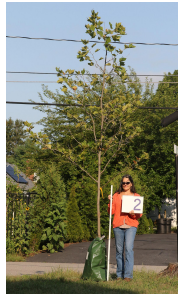
Mature tree



17" DBH

One new tree is like one branch of a mature tree!

2-inch young tree compared to 17-inch (average DBH of street tree)



Compare + Contrast of City Council Vs. Other Proposals

	Current Ordinance	Administration Docket Item	City Council Docket Item	Cambridge, MA Ordinance (2021)
Which Trees Are Protected?	Only trees 8" DBH or larger that are not on an exempt lot	<p>Legacy Trees (55" DBH) or larger, on all lots</p> <p>Protected Trees 6" DBH and larger <i>that are on 3-family or larger residential lots and commercial lots that do not require a special permit</i></p> <p>Protected Trees 6" DBH and larger that are on 1-2 family lots <i>ONLY IF construction is planned within 24 months</i></p>	<p>All trees 6" DBH or larger on all lots</p> <p>See Sec. 21-81, Protected Tree; Sec. 21-82</p>	Applies to trees 6" DBH or greater on all lots except projects of the Affordable Housing Trust

59 inch DBH

Protected in both proposals



47 inch DBH

Protected, but not for 1-2 family in mayor's proposal



Rules around exemptions

	Current Ordinance	Administration Docket Item	City Council Docket Item	Cambridge, MA Ordinance (2021)
Are there exemptions allowing unregulated cutting of Protected Trees?	Yes A “certificate of exemption” issued if owner occupancy requirements met	Yes An “exemption permit” issued for cutting all trees under 55” (4 feet 7 inches) DBH on 1-2 family residential lots if no construction is planned for 24 months	No	Yes Affordable Housing Projects are exempt
What Conditions Remove Properties from Tree Regulation?	If own & occupy 18 months before & after (or 90 days before & 21 months after) cutting trees	If own 1-2 family lots, no construction planned for 24 months after cutting trees, and cutting trees <i>less than 55”</i> DBH, <i>ie</i> Legacy Trees	Nothing All property owners in Newton must apply for a permit to cut trees	If building 100% affordable housing

Protections during construction

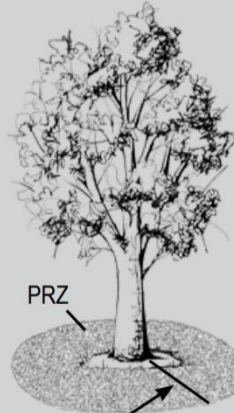
	Current Ordinance	Administration Docket Item	City Council Docket Item	Cambridge, MA Ordinance (2021)
What protections are there for trees to remain during construction?	Limited Protects area only under the dripline of trees; allows damage to roots extending beyond dripline that can kill trees	Very good Creates a Tree Save Area that protects area under dripline or within radius of 1.5 ft for every inch of DBH, whichever is greater.	Very good Creates a Tree Save Area that protects area under dripline or within radius of 1.5 ft for every inch of DBH, whichever is greater.	Unclear Creates a Tree Save Area (dimensions not specified in ordinance)

“Protected Root Zone”

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).



PRZ radius (ft) =
 $1.0 \text{ or } 1.5 \times \text{trunk diameter (in)}$

Under the current ordinance, 'preserved' trees may not survive damage



432 Dedham St, Oak Hill

- 35" beech nominally preserved but raised grade over much of root zone deprives roots of oxygen
- Excavation for wall was within critical root zone

Protections for abutters' trees

	Current Ordinance	Administration Docket Item	City Council Docket Item	Cambridge, MA Ordinance (2021)
Are there protections for abutters' trees?	No	Yes Tree Save Area applies to trees on lots abutting construction	Yes Tree Save Area applies to trees on lots abutting construction	Unclear

Examples of abutter tree damage



224 Melrose, Auburndale
- tree roots damaged by
10 Elberta Terr construction



30 Woodhaven Rd (left), 56 Upland Rd (rt), Waban,
(where developer plans to raise grade 2 ft)

Notice to abutters required?

	Current Ordinance	Administration Docket Item	City Council Docket Item	Cambridge MA Ordinance (2021)
Is notice to abutters about tree cutting required?	No	No	Yes, for all permits Requires notifying abutters of tree permit applications and posting tree permits in public view on site.	Yes, for <u>Large</u> projects

Can trees be removed on private property?

	Current Ordinance	Administration Docket Item	City Council Docket Item	Cambridge MA Ordinance (2021)
Can trees be cut or removed on private property, even if they are not dead or dangerous to people, structures, roadways, or utility projects?	<p>Yes</p> <p><u>On exempt lots: any and all trees</u> without replacement, fee, or mitigation payment</p> <p><u>On non-exempt lots: any and all trees</u> with replacement or payment of fee in lieu of replacement for cutting trees that are healthy and not dangerous</p>	<p>Yes</p> <p><u>With exemption permit: any and all trees</u> less than 55" DBH <i>without</i> replacement, fee, or mitigation payment</p> <p><u>With tree permit: any and all trees</u> with permit fee and with replacement or payment in lieu of replacement for cutting trees that are healthy and not dangerous</p>	<p>Yes</p> <p><u>With tree permit: any and all trees</u> but <i>only with</i> permit fee, environmental mitigation payment, and replacement (or higher mitigation payment in lieu of replacement) for cutting trees that are healthy and not dangerous</p>	<p>Yes</p> <p><u>With tree permit: any and all trees</u> but only with a mitigation payment and/or replacement for cutting trees that are healthy and not dangerous</p> <p>Large (special permit) lots always pay and pay more than regular lots</p>

Replacement requirements

	Current Ordinance	Administration Docket Item	City Council Docket Item	Cambridge MA (2021)
What are the replacement requirements for cutting health, non-dangerous trees?	<p><u>On exempt lots:</u> none</p> <p><u>On non-exempt lots:</u> inch-for-inch replacement <i>or</i> payment in lieu of replacement</p>	<p><u>With exemption permit:</u> none</p> <p><u>With tree permit:</u> either replacement or payment in lieu of replacement</p> <p>Replacement ratio varies by DBH of cut trees</p> <ul style="list-style-type: none"> - for 6-24" (Protected), 1 to 1 - for 25-39" (Significant), 1.5 to 1 - for 40-54" (Landmark), 2 to 1 - for <u>55"+</u> (Legacy), 3 to 1 	<p><u>With tree permit:</u> replacement (or higher mitigation payment in lieu of replacement)</p> <p>Replacement ratio varies by DBH of cut trees</p> <ul style="list-style-type: none"> - for 6-24" (Protected), 1 to 1 - for 25-39" (Significant), 1.5 to 1 - for 40-54" (Landmark), 2 to 1 - for <u>55"+</u> (Legacy), 3 to 1 	<p><u>With tree permit:</u> replacement (or mitigation payment in lieu of replacement)</p> <p>Replacement ratio varies by DBH of cut trees</p> <ul style="list-style-type: none"> - 6-29", 1 to 1 - 30" +, 1.5 to 1

Costs for removing healthy, non-dangerous trees

	Current Ordinance	Administration Docket Item	City Council Docket Item	Cambridge MA (2021)
What are the costs to property owners for cutting healthy, non-dangerous trees?	<p><u>On exempt lots:</u> none</p> <p><u>On non-exempt lots:</u> application fee, permit fee, and payment based on cost of buying & installing new trees (where is unspecified)</p>	<p><u>With exemption permit:</u> none</p> <p><u>With tree permit:</u> application fee and payment based on cost of buying, installing & maintaining new trees for five years (where is unspecified)</p>	<p><u>With tree permit:</u> application fee and environmental mitigation payment based on costs to City from tree loss: damages to public health, loss of climate mitigation services, increased energy usage, increased <u>drainage</u> and infrastructure costs</p>	<p><u>With tree permit:</u> permit fee and sometimes mitigation payment</p> <p>Large projects must pay at least \$5,000</p>

Replacement tree protections; who decides appeals; stop-work orders

	Current Ordinance	Administration Docket Item	City Council Docket Item	Cambridge MA (2021)
Are replacement trees given special protection?	Required to survive 18 months	Considered a Significant Tree (only relevant if property owner applies to cut it; no longer required to survive any specified time)	Considered a Significant Tree and protected for 10 years (if owner applies to cut, requires mitigation payment without reduction and higher replacement levels)	Protected for 10 years (if owner applies to cut, requires mitigation payment without reduction)
Who decides appeals of tree permit decisions and on what basis?	Appeals go to mayor, who must notify the <u>councilors</u> from the ward of appeals No guidance on basis for deciding appeals	Appeals go to mayor, who shall seek input and consult with the <u>Ward Councilor</u> (not at-large <u>councilors</u> from the ward) No guidance on basis for deciding appeals	Appeals go to mayor and all <u>councilors</u> of the ward, who jointly decide Decisions to be guided by reasonable safety and tree wellbeing provisions	None mentioned
Can violations result in an ISD stop-work order?	Yes Tree warden can <i>request</i> that the agency that approved external work stop external work	Yes Tree warden can <i>request</i> that the agency that approved external work stop external work	Yes Tree warden can direct ISD to issue a stop work order	Yes City arborist can direct ISD to issue a stop work order

Examples of DBH

What size trees are protected now?
What size trees will we protect?

5 inch DBH

No protection, now or proposed.



7 inch DBH

Newly protected, but not for 1-2 family in mayor's proposal



14 inch DBH

Protected, but not for 1-2 family in mayor's proposal



30 inch DBH

Protected, but not for 1-2 family
mayor's proposal



35 inch DBH

Protected, but not for 1-2 family in Administration proposal



42 inch DBH

Protected, but not for 1-2 family in Administration proposal



47 inch DBH

Protected, but not for 1-2 family in mayor's proposal



FAQ

Will the moratorium negatively impact affordable housing?

No, because we are not proposing any change for special permit or 40B projects, which is how all affordable housing projects are considered. In addition the large high-density projects that provide the most housing units do not seem to be a major cause of tree loss, because they tend to be large commercial sites like Northland, Trio, and Riverside that did not have many trees to begin with; in fact they often result in more trees being planted.

What if I want to expand my house and there is a healthy tree in the way?

You can still apply to remove it; you will have to pay a higher fee than before to better reflect the lost benefits from that tree.

FAQ, cont.

What about Norway maples?

Existing tree ordinances have never distinguished between species or treated invasive species differently, because aside from being invasive, they're doing the climate work that non-invasive trees do in terms of carbon sequestration, providing shade, absorbing storm water, cooling the air, filtering particulate pollution and so on. Sometimes the only screening for privacy or from sound that people have is Norway maples.

Would this ordinance strengthen protections for tree damage from gas leaks?

Gas utilities are regulated by the Mass. Dept of Public Utilities, not the City. Several years ago the City declined to join other municipalities in a lawsuit against National Grid, but negotiated a settlement for approximately 10% of damages.

FAQ, cont.

Will the moratorium require additional staffing?

The only applications to remove trees would be related to dead or dangerous trees, and documentation would have to be provided by a certified arborist, minimizing work for City staff.

Discussion



17 Regina Rd, Auburndale

2014 demo, and current 2022.