

# MEETING NOTES



## ISSUE DATE

July 25, 2018

## MEETING DATE

June 28, 2018

## LOCATION

Cambridge Rindge and Latin School

## CLIENT

City of Cambridge

## PROJECT NAME/NUMBER

Urban Forest Management Plan 2953

## RE

Task Force Meeting 2

## ATTENDEES

City of Cambridge  
City of Cambridge Task Force  
Conversation Law Foundation  
F2  
Reed Hilderbrand

### 1. Opening Remarks

Owen O'Riordan's introductory remarks:

- Task Force's (TF) focus is on the Urban Forest (trees) and not about green spaces
- Unclear if TF falls within/under Open Meeting law. Will review with Law Dept.
- Letters and documents will be posted on website.
- During presentations the consultants will present their research with opportunities for TF members to comment. The public will be invited to comment at the end of the meeting.

### 2. Introduction

Reed Hilderbrand (RH) discussed the project statement, how the project is organized, and the project team. Project team and task Force members introduced themselves.

TF: Expressed desire for the Task Force to jointly craft a statement of purpose for the master plan (example of Fresh Pond MP process)

TF: How will the UFMP be taking into account connectivity?

Response: Ecological connectivity, and how people move through the city will be considered.

TF: Will we be considering the spiritual impact of trees upon a community?

Response: There is currently no reliable way to quantify that.

### 3. Practice

RH presented what the team has learned so far about the City's tree and soil practices, areas where there are further investigation, and best management practices. Summary of the presentation and task force comments follows:

#### *City Tree budget*

Per Tree City USA application, Cambridge spends \$18 per capita in 2016 and \$19.75 per capita in 2017. This budget includes salaries, pruning and planting contracts, EAB, equipment, travel/training, and tree board/volunteer time. Compared with \$7.30 average per capita spending for Tree Cities in MA in 2016, this is more than double the average.

However, communities count different elements in their Tree City USA

application, so it is not exactly an "apples to apples" comparison. Cartegraph is a geospatial database system that enables city to track a tree history or tree status from a spatial or mapping perspective. The City currently tracks trees in parks, cemeteries and in the public right of way. Cartegraph can be a powerful tool for not only tracking current status of the urban canopy but to conduct comparative analytics that can help evaluate and inform city practices.

## ABOVE GROUND

### *Species selection*

City currently recommends ornamental species under overhead wires and shade trees. Questions to consider are:

- How regularly should the lists be updated, should there be additional categories of recommendations (home owners/developers) and should it be more specific in terms of planting condition (urban vs. residential).
- How and should the city have more regulatory control over what is planted? Can they tell developers what to plant?
- Generally: how and can we get the right tree species in the right place on private and developer property?

### *Pruning*

Proactive component: City is on a 6 year rotation for Street trees, parks and cemetery on 8 year. All the trees see some treatment on rotation. The City has a pruning contract for all city street trees in Cambridge.

Reactive component: response to service requests and emergency response or storm related services.

Eversource pruning required by state law. Eversource submits their veg plan (circuit pruning plans) yearly to City arborist. City arborist and Eversource will meet to discuss work and have an informal agreement regarding clearance (3' window rather than 10').

### *Tree removals*

Cities response for tree removal is reactive. Managed through SeeClickFix and is integrated with Cartegraph. No private trees removed are tracked.

### *Pests/Diseases*

City currently treats Elms and Ash with trunk injections for EAB application and Dutch Elm Disease. No monitoring for any other pests. At Fresh Pond,

they seem to be more proactive on treatments, like for Hemlock Woolly Adelgid, Dormant Oil for pests, BT for winter moth. Areas of investigation: what is the appropriate city response to catastrophic vs. nuisance pests.

## BELOW GROUND

### *Planting Details*

The City currently replants trees back into its current condition in a tree pit with horticultural soil. For new plantings, the City will use sand based structural soil (SBSS) to expand the soil volume that will allow tree roots to access adjacent condition. Soil volume per tree is much higher in the cases where SBSS is used. A minimum sidewalk width of 6' means tree pit of 2' wide because a 4' sidewalk must be maintained for accessibility. City will not prune roots if sidewalk lift occurs and will use flexipave or asphalt instead of concrete or will shave down concrete.

TF: Underwire trees are categorized according to height, how about tree well pit size and soil volume?

Response: It would be good to include recommendations by tree hardiness.

TF: What is the management over time like with flexipave?

Response: Flushing out of flexipave will remove the silt that has built up in the flexipave.

TF: Is there a cycle to change the size of the tree grate in time?

Response: There isn't a regular cycle but the City will go out and remove tree grates when they see the need.

TF: Are the trees in SSBS doing better?

Response: This is an area where Cartegraph can be very informative. The City might be able to track how trees within SBSS and trees not in SBSS are doing and conduct a comparative analysis. This layer of data needs to be added.

### *Irrigation:*

For new City owned trees, City waters for 5 years. City requires contractors and developers to water trees within public ROW for 2 years. Trees are under warranty for 2 years. Sometimes the City will ask developers to prepare the site for planting and they will pay into the tree fund and the City will plant and maintain. City uses gator bags around young trees (not useful for mature trees). After 2 year period, City employs summer interns through the Water by Bike program to water trees for 3 to 5 years, and for trees that

are not accessible by fire hydrant, forestry folks

TF: When there is a drought, how do you water the trees?

Response: If the trees are out of the 5 year watering period, the City relies on residents to do it themselves.

### *Mulch*

No standard program for street trees. Parks use natural hemlock mulch and tend to have an issue with over-mulching. Areas of investigation: Adding specificity to the formal specification.

### *Soil details/specs/systems*

City has one specification for replantings and one specification for new tree locations with sand based structural soil. Area of investigation: We know that some trees fare differently in sandy soil- so what kind of flexibility can there be to provide the right soil type for the right species?

TF: Can Cartegraph become a public tool or become a tool for landscape architects to know which trees are existing / can be used when there is a new development?

Response: Right now Cartegraph is internal facing, but the City makes its tree inventory public through the Open Data Portal.

### BEST PRACTICES

Several BMPs that currently aren't documented by the City and are being investigated by the team include supplemental support, lightning protection, addressing root defects, pest management, and risk management. Different strategies work for different situations- SBSS, CU-soil, and suspended pavement are all systems that seek to limit compaction and can be considered. Pervious pavement systems have an added stormwater benefit, but it's also very important to consider aeration and drainage. Soils are dynamic, living systems, and even under pavement, research has shown that there is biological activity and they form horizons over time.

### *Soil Management*

F2 presented on the importance of soil biology and best management case studies for soil management. In Battery Park City, a leaf composting program was established in a small footprint. Harvard Yard has an active compost-tea program

In Battery Park City, soil testing was done after Hurricane Sandy and found that sandy soils had much lower salt content than soils with more loam. Similar conditions are seen with soils exposed to a lot of winter salts. When amending soils for salts (for example gypsum amendments), must also consider the biological component and may have to also add compost.  
Growth medium

TF: How can the leaves be left on the streets?

Response: Taking the leaves, composting them and putting them back as finished compost.

TF: How can the budget of trees be adjusted?

Response: Through the budget process.

TF: What about the current condition of trees on private property? The average backyard is a significant amount of the city. Is there any effort to analyze that?

Response: Analyzing the entire city using LIDAR so we can understand where the risks are.

#### **4. Advocacy**

Conservation Law Foundation presented on the City's current regulations on tree planting, mitigation, funding and best management practices from other cities. Summary of the presentation and task force comments follows:

##### **I. Current State Regulations**

###### **M.G.L. Chapter 87 - Shade Trees**

- First state in NE to pass this type of legislation. It was enacted in the late 19<sup>th</sup> century, other NE states followed suit
- Definition of a shade tree
  - All trees within or on the boundaries of a public right of way (within 20 feet with owners consent)
- Protections
  - Protections of the Public Shade Tree Act applies to all public shade trees, shrubs, and vegetative growths within the municipal boundary except (i) those along state highways and (ii) those in public parks under the jurisdiction of the park commissioners unless the park commissioner grants the

- tree warden control in writing
- Planting
  - Cities and towns may appropriate money for planting and maintenance
  - The tree warden, or a private organization acting with written consent of tree warden, may plant shade trees acquired with either private or public funds
- Establishes Tree Warden
  - Guardians of municipal public trees
  - Tree wardens have the power to make regulations for public shade tree care and protection
    - upon approval by the selectmen, those regulations acquire the force and effect of town bylaws
- Cutting down
  - Require a hearing – if there is an objection in writing (at or before hearing) than cannot be cut down or removed without approval by selectman or mayor [In Cambridge this would be the City Manager]
  - Current exception excluding trees of 1.5 inches in diameter measured one foot from the ground from the public shade tree hearing requirement
  - Statutory exceptions to the public shade tree hearing requirements
    - Endanger persons travelling on a highway or hinder travel on highway
    - Purpose of widening a highway
    - “suppression of pests” which has been construed in case law to mean anything that is a risk to public safety so hazardous trees
    - If they obstruct buildings being moved in a public way for public safety reasons
- Utilities
  - Utility may, or the tree warden might require the utility to, submit two documents: (1) an annual vegetation management plan describing the proposed maintenance work to be performed, and (2) an annual hazardous tree removal plan describing hazardous trees to be removed. Approval of these plans exempts the utility from the statutory public hearing requirements. The utility submits the plan no

later than ninety days before the proposed work begins, and the tree warden notifies the utility within sixty days whether or not the plan has been approved. The tree warden may approve the plan with modifications agreed to by both parties.

- The utility must also comply with tree maintenance standards and specifications
  - The standards must conform with American National Standard Institute A-300; American National Standard Institute Z133; and National Electric Safety Code 218 Tree Trimming and OSHA 29 CFR Part 1910 Line Clearance Tree Trimming Operations, and annually the utility must submit evidence of compliance with these standards.

## II. Current City Regulations

**Removal Policy:** Consistent with state law, the City only removes trees when they are dead, dying, diseased or hazardous. Public shade trees are protected under state law. The City does not remove trees without good reason. They will remove trees that are hazardous i.e. they pose a threat to persons or property and in that context it must meet three criteria: (1) is it sufficiently large enough to cause damage if it falls, (2) It has a target that would be damaged if it fell, and (3) The tree has a condition that would make it likely to fall.

The city will inspect all requests for removal. In some cases, a tree may be developing a condition that would ultimately make it a hazard, but not imminently. The removal of such trees requires a public hearing as prescribed by state law. In some cases, the entire tree may not be hazardous, but some maintenance work is required.

### City Tree Protection Ordinance

- Defines Significant trees as trees larger than 8” DBH (diameter of a tree trunk measures in inches at a height of four feet above the ground ‘breast height’)
- Establishes a tree replacement fund, which is an account administered by the City Treasurer for the sole purpose of buying, planting, and maintaining trees in the city (notably does not say public trees)

- Establishes and defines “tree protection plan”, which is a drawing that depicts existing trees and indicates whether they can save trees on site and if they need to be removed, where on site they can be replaced otherwise the amount of mitigation to be paid into the tree replacement fund. Tree protection plans apply to projects that require a special permit and projects of 25,000 square feet or more
- Defines “replacement trees” a tree or trees to be planted on a lot to replace any significant trees removed from the lot or whose equivalent value is proposed to be paid into the tree replacement fund.
- The “Tree Study” consists of the tree protection plan, a tree survey, and if applicable a mitigation plan (i.e. how they are going to replace or pay into the fund). And a tree survey is a plan showing the location, type, height and DBH of all trees on a lot
- Noteworthy that this section only gives project applicants the option of either (a) planting replacement trees on the same lot or paying the estimated cost into the tree fund
- Also gives the Commissioner of Public Works authority to promulgate regulations to “accomplish the provisions of the chapter”

## Zoning Ordinance

- Tree requirements hidden throughout many articles of city zoning – have some mention in 7 different articles. Some of the most noteworthy are:
  - Article 5 which sets development standards for residential and business districts
    - Specifically it applies to the C-2B residential district and to business districts where a lot abuts a residential district
    - For Zone C-2B, the Committee on Public Planting is required to review and approve plans for landscaping and maintenance
    - Some of the requirements that apply to both these districts include set back requirements and calls for proponents to “make an effort to retain best existing trees in setback area”
  - Article 19 is for project review and requires that both applications for special permits and applications for development in a variety of office, business, industrial, and



residential zones include a tree study as defined in the city's tree protection ordinance

- Article 20 provides requirements for overlay districts
  - Specifically, the parkway overlay district requires that for every 10 “on-grade” (ground level) parking spaces there has to be at least one 3-inch caliper tree located within the area devoted to ground level parking
    - There are also standards for tree protection included here and a requirement that front yards contain at least one three inch caliper tree for every 25 feet of linear feet of street frontage
  - The Prospect Overlay district requires that any new development or redevelopment on a lot, an existing or new tree is required on the lot within 10 feet of the public sidewalk or in the public sidewalk for every 25 feet of frontage along Prospect Street.
- Article 11 requires townhouse development to provide at least one three inch caliper tree for every two ground level parking spaces but that this requirement can be reduced through special permit
- Article 6 also includes requirements for off-street parking facilities including that “every effort” shall be made to retain existing trees and that removal of a tree exceeding 6 inch caliper to accommodate construction is discouraged
  - Also, ground-level parking facilities containing 5 or more parking spaces shall have at least one tree and the facility as a whole shall contain at least one tree for every ten parking spaces
  - Trees must be a minimum of 3 inch caliper at planting

## Committee on Public Planting

Established in Chapter 2 of City code of ordinances.

Purpose is to advise the city council, city manager, public works commissioner and others on public planting issues, including the effective maintenance of public plantings already in place; serve as a resource for the city; review planting plans of all proposals for new public work in the city; to support the role of the City arborist or tree warden; to encourage interest in public planting; to conduct other activities as considered appropriate for

achieve the basic purpose of the committee.

The committee is appointed by the City Manager – members of the public who serve have term limits of three years but can be reappointed.

### Tree Ambassador/Water by Bike

Paid program –currently four summer interns. They are responsible for inspecting, weeding, and watering young trees via bicycle and cargo trailer.

### Planting Requests

- You can request a replacement tree if a tree in the public right of way was removed from an existing well in front of your property and there is no expense to you.
- You can also request to plant a new tree if there is no tree well on your property but the city will determine whether or not the site is suitable for a tree well and if it is not you can chose to instead participate in the back of sidewalk program

### Back of Sidewalk

- The back of sidewalk program is an opt in program where property owners can have a tree planted on their private property within 20 feet of the public right of way at no initial cost to them but the property owner agrees to maintenance of the tree once its planted.

### Adopt-a-Tree

Residents can use the City’s interactive mapping tool to find city trees near a specific address whether its work, home, wherever, click on a tree and fill out a form to adopt it. In doing so, they agree to water and tend the tree well.

### Commemorative Tree

You can opt to have a tree planted in honor of something – a person, significant life event or anything else you want. It costs \$200.

## II. Challenges and Opportunities

Team is in the process of digesting the information from a meeting with the City but we came away with ideas for things that could be reworked or made more efficient.

Public-private partnerships – What is the interest in public-private partnerships to work toward this goal. Part of our best practice review will be looking at how these have worked in other places. Part of this will be dependent on what we find in other areas in terms of which areas are

suitable for planting, are in most need of canopy coverage, where the greatest opportunity areas are. For small property owners we will likely get a sense of their level of buy-in through community meetings presenting some of our initial findings and recommendations.

Relationship with the State – one of the things we are doing to be looking into is the City’s existing relationship with DCR on this topic area and whether there are any systems in place to coordinate or have a dialogue and if not, why that is and whether there is a way to rectify it if we believe it would be useful or make it easier for the city to achieve its tree canopy goals.

Cross-departmental city coordination – making sure that when there are updates in zoning in so far as those updates would impact tree requirements or introduce new landscaping requirements – what systems are in place to coordinate that. I also mentioned earlier that is currently is not common practice for the City Arborist to go out and assess projects with landscape plans prior to them being issued a certificate of occupancy. Should there be a mechanism to make sure this is being double checked and that properties are in compliance with tree studies.

#### IV. Feasibility survey/study

The intent of the feasibility survey is to give a baseline knowledge to narrow the world of possibilities to what the team thinks will be feasible here in Cambridge. For this purposes, there are three major research questions we’re seeking to answer with the information we collect from the study/survey.

Research questions:

- What is the attitude toward or interest in tree planting?
- Why are current programs for planting and maintenance successful or unsuccessful? Known or unknown?
- How do attitudes, awareness and interests differ by neighborhood and housing tenure (own or rent)

Not being used as a public engagement tool – the goal is not to collect general information from residents. The team is still in the process of confirming these general research questions and the sub-questions with city staff.

#### V. Best Practices

Seattle, WA

Tree protection code:

- Similar to the city's tree protection ordinance – except applies more broadly
- Limits the number and the size of trees that can be removed from private property
- There are several detailed provisions of this code but at a high level some of the noteworthy things it requires are:
  - Developed land: no exceptional trees can be removed and no more than 3 non-exceptional trees six inches in diameter or greater may be removed on any lot in any one-year period
  - Undeveloped land: no trees six inches in diameter or greater may be removed unless they are hazardous or where tree removal is proposal as part of development
  - During development: they have to identify all trees with a diameter of over six inches and requirements are based on zoning and building subtypes similar to as in the Cambridge
- Exceptional trees are defined as a tree of group of trees that are unique because of historical, ecological, or aesthetic value. They include trees designated as “heritage trees” which are voluntarily designated or they are exceptional by virtue of size, species, condition, historic important, age, etc. Ultimately designation is determined by the Director of the Department of Planning and Development.
- Heritage trees have to meet some criteria based on specimen, historic value, etc. but they also have to be nominated with a property owners consent and evaluated by the city arborist and a review committee before they are designated.

Update: Seattle is currently revising its ordinance

Green Factor:

- Similar to the Green Area setbacks in Cambridge zoning
- Green factor is a score-based requirement that increases the amount of and improves the quality of landscaping in new development.
- To meet the green factor you have to reach a minimum score and you can choose from a menu – similar to LEED certification. The menu includes a lot of things green roofs, rain gardens, trees, etc.

- Doesn't apply to everywhere – for example it doesn't apply to single-family zoning districts, which probably makes sense because those are more likely to be smaller lots. New commercial development and large mixed use would really be the target here
- But there are built in incentives for doing certain things – so as it relates to trees, a developer would get more points for a preserved tree than a newly planted tree. They also get added points for layering vegetation so a tree with an understory of shrubs is worth more than just one tree by itself.
- Catch here is that it gives developers more options than just tree canopy when they are meeting the requirements. Which may or may not be a bad thing depending on the situation. Something like this could easily be tweaked to favor trees above all other green landscaping features but it also does provide some mechanism for a developer to comply with onsite features if for whatever reason a tree or many trees is not feasible.

## Atlanta, GA

- Whereas the city of Cambridge's tree ordinance is a page or two long, the city of Atlanta's is 32 pages so it's very robust. I'm not going to give you all the intricate details but at a high level some of the things that make it strong are:
  - Slightly lower tree to surface parking space ratio – 1 tree for every 8 space instead of Cambridge's 10.
  - They empower their tree conservation commission to determine when a person has violated the provisions of the ordinance and impose fines – the first violation is no less than \$500 and the fine for each subsequent violation is \$1000 which is a little more substantial than Cambridge's fines
    - If the commission can't determine the number of trees for which the violation occurred, they assume a density of 60 trees per acre and can impose a fine of \$60,000 per acre of land.
  - They also have a tree fund but they have stricter requirements for how much money can be used for what purpose. They also allow some of the funds to be used for educational outreach.
  - In terms of tree removal, they require a permit to remove any tree on public property and to remove a tree with a DBH of six inches or more on private property and if the tree is not

dead or dying or hazardous they have to meet standards for tree replacement – similar set up where if you can't replace them all on site you contribute into a tree fund

- Another interest provision is that a certificate of occupancy for a property cannot be issued until the city arborist has inspected the site and confirmed that all replacement trees have been planted

## Nashville, TN

### Tree protection and replacement ordinance

- Requires a permit before removing any tree that is considered a “protected tree” which means its 6 or more inches in diameter. Does not apply to one and two family residential areas.
- Tree removal permits are not granted unless it meets specific criteria including its disease, poses a threat to safety, structural integrity or utilities, permissible use of the site cannot be undertaken unless the tree is removed or relocated; and others. But generally it doesn't allow for healthy, nonhazardous trees to be removed without special circumstances.
- Has special designation for historic and specimen trees that are designated by the metro beautification and environment commission based on advice from the tree advisory committee and with consent of a property owner. None of these can be removed without a finding from the commission that it's hazardous or it's economically or practically unfeasible to develop the parcel without removing the tree.

Mayor also recently signed an executive order reinforcing tree protections on public property

- Among other things, the EO requires ongoing monitoring of the tree canopy and an update of the city's tree canopy study every five years, regular tracking of tree plantings and removals on public property and public right of ways and track and log replanting opportunities throughout the county.

## Arlington, VA

- Arlington, like Cambridge has a tree canopy fund but they use the fund to provide grants to plant trees on private property. Since the program started, 1,213 trees have been planted. When grant

applications are approved, the tree is planted by a contractor and the property owner is responsible for maintenance. Grant applications are prioritized based on a number of factors including the location and suitability for planting, whether the applicant has training or experience in tree care, whether its submitted by a lone individual or an organized group, whether they are a first time applicant or not but interestingly there doesn't appear to be any ability to pay criteria or prioritization.

## Dallas, TX

- The revised ordinance distinguishes between species of trees for imposing fines with heavy fines for “legacy” trees like elms and oaks but no fines for removal of invasive species. Also takes into account the age and size of trees being removed with the intent being to limit very large old trees from being replaced with lots of very small trees that may not survive.
- New version also limits the number of “exempt” trees
- Added credits for transplanted trees, habitat preservation, and sustainable landscape design
- Different types of street topologies, so residential, mixed use, commercial, etc. have different tree canopy cover goals stated. Those percentages are converted to square feet by multiplying the percent and the total square footage of the building site. If the property can't meet the goal they have to mitigate it but there are credits available that can reduce the mitigation requirement.
- Although this was not one of the updates – it was already in the ordinance—they charge \$2,000 a day in fines for violations.
- Also allows them some flexibility in how they spend the money in their tree fund including funding an urban forest plan with some of the money

Also noteworthy that there have been some unsuccessful efforts at the state level in Texas to put restrictions on local tree ordinances. A few bills have been introduced over the years to restrict localities ability to prohibit tree removal on private property for trees of a certain size and proposals to cap tree removal fines.

TF: Would like to have notes from this presentation, particularly the advocacy section, available for the task force.

TF: What does the 19.75 spent per capita. What does this look like in comparison to the per capita budget spent by DPW?

TF: Consider looking into incentivizing microforest. Microforests are considered at the parcel scale and help growth rates of trees.

TF: Conflicts with neighbors regarding their ability to trim trees.

TF: Cambridge is a dense city compared to Dallas, when we use per capita comparison, should be cognizant of comparing similar municipalities.

TF: Why did we settle on 8" dbh on policy?

### **Public Comment Period:**

Public Comment 1: She has praise and thanks to the City arborist for help on replacing tree after it was pruned too heavily by Eversource. A lot is possible on a person to person basis.

Public Comment 2: He expressed concern on the impact of development on tree mortality. He sighted the Holyoke Center renovation as a large development with significant tree removal. There are controversial situations with both public and private tree removals and tree mortality rates connected to that. How can this be handled better? He's interested in learning how we get a better handle on large development- what other solution are there?

Public Comment 3: Beyond the single tree, what kind of analysis can be done on clusters/groupings of trees?

Public Comment 4: There are stark tree health differences between trees south and north of Porter sq. Seems like it might be an equity issues. Are there maintenance differences?

Public Comment 5: Hotel owners put small trees in front of their developments, similar to the trees put in for small homeowners. Example of hotels at Porter Square- this seems an inadequate tree size for larger



## MEETING NOTES



development.

**Public Comment 6:** Thanks to everyone. She's interested in a comparative per capita numbers for cities that have better policy or have better canopy.

**Public Comment 7:** He would like to relate spending to environmental services.