

# MEETING NOTES



## ISSUE DATE

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## MEETING DATE

Dec 20, 2018

## LOCATION

Cambridge Rindge  
and Latin School

## CLIENT

City of Cambridge

## PROJECT

NAME/NUMBER

Urban Forest

Master Plan 2953

## RE

Task Force

Meeting 7

## ATTENDEES

City of Cambridge

Task Force

Reed Hilderbrand

### Opening remarks by Owen O’Riordan:

Owen noted that tonight is the first of a couple of conversations about regulations and the Task Force will be given homework about this topic for the coming months. City has given some of the information on regulations to the team that has been gathered so far. Owen wanted to discuss a particular project; 55 Wheeler Street, a 6 acre site in the west of the city, adjacent to Fresh Pond. There was a special permit issue associated with that project in December 2017. Tree Ordinance compliance needed to be revisited specific to the courtyard. The developer visited the site with the City the day before the meeting. City needs more details before issuing an updated letter to the community development department.

### RH review of the project schedule:

The team is going to focus on the Policy category tonight. There are also overlaps between the different categories. In the following meetings, we will talk about other categories.

### Design Team presentation on policy strategies:

At the last meeting, RH framed the way we think about response in two categories: Stemming the loss of the existing canopy in Cambridge and growing canopy by planting new trees. The matrix developed about strategies and responses were also shown last time. On the left of the matrix, there are actions in response to certain conditions and at the top, there are strategies, which are Policy, Planning/Design, Practice and Outreach/Education.

Policy seems to be top-down in its nature. Even in a policy strategy, we need to be thinking about all of the categories of landowners in City of Cambridge. The graphic on slide 4 shows the amount of plantable area by land use. The plantable area model shows us where there are opportunities to plant new trees. It is a multi-pronged approach, no one party takes the responsibility. We are going to start talking about what the city can do in regulation but that will eventually connect to all these pieces.

We are aware that when we are talking about changing regulations, there are always competing priorities. If we expand the jurisdiction of some of these regulations, we might encourage tree planting. If you increase the penalties, you have to be careful about impacting the vulnerable

populations. Preserving open space is important. Enhancing enforcement may have impacts on staffing. When we talk about the change of regulations, we need to think about all of the impacts.

## *Tree Protection Ordinance*

Currently the Tree Protection Ordinance applies to development review that happens on businesses, industry, institutions and residents depending on the scale of project. So, when we start to make changes, it has a ripple effect all the way through.

TF: Do we have a copy of what the current ordinances are?

Response: We don't have those to handout but we will talk about those. We will first talk about the base before talking about the changes. Existing ordinances can be found online in the [Cambridge municipal codes: Chapter 8.66 Tree Protection](#).

Today, trees in Cambridge have protection only when they are over 8" dbh (diameter at breast height). Those trees require mitigation if they are being removed as part of new development projects. This applies to certain multifamily, townhouse and other projects requiring a special permit from the Planning Board or development projects of 50,000 square feet or more. Other thresholds apply to different projects and sizes.

Three approaches that strengthen current Tree Protection Ordinance:

- Expand jurisdiction
- Increase deterrence
- Enhance mitigation

Strategies for expanding the jurisdiction:

Redefining the "Significant Trees"

Adding "Exceptional Tree" protections

Adding triggers to expand the application of the Ordinance

Expanding to all properties

Redefining the "Significant Trees" :

The difference between a 6" dbh tree and 8" dbh tree is not huge but when you change the definition of Significant tree to include 6" and over, you would expand the number of trees that are protected by 49% (estimated).

### Adding “Exceptional Tree” protections:

There is also “exceptional trees”, which can be a giant tree or a unique species, in a particular location in the city that is important or with a historical significance. If we add this category, the city would have to create a database of where these trees are. In some cities, it is prohibited to remove the exceptional trees. If they need to be removed because of a hazard, a larger fee is associated with that. Or a developer has to prove that it is absolutely unfeasible to protect that tree and still develop the site.

### Adding triggers to expand the application of the Ordinance:

There are certain things that trigger the tree protection ordinance. It is tied to the size of the project, number of trees to be removed and the area of new impervious surface. One could lower the project size threshold, but there might be some small size projects that you wouldn't want to overburden.

### Expanding to all properties:

Data shows that the majority of canopy loss is not happening on development sites but on private residences. Many cities across the country, and some locally, have expanded their tree protection ordinances to apply to all properties including those that are not currently being developed/redeveloped. There are pros and cons to expanding the jurisdiction to all private properties. There is this question of who you are penalizing, and the question of the cost.

This has been done in a number of different ways and in a number of cities, so there isn't one standard for Cambridge. Many people reference Seattle as a good example, with a strong Tree Protection Ordinance. They passed their Ordinance in 2008. They protect the trees in private property but they also have an undeveloped land category. Their threshold is 6” dbh. They are now asking for a single consolidating permitting system.

TF: About the slide that shows the land use types, specific to Cambridge, there is a category of residents that is a developer, (condo developers) that are temporary residents/owner of that property, who builds a property and sells it off. This person who is not really a resident but just a temporary owner is causing a lot of tree loss. Are there any regulations that address that?

Response: That is related to what we were talking about, mitigation requirements in protection during the development process. In that scenario, Tree Ordinance would kick in as long as that project meets the

large project threshold. So, it gets to this idea of how you could encompass that kind of project. We need to think how often that happens in smaller properties, what the appropriate size of development should fall under the Tree Ordinance.

TF: I have a hard time with regulating small developers more stringently. Zoning Ordinance in Cambridge for housing is already very restrictive. We can't rebuild the city that we have if houses were burnt down. It creates a lot of problems and the housing is very expensive. Personally, I feel strongly that the small developer should succeed over large developers because small developers create variety in the city. The other thing is, not all trees are created equally. In small residential lots, people need to have a choice about what they want. They can have trees or urban agriculture, there are so many things you can do. I would argue for de-paving and plantings than only trees because the urban forest is combination of things. We can be a little more creative with that kind of small lots to have some variety in the city.

Response: You touched on a couple of topics that we will come back to, such as how you value the trees, trees are not equal, etc. In the Zoning conversation, we will talk about some strategies, how we evaluate not only the trees but other measures as well.

TF: I want to disagree a bit. I think that protection of urban wilds is very important. There are several projects that I can think of. There are big and beautiful trees along property lines, along fences that were left alone.  
Response: We will talk about overlay districts and whether there is a way of understanding priority areas for preservation of planting. But it is interesting to think about what category that can be.

TF: On the previous slide, it says the majority of loss is on private property. From my long term observations in the city, there are big developments with no trees.  
Response: If we want to curb loss, we need to look into the private property to come up with some strategies as that's where the data shows the loss is. This loss is harder to see as it can happen away from public space.

TF: To back up for a second, why are we trying to keep the canopy, what is that we are trying to achieve?  
Response: Because of the ecosystems services they provide: heat island, carbon sequestration, stormwater management, but also experiential

quality. All of these reasons get at how we value trees.

TF: Regarding your initial slides about plantable area, it is an opportunity to keep the open space and avoid impervious surface to use that space to plant new trees.

Response: That is our second category, growing the canopy, and we'll get to that shortly.

TF: What is the difference between development project and private residential project?

Response: They overlap. Some of the residential developments are not covered by the Tree Protection Ordinance.

Owen: We haven't yet been able to differentiate causes of loss on private property. In the coming months we may be able to get at some causes by looking at building permits, residential sales, and increases in impervious surface.

### Mitigation as part of the Tree Protection Ordinance:

To remove a significant tree, a property developer must either replace the tree on site or pay into the Tree Fund. How do we calculate that?

Current cost of mitigation is based on the cost of planting a number of 3" caliper trees, about \$1,500 per tree, including the maintenance. There is little incentive for a developer to minimize tree removal or to replant on site.

What happens when you increase the mitigation costs?

One is to develop more stringent requirements for replacing those trees on site and the other one is to develop a more robust valuation process for off-site mitigation.

Currently, if you are replacing your trees, it is measured by caliper inch against diameter. If you remove 40" tree, you have to replace it with eight (8) 5" trees, when you are replacing the total diameter of tree. 5" trees over time will grow in size, but that's a small replacement at planting. There are other models than what we do in Cambridge, one is to replace the tree by area. That would mean sixty-four (64) 5" trees for the same 40" tree. In some properties you can't plant this many trees but there are different ways to handle where mitigation trees are planted.

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TF: How do you value a tree?

Response: Right now the City's valuation is based on the replacement cost for the diameter of tree(s) being removed. I-tree is a program that gives a dollar value for the ecosystem services of a tree. NYC Parks have their own customized valuation which is kind of a mix of these.

We will go through how a typical caliper inch model works. The cost of a 3" caliper tree is \$1,568. You figure out the total caliper inches of your tree divided by 3. So, if we have a 36" tree, the value of the tree is \$19,182.

In the other model, "weighted trunk area replacement value", we take the typical tree replacement cost (\$1,568) and we figure out per square inch what is the cost to replace that tree. \$222/sq. inch caliper and our tree has 1057.8 sq. inches. There is also species rating, condition rating and location rating. An arborist would evaluate these in the process. The same 36" Pin Oak tree in good condition and good location comes to \$79,197.

TF: This is to pay this fee to the Tree Fund. I suggest another option, planting these trees in other locations in the city.

Response: We'll address this in a moment, yes.

Public: Is there anywhere in that formula that takes into account the age?

Response: It does not, it is an interesting point. But it is also very difficult to evaluate the age of a tree in urban conditions.

TF: There is an Ordinance Committee meeting January 9th. The urgency of the tree canopy right now is critical regarding how much we've lost and how long it would take to replace. I would ask the Tree Task Force to make a recommendation to the City Council in favor of a moratorium on tree removals until the Master Plan process is completed.

Response: If we were to increase restrictions on tree removals, there is currently limited capacity for DPW to have an oversight of that. Contractors are asked to describe the tree protection, the ordinance doesn't actually require any particular practices. We think that there is an opportunity to require increased offset from tree dripline to protect tree roots, also to require periodic site review of conditions to improve tree protection measures during construction, and to require city arborist/city engineer inspection prior to obtaining Certificate of Occupancy.

Owen: In City of Atlanta, they have 4 planners that look into tree

applications, 6 arborists, 2 technicians and a separate tree planting department. As we look into more involved process here, that is a significantly onerous application. City of Atlanta is 33 square miles, whereas Cambridge is 6 sq. miles.

TF: So we are smaller.

Response: But still there would be probably additional staff required.

TF: I think we will find that there is going to be an interest in expanding what the City spends.

The next category is engaging with private property owners. Aside from the back of sidewalk program, the City doesn't have a way to plant trees on private property. Even within that back of sidewalk program, there are certain constraints. So, is there a way to do grants or some other program that distributes that money to the groups that can do planting on private property?

Owen: City cannot provide funding to private property owners. One could argue that there is a public benefit there but there is a legal question that needs to be answered. We need further clarification of the anti-aid amendment regarding providing public funds to benefit private property.

Seattle has a local non-profit organization that organizes neighborhood planting days with volunteers that are trained to plant trees. It is a very successful program but they found out that if you apply a cost to it, the participation rate decreases. It is important especially for neighborhoods where residents are not willing to pay for a tree but would be interested in having the tree.

TF: The state is currently contracting with private contractors or with municipalities or non-profits to do the planting because the quality of volunteer plantings is not great. State program Greening the Gateway Cities planted 20,000 trees in the last 5 years focusing on low-income areas. The program is state funding from the alternative compliance fund.

### Formalizing City Practices:

Can the Committee on Public Planting as an existing entity evolve in ways that are particularly valuable to the Urban Forest Master Plan?



Providing the resources so that the committee can interpret recommendations, updating analysis based on current research, reviewing pilot projects, reviewing progress toward targets.

There might be additional resources given to the committee. Chicago Region Trees Initiative partnered with a group of organizations such as US Forest Services, The Morton Arboretum etc. who have deep scientific knowledge. It may be possible to build a similar group of technical advisors, and meet with them for example twice a year.

There are also many concurrent planning efforts that have different priorities and we should help identify what the priorities are and how they can be applied to zoning.

Another question is where the trees are planted. Right now trees get planted when people request them, probably in an empty tree pit.

There are two problems with the canopy distribution in city. One is new planting requests which we need to formalize. The other is tied back to Tree Protection Ordinance. There is no system now that requires the developer to spend the money that they put in the Tree Fund to be spent for plantings in that same neighborhood. It creates an unequal distribution when trees are removed by new development and not replaced in the same neighborhood, but instead are planted according to requests. It may have negative impact on vulnerable populations.

One of the examples about how Cambridge might be able to get a planting protocol is the sidewalk replacement study that was done in Boston. They surveyed the condition of sidewalks in the city and they found a significant disparity in low income communities and communities of color where the sidewalks have not been repaired for decades. The system required a call and complaint about the sidewalks, then the city would put you on a list. But if no one called, the sidewalks didn't get repaired. Recognizing the inequity in this system, they changed their protocol. They did an inventory and now they have a priority list according to the sidewalk conditions.

For us, we have an initial tree inventory for the city and know the canopy conditions. So, the City may have a protocol for prioritizing areas. In defining these priority areas, we did a quick overlay. First of all, we looked into the environmentally vulnerable populations (including minority population, low income population, non-English speaking population).



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Other than that, we looked into the heat island hotspots, the transportation corridors (cool corridors) and the social infrastructure including the public schools and hospitals. And when we layer these categories, this becomes our heat map, where the dark reds and oranges are higher priority planting areas.

TF: One of the modules in iTree Landscape has a planting priority tool that uses some additional census data, so you can filter different categories.

Response: Thank you, we will look at that.

We zoomed in on two of our red hotspots to show what that looks like.

TF: Many of these areas are also an urban design problem where there is no space to plant a tree. It is a great intent but it is not that simple.

Response: One option in these areas is making changes to the street cross section, where you know that the current conditions do not allow any trees can make a difference. The prioritization of trees also requires bigger construction projects. That's why this master plan needs to relate to Envision in some ways.

TF: Rethinking street sidewalks and parking is really important. In some neighborhoods, there is plenty of space for cars but not enough space for pedestrians, narrow sidewalks.

Response: There is quite a lot of change in the city, largely around protected bike lanes. We should motivate similar redesign for traffic and trees.

Owen: There are competing needs associated with street space, such as trees, cycling, parking etc. We have a tradition of community process around the design of streets, and it is an extraordinarily challenging conversation.

TF: What about giving the Public Planting Committee a larger role?

TF: It's impressive how the Atlanta tree board is structured. The Public Planting Committee is always wanting new technical presentations. If the committee had more teeth it would be easier to get people to participate.

Community Development is not always on the same page as Planting

Committee, should give it the value it deserves.

Owen: The counterargument is that we have many competing interests with 6 square miles, and we can't empower one interest over the many others in the city.

### Clarifying Planning and Zoning:

One problem with the Cambridge's Zoning Ordinances is that the tree protection and new planting mandates are scattered through the Ordinance. Another issue is that the requirements are tied to specific site uses (such as construction of a parking garage) and districts (such as the Parkway Overlay District).

From these observations, there is an opportunity to consolidate requirements into a single tree-related zoning article, which could increase compliance and consistency. Other options are to make the existing requirements more stringent such as requiring more trees at the parking lots and at the front yards.

TF: Parking lots have a huge impact on the heat island effect and stormwater management. And there are not many parking lots built at the moment, so the existing parking lots also need to have porous pavement and trees.

TF: The current ordinance is outdated because it does not meet the needs of green infrastructure. Trees could be planted in groups and used with green infrastructure improvements. We could do more if we are going to rewrite the ordinance.

### Setbacks and Open Space:

Consolidating and strengthening zoning ordinances relating to trees create an opportunity. We need to define performance characteristics for:

- overlay districts
- canopy cover by land use
- setback/open space by land use
- parking space/tree ratios
- develop a Green Factor evaluation tool

Current zoning requires one tree for every 25 feet of frontage and at least fifty square feet of porous surface around the tree within the Parkway and

Prospect Street Overlay Districts. Creating an “urban heat” or “urban forest” overlay district and have this standard apply across the city in high priority planting areas can help supporting the urban trees.

Salem, VA has an “urban forest” overlay district to increase the quantity of trees in new development along seven designated corridors. New development is required to have at least one tree per acre and at least one tree per 100 feet of frontage.

NYC requires one new tree for every 25 feet of frontage for all new buildings and enlargements exceeding 20 percent of floor space as a condition of occupancy.

Cambridge needs a feasible system for minimum canopy coverage requirements by land use and open space requirements. Examples of thresholds from other cities such as Providence, RI and Chapel Hill, NC are shown on slide 59. Open space requirement is very flexible, there is no incentive to plant trees.

Using a Green Factor ratio gives more flexibility to the individual property owners about how they can feasibly meet a threshold on their site. There is a chart that shows the landscape components in the cities with the associated multiplier.

TF: Sustainable Sites is a vetted ranking criteria which we could take principles from, especially performance-based criteria.

TF: Are there examples of incentives/programs especially in small residential districts?

Response: There are monetary incentives for private residences, but for developers there are more options available such as density bonuses or permits when there is preservation of trees in the site. Incentives for small-scale residential is a great place for us to focus.

TF: Since most of the land in Cambridge is developed, focusing on the developers instead of homeowners, institutions or the city itself is not as effective in the long run.

TF: I would argue for stricter rules on tree removals. No removals unless it's a safety hazard.

TF: You mentioned the urban forest overlay in high priority planting areas but there is also a possibility to create an urban forest overlay area where there is currently canopy coverage as a way to incentivize keeping those trees. There is the smallest and only urban national forest in San Francisco, which is a communal space, attracts people.

TF: As a representative of an institution, I cannot support a moratorium. The recommendation for a moratorium needs more discussion.

### Public Comment:

Speaker 1: She suggested to do some survey at the edges of the city, and also to take into account the courtyard close to the Alewife Brook Parkway. She thanked Owen about mentioning the courtyard at 55 Wheeler, which she thinks is a very special site and needs a special permit.

Speaker 2: He mentioned Greening the Gateway Cities model and Advancing Green Infrastructure Program in New Haven, which creates bioswales around the city and also creates opportunities to plant trees. It not only includes volunteers but also help building skill and leadership. He suggested to partner with a department of forestry in one of the many universities around the city.

Speaker 3: The executive director of Green Cambridge, he commended the effort of both sides [Task Force and design team] to address comments and the clarity of the presentations. He thinks that it would have been better if this team started this work years ago because of the climate change emergency today. De-paving some of the city streets and creating shared streets are some of the strategies that can be pursued. Use space differently.

Speaker 4: She brought up the urgency of climate change and that Cambridge has lost lots of trees in the last nine years and she thinks there is no way that we can get that canopy coverage back. She stressed the importance of trees and added that we need to stop cutting down mature trees. Also, she thinks that residential category needs to be redefined as only 15% of city is single family.

Speaker 5: City councilor, he noted that there are an insane number of

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overlay districts already and there's another one coming. Housing versus trees is a false dichotomy. He thinks that we need to have a simpler permit process to remove trees. He supports a moratorium of tree removals. Current ordinance does not protect trees and 55 Wheeler is perfect example. Time to charge what trees are worth.

Speaker 6: She asked if the team knows about what the City is planning in Inman Square. She added that four of the mature trees will be removed from Vellucci Park. Also there was a fire a few years ago at Wellington-Harrington area, she wonders what happened to the canopy there. Also, many schools in Cambridge were built on small parks and the trees were removed.

Speaker 7: He asked if the presentation can be published on the website before the meeting. Noted that Somerville is planning to put the green factor into their zoning. He thinks that people need to be educated about the importance of trees as infrastructure. Trees need help to survive in cities but he needs to pay \$2400 for the maintenance of trees that he has on his property. Is there some way for city to help with maintenance?

Speaker 8: She mentioned that instead of replacing trees, we need to focus on saving trees. She was at a public tree removal meeting for 29 Charles Street and she opposed, so the developer needed to go to City Manager. In favor of moratorium.