MEETING NOTES

1. Introduction

Owen O'Riordan reminded the meeting attendees that there would be an ordinance hearing on February 14 at 5:30 in the Council Chamber on the proposed change to the Tree Protection Ordinance. Information regarding the proposed ordinance language is on the city's website.

Owen noted that the Task Force is subject to the Open Meeting law. The meetings must to be advertised 48 hours in advance, and more than half of the task force cannot meet and discuss any Task Force related matters.

Lastly, Owen noted that there would be a lot of material to get through and asked that conversation be confined to the Task Force members.

2. Design Team Presentation

Team thanked the public and the Task Force for sending comments and emails related to the project and noted that they would try to respond some of the questions with this presentation.

The meeting will cover the public survey results and how those might inform the thinking of the Task Force for next steps. Then we will talk about policy recommendations. The Policy Options handout has already been given to Task Force and it's also on the website.

Summary of the presentation and task force comments follows:

Survey Results

We ended up getting 1643 respondents, more than anticipated. The target number was around 1,100 (1% of the population) in 3 months. We ran the survey longer than planned to capture as many responses as we could. It's important to note that this was not a random sampling of city residents, but rather a self-selected sample. Because the survey sample is not representative of the residents of Cambridge, the survey results will not be used to justify any specific proposal or strategy. They are useful for guiding the education and outreach portion of the project, which we will talk about.

Some details about the demographics of the survey respondents:
    -The survey was offered in eight different languages.

-Although the people who responded to survey represent a broad cross section of ages, we have an overrepresentation in the Over 45 group compared to the city demographics.
-The majority of respondents were women (overrepresented compared with city demographics).
-The majority of respondents were white (overrepresented compared with city demographics).
-3% of respondents identify as Hispanic (underrepresented compared with city demographics).
-The census only gives median household income data for the city, so we can't show the exact correlation citywide. Median household income is $83,122, but 47% of respondents earn more than $100,000.

How does this survey help us understand the opportunities or constraints around stemming the loss of existing trees or growing canopy by planting new trees?
We found that survey respondents generally understand the value of trees in the urban environment. This was judged by the question: "In your opinion, how do Cambridge's trees contribute to the following items?"

Trees in Cambridge provide shade and cooling
Trees in Cambridge reduce flooding
Trees in Cambridge increase property values
Trees in Cambridge improve residents' quality of life
Trees in Cambridge reduce energy costs
Trees in Cambridge reduce air and noise pollution
Trees in Cambridge add beauty to my surroundings

The majority of respondents said "yes, greatly" to all of these questions. However, on flooding and energy costs, respondents were uncertain about the benefits of trees.

Respondents generally believe that there are not enough trees in their neighborhoods.
"Which of the following characterizes the number of trees in your neighborhood?"
In the bar chart on slide 14, the orange represents the canopy coverage by neighborhood and the dashed line denotes the average canopy cover, 26%. The blue bar shows the percentage of respondents for each of the neighborhoods that said "yes, there are enough trees". Respondents' answers generally correlate with the canopy cover. Only in Area2/MIT, the answer

and the actual canopy cover is inconsistent. The canopy cover is low, 17%, but a high number of respondents perceived that there are enough trees. This might be due to the small sample number. Or people might include the trees along the river when they think of the city trees.

Respondents generally believe that city trees are not as healthy as they could be. This is compared to the tree health information from LiDAR classification data, which categorizes it as Good, Fair, Poor. Slide 16 is a general characterization for each neighborhood, showing only the percentage of "Good" trees and comparing it to the survey responses that trees are in "very good" and "excellent" condition.

The following slides (17-29) breakdown canopy cover by neighborhood, showing the canopy cover of each neighborhood vs. the perception of respondents who self-identified as living in that neighborhood. For example, East Cambridge's canopy coverage is 13%, and 75% of respondents think that there are too few trees while 5% of respondents think there are too many trees.

Even if the canopy coverage is above the average, about half of respondents still think that there are too few trees.

Regarding where new trees should be planted, a majority of respondents felt it was "Very important" to plant new trees on public sidewalks and streets, large institutional projects, new development projects and parks and public green spaces. However, a majority of respondents felt it was "Somewhat important" to plant new trees on individual private properties.
When asked a follow up question about the single most important location to plant new trees a majority (55%) stated that public sidewalks and streets were the single most important location to plant new trees.
We want to dig into this result because we think it's important. We've identified that a lot of loss has happened on private residential over the years, but the survey responses tell us that trees have the most impact where people can see and experience them. Ideal city-wide canopy cover is one metric to evaluate the city's forest, but this shows us that there is also value in focusing on where people experience the urban canopy.

To follow up on this finding, we did a quick case study to see how the canopy cover changes when maximizing the number of trees in the city Right of Way (ROW). We took the 2018 LiDAR data, extrapolated centroids from the

canopy shapes, and counted the trees that fell in the right of way. This amounted to 13,000 trees, which is very close to city's assumptions, so we know it's a useful data set. We then categorized the trees according to what type of sidewalk they are located on, such as wider than 6', narrower than 6' and ROW trees in other conditions. The 6' width is important because it's the minimum to have an accessible 4' sidewalk and still have 2' for a tree pit.

TF: So there's the opportunity for 13,000 new trees?
Response: This number is our estimation of existing ROW trees.

We then looked at planting trees along the ROW every 30', but removing trees that are within 25' of an existing tree. This gives us about 12,000 trees but we are aware that this is an overestimation because of different urban conditions that we can't account for at this scale such as hydrants and utilities.
As an experiment, if 1,200 trees planted per year for 10 years, that means a 0.3% increase on citywide canopy cover in 2030. If you continue planting until 2050, it means 1% increase on citywide canopy cover in 2050. This is taking into account a 3% mortality rate.

TF: How about spacing the trees 20' or 25' instead of 30'?
Response: We generally space the trees at 30' because the street lights are often spaced every 60' so this allows for a consistent tree spacing. But we can see if there are areas that allow for tighter spacing.
It's worth noting that this strategy almost doubles the number of trees the city would maintain but only produces a 1% increase in city canopy.
But it does produce over 3% increase on sidewalks.

Continuing with the survey results, regarding tree preservation:
93% of respondents agree (70% strongly agree, 23% agree) that the city should have laws to protect large, healthy trees on public property, and 58% agree (27% strongly agree, 31% agree) that the city should have laws to protect large, healthy trees on private property.

The next question was phrased differently to prevent people from just clicking through the survey. 50% disagree (11% strongly disagree, 39% disagree) with the statement: "private property owners should make decisions about trees on their property without input form the city."

86% of respondents agree that the city should regulate removal of trees

during construction, and 88% agree that the city should require planting of new trees on site if existing trees cannot be preserved.

81% agree (46% strongly agree, 35% agree) that the city should use more resources to maintain and protect existing trees, but 43% said "I don't know" when asked whether the city should prioritize resources for other services over tree planting and maintenance.

TF: I heard comments from residents that this question was problematic because it didn't list alternatives for other priorities people have, such as affordable housing.
Response: That is a good feedback, but we wanted to put it in a broad perspective, trees vs other resources.

The responses to the next question showed a preference for incentives over restrictions: 67% agree that the city should incentivize, not require, tree planting and maintenance on private property, and 77% agree that the city should provide resources to residents to plant trees on private property.

Respondents are broadly unaware of city tree-related programs, and in cases where they were aware, use of the programs is very limited. The programs listed were Tree replacement, New tree, Back of sidewalk tree, and Commemorative tree.

These slide (42) references two articles that were published about a tree planting program in Detroit. There needs to be education programs theat accompany tree planting efforts, but it is not also only about education. In Detroit, very few people take advantage of these programs, not because they don't understand the value of trees, but it is a burden for individual property owners to maintain and take care of the tree once they planted. There was distrust of the nonprofit and the city.

We'll pause for a moment here to take questions.

TF: Did you model the impact of heat when you did the ROW study?
Response: We didn't but we will as a next step. The grain of the heat island model that Kleinfelder has developed as part of their other resilience studies for the city is large and will not be able to get down to the experiential scale.
TF: We bought a thermometer and walked around Harvard Square to see the differences. It read 86º under the Brattle trees and 12º hotter at the Harvard T

station.

TF: Are we going to address streets with narrow (<6') sidewalks?
Response: Yes, we will look at design strategies in the next meeting.

TF: ROW trees are the most stressed, and it is important to keep those trees healthy, getting them adequate soil and water.
Response: Yes, that will be in the upcoming Practices section

TF: What about clumping trees vs. a single tree every 30'?
Response: Yes, that will considered as part of design strategies.

TF: Connectivity below grade, including the private property is very important. We need more permeable surfaces.

TF: When you talked about a cool corridor strategy that has stuck in my head.
Response: Yes, shade on public streets is profoundly important.
TF: Yes, there's also equity in focusing on public space.

TF: What is the biggest takeaway from the survey?
Response: We're realigning our thinking away from private trees to focus our energy on the public realm to have the most success.

TF: You said you wouldn't use the survey results to justify decisions, why is that?
Response: Because the respondents were self-selecting, they chose to take the survey, it's not a random sample that accurately reflects a cross-section of the city.

Moving on to Policy, we want your [Task Force's] questions and comments, but we won't dig too deeply.

This slide [45] shows sample cost/benefit pages that we're working on. We want to do a summary and the cost benefit analysis for each of the policy strategies. Benefits of canopy over time, how does it change the curve, what are the ecological benefits, ecosystem services, heat island, social equity etc. If there is an impact area, how does it layout?

TF: Is it going to assess the citywide canopy or only the ROW as you showed?
Response: We're thinking it would be citywide, but we can try to categorize

ROW benefits as well.

We gave you this outline [slide 46] last time and we will walk through each of these now.

1. Enhance Tree Protection Ordinance
    a. Change the definition of Significant Trees

Today, only trees greater than 8" dbh require mitigation and only when part of new development projects (applies to certain multifamily, townhouse and other projects requiring a special permit from the Planning Board or development projects of 25,000 square feet or more). Many cities currently regulate trees 6" dbh and greater.

To calculate what effect it would have to change the regulation to include trees 6" dbh or greater we created this map [slide 48]. It shows all the parcels under a special permit and also the canopy loss between 2009-2018 on these parcels. In 2009, there was 20.1 acres of canopy that existed on these parcels. According to the 2018 data, 12.9 acres were removed, which is displayed as red on the map. We calculated that those 12. Acres likely contained 162 additional trees that would have been covered by the ordinance if it pertained to 6" dbh or greater. We also calculated how much that would mean for the tree fund:

> 162 trees at 7" dbh = 1134" dbh to be mitigated
> 567 total trees at 2" caliper x $1,700 = $963,900 to tree fund (2009-2018 timeframe)

TF: How much is in the tree fund right now?
Response: Over $300,000 currently.

RH: Remember the additional $900k would have been spread out over 9 years.

b. Create an "Exceptional Tree" category

The addition of an "Exceptional Tree" category in the City's Tree Protection Ordinance would allow for a more stringent set of protections than those currently applied to Significant Trees in order to protect the city's most valuable trees.

TF: What is the definition of Exceptional tree in other cities? Is it based on some criteria unique to each ordinance?
Response: Yes, the language of each ordinance is unique to the city. Portland maps their exceptional trees, other nominate on a case by case basis. We'd have to establish quantitative criteria.
TF: Yes, we'd have to. Otherwise it would just be qualitative.

c. Change mitigation requirements

We looked at alternative ways to calculate replacement value [slide 51]. The current calculation method is on the top, the diameter of the tree to be replaced is divided by 2" and multiplied by the cost of a replacement 2" tree. According to this, a 36.7 inch tree is worth $31,195. The same tree is worth $193,141 when calculated by the Weighted Trunk Area Replacement Value. Area versus diameter increases the value exponentially. This model might be overburden some community members, but it could designed account for residents' means. Having this higher cost could discourage removals.

TF: Could you have a simpler calculation to get a value?
Response: Because then you would calculate different species as the same.

TF: It is interesting to value trees more and create funds for the City to do things. But what I would want is an overall vision for the city that encompasses this and more, cool corridors, support education for residents, etc. It's hard to decide where to go without a holistic vision.

TF: I would want this Task Force to have an attitude of tree protection, not an attitude of how much the city can make by cutting down trees.

TF: This accounts for the maintenance fee of the tree, but how about the ecosystem services? Can we put a dollar value to that?
Response: Yes, we can do that and will be working on that in the coming weeks through iTree.

TF: Does the maintenance fee include watering? I personally question the $1,700 value for a new tree.
Response: That value reflects the cost of watering for the first three years as required under the mitigation.
TF: I'm not sure that watering is actually happening.

TF: That money could go to groups for education, we can talk about what the priorities should be and where that money is best to spend.

TF: Instead for replacing the area of the trunk, it could be the area of the existing canopy that need to be replaced.
Response: That's an interesting idea, we should look at that.

RH: This $ value [for trunk area replacement] may seem radical, but this valuation is used as a standard. We have a project in New York City, and we need to remove 9 trees. NYC's similar calculation mechanism tells us $1 million for those 9 trees.

2. Enhance the role of the Committee on Public Planting (CPP)

Provide the Public Planting Committee with resources to extend the discussion of subjects raised by the UFMP, including:
— interpreting recommendations
— updating analysis based on current research
— reviewing pilot projects
— reviewing progress toward city targets

TF: I think everything that's been said here we [CPP] have been saying for the pas twenty years. It's in a letter we sent to the group at the outset. It's both gratifying and frustrating to work with the City, and I'm sure they feel the same way. The reason you were hired is to do the work the Committee has been unable to do. The CPP is advisory and has no real power. We can do more, for instance, in reviewing projects. If we had an ordinance as rigorous as NYC or a trunk area valuation method, architects would not approach trees as automatic removals. For example, in Smith Campus Center construction, they wanted to remove 31 trees. If we had more demanding policies, architects would have looked at other strategies before coming to us.

TF: Have you considered statutory modifications for the CPP?
Owen: The planning board has approval authority and City Council. There's a pedestrian committee, a bike committee, the planting committee, but they're all separate. They're not together discussing who gets what. It is a challenge to assess all the comments from different committees in the city. We are talking that trees should be on the sidewalks but pedestrians and cyclers also need to share the sidewalk.

TF: We are the Task Force, we need to advocate for trees and support strengthening protections for trees.

TF: These interests are not mutually exclusive. Bicyclists want shade and tree people want people to bike.

Owen: We could assemble these committees as a group multiple times a year.

TF: Landscape architects think holistically and think of everyone's interests. maybe there should be a a seat reserved on the Planning Board. There are no landscape architects in the Planning Board.

TF: Or a member of the CPP must be on the Planning Board.

Response: It's true there are plenty of architects but no landscape architects on the Planning Board.

TF: The Planning Board meets a lot. It's hard to ask them to do two roles.

RH: We should address the review process and where exactly is consideration for all these topics mandated. We can develop an organizational chart for the review process for large and small projects.

3. Expand tree protections to private property

Many cities locally and across the country have expanded the jurisdiction of local governments through tree protection ordinances by requiring a removal permit for all trees, regardless of whether they are on public or private property.

Circumstances under which the city approves a tree removal permit vary in stringency but could range from approving every request to prohibiting removal of any healthy tree. However, the success of this approach has not been well established.

TF: I worry about the unintended disincentive towards planting trees. If it's hard to remove, then why plant?

Response: Yes, we included that as a con on the summary sheet. Enforcement is hard and may not create a great community environment where neighbors report each other.

TF: It could bring along others less interested in the benefits trees, however.

Owen: We could give people a twenty year period in which they could take down a tree they have planted. So there may be a way around that. Similar to the concept of rent control.

TF: If there's more support for nonprofit planting programs it may be easier to plant?

Response: The downside is the difficulty of removal as a disincentive.

TF: The difficulty of removal could also act as an incentive, knowing it can't be taken down.
Response: The Heritage Tree model is more effective in that case. It would protect the tree permanently. A property owner could also put protections into the deed.

4. Earmark Tree Replacement Fund dollars for community grants

The city could earmark some of the funds in the Tree Replacement Fund for community-based grant making that could help fund operations to encourage planting on private property.

5. Align planting protocols with City's commitment to equity

This aligns well with prioritizing ROW planting.

TF: In high priority areas for social equity, planting on right of way could mean investing in sidewalks and bike lanes, not just trees.

6. Increase oversight to ensure compliance

Currently, there is limited City oversight to ensure compliance.
The Tree Protection Ordinance does not currently define standards for tree protection during construction.

Require increased offset from tree dripline to protect tree roots
Require periodic review per an order of conditions to improve tree protection measures (fencing, watering) during construction
Require city arborist/city engineer inspection prior to obtaining Certificate of Occupancy

7. Strengthen zoning ordinance requirements
   a. Establish canopy coverage requirements
   b. Increase ratios for trees to parking spaces and/or dwelling units
   c. Increase setback and open space requirements in priority areas
   d. Establish flexible landscape mandate like Green Factor or Green Area Ratio

TF: Are we going to make zooming reommendations?

Response: We're now advising the Resilient Zoning Task Force. They are making the recommendations, but we can bring the values of this project to them.
TF: But they may come to different conclusions.
Response: Yes, they're considering many interests. Also zoning only affects new projects, it's not the biggest impact.
TF: It's hard to develop zoning around trees in a vacuum. That likely would conflict with something right off the bat.

TF: For the Tree Fund, how about using the area calculation for larger projects and diameter for smaller projects? That way a homeowner could easily do the math.
TF: But it's the Tree <u>Protection</u> Ordinance, not Tree Removal .

TF: Strengthening the CPP could come through zoning. There are a few areas of the city where zoning empowers the committee.

As there are issues that policy cannot affect, we also looked at precedents for Education and Outreach.
Examples:
TREE TENDERS (PENNSYLVANIA HORTICULTURAL SOCIETY)
Empower existing NGOs to plant and maintain more trees, including on private property.

YALE URBAN RESOURCES INITIATIVE
Support community employment and involvement in tree planting and constructing bioswales.

ABROR DAY FOUNDATION — ALLIANCE FOR COMMUNITY NETWORK
Build capacity of existing NGOs through partnerships with national organizations.

DAVEY TREE
Educate city staff, institutions, and other grounds managers on the value of trees and how to be stewards of them.

PENNSYLVANIA HORTICULTURAL SOCIETY
Educate the public on the value of trees and how to be stewards of them.

TF: Add City Sprouts to the list

TF: And Cambridge Open Space Trust

Let's take a moment for comments and questions from the Task Force before opening it up to public comments.

TF: In terms of nature having a voice within city government, is there a city ecologist?
Response: The Conservation Commission fulfills that role.

TF: The grants to neighborhood groups is a great idea. The example of the Tenderloin Forest in San Francisco is great for community building.

TF: This Task force would be remiss if we didn't mention the DCR. Can we make a recommendation to the DCR? They represent the greatest opportunity to increase the urban forest.
Owen: We did invite them to be part of the Task Force but they did not respond.
TF: Regarding the cool corridors concept, the river could be more prominent as part of the strategy.

TF: Regarding expanding tree protection, we could have better protection during construction. Trees get the tar beat out of them. We could require a tree protection plan in the construction drawings.
TF: Could also add requirement of public posting of graphics showing how trees are supposed to be protected.
TF: Yes, tree should be treated as public utilities. People don't pull down power lines because they're inconveniently located. Is there a precedent for treating trees as infrastructure?
Response: Yes, that will be covered next as we work to calculate the value of the ecosystem services provided by the urban forest.
Response: Yes, there could be consequences related to trees as infrastructure such as having to pay your neighbor's increased cooling bills if you take down your tree that was shading their house.

TF: We need to see the pathway to implementation for these policies.

Public Comment:
Speaker 1: The trunk area is a good representation of the water carrying capacity of a tree. Should also consider carbon sequestration. The city shouldn't just take money into the tree fund and plant trees, should consider

spreading trees around. Consider shielding the thermal mass of large buildings to reduce urban heat island. You should look at the recent Boston.com article on trees effect on carbon filtering in Milan. I'm on the Resilient Zoning Task Force and it's mostly City and business interests represented. There's only two residents. It's not a tree protection board and it needs your recommendations. Trees are important infrastructure. We could have a tax incentive for having trees on private property. Would help offset maintenance expenses.

Speaker 2: Regarding climate change, we need to be more active. We need an Exceptional Tree ordinance, and we need to protect all trees over a certain size. Consider that the City Council will whittle down whatever recommendations you make. Years are involved in growing a large tree and should be accounted for. Enforcement should not be a reason to not strengthen policies.

Speaker 3: I live in affordable housing in Jefferson Park in North Cambridge which is exempt from the tree protection ordinance. When they were proposing renovation plans, they originally wanted to remove 6 trees. Theuy kept 8 but then cut down 4 of those during construction. And then they replaced the removed canopy trees with mostly ornamentals. Now they're proposing removing eleven buildings and the site plan proposes clear-cutting everything. The ordinance treats people in affordable housing difrerently which is not right.

Speaker 4: Hello, I'm Councilman Zondervan. In your Right of Way study you only looked at sidewalks. Please consider car storage (parking) as potential planting areas. In terms of valuation the trunk area calculation could be multiplied by the current canopy coverage. As the coverage goes up or down it would be less or more expensive to remove a tree. I also want to suggest that the city should have a Forestry Department.

Speaker 5: How do we stop the current canopy loss given the large numbers of trees needed to keep up with current rate?

Speaker 6: Hi, I'm the executive director of Green Cambridge. I'm in favor of empowering the CPP rather than creating a new group. We have enough groups already. I'm excited to see how the city could work with nonprofits. I also want to make a plug for Heritage Trees. Get the public involved at the beginning of the Master Plan launch. Make it a celebration of trees. The

Heritage Tree program was originally started by nonprofits and was then turned over to the city. Green Cambridge has been incubating ideas on Heritage Trees. The sycamores along Memorial Drive would be a great pilot group. All these ideas shouldn't compete but should support each other to make great streetscapes.

Speaker 7: Look at the various gatekeepers within the development process. Shouldn't just be a free pass. Every permit should have language regarding trees. I support requiring permits for any tree removals over a certain size.

Speaker 8: I'm Jan Devereux, Vice Mayor. I support more ROW tree plantings and more trees in public spaces. The Alewife plan does not have enough green space. Yes, the Planning Board should have more landscape architects, and the same for the BZA. Tree protection during construction is also important. I agree that the affordable housing concern that was raised is a legitimate concern. And I feel that zoning should consider trees.