

**Climate Resilience Zoning Task Force
City of Cambridge, Massachusetts
Meeting #15 Summary
October 22, 2020**

Task Force Members Present

1. Louis Bacci Jr, Laborers Local 151/East Cambridge Resident/Planning Board
2. John Bolduc, Environmental Planner
3. Doug Brown, West Cambridge Resident
4. Tom Chase, Energy & Resilience Consultant, New Ecology
5. Ted Cohen, North Cambridge Resident/Planning Board
6. Conrad Crawford, East Cambridge Resident/Cambridge Redevelopment Authority
7. Nancy Donohue, Cambridge Chamber of Commerce
8. Iram Farooq, Assistant City Manager for Community Development
9. Brian Goldberg, MIT Office of Sustainability
10. Mark Johnson, Divco West
11. Tom Lucey, Harvard University
12. Rick Malmstrom, Alexandria
13. Lauren Miller, Climate Consultant, CDM Smith
14. Margaret Moran, Cambridge Housing Authority
15. Mike Nakagawa, North Cambridge Resident
16. Jim Newman, Resilience Consultant, Linnaean Solutions
17. Craig Nicholson, Just-A-Start
18. Mike Owu, MITIMCo
19. Kathy Watkins, City Engineer/Assistant Commissioner for Public Works

Project Staff and Facilitation Team Members Present

1. Nathalie Beauvais, Climate Change Preparedness & Resilience Plan consultant, Kleinfelder
2. Elizabeth Cooper, Facilitator, Consensus Building Institute
3. Indrani Ghosh, Climate Change Preparedness & Resilience Plan consultant, Kleinfelder
4. Eric Kramer, Urban Forest Master Plan consultant, Reed-Hildebrand
5. Maggie Osthues, Facilitation team, Consensus Building Institute
6. Mariana Rivera-Torres, Facilitation team, Consensus Building Institute
7. Jeff Roberts, Director of Zoning and Development, City of Cambridge
8. Sarah Scott, Associate Zoning Planner, City of Cambridge

Next Steps

The next Task Force meeting will take place on Thursday, November 19, 2020 via Zoom webinar. In addition, staff will be holding office hours on Tuesday, October 27 – 12:30-1 p.m., Friday, October 30 – 11 a.m.-12 p.m., and Monday, November 2 – 5:30-6:30 p.m.

Meeting Materials

For more details of the analysis summarized below, see the meeting materials available at <https://www.cambridgema.gov/CDD/Projects/Zoning/climateresiliencezoning>.

Meeting Overview

The City of Cambridge’s Climate Resilience Zoning Task Force (CRZTF) held its fifteenth meeting on October 22, 2020. Staff reviewed the work that the Task Force had done to date, then shared the results of a survey that Task Force members completed between the March and October meetings, where they provided feedback on various proposed zoning recommendations. Then, staff shared additional analysis on and recommendations for the Cool Factor, followed by real-time polling and deeper discussion among Task Force members to surface remaining issues and questions. The meeting ended with a public comment period and an overview of next steps.

This meeting was conducted via Zoom webinar as a result of Covid-19 restrictions on in-person meetings. Below is a summary of key themes and next steps discussed at the meeting. This summary is not intended to be a meeting transcript. Rather, it focuses on the main points covered during the Task Force’s discussions.

Meeting Summary

Welcome and Housekeeping

Co-chairs Doug Brown and Iram Farooq welcomed Task Force members and members of the public to the meeting. Jeff Roberts, Director of Zoning and Development, reviewed the agenda and objectives, and recapped the online public meeting guidelines. The group also reviewed the past two meeting summaries (Meeting 13 and 14), available on the website. No feedback was received, but a Task Force member requested additional time for consideration. After an extended review period, no additional comments were received.

Getting Up to Speed – Zoning Approaches and Survey Results

Recognizing the gap in Task Force meetings due to Covid-19, Jeff Roberts reviewed the CRZTF’s purpose, process so far, principles guiding zoning strategies, land use and development objectives, and potential zoning approaches before sharing new material with the Task Force. Roberts then reviewed the results from a survey that had been sent out to all Task Force members following the March 4, 2020 meeting. The purpose of the survey was to solicit feedback on the potential range of zoning recommendations that had been discussed at that meeting. Recommendations were divided into five categories: (1) define standards for flood and heat

resilience; (2) incentivize improvement by reducing impediments in current zoning; (3) apply standards through project review special permit; (4) apply standards through building and site plan requirements; and (5) apply standards through base zoning. Results showed significant support for a majority of the potential approaches. CRZTF members expressed very few to no reservations regarding 10 out of 17 of the recommendations and some reservations about 7 recommendations; no members had very strong reservations about any of the recommendations. Please refer to the October 22, 2020 meeting presentation on the CRZTF website listed above for detailed survey results.

Cool Factor Additional Analysis

Kathy Watkins, City Engineer, and Eric Kramer, consultant with Reed Hilderbrand, reviewed the proposed Cool Factor site cooling strategy and shared additional analysis that was done to address outstanding questions that Task Force members had raised at the March 4, 2020 meeting. The remainder of the meeting was used to have an open discussion about the Cool Factor and to surface any remaining concerns and questions.

Responding to questions from Task Force members about the difference between the Cool Factor and similar “Green Factor” strategies, Watkins highlighted there is no single “Green Factor” approach among other municipalities that have adopted such a strategy. During the presentation, staff compared the proposed Cool Factor with Green Factor examples from other cities, including Seattle, WA and Somerville, MA, and explained that the Cool Factor takes an evidence-based approach to increase cooling on individual sites. In instances where the Cool Factor did not include interventions captured in other Green Factor examples, staff explained that those interventions did not have a substantial cooling benefit.

Kramer then presented the results of an analysis on four outstanding issues raised by Task Force members. Please refer to the October 22, 2020 meeting presentation on the CRZTF website listed above for detailed results.

- **Minimum Cool Target:** The Cool Factor proposal includes the use of a multiplier, known as the Cool Target, to determine the Cooling Target Area. In the initial proposal, the Cool Target was the greater of either the open space requirement or 15% of the lot area. Task Force members asked the project team to test the feasibility of a 20% of 25% baseline minimum in various site contexts. The analysis found that most new construction could meet a 20% Cool Target, but it would be challenging to meet a 25% target. For more constrained sites (e.g., challenging lot conditions, renovation of existing buildings, rehabilitation of historic buildings), it was generally feasible to meet a 15% Cool Target, but a 20% Cool Target was often not practicable.
- **Public Realm Multiplier:** The Task Force had also asked the project team to analyze the Public Realm Multiplier, which gives additional credit to cooling strategies that are located within 20’ of the Public Right-of-Way. In the initial proposal, the Public Realm Multiplier was 1.15 for all strategies, which effectively gave those strategies a 15% increase in their score. Some Task Force members thought that this multiplier did not adequately incentivize cooling the public realm and asked the project team to consider other options.

Staff presented two alternative approaches: increasing the Multiplier from 1.25 to 2.0 and varying it by strategy or increasing the Multiplier for all strategies to 2.0.

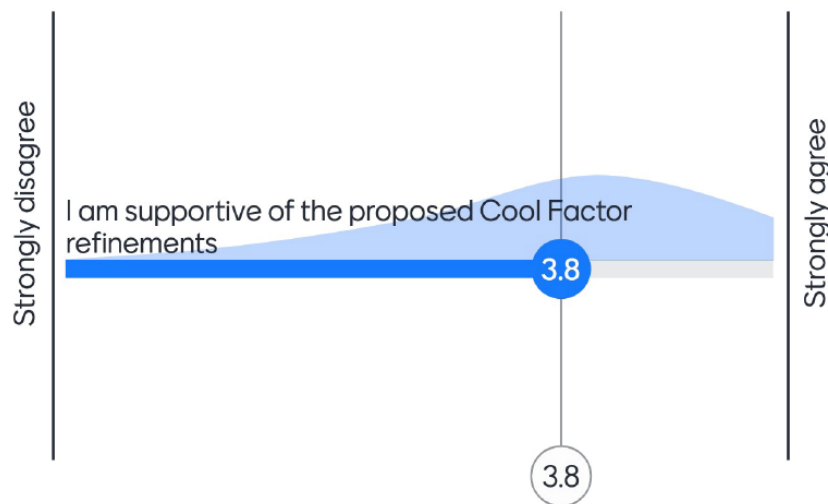
- **Value of Green Façades and Living Walls:** The Task Force had discussed adding vegetated walls as a Cool Factor strategy, so the project team researched the cooling benefits of two types of vegetated walls, green façades and living walls. Green façades are typically vines or other climbing plant species that grow from the ground up and attach to a lattice, cable, mesh, or existing wall while living walls involve plants that are potted in a planting medium (i.e. soil) that is suspended on a wall. Based on scientific evidence for the cooling potential of these strategies, staff recommends a 0.10 multiplication factor for green façades and a 0.30 multiplication factor for living walls. As with the other strategies, the accompanying Cool Factor Guidance Document will include specific minimum requirements for both strategies.

Task Force Discussion on Cool Factor

After reviewing the additional technical work presented by City staff and project consultants, Task Force members provided feedback via real-time polling, written comments, and live discussion. Task Force members were first asked to participate in a “temperature check” meant to gauge their support of the proposed Cool Factor refinements on a scale of 1 to 5. The results, shown in the below graphic, illustrate that Task Force members are generally supportive of moving forward with the revised Cool Factor.

Temperature Check

Mentimeter



13

Main Discussion Themes

The Task Force held a thorough discussion regarding the Cool Factor, focused on remaining concerns and information needs. Some key themes emerged, including considering site constraints given that non-conforming sites are more common than sites that can easily conform to zoning requirements, maximizing impact of interventions, acknowledging the heat island effect as a citywide issue, updating the Cool Factor based on emerging scientific research and technological advancements, and balancing the City's competing priorities. A more detailed description of the discussion is captured below.

- Cool factor calculation:
 - Question: How are the numerator and denominator for the Cool Factor calculated?
 - Response: The calculation uses the zoning district open space requirement or a baseline minimum as a coefficient that is then multiplied by the lot area to determine the Cooling Target Area. This fairly straightforward approach takes into account specific site conditions while remaining user-friendly.
 - Concern that by making the Public Realm Multiplier too generous, then the actual contribution towards cooling is reduced and the goal significantly undermined. For example, the 2.00 multiplier may eliminate half of the requirement. On the other hand, the 1.15 multiplier for the public realm did not generate additional trees in the scenarios modeled. If the goal is to incentivize trees, then a 1.15 coefficient may not be sufficient.
 - The formula may seem complex, but the spreadsheet with formulas makes it much more straightforward.
 - Including the open space requirement in the equation raises concern. Areas with the lowest open space requirements may be the most in need of site cooling.
 - Consider where the city needs to be, even if it is difficult to accomplish. One approach would be to push for a 25% Cool Target and be flexible to reduce it to 20% in certain situations.
- Green Factor:
 - Suggestion to keep a Green Factor calculation, in addition to the Cool Factor. The 20% Cool Target may not adequately contribute to the Urban Forest Master Plan's citywide 30% tree canopy goal.
 - Concern that it is hard to compare different sites in different zoning districts using the Cool Factor. The Green Factor, on the other hand, allowed for easy comparison.
- Trees:
 - Staff comments
 - Street trees: Note that scoring just applies to property parcel. Street trees are not included as they are in the public right of way.
 - Size vs. Species: The multiplier increases value based on the species. It is not about the size of the tree planted, rather about the size the species of tree will be in 10 years, associated with the space available to allow it to grow.

- It will be important to clarify how tree mortality will be accounted for. If trees die, does the lot become non-conforming?
- High-SRI pavement:
 - Question: Why is the use of high-SRI paving not common?
 - Response: City Staff suggested people are used to asphalt. As more high-SRI pavement is used, more people will adopt it.
 - Some Task Force members suggested that the Public Realm Multiplier should not be applied to high-SRI pavement. In general, the scoring of high-SRI pavement should not be very high since its benefits are more limited.
 - Staff agreed and noted that earlier versions of the Cool Factor did not apply the Public Realm Multiplier to high-SRI pavement.
 - It is important to highlight strategies with multiple benefits (such as stormwater management plus cooling).
- Vines and living walls
 - Ivy can damage older, brick buildings. However, some building materials and structures installed on walls can support vines.
- Green roofs:
 - Concern that scenarios including green roofs will displace green space at the ground, which provides a greater cooling benefit to the public. Green roofs may incentivize developers to maximize the building footprint and then put a green roof that is not accessible to the public.
 - It is worth encouraging green roofs as a tool on sites with no setbacks. Therefore, it seems worth valuing to some extent because it provides a benefit, especially when options are limited.
 - Recognizing the value of green roofs, it is important to encourage people to do more green roofs, even when they are not accessible to the general public and are very expensive.
- Competing goals:
 - There are competing values among various ongoing initiatives and priorities of the City (e.g., green roofs, solar panels, off-street parking, rain cisterns, etc.). How viable is it for people to install both a green roof and solar panels? How to avoid working at cross-purposes? It is important to recognize other ongoing projects, align efforts, and appropriately signal City priorities.
- Applicability across sites:
 - The costs and impacts on existing primarily residential structures, zero-lot-line parcels in the City's squares, and historic structures should be considered to make sure there are not undue burdens placed on particular categories.
 - Additional testing is needed for existing and new construction buildings on constrained sites.
 - Larger sites represent the largest opportunity for significant new cooling, and thus should have stronger requirements.
 - Need to clarify how to push redevelopment sites as far as possible, while appreciating the difference between redevelopment projects and new projects.

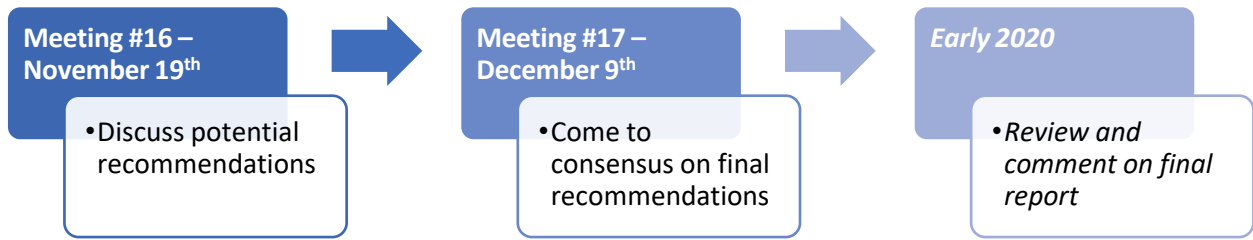
- As new science and technologies emerge, the City could think about an adaptive process to reevaluate these strategies over time.
- A system that requires too many exceptions will be ineffective. We should not lose focus on Article 19 projects, as it seems like the most feasible path towards achieving 30% canopy citywide.
- Historic buildings:
 - A Task Force member expressed concern about historic buildings on constrained sites that cannot accommodate a green roof and thus may not be able to achieve the Cool Score. This is a unique challenge that needs to be recognized and may require a special permit review process.
 - How to not completely discourage historic rehabilitations, while providing cooling benefits and meeting goals?
 - To encourage the adaptive reuse of existing buildings, some flexibility may be warranted. Suggestion: create a mechanism that accounts for increased site cooling so that the end state improves on initial conditions.
- Parking requirements:
 - Parking ratio is an opportunity to explore. If the city can reduce parking requirements, it could significantly expand green space opportunities.
 - Staff response: The City is working on this issue. Addressing parking policy requires a comprehensive approach and takes time.
 - Green roofs plus non-surface parking areas can be a way to achieve cooling without reducing parking.
- Housing concerns:
 - While acknowledging the importance of ensuring that projects do not end up having a lower cooling benefit than their starting point, the group needs to keep in mind the overwhelming need for housing to prevent making housing too expensive to produce.
- Scope/Purview:
 - Zoning has limited purview. Efforts should be focused on zoning issues and not getting stuck on climate adaptation issues beyond the control of zoning.
 - The challenges of heat and flooding are citywide and cannot be solved only with developments that undergo project review through Article 19.000 of the Zoning Ordinance. Citywide solutions are needed. One approach could be to discuss options to improve district coolness (e.g., investments in cool corridors in nearby vicinity), similar to the existing stormwater requirement.
 - The Task Force is looking at the Cool Factor as a strategy to deal with the urban heat island effect in the City. Other incentives are needed that deal with existing development; cannot put the whole burden on new development.
 - Concern with focusing solely on large development projects, without evaluating the impact at the city scale. Larger developments may have the opportunity to get to large targets and contribute to the site. Yet, without cumulative changes in small projects, the city will continue to degrade. Small projects may not be able to meet the same score, so the City could consider applying a modified formula.

Public Comment

- A member of the public reflected on the discussion about the difficulties and challenges of combining solar panels and green roofs. However, studies show that combining the two increases their effectiveness.
- Another member of the public highlighted the benefits of creating green roofs that also serve as urban farms to address issues of food sovereignty and environmental justice.
- City Councillor Dennis Carlone expressed that he was in favor of a Green Factor as the original Brown, et al. petition had proposed. He asked for clarification on which aspects of the Green Factor are not represented in the proposed Cool Factor. He also suggested exploring areas of joint public and private responsibility (e.g., requiring higher standards when sidewalks need to be rebuilt by private companies). Regarding parking, he suggested calculating the ratio based on available parking and the number of actual cars in Cambridge. The proposed design review strategy makes sense to protect certain projects like historic buildings and would benefit from involving an expert to review possible compliance pathways. Councillor Carlone also suggested that any “up-zoned” project should have higher responsibilities to meet resiliency goals.
- Another member of the public suggested including strategies like reflective parking/roofs as minimum requirements, rather than include them in Cool Factor scoring, due to their affordability and ease of implementation. She suggested considering the location of trees relative to the building when calculating cooling, as well as having different rules depending on the type of structure (e.g. requiring half of the requirements on rehab buildings and higher standards on larger parcels). Lastly, she suggested requiring a minimum portion to come from vegetation and not hard surfaces.
- Another member of the public emphasized that this moment requires bold action. This is an opportunity to think about what the City wants to accomplish, to think about the future generations, and not to limit ambition. She encouraged multi-benefit projects that can improve flooding, heat, and other social goods.
- Another member of the public stated that the public wants and expects more, supporting a Green Factor over the proposed Cool Factor. She would not like to focus too much on cooling (i.e. white roofs) and more on green space. Green roofs pay back their costs, and the whole city will have to pay for short-sighted measures. More restrictive zoning will not stop development but will deliver better benefits.
- Another member of the public expressed appreciation for the group’s work towards achieving cooling but wanted to echo sentiments of not looking at these elements in a patchwork of single issues, but rather as an interconnected whole. She is interested in creating farming capabilities to address food insecurity. Cambridge prides itself for innovation and should take leadership role in an innovative way (not a Band-Aid approach).
- The last member of the public encouraged the protection of open spaces and green spaces around Cambridge. This participant stated that open space requirements are not sufficient and called for the Task Force not to compromise healthy communities, quality of life (e.g., open space, trees, permeable spaces, libraries) for more housing.

Next Steps

The diagram below illustrates the next steps in the CRZTF workplan.



The meeting was adjourned at 8 PM.