

Proposed Zoning Amendments for a Flood and Heat Resilient Cambridge: Frequently Asked Questions

1. Is this a moratorium?

No. Rather than a moratorium that holds up development waiting for city action, this petition proposes changes to address climate change issues identified in the City's Climate Change Vulnerability Assessment (CCVA) so that appropriate development that will protect the health and safety of residents and workers in the face of climate change can proceed.

2. Will this reduce development?

While the proposal does not affect the total amount of development, it addresses some configuration and design elements. In fact, by allowing properties to have less parking, if approved by the planning board in exchange for green infrastructure elements, the projects could instead use the parts of the building currently required for parking for improvements in housing.

3. Didn't the support letters request a moratorium?

There was a letter, which received support from hundreds of signers across the City, which asked for a pause in development while the City planning processes for Alewife finish. The planning processes have been ongoing since mid-2016 and are nearly complete. Since the Climate Change Vulnerability Assessment is complete as of last year, and the draft for the first pilot Climate Change Preparedness and Resilience (CCPR) plan was released in November 2017, we felt there was enough information to address the climate change concerns expressed in the letter and are proceeding with a proposal to address those concerns first. Urban design elements of the Envision Cambridge process will be addressed at a later time.

4. What does this petition do?

This petition addresses the two biggest concerns of the CCVA, heat and flooding, as they relate to the designs of new buildings, so that the buildings will be safer and better protect human health and lives. Heat was identified as having a large impact on health at a nearer time frame (10 years). This petition addresses three of the four Adapted Building strategies, as identified in the draft CCPR plan, that apply to **heat resilience** for new buildings by introducing a city-wide Green Factor score. The Green Factor score, also known as a modified Green Area Ratio, is used in Seattle and Washington D.C., and applies to larger projects. The petition also addresses all five of the Adapted Building strategies that apply to **flood resilience**, through changes to the existing Flood Plain Overlay District zoning. This petition expands the floodplain zoning to include the areas shown by the CCVA to be subject to flooding in the future due to climate change.

5. Why is it filed by residents and not city officials?

The City officials have had many chances to address flooding concerns in the past, particularly after the update to the FEMA flood maps in 2010, but have failed to make any substantive changes to requirements in the Flood Plain Overlay District zoning. The Adaptive Building chapter of the draft CCPR plan gave no indication that the City would enact new regulations in a useful time frame. A group of residents decided to propose the changes that would bring flood- and heat-resilient development now, rather than wait and hope that city officials require resilient designs some time in the future.

6. Why file it now?

The Climate Change Vulnerability Assessment was unequivocal in its urgency. We need to act now so that we will have buildings that are prepared for the change in climate when we need them. Buildings have around a 50-year lifespan, and many are being built, or have been proposed, without the level of

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attention to climate change that we need to protect the residents and workers in and around the new buildings in the future. We need climate-ready buildings now and a focus on a climate resilient infrastructure.

7. What are the climate change concerns for Cambridge?

Increased heat and flooding are the prime climate change concerns. Heat waves bring hospitalizations and death by causing respiratory distress and heatstroke. Flooding is also a concern, both from increased rainfall as the climate changes, and from storm surges combined with rising sea levels. One of the Key Findings of the CCVA was that the Mystic River dam, which has been preventing damaging storm surge flooding from reaching Cambridge, “will likely be bypassed around 2045.”

8. Is this proposal consistent with the City’s goals?

Yes. The City’s draft CCPR--Alewife Preparedness Handbook (Nov. 2017, Table B.1) includes the following goals:

- *Establish regulations and design guidelines for new buildings and re-developments to be resilient to future flood and heat risks identified for the neighborhood.*
- *Implement green infrastructure (GI) at the parcel level to improve water management and reduce heat-island effect.*
- *Revise zoning to factor in Climate Change risks, such as flooding and extreme heat and adjust building requirements to take into account new constraints such as revised flood elevation.*

9. How bad is area flooding?

Most of the developed parts of our city are far enough away from rivers and streams that flooding seems theoretical, but there have been several storms in recent history that have flooded the Alewife Brook to the point that Route 16 has been shut down, sometimes for days. There have also been significant floods in the Port/Area 4 neighborhood and other parts of eastern Cambridge. One can see through the city’s Floodviewer tool that there are several currently developed properties near Alewife Station that would experience flooding of more than four feet above ground level in a current 100-year storm. A future 100-year flood event would be eight feet higher than ground level.

10. Can't we just build walls or levees?

State law, and simple ethical behavior, prohibits building structures that would cause higher flooding to other properties elsewhere along the floodplain. To fully contain the expected amount of water in the future floods, flood barriers would need to be many feet tall with active pumping into a channel that could drain the water away, which would restrict normal drainage for smaller storms.

11. Why is heat a problem?

Heat was identified as the most critical concern by the CCVA study because heat waves have been demonstrated to cause direct health impacts and deaths. The elderly and the young may not recognize the signs of heat stress until it’s too late. Also, increased air conditioning use during a heat wave may cause brownouts or power failures that may leave people without a way to stay cool. The CCVA states: “Heat stress affects the body’s ability to maintain its normal temperature and may damage vital organs. Extreme heat causes more deaths in the U.S. than floods, hurricanes, lightning, tornadoes, and earthquakes.”

12. When will heat be a problem?

The draft CCPR plan states, “higher temperatures and more frequent heat waves have been identified in CCVA as happening in the near future and strategies should be initiated in less than 10 years.” The CCVA states: “By 2030, annual days over 90 degrees Fahrenheit (90°F) may triple. By 2070, Cambridge may experience nearly three months over 90°F, compared with less than two weeks in present day.”

13. What is Green Factor scoring?

Green Factor is a score-based requirement that increases the amount of landscaped areas in new developments and improves its quality in terms of cooling, shading, rainfall absorption, pollutant filtration and other qualities. All large projects that are covered by Article 19 city-wide need only report their score. Projects in the Flood Plain Overlay District must meet a minimum Green Factor score (0.35). To do this, there is a “menu” of landscape credits for various features, including green roofs, rain gardens, vegetated walls, trees, and shrubs from which developers can choose to attain their score. The score is a single number that combines the different environmental benefits that the developers select that suite their site.

14. Why Green Factor?

Well-designed landscaping reduces flooding by reducing stormwater runoff, cools cities during heat waves, improves air quality, provides habitat for birds and beneficial insects, in addition to making a more pleasing environment for residents, workers, and visitors.

15. How will this help future flooding?

Current development practices in the floodplain place a flood storage tank underground. Once the tank fills, no more flood water can be stored in it. Additional flood water from storms larger than the tank is designed for will be displaced into the community. Previously, flood storage was in open space areas that would continue to accept flood waters from larger storms without limit. This new zoning requires some of the flood storage to be in open areas, while the remainder could be stored in tanks, but tanks that are 50% larger than the minimum requirement to allow for the larger storms predicted for our changing climate. Additionally, the green infrastructure helps move stormwater out of the area more quickly through vegetation (through evapotranspiration), and stormwater is stored in the soil for the vegetation.

16. Will this hurt individual homeowners?

As with the current Flood Plain Overlay District zoning, one-to-three family homes are exempted from most of the new requirements. The Green Factor scoring applies only to larger projects that need a Project Review Special Permit from the Planning Board under Article 19 of the Zoning Ordinance. As with current Flood Plain Overlay District zoning, a homeowner may apply for a hardship variance if there is some provision that affects the property.

17. Will this reduce the number of units of affordable housing?

The proposal was not designed to address building use, except for prohibiting certain uses in the floodplain, such as prohibiting storage of hazardous materials that may be dispersed in a flood. This zoning allows a reduction in minimum parking requirements with approval by the Planning Board in exchange for additional green space. The parking reduction may also allow for more and/or more affordable housing to occupy space that would previously have been required to be used for parking.

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18. Will this reduce traffic?

This proposed zoning is not designed to address traffic. A reduction in parking, allowed by this proposal in exchange for additional green space, may reduce the traffic than would be created under current zoning, but this has not been studied, and is not the focus of the current proposal.

19. Will this reduce mobility?

Additional open space may allow for better pedestrian and bike access and may provide increased opportunities for connected pathways that are not in motor vehicle roadways. Mobility was not a focus of the current proposal except for requiring emergency access to and from new large buildings in the floodplain.

20. Does this proposal, if enacted, constitute a “taking”?

No. The proposal does not prevent development of properties. It does provide guidelines and requirements meant to ensure the goals of health and safety as identified in the CCPR plan and other established recommendations for development in floodplains.

21. Under whose authority are these changes permitted?

State and municipal law allows citizens to propose, and the City Council to approve, changes to the Cambridge Zoning Ordinance. Zoning is an appropriate place to make these changes. The purpose of the Zoning Ordinance includes to: “conserve health; to secure safety from fire, flood, panic and other danger; to provide adequate light and air . . . to facilitate the adequate provision of transportation, water supply, drainage, sewerage, schools, parks, open space and other public requirements . . .” There is a process of review, comment, and revisions in which city staff and interested residents can weigh in; the final proposed changes are approved by the City Council.