

Shaping Our City

Citywide Urban Design Guidelines for Cambridge



March 2025

DRAFT 03.14.25



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A. Introduction p.8

The City of Cambridge, challenges, the role of guidelines, existing policies and documents, jurisdiction and review process, goals, and core values.

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B. Context & Site p.22

Bringing context, building siting, and site design together to create a sense of place.

B. CONTEXT & SITE

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Designing buildings to contribute to Cambridge’s public realm.

C. BUILDING

D. Open Space p.130

Designing squares, plazas, parks, and privately owned public spaces to host and enrich Cambridge’s public life.

D. OPEN SPACE

E. Streetscape p.186

Designing streetscapes to foster safe movement and enjoyment of the city.

E. STREETSCAPE

A. Introduction

This document aims to create a coordinated citywide approach to new development. It focuses on promoting a public realm that is well-designed, equitable, and sustainable. Urban design shapes the public realm; anything and everything that is physically or visually accessible to the public. As a result, this document addresses important urban design issues related to context and site, buildings, open spaces, and streetscapes.

A.1 The City of Cambridge

A.1.1 BACKGROUND AND HISTORY

Cambridge is the second largest city in the Greater Boston area and the fourth most populous city in Massachusetts. It is located directly across the Charles River from Boston and is bordered by Somerville to the north and Arlington, Belmont, and Watertown to the west.

The city's rich history, diverse population, and world class educational institutions, as well as its prominence as a center of cutting-edge scientific research, help to cultivate its economic and cultural vitality. Cambridge's thriving community-based organizations, cosmopolitan character, and vibrant arts community all further enrich the quality of life for all who live, work, play, learn in, and visit the city.

Cambridge is a walkable city where daily destinations are generally close to home. The varied spaces of its public realm enrich the pedestrian experience. A fine-grained network of streets and paths connect quiet and long-established residential neighborhoods, historic squares, retail and commercial districts, as well as parks, playgrounds, and urban wilds. An expanding system of bicycle lanes and multi-use paths, and increasingly successful efforts to control and slow automobile traffic, all contribute to the ease and safety of non-vehicular movement.

This document contains a glossary. It provides descriptions of relevant terms and words. See "Appendix" on page 224.

A.1.2 CURRENT AND FUTURE CHALLENGES

Cambridge's unique characteristics described above will help strengthen the city as it confronts current and future challenges. The challenges the guidelines in this document aim to address are:

- Balancing the pressure of new development against existing buildings and neighborhoods that give Cambridge its identity
- Reducing the impacts of climate change, especially extreme heat and flood events, through resilient design and natural strategies.
- Improving Cambridge's streets, parks, and other open spaces to serve a growing and diverse population.

A.2 What Is Urban Design?

A.2.1 URBAN DESIGN

Urban design is the field that shapes how the city looks and feels, and how we experience the city as we live, work, play, come together, and move around. It consists of the different physical elements that make a city—the streets, the sidewalks, the parks, the plazas, and the buildings.

A.2.2 WHAT ARE URBAN DESIGN GUIDELINES?

Urban design guidelines are a series of design statements and recommendations, with accompanying images, that describe the desired quality of cities, neighborhoods, and open spaces; how it looks and feels, and how safely and comfortably one can move around and spend time in the city. The look and feel of city spaces has an enormous impact on our quality of life. A well-designed space can make you feel happy, welcome, and comfortable. Creating successful places helps make Cambridge a great place to live, work, visit, and learn.

A.2.3 PUBLIC REALM

The public realm consists of all city spaces that are physically and/or visually accessible, regardless of ownership. These spaces can include, but are not limited to:

- Building ground floors, facades, massing, and roofs.
- Public open spaces, such as parks, plazas, squares, streets, sidewalks, alleys, and multi-use paths.
- Private open spaces that play a role in public life, such as courtyards, forecourts, and front yards.
- Streetscapes, from curb to building facade.

A.3 Relationship to Existing Policies and Documents

The Citywide Urban Design Guidelines are based on existing City plans, policies, and guidelines. They expand on those plans and policies with more specific guidance regarding the form and character of development. Furthermore, recently completed guidelines have formed the basis of much of the content of the guidelines in this document.

A.3.1 ENVISION CAMBRIDGE

This document builds on the recommendations of Envision Cambridge, adding specificity and detail to the plan’s vision of urban form. It seeks to further the city’s goals as the city develops and changes, setting forth expectations for high quality buildings, open spaces, and streetscapes. The guidelines address the organization, appearance, and functions of public spaces and the ways building and open space design shape and enrich them.

A.3.2 EXISTING GUIDELINES

Cambridge’s Zoning Ordinance refers to a number of area- and topic-specific design guidelines. These guidelines provide detailed guidance on how specific neighborhoods should be developed, and how certain building types or building components, and certain aspects of public space should be designed. They address topics including site design, built form, and elements of the public realm. Other guidelines, not referenced by zoning, convey the city’s intentions for additional topics, such as outdoor dining.

The Citywide Urban Design Guidelines complement these area- and topic-specific guidelines to provide a comprehensive view of how development should fit into the citywide context. The Citywide Urban Design Guidelines are not intended to replace or supersede recently completed area-specific plans of guidelines. Where a conflict may exist, the direction provided by the recent area- or topic-specific guidelines or plans should generally serve as principal guidance.

Recent Guidelines

- Central Square Design Guidelines (2012)
- Kendall Square Design Guidelines (2013)
- Bicycle Parking Guidelines (2013)
- Volpe Site Design Guidelines (2017)
- Harvard Square Design Guidelines DRAFT (2019)
- Alewife Design Guidelines (2020)
- Affordable Housing Overlay Design Guidelines (2020)
- Outdoor Dining Design Guidelines (2021)
- Play in the Public Realm (2014)
- Healthy Parks and Playgrounds Taskforce Report (2009)
- Privately-Owned Public Spaces Signage Guidelines (2022)
- Additional area- and topic-specific guidelines will be created in response to developing issues.

While some specific details and recommendations in Cambridge’s older guidelines are no longer current, they still offer some valuable design guidance.

Past Guidelines

- East Cambridge Development Review Process and Guidelines (1985, 1979)
- North Mass Ave Urban Design Guidelines Handbook (1986)
- University Park at MIT Urban Design Guidelines (1987)

- Central Square Development Guidelines and Action Plan (1989)
- South Cambridgeport Development Guidelines (1992)
- Eastern Cambridge Design Guidelines (2001)
- Harvard Square Development Guidelines (2002)
- Concord-Alewife Design Guidelines (2006)
- Prospect Street Design Guidelines –Section 20.209 of the Zoning Ordinance (2007)
- Design guidelines for Dormers (1996)

A.3.3 ADDITIONAL PLANS & POLICIES

In addition to the city’s comprehensive plan and existing guidelines, various plans and policies will inform the design process for new projects, including the following:

- Urban Forest Master Plan
- Resilient Cambridge Plan
- Net Zero Action Plan
- Cambridge Riverfront Plan
- Cambridge Climate Vulnerability Assessment
- Climate Change Preparedness and Resilience Planning Effort
- Alewife District Plan
- Cambridge Open Space and Recreation Plan
- Our Cambridge Street, A Community Plan
- Kendall Square Central Square Planning Study

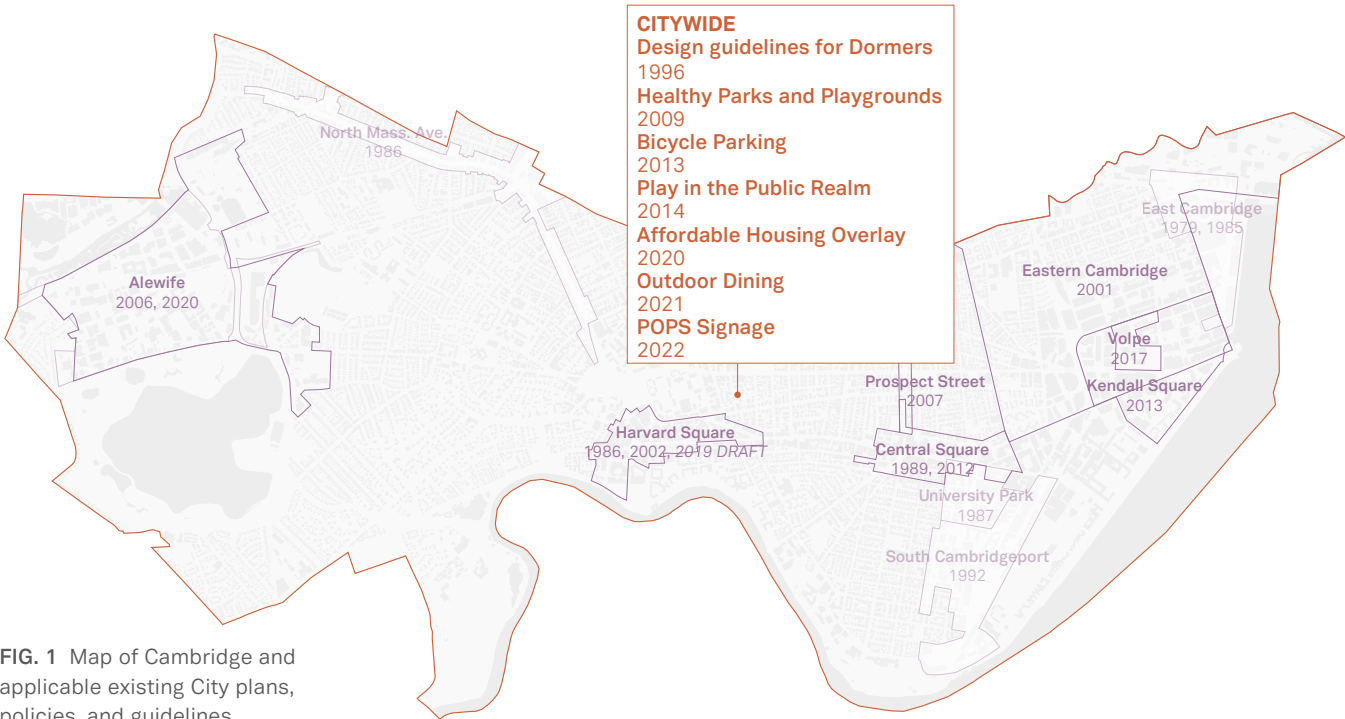


FIG. 1 Map of Cambridge and applicable existing City plans, policies, and guidelines

Design Excellence	Equity	Sustainability
Design excellence is functional, beautiful, and contextual, improving the quality of life for all.	Reflecting and supporting Cambridge's diverse communities, equity creates an inclusive and welcoming built environment that is accessible, safe, and enjoyed by all.	Minimizing Cambridge's impacts on natural resources and systems, and maximizing resilience to climate change.

A.4 Goals and Values

The Citywide Urban Design Guidelines set forth a vision for Cambridge’s public realm. This vision was distilled into three goals and six core values that reflect and build upon the City’s existing planning objectives and community values.

A.4.1 GOALS

The Citywide Urban Design Guidelines have three overarching goals: design excellence, equity, and sustainability. All projects should fulfill them.m.

Design Excellence

Encompassing functionality, compatibility, and beauty, the goal of design excellence combines pragmatic utility, aesthetic richness, and contextual sensitivity to support community well-being and improve quality of life for the city’s residents, workers, and visitors.

- Functionality addresses our need for comfort, safety, and protection as we live in our city and move through it.
- Compatibility ensures a fit with the city’s existing built fabric and landscape.
- Beauty satisfies our need for delight, for experiences that transcend the utilitarian aspects of life, and serve as reminders of our full potential to enjoy and connect with the world outside ourselves.

Equity

Reflecting and supporting Cambridge's diverse communities, the goal of equity seeks to create an inclusive and welcoming built environment that is accessible, safe, and enjoyed by all. For the Citywide Urban Design Guidelines, equity means:

- Creating accessible and inclusive public spaces where all residents of Cambridge feel welcome and included.
- Centering under-heard, underserved, and historically excluded populations in planning and design processes.
- Ensuring designs authentically reflect the city’s diverse people and their needs (e.g. space for diverse cultural activity, public art, etc.)
- Addressing past injustices perpetuated or sustained by the city’s built environment (e.g. distribution of open space, urban tree canopy, etc.).
- Creating inviting streetscapes that provide easy and accessible connections between neighborhoods, acting as social seams

Sustainability

The goal of sustainability encompasses minimizing Cambridge’s impacts on natural resources and systems, and maximizing resilience to climate change. For the Citywide Urban Design Guidelines, sustainability means:

- Using land, energy and material resources efficiently, to conserve natural areas, and reduce waste and production of greenhouse gasses.
- Enhancing Cambridge’s resilience to extreme weather events (e.g. mitigating heat, managing stormwater, etc.).
- Enhancing community resilience, by ensuring the health and well-being of the people of Cambridge.
- Promoting sustainable modes of transportation by creating a compact and active urban environment that encourages people to walk, bike, or take public transit.

The core values were developed through a comprehensive review of existing city plans, policies and guidelines, and through a community engagement process that included public meetings and focus groups. Recently completed engagement activities, such as those undertaken through Envision Cambridge, Alewife District Plan, the Open Space and Recreation Plan update, etc., have also provided highly relevant and valuable community feedback that has been incorporated into these guidelines.

A.4.2 CORE VALUES

Based on these three goals, the guidelines encourage development that embodies six core values for Cambridge’s public realm.

The core values were developed through a comprehensive review of existing city plans, policies and guidelines, and through a community engagement process that included public meetings and focus groups. Recently completed engagement activities, such as those undertaken through Envision Cambridge, Alewife District Plan, the Open Space and Recreation Plan update, etc., have also provided highly relevant and valuable community feedback that has been incorporated into these guidelines.

A well-designed, equitable, and sustainable Cambridge will be:

INVITING

Draws people in and makes them want to stay.

ECLECTIC

Diverse in character and aesthetic.

CONTEXTUAL

Reflect and enhance its social, historical, and environmental context.

CONNECTED

Link networks of people and places.

ADAPTABLE

Respond to changing conditions.

HEALTHY

Serve and improve individual and community wellbeing.

INVITING

DESIGN EXCELLENCE	EQUITY	SUSTAINABILITY
<ul style="list-style-type: none">* Ensure quality, comfort, beauty, and human-scale to invite activity and use* Design for inspiration and delight	<ul style="list-style-type: none">* Ensure that the public realm is accessible and welcoming to all	<ul style="list-style-type: none">* Design landscapes to create comfortable microclimates
<ul style="list-style-type: none">* Create new public spaces and enhance the definition of existing spaces* Reinforce the distinct characters of Cambridge's diverse neighborhoods and districts with compatible design* Provide variety in built form to add to the mosaic of styles and typologies	<ul style="list-style-type: none">* Embrace and reflect the diversity of people and cultures that make up Cambridge	<ul style="list-style-type: none">* Design for biodiversity* Design for variety in types and scales of natural areas
<ul style="list-style-type: none">* Create a sense of place by enhancing the coherence of the public realm* Reinforce Cambridge's unique character by integrating urban design and local art	<ul style="list-style-type: none">* Reinforce Cambridge's unique character by integrating urban design and local art	<ul style="list-style-type: none">* Respond to local ecology and conditions of landscape and urban form* Respond to the accelerating regional and global environmental emergencies
<ul style="list-style-type: none">* Create a network of open spaces for a connected human experience* Create a network of open spaces for ecological benefits* Make mobility a delightful experience, offering multiple modes and intuitive connections	<ul style="list-style-type: none">* Make it safe and easy for people of all ages and abilities to walk, bike, and take public transportation	<ul style="list-style-type: none">* Support sustainable modes of transportation
<ul style="list-style-type: none">* Ensure that materials and designs can endure and adjust to changing conditions	<ul style="list-style-type: none">* Design open spaces that adapt to the lived experience and perceptions of the public realm among different user groups	<ul style="list-style-type: none">* Design for resiliency to a changing climate
<ul style="list-style-type: none">* Ensure landscape and building design promote safety and foster social interactions	<ul style="list-style-type: none">* Distribute health and safety benefits equitably across neighborhoods	<ul style="list-style-type: none">* Ensure conservation of natural resources* Design for a built environment that encourages active mobility and physical activity* Provide access to nature and understand ecosystems

ECLECTIC

CONTEXTUAL

CONNECTED

ADAPTABLE

HEALTHY

FIG. 2 Matrix describing the Core Values and how each aligns with one of three goals.

A.5 How to Use These Guidelines

A.5.1 PURPOSE

The purpose of these guidelines is to set expectations for the future character and form of buildings, open spaces, and streetscapes—the elements that form the city’s public realm. The guidelines encourage high quality buildings, open spaces, and streetscapes so that they work together to enhance the city’s character, vitality, resilience, sustainability, and quality of life.

Cambridge has an eclectic urban environment with a varied public realm, reflecting the city’s history and diversity of its residents. The guidelines aim to preserve and promote Cambridge’s best aspects as the city grows: its unique identity, walkability, varied character, economic strength, energy and resource efficiency, and its cultural richness. They encourage new projects to capitalize on opportunities to create new social and physical connections, mitigate negative impacts, increase the city’s environmental and economic sustainability, and bolster its resilience in the face of changing climate and extreme weather events.

The Citywide Urban Design Guidelines is meant to be a living document that will be updated periodically as new issues arise and priorities are adjusted.

A.5.2 APPLICABILITY

This document is intended to serve as a reference for the Planning Board and City departments in their review of development projects and improvements to streetscapes and public open spaces. Property owners, business owners, developers, and designers are asked to use the guidelines when they design projects that are subject to public review under zoning. Project applicants and design teams are encouraged to engage with City staff early in the design process to help frame the urban design issues of a project, understand expectations and context, and clarify the intent of the guidelines. While this document is intended for these groups of professionals, it is also a public document that should be accessible to the wider Cambridge community.

All development projects, including by-right ones, are encouraged to explore ways to enhance their development by incorporating the principles outlined in the guidelines.

Public Projects

The Citywide Urban Design Guidelines are intended to provide clear urban design direction to all City Departments and staff involved in the design of streetscapes, new public open space and improvements, and new public buildings.

Private Development

The Citywide Urban Design Guidelines are applied to all development projects that are subject to some form of public review under zoning, which could be advisory or binding, and could be done by the Planning Board, City staff, or the public. Refer to Article 19.000 of the Zoning Ordinance or contact CDD staff for further information.

This document applies generally to all areas of the city, but is particularly important in those areas that do not have area-specific planning or design guidelines.

Additional Application Materials

Projects applications that are subject to the guidelines will need to include a narrative description of how the project responds to the Citywide Urban Design Guidelines, addressing:

- **Context & Site:** Begin the design and development process with a review of existing studies, plans, and policies pertinent to the project, and an analysis of the urban design and natural characteristics of the context and the site, with particular emphasis on the form and character of the public realm. Refer to Chapter B for further information.
- **Building:** Begin the building design process with an analysis of architectural characteristics of existing buildings in the context, with particular emphasis on building massing, facade, and material choices that positively add to the city’s existing built form. Refer to Chapter C for further information.

- **Open Space:** Begin the open space design process with an analysis of community needs, locations, programmatic and natural characteristics of existing open spaces in the context, with particular emphasis on open space design and programming that invites public use. Refer to Chapter D for further information.

All development projects, including by-right ones, are encouraged to explore ways to enhance their development by incorporating the principles outlined in the guidelines.

A.5.3 FLEXIBILITY

The guidelines reflect broad principles and values for how new developments should enhance the character and vitality of the city. Not all guidelines will apply to each project; for example, guidelines that refer to features that are not present in a project are not applicable.

Each relevant guideline should be considered, and consistency with the intent of applicable guidelines is encouraged to the greatest extent feasible. However, the guidelines do not impose strict limitations on form or style. They are designed to be flexible; providing guidance, and allowing for variation, depending on site- and context-specific conditions. Creative design solutions or variations not articulated in the guidelines may be employed so long as the goals and core values are being served. Applications that propose innovative solutions that are not included in the guidelines should provide a rationale for such approaches. The intent statements for the topic, or the overall core values for the design guidelines, will be used to determine whether the approach is appropriate. Each project will be evaluated on balance.

How to Use these Guidelines

Overall intent

Guideline intent

Which core values apply to this intent

Introductory text

Individual guidelines

Some are strongly suggested recommendations, while others are possible design approaches, but not an exhaustive list.

Example images/
illustrations to help
explain guidelines

B.2.6 SUSTAINABLE AND RESILIENT SITE DESIGN

➤ INTENT

Design sites that are resilient to and mitigate the effects of climate change.

➤ CORE VALUES

ADAPTABLE

HEALTHY

Sites should be resilient to the effects of climate change, including frequent flooding due to precipitation and sea level rise/storm surge and increasing heat. The design and layout of sites should mitigate stormwater runoff and minimize the urban heat island effect. Cambridge has implemented several initiatives to help new developments prepare for the long-term impacts of increased flooding and heat from climate change, including Resilient Cambridge, a plan to reduce risks of climate change and new climate resilient zoning aimed at protecting spaces vulnerable to flood and heat.

For more information refer to the Resilient Cambridge Plan, and Sections 22.80 and 22.90 of the Cambridge Zoning Ordinance

GUIDELINES

- a. Assess the current and projected risks and vulnerabilities of the project site and neighborhood.

- b.** Based on the identified risks and vulnerabilities, integrate a range of resilient site design strategies.

- Protecting existing significant trees.
- Incorporating light-colored pavement, pavers, and surface materials that absorb less solar radiation, where effective.
- Maximizing permeable area and vegetated area (FIG. 16).
- Minimizing impermeable pavement and maximizing permeable surfaces.



FIG. 16 Vegetation and permeable surfaces located in the public space beside a mixed-use development.

→ The following guidelines are based on the Climate Resiliency Zoning provisions as referenced in the existing Citywide Urban Design Objectives (Section 19.24 and 19.38 of the Zoning Ordinance).

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SHAPING THE PUBLIC REALM



FIG. 17 Permeable planted areas and light colored paving are used in combination with trees at the Union Square development in Somerville.

- c. Use Stormwater Best Management Practices and other measures to minimize runoff and improve water quality. Examples include:
 - Detain stormwater on site to slow the rate of stormwater runoff.
 - Integrate Low Impact Development (LID) and green infrastructure practices, structural and/or non-structural, to capture and retain (i.e. infiltrate, evapotranspire, or collect/capture and reuse) stormwater, such as bioswales, rain gardens with native or adapted plants, wet meadows, or dry ponds, into landscape plans.
 - Incorporate underground storage tanks to slow the release of stormwater. For development greater than 50,000 square feet, on-site stormwater storage requirements should be consistent with the Cambridge Department of Public Works "25:2" stormwater runoff detention requirement.
 - Where possible, incorporate LID and green infrastructure elements as attractive and accessible features of the site.

- Consult with the Department of Public Works and Community Development Department during the design process for specific guidance on resilience planning and sustainable site design.

→ The Sustainable SITES Initiative is a rating system that guides, evaluates, and certifies a project's sustainability in the planning, design, construction and management of landscapes and other outdoor spaces. It complements the LEED rating system and focuses on site design. SITES' nature-based solutions and strategies promote biodiversity, conserve water and other resources, mitigate climate change, improve public health, and provide economic benefits in development projects.

- CONTEXT & SITE GUIDELINES

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- Sidebars to provide additional information or cross-reference to other materials

B. Context & Site

This chapter discusses the layout of new streets and blocks, and the relationship between new buildings and adjoining buildings and open spaces. It also recommends a thorough understanding of context as a starting point for new development.

New developments should create walkable urban blocks, define streetwalls, and be shaped based on their relationship to adjoining buildings and open spaces. The thoughtful design and arrangement of site elements can help create walkable, vibrant, and safe neighborhoods throughout the city.

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B.1 Context & Site Principles

Thoughtful design can create walkable, vibrant, and sustainable neighborhoods, while supporting the rich cultural and historic qualities of Cambridge.



B.1.1 WALKABLE AND COHERENT NEIGHBORHOODS

GOAL 1: DESIGN QUALITY

Cambridge should continue to be a walkable city, and provide an even more rewarding pedestrian environment as it grows and develops. Each new development should help create walkable urban blocks, neighborhoods and districts, and define the city's streets, squares, parks and other open spaces.

New developments should harmonize with their surroundings by collaborating with neighboring buildings and open spaces to create coherent neighborhoods. Coherent neighborhoods are ones that share similar characteristics. This is not the same as uniformity. It means that urban elements are organized in a logical structure based on their relationships to each other. This includes elements such as setbacks, building heights, and open spaces (FIG. 1).



FIG. 1 Buildings should frame the public realm and adjacent open spaces.

B.1.2 INCLUSIVE NEIGHBORHOODS

GOAL 2: EQUITY

New developments should enhance Cambridge's neighborhoods by creating an active and welcoming public realm for residents, workers, and visitors. They should create meaningful and inclusive places that accommodate, enrich, and celebrate public life.

New developments should also create a sense of place by offering connections to historical context, celebrating cultural diversity, and reinforcing the identity of Cambridge (FIG. 2).



FIG. 2 Cultural diversity and historical context within Cambridge's neighborhoods help create a sense of place.

B.1.3 SUSTAINABLE DEVELOPMENT

GOAL 3: SUSTAINABILITY

Cambridge is engaged in initiatives aimed at improving the sustainability and resiliency of buildings and sites. Good urban design, including well-defined streetwalls, articulated building facades, a mix of uses, and convenient and safe circulation, can help encourage people to walk, bicycle, or take public transit. Site design should also protect, restore and enhance existing natural systems where possible, while adopting strategies to mitigate the increased impacts of climate change (FIG. 3).



FIG. 3 Natural systems, existing and new, are critical in the design of a site.

B.2 Context & Site Guidelines

Central Square Theatre responds to neighborhood identity by considering the immediate buildings, streets and open spaces, and wider neighborhood character and uses.



B.2.1 CONTEXT AND IDENTITY

INTENT Design projects to relate to neighborhood context and respond to local environmental conditions.

CORE VALUES INVITING ECLECTIC **CONTEXTUAL** CONNECTED ADAPTABLE HEALTHY

A particular emphasis of the Citywide Urban Design Guidelines is how new development responds to its specific context, and role within the neighborhood and wider city environment. While the city will continue to evolve and change, new projects should integrate site, context, building form, and building program as elements of a whole. Thoughtfully designed buildings should consider relationships with existing development patterns, as well as those anticipated by applicable plans, policies, and studies. Thinking beyond the immediate environs of the site and individual building, the goal is to ensure that context plays a defining role in shaping new development

GUIDELINES

- a. To inform the design process, we encourage applicants to begin with an analysis of the site, program, and context, including:
 - Neighborhood scale, character, block patterns and view corridors.
 - Existing or planned street hierarchy.
 - The predominant plane of street facades, surrounding building setbacks, heights, and upper and ground floor uses.
 - A response to adjacent sites, streets, and open spaces, reinforcing connections between existing and new ones.
 - Opportunities to define and articulate public space.
 - Environmental comfort issues, including elements such as shadows, solar access, glare, prevailing winds, ambient noise, topography, existing vegetation, and proximity to vehicular traffic.

INTENT

Create coherent, permeable, and walkable blocks that frame Cambridge’s streets, parks, squares and other open spaces.

CORE VALUES

INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Site design and building placement should shape Cambridge’s streets, sidewalks, squares, parks, and courtyards. These open spaces should form an interconnected network that links the city, organizes buildings, and connects to neighboring cities and the surrounding landscape. Where possible, new streets and blocks should also reflect the historic scale of Cambridge’s neighborhoods.

GUIDELINES

- a. Adopt the block and street pattern of adjacent neighborhoods, where possible. Blocks should generally be no more than 600 feet long and 250 feet wide. Shorter or longer blocks may be appropriate depending on the context (FIG. 4).
- b. On long blocks, provide publicly accessible mid-block pedestrian and bicycle connections to increase connectivity and accessibility (FIG. 5).

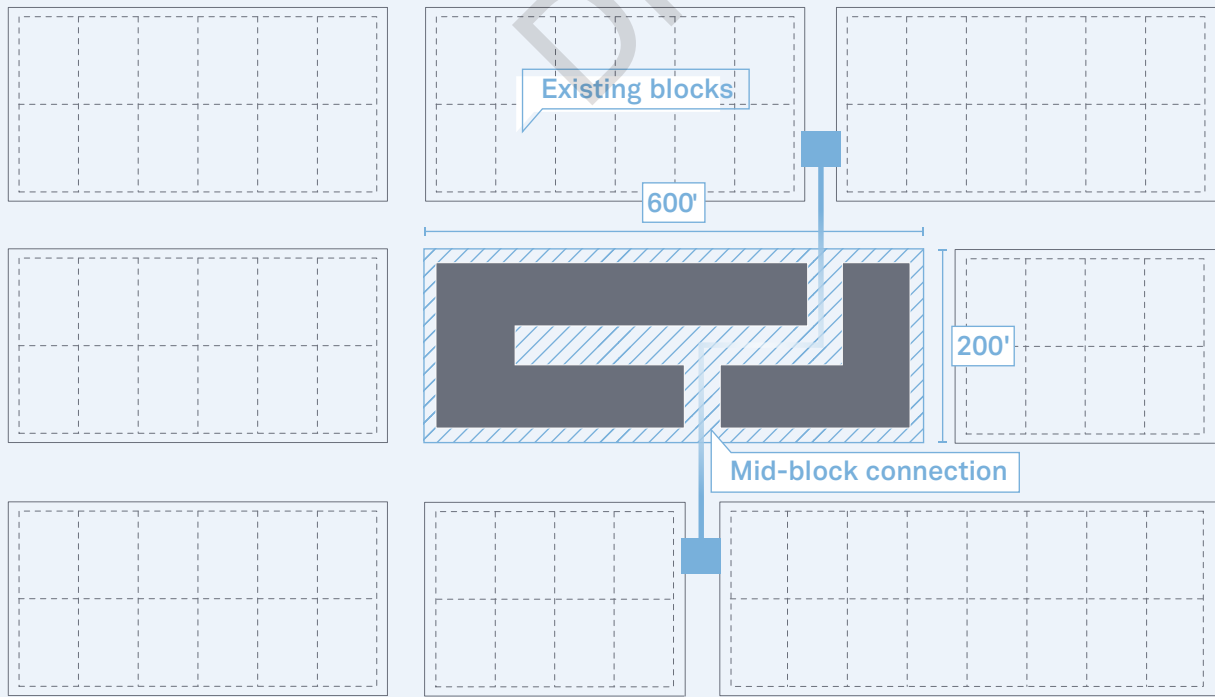


FIG. 4 The proposed block responds to the existing neighborhood block pattern. The placement of buildings provides an internal alley that aligns with the surrounding street grid.



FIG. 5 A publicly-accessible connection breaks up the block on Main St in Kendall Square..

- c. On large sites, create detailed development plans to delineate streets and other open spaces, guide building massing and placement, and establish building setback and build-to lines.
- d. On large sites, create a finer grained network of streets and paths to break up the existing large blocks and improve connectivity. Incorporate new publicly accessible streets, publicly owned rights-of-way, and paths that connect with the surrounding pattern of urban development.
- e. Align and connect internal circulation, such as mid-block connections, driveways, alleys, and private streets, with the existing surrounding street network and block pattern.

- f. Create blocks with defined perimeters—streetwalls composed of facades and massings that collaborate with adjoining buildings—along the streets and other open spaces they face.
- g. Where appropriate, plan new streets and blocks to respond to views towards landmark buildings, structures, and open spaces, and improve city legibility and wayfinding (FIG. 6).



FIG. 6 The JFK Memorial Park pathway is defined by an allee of trees and provides views and access to the park and the Charles River.

INTENT

Design buildings to spatially define streets and open spaces.

CORE VALUES

INVITING

ECLECTIC

CONTEXTUAL

CONNECTED

ADAPTABLE

HEALTHY

Buildings should be positioned and designed to define urban space and create a sense of enclosure in the public realm. The alignment and continuity of building streetwalls should frame streets, squares, and parks, helping to activate the public realm. Cambridge’s open spaces should be thought of as urban-scaled outdoor rooms.

GUIDELINES

- a. Locate and orient buildings to front onto streets and other open spaces. At block corners, unless a public park is created, locate and orient buildings to front both streets and provide a strong urban edge to the block.
- b. Generally, create continuous streetwalls to spatially define and frame streets and other public spaces.
- c. On commercial streets, locate and align building facades at the edge of the sidewalk, or the predominant plane of adjoining building facades that are unlikely to change, or on designated build-to lines to create continuous streetwalls (FIG. 7).
 - Where existing sidewalks are excessively narrow for the anticipated pedestrian volume, consider setting building facades back from the property line and extending the sidewalk to the façade.
 - Where existing underground conditions permit, provide continuous curbside street trees to further define the street. See E.3.1 on page 207.



FIG. 7 First Street features a continuous streetwall.

- d. On Residential Streets where buildings are often separated by side yards and set back from the sidewalk, generally align front facades with each other to create an intermittent, but legible, streetwall (FIG. 8).
 - Align facades to create the sense of a vertical plane, parallel to the street, that distinguishes front yards from side yards and defines the façade-to-façade street width.
 - Provide continuous curbside street trees to further define the street. See E.3.1 on page 207.
- e. Where retail/commercial streets intersect with Residential Streets, the corner of the block should generally be occupied by a building with facades located on the edge of both street sidewalks.
- f. Design streetwall facades to generally include a single primary plane, aligned in the build-to zone established in the zoning for the street. Facades should be enriched by variation in design and materials. For further details See C.2.4 on page 85.

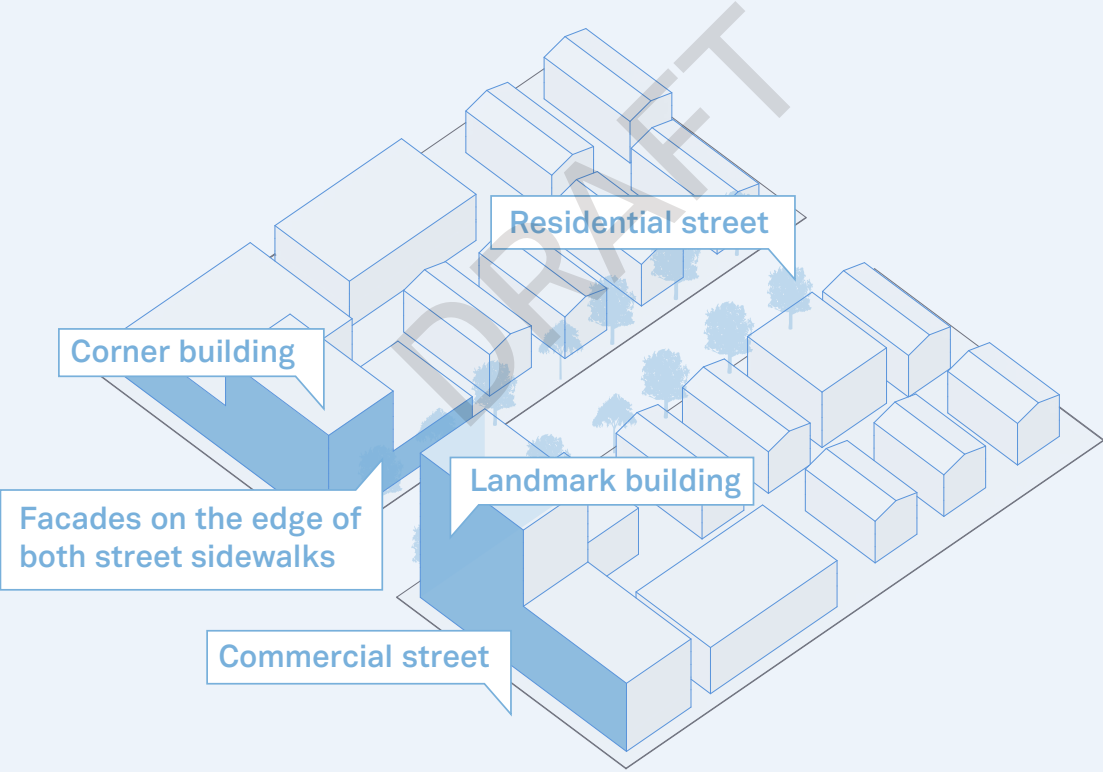


FIG. 8 Buildings at the corner of commercial and residential streets should have facades on both streets.

INTENT

Design buildings to reinforce site conditions and views.

CORE VALUES

INVITING

ECLECTIC

CONTEXTUAL

CONNECTED

ADAPTABLE

HEALTHY

Building facades and massing should respond to and reinforce the varied site and context conditions. Facades and massing should frame public space and emphasize significant locations, connections, junctions, and thresholds of Cambridge’s urban form.



FIG. 9 The facade of a mixed-use development in Cincinnati responds to the local context.

GUIDELINES

- a. Differentiate facades in response to the different characters and scales of the streets and other open spaces they face (FIG. 9).
- b. Where appropriate to the adjoining spaces, incorporate exceptional elements (e.g. towers, spires, building massings that retain key views) in response to view axes and at important street corners (FIG. 10).
- c. Where appropriate to Cambridge’s wider urban context, and distant views, incorporate landmarks, which are defined as elements with characteristics that are different from their surroundings and easily recognised.

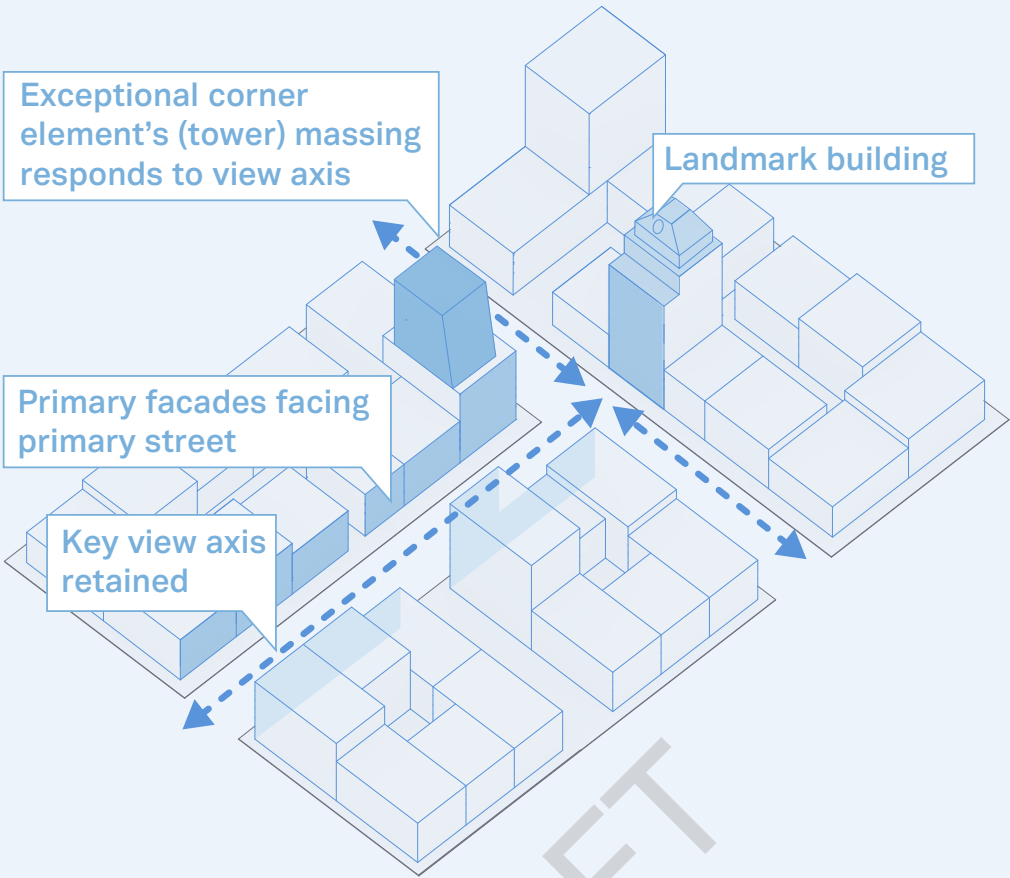


FIG. 10 Landmark buildings and other exceptional elements should be located in response to view axes.

INTENT **Enhance the public realm by providing new open spaces, and improving access to and the quality of existing open spaces.**

CORE VALUES INVITING ECLECTIC **CONTEXTUAL** CONNECTED ADAPTABLE HEALTHY

Ensuring that new development positively contributes to the public realm, and the pedestrian experience is a key responsibility of the Citywide Urban Design Guidelines. This requires thinking beyond the boundaries of an individual building or site, to see how a project can contribute to and improve the adjacent public realm, and strengthen the vitality of a neighborhood, district, or corridor. Paying careful attention to how new development interacts with streets, sidewalks, and open spaces is of paramount importance in this regard. Wherever possible, new projects should look for opportunities to improve the quality of the streets and open spaces they face, and create opportunities for new open spaces and connections.

GUIDELINES

- a. For large projects, make improvements to adjoining streetscapes through the provision of street trees, plantings, seating/benches, paving, and other amenities (FIG. 12)
- b. Ensure that new open spaces and pathways through development sites are defined by buildings and where possible lined with active and transparent ground floor frontages.



FIG. 12 Various seating, plantings, and paving types improve the streetscape beside a large project.

- c. On large-parcel developments, create new open spaces that add variety and complement the wider open space network. They should serve the needs of the surrounding neighborhood, and enhance the pedestrian environment (FIG. 13)
- d. Design open spaces to enhance or expand existing facilities, or to expand networks of pedestrian and bicycle movement within the vicinity of the development.



FIG. 13 A plaza with ample seating options and a new pedestrian connection is included in a large-parcel development in Boston's Seaport.

See Chapters D and E for detailed design guidance on open spaces and streetscapes.

INTENT **Provide a mix of uses that complement the context, meet local needs, and support a vibrant public realm.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

A diverse mix of uses and activities adds to the vibrancy of the public realm and fosters walking, bicycling, and transit use. The right mix also ensures that Cambridge's commercial areas can continue to meet local needs and support everyday life.

New development, particularly in Cambridge's evolving districts, should serve a mix of functions (e.g., housing, employment, education, open space, and community amenities) that complement the neighborhood.

In established areas, new development should fit into and improve the existing context, providing a transition between uses, particularly where sensitive residential uses abut other uses.

GUIDELINES

- a. In mixed-use projects, locate uses to reflect the context and relate to adjacent building uses, streets, and public spaces. For example:
 - Locate retail and other active ground floor uses along primary streets or public spaces, particularly in mixed-use and evolving areas (FIG. 14).
 - Locate service functions on side streets or internal alleys.
 - Place new housing close to existing residential uses.



FIG. 14 Ground floor retail creates a vibrant pedestrian experience around a mid-rise development in Minneapolis.

- b. In mixed-use neighborhoods, calibrate the mix of dining, retail, community, cultural and other uses to respond to desired neighborhood uses and any relevant area-specific plan recommendations.
- c. In large, multiple-building non-institutional developments provide a mix of uses, including residential, office, retail, community facilities, etc., where such uses are permitted and where the mix of uses extends the period of time the area remains active during the day.
- d. In large mixed-use projects, provide spaces for small, neighborhood-oriented local businesses.
- e. Provide retail, consumer service enterprises, and other active uses at the ground (or lower) floors of institutional buildings in commercial areas. Where such uses are not suitable, provide institutional uses that encourage active pedestrian activity.
- f. Preserve or provide facilities for start-up companies and appropriately scaled manufacturing uses that provide diverse employment opportunities for Cambridge residents. Activities heavily dependent on trucking for supply and distribution are discouraged.

Consult with Economic Opportunity and Development staff on retail/tenant plans.

INTENT

Expand the inventory and range of housing in the city.

CORE VALUES

INVITING

ECLECTIC

CONTEXTUAL

CONNECTED

ADAPTABLE

HEALTHY

GUIDELINES

- a. Provide housing as a component of any large, multiple building commercial development. Where such development abuts residential zoning districts substantially developed to low-scale residential uses, locate housing within the development to act as a transition/ buffer between uses within and outside the development (FIG. 15).
- b. Where housing is constructed, provide affordable units exceeding that mandated by the Ordinance.
- c. Provide a diversity of housing types, tenures and sizes, particularly targeting larger family-sized middle-income units.
- d. In large residential projects, provide family-friendly and child-oriented services and amenities, such as play facilities, community spaces, etc.



FIG. 15 Broad Canal Way includes housing as a component of a multiple building development by MIT.

INTENT

Design sites that are resilient to and mitigate the effects of climate change.

CORE VALUES

INVITING

ECLECTIC

CONTEXTUAL

CONNECTED

ADAPTABLE

HEALTHY

Sites should be resilient to the effects of climate change, including frequent flooding due to precipitation and sea level rise/storm surge, and increasing heat. The design and layout of sites should mitigate stormwater runoff and minimize the urban heat island effect. Cambridge has implemented several initiatives to help new developments prepare for the long-term impacts of increased flooding and heat from climate change, including:

- Resilient Cambridge, a plan to reduce risks of climate change; and
- New climate resilient zoning aimed at protecting spaces vulnerable to flood and heat.

For more information refer to the Resilient Cambridge Plan, and Sections 22.80 and 22.90 of the Cambridge Zoning Ordinance

GUIDELINES

- a. Assess the current and projected risks and vulnerabilities of the project site and neighborhood.
- b. Based on the identified risks and vulnerabilities, integrate a range of resilient site design strategies. Examples include:

 - Protecting existing significant trees.
 - Incorporating light-colored pavement, pavers, and surface materials that absorb less solar radiation, where effective.
 - Maximizing permeable area and vegetated area (FIG. 16).
 - Minimizing impermeable pavement and maximizing permeable surfaces.



FIG. 16 Vegetation and permeable surfaces located in the public space beside a mixed-use development.

The following guidelines are based on the Climate Resiliency Zoning provisions as referenced in the existing Citywide Urban Design Objectives (Section 19.24 and 19.38 of the Zoning Ordinance).



FIG. 17 Permeable planted areas and light colored paving are used in combination with trees at the Union Square development in Somerville.

- c. Use Stormwater Best Management Practices and other measures to minimize runoff and improve water quality. Examples include:
 - Detain stormwater on site to slow the rate of stormwater runoff.
 - Integrate Low Impact Development (LID) and green infrastructure practices, structural and/or non-structural, to capture and retain (i.e. infiltrate, evapotranspire, or collect/capture and reuse) stormwater, such as bioswales, rain gardens with native or adapted plants, wet meadows, or dry ponds, into landscape plans.
 - Incorporate underground storage tanks to slow the release of stormwater. For development greater than 50,000 square feet, on-site stormwater storage requirements should be consistent with the Cambridge Department of Public Works “25:2” stormwater runoff detention requirement.
 - Where possible, incorporate LID and green infrastructure elements as attractive and accessible features of the site.

- d. Provide vegetative shading for sidewalks and other public spaces, with particular attention given to pedestrian, bicycle, and vehicular corridors. Consider structural shading in parks and public spaces where tree planting is challenging. For example:
 - Canopy trees can shade sidewalks and streets, including bus stops and other areas of congregation in the public realm (FIG. 18).
 - Trellises and similar structures can support vegetation to shade walkways and plazas.

Consult with the Department of Public Works and Community Development Department during the design process for specific guidance on resilience planning and sustainable site design.

The Sustainable SITES Initiative is a rating system that guides, evaluates, and certifies a project’s sustainability in the planning, design, construction and management of landscapes and other outdoor spaces. It complements the LEED rating system and focuses on site design. SITES’ nature-based solutions and strategies promote biodiversity, conserve water and other resources, mitigate climate change, improve public health, and provide economic benefits in development projects.

- e. Place vegetation or vegetated structures in strategic locations around buildings to reduce energy consumption and costs associated with indoor climate control.
- f. Select native vegetation that will be resilient to the anticipated hotter and more variable climate, and to saltwater intrusion, and support biodiversity, where applicable.
- g. Review the Sustainable SITES Initiative’s site design strategies and consider seeking SITES certification.
- h. Locate electrical equipment above expected flood levels.
- i. Locate emergency power equipment and fuels above expected flood levels or provide waterproof barriers.
- j. Ensure that fire detection and suppression systems and communications/data equipment will remain operational during flood events.
- k. In large projects, consider providing “shelter-in-place” facilities, with features such as emergency response supplies, backup electric supply for critical loads, passive thermal comfort, and backup communications.
- l. Designate community facilities and community rooms in larger buildings to remain functional during flood events and power outages.
- m. Develop an action plan for emergencies, addressing notification, evacuation, meeting places, elevator operation, etc.



FIG. 18 Trees provide shade, providing a comfortable environment for people using a pedestrian and bicycle corridor.

- n. Provide access points and routes for fire and other emergency personnel, and for evacuation purposes. Consider exterior stairs to second floors to facilitate emergency access during flood events.
- o. Provide accessible electrical shutoffs to safeguard emergency personnel.

Resources (same as Building)
Cambridge’s Climate Resiliency Zonings
Urban Forest Master Plan

See [D. Open Space](#) and [E. Streetscape](#) for more details.

INTENT **Create a safe, convenient, and comfortable environment for people walking, and encourage public transit use.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL **CONNECTED** ADAPTABLE HEALTHY

New development should consider the site's relationship to the pedestrian environment, and prioritize safety, comfort and connectivity. Pedestrian entries should be located to enable safe, convenient and enjoyable pedestrian movement, engage and activate streets and open spaces, and encourage public transit use.

GUIDELINES

- a. Link a wide variety of types of pedestrian-priority spaces to create a flexible and connected network: streets with sidewalks, plazas, squares, parks, paths, shared streets, pedestrian streets, through block passages, and alleys.
- b. Incorporate pedestrian pathways that provide direct access and connections with adjoining sidewalks, walkways, and where appropriate any adjacent public open spaces, or other public or civic uses.
- c. Create pedestrian pathways that are clear, direct, convenient, inviting, and safe.
- d. Provide variety and interest for pedestrians with design and amenities appropriate to the site, including seating, lighting, landscaping, pedestrian-scaled signage, site furniture, outdoor dining, and art.
- e. Integrate universal design best practices to provide comfortable and welcoming access for all.

The movement of people around and through a site can have a significant impact on the public realm and the surrounding context. The design and location of site circulation and building entries should prioritize people walking, biking, using wheelchairs and mobility devices, and using public transit. It should also avoid pedestrian, bicycle, and vehicular conflicts, and minimize the negative impacts of loading and service functions on the public realm and neighbors. A well-designed, safe and welcoming public realm enhances walkability, contributes to the character of the city's streetscapes, and has a positive impact on quality of life.

- f. Orient pedestrian entrances to front primary streets. Avoid orienting pedestrian entrances towards vehicular driveways, drop-offs, or parking lots. A pedestrian entrance typically should provide the most direct access to a building's main lobby and be kept unlocked during business hours.
- g. Provide frequent entrances to buildings and storefronts along public ways.
 - Ideally, on commercial streets with a fine-grain rhythm of storefronts such as traditional commercial districts like Harvard Square, space building entries no more than 30 feet apart, using strategies such as prioritization of small ground floor commercial spaces.
 - On streets where a coarser grain of residential and/or commercial entries is appropriate, aim for building entries no more than 75 feet apart.
- h. In mixed-use developments, provide distinct, separate entrances for residential, commercial, and industrial uses.
- i. Incorporate storefront entrances at block corners (FIG. 19).
- j. Generally, locate lobbies for office, laboratory, industrial, and residential buildings away from block corners.
- k. Site pedestrian entrances in locations that are easily accessible from crosswalks, and transit stops.
 - Provide facilities to support public transit use and enjoyment, e.g. benches, bus shelters, etc (FIG. 20).
- l. Where sidewalks and paths are shared with vehicular use, design them with a primarily pedestrian character (FIG. 21).
- m. Where pedestrian sidewalks and paths cross vehicular drives, ensure that the pedestrian pavement continues across, interrupting the vehicular pavement.



FIG. 20 A large bench beside the sidewalk on Vassar St provides a place for people to sit and rest.



FIG. 19 Active storefront entrance on the corner of First and Cambridge Streets.



FIG. 21 A shared street in Brighton, UK is designed with a pedestrian character.

INTENT **Provide safe, comfortable, and convenient bicycle access for people of all ages and abilities to sites and buildings.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL **CONNECTED** ADAPTABLE HEALTHY

GUIDELINES

- a. Provide safe, convenient and comfortable bicycle facilities, such as separate bicycle lanes and multi-use paths, in locations that are identified in the Cambridge Bicycle Plan and connect to the broader city network.
- b. Provide people biking with secure long-term weatherproof storage facilities conveniently located on-site. If bicycle parking is provided in a garage, special attention must be paid to providing safe access to the facilities from the outside.
- c. Provide people biking with short-term bicycle parking in locations that are visible and convenient to main building entrances.
- d. Provide long term bicycle parking facilities as identifiable features of ground floors. Where appropriate, design bicycle amenities, and long term parking facilities, to complement active ground floors. Include welcoming access, windows, and signage.
- e. Identify bicycle parking and bike share locations early in the design process so that they are well integrated into the site.

 - Provide bike share station facilities where recommended by staff.

Every street is a street where people of all ages and abilities should be able to comfortably ride a bicycle. The specific street design for supporting this will vary. See the [Cambridge Bicycle Plan](#) for guidance.

Section 19.20 of the Zoning Ordinance is a special permit process for large projects that requires an analysis of transportation impacts, including bicycle and pedestrian circulation. Its goal is to “encourage applicants to adopt a development program that reduces the number of single occupancy vehicles coming to the site. Such a program encourages pedestrian and bicycle access to the site, and throughout the neighborhood, and reduces potential negative impacts on abutting properties of the vehicles coming to the site.”

[For further guidance, refer to the Cambridge Zoning Ordinance](#)

Article 6 of the Zoning Ordinance includes detailed requirements related to bicycle parking, specifically the number and placement of parking spaces. Refer to 3.5.2 Bicycle Parking for further guidelines.

INTENT **Design and locate vehicular entrances, driveways, and drop-offs to minimize visual and operational impacts on the public realm.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL **CONNECTED** ADAPTABLE HEALTHY

GUIDELINES

- a. Locate driveways and parking entrances on side streets or alleys wherever possible.
- b. Minimize the number and width of curb cuts, driveways and vehicle entrances, and where possible create shared arrangements with neighbors.
- c. Design privately owned driveways and streets to a similar standard as public streets, incorporating sidewalks, planting zones, and bicycle lanes depending on their function and location.
- d. Where fire lanes are required between buildings, create shared arrangements between adjoining lots, and design them as streets depending on their connectivity to the street network.
- e. Avoid circular driveways, vehicular turnarounds, and off-street drop-off areas.
- f. Avoid driveways and parking accessways that run parallel to the street.

INTENT

Minimize the impacts of vehicular parking on neighbors and the public realm.

CORE VALUES

INVITING

ECLECTIC

CONTEXTUAL

CONNECTED

ADAPTABLE

HEALTHY

The design of sites should reduce the negative impacts of vehicular parking, by locating it below grade, providing it within buildings, and reducing the visual dominance of podium/ground floor parking. Where surface parking is unavoidable, it should be located to the rear, or side of buildings, and be visually screened from the public realm.

GUIDELINES

- a. Where on-site parking is provided, it should be below grade where feasible.
- b. Where above-grade and/or structured parking is unavoidable:
 - Ensure that it is not visible from public streets or pathways (FIG. 22).
 - Line the parking facility with active and/or retail ground floor uses.



FIG. 22 Below-grade parking in Kendall Square is located on a service alley to minimize disruption for people walking and bicycling on the primary street.

See C.3.4 on page 125 for the design of loading bays

- c. Avoid surface parking. Where surface parking cannot be avoided:
 - Locate surface parking in block interiors, not visible from major public streets.
 - Minimize the site area dedicated to parking and driveways.
 - Use permeable paving materials for surface parking areas.
 - Where possible, screen and shade surface parking with canopy trees, dense foliage, or hedges and shrubs. Where trees and plantings are not feasible, consider shade structures, PV arrays, or other means.
- d. Avoid covered parking on the lower floors of buildings that face public streets, public paths, and publicly accessible pathways. Buildings should not be raised up on stilts, or sit on blank walls, to accommodate parking.
- e. Where ground floor parking is unavoidable, screen it from view, and shield lighting to prevent glare and light trespass.
 - Consider use of green walls, artwork, metal stencils, fencers, louvers, sun shading elements, or other means to visually screen parked cars (FIG. 23).
- f. Design parking and driveways to minimize conflicts with pedestrians and bicycle movement.



FIG. 23 Vegetation can screen above-grade parking.

INTENT **Design and locate loading and service areas to minimize intrusion into the public realm.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL **CONNECTED** ADAPTABLE HEALTHY

GUIDELINES

- a. Conceal service and loading areas from public streets or open spaces. Place them at the rear of buildings, along secondary ways, alleys, or in internal courtyards.
- b. Where possible, consolidate off-street loading areas and service roads serving multiple buildings and multiple parcels.
- c. Design access routes to loading and servicing areas to avoid interrupting pedestrian connections, and transit and cyclist routes.
- d. Avoid security fences, gates at service yards, and similar features in areas visible to the public.
- e. Avoid chain link fencing, barbed wire, concertina wire or similar products when visible from the public realm.
- f. Locate exterior tanks for laboratory gasses unobtrusively, preferably in locations not visible from the public realm.
- g. Coordinate with city staff on the locations of parking for gas delivery trucks that are required to conduct operations in open air.

See C.2.16.1 on page 113 for more detail on loading bay design.

INTENT **Minimize the impact of utilities and mechanical equipment on the pedestrian environment.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL **CONNECTED** ADAPTABLE HEALTHY

GUIDELINES

- a. Preferably locate mechanical and electrical equipment within buildings, rather than as site elements. See C.2.16.2 on page 114 for further details.
- b. Any site-located electrical equipment should be located on the interior of blocks or screened from view from the public right-of-way, and not located between the building and any public way, or forward of the principal facade.
- c. Where site-located mechanical or electrical equipment cannot be avoided, it should be concealed by plantings or attractive enclosures.



FIG. 24 Metal screening conceals this transformer.

Building and site design should mitigate adverse environmental impacts on neighboring areas, with particular emphasis on sidewalks, plazas, and other open spaces.

Cambridge is a dense area, and, as new development is added, there will inevitably be increases in shadows, wind, noise, or glare. New projects should be carefully designed to minimize environmental impacts, particularly on adjacent streets and open spaces. The goal is to evaluate each design decision to understand its impacts on the surrounding environment and find outcomes that balance the benefits of building in a transit-rich, walkable community with the changes that result from relatively tall and dense new buildings.

INTENT **Design buildings to minimize negative wind impacts on adjacent streets and open spaces.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Early in the design process, analyze prevailing wind conditions to ensure optimal pedestrian comfort and safety in surrounding open space areas.
 - Demonstrate how proposals have been conceived regarding prevailing winds and potential pedestrian-level wind impacts.
 - For buildings taller than 100 feet, or buildings that have unique forms and configurations that may accelerate wind impacts, undertake qualitative Pedestrian Wind Studies such as Computational Fluid Dynamics modeling.
 - For buildings taller than 150 feet, undertake wind tunnel testing.



FIG. 25 Colonnades along the streets can improve pedestrian wind conditions.

It is important to consider the potential impacts of a proposed project early in the design process. This allows sufficient time to consider mitigation strategies, including changes to site and building layouts and designs.

- b. Where mitigation is required to achieve acceptable pedestrian wind comfort levels, evaluate all recommended measures to demonstrate the benefits of such strategies. Mitigation strategies include:
- Building massing changes or alternative designs that are more responsive to the local wind climate.
 - Incorporating podiums, tower setbacks, notches and/or colonnades (FIG. 25).
 - Projected overhangs, canopies, and/or setbacks.
 - While wind screens, landscaping, planters, public art and/or other site features can be effective for mitigating problematic wind conditions, in dense urban environments like Cambridge, their utility is often limited, e.g. pedestrian wind screens cannot be placed at the corner of a building on a busy sidewalk. It is suggested that adverse wind impacts should be mitigated primarily through massing and structural building elements, rather than relying solely on landscaping and other site features.

Pedestrian Wind Studies are conducted to predict, assess, and, where necessary, guide site and building design to mitigate their impacts on pedestrian-level wind conditions. Wind tunnel tests should assess annual, and seasonal mean wind speeds, and effective gusts, and include supportive data and figures for each.

Pedestrian wind conditions are considered suitable when they are comfortable for the intended pedestrian activities around the site (i.e., walking on sidewalks, standing at building entrances, and sitting in plazas, etc.). If the conditions around the site exceed the levels required for the intended pedestrian activities, or are unsafe, mitigation measures are recommended.

B.2.9.2 SHADOWS

INTENT **Locate and shape buildings to minimize shadow impacts on adjacent and nearby open spaces, as well as Registered Solar Energy Systems.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

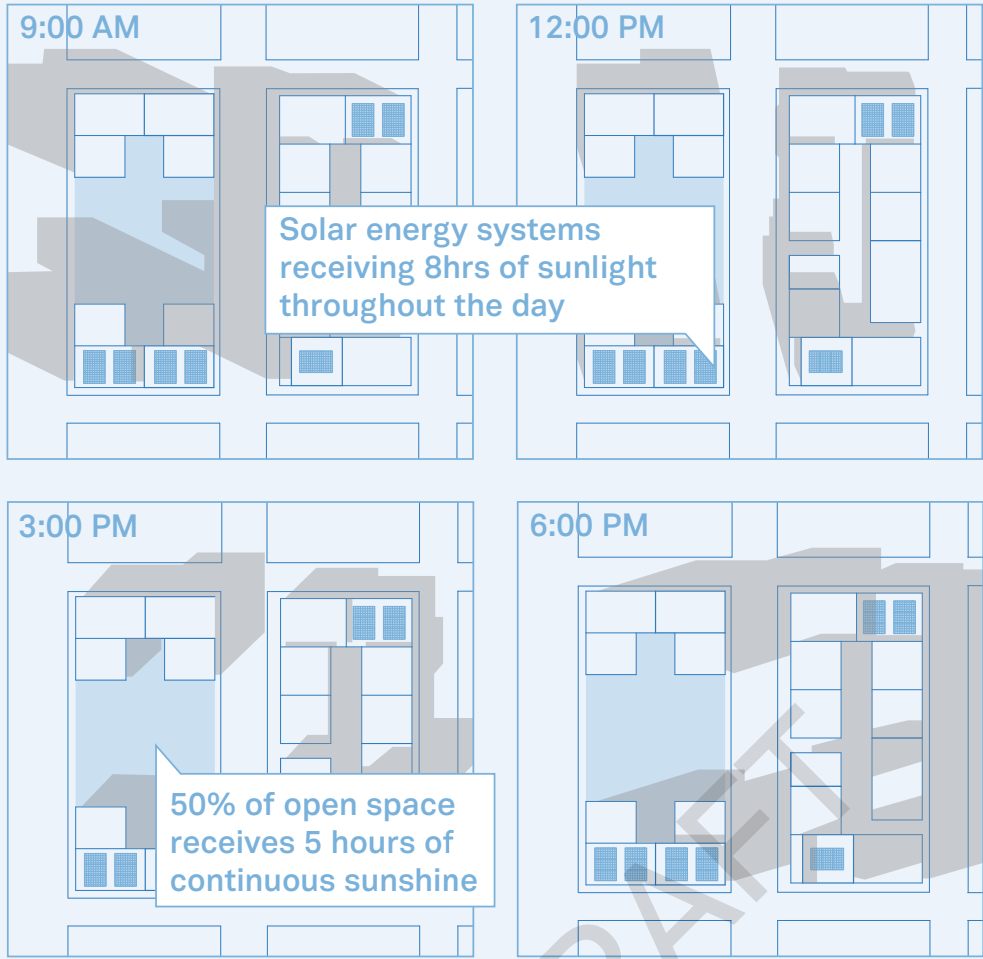
GUIDELINES

- a. Identify adjacencies to be protected, including open spaces and Registered Solar Energy Systems.
- b. For buildings that are 100 feet or taller, conduct shadow impact studies for the Winter Solstice, Summer Solstice and Autumnal Equinox (FIG. 26), that report the following:

 - Number of hours of sunlight/day that adjacent open spaces receive, and/or
 - Number of hours of sunlight/day that solar energy systems receive.
 - Existing and net new shadows.
- c. Propose mitigation when excessive shadows result in negative impacts on the use and enjoyment of adjacent open spaces and the operation of solar energy systems. Examples include:

 - Where possible and without undermining other urban design objectives of the area and the city, stepping back the upper floors to allow more sunlight to reach ground level and neighboring open spaces.
 - Prioritizing sunlight access to open spaces to ensure that parks and plazas receive adequate sunlight and existing uses that rely on sunlight access remain viable, e.g. community gardens.
 - Considering impacts on the viability of existing open space vegetation.
 - In new open spaces, considering the ability of vegetation to grow in changing light conditions.

→ A shadow study may be required for a lower building if it is located near shadow-sensitive areas, including but not limited to parks and open spaces, playgrounds, pedestrian connections, shared streets, and where area-specific design guidelines or relevant special permit criteria require these. CDD staff can provide further guidance to Applicants.



Autumn Equinox, 2023
Location: Cambridge, MA

FIG. 26 Shadow impact studies help inform the design of buildings and open spaces in developments with tall buildings

B.2.9.3 GLARE

INTENT **Design and shape buildings to minimize the impacts of solar reflection and glare on adjacent streets and open spaces.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Provide solar reflection and glare potential studies for glass curtainwall buildings, particularly those with concave or convex forms.
- b. Use strategies to mitigate glare such as:
 - Shading devices, including horizontal overhangs, vertical fins, and awnings (FIG. 27).
 - Landscaping, especially trees.
 - Avoiding highly-reflective façade materials used in conjunction with concave and convex building forms.



FIG. 27 This life science building on Morgan St. uses vertical fins to help mitigate glare.

INTENT **Minimize noise impacts of new development, particularly noise generated from mechanical equipment, on neighbors.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE **HEALTHY**

GUIDELINES

- a. Adopt best available and feasible practices regarding the location, sizing, and selection of mechanical equipment, and sound attenuation measures.
- b. When a project includes residential uses located in a mixed-use or commercial or industrial area, consider how building materials, building design, building orientation, and site layout can reduce the transmission of noise to the residences from the surrounding environment.

For further guidance, refer to the [City of Cambridge Noise Control Ordinance](#) (Chapter 8.16 of the City Municipal Code ⁷)

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Block organization, articulation of public space, response to historical buildings, vegetation, and mix of uses are examples of design elements present in the Orchard Gardens development, a thoughtful, contextual development in Elephant Park, London.

C. Building

Cambridge’s residential, commercial, institutional, and mixed-use buildings serve the needs of the city’s residents, workers, businesses, and institutions. Publicly-owned buildings serve civic functions and represent civic values. Together, they form the city’s blocks, which in turn frame, shape, and define public spaces giving them varied characters and contributing to Cambridge’s sense of place.

Cambridge’s built form is richly varied, a testament to its many layers of history. The design of new buildings should demonstrate an understanding of that history, by reinforcing the eclectic form and character of Cambridge’s neighborhoods, while creating new and memorable places. As Cambridge develops and becomes more dense, it is important to ensure that the quality of the adjacent public realm is a fundamental consideration in the design of new buildings.

The guidelines in this chapter encourage building massing, ground floor design and uses, facades, materials, and other building elements that create harmonious relationships with nearby existing buildings, contribute to a well-defined and welcoming public realm, and help realize the city’s vision for its urban form. This chapter also promotes building design that preserves resources and strengthens the future resilience of the city’s built environment.

C.1 Building Principles p.62

- C.1.1 Well-Designed Buildings p.63
- C.1.2 Welcoming Buildings p.63
- C.1.3 Sustainable Buildings p.63

C.2 Building Guidelines p.64

- C.2.1 Context & Identity p.65
- C.2.2 Massing p.67
- C.2.3 Pedestrian Level p.71
- C.2.4 Streetwall p.85
- C.2.5 Tower p.88
- C.2.6 Top p.90
- C.2.7 Roofs and Terraces p.91
- C.2.8 Pedestrian Connectors and Bridges p.92
- C.2.9 Facade Design & Articulation p.94
- C.2.10 Materials p.100
- C.2.11 Historic Buildings and Adaptive Use p.103
- C.2.12 Sustainable Building Design p.105
- C.2.13 Climate Adaptation and Resiliency p.107
- C.2.14 Flood Resilience p.109
- C.2.15 Lighting p.111
- C.2.16 Services, Utilities, and Functional Elements p.112

C.3 Building Types p.118

- C.3.1 Office/Laboratory/R&D Buildings p.119
- C.3.2 Residential Buildings p.121
- C.3.3 Civic and Institutional Buildings p.124
- C.3.4 Parking Garages p.125
- C.3.5 Industrial Buildings p.127

C.1 Building Principles

The Valente Branch of the Cambridge Public Library is a thoughtfully and sustainably-designed building that creates a welcoming space for the community.



C.1.1 WELL-DESIGNED BUILDINGS GOAL 1: DESIGN QUALITY

New buildings should contribute to the quality of the public realm. The beauty of facades, and the colors, textures, and durability of materials, should enhance the city’s aesthetic richness. Ground floor uses on commercial streets and squares should activate the streetscape. Facades should be thoughtfully designed with detail, high-quality materials, and three-dimensional relief (FIG. 28).

Depending on site and program, new buildings may blend in with their surroundings as back-ground buildings, stand out as unique elements to highlight their significance, or combine aspects of both approaches.



FIG. 28 Buildings along Main St contribute to the visual quality of the street through texture, detail, and variation.

C.1.2 WELCOMING BUILDINGS GOAL 2: EQUITY

Cambridge’s buildings should create a welcoming and inclusive environment for all ages, races, ethnicities, genders, sexual orientations, and abilities. To achieve this, these guidelines encourage: a mix of uses that serve diverse needs, inviting ground floors that feel public, and visually interesting facades that contribute to a pleasant, engaging, and safe public realm. Buildings should reflect the city’s cultural vitality, integrating arts, cultural and community uses, and activities (FIG. 29). Buildings should offer space for different activities and user groups, and provide barrier-free physical access.



FIG. 29 Transparent ground floors and a mix of uses invite a diversity of people.

C.1.3 SUSTAINABLE BUILDINGS GOAL 3: SUSTAINABILITY

New buildings in Cambridge are expected to meet or exceed the highest standards of environmental sustainability, resource efficiency, and climate resiliency and adaptation. This document is intended to advance these goals. New projects should minimize energy use and greenhouse gas emissions, be resilient to flooding, and minimize the impacts of extreme heat events.

Preservation is also a key component of sustainability. New projects should consider preserving existing historical buildings to conserve resources and strengthen community resilience by maintaining cultural and historical values, as well as fostering community identity (FIG. 30).



FIG. 30 The renovation of a historic building in Harvard Square received a LEED Gold certification.

C.2 Building Guidelines

Market Central adopts a contextual approach to the Central Square neighborhood by articulating building massing that relates to existing buildings.



C.2.1 CONTEXT & IDENTITY

INTENT Design buildings to relate to the surrounding context, complement adjacent buildings and respond to the local microclimate.

CORE VALUES INVITING ECLECTIC **CONTEXTUAL** CONNECTED ADAPTABLE HEALTHY

GUIDELINES

Through careful consideration of massing, facade design, and ground level interaction with adjacent open spaces, new buildings should enrich Cambridge's public realm. The guidelines contained in this section encourage new buildings that speak to their time and place, and also to the surrounding context in ways that enhance both.

- a. Designers are encouraged to conduct a comprehensive analysis of the site and the surrounding context, that:
 - Demonstrates, through analytical diagrams, an understanding of the variety of existing building typologies and styles in the immediate and larger context.
 - Demonstrates, through analytical diagrams, an understanding of the character of existing buildings in the surrounding context, the ways they use color, details, facade motifs and patterns, etc. to create a visually rich environment.
- b. Based on the site, context, building type, and program, consider whether the building should be a landmark, background building, or a combination of background and landmark elements.
- c. Consider how the building massing, facade design, and material choices positively add to the city's existing built form.

- d. Consider how the building massing and facades contribute to the definition and articulation of streets and open spaces.
- e. Demonstrate, through analytical diagrams, an understanding of contextual historic buildings, and articulate a response to them (FIG. 31).
- f. Demonstrate an understanding of micro climatic conditions, including solar orientation and prevailing breeze, and articulate a response to them.



FIG. 31 The height and materials of the lower portion of 314 Main St compliment the adjacent historic building.

C.2.2 MASSING

Building massing should respond to and mediate between the wide range of scales of the urban environment: the scale of the pedestrian, adjacent buildings, streets or squares, and distant views from parks and major thoroughfares. As part of this response, building massing and principal front facades should be generally organized into horizontal zones (FIG. 32):

- Pedestrian Level
- Streetwall
- Tower (or Upper Floors)
- Top

Pedestrian Level

The pedestrian level includes the ground floor, and on occasion the second floor. The Pedestrian Level offers amenities, comfort, shelter, and visual enrichment, and accommodates retail, community, and other active uses.

Streetwall

The streetwall includes the floors above the pedestrian level that frame the spatial volume of the adjoining streets, parks, or squares.

Tower (or upper floors)

The floors of tall buildings above the streetwall that define spaces at a larger scale, and add visual interest from distant views.

Top

The Top contributes to the building's articulation. Depending on building type, the top may range from a cornice or simple parapet, to a stepped back top floor, to an assemblage of penthouses. Since building tops are potentially viewable from further afield, they can offer an opportunity for a distinctive presence.

The specific characteristics of these zones, their relative sizes and importance, and the amount of differentiation between them, will vary depending on building type and context. See C.2.2.2 on page 70 for further details about the zones.

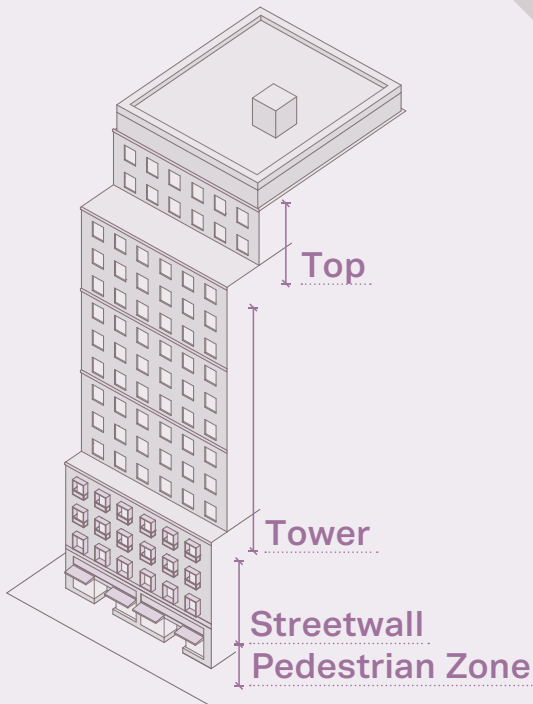


FIG. 32 Building massing should be organized into four zones: Pedestrian Level, Streetwall, Tower, and Top.

INTENT **Arrange building massing to contribute to the definition of the public realm and relate to existing or anticipated patterns of development.**

CORE VALUES INVITING ECLECTIC **CONTEXTUAL** CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Provide suitable transitions in heights, massing, and setbacks to abutting or nearby residential zoning districts that are generally developed at a lower scale (FIG. 33).
- b. Where possible, divide the bulk of large projects into separate buildings to avoid a monolithic appearance, and to create visual and physical connections between the street and the more private courtyards and other open spaces within sites.
- c. Break building facade lengths longer than 200 feet into shorter facade segments by forecourts, vertical breaks, notches, changes in plane or other appropriate massing techniques (FIG. 34).
- d. In large buildings, consider incorporating upper story step backs to help break up the mass, preserve sky views, minimize undesirable wind conditions, and create sensitive transitions to historically or architecturally significant existing buildings (FIG. 34).

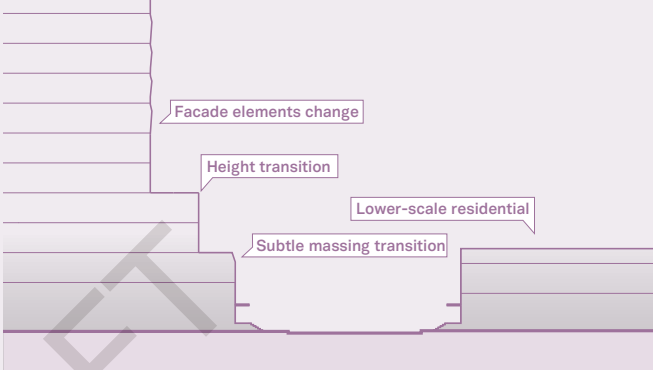


FIG. 33 Tall buildings should provide transitions to adjacent low-scale residential district.



FIG. 34 A vertical break and forecourt is used to break down the length of this long building on Binney St facade.



FIG. 35 Towers of tall buildings in Kendall Square step back from the street to mediate between the scale of people walking and the building's bulk.

INTENT **Organize building massing into horizontal zones to reflect the surrounding context and enhance the streetscape.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Provide a distinction between the zones of a building based on the context and character of the surrounding neighborhood.

 - The distinction can be achieved either through massing (stepbacks), or facade choices (material changes, cornices, fins, shading), or a combination of both (FIG. 36).
 - The zone’s expression can be subtle or sharp; in either case it should be purposeful, appropriate, and clear.
 - The distinction between pedestrian level and the streetwall should be expressed in low-rise, mid-rise, and tall buildings.
 - The distinction between the streetwall and the top is less critical for low and mid-rise buildings. Even in taller buildings, an argument could be made for a design without a clear top.
- b. Design the pedestrian level to be either one or two stories. In low-rise buildings, the pedestrian level should be no more than one story.



FIG. 36 Buildings along Binney Street are organized into horizontal zones. Each building from left to right provides a distinction between the zones; through a subtle massing reveal at the ground floor and a top floor stepback (left), through different types of openings at the ground floor (middle and right), an extension of the roof cornice (middle), and a tower (right).

- c. Design the pedestrian level to address people walking and bicycling at ground level. This zone should generally receive the most attention in terms of design, materials, and details that provide depth, texture, and character. See C.2.3 on page 71.

See C.2.4 on page 85 for more information on the height recommendations for streetwalls.

The pedestrian level is a critical element of the public realm and our experience of the city. It provides shelter, accessibility, and visual interest at the pedestrian scale, and accommodates active uses that enliven streets and squares. Careful attention to the design and use of this level is needed to enhance walkability and ensure a safe, vibrant, and welcoming public realm for all.

On commercial and retail streets, ground floor uses should actively engage and enliven the public realm, and the pedestrian level’s facade should be distinct in character from the streetwall floors above. Well-designed commercial ground floors should have a high level of transparency and permeability, and include pedestrian-friendly design details that enhance the visual richness of the streetscape.

On Residential Streets, residential ground floors should contribute to creating an active and welcoming public realm. Ground floor uses should focus on residential units, and communal and active spaces that create visual connections with the streetscape. In buildings with ground floor residential units, less differentiation between the pedestrian zone’s facade and the streetwall above may be appropriate.

INTENT **Provide active, pedestrian-oriented ground floor uses to animate the public realm, and enhance the vitality and walkability of Cambridge.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Where possible, provide active uses and multiple tenancies to create animated and inviting ground floors, both in commercial and residential buildings.
- b. Locate pedestrian frontages on the property line, or within any designated build-to zone, with exceptions for recessed retail or other entrances and shopfronts.
- MIXED-USE AREAS
- c. On primary streets, aim to occupy at least 60-75 percent of the street frontage with retail uses such as cafes, restaurants, and shops that are oriented towards the street and encourage pedestrian activity (FIG. 37). A higher percentage of retail use is expected in locations with continuous retail such as Cambridge’s squares.
- d. On other streets, pathways, and open space frontages, aim to occupy at least 50 percent of the street or open space frontage with active uses that are oriented toward the street and encourage pedestrian activity (FIG. 38). For the purposes of these guidelines, active uses include:

 - Retail (i.e. cafes, restaurants, shops),
 - Educational and cultural venues,
 - Services for the public or for commercial offices (fitness centers, cafeterias open to the public, daycare centers, etc.),
 - Community spaces (exhibition or meeting space),
 - Art/information exhibition spaces,
 - Live/work spaces, and/or,
 - Small residential lobbies.



FIG. 37 Retail uses animate Harvard Square, an area of high-pedestrian activity.



FIG. 38 The 75-125 Binney St building ground floor includes a cafe that activates part of the street frontage.

- e. Provide the actively-used area with a depth of at least 20 feet, or the depth of the building if less.
- f. Line large floor area ground floor tenant spaces with smaller tenancies at the edge of sidewalks, open spaces and pedestrian connections (FIG. 39).
- g. Avoid lobbies for office, research, and residential uses, that occupy extensive frontage and lack public use/amenity.
- h. Avoid banks, trust companies or similar financial institutions with more than 25 feet of ground floor frontage facing public streets. Larger floor areas can be devoted to bank uses when lined with other active retail uses.
- i. Provide modest ground floor setbacks where sidewalks are constrained. Such zones enlarge the public realm, and can accommodate outdoor seating or merchandise display, and expanded sidewalk areas.

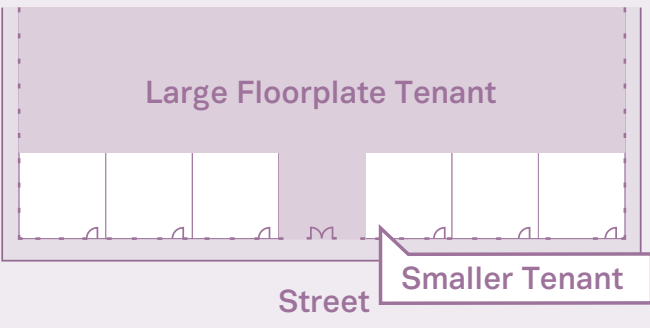


FIG. 39 Small tenancies line the edges of large floorplate ground floor tenancies to provide more variety of the ground floor.

- j. Use placemaking gestures, such as planters, merchandise displays, and landscaping, that enable flexible and creative use of frontage zones and front setback areas.
- k. Where retail use is not immediately feasible, design ground floors for flexibility to accommodate future retail uses.

 - Ensure ground floor facades can be readily converted to retail storefronts.
 - Accommodate venting and exhaust needs of future food service uses, and ensure these are directed away from streets, open spaces, and the pedestrian level.
 - Zone interior power and HVAC systems to enable convenient division and sublease of interior spaces to retail tenants.

TEMPORARY USES

- l. Encourage short-term use and pop-ups in underutilized/vacant ground floor spaces, or where retail use is not immediately feasible.

 - Partner with local arts organizations to activate and curate empty storefronts and construction sites with art installations, while properties are still being developed and marketed for lease.

INTENT

Create engaging, visually interesting, and human-scaled ground floor facades.

CORE VALUES

INVITING

ECLECTIC

CONTEXTUAL

CONNECTED

ADAPTABLE

HEALTHY

GUIDELINES

- a. Generally align ground floors with the plane of the streetwall above (FIG. 40).
 - Slightly recessed shopfronts and entrances are an exception.
 - Avoid deeply recessed ground floors along streets.
 - For undercut or colonnaded ground floors, the maximum height-to-depth ratio should be 2:1.
 - For ground floors with double height expression (18 feet or more), the maximum height-to-depth ratio of undercut or colonnaded ground floors should be 3:2.

b. Give the ground floor level the appearance of greater height than any floor level above. On taller buildings, especially on wide streets, double-height pedestrian zones and lobbies may be appropriate.



FIG. 40

Ground floor near Kendall Square is generally aligned with the streetwall plane.

c. For large buildings in commercial areas, emphasize the distinct character of the ground floor facade, particularly where retail or community spaces are provided.

d. Incorporate elements that create a visually rewarding and intimate pedestrian environment (FIG. 41). Depending on the character of the street and the ground floor functions, these may include:
 - Angled display windows, frequent entrances, and recessed entrances.
 - Special lighting displays.
 - Open-ended awnings and canopies over the sidewalk.
 - A high window-to-wall ratio.
 - Variations in mullion patterns, and incorporation of operable windows.
 - Varied materials or colors.
 - Higher-quality materials and detailing, with particular attention given to enhancing building entries and openings.
 - Traditional storefront designs, or contemporary interpretations of such.
 - Consider providing areas of solid wall at the bottom (e.g. kneewalls) and/ or top (e.g. signage band/cornice) of ground floor façades, and expressing structural piers/columns. Areas of solid wall can add detail and variety, while providing space for tenant expression with elements like distinctive signage and color, and interior layout benefits such as locations for equipment, shelving, and displays.

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SHAPING OUR CITY

FIG. 41 Traditional storefronts in Central Square engage the sidewalk with display windows, a recessed entrance, and an elaborately-designed canopy.

e. Avoid long, blank ground floor facades facing sidewalks and public spaces, where possible. Where blank walls are necessary, they should be no longer than 20 linear feet.

f. Enliven blank ground floor facades visible from streets and public spaces, through the use of:
 - Attractive facade treatment,
 - High-quality materials and textures,
 - Louvers,
 - Green walls,
 - Wall art (FIG. 42), and
 - Other creative approaches that help engage and enrich the pedestrian experience.

g. Design facades to accommodate future pedestrian-oriented business identification signage, including blade signs.

FIG. 42 Wall art is used to animate the blank side wall visible from the street.

h. Ensure kitchen exhaust for food service uses does not negatively impact the pedestrian experience. It should be relegated to the back-of-building and elevated above pedestrian height, or exhausted at the roof level.

i. Provide generous floor-to-floor heights of at least 18 feet.

BUILDING GUIDELINES

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A. INTRODUCTION

B. CONTEXT & SITE

C. BUILDING

D. OPEN SPACE

E. STREETSCAPE

INTENT **Maximize the visibility of building interiors and enhance street frontage activation.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Maximize transparency by creating facades with at least 60 to 75% transparent glass facing primary streets and public open spaces in mixed use/ corridor areas. The greatest amounts of glass would be expected for retail uses with lesser amounts for office or institutional use.
- b. On secondary streets, aim for at least 50% transparent glazing.
- c. Concentrate transparency at the pedestrian eye level, between 2 and 10 feet above the adjoining sidewalk (FIG. 43).
- d. Ensure windows serving occupied spaces are prominent features of the relevant ground floor facades.
- e. For corner active use locations, extend glazing to both street frontages (FIG. 44).
- f. Use clear, low iron, un-tinted glazing, with 70% minimum Visible Light Transmittance (VLT) and maximum 15% Visible Light Reflectance (VLR) (FIG. 44).



FIG. 43 Corner store in Boston's South End features windows on both street frontages.



FIG. 44 Ames St storefront maximizes visibility into the interior by using clear, un-tinted glazing.



FIG. 45 Restaurant features large windows at the pedestrian eye level.

- g. Incorporate large operable windows that can be opened to the street in sidewalk-side restaurant dining (FIG. 45).
- h. Avoid obscuring transparent storefronts, either existing or approved. Where opaque facades are necessary, use creative screening approaches to provide visual interest, light infiltration, and a sense of depth. Examples include:
 - Window display areas.
 - Changing public art displays.
 - Bottom-up blinds.
 - Preserving areas of transparency, such as clear transom windows or selective areas of visual porosity.

- i. Avoid large areas of unarticulated floor-to-ceiling glass.
- j. Avoid frosted glazing, and application of translucent films to glass. Where such screening approaches are necessary, the facade design should provide light infiltration, and maintain visual interest, with preference given to:
 - Fritted glass.
 - Etched or sandblasted glass.
 - Any applied films should be high quality and applied to the interior glass surface.
- k. Locate storage rooms, toilets, restaurant kitchens, and other back-of-house functions away from the pedestrian level on primary streets and other open spaces.

INTENT **Create well-defined building entrances that are welcoming to all.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Design building entrances as prominent features of the ground floor, making them easy-to-find, inviting, and accessible (FIG. 46). Examples include:
 - Recessed entrances that protect pedestrians from entry doors that open outwards.
 - Projecting canopies and awnings that provide shelter and shade (FIG. 47).
 - Recessed or projecting walls.
 - Taller door and lobby dimensions.
 - Double doors.
 - Architectural details.
 - Integral planters, landscaping, and seating areas.
 - Changes in materials.
- b. Provide seamless, barrier-free access at building entrances.



FIG. 47 A canopy provides shelter and shade, while marking the entrance to a residential building in Kendall Square.



FIG. 46 Restaurant entrance in Harvard Square with unique design featuring an arched opening and a recessed storefront.

INTENT **Design commercial lobbies as semi-public extensions of the public realm that are welcoming to building occupants and visitors.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. On primary streets in mixed-use areas/squares, commercial lobbies should occupy no more than 25 feet of street frontage. In other areas, a wider lobby frontage may be acceptable.
- b. Where possible, locate commercial lobbies away from street corners and provide retail spaces instead.
- c. Invite public use of large-scale commercial lobbies by providing active uses, amenities, and programming either within or adjacent to the lobbies. Examples include:
 - Attractive and comfortable seating.
 - Cooling centers.
 - Nursing pods/family wellness facilities.
 - Free wifi/charging stations.
 - Public restrooms/water bottle filling stations.
 - Public meeting rooms.
 - Restaurants and cafes.
 - Other retail uses.
 - Fitness centers.
 - Daycares.
 - Community spaces.
 - Art exhibition spaces.
 - Creative workspaces, etc.



FIG. 48 Commercial lobby on Main St. includes a transparent frontage and signage about public accessibility.

- d. Where feasible, include both a side entrance from the lobby and a street-facing entrance for any active uses.
- e. Incorporate highly transparent street frontages and welcoming signage (FIG. 48).
- f. Carefully balance security needs with creating a welcoming lobby atmosphere. Where possible, locate any necessary security personnel, desks, and turnstiles well within the building interior. Avoid the overt appearance of security personnel and associated features at building entrances.
- g. Entrances to lobbies should be unlocked during business hours.

INTENT **Design ground floor residential frontages to directly connect with the public realm, create eyes-on-the-street, and add visual interest.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

a. Wherever possible, design residential ground floors with individual units and frequent pedestrian entrances facing the street or open space. Include row house units on the lower levels of multi-family buildings to provide a rhythm of front doors, residential character and a pedestrian scale.



FIG. 49 Residential ground floor in Cambridge Crossing features frequent individual unit entrances.

b. In parts of street level facades that do not contain residential units, provide uses that are active such as amenity spaces, fitness centers, management offices, lobbies, or other actively occupied spaces.

c. Ensure ground floor residential unit entrances and lobbies meet and exceed the access needs of people of all ages and abilities, and provide an inclusive and welcoming environment. Where residential lobbies for multi-family buildings face the street, generally space entrances no more than 75 feet apart.

- Provide fully accessible front entrances that go beyond code requirements, while balancing the need for interior privacy. This may include elevating residential first floors above the sidewalk level to provide privacy, consistent with accessibility needs and requirements. Where this occurs, provide accessible raised ramps lining the façade, with a continuous accessible passage as well as defined semi-private areas for units.
- Provide frequent entrances with stoops, landscape plantings, steps, and accessible routes as appropriate to provide access, and maintain a sense of privacy.

- d. In mixed-use buildings, establish a distinct identity for residential entrances from commercial entries. Use features such as canopies, porches, stoops, recessed entrances and architectural facade elements to frame or emphasize residential scale and character.
- e. Aim to incorporate at least 25 percent transparent glazing in residential ground floor facades that face streets and other open spaces.
- f. For residential buildings with ground floor residential units, consider less differentiation between the facades of the pedestrian level and the streetwall above. Some distinction, however, in material, character of openings, and detailing of solid walls should be provided, to contribute to creating a pedestrian-friendly streetscape.
- g. Where residential front yards are raised directly above the sidewalk level due to elevated ground floors, use low walls combined with steps and ramps to achieve the requisite grade change. Sloped berms are discouraged (FIG. 50).
- h. Where residential buildings are set back from the sidewalk and where appropriate to the existing character of the street:
 - Provide a zone of semi-public/semi-private space between the building and the street.
 - Design the front setback zone as a threshold that celebrates the transition between the public space of the sidewalk, and the private building interior.
 - Consider design strategies such as layers of front yard plantings and garden zones, vertical gardens, porches, stoops, steps, and seating walls (FIG. 51).



FIG. 50 Elevated residential ground floor in Somerville incorporates a low wall with planting and steps, rather than a sloped berm.



FIG. 51 This residential front yard includes a garden and seating area that celebrates the setback zone as a semi-public/semi-private space.

INTENT **In flood-prone areas, accommodate ground floor flood adaptation strategies, while mitigating negative impacts on the public realm.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED **ADAPTABLE** HEALTHY

Section 22.80 of Cambridge’s Zoning Ordinance contains specific climate resiliency requirements, which establish that all habitable residential spaces must be elevated above the projected 1% Long-Term Flood Elevation (LTFE). Non-residential occupiable spaces must either be elevated above the 10% LTFE, or be provided with barriers sufficient to protect them.

Buildings with significantly elevated ground floors can negatively affect the public realm and pedestrian experience. To mitigate these concerns, the design of flood resilient ground floors needs to consider universal accessibility, visual connections with active uses, and creating lively and inviting streetscapes. This is particularly important in commercial corridors/ mixed use areas where vibrant streetscapes and retail uses depend on good visual and physical links with sidewalks. On residential streets, new development may have more flexibility to address the grade change within forecourts and front yards.

GUIDELINES

- a. In buildings with elevated ground floors, consider strategies that can provide ready public access to lobbies, retail and other active or community uses on ground floors. The most appropriate means of elevating or protecting ground floors will vary between projects and may be different from one part of a building to another. This depends on the characteristics of the site, context, building design and uses, and the designers’ creativity. These solutions may include, but are not limited to:
 - Internal circulation.
 - Elevated forecourts.
 - Elevated walkways, raised streets and sidewalks (FIG. 52 ON PAGE 83).
- b. In mixed-use areas with continuous retail, avoid setting back front facades to accommodate elevation transitions.
- c. In mixed-use areas, accommodate elevation changes within the building as exterior stairs and ramps may create visual and physical barriers.

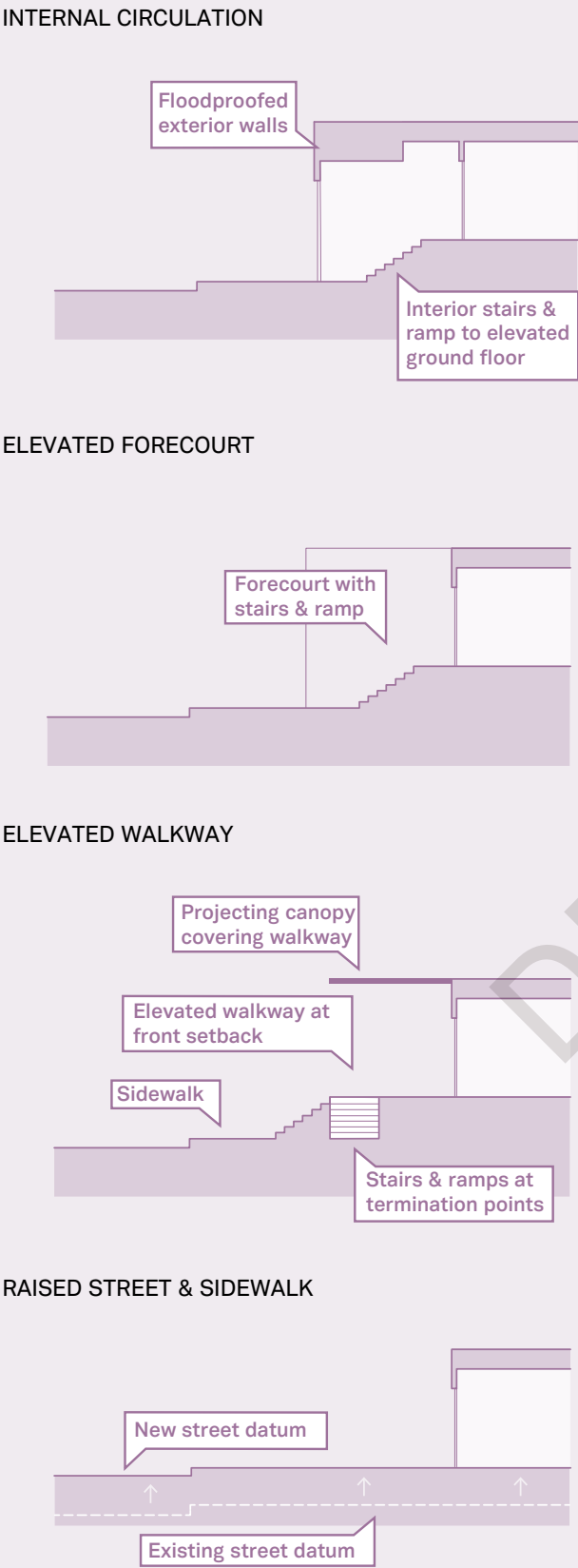


FIG. 52 Strategies for public access to elevated ground floor spaces in flood-prone areas.

- d. Where grade changes of 4 feet or more above the sidewalk are unavoidable due to flood mitigation needs, consider specific strategies to lessen negative impacts on the public realm. Examples, depending on location and use, include:
 - For buildings built to the sidewalk, provide layered design treatment and facade articulation of the base of the building to help bring the perceived height of the ground floor down to grade.
 - For buildings that are set back from the sidewalk, provide a pedestrian-friendly interface at sidewalk level with appropriately scaled stairs and ramps, porches for residential buildings, benches, hardscape areas, landscaped terraces consisting of low vertical walls, low and visually permeable fences, horizontal and vertical landscaping. Seating areas for outdoor dining, and public art, can also help create vibrant streetscapes.
 - Avoid the use of blank walls and fences more than four feet above grade.

INTERNAL CIRCULATION

- e. Locate lobbies and other entrance spaces at sidewalk level. A sidewalk level entry with internal circulation provides the strongest visual connection between the public realm and the building interior (FIG. 53).
- f. Use steps and ramps or elevators inside lobbies to provide access up to ground floor level and to general building circulation.



FIG. 53 Internal circulation connects this building's elevated first floor to its at-grade lobby, keeping the entrance at sidewalk level.



FIG. 54 Elevated walkway provides access to elevated ground floor cafe in Portland, ME.

- g. Construct street level lobbies and other spaces with flood-tolerant materials and/or flood-proof exterior walls up to the appropriate LTFE level, and design such spaces to be protected by passive flood barriers.

ELEVATED FORECOURT

- h. Use exterior ramps and steps to provide access from sidewalk level up to a forecourt at the same level as the building's elevated ground floor.
- i. Design ramps and steps as integral parts of the project's architectural and landscape design: e.g. as elements of a forecourt or other feature that is open to the street.
- j. In general, locate ramps and steps behind the primary plane of the building's streetwall.

ELEVATED WALKWAYS, RAISED STREETS & SIDEWALKS

- k. Where appropriate, consider elevated walkways, and streets and sidewalks that are raised, in areas such as Alewife, where flood risk is high, and large-scale and multi-site development is expected to occur. (FIG. 54). In such cases, area-specific studies and guidelines apply and should provide additional details.

C.2.4 STREETWALL

INTENT **Design streetwalls to create a sense of “outdoor rooms” within the public realm.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Streetwalls should frame Cambridge's streets, squares, and parks as room-like three-dimensional volumes. Buildings should face the streets they address to define a strong, linear streetwall. The design of a building's streetwall should add to the architectural character and liveliness of the public realm. Important architectural features, such as main entrances, windows, and details that contribute to a rewarding pedestrian experience should be designed and located toward the primary street frontage. More utilitarian facades are suitable on side and rear elevations.

GUIDELINES

- a. On retail/commercial streets, locate the entire streetwall facade of buildings with frontages less than 100 feet on the edge of sidewalk/property line/designated build-to line, or aligned with adjoining buildings. Well-defined entry forecourts, plazas, or locations where expanded sidewalks are desired, are exceptions.
- b. For buildings with frontages greater than 100 feet on retail/commercial streets, locate at least 70% of the streetwall facade on the edge of sidewalk/property line/designated build-to line, or aligned with adjoining buildings.
- c. In general, orient streetwalls parallel to the street they face. Curved or angled shapes in plan may be appropriate in specific contextual conditions and should be reserved for unique moments or programmatic elements.
- d. At block corners, generally locate streetwalls on property lines, or designated build-to lines to anchor and frame intersections (FIG. 55).



FIG. 55 Building in Somerville's Assembly Square holds the corner of the block.

e. Where retail/commercial streets intersect with Residential Streets, the corner of the block should generally be occupied by a building with facades located on the edge of both street sidewalks.

f. On commercial streets, locate and align building facades at the edge of the sidewalk, or the predominant plane of adjoining building facades that are unlikely to change, or on designated build-to lines to create continuous streetwalls.

- Where existing sidewalks are excessively narrow for the anticipated pedestrian volume, consider setting building facades back from the property line and extending the sidewalk to the facade.

g. On Residential Streets where buildings are often separated by side yards and set back from the sidewalk, generally align front facades with each other to create an intermittent, but legible, streetwall.

- Align facades to create the sense of a vertical plane, parallel to the street, that distinguishes front yards from side yards and defines the facade-to-facade street width.
- Provide continuous curbside street trees to further define the street. See E.3.1 on page 207.

h. Provide streetwall heights that harmonize with the widths of the streets and other open spaces they address; typically a minimum of 3 to 6 floors tall to help create a sense of enclosure. Taller streetwalls may be appropriate where buildings address large open spaces and wide streets.

i. Relate streetwall heights and design to the scale of adjacent historical buildings.

j. Generally, design streetwalls to be vertical. Streetwalls that tilt toward or away from the street or other public open space may be appropriate on rare occasions in response to specific contextual conditions or environmental considerations.

k. Avoid stepping the streetwall back from the ground floor facade below. Instead, provide horizontal articulation using elements such as cornice lines, reveals, or subtle changes in plane to differentiate the streetwall facade from the ground floor/pedestrian level.

- l. Articulate and design streetwall facades to add scale and visual interest to the public realm. Design approaches and details to consider include:
- Organizing streetwalls by a pattern of expressed structural bays, window openings, and/or surface articulation (FIG. 56).
 - Using changes of material, scale, or the design and amount of articulation and relief to emphasize the distinction between intersecting streets that differ in size and character.
 - Using mullion profiles and patterns, depth of windows, and sun shading to add texture and visual richness to the facade.
 - Incorporating focal elements to respond to significant visual axes, emphasize significant corners, express changes in interior program, or articulate primary building entrances.
 - Incorporating a cornice and/or the elaboration and differentiation of the streetwall's top floor to frame the spatial volume of the street by emphasizing its upper boundary.

m. Avoid visible vents (kitchen, bathroom, laundry, etc.) on streetwalls that face primary streets or other public open spaces.

n. In residential buildings, consider using design features that reinforce the residential character of the streetwall facade, such as balconies, bays, railings, and/or operable windows (FIG. 57).



FIG. 56 The structural bays are expressed on the streetwall facade of the 60 First St building.



FIG. 57 Residential building on Binney St features operable windows and balconies that add a residential character to the streetwall facade.

INTENT **Design distinctive, well-integrated towers that contribute to the city skyline while minimizing impacts on adjacent neighbors and the public realm.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Depending on the building type and program, the upper portions of tall buildings may take the form of towers with smaller floor plates, or bulkier buildings with floor plates similar in size to those of the streetwall zone below.

The massing and facades of tall buildings should be designed to lead the eye upward, and where heights and locations permit, serve as landmarks seen from the surroundings. Tall building design should also consider impacts on the public realm, including overshadowing open space, limiting access to daylight and sky views, pedestrian wind comfort, and creating human scale.

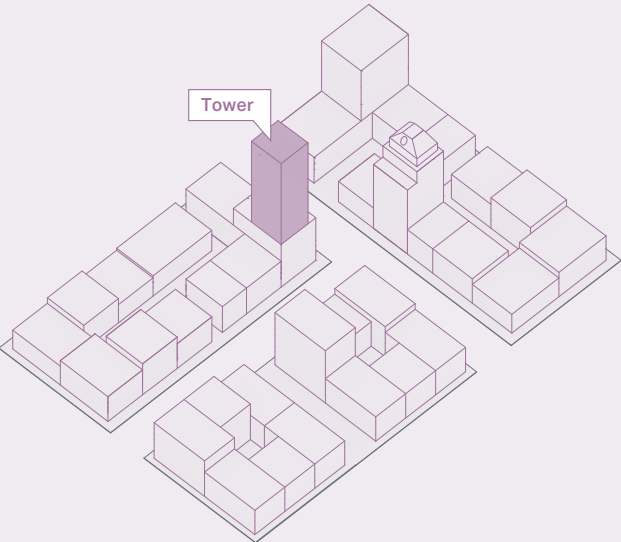


FIG. 58 Towers are the portion of a tall building above the streetwall that defines spaces at a larger scale, and adds visual interest to distant views.

GUIDELINES

- a. When designing towers and the upper volumes of buildings more than 85 feet tall, consider strategies to mitigate the sense of height and bulk.
 - Generally provide the upper portions of high-rise buildings with smaller floor plates than the streetwall floors below.
 - Generally step back the upper portions of taller buildings (those more than a third taller than their surroundings from streetwall facades below. Stepbacks may occur at a higher level, or not at all, when buildings face large open spaces or Corridor Streets such as Alewife Brook Parkway or Massachusetts Avenue.
 - Especially where buildings are both tall and broad, mitigate their sense of bulk by breaking up the visual continuity of upper floors and/ or by giving them a different facade treatment than the streetwall floors.
 - Articulate towers to avoid a monolithic appearance. Design strategies should emphasize slender, vertically-oriented proportions (FIG. 61).
 - Avoid “slab” volumes that make the building appear bulky.

- b. Tower facades should generally be vertical. Tower facades that tilt toward or away from streets or other open spaces should only be considered in response to specific contextual conditions or climactic considerations.
- c. In the rare circumstance where a cantilever is deemed appropriate, they should highlight specific programmatic elements such as entrances or where they provide a clear and substantial benefit to the public realm.
- d. In appropriate locations, consider extending a portion of the facade plane from the upper stories to the ground to create a strong vertical emphasis and enhance the sense of place.
- e. Utilize design strategies to articulate tower facades, and establish harmonious relationships with the surrounding environment. Examples include:
 - Differentiating towers and upper floors from streetwall floors by differences in the scale of massing elements, or change in materials, fenestration patterns, proportions, color, or other means (FIG. 60).
 - Orienting high-rise buildings so that their narrower facades face the primary street or open space (FIG. 59).
 - Using massing that presents different profiles to different vantage points.



FIG. 59 Residential tower in Cambridge Crossing is oriented with a narrow facade that faces the street.



FIG. 60 Main St building differentiates the towers from historic streetwall floors, preserving human scale at the street level.



FIG. 61 Long, vertical fins on taller buildings emphasize height and help break up the horizontality of wider buildings.

INTENT **Design building tops to complement the overall building composition and contribute positively to the Cambridge skyline.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Depending on design intent, program, and context, the design of building tops may blend with the facade below, or be differentiated from the floors below. Options include:
 - Designing building tops to read as the logical extension of the architectural form or facade pattern below.
 - Designing building tops to stand out from the tower below.
- b. Step back building tops that are unique in material and design from the facades below a minimum of 5-10 feet (FIG. 62).
- c. To the extent possible, consider how future cellular installations may be placed at the top of the building without detriment to the architecture. For example, a blank wall of a setback mechanical screen may be such a location.



FIG. 62 The mechanical penthouse of the 20 Cambridgeside place development steps back from the floors below.

See C.2.16.2 on page 114 for further details on mechanical systems.

INTENT **Design roofs and terraces to manage stormwater, minimize urban heat island effects, and where appropriate provide usable open space.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Design roofs to be solar-ready. Mechanical equipment and penthouses should be compactly arranged and positioned to maximize the contiguous unshaded area available for photovoltaic arrays.
- b. For new buildings or structures over 25,000 square feet, design rooftop areas with a green roof, bio-solar green roof, or solar energy system, consistent with the Section 22.30 Green Roof requirements of the Cambridge Zoning Ordinance.
- c. Meet or exceed the Section 22.90 Green Factor Standards of the Cambridge Zoning Ordinance as it relates to the design of roofs with demonstrable cooling effects. Consider non-intensive, short intensive and extensive green roofs, and white roofs with a minimum initial Solar Reflectance Index (SRI) of at least 82.
- d. For other buildings or retrofits, explore mitigating urban heat island effects and reducing building energy demand for cooling by applying membranes or coating systems (i.e., white roofs), installing photovoltaics, and/ or green/ blue/purple roof technologies for stormwater capture (FIG. 63).



FIG. 63 Building features a green roof and rooftop PV panels.

- e. Where possible, design rooftops and terraces at building setbacks as open space amenities for the benefit of residents, workers, and the public.
- f. Where appropriate, consider the use of rooftops for food production or rainwater collection for reuse.

→ Section 22.300 of the Cambridge Zoning Ordinance establishes standards for the development of green roof systems on new and existing buildings for the purpose of stormwater management, heat mitigation, and access and enjoyment by occupants of a building. The ordinance requires new buildings of substantial size to include vegetation and/or solar energy roofing systems on much or most of the available roof area.

INTENT **Avoid pedestrian connectors between buildings that remove pedestrian activity from streets and have a negative impact on the public realm.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Pedestrian connectors are enclosed, non-publicly accessible structures between buildings. In order to avoid removing pedestrian life from the public street level, connectors are typically discouraged. They should be considered only on rare occasions.

GUIDELINES

- a. Avoid pedestrian connectors over public ways.
- b. Avoid pedestrian connectors between multiple tenants/uses in different buildings.
- c. Within blocks, preference should be given to providing ground level public passage at selected locations.
- d. Where pedestrian connectors are unavoidable for programmatic and functional reasons, preference should be given to locations removed from primary streets and open spaces, such as interior drives, alleys, promenades or pedestrian walkways to minimize their impact on the public realm

- e. When unavoidable, building connectors should be designed to provide architectural interest and/or allow light and views of the sky:
 - Provide at least 35' set back from public streets and other public spaces.
 - Provide at least two stories of clearance above ground.
 - Bridges should be no more than 20 feet wide and single story height.
 - They should be highly transparent.
 - They should have an attractive soffit/underside.
- f. When unavoidable, building connectors should be designed to celebrate connectors as an object of art, be highly-transparent to make connectors disappear or, be a threshold or framing device (FIG. 64).

- g. Where multiple connectors are provided:
 - They should be spaced apart by double their greatest width.
 - They should be placed so as to create architectural interest and to allow a reasonable amount of light to reach the ground.



FIG. 64 A highly transparent building connector designed as a threshold.

Cambridge’s buildings should create an engaging, visually rich, and legible public realm by providing variety while fitting in well with their surroundings. Buildings should balance the expression of individual uniqueness with positive contributions to the street and other open spaces they address.

New buildings are often larger than buildings nearby and constructed of different materials. Facade design should seek compatibility with nearby buildings despite these differences. Compatibility does not require imitation of specific styles, motifs, or details, but rather awareness of the ways that facade patterns and articulations can enrich building character and relate to human scale.

INTENT **Create human-scaled facades that are visually interesting, and relate to the surrounding context.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Avoid flat, undifferentiated facades. Provide facades with depth and texture to engage the eye, enrich the pedestrian experience, and respond to context conditions. Consider using elements such as:
- Window frames.
 - Window reveals and changes in plane that create shadows and articulate massing
 - Shading devices
 - Shadow boxes.

- b. Window openings should have a minimum depth of 4 inches between the face of the building and glazing (FIG. 65).

- c. On towers, the minimum depth of openings should be 6 inches.



FIG. 65 The Moderna HQ building on 325 Binney St features window openings that add depth and shadow to the facade.

SCALE & DETAIL

- d. Consider providing a facade rhythm and variation to help mediate between the building scale and pedestrian scale, and enhance visual interest. Examples include:
- Expressing structural bay widths of 16 to 25 feet in predominantly residential areas.
 - Expressing structural bay widths of 26 to 50 feet in commercial and institutional areas.

- e. Use details and embellishments to refine and enrich facades (FIG. 66). Examples include:
- Masonry string-courses, lintels, sills, and trim.
 - Changes in plane to produce shadow lines.
 - Variations in texture, color; and joint patterns.
 - Balcony railings.
 - Sun screening devices.



FIG. 66 Apartment building on 50 Rogers St uses variations in brick texture, color, and railings, providing detail and visual interest to the facade.

HISTORICAL CONTEXT

- f. Avoid broad expanses of blank streetwalls facing streets and public spaces, where possible.
- g. If blank street and public space-facing facades cannot be avoided, animate them through the use of design treatments, such as:
- High-quality materials and textures.
 - Louvers.
 - Green walls.
 - Wall art.

FENESTRATION

- h. Detail and articulate windows to enhance the building’s appearance.
- Incorporate variations in mullion widths and pattern; solid panels within openings; the articulation of wall surface at the periphery of openings;
 - Group windows to establish facade rhythms and emphasis at important locations.
- i. Avoid horizontal strip windows except in industrial buildings.

- j. Facades should relate to elements of the design of historically or architecturally significant building facades in the context.

C.2.9.2 PASSIVE DESIGN

INTENT **Enhance building energy performance and thermal comfort by incorporating passive facade design strategies.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Where the site and urban context allow, consider the orientation of the site, building form, and materials in relation to the sun to manage solar heat gain and daylighting of interior spaces.
- b. Design building envelopes to be air-tight with low heat transmission, low solar heat gain, and natural ventilation. Examples include:
- Operable windows in residential and community buildings, and where possible commercial buildings, to allow for natural ventilation.
 - Solar shading devices to reduce heat gain through glass.
 - Horizontal shades and louvers on south elevations.
 - Vertical fins and shades on east and west elevations (FIG. 67).
 - Daylighting, including use of light shelves to assist with daylighting interior spaces while controlling for unwanted glare and heat gain.
 - High performance glazing, e.g. triple glazed units.
 - Light colors.
 - Airtightness.
 - Uninterrupted insulation.



FIG. 67 20 Cambridgeside building facade features shading devices around glazed areas that will help enhance building performance by reducing cooling needs for tenants.

- c. Include design features that leverage vegetative systems like green roofs and green walls for cooling and water management. To ensure durability and longevity of green wall systems, consider:
- Selection of plant species according to macro- and micro-climate conditions.
 - Use of ground or planter-based vine covering or pocketed green wall armature.
 - Ongoing maintenance and replacement needs when choosing a system.

- d. Use windows with low-emittance (low-e) glass and thermally-broken frames, especially in building retrofit projects.

INTENT **Add visual interest and residential character by integrating balconies and bay windows into the design of buildings.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Balconies and bay windows can add variety and human scale, as well as provide outdoor space for occupants and enhance connections with the public realm.

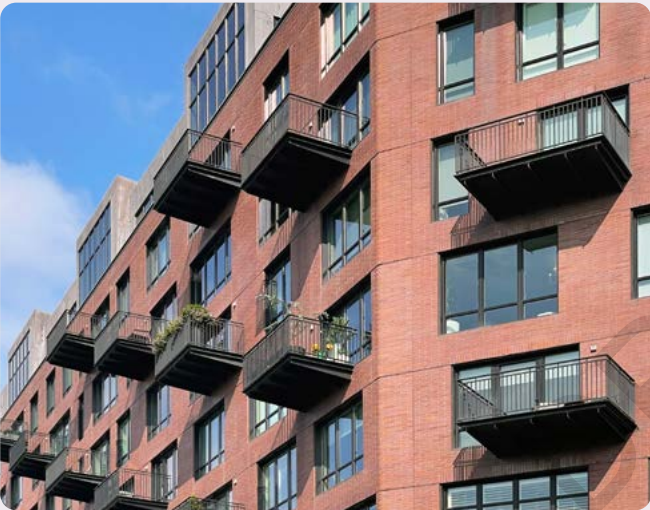


FIG. 68 Atelier 505 condominiums in Boston's South End provides balconies that create a rhythm along the building facade.



FIG. 69 Bay windows of this residential building feature windows on the sides in addition to the front face.

- GUIDELINES
- a. Use protruding, inset, or Juliet balconies, and bay windows, at upper floors.
 - b. Consider creating a rhythm or repetition of balconies and bays to help articulate building facades (FIG. 68).
 - c. Design bay windows with windows on the sides, as well as front facing (FIG. 69).
 - d. Use materials and details that are consistent with the overall design of the project.
 - e. Consider the design of the underside of projections as part of the overall building aesthetic.

Design balconies with a depth of at least 4 feet to enable greater functionality and usability for occupants.

INTENT **Use clear, well-designed, pedestrian-oriented signs that are compatible with building facades.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Avoid covering architectural features, such as cornice lines, windows, and architectural details with signage.
- b. Consider the street elevation and align signs with elements of adjacent facades (FIG. 70).
- c. Consider use of traditional signage bands, especially on Corridor Streets, and in historical areas.
- d. Consider building materials in key locations that will accommodate retail tenant blade sign installation.
- e. Consider materials and fabrication types that complement adjacent storefronts.
- f. Ensure window signs do not block views into the interior.
- g. Ensure A-frame signs do not interfere with the sidewalk pedestrian zone.
- h. Conceal wiring for illuminated signage.
- i. Ensure all signage is compliant with ADA requirements for color contrast and text size.



FIG. 70 Projecting signs for businesses in Harvard Square line up at regular intervals along building facades and provide human scale.

Sign types include: wall signs (including window signs), projecting signs (such as marquees, awnings, and canopies), and temporary signs (such A-frame signs).

Refer to Article 7 of the Cambridge Zoning ordinance for signage design standards and requirements.

INTENT **Select high-quality, durable, and sustainable materials that enrich the public realm.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

High quality, durable facade materials can convey a sense of civic pride and permanence. Sustainable materials can minimize the environmental impacts of buildings and enhance resilience.

GUIDELINES

- a. Use high-quality, durable materials with proven records of long life-cycle, low maintenance, and low environmental impacts. Examples may include:
 - Brick, concrete masonry, terracotta, and stone.
 - High-performance glazing.
 - Clear, un-tinted glazing.
 - Wood.
 - Low embodied carbon concrete.
 - Pre-manufactured panels of cementitious, concrete, or composite materials, particularly in residential buildings.



FIG. 71 The 10 Farnsworth building in Boston's Seaport features high quality facade materials, including clear glazing and metal.

- b. Use building materials that are certified for sustainable and health-conscience characteristics such as (FIG. 71):
 - Low embodied carbon.
 - Light-colored or high SRI materials.
 - Reusability.
 - Recycled content.
 - Renewable sources.
 - Low toxicity.
 - Low content of Volatile Organic Compounds (VOCs)
- c. Ensure any panelized systems are constructed of durable and dimensionally stable materials, with the ability to achieve precise and consistent joint details. Avoid large, undivided panels and exposed fasteners.
- d. Avoid the use of low quality materials and materials that are prone to wear and tear and require frequent maintenance such as:
 - Thin cementitious panels, especially used in large expanses.
 - Inexpensive vinyl siding that warps or fades.
 - Mirrored glass and other materials that cause excessive glare.
 - Exterior Insulation and Finish Systems (EIFS).
 - Colored glazing.
- e. Material changes should generally coincide with massing changes or changes in plane.
- f. Enliven large areas of uninterrupted wall with smaller scaled cladding elements and their joint patterns to create a visually appealing texture.

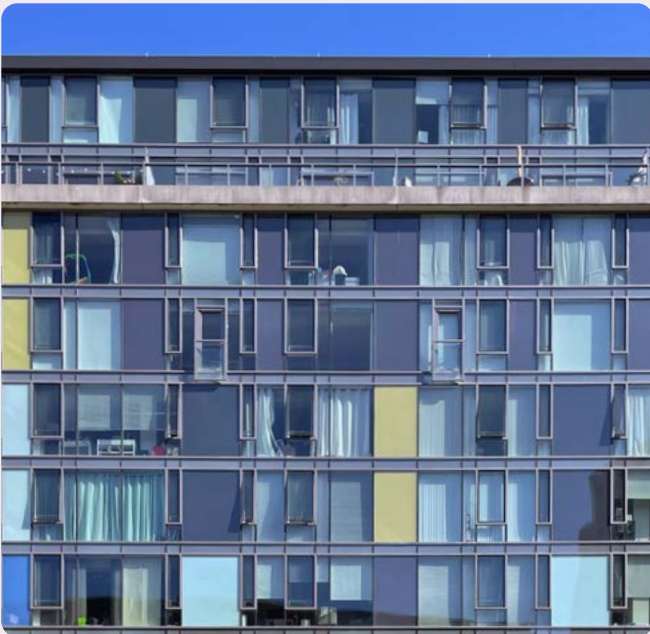


FIG. 72 Glass curtain wall facade in Cambridge Crossing uses a combination of transparent glazing and shadow boxes to balance visual connection with building energy performance. This material choice has both texture and pattern.

- g. Consider the use of light and/or warm colors. Avoid extensive use of dark colored materials that can appear dull in the New England climate.
- h. Select colors that complement the surrounding context and the building's architecture. Consider creating a cohesive appearance and limit the number of colors used to reduce visual clutter.

GLAZING

- i. Select ground floor glazing with a VLT of at least 70% and a VLR of less than 15%. Clear, non-colored, low iron glass without reflective coatings is preferred.
- j. For upper floors, the selection of glazing should balance energy performance with the highest possible VLT and lowest possible VLR (FIG. 72).
 - Upper floor glazing should have a VLT of at least 50% and a VLR of less than 30%. Clear non-colored glass is preferred.
 - Before building mechanical systems are designed, the energy performance of glass should be established in consideration with appearance and bird safety.
- k. Avoid the use of spandrel glass. Instead utilize shadow boxes to create any necessary glass opacity for curtain wall facades.
- l. Minimize bird collisions with glazing, and reduce impacts on migrating insects.
 - Consider a wide range of high- and low-tech solutions as appropriate to the specific installation, including bird-safe materials, glass coatings visible to birds but not to human vision, frit patterns, limiting the size of glazing units, shading devices and screens, recessed balconies, among others
 - Consider meeting the requirements of LEED's Bird Collision Deterrence credit.
 - Refer to the American Bird Conservancy's Bird Friendly Building Design Report for further information about bird-safe building design.

FLOOD RESISTANT MATERIALS

- m. Use flood-resistant construction materials, and methods, below the 2070 1%-Probability Long-Term Flood Elevation (LTFE).
 - Use materials that can withstand prolonged contact with flooding, survive wetting and drying, and be cleanable to remove harmful pollutants. Examples of flood resistant exterior material include concrete block, cast-in-place concrete, cast stone, or face and glazed brick.
 - Dry floodproof a structure by sealing walls with waterproof coatings, waterproof membranes, or masonry/concrete.

C.2.11 HISTORIC BUILDINGS AND ADAPTIVE USE

INTENT **Preservation and reuse of historically or architecturally significant buildings should be sensitive to their form and character.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

The generally well-proportioned, human-scaled, and carefully-detailed facades of Cambridge's historic buildings enrich the city's urban fabric. Preservation and adaptive reuse of these buildings connects Cambridge's history to future generations.

- GUIDELINES
- a. Preserve and maintain historic buildings, whenever possible.
 - b. When appropriate, distinguish additions from historic buildings through (FIG. 73):
 - Massing strategies, such as step-backs.
 - Reveals.
 - Facade choices, such as materials, wall systems, cladding, or window type.
 - Changes in color.
 - c. Make material and color selections that complement historic buildings.
 - d. Preserve and restore significant original building details and existing building materials where applicable (FIG. 74).



FIG. 73 Apartment building on Mass Ave has a complementary but distinct character to the existing historic buildings.

Demolition of any building 50 years or older citywide may be subject to Cambridge Historical Commission review. Demolition of or alterations to designated historic properties requires approval.

- e. Use best practices in restoration and maintaining historic structures.
- f. Where original materials or components need to be replaced, use traditional building elements with the same architectural features, material quality and craftsmanship. If not feasible, substitute with style-neutral high-quality components and materials compatible with the architecture and historic character of the building and district.
- g. Where new development is proposed on an existing lot shared with a historic structure, the new building should, if possible, be distinguished as new construction through setbacks, recesses and reveals, materials, architectural details, and form (FIG. 75).



FIG. 74 The restoration of the historic building at 907 Main St preserves original details and materials.



FIG. 75 New development in Kendall Square clearly distinguishes itself from the adjacent historic structure through the use of distinct materials like glass and steel.

Consultation with the Cambridge Historical Commission is recommended, especially for developments in Historic and Neighborhood Conservation Districts.

C.2.12 SUSTAINABLE BUILDING DESIGN

INTENT **Design, construct, maintain, and operate buildings to use energy and natural resources efficiently, and enhance occupant health and comfort.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Pursue strategies consistent with (or obtain certification) from Passive House Institute's rating system, Leadership in Energy and Environmental Design (LEED), Enterprise Green Communities, Living Building Challenge, or other evolving environmental efficiency standards (FIG. 75).
- b. Where practical, adapt and reuse existing buildings and materials.
- c. Select recycled and otherwise environmentally appropriate building materials and methods, and/or locally sourced in new construction and major redevelopment of existing buildings. See C.2.10 on page 100.
- d. Reduce the need for mechanical equipment. Examples include:
 - Use of passive design strategies. See C.2.9.2 on page 97.
 - Use of thermal mass strategies to minimize the impact of high exterior temperatures on building occupants and to reduce cooling energy loads.



FIG. 76 The vertical fins on 411 Morgan Ave minimize glare and solar gain, while its orientation optimizes daylighting.

- e. Use energy-efficient HVAC systems and consider using all electric HVAC and cooling systems.
- f. Incorporate on-site power generation (e.g. solar PV panels), and energy storage and/or utilize geothermal district energy systems where feasible (FIG. 77).
- g. Strive to meet or exceed Cambridge's Net Zero Emissions targets for the project building type



FIG. 77 King Open/Cambridge Street Upper School in Cambridge incorporate rooftop PV panels.

- h. Consider operational energy use and embodied carbon in material choices. See C.2.10 on page 100.
- i. Consider highlighting the sustainability features of a project through architectural expression, landscape design, interpretative signage, etc. Refer to LEED's Innovation: Green Building Education Credit for further information about public education opportunities.

HEALTH AND WELLBEING

- j. Incorporate opportunities to improve the wellbeing of building users. Examples include:
 - Highly accessible and visible stairs located close to building lobbies that encourage daily use and physical activity. Stairs that are prominently located, well-designed with inviting materials, colors and details, and filled with natural light are most likely to support regular use.
 - Indoor amenity areas and common rooms in residential buildings that support social activities and recreation.
 - Outdoor recreation and garden areas for residential buildings to encourage physical activity, play for all ages and abilities, social interaction, and local food production.
 - Consider seeking WELL certification.

Meet or exceed the Green Roof Requirements of Article 22.000 of the Cambridge Zoning Ordinance for green roofs (intensive, extensive, or biosolar), where feasible.

Strive to meet or exceed Cambridge's Net Zero Emissions targets for the project building type.

Meet or exceed the Green Building Requirements in Section 22.20 of the Zoning Ordinance and other evolving environmentally sustainable standards.

Refer to LEED's Innovation: Design for Active Occupants and Local Food Production Credits for further information.

Meet or exceed the requirements of the City's Fossil Fuel Free Ordinance

C.2.13 CLIMATE ADAPTATION AND RESILIENCY

INTENT **Design buildings to be resilient and adaptable to a changing climate.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED **ADAPTABLE** HEALTHY

GUIDELINES

- a. Incorporate the most up-to-date projections of climate change impacts over the project's anticipated lifespan, including increases in temperature and precipitation, and risk of future flooding.
- b. Utilize an integrative approach to climate change resilience that accounts for the existing context and promotes the other citywide and area-specific urban design objectives.
- c. Use design approaches to mitigate the anticipated impacts of heat on buildings and sites. Examples include:
 - Site landscaping and building design features that provide direct cooling to occupants of the site and any abutting public streets, reduce heat gain on the building, and mitigate urban heat island effect.
 - Passive design approaches that increase a building's ability to withstand heat gain and maintain interior comfort in the event of a power outage or other extreme event.
 - Interior cooling centers where occupants and/or other community members can seek shelter during extreme heat events.



FIG. 78 Finch Cambridge earned a Passive House certification.

Meet or exceed the Flood Resilience Standard in Section 22.80 of the Zoning Ordinance to address the long-term impacts of increased flooding.

Meet or exceed the Green Factor Standard in Section 22.90 of the Zoning Ordinance to address the urban heat island effect (UHI).

- d. Use resilience strategies that have environmental co-benefits. Examples include:
 - Passive building envelope design, which promotes occupant comfort during extreme heat and resilience from power outages due to storms while also reducing energy use and greenhouse gas emissions (FIG. 79).
 - Intensive vegetation at grade and on roofs, which provides cooling benefits while improving stormwater management.



FIG. 79 Light-colored materials and sun shading devices above windows are passive design strategies that can help mitigate heat and maintain occupant comfort during power outages and extreme events.

Additional resources include:

- Resilient Cambridge Plan (including Climate Resilience Toolkits)
- The Climate Change Vulnerability Assessment
- Preparedness plans for Alewife and The Port

C.2.14 FLOOD RESILIENCE

INTENT **In flood-prone areas, design projects to maintain functionality of critical systems and programs that facilitate operation during flood events.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED **ADAPTABLE** HEALTHY

In areas currently or projected to be at risk of flooding, implement systems and programs to facilitate building management and operation during flood events, maintain functionality of critical systems, protect the safety of building occupants and emergency personnel, and expedite quick recovery.

- GUIDELINES
- a. Locate electrical equipment above expected flood levels.
 - b. Locate emergency power equipment and fuels above expected flood levels or provide waterproof barriers.
 - c. Ensure that fire detection and suppression systems and communications/data equipment will remain operational during flood events.
 - d. In large projects, consider providing “shelter-in-place” facilities, with features such as emergency response supplies, backup electric supply for critical loads, passive thermal comfort, and backup communications.

- e. Designate community facilities and community rooms in larger buildings to remain functional during flood events and power outages.
- f. Develop an action plan for emergencies, addressing notification, evacuation, meeting places, elevator operation, etc.
- g. Provide access points and routes for fire and other emergency personnel, and for evacuation purposes. Consider exterior stairs to second floors to facilitate emergency access during flood events.

- h. Provide accessible electrical shutoffs to safeguard emergency personnel.
- i. Engage a consultant to advise on best practices for emergency services and access.

Additional resources include:

- Section 22.80 of the Zoning Ordinance.
- Resilient Cambridge plan.
- The City's FloodViewer tool which has "Long-Term Flood Elevations" (LTFEs) that may be applicable to a site

C.2.15 LIGHTING

INTENT **Provide the minimum outdoor lighting necessary for safe and comfortable use of outdoor areas, while minimizing negative environmental impacts.**

CORE VALUES

INVITINGECLECTICCONTEXTUALCONNECTEDADAPTABLEHEALTHY

GUIDELINES

- a. Carefully consider lighting at first floors, including the lighting of stoops, entrances, glazed retail spaces, and covered parking areas with open sides, and the locations and intensity of exterior lighting at first and second floors for pedestrian safety and aesthetic quality.
 - On commercial/retail streets, exterior lighting (when it occurs) should be arranged to illuminate the first-floor facade.
 - On residential streets, exterior lighting should be primarily at building entrances.
- b. Avoid any exterior lighting above the level of the third floor.
- c. Utilize fully shielded, downlit, dark sky compliant light fixtures, where possible, to reduce glare and light trespass.
- d. Avoid uplighting.
- e. Avoid excessive contrast in lighting levels and glare.
- f. Utilize lighting with a warm color temperature (FIG. 80).
- g. Select light fixtures that complement the architectural character of the building.



FIG. 80 Outdoor lighting at residential uses a warm color temperature.

Color temperatures between 2700-3000K create a warm and welcoming pedestrian environment.

In addition to their principal use, buildings include essential service areas and systems that support their operation and the wellbeing of occupants. Utilities, services, and functional building elements include, but are not limited to

- Parking and loading entries.
- Trash and recycling.
- Mechanical Equipment.
- Utility Equipment.
- Antennas.

The location and design of services, utilities, and functional elements should not be an afterthought. They should be well-integrated into the overall design of buildings to minimize negative impacts.

INTENT **Design parking, loading, and servicing areas, including trash and recycling, to minimize impacts on the public realm and neighbors.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Design parking entries, loading bays, trash/recycling storage areas, and servicing entrances as integral components of building facades.
- Size loading bays to fully enclose and screen vehicles.
 - Avoid loading and servicing areas that exceed two bays or 30 feet.
 - When three or more service bay doors occur together, incorporate occupied ground-level spaces with windows to minimize dead zones along streets and support walkability.
 - Use architectural doors, screening, or louvers that complement the building's facade design (FIG. 81).
 - Avoid deeply recessed parking and loading doors.
 - Use closable doors that remain closed when vehicles are not actively entering or exiting.

- b. Where possible, provide landscaping and continuous tree canopy along areas adjoining loading and service areas – e.g. opposite sidewalk, and between any breaks between loading bays (FIG. 82).

- c. Minimize sound impacts.

- d. Provide proper pedestrian warning systems for vehicles entering and exiting.

- e. Ensure trash/recycling is handled to avoid impacts (noise, odor, and visual quality) on neighbors.
- Contain all trash/recycling storage and handling within the building.
 - In constrained spaces, consider using trash compactors to reduce the volume of waste materials.



FIG. 81 Loading dock at Harvard Kennedy School uses a door that complements the architecture of the building.



FIG. 82 Retail pavilion building in Cambridge Crossing incorporates greenery along the walls adjoining service doors.

INTENT **Minimize the negative impacts of mechanical equipment, utilities, and other functional elements on streets, other public spaces, and on residential areas.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Right-size mechanical space and equipment based on current and future tenant needs.
- b. Where possible, locate mechanicals in enclosed locations within the building, such as interstitial floors or basements (if it does not violate the Flood Resilience Standards in Section 22.80), rather than on the roof.
- c. Avoid placing mechanical rooms along primary streets. They should be located on minor streets or in block interiors where possible.



FIG. 83 Building on Ames St uses a curved wall to screen mechanical equipment, while adding visual interest to the building top.

MECHANICAL SYSTEMS

- d. Where rooftop mechanical equipment cannot be avoided, reduce its visual bulk:
 - Site and locate rooftop mechanical equipment near the center of the roof to minimize visual impacts, where possible.
 - Use roof wells to conceal and screen mechanical equipment from view.
 - Consider potential views from surrounding taller buildings, particularly residential buildings, in rooftop design. Green roofs and roof gardens can enhance the rooftop appearance of buildings.

Where rooftop mechanical equipment is proposed, view studies from significant distant vantage points and affected residential neighborhoods should be provided to demonstrate how equipment will be screened.

If mechanical equipment is required to be exposed, appropriate documentation citing relevant code requirements or standards should be provided with the application.

Select mechanical equipment with low sound levels, meeting all City, State and Federal noise regulations.

- e. Screen any exposed mechanical equipment from view and integrate it into the design and character of the building. Design strategies to achieve this may include:
 - Integrating rooftop mechanical screening into the building massing using similar materials and detailing (FIG. 83). This would involve designing the screening as an extrusion of, or compatible cap to the building below.
 - Stepping back mechanical penthouses/ screens that are unique in material and design from the facades below a minimum of 5-10 feet, treating them as separate volumes with distinct architectural expression.
 - Including a parapet or cornice around the building top to shield low ducts and equipment on rooftops from view.
 - A combination of the above.

f. To the extent feasible, limit the height of mechanical screens or penthouses to less than 40 feet.

g. Ensure screening materials are at least 50 percent opaque.

h. When rooftop equipment is required to be exposed by Code or is typically carried above screening (e.g. chimneys, air exhaust stacks), thoughtfully arrange and design the equipment as an integral part of the building's roofscape, contributing to an interesting skyline (FIG. 84).



FIG. 84 Exposed mechanicals at the Harvard Art Museum are thoughtfully designed, creating an interesting skyline.

UTILITIES & FUNCTIONAL ELEMENTS

- i. Locate utility functions such as gas, electric, and water meters, transformers, switchgear, and fire safety equipment where they will be least visible from streets and other open spaces.
 - Where possible, conceal utilities within the building, underground, or in side or rear yard setbacks recessed within building alcoves.
 - Plan for utilities early in the design process to minimize their impacts.

j. Design utilities to minimize risk and disruption from flooding. Consider waterproofing, back-flow preventers, and shutoffs, and accessibility of water, gas, electric power, and sanitary sewer systems during flood events.

k. Avoid placing utilities and functional elements on facades facing primary streets or other public open spaces.

l. Where they are unavoidable, integrate utilities and functional elements into the facade and organize them as components of the fabric of the building, considering shape, size, color, proportions, and location relative to other facade elements. Ground floor utility rooms that require direct access from the street should be provided with architectural facade treatments that complement the overall facade design.

m. Design roof overflow scuppers to avoid discharging onto public sidewalks.

INTENT **Minimize the visual impacts of wireless communications facilities, and integrate antennas into the design of buildings.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

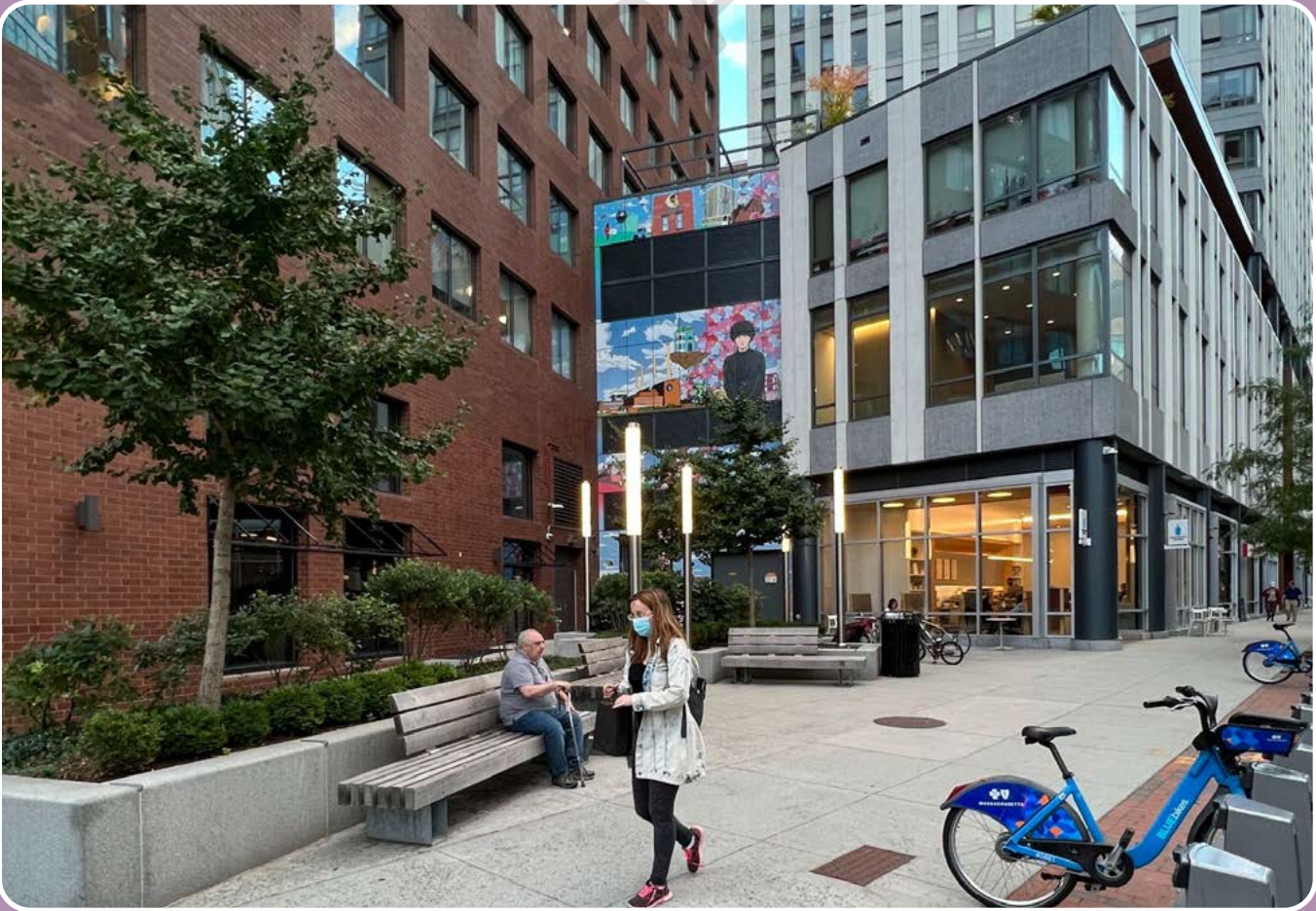
- a. Collocate, and consolidate installations, in an orderly way.
- b. Where possible, use stealth facilities that completely conceal antennas.
- BUILDING-MOUNTED FACILITIES**
- c. Avoid mounting antennas to principal facades facing primary streets and open spaces.
- d. House equipment on the roof, preferably completely screened by a mechanical penthouse, raised parapet, or stealth enclosure.
- e. Set back roof-mounted antennas, and associated equipment, as far as possible from principal facades.
- f. Where possible, employ a symmetrical, balanced design for all wall-mounted antennas, including antennas from different providers. Position and space new antennas to complement the architecture of the building, and align with the placement of existing antennas and equipment on site.
- g. Avoid interrupting architectural lines, and horizontal or vertical reveals.
- h. Locate antennas below the rooftop parapet line, and below the 45 degree line of sight as viewed from grade level, so they do not appear to break the roof line from ground level perspectives.
- i. Where possible, aim to design antennas with uniform length, width, and depth, including existing antennas. Consider equipment shrouds for these purposes.
- j. Utilize the smallest mounting brackets available so that antennas can be mounted as close to the surface of the structure as possible.
- k. Ensure painted materials, including cabling, have a consistent, matte finish that matches the surface behind.
- l. Tidy up and conceal all cables.

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C.3 Building Types

While all buildings should respond to the guidelines in previous sections, this section provides additional guidance for specific building types.

A mix of building types in Kendall Square provides spaces for people to live, work, and enjoy.



C.3.1 OFFICE/LABORATORY/R&D BUILDINGS

INTENT Design office, laboratory, and R&D buildings that complement the scale and character of the surrounding context, and enrich Cambridge’s public realm.

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Despite their scale, relatively private programs, and extensive mechanical systems, commercial (laboratory and office) buildings can be designed to better relate to neighborhood context and add quality to the public realm.

GUIDELINES

- a. In general, aim for floor plates no larger than 30,000 square feet.
- b. Utilize changes in height, facade design, material changes, stepbacks, street-facing courtyards, and/or other facade and massing techniques to reduce the perceived scale and height of the building, particularly when the surrounding context is of a smaller scale (FIG. 85).
- c. Design facades to mediate between the scale of the individual pedestrian and the building. Consider:
 - Expressed structural bays of 20 to 30 feet.
 - Window sizes and proportions.
 - Mullion patterns.
 - Changes in facade plane.
 - Colors, materials, and joint patterns of cladding materials.
 - Sun shading devices, etc.



FIG. 85 The Stanley Building breaks up the scale of buildings through massing and facade articulation.

- d. Provide publicly accessible passages through long buildings to maximize permeability for people walking in the neighborhood (FIG. 86).
- e. Avoid occupying large expanses of ground floor frontage with office/lab uses, unless these can be programmed and designed to maximize opportunities for views into the interior of the space and animate the streetscape.



FIG. 86 Harvard's Smith Campus Center provides active ground floor uses and a pedestrian passage through the building on Mass Ave.

- f. Design and locate mechanical systems should be designed and located to minimize their impact on neighbors. See C.2.16.2 on page 114.
- g. Designate sufficient space for laboratory gas tanks and delivery access early in the design process..
- h. When located adjacent to sensitive uses, such as residential buildings, control light trespass from interior spaces with blackout shades, timers, automatic dimmers, occupancy sensors, or other means.

When located on retail/commercial streets, provide active ground floor uses and design. See C.2.3.1 on page 72.

C.3.2 RESIDENTIAL BUILDINGS

INTENT **Design mid-rise and tall residential buildings that are sensitive to their neighbors, while enriching Cambridge's public realm.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

The design of residential buildings is fundamental to Cambridge's rich and varied character. New residential projects, particularly mid- and high-rise residential buildings, should be sensitive to existing neighborhood character, and respect the privacy and quality of life of the residents of abutting properties. They should also enrich Cambridge's public realm through the arrangement, rhythm, and scale of elements such as structural bays, windows, entrances, roof shapes, dormers, and the detailed assemblage of materials.

GUIDELINES

MASSING

- a. Where possible, divide large residential developments into separate buildings to enhance compatibility with the typical scale of Cambridge's residential neighborhoods.
- b. The massing of outer-facing and inner-facing sides of residential buildings should receive distinct treatment.
 - Outer-facing sides should define the perimeter of the block.
 - Inner facing sides open up to open space in the block's interior.
- c. In smaller-scaled residential areas, articulate the massing of large residential buildings to create a sense of scale compatible with smaller-scaled neighbors (FIG. 87).
- d. Reduce the visual bulk of taller residential buildings by using step backs, or mansard, gambrel, hipped, or gable roof profiles to enclose habitable upper stories.



FIG. 87 The massing of this mid-rise residential building in Chicago steps down to relate to the height of nearby smaller-scale buildings.

e. Adjust configuration and massing of residential buildings to maximize access to sunlight, air, and sky views from neighboring residential buildings and sites, and to maintain privacy.

f. Where possible, provide courtyard spaces at building fronts or sides to:

- Reflect the character of existing development (FIG. 88).
- Divide long frontages into smaller-scaled facades.
- Provide transitional open space.
- Accommodate any necessary steps or ramps.

g. Consider both symmetrical and asymmetrical massing arrangements to best relate new buildings to existing neighbors.

- The emphasis on unifying hierarchical order created by symmetry may tend to emphasize the scale of the whole.
- Asymmetrical massing may reduce the perceived scale of large buildings by creating a looser, less hierarchical relationship of individual elements to the whole.



FIG. 88 The courtyard at Harvard Street housing adds a residential scale and character to the complex.

h. Where an existing neighboring residential building is located very close to the property line, consider adjusting the new building’s footprint to create a wider side yard than the minimum required.

i. Where new buildings are constructed in the rear yards of existing buildings, or on large lots with large setbacks, adjust building massing to reduce impacts on neighboring buildings and yards by careful siting and massing, and by reducing the visual bulk of top floors.

FACADES

j. Enrich residential building facades with elements such as:

- Celebrated entrances.
- Recesses and projections from the facade plane.
- Bay windows.
- Balconies.
- Sun shades.
- Dormers.
- Roof gardens.
- Terraces.
- Balconies (projecting, inset, or Juliet) and/or bay windows (FIG. 89).
- Front porches and stoops.
- Small groupings of vertical windows.
- Varied roof forms.

k. At a smaller scale, refine facades with residential design details such as:

- Lintels.
- Sills, and other window trim.
- Railings.
- String courses.
- Cornices.
- Rake and eave details.



FIG. 89 Apartment building in Munich, Germany features multiple-pane bay windows in the facade.

l. Relate to the window-to-wall ratios and the proportion and rhythm of doors and windows prevalent in the neighborhood.

MATERIALS

m. In established residential areas, use materials that respond to the neighborhood character and are commonly used in the area.

n. Use warm colors.

o. For residential units, incorporate divided light or multiple pane windows, with operable features designed to enhance natural ventilation. Avoid picture and single-light windows.

INTERIORS

p. Incorporate common spaces to foster a sense of community. Depending on the size of the development, these may include sheltered, entry porches, lobbies, meeting rooms, courtyards, and roof terraces.

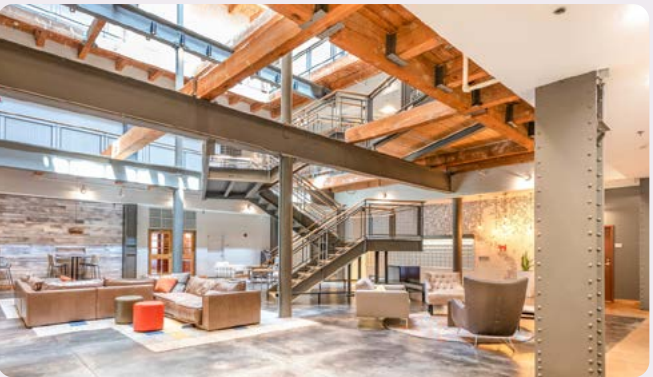


FIG. 90 The Lofts at Kendall Square incorporate a highly-visible staircase in the central lobby.

q. Locate stairs near buildings’ entrances and lobbies to encourage physical activity (FIG. 90).

r. Provide clear, well-lit, and well-indicated access to elevators.

s. Incorporate recesses, courtyards, and units with corner rooms to bring light deeper into floor plates and allow cross ventilation.

OPEN SPACE

t. Provide gathering places: terraces, play areas, decks, patios, open lawns, etc.

u. Provide a variety of green spaces and other types of outdoor spaces as appropriate to the site, context, and building form, including yards, entry courtyards, interior courtyards, porches, loggias, balconies, roof terraces, and upper-level decks.

v. Provide seating to foster social connection. Consider locations at building entrances, courtyards, and along paths connecting different areas of the site.

INTENT **Design civic and institutional buildings to express their unique character, while enhancing community connections and the spatial definition of the public realm.**

CORE VALUES INVITING ECLECTIC **CONTEXTUAL** CONNECTED ADAPTABLE HEALTHY

Due to their political, cultural, and social significance, civic buildings, and in some cases institutional buildings, have a special role in the urban fabric and community. Massing and facades that are more unique or iconic than typical residential or commercial buildings may therefore be appropriate. Given the community role that these buildings often play, consideration should also be given to providing public open spaces and other amenities as part of the site plan.

GUIDELINES

- a. Consider how community spaces, indoor and outdoor, can be integrated into the project scope.
- b. Create welcoming entrances that enhance public life and act as “front porches” to civic and institutional buildings (FIG. 91).
 - By providing open space, such as entry forecourts and plazas, civic and institutional buildings feel more welcoming, and provide opportunities for social connection and interaction.
 - Provide seating, good lighting, and plantings at these important nodes.
- c. Enrich the surrounding public realm by providing good visibility and connectivity to civic and institutional buildings.
 - Use windows and transparent facades to increase visibility into civic and institutional buildings. Clear sightlines make activities more visible and can attract passersby.
 - Create engaging facades with highly visible entrances.

Per the City's Net Zero Action Plan, all new municipal buildings must be designed to achieve net zero emissions.



FIG. 91 The front lawn of City Hall provides a welcoming space for the community to enjoy.

INTENT **Sensitively design parking garages to minimize negative impacts on the pedestrian experience and adjoining properties.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL **CONNECTED** ADAPTABLE HEALTHY

GUIDELINES

- a. Hide above-grade parking garages on primary streets from view.
- b. Wherever possible, line garages with residential, commercial, or other occupiable uses if facing a public street or public open space.
- c. Include ground floor active uses where garages face public streets and open space, when feasible (FIG. 92).
- d. Where garages are visible and not wrapped by occupiable uses, attractively design and architecturally screen visible facades (FIG. 93).
 - Facades should be of comparable design and material quality as adjacent buildings, and may include combinations of solid walls, louvers, vegetation/green walls, and perforated metal, among others.
- e. Provide transparent and visible pedestrian entry lobbies and stairs with direct access to the street or public area to enhance pedestrian safety and comfort. Clearly designate these entrances and ensure that they are easily accessible and visible from the street (FIG. 94).

- f. Provide unobtrusive vehicular entrances, preferably from side streets or alleys, that are integrated into the design of ground floor facades.



FIG. 92 Active ground floor uses are included in a parking garage in Florida.



FIG. 93 Technology Square parking garage incorporates an attractive mesh screen and a green wall.



FIG. 94 350 Kendall Street Garage provides pedestrian access to the street.

- g. Avoid exposed floor plates and sloped floor plates (FIG. 95).
- h. Conceal all vehicular ramps from public streets and open spaces.
- i. Incorporate floor to floor heights of at least 11 feet, and flat floor plates to facilitate future adaptability and alternative uses.
- j. Locate and design garage mechanical ventilation systems to minimize impacts on the public realm.
 - Locate mechanical ventilation systems and areaways away from streets, open spaces, building entrances, windows, or balconies of adjacent properties.
 - Direct garage exhaust to the top of the garage, or if not possible, above the second floor and away from street- and public open space-facing locations.
 - When such locations cannot be avoided, ventilation openings facing streets or other public open spaces should be attractively screened by louvers, plantings, or other means.

- k. Minimize light trespass and glare for all garage lighting.
- l. Consider green roofs, usable terraces, and/or photovoltaic arrays on top of parking garages.
- m. Provide recharging facilities for electric vehicles.
- n. Landscape garage roofs that are 4 feet or less above the sidewalk to provide publicly beneficial open space.
- o. Provide below-grade garages with passively deployable barriers at entrances and ventilation openings to protect from flooding, or wet flood-proof the garage to allow water to pass through during a flood event.



FIG. 95 One Kendall Square parking garage employs patterned screening that provides visual interest and conceals the interior.

C.3.5 INDUSTRIAL BUILDINGS

INTENT Design industrial buildings that are functional and positively contribute to Cambridge's public realm.

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

While Cambridge has been in transition from an industrial center to a center of scientific research through the 20th and 21st centuries, there is still a role for industrial production in a well-balanced economy.

GUIDELINES

- a. Incorporate ground floor neighborhood uses, entrances at frequent intervals, and transparent storefronts (FIG. 96).
- b. Where retail is not feasible, locate front offices, reception areas, showrooms, or employee amenities such as dining facilities on street frontages.
- c. For large industrial buildings with multiple tenants, provide numerous entries at sidewalk level to help activate the pedestrian environment.
- d. Invest in the architecture of street-facing and publicly visible facades, while ensuring that these remain integrated with the design of the rest of the building.
- e. Express structural bays to create a fine-grained facade rhythm.



FIG. 96 Commercial/industrial building exhibits a welcoming, open ground floor.



The Appleby Blue senior housing project in London, England features four stories of brick with a stepped back top floor, and a two-story timber and glass projecting element on the lower floors. The organization of the massing in relation to the material changes enliven the streetscape.

D. Open Space

Open space refers to all outdoor, public and private, publicly accessible spaces, including streetscapes, parks, squares, plazas, play spaces, pedestrian and multi-use paths, alleys, mid-block pedestrian passages, and academic campuses. Although also a type of open space, streetscapes are covered in a separate chapter, both due to the proportion of publicly-owned open space they represent and their unique role as places for movement, which merits particular emphasis and additional detail.

Throughout the Open Space chapter, special attention is given to Privately Owned Public Spaces (POPS), open spaces that are privately-owned and maintained, but open to the public through legal agreements such as covenants, pedestrian access easements, deed restrictions, and special permit commitments. POPS are important components of Cambridge’s open space network, as they provide open space in much-needed locations across the city, and complement existing and planned publicly-owned open spaces, and natural areas. Developers of POPS should first address the citywide open space guidelines, and then refer to each POPS subsection for further detailed design guidance.

Cambridge takes pride in the history of its open spaces. The city’s public realm includes a wide range of open space types, from large parks like Danehy, to historically significant open spaces like Cambridge Common, neighborhood parks like Clement Morgan Park, and urban plazas like Lafayette Square. Nature preserves, like Fresh Pond Reservation, and linear parks such as those along the Charles River, are also defining features of the city’s open space network. The city’s parks and plazas host community, civic, and recreational events, while smaller urban spaces support more local activities.

Together they help express our cultural values, history, the identity of neighborhoods, and importantly foster the public life of the city. These spaces function as an interconnected system that shapes Cambridge’s buildings and circulation network, and links it to nearby cities and the regional landscape.

Open spaces are the places where people meet, gather, play, and relax; where people from diverse backgrounds and ages come together to participate in the public life of Cambridge. The varied sizes and features of Cambridge’s open spaces add to the character, richness and quality of life of the city. The placement and species of trees can help define space, and give character to the city’s public realm, playing a complementary role to architecture. Trees and other plantings provide shade, absorption of stormwater, mitigation of urban heat island, and habitat. As memorable features of the city, open spaces play a defining role in the neighborhoods around them. In effect, they are the city’s public “living rooms”, shaped and enriched by landscape design, the activities that take place in them, and by the buildings that frame them.

This chapter establishes design guidelines for creating beautiful, safe, useful, and uniquely memorable open spaces that encourage social interaction and play, contribute to the city’s resilience, and are welcoming to all members of our diverse community.



The Common at Cambridge Crossing incorporates an open, flexible area that can accommodate a range of programming, including performance events.

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D.1 Open Space Principles

Joan Lorentz Park in front of the Cambridge Public Library provides areas for passive and active recreation.



D.1.1 OPEN SPACES FOR INSPIRATION AND DELIGHT

GOAL 1: DESIGN QUALITY

The City’s goal for open space as stated in Envision Cambridge is to “create a connected network of high quality open spaces that links all residents to local and regional natural assets, provides a range of activities and experiences, encourages social connections, and is inclusive of all people”.

To achieve this goal, the open space network should be designed to create a sense of safety, comfort, and delight for all Cambridge residents. Design choices, such as the placement of trees and other plantings, the layout of paved areas, seating and other amenities, should create well-defined, purposeful, and memorable places (FIG. 98).

Open spaces should also inspire creativity and play, both in design expression and use. According to Cambridge’s Play in the Public Realm document, “A playful public realm can bring engagement, serendipity, and delight to members of a community, and it is important for everybody in Cambridge to have places and opportunities for play.”

Open spaces should be conceived as places that are unique and that the community feels connected to, sometimes referred to as creative placemaking or place keeping. Participatory processes, temporary and experimental interventions, integration of play, discovery, learning and art, and elements where these intersect (e.g. playful and interactive public art, or creative and artful play elements), should be considered in the design and programming of all Cambridge open spaces. Understanding community identity, along with historic or cultural significance, is also important for making design decisions that reinforce these values.

D.1.2 OPEN SPACES FOR ALL

GOAL 2: EQUITY

The Parks & Open Space Plan vision states that Cambridge’s parks and open spaces should be “inclusive and accessible places for gathering, relaxing, being active, and playing in well-maintained facilities, landscapes, and nature.”

Ensuring equitable access for people of all abilities, ages, and identities should be a priority for all open spaces in the city. New open spaces should be planned to distribute open space benefits across neighborhoods, and as the city grows, POPS will become increasingly important for meeting the community’s open space needs. Ensuring ongoing public access to these publicly beneficial open spaces is an important equity issue.

The design of open spaces should go above and beyond U.S. Access Board’s Public Right-of-Way Accessibility Guidelines (PROWAG) under the Americans with Disabilities Act (ADA), the Architectural Barriers Act (ABA) requirements, and the Massachusetts Architectural Access Board (MAAB) regulations. Open spaces should be designed for all to enjoy and according to universal design best practices (FIG. 99).



FIG. 98 The design of paths, trees and seating in Winthrop Park creates a welcoming and vibrant public space that encourages people to linger.

While no single design solution is going to meet the needs of everyone, creating a variety of opportunities, and choices around social activity and how people experience the environment, helps create an inviting and inclusive space.

Open spaces should also provide a sense of safety for all users throughout the day. They should avoid hostile elements and provide invitations through signage, inclusive furnishings, public art, and other design elements and activities that create a sense of belonging.

D.1.3 RESILIENT OPEN SPACES
GOAL 3: SUSTAINABILITY

The City of Cambridge has adopted two plans that address climate resilience that are relevant to open space design: Resilient Cambridge, the City's Climate Change Preparedness & Resilience Plan, outlines a way forward for dealing with the risks of climate change, including enhancing access to open space and clean air, and improving health and protection of waterways; and the Urban Forest Master Plan, a strategic plan for maintaining and expanding the city's tree canopy and shade.



FIG. 99 The Louis DePasquale Universal Design Playground is an inclusive playground designed for children of all abilities.

Cambridge's open spaces should be designed to contribute to these resilience goals (FIG. 100). Open spaces should minimize the amount of paving and hard surfaces, add to the city's urban forest, and improve access to green space and clean air for all residents. Open spaces should be resilient to the effects of climate change, including flooding due to precipitation, sea level rise, and storm surge, and extreme heat. Open space design should also maximize the ecological and resilience benefits of landscape materials, including vegetation, paving, lighting, and other furnishings.

Community resilience and well-being are also important citywide goals as set forth in plans and policies like Envision Cambridge, Healthy Parks and Playgrounds, and Resilient Cambridge. Open spaces should promote physical and mental health for Cambridge residents, by providing inviting spaces for lingering, including shade and social seating, as well as opportunities for physical activity, recreation, play, and cultural expression.



FIG. 100 The Common at Cambridge Crossing features retention ponds that help improve the water quality from stormwater runoff.



Domino Park in Brooklyn, NY integrates the history of the former industrial waterfront into a riverfront park that serves the diverse community of New York residents and visitors. The park is raised above the floodplain and features native plant species that reduce stormwater runoff and provide resilience against storm surge.

D.2 Open Space Experience

Vellucci Community Plaza in Inman Square creates a welcoming environment, through the use of high-quality materials, native trees and vegetation, and flexible seating.



D.2.1 CONTEXT AND IDENTITY

INTENT Design open spaces that fit the surroundings, support nearby activities, include natural features, and benefit local communities.

CORE VALUES INVITING ECLECTIC **CONTEXTUAL** CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Clearly define the intention of the space, including the anticipated public life and intended site users.
- b. Consider reinforcement of important views to, from or within a space.
- c. Where appropriate, respond to adjacent building entrances, and activities related to adjacent land uses, such as active ground floor uses that could spill out into the open space.
- d. Incorporate existing natural assets, such as topography, hydrology, trees, unique views and access to water, into the design of open spaces (FIG. 101).



FIG. 101 The Salem Witch Trials Memorial engages with the existing landscape and local history.

e. Consider planting choices that co-mingle or differentiate existing species on-site or nearby.

f. Consider inclusion of elements that define, explain or enhance the cultural significance of the site, neighborhood or context.

g. Meaningfully engage with the local community to understand their needs, preferences, and goals for the space.

- Include opportunities for collaboration with the local community, such as participatory design workshops with neighborhood organizations and engagement with artists, throughout the design process.

h. Consider how the open space will be managed, including opportunities for community stewardship, flexible and/or context-specific programming (FIG. 102).

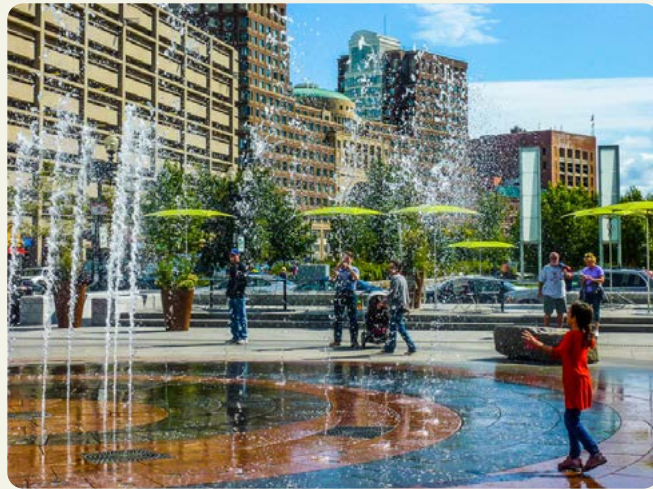


FIG. 102 Open space features community-oriented programming.

D.2.2 OPEN SPACE NETWORK

INTENT

Foster a variety of open space types that form a strong, interconnected network that is equitably distributed across neighborhoods.

CORE VALUES

INVITING

ECLECTIC

CONTEXTUAL

CONNECTED

ADAPTABLE

HEALTHY

GUIDELINES

a. Analyze and complement the mix of open space types and uses (plazas, green spaces, etc.) within a 1/4 mile and a 3/4 mile walk.

b. Anticipate the intensity of public life for different open spaces. For example:

- Plazas should be designed for a greater density of people than a park or other green space—they are places to meet near active edges occupied by retail, food/drink, or civic uses (FIG. 103).
- Green spaces can offer more breathing room for people in search of respite, recreation, or relaxation—and may be less dense with activity as a result.
- Consider the design of circulation, edge uses, furnishings, etc., based on the type of open space and program.

c. Create a 'lily pad effect' that encourages people to wander from one open space to the next. Connect open spaces with well-designed streetscapes, and paths designed for walking and cycling, that include amenities like pedestrian-scaled lighting, dedicated lanes for biking and micro-mobility, bus shelters, and active building edges.



FIG. 103 Inman Square features moveable tables and chairs that can accommodate spillover activity from nearby food establishments

d. Consider diverse spaces that provide opportunities for physical activity, programmed or informal events, community gathering, social interaction, play and other activities as well as passive open space. Special attention should be given to increasing equity by designing spaces for under-served groups (FIG. 104).

e. Make connections with obvious desire lines, especially in large open spaces.



FIG. 104 Bryant Park in New York provides a large green space and paved edges that can accommodate a diversity of activities.

PRIVATELY-OWNED PUBLIC SPACES (POPS)

- g. Design and locate POPS to complement the city's open space network, rather than as an afterthought or residual open space on the site (FIG. 105).
- Prepare studies showing location of POPS in larger green network.
 - Showing the location of the POPS in the larger open space network.
 - Locate POPS to connect with existing or proposed streets or other open spaces.
 - Depending on location in the city, and adjoining uses, POPS can be primarily green or paved, or a combination of both.
- h. Developers of new POPS should, where possible, design and locate POPS in coordination with adjoining owners, both public and private, to create larger contiguous open spaces and to distribute smaller ones throughout neighborhoods.



FIG. 105 A privately-owned public space in New York, is thoughtfully located to provide much needed open space within a dense area of Manhattan.

Carrying that ethos forward, Envision Cambridge calls for expanding and improving the city's open space network "through new open spaces, new programming, and improved local and regional connections", while "preserving, maintaining, and enhancing existing open spaces to serve a diverse population."

D.2.3 DESIGN QUALITY

INTENT **Design open spaces that are safe, comfortable, and delightful for people of all ages and abilities.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

SAFETY

- a. Provide good sight lines and visibility into and out of open spaces, particularly at entrances and primary walkways, to enhance actual and perceived safety for all.
- b. Lay out pathways and other areas for walking to protect people from traffic (FIG. 106).
- c. Where possible, incorporate programming and active uses to promote social interaction and a sense of safety. Where incorporated, consider plans for providing and maintaining programming infrastructure.
- d. Provide well-designed lighting to encourage activity and create a safe environment throughout the day and evening [See D.3.3 on page 157.](#)



FIG. 106 Central Wharf Plaza in Boston provides a clear walking path and an edge of furnishings that separate people from cars.



FIG. 107 Plantings and green infrastructure on the Common at Cambridge Crossing create a cool and comfortable environment.

COMFORT

- e. Design and locate open spaces to provide access to sunlight and sky views.
- f. Design open spaces for shade and cooling, through the use of:
 - Tree plantings and enhanced vegetation.
 - Other shade opportunities, such as canopies and shade structures.
 - Green infrastructure techniques, such as bioswales, rain gardens, etc (FIG. 107).
 - High-solar reflective index pavement.
 - Pervious pavements.
 - Lightly-colored paving materials.
 - Water features, water play areas, drinking water fountains, and cooling stations.
- g. Consider how surrounding buildings will cast shadows, reflect sunlight, and impact wind flow on the open space. If negative effects are identified, take steps to minimize them (FIG. 108).

- h. Design universally accessible open spaces beyond ADA requirements, including:
 - Room for moving without obstacles and with good surfaces,
 - Direct accessible connections and accessible signage throughout the site,
 - Activities and facilities serving people of all ages,
 - Comparable facilities for all people regardless of their ability to ascend steps or ramps,
 - Technology that provides for inclusive experiences, including for people with varying sensory abilities, and
 - Seating with backs and armrests for extra support and stability, placed at frequent intervals to assist people with mobility and stamina limitations.

- i. Incorporate passive spaces that include defined spots for staying and sitting (FIG. 109).



FIG. 108 The Smith Center building provides shade for the plaza during certain times of the day.



FIG. 109 Thoughtfully-selected and detailed design elements animate Roemer Plaza in Boston.

- j. Provide a wide range of seating options, including movable seating and seating designed for people of a range of abilities and sizes.
- k. Provide multi-sensory environments, including ones that are both active and calm, to accommodate site users sensitive to external stimuli.
- l. Provide access to public restrooms within or near open spaces with high volumes of activity.

DELIGHT

- m. Combine flexible open areas suitable for a wide range of activities and events with more sheltered intimate places that offer opportunities to view that activity from a distance.
- n. Where appropriate, seek opportunities to express the history of the site and/or provide space for cultural expression:
 - Incorporate symbols of community identity.
 - Preserve mementos and recognitions of history.
- o. Provide activities and elements that generate rich sensory experiences while minimizing undesirable sounds. Examples include:
 - Objects with soft and open textures (e.g. trees and other plantings, art objects, etc.).
 - Facades and objects with irregular surfaces that diffuse sound.



FIG. 110 A large water feature on Boston's Greenway mitigates the noise from passing cars, while creating a delightful experience for all ages.

- Elements like water features and water sculptures to mask noise from traffic (FIG. 110).
- Activities that create an interesting sound environment, such as people's conversations and activity around building ground floors, outdoor dining, social seating, music performances, etc.
- p. Use high quality design elements, including paving materials, detailing, and furnishings, that reflect both design excellence and durability.



FIG. 111 Greenacre Park, a privately-owned public space in New York, creates a welcoming environment, through clear sightlines and the use of comfortable, public seating.

PRIVATELY-OWNED PUBLIC SPACES (POPS)

- q. Create POPS that are public in character and function, and inviting to all, not just those who live, work, or patronize the building.
- A corporate character should be avoided.
 - POPS should be open during typical City park hours of operation, dawn to dusk.

- r. Design safe and comfortable POPS (FIG. 111), by incorporating:
- Publicly-accessible walking and cycling paths.
 - Generous, direct, open and unimpeded entrances from public streets, located on or close to pedestrian desire lines,
 - Unobstructed lines of sight to and from the space.
 - Comfortable, accessible, mostly public seating.
 - Public amenities, including free wi-fi, public toilets in large open spaces, and drinking fountains.
 - Circulation between public and private realms.
 - Clear signage and wayfinding that identifies the POPS as a public space, particularly for POPS that are not located on public streets.
 - Active ground floor uses with windows and entrances facing the POPS to enhance safety through casual surveillance.

- s. Where possible, design POPS to incorporate:
- Opportunities for play and exercise,
 - Infrastructure for events and programming,
 - Infrastructure for food service/trucks.

- t. Carefully consider the location of mechanical equipment. Locate mechanicals within the building envelope, preferably designed to exhaust to the roof. Avoid locating exhaust ventilation ducts within open spaces.

D.2.4 CREATIVITY AND PLAY

INTENT Design vibrant open spaces that support play and creative expression.

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Cambridge’s [Play in the Public Realm guidebook](#) ⁷ advocates for play in all city spaces, not just parks and playgrounds.

Incorporating public art in the public realm is another way to support creativity and playfulness throughout the city (FIG. 112). Public art refers to any kind of art that is located in the public realm. Public art can add beauty and visual richness to open spaces. It can also become an opportunity to engage with local communities, site context, and neighborhood identity.

Creativity and play have an important role in making Cambridge’s public realm memorable, inspiring and enjoyable.



FIG. 112 Temporary art installation in Montreal, Canada adds playfulness by creating an illusion of dunes amplified by carefully placed mirror spheres.

GUIDELINES

PLAY IN THE PUBLIC REALM

- a. Create opportunities for play and informal entertainment accessible to all ages, abilities, and interests.
- b. Create opportunities for physical activities and exercise (e.g. adventure play, exercise equipment, fitness stations, etc.).
- c. Provide spaces that support play among children and adults beyond the limits of the standard, typically fenced playground. (FIG. 113).

- e. Create a playful, interactive, whimsical, imaginative, and intergenerational public realm, by incorporating:
 - Child-friendly elements, in terms of size, color, and texture.
 - Uniquely-designed functional elements.
 - Innovative features or uses.
 - Exercise equipment.
 - Games.
 - Water features (FIG. 114).
 - Interactive elements for all ages.
 - Site materials and site furnishings that support or feature playful elements.
 - Signage to encourage physical activity, exercise, and play.
 - Site lighting that will support activity throughout the winter months.



FIG. 113 Boston City Hall Plaza incorporates play outside the traditional playground.



FIG. 114 Water feature in Boston's Fisher Hill Reservoir Park inspires curiosity and invites children to play.

PUBLIC ART

- f. Consider a wide range of art opportunities, including:
 - Integral art that acknowledges the perspective of the artist, the viewer, and the cultural context in which it was created (FIG. 115),
 - Open form art that engages the space around it.
 - Interactive art that invites participation from its audience (FIG. 116).
 - Innovative art that incorporates new techniques, materials, or technologies.
 - Temporary art that is displayed for short periods of time and changes regularly, adding interest and an element of surprise and discovery.
- g. Consider the City's Percent-for-Art Program as the minimum for municipal capital projects.



FIG. 115 Deer sculpture in Inman Square reflects the artist's interpretation of local history.

- h. Provide art that reflects local cultural history and identity, and support local artists.
- i. Use landscape design elements as opportunities to integrate art, e.g. paving patterns, lighting, seating, structures, fences, and bicycle parking.
- j. Consider integrating art that serves a functional purpose.
- k. Collaborate with artists throughout the design process.
- l. Consider locations for public art early in the design process.



FIG. 116 Art wall in Edmonton, Canada invites people to write their own messages.

INTENT **Design open spaces that are resilient and provide ecological benefits.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Preserve healthy existing trees, including consideration of relocation, where feasible.
- b. Provide vegetative and structural shading, with attention to pedestrian circulation.
- c. Select plantings that will be resilient to the expected hotter and more variable climate, and to saltwater intrusion, where applicable.
- d. Minimize impermeable pavement, and maximize permeable area and vegetated area.
- e. Incorporate light-colored pavement and materials where effective.
- f. Use Stormwater Best Management Practices and other measures to minimize runoff and improve water quality..

 - Retain stormwater on site to slow the rate of stormwater runoff.
 - Integrate Low Impact Development (LID) and green infrastructure practices, structural and/or non-structural, to capture and retain stormwater.
 - LID techniques include rain gardens with native plants or adapted plantings, wet meadows, permanent infiltration or collection features (e.g., vegetated swale, rain garden, rainwater cistern), retention areas for stormwater management, among others. (FIG. 117).
 - Incorporate underground storage tanks to slow the release of stormwater.



FIG. 117 Rain gardens manage stormwater in Alewife open space.

D.3 Open Space Elements

Technology Square in Kendall Square creates an inviting environment by incorporating various types of seating, shade structures, trees, and pedestrian-scaled lighting.



To advance Cambridge’s goal for a healthy, resilient, and equitably-distributed urban forest, as set forth in the Urban Forest Master Plan, all public and publicly-accessible open spaces should contribute to growing the city’s tree canopy. Maintaining and increasing the urban forest is an important goal for the City; the Cambridge community has expressed a strong desire for more trees and more green space throughout the city.

Trees and other plantings, including shrubs and ground cover, can contribute to the quality and character of the city’s open spaces. They are visually engaging, help define and organize open spaces, and provide an intimate scale to larger areas. Trees and other plantings can also provide shade and shelter, and help to improve air quality, reduce stormwater runoff, improve biodiversity, and overall resilience.

The creation of green open spaces:

- Adds beauty to the public realm.
- Improves health and wellbeing through connections with nature.
- Makes the public realm an inviting and comfortable place.
- Improves the City’s response to climate change.
- Improves thermal comfort for people outdoors by reducing the heat island effect and providing shade cover.

INTENT **Use trees and plants to define space, and shape the look, feel, and natural experience of open spaces.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Consider planting trees and other plantings at the edges of open spaces, where they meet adjoining sidewalks, while preserving sight lines into the space (FIG. 118).

 - Select deciduous trees limbed up to at least 7 feet for visibility across the site
 - Consider shrubs and ground cover that will provide a gradient of density at open space edges (FIG. 119).
- b. Where practical for visual access and safety, consider evergreen trees to provide a sense of enclosure and a year-round presence of foliage.
- c. Use a diverse palette of tree and plant species (FIG. 120).

 - Vary vertical sizes of plants within planted areas.
 - Design for seasonal interest/color texture, and form.
 - Create landscapes that attract birds and pollinator species, provide wind breaks, provide flowering trees, etc.
 - Where possible, use grass rather than artificial turf.



FIG. 118 Kennedy Plaza in Providence, RI features an allée of trees that help define the edge of the space.



FIG. 119 Flowering shrubs celebrate the entrance into Sennott Park.



FIG. 120 Fisher Hill Reservoir Park in Boston uses diverse plant species of varying sizes and seasonalities.

INTENT **Select trees and plant species to maximize ecological benefits such as shade and cooling, biodiversity, habitat, clean air and water, and stormwater management.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Provide resilient, canopy trees in areas that allow for robust canopy growth
- b. Prioritize native and adapted species.
 - Consult online native plant databases, such as [The Lady Bird Johnson Wildflower Center Native Plants database](#) or the [Native Plant Trust's Garden Plant Finder database](#), as reference guides for native plants appropriate for Cambridge.
 - Avoid non-native species, where possible. If native species are not feasible, select an appropriate and diverse plant palette that is suited to the site and does not include invasive plants.
 - Consider macro- and micro-climate conditions to determine suitability of plant material. Factors that influence the site's climate and should be taken into account when selecting plant material include: wind, sun exposure, soil moisture/drainage, pollutants, and slope.
- c. Utilize the tree species, planting standards, and maintenance regimens recommended by the Department of Public Works and the Cambridge Urban Forest Master Plan. [See Cambridge Urban Forest Master Plan for more information](#).
- d. Select trees and other plantings that will support biodiversity, by providing food, shelter, shade, and resting points for local wildlife.
- e. Where feasible, incorporate opportunities to connect wildlife habitats and include the creation of diverse ecological environments for a variety of plant types. Shade trees and multi-layered plantings are critical elements to all spaces in the network.

INTENT **Design and build with materials that are high-quality, long-lasting, low-maintenance, and sustainably sourced.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Materials can contribute to the design quality, accessibility, and sustainability of open spaces. The City's standard material for circulation routes within parks is asphalt. As a paving material, asphalt is an affordable, durable, easy to maintain, and accessible option. However, specific open space areas (e.g. areas for staying or for other activities) and types (e.g. plazas, mid-block pedestrian passages, etc.) may merit the selection of distinctive materials that can add quality and help enliven open spaces, through color, texture, and/or pattern.

GUIDELINES

- MATERIALS
- a. Select materials to be able to receive heavy-duty use and withstand weathering.
- b. Consider selecting materials based on life cycle sustainability considerations, such as:
 - Opportunities to salvage and reuse on-site or off-site materials.
 - Use of recycled content paving materials, such as recycled asphalt.
 - The embodied energy of paving materials, prioritizing materials that are regionally-sourced, and sustainably-harvested. Avoid use of materials such as tropical hardwoods.
 - The long-term use of materials and diversion from landfills, through durability, reuse or recycling.
- PAVING MATERIALS
- c. Use durable, low maintenance, and readily available paving materials that are able to receive heavy-duty use and withstand weathering.



FIG. 121 Natural stone paving enlivens Market Place square in Willich, Germany, by adding color and texture to the ground surface.

d. Use paving materials that follow accepted guidance and best practices for universal design, especially for pathways and other areas for people walking and rolling.

e. Consider the use of unique paving materials and treatments that vary from City standards to highlight special open space features, indicate areas of different uses (e.g. entrances, seating areas, areas for performances, etc.), or add color and texture to primarily paved open spaces, such as squares (FIG. 121), plazas, and mid-block pedestrian passages (FIG. 121).

f. Consider paving materials and patterns as an opportunity to integrate art, learning, and playful elements in open spaces.

g. Consider light-colored paving such as concrete, asphalt, pavers, and brick with a 3-year aged solar reflectance (SR) value of at least 0.28 or an initial SR of 0.33, where possible.

h. Where appropriate, use permeable paving materials, such as concrete permeable pavers, concrete or brick pavers with sand-filled joints, stabilized decomposed granite, or grass pavement for vehicular areas (FIG. 122).

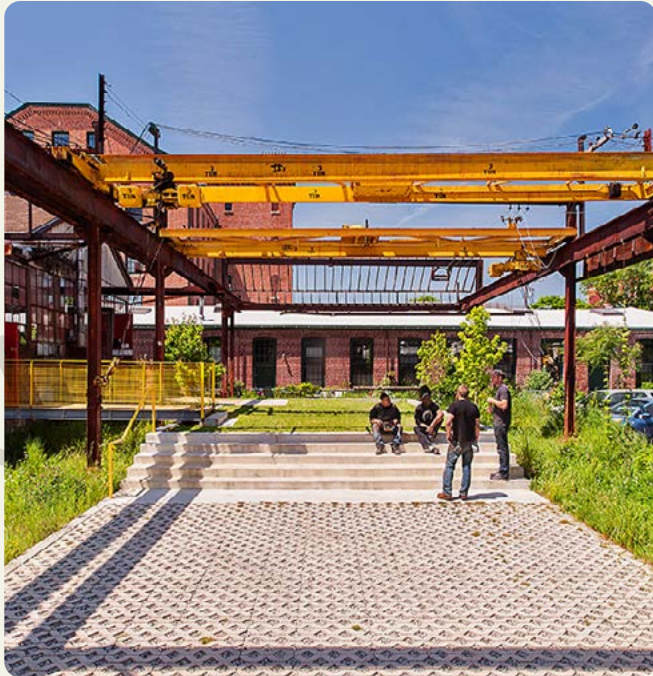


FIG. 122 The Steel Yard public space in Providence, RI uses grasscrete that allows for emergency vehicular access, while preserving water permeability.

Refer to [DPW guidelines for information about City standard materials and details](#).

D.3.3 PEDESTRIAN-SCALED LIGHTING

INTENT **Provide human-scaled lighting for safe and enjoyable evening use of open spaces, including walking and biking.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Lighting plays an important role in creating a sense of safety and an inclusive environment within the city's open spaces. Lighting can also extend the hours of use of open spaces, and can help define the character of a place, while integrating energy efficiency.

GUIDELINES

- a. Provide pedestrian-scaled lighting, especially along circulation routes (FIG. 123) and at entrances.
 - Pedestrian-scaled lighting should be directed toward the ground, and luminaires should generally be mounted 10 to 16 feet above ground.



FIG. 123 Pedestrian-scaled lighting along circulation paths on the Boston's Rose Kennedy Greenway.



FIG. 124 Lighting placed in coordination with plantings.



FIG. 125 Furnishings are used as an opportunity to integrate lighting, adding visual interest to the Harvard Science Center plaza.

- b.** Coordinate planting with light source placement (FIG. 124).
 - Intersperse trees with light poles to ensure space for tree canopy growth and clearance for light from luminaire to reach surrounding pavement.
 - Examine effects of shadows cast by vegetation to impact public safety or obscure pavement conditions.
 - Plan routing of underground electrical lighting wiring to be clear of tree pits and rooting areas.
- c.** Use lighting fixtures that:
 - Adhere to dark sky principles,
 - Have warm luminaire color temperature,
 - Are shielded to prevent glare,
 - Are LED, and
 - Create a balanced lighting environment that neither under-lights, nor over-lights open spaces.

- d.** Consider opportunities to enhance the visual quality of open spaces with the use of unique light fixtures (FIG. 125).
- e.** Consider opportunities for accent lighting, such as seasonal lighting, light installations/art, and other functional and decorative landscape lighting approaches.
- f.** Consider the use of directed bollard lighting for focused lighting of pavement.
- g.** Use step lights or illuminated handrails to illuminate stairs and ramps.

D.3.4 COMFORTABLE AND WELCOMING FURNISHINGS

INTENT Provide furnishings that are functional, durable, easy to maintain, comfortable, convenient, and enhance the experience of open spaces.

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Furnishings, such as benches, bicycle racks, trash receptacles, and other amenities, support open spaces by providing comfort and creating invitations for use and enjoyment. The selection and placement of furnishings can encourage opportunities for community connection, and add to the character and identity of open spaces.

GUIDELINES

- a.** Consider the function and purpose of each element in the context of specific site conditions to help guide the placement of furnishings. Furniture layouts and arrangements should consider visibility, sight lines, lighting, and accessibility.
- b.** When selecting furnishings, balance aesthetic considerations with functional concerns associated with durability, ease of maintenance, and comfort (FIG. 126).
- c.** Consider creative designs and styles as an opportunity to integrate art and playful elements in the open space.
- d.** Consider furnishings made of environmentally responsible materials, including materials with recycled content, locally-sourced materials, or certified wood.
- e.** Avoid restrictive and hostile design elements, such as excessive use of armrests, harsh skateboard deterrents, and spikes that are designed to prevent certain activities and behaviors from taking place in the public realm.
- f.** Avoid using materials and finishes that can be easily damaged or vandalized.



FIG. 126 Functional, durable, and aesthetically pleasing benches furnish Fisher Hill Reservoir Park in Brookline.

INTENT **Design seating to be flexible, social, and comfortable for all open space users.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

PLACEMENT AND LOCATION

- a. Provide seating based on functional needs, such as at points of interest (e.g. at entrances, close to public art, or where a pleasing view exists, etc.), or at regular stopping points along walking paths to support users with mobility needs.
- b. Prioritize locations that have good microclimates, such as areas protected from wind and shaded by trees or other structures, such as awnings, canopies, and umbrellas (FIG. 127).



FIG. 127 Benches and swings along Boston's Greenway are placed in areas protected from wind and glare by lush vegetation and an overhead shade structure.

- c. Where possible, provide seating in both sunny and shaded locations.
- d. Consider exposure to traffic noise when placing fixed seating.
- e. Provide accessible spaces for mobility devices next to fixed seating.
- f. Consider various seating arrangements to create social spaces and encourage interaction amongst and between groups, such as L and U-shaped layouts and flexible arrangements (FIG. 128).



FIG. 128 Fixed seating in Inman Square is arranged in a U-shaped layout that encourages social interaction.

STYLE AND TYPE

- g. Provide a balance of seats with and without backs and armrests in open spaces.
- h. Consider a range of seating types to enable a diversity of experiences. Seating should include:
 - Fixed individual and social seating, such as benches, individual seats, and picnic tables, taking into consideration the ability to accommodate small and large groups, as well as space for individuals,
 - Flexible seating, such as loose/ moveable tables and chairs, facilitating the creation of more versatile and sociable public spaces, accommodating various activities and preferences,
 - Informal seating, such as low walls and planter seat walls, or
 - Seating integrated into architectural elements.
- i. While private seating, such as outdoor dining is essential in vibrant commercial areas, open spaces should provide a balance of private with public seating to invite a diversity of activities, not only centered around patronizing businesses.

PRIVATELY-OWNED PUBLIC SPACES (POP)

- j. Where private seating, such as outdoor dining, spills into a POPS, aim for a balance of public and private seating options that feel integrated.
 - Private seating should take up no more than ¼ of the POPS.
 - Limit seating for private outdoor dining to locations adjacent to building facades, while the rest of seating in the space is public and open.
- k. Avoid installing fences or barriers around private seating, where possible. If a barrier is necessary, make sure it is permeable, low, and complements the design of the POP.
- l. Avoid branded or promotional umbrellas and other furnishings, where possible.

INTENT **Provide convenient and accessible bicycle parking that is well-integrated into the design of open spaces.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Provide bicycle parking that is safe and convenient to access, but unobtrusive to the experience of people walking.
- b. Coordinate bicycle rack style with other furnishings, and site design.
- c. Ensure bicycle rack styles and locations meet City Standards and regulations. For further information, [see the City's Bicycle Parking Guide](#).
- d. In appropriate locations, consider opportunities to use creative and artistic bicycle racks to help animate the open space and highlight community identity.
- e. Create nooks in the landscape to accommodate outdoor bike racks and bicycle/scooter shelters (FIG. 129).
- f. Where appropriate also consider providing bike repair stations.



FIG. 129 An alley near Kendall Square provides bicycle parking that is well integrated in the landscape.

SHARED BICYCLE PARKING

- g. Provide Bike Share Stations in, or near, all major public open spaces.

Bike share provides important access for people of all ages and abilities to access destinations, and is important for enabling people to use public transportation in an economically accessible way. The City's goal is that there is a bike share station in or near all major public open spaces. See the Community Development Department's Transportation Division website for further details about the [Bike Share program](#).

INTENT **Open space amenities should be well-designed and integrated within open spaces.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

Open Space Amenities support the use and enjoyment of open spaces by ensuring they are accessible, clean, and safe. They include textile recycling bins, trash & recycling bins, sharps bins, recharging stations, bottle filling stations, comfort stations, and dog waste stations.

- a. Consider the placement of amenities early in the design process.
- b. Consider the size and role of the open space when determining what amenities are to be provided.
- c. Consolidate or group amenities in discrete locations that offer convenience and visibility but do not overwhelm the character of the open space.
- d. Where possible, avoid visual clutter.
 - Consider locations that are tucked away into the landscape while still remaining visible.
 - Organize amenities at entrances and frontages to avoid overwhelming these locations with clutter.

Plans to retrofit large-scale amenities into existing sites with constraints, such as limited space, should involve the services of a design professional to assess how to best incorporate them into the open space design.

INTENT **Provide other site furnishings in convenient locations and well-integrated with the design of open spaces.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

SHADE STRUCTURES

Shade structures can increase user comfort through both heat and sun protection (FIG. 130), and can add visual interest to open spaces. They can be either permanent installations, or temporary structures, depending on the site context.



FIG. 130 Permanent shade structure creates a comfortable, shaded seating area along Broad Canal.

a. Provide shade structures where opportunities for substantial tree canopy and natural shade are limited, such as areas of exposed play equipment.

- b. The following should be considered when designing shade structures:
- Temporary shade structures to improve the thermal comfort of open spaces (FIG. 131). Refer to the City's Shade is Social Justice program for design ideas and details about the City's "creative and equitable" heat "mitigation" strategies.
 - Overhead structures with members close enough to shade summer sun
 - Structures should be roofed in order to provide shelter from rain and snow. Permanent shade structures should not collect snow and ice on top in winter months.
 - Trellises and other site features with vegetative growth.



FIG. 131 Temporary shade structure installed during the hot summer months on the Science Center plaza.

- Height and placement of shade structures to discourage climbing or unintended access over walls or into upper-level building openings.
- Whimsical designs that add visual delight.



FIG. 132 Big Belly bins are standard trash receptacles in Cambridge.

TRASH AND RECYCLING RECEPTACLES

- c. Use the City's standard trash and recycling receptacles (FIG. 132).
- d. Locate trash receptacles near seating and building entrances where possible, with some separation so that these areas are not compromised by foul odors.
- e. Prioritize placement of large bins (e.g. textile recycling and trash bins) in parking lots or parking spaces. If located in open spaces, large bins should be placed in well-lit, visible areas to ensure proper use.

BOLLARDS

- f. Avoid the excessive use of bollards. Where they are required for safety purposes:
 - Combine bollards with other furnishings that can also provide that safety/buffer function, e.g. bicycle racks, seating, long tree pits/wells, light poles, planters, etc.
 - Consider removable options.
 - Use a style, scale, and design that contribute to the character of the open space.

INTENT **Design fences and gates that promote the character of open spaces without making people feel unwelcome.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Design and select high-quality fences and gates to visually articulate and demarcate entrances and edges (FIG. 133).
 - Use fences such as simple iron, painted steel, low stone walls, and low hedges.
 - Avoid use of solid, blank fences.
 - Avoid use of plastic or chain link, especially in highly visible locations.
 - Avoid security gates.
- b. Design fences and gates that are open/porous and integral to the site - incorporated into architecture or landscape that frames the space - rather than imposed.
- c. Ensure fence designs maintain visibility/ safety at street corners.
- d. Consider fences as art opportunities.

- PRIVATELY-OWNED PUBLIC SPACES (POPS)
- e. Avoid fences, security gates, bollards or barrier presence at entrances.
 - If fences are proposed, they should be for the purpose of demarcating the POPS as a significant space in the city’s public realm, not overtly for security.
 - If gates are proposed, they should be solely for the purpose of celebrating entrance. They should not have closable leaves.



FIG. 133 Visually permeable, artistic steel fence at Sennot Park.

INTENT **Provide pedestrian-scaled, accessible signage where needed.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Signage also plays an important role in wayfinding, identifying open spaces, and making open spaces more known, equitable, and welcoming to all. Signage for POPS should communicate the role of these spaces to the public with clear and consistent branding and messaging. Providing clear, visible, and readable signage that includes information about the space (such as access hours, amenities, accessibility to persons with disabilities) will make POPS more equitable and inclusive for all.

GUIDELINES

- PLACEMENT
- a. Define the goals and objectives for a proposed signage, including the functions it should serve, the target audience, and the types of information to be conveyed.
 - b. Understand user needs when considering the location and design of signage.
 - c. Locate signs in highly visible areas, such as park entrances and key junctions (FIG. 134).



FIG. 134 Harvard University signage located at the Science Center open space, a key junction for the campus.

- d. Locate signage in locations that provide visibility from multiple vantage points (FIG. 135).
- Place to avoid large structures (e.g. bus shelters, utility boxes).
 - Locate near lighting to maximize visibility at night.
 - Avoid locations that are obstructed by landscaping or other design elements.



FIG. 135 Signage in Somerville's Union Square development is placed in a visible location, but does not interfere with circulation paths.

- e. Avoid locations that interfere with movement for people walking and bicycling.
- f. Consider integrating signage with other open space design elements, such as walls, posts, etc., to avoid clutter.
- g. Where possible, translate messaging into multiple languages.
- h. Eliminate existing redundant, and out-of-date signage, as much as possible.

DESIGN

- i. Depending on the scale and character of the open space, maintain continuity with City standard open space signage approaches, or celebrate the specific identity, or other elements of the open space.
- j. Ensure all signage is compliant with ADA requirements for color contrast and text size (FIG. 136).



FIG. 136 Signage uses high contrast text against background to ensure legibility for users with color-blindness.

- k. Incorporate Braille or auditory information for those who are visually impaired.
- l. User testing and signage mock-ups are encouraged.
- m. Avoid campus-style signage if not an academic institution.

In the future, the City should undertake a comprehensive wayfinding strategy.

TYPES

- n. Identify City-owned parks and other open spaces by name using City standard signage templates. These can be augmented by signs unique to that space.
- o. Where appropriate, locate directional signage at key decision points along journeys.
- Include maps and directional arrows as appropriate to indicate the location and distance to nearby destinations..
- p. Where appropriate, incorporate interpretive signage to celebrate important historical people and events, natural history, ecosystems, and city history.
- q. Consider using information kiosks as a way to consolidate existing park single-purpose signs, such as regulatory rules and information.
- r. Use properly-scaled information kiosks that don't interfere with the movement or sight lines of people walking and bicycling (FIG. 137).



FIG. 137 Physically and visually unobtrusive information kiosk at the Cambridge Common entrance includes information and a map of the park.

PRIVATELY-OWNED PUBLIC SPACES (POPS)

- s. Provide clear signage indicating that the POPS is open to the public (FIG. 138) (FIG. 139).



FIG. 138 Signage directs to a publicly-accessible rooftop garden.



FIG. 139 The City's Open to All logo

- t. Incorporate information on public access and use at all entrances, including:
 - The name of the space and language about public access,
 - Information about hours of access, adhering to the City's public space standards for opening hours, amenities, and the names of those responsible for upkeep and maintenance.
 - The City's "Open to All" POPS logo
 - Refer to the City's POPS Signage Guidelines for further details ↗

- u. Ensure that signage is constructed of durable materials and consolidated with other site signage, where appropriate.

- v. Consider incorporating signage into landscape elements, such as paving or planter walls (FIG. 140).



FIG. 140 Directional signage integrated into the landscaping.

- w. Consider providing directional signage to adjoining businesses and destinations.

- x. Design any corporate signage as discreet elements

D.3.5 WAYFINDING

INTENT **Create a legible sequence of spaces that enable intuitive wayfinding.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL **CONNECTED** ADAPTABLE HEALTHY

For those who know a city well, and for those that don't, the most important contributions to wayfinding are the legibility of the elements of the public realm – the memorable forms of public spaces and the ways they interconnect to organize the city's districts. For those exploring a new city or district, intuitive wayfinding, visual cues that help people navigate space, is often the most effective. When that is not available, or when visitors are seeking an unfamiliar destination, signage is an invaluable aid.

GUIDELINES

- a. Design main circulation paths to be wide and easy to navigate.
- b. Use physical and visual cues as waypoints that help people find their way and navigate through the space to a destination.
 - Physical cues may include plantings, public art, furnishings, etc.
 - Visual cues may include framing of landmark buildings and structures, views of significant landscapes (e.g. the Charles River), lighting during evening hours, etc.

Intuitive wayfinding is the creation of visual and physical cues that help pull people through a space without the need for exhaustive signage.

D.4 Open Space Types

Distinct types of open space can be found throughout the city, and span a range of purposes, uses, sizes, and features. This section expands on the open space types outlined in the Cambridge Parks and Open Space Plan, and provides further design guidance for each type.

The Alewife Brook Reservation is an important green space that provides opportunities for physical activity and connection with nature.



D.4.1 PARKS

INTENT Design parks as green spaces for active and passive recreation, relaxation, socializing, and play.

CORE VALUES

- INVITING
- ECLECTIC
- CONTEXTUAL
- CONNECTED
- ADAPTABLE
- HEALTHY

Parks add beauty and green space as contrast to and relief from the density of the built fabric. Parks can be places for inspiration, play, meditation, and intergenerational use and enjoyment. Cambridge has parks of different types and scales, such as pocket parks, neighborhood parks, linear parks, large citywide parks, recreational areas, and play areas that accommodate a wide range of uses through a combination of flexible open areas with sheltered intimate areas that invite people to linger, reflect, recharge, and participate in community life.

GUIDELINES

- a. Consider park designs that add an element of surprise, including incorporating topographic elements such as hills, landforms, and hidden views, as well as textural changes and seasonal interest.
- b. Define park edges with elements that reinforce a sense of place, such as tree allées, plant beds, paths, fences, loggias, trellises, and pavilions and other landscape elements (FIG. 141).
- c. Park entrances should be celebrated with inviting gateways (FIG. 142).



FIG. 141 An open space in the University Park district is clearly defined by a combination of tree allées, low painted steel fences and hedges.



FIG. 142 Inviting gateway marks the entrance of the historic Cambridge Common.



FIG. 143 This linear path connecting to John F. Kennedy Memorial Park provides places to linger by including furnishings and plantings.

LARGE CITYWIDE PARKS

d. Consider providing public restrooms in large parks.

e. Consider the role of large parks in advancing biodiversity, heat and flood mitigation. Consider the use of strategies such as:

- Pre-planting street trees within parks to ensure their long-term viability.
- Planting to enhance biodiversity (e.g. the Miyawaki Forest in Danehy Park).
- Low-impact development and green infrastructure practices.

LINEAR PARKS

f. Linear parks should be conceived of as important public open spaces, not just transportation corridors.

g. The design of linear parks should maximize user experiences through the provision of public art, play features, furnishings, plantings, interpretive elements, and wayfinding (FIG. 143).

PRIVATELY-OWNED PARKS

h. Privately-owned parks should provide a minimum of 75% green space and a minimum of 85% permeable space.

i. Privately-owned parks should provide at least one large canopy tree for every 1,200 square feet of park area.

j. Where possible, surround parks with streets and buildings with active ground floors to overlook the space.

Large Citywide Parks Large-scale open spaces of citywide or regional importance with OSNA walkshed of 0.5 miles

D.4.2 SQUARES AND PLAZAS

INTENT

Squares and plazas should be spaces for people to meet, sit, relax, people watch, connect, and gather.

- CORE VALUES
- INVITING

ECLECTIC

CONTEXTUAL

CONNECTED

ADAPTABLE

HEALTHY

Cambridge boasts many historic squares and plazas, located at intersections of commercial corridors and neighborhood main streets. These squares and plazas are unique and memorable spaces that form the city’s identity. Significant plazas in Cambridge include the Carl Barron Plaza in Central Square, Brattle Square (FIG. 144), and the newly-improved Vellucci Community Plaza at Inman Square.

Squares and plazas are generally defined and framed by the surrounding buildings and streets. These spaces often perform best when the buildings that border them are occupied by active uses that engage the space.

Temporary plazas are often associated with streets and transform underutilized areas of roadway into public spaces for surrounding residents and businesses.



FIG. 144 Live music performances animate Brattle Square in Harvard Square.

- GUIDELINES
- a. Squares and plazas should prioritize pedestrian access and enjoyment and integrate into nearby pedestrian and bicyclist circulation networks.

b. Consider incorporating memorable design features, such as performance areas, water features, iconic artworks, etc

c. Squares and plazas should be primarily paved to provide flexibility for circulation, seating, and a variety of uses and programming (FIG. 144).

d. Locate new squares and plazas in areas of existing or anticipated high pedestrian volume.

e. Plazas and squares should meet the street at grade, ensuring that all people can access and enjoy the space.

f. When a grade change is necessary, use a series of integrated ramps and stairs to create a unified experience regardless of ability.



FIG. 145 The paved portions of this small plaza in Downtown Boston provides flexible spaces to accommodate tables and chairs.

- g. Large areas of paving should be shaded.

 - Consider shadows cast by adjacent buildings.
 - Where large paving areas are not shaded by adjacent buildings, use canopy trees or permanent shade structures.
- h. Consider light-colored and permeable paving materials in appropriate locations. Avoid using asphalt.
- i. Consider how squares and plazas will be animated by various uses such as outdoor dining, temporary markets, playful features, public art, outdoor events, and the ground floor activity of buildings that frame them (FIG. 145).
- j. Where possible, use trees and plantings to help frame plazas and squares, and define spaces within.
- k. Encourage and support ground floor activation in the buildings that surround squares and plazas.
- l. Where appropriate, such as plazas in commercial areas, provide spaces equipped with accessible outlets for performances, events, and other programming activities.
- PRIVATELY-OWNED PLAZAS

m. Provide a minimum of 10% green space, a minimum of 40% shaded open space and a minimum of 70% permeable space.

n. Provide at least one large canopy tree for every 1,000 square feet of plaza area.

o. Provide a minimum of one linear foot of seating for every 30 square feet of plaza area.

p. Frame POPS plazas with buildings that actively engage the open space.

q. Access from sidewalks should be generous and unobstructed and not hidden behind curvy walls or other visual barriers.

D.4.3 PLAY SPACES

INTENT **Design play spaces of different types, variety and style that support activity and learning for children and adults of all abilities.**

CORE VALUES INVITING ECLECTIC **CONTEXTUAL** CONNECTED ADAPTABLE HEALTHY

Cambridge’s Healthy Parks and Playgrounds report highlights the important role of parks and playgrounds in improving the health and development of children, and in supporting strong communities. The report sets forth goals and objectives for the design of all future play spaces in the city to serve the needs of different groups, regardless of age or ability. The Citywide Design Guidelines seek to promote the goals of Healthy Parks and Playgrounds by encouraging a variety of play experiences across the city.

- GUIDELINES
- a. Create integrated play environments, not a collection of parts.
- b. Provide a diverse range of environments to serve a full range of age groups and interests (FIG. 146).
- c. Provide meaningful play opportunities to children of all levels of ability.
- d. Balance the need for a reasonable level of safety with the need for challenge, adventure and risk-taking.



FIG. 146 King Open School in Cambridge provides play spaces for children of diverse age groups.



FIG. 147 Play space at Danehy Park in Cambridge features components made of both artificial and natural materials, flat and varied land forms.

- e. Support curiosity, creativity and imagination. Examples include:
- Viewing platforms.
 - Interactive sculptures or structures.
 - Variety of ground forms, texture colors (FIG. 147)

- f. Stimulate physical activity with many different types and combinations of movements.

- g. Make play environments community places by including features that encourage social connection and gathering. Examples include:
- Tables and sitting areas for children and adults.
 - Gazebos and pavilions.
 - Picnic tables.
 - Play features that encourage simultaneous use by multiple people.
 - Community news boards.
 - Supporting activities.
 - Community events.



FIG. 148 A park in the Netherlands uses an undulating ground and bold graphics to invite creative activities.

- h. Provide play opportunities during all seasons and all weather conditions.

- i. Balance standard play equipment, artificial materials, and flat terrain with more unique play components, natural materials, and varied land forms and plantings (FIG. 148).

- j. Consider incorporating a reasonable amount of loose parts or props, less prescribed space and equipment, and convenient storage.

- k. In addition to the traditional play equipment-oriented space completely enclosed by a fence, consider designs of unique appearance, offerings, themes and audience (FIG. 149).

- l. Provide plantings for shade, sensory interest, and to create play opportunities for children to move through or around.

Questions to consider, when designing a play environment:

- Is the design furthering the goals and objectives of the City's Healthy Parks and Play policy?
- Does the design adhere to the principles of universal design to achieve play spaces that are welcoming and inclusive for all; including persons of all ages and abilities, and all disabilities (not just wheelchair focus)?
- What initiatives have been undertaken to partner with other educational institutions, businesses, or organizations to provide for the possibility of supportive programming or supervision of the space?

- m. Balance segregating differing age groups, with opportunities for integration of younger and older children in the same spaces.

- n. Provide sensory experiences.

- o. Provide zones for group play as well as individual experiences.

- p. Support recreation and exercise activities. Examples include:
- Outdoor exercise equipment.
 - Nets for sporting activities.
 - Courts for sporting activities.

- q. Consider integrating play spaces in POPS or open space areas provided as a community benefit of major development projects.



FIG. 149 Play space in Copenhagen's Nordhavn District features uniquely-designed components.

INTENT **Create inviting mid-block pedestrian passages on large development sites to enhance neighborhood connections**

CORE VALUES INVITING ECLECTIC **CONTEXTUAL** CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Provide visual interest and a human scale through design features, such as active and transparent building ground floors (FIG. 150), public art, seating, and placemaking opportunities.
- b. Consider mid-block pedestrian passages that provide views to the sky and that are wide enough to comfortably accommodate pedestrians and bikes together.
- c. Consider mid-block pedestrian passages that connect to publicly-accessible courtyards and other intimate spaces within the interior of a block to create usable open space and provide a sense of discovery and surprise.
- d. Plant canopy trees and other plantings along mid-block pedestrian passages, where possible.
- e. Ensure passages are well lit, including potential for architectural and accent lighting to further enhance visual interest - e.g. string and catenary lighting.
- f. Design alleys to include visual interest and an intimate scale.

 - Consider opportunities to incorporate public art along alleys (FIG. 151).
- g. Where possible, provide landscaping and greenery, particularly vertical elements along the edges of alleys and passages. This includes

 - Canopy trees, shrubs, and flowers.
 - Vertical plantings in planter boxes, trellises or green walls.



FIG. 150 An alley in Harvard Square is flanked by active ground floors.



FIG. 151 An alley in Kendall Square features a mural that adds color and visual interest.

INTENT **Create academic open spaces that are inviting and well-integrated into the urban fabric.**

CORE VALUES INVITING ECLECTIC **CONTEXTUAL** CONNECTED ADAPTABLE HEALTHY

GUIDELINES



FIG. 152 Harvard University's Quincy courtyard takes on a distinct campus identity, with a central open space framed by university housing buildings.



FIG. 153 Open space within MIT's campus blends with the urban fabric of Kendall Square.

INTENT **Design rooftop gardens to provide usable outdoor space, and contribute to the city’s resilience.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Rooftop gardens should provide green space and shade (FIG. 154):

 - Provide canopy trees, whenever possible.
 - If planting trees is not feasible, consider use of shade structures.
- b. Select plants that can withstand the climatic conditions of a rooftop garden.
- c. Consider light-colored paving materials to reduce the urban heat island effect.
- d. Consider wi-fi access and charging outlets.



FIG. 154 Publicly-accessible roof garden in Kendall Square provides shade and vegetation. Seating, public art, and a pickleball court add color and activity.

PUBLICLY-ACCESSIBLE ROOF GARDENS

- e. Provide clear signage and wayfinding at street level for publicly-accessible rooftop garden access.
- f. Publicly-accessible rooftop gardens should have ADA-compliant vertical access, where possible.
- g. Publicly-accessible rooftop gardens should provide a minimum of 30% green space.

INTENT **Design private residential open spaces to add residential character, provide outdoor space, and contribute to the city’s resilience.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

The outdoor areas of a residential development can play a significant role in shaping its character. Providing outdoor gathering spaces for play and recreation, such as barbecue pits for grilling or garden plots to grow food, increases the potential for community building. Creating connections to nature, such as landscaped forecourts and gardens, enhances general well-being.

GUIDELINES

- a. Private or semi-private courtyards and forecourts are encouraged in large residential developments to address residential feel and character (FIG. 155).
- b. Design front yards as a private open space that is visible to the public.

 - Provide visible greenery and uses that animate the sidewalk. Refer to the City’s Urban Forest Master Plan, Design Strategy 2C for further details about front yard trees ↗
 - Create a distinct edge between sidewalks and front yards, using curbs, low/permeable fences, hedges, or walls (FIG. 156).
 - Driveways, vehicular and bicycle parking areas, and mechanical and electrical equipment should be located and designed to minimize their impacts on the public realm.



FIG. 155 Apartments in Harvard Square feature a variety of private courtyard spaces that add variety and character to the development.



FIG. 156 Front yard in Mid-Cambridge provides a low wall and vegetation that define the sidewalk edge.



Lebuinus Square in Deventer, the Netherlands creates a vibrant public space at the heart of the city. The square provides a variety of spaces that can accommodate diverse activities; a water fountain, a tree grove that provides shade for outdoor dining, and a flexible open area. The design also incorporates resilience strategies, including permeable and light-colored paving materials, increased shade from trees, and stormwater management.

E. Streetscape

The term “streetscape” refers to the area, or public space, located between the street curb and buildings. In some cases, raised bike lanes may be located in this zone. In other instances, such as shared streets, the streetscape may also include part of, or the entire roadway. The guidelines in this chapter should be used to design both public and privately-owned streetscapes.

The concept of streetscape includes all elements of the pedestrian experience: the sidewalk, street trees, bus stops, street furniture, and the portion of building facades within the pedestrian’s cone of vision. The role of the building design in enhancing the streetscape experience (e.g. human scale, transparency, entries, etc.) is addressed in Chapter C of this document.

Over half of Cambridge’s public open space is made up of streets and paths. Streetscapes play a crucial role in the mobility network, and are essential to public life and walkability. Streets are more than just arteries for movement and infrastructure, they are meaningful and memorable places in their own right.. They provide space for lingering and gathering, dining at restaurants and cafes, and for social interaction and play. They also provide opportunities to expand the city’s tree canopy, manage stormwater, and reduce urban heat island effects.

This chapter establishes design guidelines for maintaining and enhancing walkability, safety, comfort, convenience, enjoyment, accessibility, aesthetic character and quality, and the environmental performance of the city’s streetscapes.

E.1 Streetscape Principles p.188

- E.1.1 Streetscapes as Places for People and Public Life p.189
- E.1.2 Streetscapes for All p.189
- E.1.3 Resilient Streetscapes p.190

E.2 Streetscape Experience p.192

- E.2.1 Streetscape Character Types p.193
- E.2.2 People First Sidewalks p.196
- E.2.3 Creative Design And Programming p.200

E.3 Streetscape Elements p.204

- E.3.1 Green Streetscapes p.205
- E.3.2 Sidewalk Paving Materials p.208
- E.3.3 Pedestrian-Scaled Lighting p.211
- E.3.4 Comfortable and Welcoming Furnishings p.213
- E.3.5 Signage and Wayfinding p.221

E.1 Streetscape Principles

Massachusetts Avenue in Harvard Square provides wide sidewalks, active ground floor uses, and amenities for people walking and bicycling, creating a lively streetscape for people of all ages, abilities, and identities.



E.1.1 STREETSCAPES AS PLACES FOR PEOPLE AND PUBLIC LIFE

GOAL 1: DESIGN QUALITY

Streetscapes should prioritize public life in all its forms, including movement through and enjoyment of the city. The design of streetscapes should invite people to linger, foster community connections, encourage physical activity and play, and provide connections to nature. Cambridge’s street trees and plantings, public art, street furniture, lighting, adjoining retail frontages, and other amenities should work together to enhance the city’s beauty, walkability, connectivity, accessibility, safety, and sense of place (FIG. 157).



FIG. 157 The corner of Brattle St in Harvard Square provides an expanded sidewalk space that invites people to participate in the city’s public life.

E.1.2 STREETSCAPES FOR ALL

GOAL 2: EQUITY

To welcome people of all abilities, ages, and identities, streetscapes should be accessible, comfortable, safe and enjoyed by all. Federal and state accessibility regulations should be considered the bare minimum for the city’s streetscapes.

Unobstructed and wide sidewalks should accommodate both easy and safe movement for all ages and abilities, as well as social spaces for people to stop and talk, stand and watch, or pass each other comfortably (FIG. 158). Paving materials should be stable, durable, and easy to maintain. Comfortable and inclusive seating should be provided at frequent intervals, and the placement of streetscape furnishings should be convenient but unobtrusive to paths of travel. Streetscape design, uses, and activities should offer rich sensory experiences for all to enjoy.



FIG. 158 Sidewalk featuring a wide surface for easy and safe movement and social interaction, regardless of age or ability.

E.1.3 RESILIENT STREETSCAPES
GOAL 3: SUSTAINABILITY

Cambridge's streetscapes should be designed to provide ecological connectivity, and contribute to the city's environmental performance and climate goals. As global warming rises, urban areas will increasingly rely on streetscape design to provide relief from high temperatures. This is achieved through a combination of street tree plantings, light-colored paving materials, canopies, awnings, shade structures, and water features. The continuity of trees and other plantings also creates paths for wildlife, supporting biodiversity. Green infrastructure, such as rain gardens, bioswales and permeable paving, can improve water quality, reduce stormwater runoff, and enhance resilience (FIG. 159).

Streetscape design should also contribute to community resilience by supporting active and healthy living. A streetscape network shaded by street trees or other structures that is safe, well lit, and lined with active uses can encourage people to walk, bike, or take public transportation, promoting active ways of moving around (FIG. 160). Integrating play and physical activity into streetscapes can enhance physical health and create family-friendly spaces. Creative and vibrant uses can transform streetscapes into places where people feel a sense of belonging, thus improving community and individual well-being.



FIG. 159 Western Ave sidewalk features trees and plantings that provide shade and stormwater infiltration.



FIG. 160 The active streetscape of Cambridgepark Drive in Alewife encourages people to walk.



Alfred Place Gardens, London reclaims road space transforming it into a welcoming green space, with a variety of characters and experiences. A meandering pedestrian path is lined with play spaces, playful social seating, climate-resilient plantings and shade trees, whilst maintaining access for essential services and emergency vehicles.



Site plan of Alfred Place Gardens

E.2 Streetscape Experience

The design of Lafayette Plaza in Central Square includes comfortable seating, active retail ground floors and clear paths for movement, creating a vibrant and welcoming streetscape experience.



E.2.1 STREETSCAPE CHARACTER TYPES

INTENT Design streetscapes based on typology, context, neighborhood identity, and the street’s role in the community.

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

A variety of pedestrian experiences help create vibrant and diverse streetscapes. The types of activities that might be appropriate for a particular streetscape will depend on several factors, including location and context, the different speeds that people move through the street, and the ability of the sidewalk to accommodate a variety of activities. In order to define the role and function of Cambridge’s streetscapes, this chapter establishes three broad typologies that begin to categorize the city’s various streetscapes:

- Corridor Streets.
- Neighborhood Main Streets.
- Residential Streets.

These streetscape character types are classified based on how people experience them, rather than their functional road classification. The character types are broad, and not all streets will fit within a specific type. Some streets may be a combination of two types, some may change with different land uses and contexts, and some may change over time. The street types should be used as a guide for streetscape design..

Corridor Streets
Corridor Streets are arteries that connect Cambridge’s neighborhoods. They are mixed-use destinations of citywide importance, and are designed to prioritize pedestrian use and enjoyment. Corridor Streets are where people work, play, shop, eat, and gather to enjoy city life. Examples of corridor streets include: Massachusetts Avenue, Main Street, and Cambridge Street.

Neighborhood Main Streets
Neighborhood Main Streets are located in the heart of Cambridge’s neighborhoods and are characterized by an eclectic mix of residences, and small businesses and services at the neighborhood level. Examples include: Huron Avenue, Concord Avenue, and sections of Broadway.

Residential Streets
Residential Streets serve Cambridge’s residential fabric. They provide a safe and delightful environment for residents. Residential Streets can be ideal locations for temporary programming (e.g. play streets, community block parties), include more prominent landscaped and shaded areas, and typically have narrower sidewalks than on Neighborhood Main Streets and Corridor Streets.



FIG. 161 Mass Ave near Central Square has a typical Corridor Street character, with a mix of spaces and amenities.

When designing streetscapes, consider the context and neighborhood identity to help determine the street's role within the community and the desired level of design and creativity. Streets not identified above, such as parkways, or streets that connect the open space network, or link schools with key destinations such as playgrounds, have the potential to take on a different design character than typical city streetscapes.

A fourth street type has emerged in Cambridge over the past few decades, the shared street. Generally, these streets have little to no through-traffic and existing sidewalks are narrow and inaccessible. In residential areas, the traditional streetscape zone is repurposed into landscaping, trees, and stormwater management strategies. In commercial areas, shared streets prioritize people walking and bicycling, while accommodating loading and deliveries.



FIG. 162 Longfellow Road is a typical Residential Street that uses vegetation along the streetscape to provide residents with a safe and delightful environment.



FIG. 163 Winthrop Street in Harvard Square is an example of a shared street.



FIG. 164 Passeig De Sant Joan, Barcelona, Spain, prioritizes public use and enjoyment with play and sitting areas.

GUIDELINES

- a. Design corridor streetscapes to accommodate high pedestrian volumes, (FIG. 161), provide a mix of lively social spaces and amenities (e.g. outdoor dining, parklets, temporary programming, etc.), as well as visually attractive and engaging design elements (e.g. street furnishings, play elements, public art, etc.) (FIG. 164).
 - Given the additional sidewalk width available, consider incorporating unique and creative design solutions, especially in commercial districts.
- b. Streets should have a robust presence of vegetation. Street trees should be properly sized for their growing conditions, carefully considered available root volumes, interaction with overhead utilities and street lights, and clearance of canopy from building walls and windows (FIG. 167).



FIG. 165 This section of Broadway serves as a main street for the Port neighborhood.

- c. Provide corridor streetscapes with adequate space for larger scale street trees and planted areas.
 - Consider how planting trees in lines, allées, or groves can create strong landscape features and aid in orientation and wayfinding.
- d. Design Neighborhood Main Streets for small gatherings, and flexible use by local businesses (FIG. 165). Consider incorporating elements that reflect local neighborhood identity, and accommodating street trees and other plantings, where possible.
- e. Design residential streetscapes to improve the quality of life of residents by providing street trees and other plantings, and safe, accessible routes to nearby destinations (FIG. 166).
- f. Create unique streetscape designs in appropriate locations and contexts. For example, streets that provide linkages within the open space network can be designed as “Green Streets” with an emphasis on vegetation, recreational and play opportunities, and the natural features of the surrounding environment.



FIG. 166 A typical Cambridge residential street in the Port neighborhood.



FIG. 167 King St, a Cambridge residential street, features a line of mature trees planted on a wide, continuous planting bed.

INTENT **Design sidewalks to make mobility an easy, safe, comfortable, and delightful experience for people of all ages and abilities.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL **CONNECTED** ADAPTABLE HEALTHY

Sidewalks are the primary areas within the streetscape that are reserved specifically for people walking and using mobility devices. They serve as the interface between buildings and the roadway, providing both connection and buffer. Sidewalk widths vary throughout Cambridge, with wider sidewalks found in Kendall and Central Squares, and much narrower ones found in other commercial areas, such as Inman Square, and within residential neighborhoods.

Sidewalks serve social, mobility, recreational, and ecological needs—and must include numerous features to support these. Their design is critical to creating pedestrian-friendly environments, safe and comfortable neighborhoods, and lively commercial areas.

Sidewalk Zones

Conceptually, sidewalks can be subdivided into three zones, or areas of use: the **Pedestrian Zone**, the **Planting/Furnishing Zone**, and the **Frontage Zone** (FIG. 168). Each zone plays a slightly different role in the pedestrian experience and has different design parameters. However, these zones are flexible and can serve multiple functions depending on sidewalk width. The width of each zone depends in part on the overall width of the sidewalk; in some cases all three zones do not exist due to the varying sidewalk conditions that exist in Cambridge.

The **Pedestrian Zone** is the middle zone of a sidewalk. Because it primarily accommodates pedestrian circulation, it must be entirely free of obstructions. On some narrow streets, the pedestrian zone may compromise the entire sidewalk.

The **Planting/Furnishing Zone** is located immediately adjacent to the street curb, or sidewalk-level bicycle facility, when one exists. Depending on location, the bicycle facility may either be on the “street side” or the “building side” of the planting/furnishing zone. While the detailed design of bicycle facilities is outside the scope of this document, the interaction and interface between bicycle facilities and adjacent sidewalks should be carefully considered. The planting/furnishing zone buffers pedestrians from street traffic, and typically includes street trees and plantings, street furnishings, bus stops, and other amenities.

The **Frontage Zone**, located next to the property line, serves as a transitional space that provides pedestrians with a comfortable buffer from building fronts. In commercial districts, window shoppers often use this zone, as do people waiting for friends or seeking cover from the rain. This zone can also be used for merchandise displays and temporary retail signage, as long as these do not intrude into the Pedestrian Zone.

The three zones described above are typical for most corridor and Neighborhood Main Streets. A frontage zone is generally not present in residential streets. Additionally, the linear nature of these zones may look different in large private developments, if buildings and streets depart from the traditional urban grid structure, or if natural features or topography impact the design layout.



FIG. 168 Ames St in Kendall Square features all three sidewalk zones. Overlay with highlighting the zones.

GUIDELINES

- a. Ensure sidewalks are continuous and well-connected.
- b. Design sidewalks with widths that relate to the anticipated level of pedestrian activity for that specific street section:
 - On corridor and Neighborhood Main Streets, sidewalks should be wider.
 - Optimal sidewalk widths should provide space for safe movement for people walking and rolling, as well as space for lingering and social interaction. People need to be able to comfortably pass each other, including people with strollers, or a person with a stroller and another using a mobility device, etc.
 - Avoid overly wide sidewalks that feel “empty,” because people are distributed over too large an area. However, if there is sufficient sidewalk space, consider incorporating amenities such as seating, Bike Share Stations, or play features.
 - On Residential Streets, narrower sidewalks may be appropriate.
- c. Provide a clear, unobstructed pedestrian zone. Where possible, align curb ramps and crosswalks with pedestrian zones.
- d. Where space permits, provide for a planting/furnishing zone.
- e. On Corridor and Neighborhood Main Streets, provide for a frontage zone where space permits.

The absolute minimum for the pedestrian zone is 4 feet, typically where the overall right-of-way is too narrow, or where planting/furnishing zone elements intrude into the pedestrian zone. The 4' width can be a maximum of 200' long before a 5'x5' space must be provided for passing.

The minimum requirement for tree pit width is 2 feet. However, the preferred width is at least 3 feet, as longer tree wells do not have the same benefits to a tree as slightly wider tree wells, which better accommodate tree roots and stem growth.

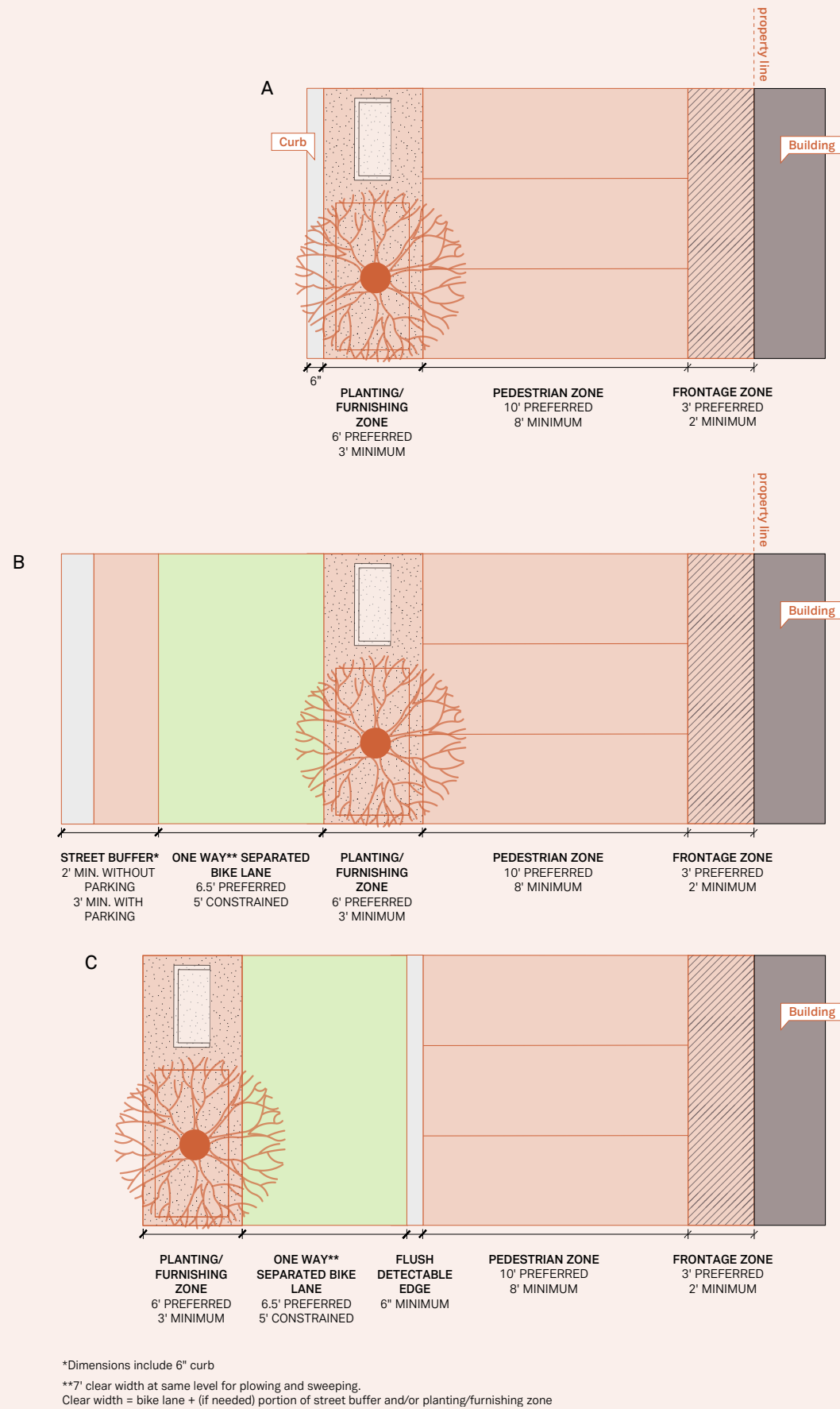
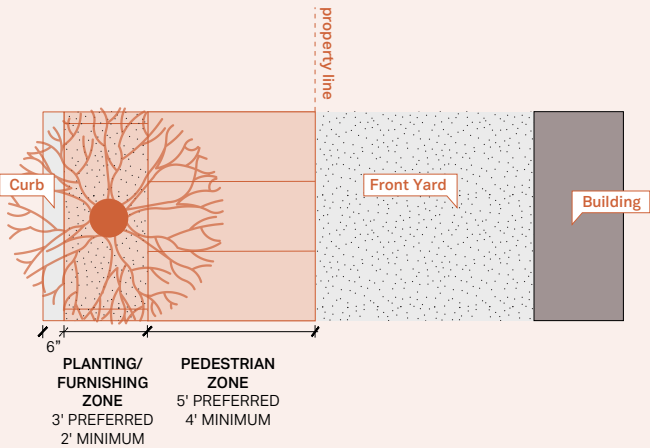
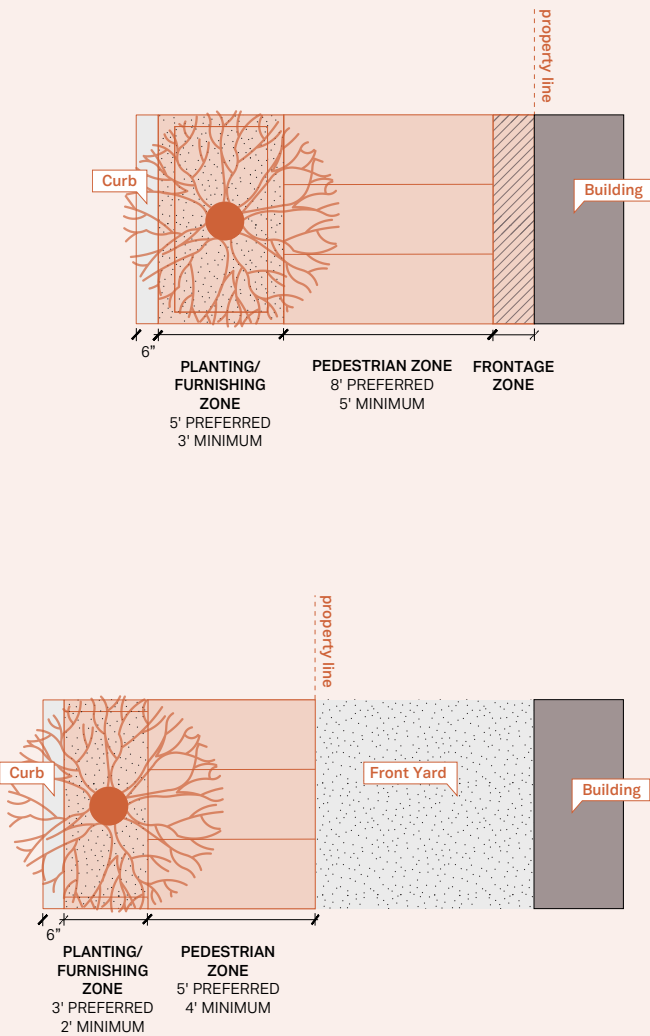


FIG. 169 Sidewalk zones by street character type. Illustrations depict minimum widths.



- The SBL shown on the previous page may also be considered for Neighborhood Main Streets.
- While each zone has unique considerations, design choices in one often affect the others. The location of Separated Bikes Lanes (SBLs) also affects the layout and design of the zones. For example, when an SBL is located outboard (FIG. 169 B) the Planting/Furniture Zone acts as a buffer that separates people walking and bicycling. In other situations, typically where a narrow street cross-section exists, the SBL is located inboard (FIG. 169 C), adjacent to the Pedestrian Zone, and the Planting / Furnishing Zone is placed between the vehicular travel lane and the SBL. Decisions about the sidewalk zones, the best locations for SBLs, and associated details will be determined by city staff on a case-by-case basis.



FIG. 170 Sidewalk in Boston features a wide planting/furnishing zone that accommodates street trees, low plantings, and seating.

- f. Consider the three sidewalk zones and their minimum and preferred widths by street character type (FIG. 169). The width of sidewalk zones will vary depending on existing sidewalk conditions and context.
- g. Where existing sidewalks are too narrow to adequately accommodate pedestrians and street trees, consider:
- Removing parallel parking spaces and expanding the sidewalk space to accommodate a large street tree and increased permeable landscape space.
 - Widening the sidewalk at certain locations (e.g. curb bump-outs into the parking lane) to accommodate street trees (FIG. 172).
 - Moving the curb, where possible.
 - Setting new buildings back from the property line.
- h. Locate site furnishings, such as seating, bicycle racks, light poles, fire hydrants, utility cabinets, and other site features within the planting/furnishing zone (FIG. 170). [See D.3 on page 151.](#)



FIG. 171 Area Four restaurant features outdoor dining located in the furnishing zone, leaving the pedestrian zone clear.



FIG. 172 Narrow residential sidewalk features a curb bump-out which allows for preservation of a large street tree, while providing adequate space for people walking and rolling.

- i. Avoid locating outdoor dining within the pedestrian zone (FIG. 171). [See the City's Outdoor Dining in Public Areas guidelines ↗](#)
- j. Where possible, locate underground utilities within the roadway, outside the curbside area, to avoid conflicts with the sidewalk and potential plantings in curb extensions and islands between parked cars. Lines perpendicular to the curb should not interfere with street trees.

Question to consider:

→ Is the sidewalk wide enough to support a range of activities including scooting, skateboarding, strollers, playing, sitting, and socializing?

E.2.3 CREATIVE DESIGN AND PROGRAMMING

INTENT **Design vibrant, creative, and playful streetscapes that have different uses and programming.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Creative design and programming support vibrant and people-centric streetscapes. These guidelines provide examples of ways that streetscapes can be designed to help create a memorable, inspiring, playful, and enjoyable public realm (FIG. 173). Alternative creative approaches are encouraged if they meet the intent of the guidelines. All ideas should consider the specific context, and balance other design factors such as engineering performance, accessibility, aesthetics, environmental standards, and maintainability.

GUIDELINES

- a. Take advantage of large expanses of sidewalks, curb extensions, pedestrian-only streets and shared streets, to create more useable public space particularly in areas where there is a lack of open space. Such spaces can accommodate play, seating, art installations, and plantings (FIG. 174).
- b. Consider the use of curb areas as parklets. Parklets can support outdoor dining, community seating, play, cultural events, public art, and other temporary activities (FIG. 175).
- c. Consider front setback areas on corridors and Neighborhood Main Streets as opportunities to create space for public use and enjoyment. Where setbacks are deep, the space between the sidewalk and building fronts can accommodate outdoor dining and display, seating opportunities, public art, play, and plantings.



FIG. 173 Chess tables in front of the Smith Center building in Harvard Square integrate play into the streetscape.

Include opportunities for collaboration with the local community throughout the design process.



FIG. 174 A wide sidewalk in Philadelphia features "porch swings".

- d. Consider the programming and use of entire streets as spaces for temporary activities, such as cultural events, play streets, and festivals. This could include the integration of movable plantings and other street furniture and/or the removal of curb cuts and paving (FIG. 176).

- e. Use pilot projects, or temporary installations, to test various streetscape design ideas and concepts in the short-term, before making substantial changes to streetscape designs (FIG. 177).



FIG. 176 Street performance in New York City.



FIG. 175 Parklet in Toronto features colorful seating.

- f. Where appropriate, seek opportunities to express local history and/or provide space for cultural expression. See [D.2.3 on page 143](#).

- g. Provide streetscape activities and elements that generate rich sensory experiences, particularly for people with visual impairments, while minimizing undesirable sounds. See [D.2.3 on page 143](#).

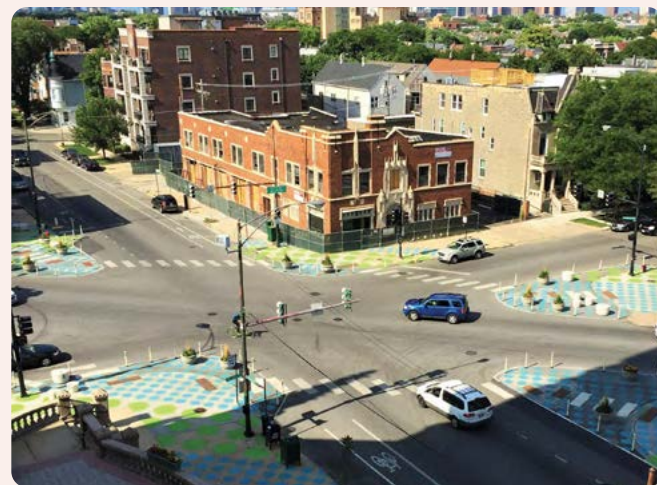


FIG. 177 Painted asphalt art testing a possible curb extension.

PLAY

- h. Enhance the pedestrian zone with painted murals, games on the pavement, color, and embedded artwork (FIG. 179).

- i. Incorporate spaces to "pause and play" along streetscapes, particularly in planting/ furnishing zones, where space permits (FIG. 178). These spaces can integrate a variety of seating opportunities and elements of learning and play through color, texture, exercise equipment, games, etc (FIG. 180). Refer to [the NACTO Designing Streets for Kids Guide for further guidance](#).

- j. Install creative informational signs, designed for children in terms of color and content, that promote play and learning, and/or guide families to play destinations.

- k. Incorporate playful street furniture that adds whimsy and serendipity to the streetscape, while retaining functionality and maintenance. For example, install benches and bicycle racks with playful designs.



FIG. 178 Temporary "pause and play" installation in Hudson Square, NYC.

- l. Create a "trail" of creative elements along a streetscape that make walking fun and playful – perhaps linking neighborhood parks with each other, or with schools (FIG. 181).

- m. Create permanent play streets in locations where streets can be transformed into pedestrian-only streets, such as residential neighborhoods. These spaces can support various forms of play and recreation, including traditional play, natural elements, imaginative play, and social seating (cross ref to the London play street and Alfred Place example) areas (FIG. 182).



FIG. 179 Sidewalk Poetry stamps poetry submitted by Cambridge residents in concrete as part of the City's sidewalk repair program.



FIG. 180 Play space along streetscape in Copenhagen, Denmark.



FIG. 181 A trail of colorful street furniture, such as benches and planters, animate this pedestrian street in London, UK.

When considering the potential role of play in streetscape design, the following should be considered:

- Does this streetscape provide access to child and family-oriented destinations, such as schools, parks, playgrounds, medical centers, commercial districts, etc.
- Are there any adjacencies to build synergies with, e.g. locations where families, children and adolescents gather, such as schools, libraries, community centers, etc.?
- Where do people of different ages go to play? Where do people meet? Where do people linger?
- Are there elements that are child-friendly in terms of size, color, texture, design?

See D.2.4 on page 147 for further guidance on the integration of art in all open spaces, including streetscapes.



FIG. 182 Play street in London, UK invites intergenerational use.

PUBLIC ART

- n. Integrate a wide range of public art into the streetscape experience. Examples include murals, puzzles, and games on blank facades and sidewalks, uniquely-designed furnishings, interactive art objects, benches, sculptures, functional elements such as utility covers, sidewalk poetry, and/or decorative bollards.
- o. In appropriate locations, such as squares and corridors, consider providing spaces equipped with electrical power and designed to accommodate street performers, particularly in building setback and frontage zones.

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E.3 Streetscape Elements

As a busy commercial area, Massachusetts Avenue in Central Square includes streetscape elements that provide comfort and amenity to people passing through or patronizing businesses.



E.3.1 GREEN STREETSCAPES

INTENT

Incorporate street trees and other plantings to provide visual interest, comfort, and human scale, while providing ecological benefits.

CORE VALUES

INVITING

ECLECTIC

CONTEXTUAL

CONNECTED

ADAPTABLE

HEALTHY

Street trees, shrubs, ground cover, and other plantings, are critical to the City’s quality of life. They enliven streetscapes with beauty, texture, color, and visual interest, contributing to the neighborhood identity. Street trees are important organizing elements of streetscapes. They provide a continuous rhythm, and a sense of scale and enclosure to the public realm (FIG. 183). Street plantings further enhance pedestrian comfort by providing shade, cooling, buffers to automobiles, and a reduction of wind and noise.

From a sustainability and resilience perspective, street trees and other plantings reduce air pollution, store carbon, reduce stormwater runoff, help mitigate urban heat island impacts, and foster biodiversity by providing habitat for birds, insects, and other animals.

Creating and maintaining a healthy and continuous tree canopy along streetscapes is a key objective of the City’s Urban Forest Master Plan, [Healthy Forest Healthy City](#).



FIG. 183 Street trees provide a sense of scale and enclosure on this residential street.

- a. Protect and preserve healthy existing street trees, where possible.
- b. Design sidewalks to support the growth of large canopy trees (FIG. 184). Refer to the [City's Urban Forest Master Plan](#) ⁷ for further details.
- c. Plant street trees and other plantings within the planting/furnishing zone and/or along the curbside edge of the sidewalk (FIG. 185). The planting/furnishing zone should be a minimum of 2 feet, preferably 3 feet wide to accommodate tree roots and stem growth.
- d. Plant new street trees, at 20- to 30-foot spacing, as continuously as possible along streets that have adequate sidewalk widths to maintain a minimum 5-foot path of travel. A 4-foot path of travel is permitted only as a pinch point and in compliance with ADA Guidelines.
- e. Where accessibility and/or visibility is not impacted, plant street trees closer together, creating layers of canopy that increase the benefits of trees and improve their vitality.
- f. Where appropriate, strategically create shaded respite areas using cluster tree plantings/groves of trees along streets.
- g. Ensure trees and plants do not impede sightlines at intersections and driveways, or existing and future streetscape elements such as bus stops and crosswalks.

- h. Refer to the [Department of Public Works list of street trees](#) ⁷ for species selection or select alternative tree species that are suitable for the conditions of the streetscape environment.
- i. Ensure the long-term health of street trees and their roots..
 - Utilize the planting standards and maintenance regimens recommended by the [Department of Public Works](#) ⁷ and the [City's Urban Forest Master Plan](#) ⁷.
 - Incorporate adequate rooting conditions and access to water for healthy trees by providing permeable paved surfaces and irrigation.
 - Incorporate permeable pavement with aeration tubes to allow oxygen to reach tree roots.
 - Implement innovative design alternatives, such as Silva Cells, that accommodate space for trees with adequate soil volume.



FIG. 184 Columbia St is lined with large, long-lived street trees, that frame the street, provide human scale, shade and cooling, and seasonal interest.

- j. For street tree plantings, consider tree wells, pits, or continuous planting beds (FIG. 186). Per the Department of Public Works Tree Planting Guidelines, avoid a raised edge around tree wells or pits. Recommended enclosure strategies include:
 - Perimeter metal plant bed edging, stone or concrete perimeter plant bed curbs (6-inch minimum height).
 - Perimeter kick-rail or metal fence, (18-inch maximum height).
 - Low plantings that can protect trees and buffer vulnerable street users. Plantings should be hearty perennials, grasses, or dwarf evergreen shrubs that can withstand salting, snow-plowing, pedestrian traffic, pets, and urban run-off.
- k. When street trees and other plantings cannot be planted due to site constraints, consider using raised planters, and other greening elements such as green walls, hanging baskets, etc.



FIG. 186 Western Ave features a continuous planting bed with a raised curb, and green infrastructure and low plantings that protect street trees and vulnerable street users.

- l. Where possible, provide green infrastructure in the planting/furnishing zone, such as rain gardens and bioswales.



FIG. 185 Central Square streetscape features curbside street trees, located in the planting/furnishing zone.

INTENT **Design and select high-quality, durable, easy to maintain, and sustainable sidewalk paving materials that are accessible for people of all ages and abilities.**

CORE VALUES INVITING ECLECTIC **CONTEXTUAL** CONNECTED ADAPTABLE HEALTHY

Cambridge’s sidewalks are constructed of a variety of materials, but concrete and wire-cut brick without beveled edges, placed on a smooth asphalt base, are the materials of choice throughout the city. Of the two, brick is often seen as warmer, more attractive, and more more appropriate in historic districts. Concrete is the material most frequently used in the city (approx. 70% of sidewalks) and provides a relatively inexpensive, durable surface that is easier to walk on and maintain. Many sidewalks throughout the City are now a patchwork of brick and concrete, with recent sidewalk projects also incorporating newer materials such as porous concrete pavers. The Department of Public Works provides standards for sidewalk materials, which are referenced in this section.

Generally, the City policy is to replace existing sidewalks with the same material at no cost to the property owner. However, during construction, property owners are contacted and may choose to change the sidewalk material. On larger projects, a more unified approach to sidewalk materials has been implemented as part of a community process. For sidewalk projects in historic districts, the Department of Public Works collaborates with the Historical Commission to ensure that sidewalk reconstruction work is appropriate and not incongruous to the district.

GUIDELINES

- a. Use durable, low maintenance, and readily available paving materials that are able to receive heavy-duty use and withstand weathering.
- b. Use high contrast materials and tactile paving that highlight hazard areas and help differentiate between different sidewalk zones and thresholds, which are crucial for people with a range of mobility needs.



FIG. 187 Mass Ave sidewalk provides a clear pedestrian zone using poured concrete and a red brick edge in the furnishing zone.

- c. Select paving materials based on the context and character of the streetscape:
 - Sidewalk paving materials should meet relevant City standards (poured concrete or wire-cut brick without beveled edges, placed on a smooth asphalt base).
 - For corridor and Neighborhood Main Streets, utilize poured concrete for the pedestrian and frontage zones with a decorative, red brick edge treatment adjacent to the curb. The brick edge treatment can be applied to the entire planting/furnishing zone, where space permits (FIG. 187).
 - The ability to vary from City standards will be considered where there is a desire to establish a unique identity for a particular street or district (e.g. historical areas like Harvard Square, and mixed-use and commercial/ cultural districts like Kendall Square and Central Square). In these locations, different paving materials may be used if the intent of the guidelines is met, and the materials are applied to at least an entire block.

d. Implement a consistent sidewalk paving material, color, surface finish, and paving or scoring pattern in new streetscape projects. Each sidewalk zone should have a continuous and consistent treatment

e. Consider using brick paving patterns, such as running bond and string courses, and concrete scoring and joint patterns, to help define individual streetscape areas, and give sidewalk’s texture and a pedestrian scale. Coordinate locations of control joints and changes of material with features such as tree wells.

f. Consider paving materials and patterns as an opportunity to integrate art, learning, and playful elements in streetscapes.

g. Where possible, preserve or replicate historic sidewalk paving where it does not affect access needs. Replace historic brick pavers with wire cut brick.

The City is required to construct sidewalks that at a minimum comply with the MAAB regulations, which state that “surfaces of public sidewalks shall be stable, firm, and slip-resistant, and shall lie generally in a continuous plane with a minimum of surface warping.” To lessen unevenness and heaving, brick sidewalks are made from wire cut brick laid with tight joints on a substrate of concrete or asphalt. While concrete sidewalks are easier for pedestrians and meet ADA specifications better, use of brick in certain locations is consistent with historical preservation concerns. Concrete and brick can also be used together: concrete for the pedestrian zone, and brick in the planting/ furnishing zone. Varying colors and textures can help define the character of an area and create visual coherence, and thereby contribute to pedestrian safety and comfort.

h. Consider highlighting special features within the streetscape (FIG. 188), where appropriate.

- Unique paving treatments may be used to delineate the different sidewalk zones and their related functions.
- Shifts in patterns can be used to indicate different uses, important pedestrian intersections or gateways, and to frame seating areas.

i. On wider streetscapes in commercial districts, match the paving in frontage zones on private property with the public sidewalk treatment. Opportunities to demarcate the property line, or to vary from the existing sidewalk paving, may be considered as long as the design complements the streetscape (FIG. 189).

j. Continue sidewalk materials across driveway aprons, curb cuts, and gateways to shared streets.

k. Consider selecting paving materials based on life cycle sustainability considerations. [See D.3.2 on page 155.](#)



FIG. 189 Sidewalk in Central Square uses concrete pavers to demarcate the frontage zone, while complementing other sidewalk paving materials.

l. Consider light-colored paving such as concrete, asphalt, pavers, and brick with a 3-year aged solar reflectance (SR) value of at least 0.28 or an initial SR of 0.33, where possible.

m. Where hydrology and underlying conditions permit, consider permeable paving materials (e.g., unit pavers, porous pavement, etc.) in the planting/furnishing zone (FIG. 190). The use of porous pavers should be accompanied with routine maintenance to prevent clogging and maintain water infiltration.



FIG. 188 High St in London's South End uses different paving to highlight seating areas in the planting/furnishing zone.



FIG. 190 Broad St in Boston features porous brick pavers around tree pits.

E.3.3 PEDESTRIAN-SCALED LIGHTING

INTENT

Design street lighting to ensure that everyone can safely and comfortably enjoy the City and enhance the pedestrian experience.

CORE VALUES

- INVITING
- ECLECTIC
- CONTEXTUAL
- CONNECTED
- ADAPTABLE
- HEALTHY

Good lighting plays an important role in making people feel safe and comfortable at night, illuminating seating areas, highlighting features, and defining the look and feel of an area. Street lighting can help make streetscapes distinctive and memorable by aiding navigation and wayfinding, defining the rhythm of other streetscape elements, and contributing to the overall experience and beauty of Cambridge.

GUIDELINES

- a. Provide pedestrian-scaled lighting to illuminate streetscapes, especially on corridor streets and in commercial districts. [See D.3.3 on page 157.](#)
- b. Locate lighting behind the curb and ideally within the planting/furnishing zone, where it exists. Fixtures should be located a minimum of 2 feet from the curb to avoid damage from vehicles that pass close to the curb (FIG. 191).

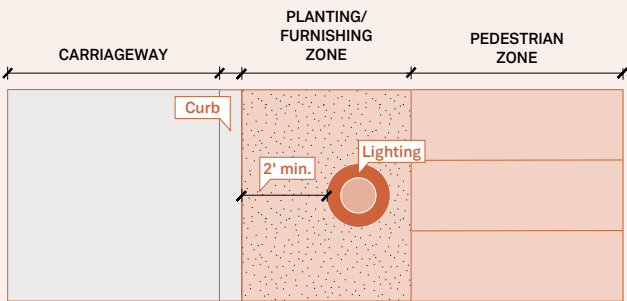


FIG. 191 A minimum of 2 feet between the fixture and curb protects the fixture from vehicles passing close to the curb



FIG. 192 Street lights provide rhythm to the design of Main Street.

- c. Locate light fixtures at regular intervals along the sidewalk. Spacing will vary according to fixture selection, but should generally provide a uniform level of light (FIG. 194).
- Use Photometric analysis to determine the appropriate spacing of light fixtures to ensure that light is spread evenly where it is needed.
 - The level and quality of streetscape lighting should consider lighting from all sources, and the function and scale of the street.
 - Avoid locations that may create conflicts at mid-block crossings and intersections.

- d. Coordinate planting with light source placement. [See D.3.3 on page 157.](#)

- e. Use dark sky-compliant, warm, shielded, and LED lighting fixtures that create a balanced lighting environment that neither under-lights, nor over-lights the sidewalk.

- f. Select light fixtures based on the context and character of the streetscape.
- Generally, use City standard light fixtures to provide a relatively simple and timeless backdrop to the public life of the City's streetscapes.
 - In some locations, such as squares, commercial districts, or new development areas, unique, and decorative light fixtures can enhance the visual quality and streetscape ambience. In these cases, such changes should be considered within the context of the adjoining streetscape, and on at least a block-length basis.

- g. Coordinate pole and fixture design with other street furniture to establish a unified, streetscape design palette.

- h. In commercial districts, consider integrating other streetscape elements such as signs, planters, artwork, and banners into the lighting system to minimize visual clutter.

- i. Where appropriate, consider opportunities for accent lighting, such as seasonal lighting, light installations/art, and other functional and decorative landscape lighting approaches.



FIG. 193 Light fixtures deployed at regular intervals provide a uniform level of light along Broad Canal Way.

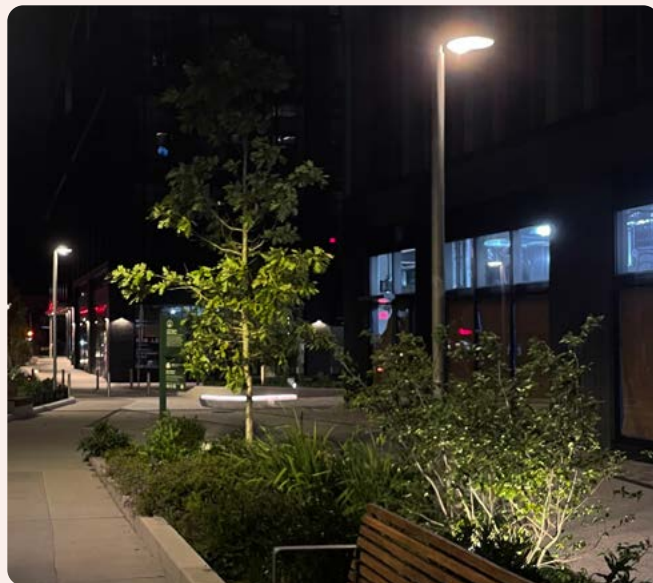


FIG. 194 Union Square development in Somerville incorporates a mix of unique light fixtures, both poles and lighting integrated with furnishings and planting areas.

E.3.4 COMFORTABLE AND WELCOMING FURNISHINGS

INTENT

Provide streetscape furnishings that are functional, durable, and easy to maintain, while enhancing pedestrian comfort.

CORE VALUES

INVITING

ECLECTIC

CONTEXTUAL

CONNECTED

ADAPTABLE

HEALTHY

As major public spaces, streetscapes should be designed to prioritize people. To do this, street furnishings such as benches, bicycle racks, trash receptacles, and other amenities—should be provided to support the pedestrian realm. In addition to inviting pedestrian use and comfort, these elements contribute to the overall enjoyment of the streetscape, invite an array of social and community activities, and help shape the identity of a place.

GUIDELINES

PLACEMENT AND LOCATION

- a. Prioritize street furnishings on busy walking streets, such as in commercial districts, or locations where there may be high levels of pedestrian activity, such as near transit stations, or near intersections.
- b. Locate street furnishings along the curbside edge of the sidewalk, within the planting/furnishing zone, at least 2 feet from the curb.
- c. Consider locations in the frontage zone as long as furnishings do not interfere with the pedestrian path of travel.
- d. Arrange street furnishings in coordination with street trees and street lighting.
- e. Keep the location of street furniture predictable to support access by people with visual impairments.
- f. Avoid locations that might interfere with pedestrian access to building entrances.



FIG. 195 Benches and bicycle racks support the pedestrian realm of Main Street.

g. Study specific site conditions to help guide the placement of furnishings. Furniture layouts and arrangements should consider visibility, sightlines, lighting and accessibility.

MATERIALS AND STYLE

h. Reflect the site-specific context when selecting furnishing styles.

- When planning streetscape improvements, first consider using City standard streetscape furniture.
- In some cases, it is possible, and even encouraged, to deviate from the standard palette as part of a holistic design process that considers an entire street, or neighborhood/ district (FIG. 196).

i. Maintain a consistent design palette along the length of a block and/or at a district level through coordinated design, type, color, and material of streetscape furnishings. Such considerations can help celebrate and enhance the identity of a neighborhood, district or street (FIG. 197).



FIG. 196 Broad Canal Way in the Broad Canal District takes a holistic design approach that incorporates unique furnishings.



FIG. 197 East Boston streetscape with a consistent and coordinated design palette.

j. Furnishings within the frontage zone (if privately-owned) may vary, but should still be designed to complement streetscape furnishings within the area.

See E.3.4 on page 215 for further guidance about materials and styles of furnishings in all open spaces, including streetscapes.

E.3.4.1 SEATING

INTENT **Provide attractive, comfortable, welcoming, convenient, and inclusive seating.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

Seating deserves particular attention because it creates comfortable, useable, and lively streetscapes where people can rest, socialize, read, or people-watch. It is a simple gesture that creates a welcoming and inviting environment, an important sense of place, and contributes greatly to the character of the city’s streetscapes. Ensuring there are places to stop, rest and enjoy the streetscape benefits everyone.

GUIDELINES

PLACEMENT AND LOCATION

- a. Prioritize street furnishings on busy walking streets, such as in commercial districts, or locations where there may be high levels of pedestrian activity, such as near transit stations, near intersections, and at community destinations, especially where families and seniors regularly frequent.
 - Prioritize locations near concentrations of high activity storefront uses and uses likely to animate seating (e.g., cafes, grab and go food establishments, cultural venues, and other points of interest), and/or concentrations of building entrances.
 - Prioritize wider sidewalks in these areas to accommodate more vibrant and diverse social interaction.

- b. Locate seating in areas that are outside the pedestrian path of travel, such as the planting/furnishing zone, a minimum of 2 feet from the curb, or in the frontage zone.

- c. Consider how seating may interact with adjacent bicycle facilities, including clearances required for parked bicycles.



FIG. 198 Park in Harvard Square provides a mix of comfortable seating options.

- d. Avoid locations that interfere with curb ramps, fire hydrants, parking meters, or emergency access ways.
- e. Install seating at frequent intervals to provide resting points along streetscapes for people of all ages and abilities (FIG. 199). Clustering or alternate locations should be considered where people would typically want to wait, meet, or socialize.
- f. Consider various seating arrangements, depending on available sidewalk widths and site-specific conditions.
 - On wider sidewalks, place benches perpendicular to the curb, and facing each other to encourage social interaction (FIG. 200).
 - Where seating is oriented parallel to the curb, it should face toward buildings when located in the planting/furnishing zone, or away from buildings when located in the frontage zone.
 - Consider alternative seating configurations in certain circumstances, such as bus stops, where seats should face the street, or where there are desirable views or adjacent uses/activities that suggest a different layout.



FIG. 199 Seating on North Mass Ave provides a resting point along the street, while staying clear of the pedestrian zone.



FIG. 200 Benches arranged facing each other to encourage spontaneous conversation.

- g. Where additional sidewalk space is available, such as on curb extensions, provide a diversity of seating options, including flexible arrangements that create social spaces and promote engagement within the city's streetscapes. [See the City's Public Patio Program for further details ↗](#).
- h. Consider providing public seating on private property adjacent to the sidewalk.
- i. For details about the placement and layout of outdoor dining areas, [see the City's Outdoor Dining in Public Areas guidelines ↗](#).
- j. Generally, prioritize seating with backs and armrests in the form of free-standing, fixed benches. Benches with backs may be supplemented with backless options. In commercial districts, and on wider streetscapes, provide a mix of seating types to encourage diverse streetscape activities and social interaction.

[See E.3.4.1 on page 217](#) for further guidance about locations of seating in all open spaces, including streetscapes.

INTENT **Provide bicycle parking and bicycle share stations in convenient locations for daily use.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- a. Ensure bicycle rack styles and locations meet City Standards and regulations. For further information, [see the City's Bicycle Plan](#).

b. Ensure that there is adequate bicycle parking along corridors, particularly in commercial areas.

c. Install bicycle racks within the planting/furnishing zone, following City standards for dimensions and layout.

d. Ensure that parked bicycles do not block the path of travel for people walking (FIG. 201), interfere with seating areas, or obstruct pedestrian access to buildings.

e. Coordinate bicycle racks with other furnishings.
- f. Encourage private property owners to provide public bicycle parking for use by the public on their land adjacent to the sidewalk. Such parking should be installed so that parked bicycles do not project into the Pedestrian Zone.

g. In appropriate locations, consider opportunities to use creative and artistic bicycle racks to help animate the street and highlight local identity. Such racks must meet the City's performance criteria for bicycle racks.
- h. Carefully consider the rhythm/spacing of street trees and continuity of streetscape vegetation when installing shared bike stations (FIG. 201).

 - See the Community Development Department's Transportation Division website for further details about the [Bike Share program](#).



FIG. 201 This Bike Share Station on Binney Street fits well into the streetscape and provides good access to this destination.

Bike share provides important access for people of all ages and abilities to destinations, and is important for enabling people to use public transportation in an economically accessible way. The City's goal is that there is bike share within a 5-minute walk of every destination. Stations may be placed in the furniture zone, on curb extensions, or at the back of sidewalk in the frontage zone. Technical specifications for placement and layout are managed by the CDD Transportation Division.

INTENT **Provide other streetscape furnishings in suitable locations to enhance pedestrian comfort, safety, and enjoyment.**

CORE VALUES INVITING ECLECTIC CONTEXTUAL CONNECTED ADAPTABLE HEALTHY

GUIDELINES

- BUS SHELTERS**

a. Provide bus shelters at busy transit stops and near community service destinations like senior housing facilities, hospitals, and city facilities. Coordinate with city staff on bus shelter needs, future plans, and preferred locations.

b. Prioritize safety, visibility, and accessibility when siting bus shelters.

c. Where possible, co-locate other street furniture elements, such as bicycle racks, bicycle sharing, drinking fountains, and trash cans, at stops.

d. Ensure that shelter styles and designs complement the character of the area (FIG. 202).

 - Generally, select bus shelters with high levels of transparency, and unobtrusive base plate/footing details.

e. Consider using similar materials and finishes for all City bus shelters to enhance community identity.
- f. In appropriate locations, consider opportunities for creative and unique shelter designs.

See the [Community Development Department's Transportation Division website](#) for further location, siting and design details.

For further stop location, boarding, and alignment considerations, see the [MBTA Bus Stop Design Guide](#).



FIG. 202 Visually unobtrusive bus shelter on Ames St in Kendall Square. This stop is a floating bus stop, which has become standard for reconstruction projects.

SHADE STRUCTURES

- g. Complement street trees with shade structures to provide year-round thermal relief/cooling along streetscapes (e.g. shade or shelter from sun, rain or snow) (FIG. 203).
- h. Locate shade structures in the planting/furnishing zone, or in the building setback zone or frontage zone. Provide structural shading with particular attention to pedestrian and bicycle circulation.



FIG. 203 Shade structure along a street in Melbourne, Australia.

DRINKING WATER FOUNTAINS

- i. Provide well-maintained drinking water fountains in convenient and accessible locations, particularly close to squares, parks, and transit stops.
- j. Consider drinking fountains, water bottle fillers, and dog bowls.

TRASH RECEPTACLES

- k. Locate trash receptacles in the planting/furnishing zone at a minimum of 2 feet from the curb, on private property, or in the frontage zone near a building entrance. Avoid locations that interfere with the path of travel for people walking, especially on narrow sidewalks.
- l. Locate public trash cans near food service establishments, bus stops, and seating areas.

→ See D.3.4.4 on page 164 for further guidance about the placement and design of trash receptacles.

→ See D.3.4.4 on page 164 for further guidance about the design of shade

E.3.5 SIGNAGE AND WAYFINDING

INTENT

Design non-regulatory streetscape signage that is pedestrian-scaled, site-responsive, and accessible.

CORE VALUES

- INVITING
- ECLECTIC
- CONTEXTUAL
- CONNECTED
- ADAPTABLE
- HEALTHY

GUIDELINES

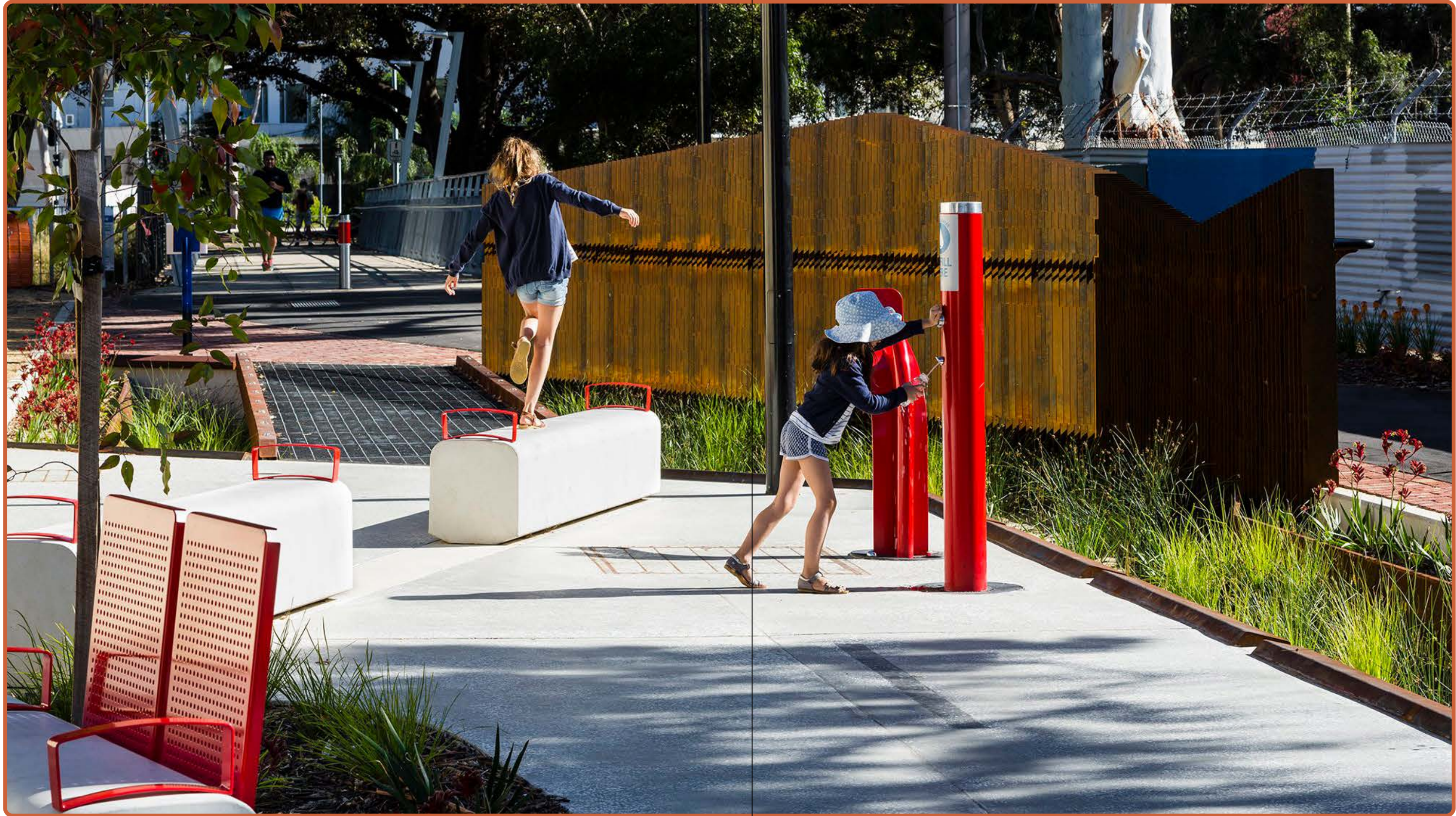
- a. Understand user needs when considering the need for signage within streetscapes.
- b. Locate signage within the planting/furnishing zone.
- c. Avoid locations that interfere with movement for people walking and bicycling.
- d. Leave adequate space between signage and other streetscape elements in the planting/furnishing zone, such as street trees, seating, trash receptacles, bicycle racks, bus shelters, traffic signs, traffic signal poles, street lighting, etc
- e. Locate signage in locations that provide visibility from multiple vantage points.
 - Place to avoid large structures (e.g. bus shelters, utility boxes).
 - Locate near street lights to maximize visibility at night.
- f. Maintain 6 feet minimum clearance from intersections, crossings, and driveways.

See D.3.4.6 on page 167 for further guidance on accessibility, the location of directional signage, and interpretive signage.

- g. Consider integrating wayfinding signage into the design of streetscape elements, such as light or traffic poles, to avoid clutter (FIG. 204).
- h. Eliminate existing redundant, and out-of-date signage, as much as possible.
- i. Provide universally-accessible signage within streetscapes.
- j. Avoid campus-style signage if not an academic institution.
- k. Where appropriate, locate directional signage at key decision points along journeys.
- l. Where appropriate, incorporate interpretive signage.



FIG. 204 Signage installed on a light pole.



Once an underutilized portion of Holland Street in Thebarton, Australia, this segment was transformed into a safe and active streetscape, with an emphasis on pedestrian movement and play. Unique design elements such as custom seating, wayfinding elements, public art, and the use of vibrant colors result in a vibrant and multifunctional public space.

Appendix

1. Glossary

Abutting/Adjoining Two or more lots physically sharing a common boundary line or two buildings/structures in contact with each other, but not overlapping.

Adjacent Near, close, or contiguous.

Active Use Building program that animates streets and open spaces by encouraging actual or visual engagement between building tenants and the public. Active uses include residential entrances, restaurants, cafes, retail, services for the public (e.g. fitness centers, cafeterias, daycares, etc.), community spaces, art exhibition spaces/display windows, creative workspaces, cultural venues, and city services.

Alleys Narrow streets that add to the diversity of the overall open space network, supporting the walkability and human scaled character of a city. Often retrofitted from old service lanes, alleys can provide opportunities to prioritize pedestrians, and add vibrant spaces to a neighborhood (Global Street Design Guide).

Articulation The way portions of a building form are expressed (materials, color, texture, pattern, modulation, etc.) and come together to define the structure.

Appropriate Fitting or suitable to a particular situation, location, or setting.

Awning A projecting element made of canvas or other material stretched on a frame and used to keep the sun or rain off a storefront, window, doorway, or deck. It is a type of sunshade.

Blank Facade or Wall Any portion of a building face that does not have windows or doors that allow interaction with the public realm.

Block A group of adjacent buildings, bounded by public streets or other open spaces.

Blue roof Roof that can retain water during peak rain events. They are designed to hold up to eight inches of precipitation on its surface or in engineered trays. It is comparable to a green roof without soil or vegetation.

Build-to line A line, typically parallel to the lot line, where the facade of a building is required to be located.

Building Envelope The exterior elements of a building which form a barrier between the internal and exterior spaces. For an air conditioned building, the building envelope is defined as the elements of a building that separate conditioned spaces from the exterior.

Canopy A roofed shelter projecting over a sidewalk, driveway, entry, window, or similar area that may be supported by a building or by columns, poles, or braces extending from the ground.

Canopy (Tree) The diameter of the tree crown at maturity.

Character Prevailing existing architectural elements, including building mass, scale, and era they were built.

Colonnade Covered publicly accessible pedestrian passageways that are integrated into volumes of buildings at specified levels.

Comfort Physical ease—temperature, wind pressure, glare, safety, air quality—of the human body in an outdoor place.

Compatible Able to exist or occur together without conflict.

Complement Be adjacent and agreeable in scale, proportion, composition, and type but not identical in style or manner.

Context The interrelated conditions in which something exists or occurs. The physical and cultural environment around a specific site or how a proposed building may be described within its surroundings.

Cool Roof A cool roof is designed to reflect more sunlight than a conventional roof, absorbing less solar energy and thereby reducing heat transfer to the building (U.S. DOE).

Cornice A molded and projecting horizontal feature that crowns a façade.

Corridor A mixed-use main artery of citywide importance. In Cambridge, corridors include the following streets: Massachusetts Ave, Cambridge St, and Main St.

Dark Sky Compliant Lighting fixtures and practices that minimizes light pollution by directing light downward and away from the night sky.

Facade The face of a building towards a street or other open space. The primary or “front” face of a building, it is particularly important as it

frames the public realm and contributes to its character.

Fenestration The arrangement of windows and doors on the facade of a building.

Flood Barriers Structures that prevent or reduce flooding by controlling or redirecting water flow.

Frontage (Building) The building façade facing a street or public open space.

Frontage (Street) The property line or part of the site facing a street or public open space.

Frontage Zone (Sidewalk) The portion of the sidewalk adjacent to the property line that serves as a transitional space that allows pedestrians a comfortable distance from building fronts.

Functional Element (Building) Feature that is essential to the function of buildings, often overlooked during early design phases. Functional elements include through-wall vents for commercial and residential buildings, roof overflow scuppers, fire control panels and rooms, fire department connections, security devices, emergency egress doors, gas and electrical meters, transformer access doors and louvers, mail boxes, annunciator panels.

Glazing All areas in the building envelope that let in light, including windows, plastic panels, clerestories, skylights, doors that are more than one half glass, and glass block walls.

Green Infrastructure In 2019, Congress enacted the Water Infrastructure Improvement Act, which defines green infrastructure as “the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, storm-water harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface waters.

Green Roof A roof that is partially or completely covered with vegetation and a growing medium, planted over a waterproof membrane. It may also include components such as a root barrier, drainage, and irrigation systems.

Green Wall A vertical system designed to support the growth of living plants, often incorporating a growth medium and a built-in irrigation system.

Grade The mean finished ground elevation of a lot measured either around the entire perimeter of the building or along any existing wall facing a public street, which ground elevation is maintained naturally without any structural support.

High-Rise Building A building with more than eight stories.

Historically/Architecturally Significant Buildings

Buildings listed on the National Register of Historic Places, located in designated historic or neighborhood conservation districts, individually designated as landmarks, protected by preservation easements, more than fifty years old and determined by the Cambridge Historical Commission to be significant under local ordinances.

Human Scale The presence of building elements that relates to human size and encourage human presence and interaction.

Landmark Readily identifiable object which serves as an external reference point.

Landscape Open space designed to enhance the functional, social, and ecological qualities of a site. Landscape includes soft landscape (organic elements such as soil, groundcover, shrubs, trees), hard landscape (pathways, decking), and features (furnishings, lighting, recreation and play equipment).

Large Citywide Parks Large-scale open spaces of citywide or regional importance with OSNA walkshed of 0.5 miles

Large site A development site that has a total area of 75,000 square feet or more.

Large tree A tree which is 51 feet or more at height or canopy spread at maturity.

Legibility The ease with which parts of the built environment can be recognized and can be perceived as elements of a coherent pattern.

Low Impact Development (LID) A land planning and engineering design approach which aims to reduce stormwater runoff and mimic a site’s pre-development hydrology by minimizing disturbed areas and impervious cover, infiltrating, storing, evapotranspiring, retaining, and/or biotreating stormwater runoff close to its source, or on site.

Lot A parcel of land in identical ownership throughout, bounded by other lots or by streets, which is designated by its owner to be used, developed or built upon as a unit.

Low-Rise Building A building with one to three stories.

Massing The three-dimensional form of a building’s volume including its height and major articulations.

Maturity (Trees) When a tree reaches 12.1 inches diameter at four and a half feet above grade.

Mechanical Equipment Includes, but is not limited to, ventilation equipment including exhaust fans and ducts, air conditioning equipment, elevator bulkheads, heat exchangers, and transformers.

Microclimate The local climate of a relatively small area. Microclimatic conditions depend on such factors as temperature, humidity, wind

and turbulence, dew, frost, heat balance, and evaporation. Microclimates are influenced by site features such as soil types and compositions, reflection characteristics and color of surfaces, the presence of vegetation, and topography, among others.

Micromobility A range of small and light-weight devices that typically operate at speeds below 25 km/h (15mph). These may include bicycles (personal or shared), e-bikes, electric scooters, and electric skateboards.

Mid-Rise Building A building between four and nine stories.

Mixed-Use Projects that include more than one major class of uses— such as residential, commercial, industrial, or public and semi-public uses— within the same building, development, or area.

Neighborhood Main Street A mixed-use street of neighborhood-wide importance.

Open Space Amenities Blue Bike stations, bike racks, textile recycling bins, trash & recycling bins, sharps bins, recharging stations, bottle filling stations, comfort stations, and dog waste stations.

Passive Design Energy-efficient building design that regulates comfortable interior temperature by optimizing façade materials, high-performance windows, and building orientation to substantially reduce the need for auxiliary heating and cooling systems.

Path of Travel A continuous, unobstructed way of pedestrian passage.

Pedestrian Zone (Building) The ground floor, and on occasion the second floor of a building fronting a street or open space. The Pedestrian Zone should offer pedestrian amenities, comfort, shelter, and visual enrichment, and accommodate retail, community and other active uses.

Pedestrian Zone (Sidewalk) The middle portion of the sidewalk that primarily accommodates pedestrian circulation. The Pedestrian Zone should be entirely free of obstructions.

Planting/Furnishing Zone (Sidewalk) The portion of the sidewalk immediately adjacent to the street curb or sidewalk-level bicycle facility when one exists. The Planting/Furnishing zone buffers pedestrians from street traffic, and generally accommodates street trees and plantings, street furnishings, and other amenities.

Penthouse An enclosed, unoccupied rooftop structure that houses mechanical, electrical, plumbing equipment, elevator machinery, roof access, and building systems.

Percent Transparency The ratio of transparent window and door glazing to the total facade area. Also called the “Window-to-Wall Ratio”.

Primary Building Entrance A single entrance to a building that provides access to the use with the maximum area in the building program. A

building can have several uses and more than one separate entrance for each of those uses, but a building can have only one primary entrance; all others are secondary building entrances.

Primary Street A main thoroughfare, including through routes and mixed-use, multi-functional streets (at least in part along their length).

Private Open Space Open areas for outdoor living and recreation that are adjacent and directly accessible to a single dwelling unit or to all dwelling units they are designed to serve, reserved for the exclusive use of residents and their guests.

Privately-Owned Public Space (POPS) Open space that is owned, provided, and managed by a private entity through an agreement between the public and private sector that was developed during the City’s project review process.

Program An architectural program is a statement of a client’s requirements. A program typically includes a list of uses, adjacencies, and circulation issues of the project.

Proportion The relationships of the various objects and spaces that make up a structure to one another and to the whole. These relationships are often governed by multiples of a standard unit of length known as a “module”.

Public Art Any work of art, temporary or permanent, created for and accessible to the general public. Public art embraces a wide range of forms, sizes, and scales, and includes, but is not limited to, murals, sculptures, memorials, monuments, integrated architectural or landscape features, functional elements (such as street furniture, lighting, etc.), community art, digital media, performances and festivals.

Public Life People create public life when they connect with each other in public space—streets, plazas, parks, and city space between buildings. Public life is about the everyday activities that people take part in when they spend time outside of their homes, workplaces, and cars.

Public Open Space Publicly-owned space and publicly-accessible, privately-owned space for active and passive recreation, human experiences of urban nature, as well as for conservation.

Public Realm The public realm consists of all spaces that are physically and/or visually accessible to the public, regardless of ownership. These spaces can include, but are not limited to, privately and publicly-owned open spaces, parks, plazas, squares, streets, sidewalks, paths, building ground floors, and facades.

Public Way Any passageway or part thereof open as of right to the public and designed for travel.

Publicly Accessible Areas that must be fully open to public access and meet all applicable universal accessibility requirements.

Purple Roof A purple roof is a green roof concept that optimizes stormwater retention and is pioneering detention in vegetated and non-vegetated roof coverings.

Reflect To give back or exhibit as an image, likeness, or outline. This document uses “reflect” to describe how new elements may seem of the same family or extend a series of similar older elements. It is not intended to imply a mirror-like copy.

Regionally-Sourced Materials Building materials that have been extracted, harvested or recovered, as well as manufactured within a 500 mile radius of the project site.

Relate Indicate connections with something else. Express aspects of the geometry, form, circulation, detailing, materiality, or use of an existing element.

Resilience The ability to endure or recover quickly from adversity.

Rhythm A regular and repeating pattern of building elements.

Right-of-Way Transportation corridors that comprise the majority of the public realm and are typically owned by a government entity. They facilitate movement and connections, and include streets, sidewalks, and paths.

Scale A proportionate size in relation to a point of reference.

Secondary Street The local roadways that connect to primary streets and neighborhoods.

Setback Line A line delineating the minimum distance which a building, portion of a building, or other structure must be set back from the property line, street, or a designated natural feature.

Setback Zone The area between the lot line and the setback line.

Side Street Smaller local neighborhood streets, typically connecting to secondary streets.

Sign Any writing, words, pictures or symbols, that is on or attached to a building or other structure.

Sign (Directional / Wayfinding / Interpretive) A sign which provides directional/wayfinding information as well as access and circulation routes for emergency entry and exit and provides interpretive materials/information that enhances people’s understanding and enjoyment of the places.

Solar Reflectance Index (SRI) The measure of a constructed surface’s ability to stay cool in the sun by reflecting solar radiation and emitting thermal radiation, as defined by ASTM International. It is expressed as a unit-less value ranging from 0 to 100, with 0 representing the lowest possible solar reflectance and

100 representing the highest possible solar reflectance.

Stepback A setback occurring at an upper level of a building that results in the façade above being located further back from the plane of the façade below.

Streetwall Zone The portion of a building facade fronting a street or open space that extends from the Pedestrian Zone to a height typically equal to the width of the adjacent right of way.

Structural Soil A pavement substrate that can meet the load bearing requirements for structurally sound pavement surfaces, yet still allow roots to grow under and away from pavements. The mixture consists of a stone matrix for strength and soil to meet horticultural needs.

Sunshade A building element used to provide shade and protection from the sun.

Sustainable Design Improvements to project performance to reduce environmental impacts, conserve resources, and create a healthy environment for occupants.

Top Zone (Building) The uppermost portion of a building. Depending on building height, this may include cornices, roofs, mechanical penthouses or enclosures, and potentially one or more residential floors and/or common spaces.

Tower Zone The portion of a tall building that extends from the Streetwall Zone to the Top Zone. Not all buildings will have a tower zone.

Traditional Storefront Design Typical storefront’s in Cambridge’s squares with large display windows, transom windows, signage bands, and recessed entrances.

Universal Design The practice of planning spaces and buildings so they can be used by the widest range of people possible, regardless of age, size, or ability. The goal is to create a built environment that is usable by all people without the need for specialized adaptation.

Urban Fabric The physical aspect of urban design, including buildings, open spaces, and streetscapes but excluding environmental, functional, economic, and sociocultural aspects.

Urban Heat Island (UHI) The increased temperature in urban settings caused by the replacement of natural land cover with surfaces that absorb and retain heat.

Volume A three-dimensional portion of a building or building element.

Visible Light Transmittance (VLT) The measurable amount of solar visible light (daylight) that passes through a glazing system. A glazing system with a high VLT allows most of the daylight to pass through while a lower VLT window restricts the majority of light from entering a building.

Visible Light Reflectance (VLR) The measurable amount of visible light that is reflected out by a glazing system. A glazing system with a high VLR means that most of the daylight is not passing through the window.

Wayfinding The ability to orient oneself in a physical space and navigate from one place to another by looking at visual cues.

Wet Floodproofing A flood protection measure that mitigates damage from flooding by allowing floodwaters to enter the structure or area.

White Roof White roof is a type of cool roof that reduces the building’s contribution to the UHI by reducing ambient air temperature and can reduce energy load on the building by decreasing air-conditioning needs.

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