



KENDALL SQUARE

PUBLIC SPACE CENTER PLAN

Bringing the spirit of experimentation,
innovation and optimism into the public realm.



Santos Prescott and Associates

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Connect Kendall Square : An Open Space Competition
City of Cambridge, Community Development Department
344 Broadway, Cambridge MA 02139

Dear Connect Kendall Square Competition Jury,

We are pleased to submit to you the required deliverables for the Connect Kendall Square Design Competition. Please find:

1. Exhibit boards: six presentation boards for permanent exhibition, 30" x 40" vertical format. These board include a master diagram of the project area at the scale of 1:100.
2. Exhibit boards: an abbreviated exhibit of two boards, 30" x 40" vertical format
These board include a master diagram of the project area at the scale of 1:200.
3. Framework Report: 10 copies, bound, in 8.5" x 11" format.
4. Electronic Copies: of the Boards and the Framework Report in PDF format.
5. Press Kit Materials: including the Framework Concept Summary, and high resolution pdf's of the master diagram and two illustrations.

It has been a pleasure to work with all of you to envision the future of Kendall Square. We look forward to the presentations on February 18.

Sincerely,

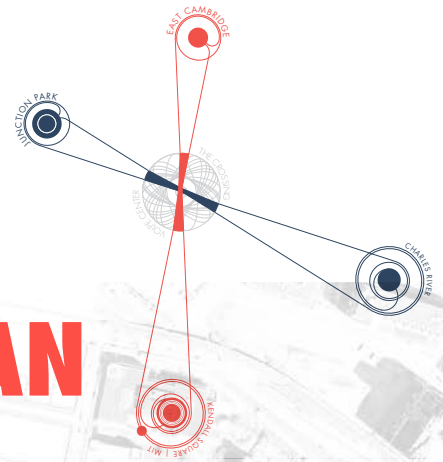


Lesley Bain and the Framework Team

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KENDALL SQUARE PUBLIC SPACE CENTER PLAN



● EAST CAMBRIDGE

JUNCTION PARK

ROGERS PARK

VOLPE BACKYARD

FRONT PARKS

CROSSING

CANAL TRACE

RIVERFRONT

POINT PARK

CANAL UNDERPARK

T STATION

● MIT

FRAMEWORK CONCEPT SUMMARY

The Kendall Square Public Space Center Plan

Kendall Square is where the future is invented.

Kendall Square is a locus of human ingenuity. The very ground of Kendall Square was man-made from the Charles River marshes. Neighborhoods were cleared and its urban structure formed to make way for NASA's Electronic Research Center and a vision of reaching the moon. Today, Kendall Square researchers aim to reinvent nature for human and planetary health.

Inventing the future is an optimistic endeavor.

The conviction that ingenuity, ambition and industriousness will make a better place, a better world, requires faith in the human mind and spirit. It is in this spirit that we envision the future of Kendall Square.

Our ambition is to reinvent Kendall Square as a living laboratory for a positive urban future. In this future, people are more intimately connected to the places they live and the people around them. Ideas are formed and created; social bonds are forged; creative life is enhanced. In the public space race, the United States lags its world neighbors, hampered by internalized buildings, activity isolated from public life, and the overwhelming presence of traffic dominating our shared spaces. Yet, in this urbanized century, humane and engaging cities can be our future—created with a new paradigm and new urban design tools.

There is no better place than Kendall Square to create this new paradigm. Our framework envisions Kendall Square as the Public Space Center, where the spirit of experimentation, innovation and optimism are brought into the public life. Kendall Square can become a global model, addressing the social and environmental challenges of our era, to create a joyful, healthy, and forward-looking urban neighborhood

A vision for the future

In the future we envision, Kendall Square's public realm is flourishing with people, ideas, and beauty. The extraordinary caliber of thinking that occurs inside new high tech offices and institutions is made transparent and

public in ways that engage the exchange of ideas in inherently interesting social settings.

The framework of Kendall Square is cohesive and easily understood: Volpe Walk connects the T Station area through the Kendall neighborhood to East Cambridge. Canal Trace leads from Grand Junction and The Waterworks in the park through the Kendall neighborhood to the river. Parks on all four edges invite the adjacent neighborhoods to participate in the life of Kendall Square.

The neighborhood is designed for walking; a network of pedestrian-oriented streets and paths offers a variety of pleasant routes—leafy walkways, retail streets, covered routes for inclement weather, and pathways along the trace of the historic canal. New parks connect Kendall Square to its neighbors—the MIT campus, East Cambridge, and the Charles River. Kendall Square does what cities do best—bring together people and ideas. Children are integrated into the life of the neighborhood and the spirit of exploration. Activities bring together people of all ages and backgrounds.

This new Kendall Square came about through bold moves, strong leadership and years of thoughtful, incremental change. It also came about through a framework—the Public Space Center Plan—that set forth not only physical improvements, but a new paradigm for understanding and implementing successes in the public realm.

Early actions engaged the neighborhood. Outreach and research helped shape the activities that brought people out into the public realm, and encouraged them to stay. New policies and tools guided the development of a new Kendall Square. As the successes of these policies and tools became evident, they have been adapted by forward-thinking cities worldwide. Kendall Square has become the embodiment of its motto and a new paradigm for future of urban life.

Kendall Square—the future lives here

2

FRAMEWORK DESCRIPTION

As Kendall Square has been on the cutting edge of creating the future, we propose making Kendall Square the Public Space Center—bringing the spirit of experimentation, innovation and optimism into the public realm.

What does Kendall Square, as the model of a positive urban future, look and feel like?

- A** It is designed for the human scale, human pace, and human spirit.
- B** It is connected to the systems of nature—water, earth, the weather, trees and plants.
- C** It is diverse—physically and socially.
- D** It thrives on ideas, discourse and creativity.

Kendall Square has always been a place for dreaming big, for exploration, research, innovation and taking risks--from the early industries built on marsh land, to the grand vision of a NASA, and to its abundant of research facilities and innovative businesses located here today. In developing a new framework for Kendall Square, we questioned: how can this heritage of innovation and ideas be continued and leveraged to address opportunities for Kendall Square today?

We need a shift in perspective towards a grand moment of optimism for Kendall Square. People should think of it as a destination in itself, a place to discover, the perfect place to build, to start new ways to participate in public space.

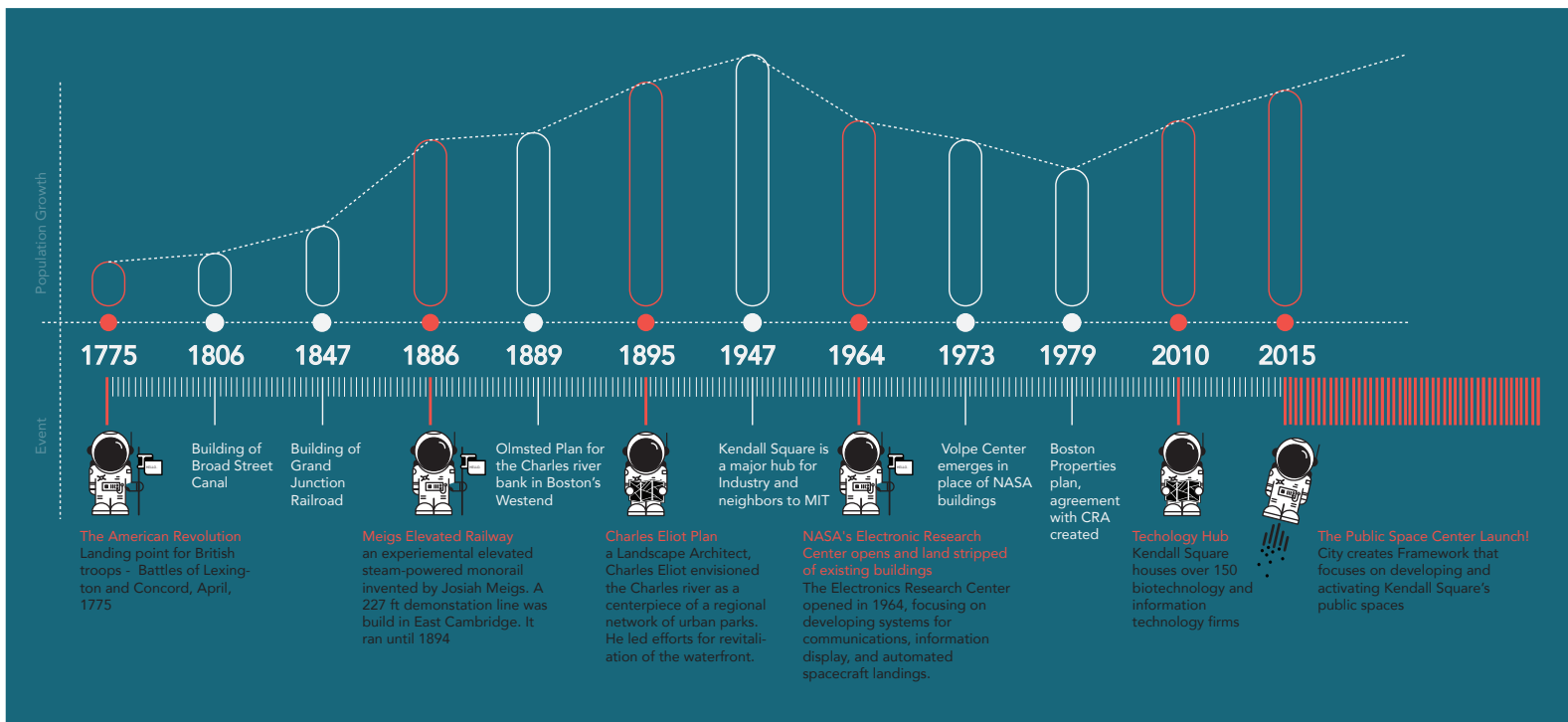
Development of a public space framework allows us to ask: "what is this place?" and "how can we be curious and explore again?" while developing new public space fabric for Kendall Square.

As Kendall Square has been on the cutting edge of creating the future, we propose making Kendall Square the Public Space Center--bringing the spirit of experimentation, innovation and optimism into the public realm. Kendall Square, as Public Space Center, can be a global model that joyfully addresses the social and environmental challenges of our era in a forward-looking, healthy and humane neighborhood.

The framework for creating the Public Space Center consists of three layers: The Physical Realm, which incorporates the tangible elements and design of landscapes, buildings and systems; The Participatory Realm, which includes the ideas made visible and the activities that take place in the stage set by the physical realm; and Beautiful Policy, which lays the groundwork for fueling change towards a better public future.

The Public Space Center Plan will provide a pathway for Kendall Square to be:

- A one-of-a-kind experiment in collaborative urban development
- A place for mutual discovery and sharing wonder
- A beautiful cityscape by the river, full of evolving open spaces for everyone to use
- An actual neighborhood, a meaningful place, created by its users, for its users
- An open lab for urban life in the 21st century
- A wonderful place to be--as a resident, researcher, visitor, student or employee



What are the strategies for the Public Space Center Plan?

The Public Space Center Plan removes the barriers to a cohesive public realm.

Key barriers must be removed to make a comprehensible place, and to connect to the river. These barriers are the ground level of the hotel at the Kendall/MIT T Station and pedestrian crossings of arterials with fast moving traffic. It is essential to find pleasant and safe ways to reach the river.

To remove these barriers, the plan prioritizes a significant public route through the hotel that is unmistakably public, and intuitively attracts visitors to Kendall Square. Our proposal to reach the river is via the Under Pass at the end of the walkway along the Canal. Slower speeds and more frequent crossings of the arterials is recommended.

The Public Space Center Plan creates a hierarchy of connections for wayfinding.

The plan superimposes two major new connections that cross at the Volpe site. These routes—Volpe Walk and Canal Trace—are the equivalent of the Cardo and Decumanus that organized every Roman town. Volpe Walk is the north-south connection from the hub of activity at MIT/Kendall to the East Cambridge neighborhood. It is a “participation” route focused on cultural activity. Perpendicular to Volpe Walk is Canal Trace, which follows the historic route of the industrial canal. Canal Trace moves stormwater and cleansed gray/black water through beautiful runnels and raingardens to Broad Canal.

In the web of streets, low volume low speed streets are reconceived as pedestrian places, with cars invited to be there as guests. The various streets have different characters and functions—tailored perhaps for dog-walkers, cyclists, or joggers. Some may have space devoted to landscape or be able to be closed for play.

Parks are adjacent to active uses instead of roads wherever possible.

The four new parks share a common characteristic—they are surrounded by roads. We propose taming adjacent roads, and where possible, having active uses along the parks instead. To that end, we propose removing traffic from First Street along Front Park Triangle. We recommend a land swap at Rogers Park that allows maker space adjacent to the Foundry, and residential uses at the east end of the park. We recommend active uses along the Grand Junction right-of-way and taming Little Binney as a shared use street.

The new parks are connections to surrounding neighborhoods.

Instead of thinking of the four new parks as places at the edge of Kendall Square, they are considered as connections to the adjacent communities. Point Park is a meeting place for MIT and Kendall; Front Park Triangle



is a connector to the riverfront. Rogers Park is well located to bring residents of East Cambridge together with Kendall Square. Junction Park, if better connected across Galileo Way, can bring together residents of Area 4 and Wellington-Harrington with Kendall.

Activation will come from proactive and natural stewardship.

The Space Center—the “brains” of the research and experimentation in activation—is a unique approach to proactive stewardship. It draws on the incredible resources of MIT and other nearby institutions, and combines academic expertise with the grass roots community members of Kendall Square and East Cambridge. The efforts to invent new strategies and activities would be supported by institutions and the City, with staff to support events and activities.

A healthy community will not only rely on proactive stewards, however. If spaces are loved, and activities supported by community members, there will be strong stewardship and many participants in the life of the neighborhood. The public realm will be successful when people are collaborators in shaping and using their environment.



What are the connections and elements of the Public Space Center Plan?

Imagine a tour of the new Kendall Square:

Thousands of people arriving from the Kendall/MIT T station are welcomed to Kendall Square at the plaza, and move intuitively through the new entry to the neighborhood. Visitors use interactive maps, people on their way to work can see the day's events. The ways into and through the neighborhood are intuitive and pleasurable.

MIT has redone the south side of Kendall/MIT with a gateway to the campus. It is a bustling place, with new housing, offices, a museum, and framed views toward the Charles River. The T station area is a lively mix of cafes, bookstores, offices, shops and restaurants. Point Park's colorful canopies are visible down Main Street.

On the north is a bold gateway to Kendall Square through the hotel, so that the neighborhood is no longer hidden. The glassy canopy overhead glows with a warm reddish light that signifies Volpe Walk as the connection to the T Station and MIT.

Moving under the canopy, new buildings that line Broadway are visible behind the canopy of trees that line the street. The raised intersection makes crossing Broadway feel safe and comfortable. On the north side of Broadway, a glowing canopy marks the continuation of Volpe Walk into the green heart of the neighborhood.

Green space opens up on the north side of the Broadway office buildings, with Canal Trace running along the edge. This is the "Backyard" for the Volpe Cluster—the newest area of Kendall Square. Residential and office buildings surround and look out over the Big Backyard. Away from traffic and surrounded by activity, this is a designated Childsafe Zone, where young people can be independent explorers of their own neighborhood.

The Backyard is a large flexible space, with shaped terrain that terraces for seating or play. There is a central lawn, garden space and many opportunities for casual play. Below the hillside, Volpe Walk passes by a collection of small shops and cafes. Much of the route is under cover, making it especially popular on rainy days.

Near the crossing of Volpe Walk and Canal Trace is the open space "mission control" building—the Space Center. This is the hub for research of public space, with the mission of conceiving, testing and gathering input on the most forward-thinking strategies and activities to

enliven urban areas. It is a one-of-a-kind experiment in collaborative urban development, and a place for mutual discovery and sharing wonder. The Space Center brings together academics, community members, knowledge workers, schoolchildren, artists, planners and designers. Kendall Square is the living laboratory for expanding our common life in the 21st century.

Volpe Walk crosses Binney with a new pedestrian crossing, and continues along 5th Street's historic architectural fabric into East Cambridge. We are now in the web of fabric streets of the East Cambridge neighborhood. Rogers Street can be emphasized as the route to the Foundry and Rogers Park.

Along Volpe Walk, there are "Outposts" of the Space Center. These include a family of elements that support activities in the neighborhood in a variety of ways. Some may have residency programs for scientists or artists. Some may be warming huts during the winter. Others may store equipment for activities and play. Others are gateways, with digital information displays for all kinds of information and wayfinding. The Outposts on Volpe Walk use color as a wayfinding device—when walking towards MIT/Kendall, the Outposts are red, and the color deepens toward the T Station.

The cross axis is Canal Trace. Many people arrive at Kendall Square via the Grand Junction bikeway and Junction Park. Cyclists can safely leave their bikes here, and use the showers. Junction Park is home to a fascinating Water Works, which mines water from the large underground sewer, and cleanses the water to fully potable. The water is aerated in a water wall that doubles as an artistic display of climate-related data. People move to the center of the neighborhood along Canal Trace, where cleansed, reclaimed water leads to Broad Canal and the river.

The area that was once the Volpe site is now a mixed use area with the Backyard open space at the intersection of the newly created Canal Trace and Volpe Walk. Designed as a safe zone for even the youngest residents, this new heart of Kendall Square has adventure play areas. Exploratory activities are not just for the children. There may be a real-life version of Minecraft, for example, where computer gaming and the physical world merge.

Canal Trace runs underneath Third Street and reappears in Broad Canal Way, spilling into the Canal itself near the kayak rentals. People continue walking along the north side of Broad Canal, but instead of staying at grade and being confronted with challenging traffic, the walkway ramps to duck below the bridges. On the left is the Under Park, with terraces leading up the hill, shaded by large tree canopies.

The river feels part of this green and active network, with Cambridge claiming the basin as its front yard. The Outposts along Canal Trace are an increasing blue as people move along the path, and below busy bridges to the riverfront activities and views.

The riverfront is alive with people in warmer months—swimming off of the dock, strolling, reading or dining at the outdoor cafes. During the winter, people still come to enjoy the views and stop off at the warming huts along the river.

Kendall Square has no defined center.
— Kendall Square Report, City of Cambridge



CURRENT OPENSOURCE

- Rogers Park
- Porkchop Park
- Point Park
- Volpe Center
- Triangle Park



PROPOSED OPENSOURCE

- Volpe Walk
- Canal Trace
- The Web of Streets
- Volpe Backyard
- MIT/Kendall T Station Area
- Junction Park
- Point Park
- Rogers Park
- Front Parks: Triangle Park, Front Park Charles Park
- Under Park
- The Riverfront
- The Space Center
- Outposts
- POPS
- Grand Junction
- North and South Kendall Plazas

A walk around the Kendall Square Public Space Center.

Volpe Walk—Major new pedestrian route connecting MIT/Kendall T station through the Kendall Square neighborhood to East Cambridge

Canal Trace--Major new pedestrian route connecting Grand Junction to the Charles River; the character of this route is based on the stormwater and cleansed gray and black water that is carried to the river.

The Web of Streets—Walkways, sidewalks and pedestrian-oriented streets that connect all places in the Kendall Square neighborhood

The Crossing—node where Volpe Walk and Canal Trace intersect. Location of the Space Center.

The Space Center—hub of research on the future of the public space and positive urbanism, and the control center for neighborhood activation

The Backyard—large open space near the Crossing with a variety of play areas, lawn, amphitheater seating, neighborhood retail under created topography.

MIT/Kendall T Station Area—The entry point for thousands of transit riders, the station area is rebuilt on both the MIT and the Kendall side, with a new major gateway to the Kendall Square area.

Point Park—Near the T Station and a juncture between retail on Third Street and Main Street, Point Park is a bustling meeting place and the gateway into Cambridge, Kendall Square and MIT.

Grand Junction—The railroad right-of-way that will include a multi-use path that connects to a regional trail system. The Station at Grand Junction offers support facilities for cyclists, joggers and walkers.

Junction Park—Junction Park adjoins the Grand Junction trail. The Park is the source of cleansed stormwater that runs along Canal Trace to the Charles River.

Waterworks—The Waterworks mines water from the sewer line below and cleanses gray and black water to drinkable water. The machinery is visible below a constructed hill that is a new Kendall Square entry landmark.

The Foundry—A renovated historic building that houses many community activities, with adjacent outdoor space used by artists, craftspeople, students and community members.

Rogers Park—A lively park with activities that bring together people from Kendall Square and the East Cambridge neighborhoods, including a hill with slides in the summer and sledding in the winter.

Front Parks: Triangle Park, Front Park Charles Park—This grouping of parks connect Kendall Square to the river. Triangle Park is a new addition where edible plants are featured, along with community dining tables, and cafes along pedestrianized First Street.

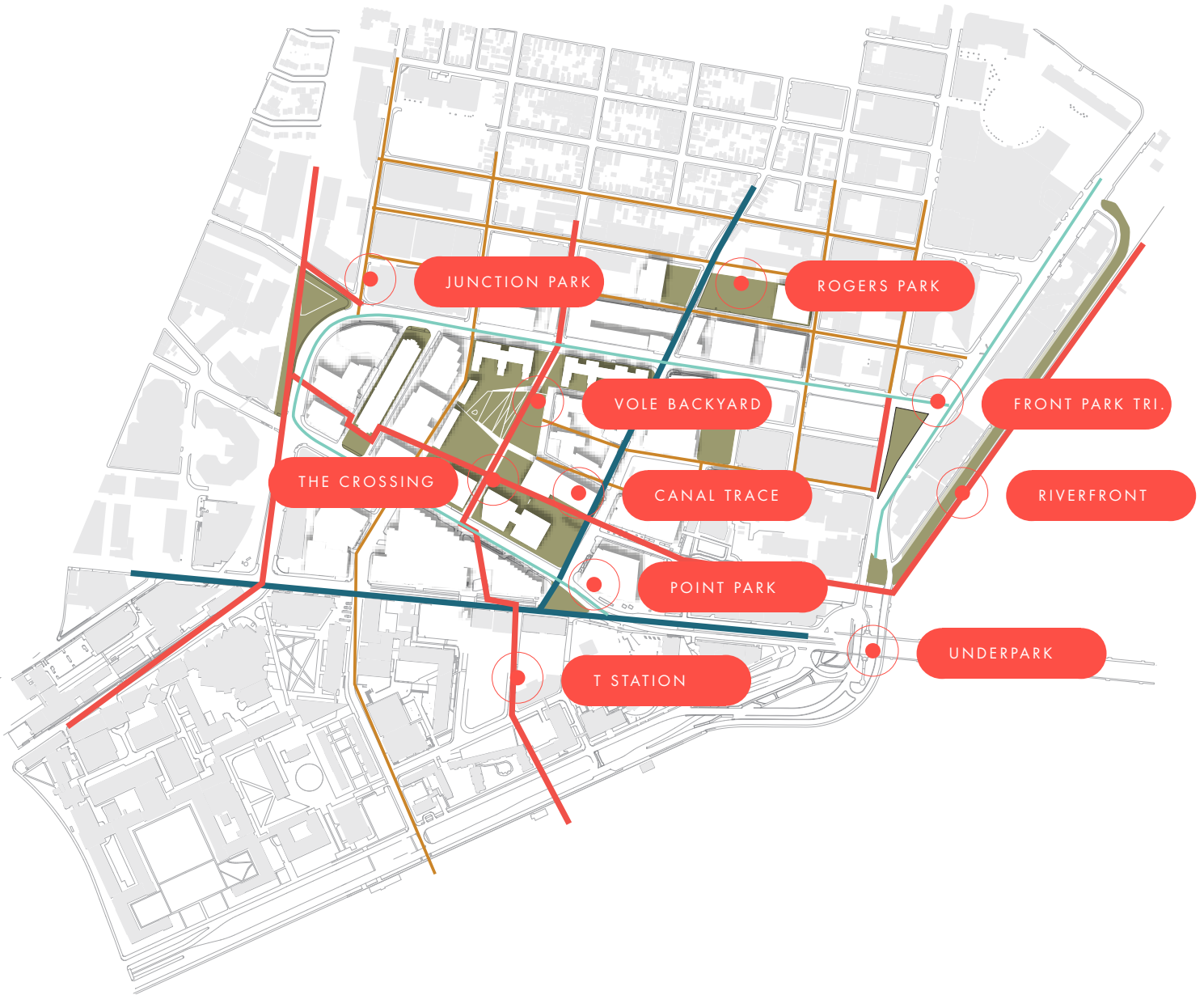
Under Park—A new, important connection from Broad Canal below the bridges to the riverfront, with green space that terraces to the walkway between the bridges.

The Riverfront—The newly energized edge to the Charles River, with a swimming pier, walkways along the water, jogging paths and healthy landscape.

Outposts—A series of related elements that support activities throughout the neighborhood, including places for performances, scholars or artists in residence; warming huts in the winter, bathhouses in the summer on the river, and storage for play equipment and movable seating. The Outposts are coordinated by the Space Center.

POPS—Privately owned public space are important elements in the open space system, and are demarcated with “welcome mats” in the ground plane that indicate they are public, and show amenities available.

North and South Kendall Plazas—Important spaces already bringing activities to Kendall Square, including skating in the winter and concerts in warmer months



Making it Happen.

To take the next leap, we need a shift in perspective. Instead of seeing Kendall as a base that holds factories or labs, a realm of disconnected interior worlds, consider it with the eyes of a discoverer.

We will need new tools. Our codes and regulations have shaped a world for square footage and smooth vehicular flow. The living laboratory can test new approaches, and the tools that will result in a new human-centered, healthy environment.

Near-Term Action Plan

Start immediately with a series of interventions, events, festivals, games or the like. Start small and expand partnerships and activities over time.

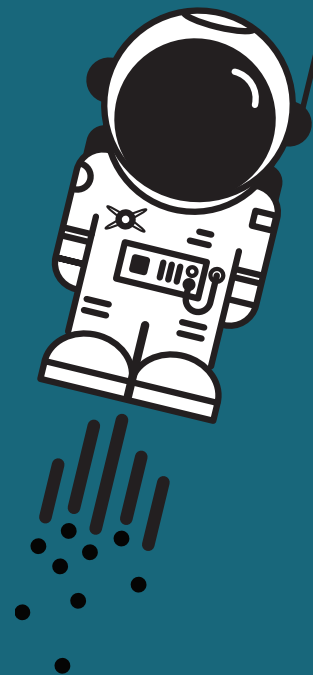
Make sure that the Volpe site planning maximizes the quality of Kendall Square. This is a one-time only opportunity for the future of Kendall Square.

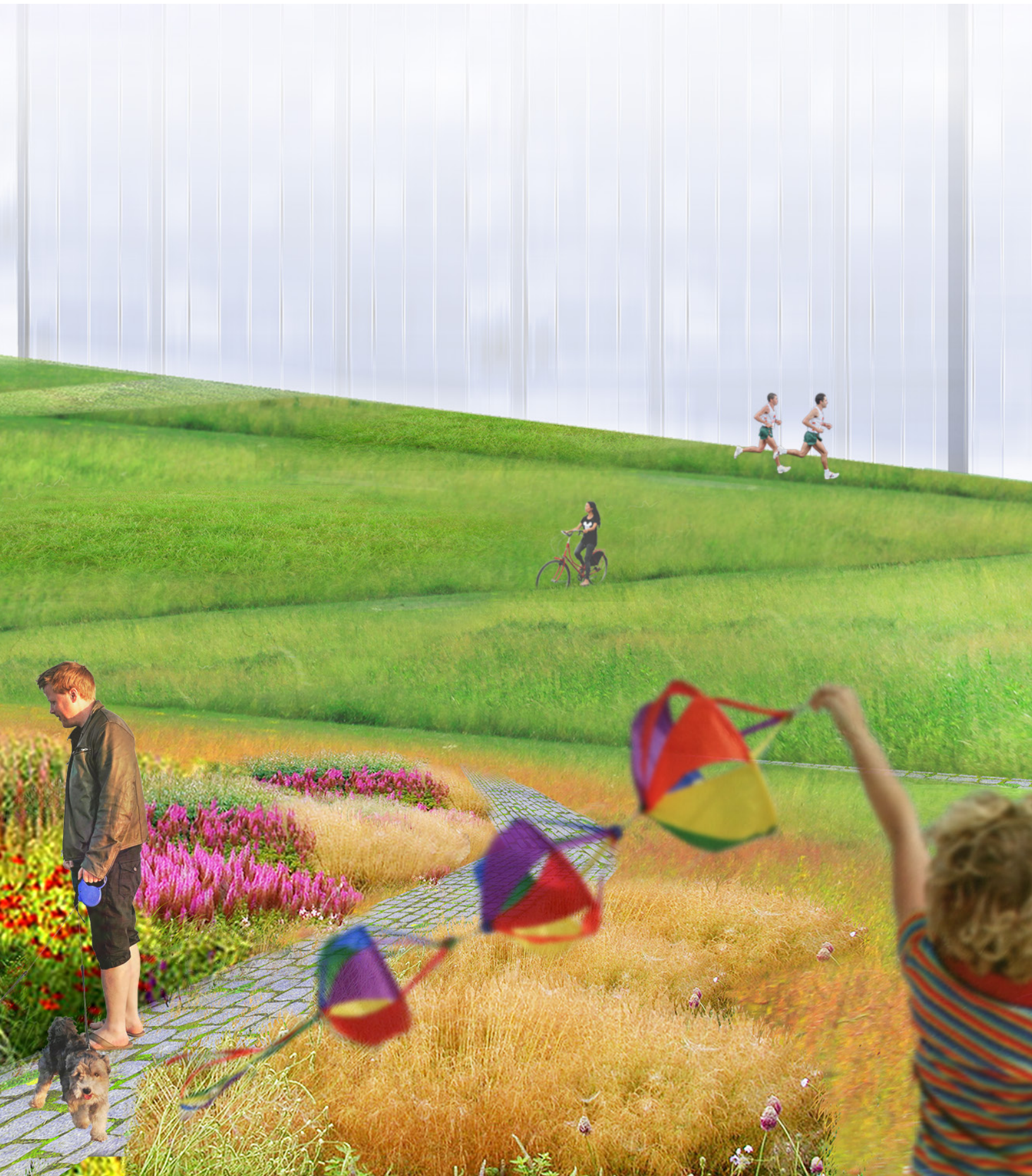
Consider swapping the development site adjacent to the Foundry for a similar size footprint on the east side of Rogers Park.

Adopt an innovative and achievable open space framework plan, and create a set of regulatory tools that will ensure its implementation.

What if we saw Kendall Square through the eyes of an explorer, as an unfamiliar planet to discover, to start a new life and everything that goes with it?

For this shift in perspective, we would need to become alien in our own world again. We would not see it as a offices and parks and coffee shops. Let's land our ships and start asking ourselves, "what is this place?" Why are people coming out of that mountain? Are they friendly? Why does the water flow here? What is this rumbling under the ground? What is that writing on the wall? Can we make a home here? Let's be curious again, this time in our world.





FRAMEWORK PLANNING & DESIGN PRINCIPLES

The Kendall Square Public Space Center Plan creates a comprehensive framework through the following principles:

Kendall Square Public Spaces

	T-station	Rogers Park	Junction Park	Front Park	Point Park	Crossing	Canal Trace	Underpark	Riverfront	Volpe Backyard	Volpe walk	Web of streets	Space center	Outposts
1	●	○	○	○	○	○	●	●	●	○	●	●	○	○
2	○	○	○	○	○	●	○	○	○	○	○	●	●	●
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5	○	●	○	○	●	●	○	○	●	●	●	○	●	●
6	●	●	●	●	●	●	●	●	●	●	●	●	●	●
7	○	○	○	○	○	●	○	○	○	●	○	●	●	○
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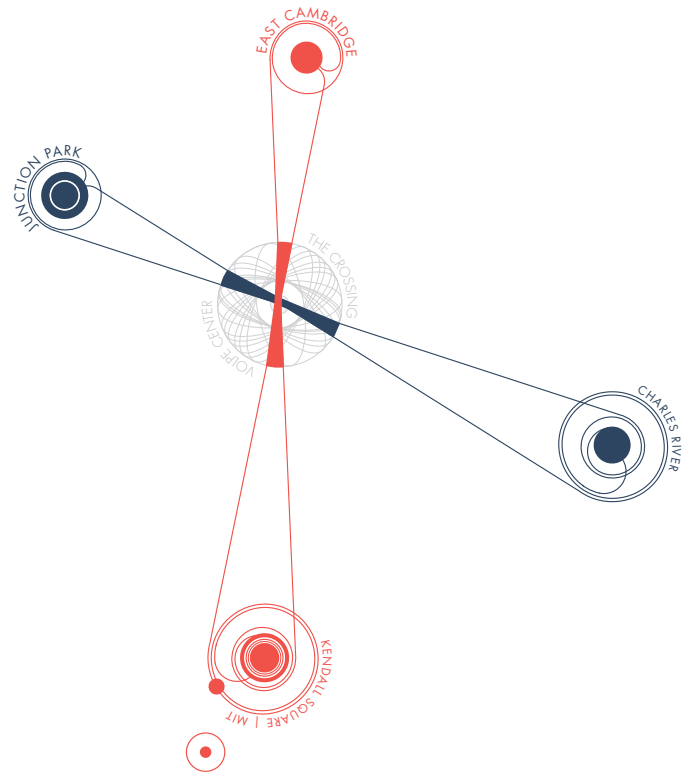
principle applies ○ —● principle strongly applies

Principle 1

Determine a Cohesive Framework

The Public Space Center

- Build on and emphasize the existing assets of Kendall Square
- Reinforce the web of connections-eliminating key gaps and improving the quality of streets and open spaces
- Design the four parks as links to adjacent neighborhoods
- Make a major move that defines Kendall Square with signature pedestrian routes



Principle 2

Provide Incremental Flexibility

The Public Space Center

- Use community engagement and prototyping immediately to test activities and strategies
- Learn from experimentation to inform permanent elements
- Create a set of signature elements that create an identity for Kendall Square and support a variety of functions and activities in the open space

Principle 3

Promote Complementary Uniqueness

The Public Space Center

- Create distinct characters for routes and spaces
- Provide a wide variety of places and activities throughout Kendall Square
- Insert elements of continuity that support an image of Kendall Square



Principle 4

Connect Public and Private Spaces

The Public Space Center

- Reimagine and build the web of streets as places in themselves and connectors of public and private spaces
- Create regulatory mechanisms to implement street and open spaces by public and private actors
- Ensure that privately owned spaces open to the public are clearly legible as public space

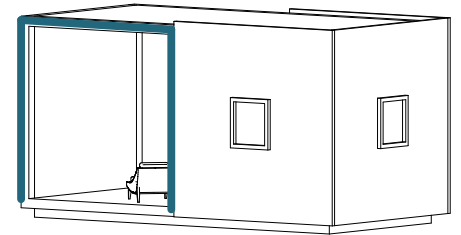
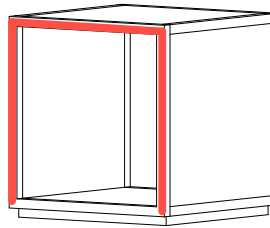
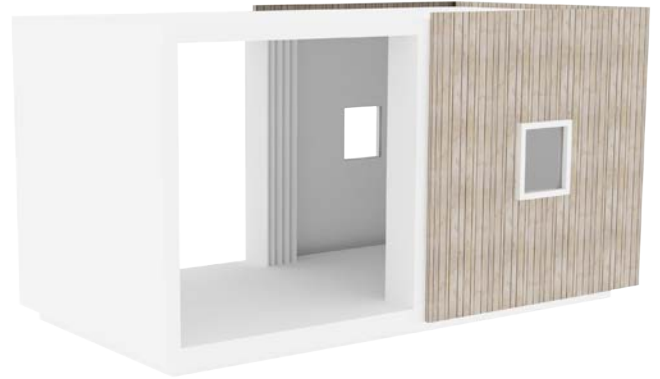


Principle 5

Establish Activation Strategies

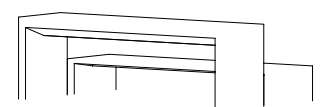
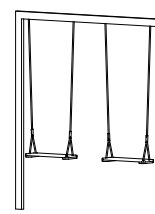
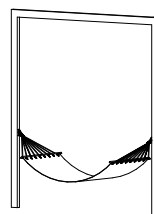
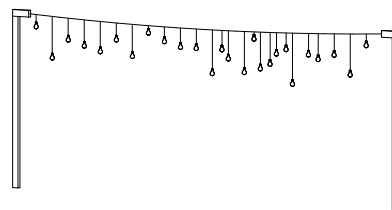
The Public Space Center

- Create a hub of research and activation in Kendall Square—the “Space Center”
- Distribute “Outposts” of the hub to enliven and support activities throughout the neighborhood
- Design and build a wide range of beautiful and enticing spaces so that people will linger
- Consider strategies that will allow curation of ground-level spaces



Menu of Outpost Uses

- | | |
|-------------------------|----------------------------------|
| Observation star gazing | Performance Platform |
| Kitchen Kiosk | Space Center Artist in Residence |
| Coffee outpost | Live/work plugin |
| Workspace | Mobile Office |
| Playspace | Makerspace |
| Kayak Locker | Mini Market |
| Changing room | |
| Play room | |
| Activity Center | |
| Winter Ski Center | |
| Digilab | |
| Science lab | |



Principle 6

Celebrate Community Inclusivity

The Public Space Center

- Create places and foster activities that bring together a variety of kinds of people
- Design for people of all abilities
- Use the Space Center hub for ongoing outreach to all elements of the community
- Make sure that privately owned and managed public spaces managed privately are clearly welcoming to the public

Principle 7

Integrate Safety, Operations and Maintenance

The Public Space Center

- Integrate buildings and spaces so that activities create natural surveillance
- Design to incorporate children into urban life
- Build to last
- Create a strong organizational structure to coordinate activities, building on existing community and business groups



Principle 8

Create a Sustainable Future

The Public Space Center

- Think at a system-wide scale in terms of water, energy and movement
- Be bold
- Engage stewards of many kinds, connecting people to their own environment
- Design the open space for flexibility so that it can adapt to changing needs

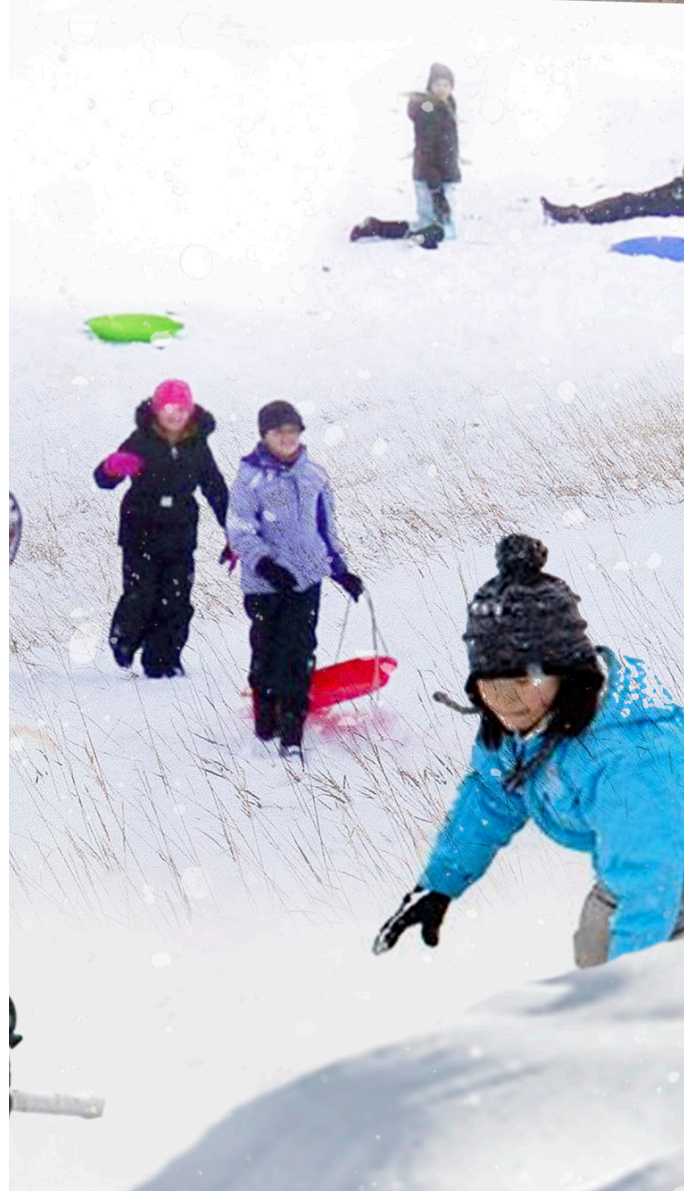


Principle 9

Build an Identity

The Public Space Center

- Bring out the unique qualities in Kendall Square's existing assets
- Design memorable connections and spaces with differing characters to help orient people
- Create a "family" of elements that inform, engage and define Kendall Square
- Make a simple, strong move that forms an intuitively understandable hierarchy



Principle 10

Elevate the User Experience

The Public Space Center

- Bring ideas and activities into the public realm to make it inherently interesting
- Make wayfinding easy and intuitive
- Design for human scale
- Design to increase comfort in all seasons



Principle 11

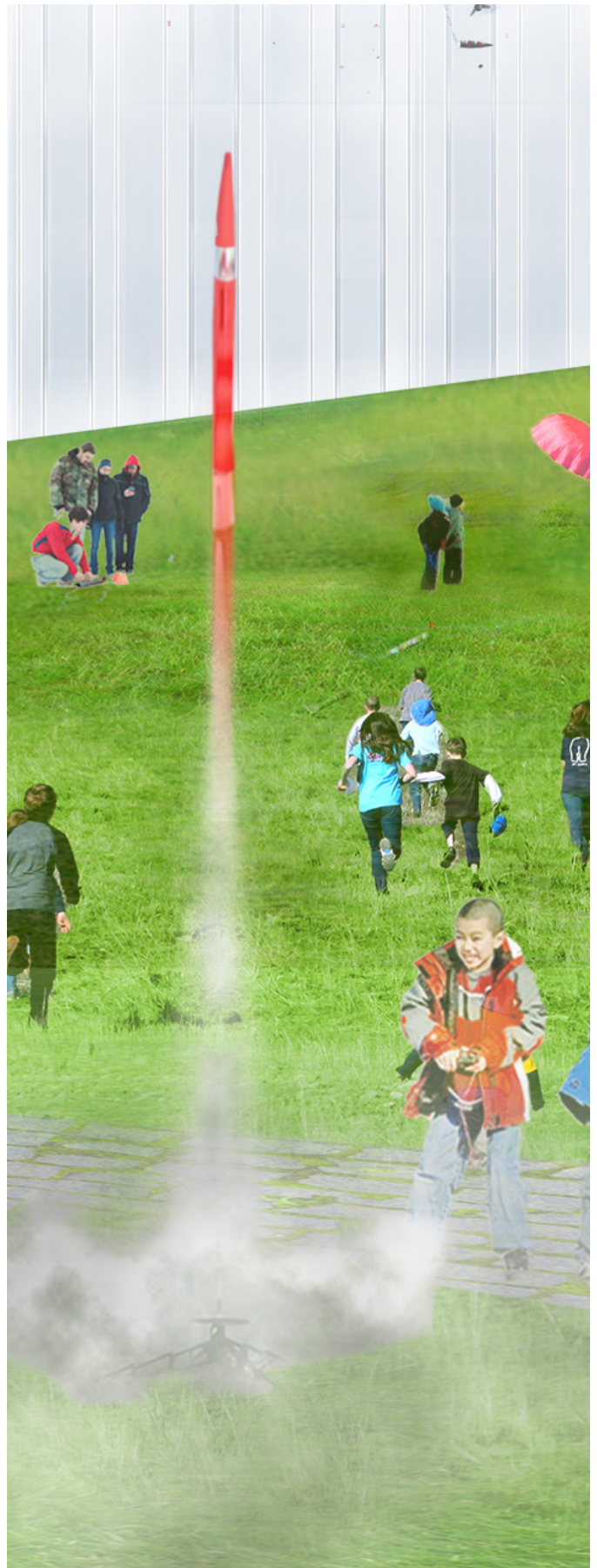
Make it happen!

The Public Space Center

We have taken the liberty of adding a principle—Making it Happen—in order to bring all the previous principles to life.

There is an invisible framework that is critical to bringing the vision to life. The world of ideas includes the policies and regulations that shape the built and social environment. This important realm is, in many ways, under the control of the people of Kendall Square and the City of Cambridge.

- Create bold policies and regulations that make the vision happen, and sustain it
- Clarify the boundaries of public spaces and the activities that are allowed
- Use early successes to create community support and attract resources
- Create a clear identity for neighborhood, its elements, and its uniqueness



4

FRAMEWORK DETAILS

Kendall Square Public Space Center Plan
Places + Systems

KENDALL SQUARE PUBLIC SPACE CENTER PLAN

KEY PUBLIC PLACES

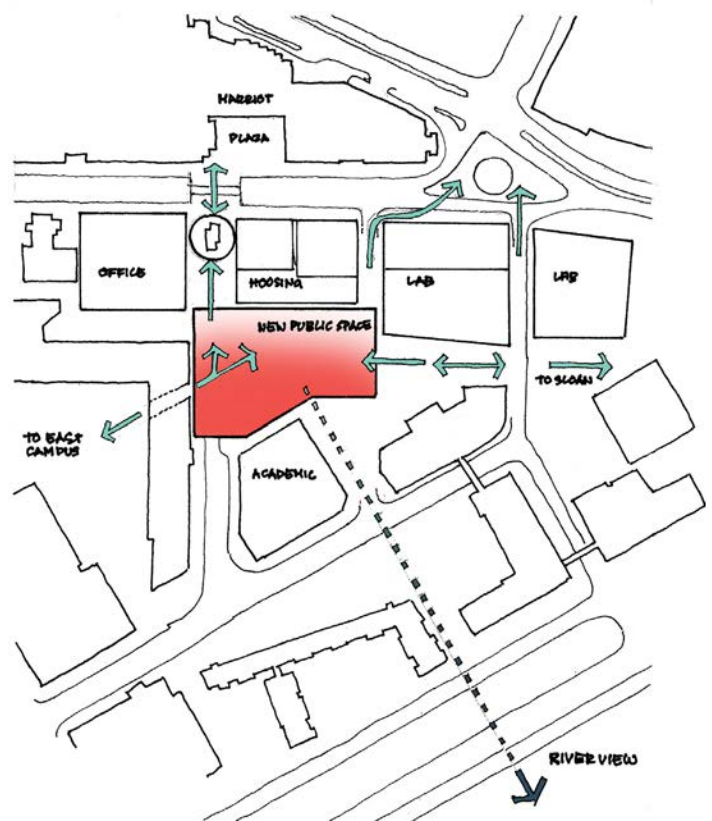
KENDALL SQUARE AND MIT

MIT's planning for the East Campus was concluded in 2014 with a vision plan that strongly engages with the Kendall Square neighborhood. A central feature in the plan is to create a significant "Gateway" to the campus at the T Stop on Main Street. In this location, flanking the gateway, two new buildings are proposed, an office tower and a residential tower for graduate students. The ground floors will have retail and the MIT Museum will occupy part of the base of the offices. The gateway would connect to a defined open space where town and gown could meet, supported by facilities which address both constituents such as an Innovation Center, cafes and the MIT bookstore. Views through to the Charles River are planned.

This new space, seen as expressing the spirit of the Institute, links to the Infinite Corridor spine to the west, and an open space link to the Sloan School to the east. Two new laboratory buildings will be built, one behind the existing Clock Tower building and one on Main Street on the corner of Wadsworth.

Our Public Space Center Plan responds to the MIT plan by accentuating the need for access to the T Stop from the neighborhoods to the north. Many people arrive in the Kendall area on the Red Line and are baffled by the lack of wayfinding. MIT will be easy to enter in their new plan; a clear passageway through the Marriot building to Broadway is essential.

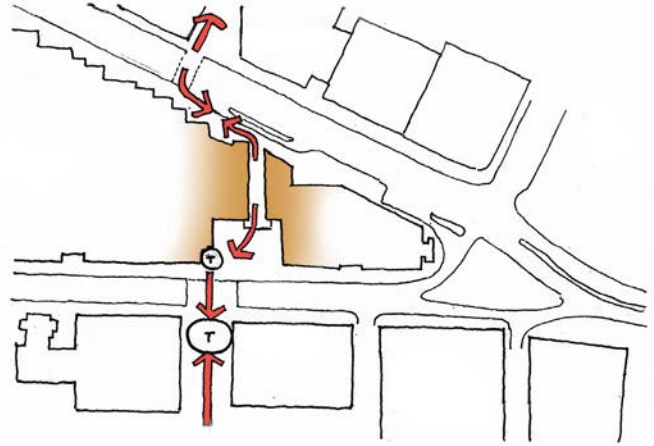
Making Point Park into a meeting place--weather protected and warmed in winter--creates another opportunity for the MIT community to join in the neighborhood activities. Wadsworth and Hayworth both enter Main Street at this park where the old globe circle is proposed as new warming space.



KENDALL SQUARE / T STATION

The Kendall neighborhood lies to the north of Main Street, separated by the large, continuous wall of the Marriott Complex. The plaza in front of the hotel, despite many changes, is not well populated despite being the connection to the Red Line T Stop. Currently there is no direct way or any wayfinding to reach the heart of the neighborhood. We have therefore placed a high priority on creating a clear, well-marked and lighted arcade from the plaza through the ground floor of the hotel to Broadway. It should reflect the spirit of the passageway to MIT on the other side of the street. Together, this circulation axis would become an important element of the combined master plans.

While circulation through the hotel exits informally, there is no indication from the plaza that it is a public route. It is not separated from the lobby space, although it could be, nor is the carpeted floor appropriate for a key pedestrian route. The entry to the hotel is formally from the drop-off on Broadway and a low-key entry from the plaza on Main Street. Here, the presence of an "Arcade" could be expressed by adding a larger scaled entrance serving both the hotel and the public way. Glazed walls could define this space with durable flooring for all weather use. A distinctive lighted ceiling-- with updated interactive event information and access to the Starbucks Coffee Shop-- would set the tone. An active route through to the T Stop is likely to create a more activities on the plaza.

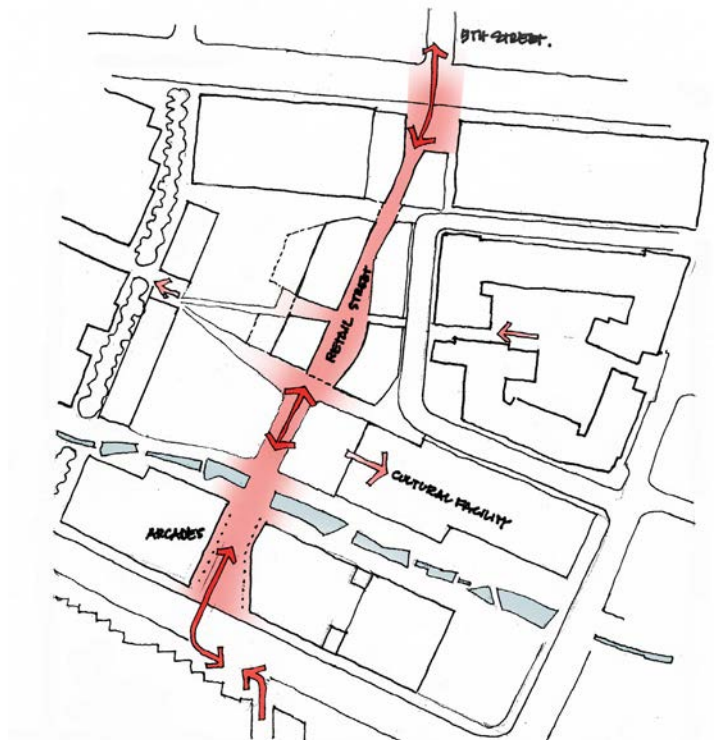


VOLPE WALK

Volpe Walk leads through the hotel to a comfortable crossing of Broadway. Much of Volpe Walk is weather-protected; combined with MIT's Infinite Corridor, the walk from East Cambridge into the heart of MIT can be done comfortably in even the most inclement weather.

Volpe Walk is recognizable by the overhead glazing and the elements along the route--"Outposts"--that with artists in residence, with scientists in residents, with exhibits changing daily and the unfolding of research and design.

The route passes through the new buildings and activities of the Volpe site, passing below the raised green "Backyard" in a covered neighborhood retail center and across Binney via a pedestrian-friendly intersection to East Cambridge.



VOLPE CENTER AND THE BACKYARD

The Volpe Center site forms the key parcel in the development of the public realm of Kendall Square. Previously, this large site precluded desirable east west pedestrian movement, and as a closed private enclave did not contribute to the interactive public private synergies found elsewhere. While the ultimate shape and uses to be included are yet to be determined, public open space of a major scale will be planned. Most open spaces in the district were designated through development negotiations and form a random pattern, but here a planned open space at the nexus of connections for Kendall Square can be made. This open space is named the Backyard.

A strong north-south pedestrian route is part of the plan, linking MIT and the T Stop through the Marriot Arcade connecting to the Volpe site. This route continues to 5th, designated as a community interactive street. This



is an opportunity to make a unique route that is largely weather protected, and includes spaces for retail, cultural activities and flexible space for all members of the community and all ages.

Activities in the Backyard bring together the full range of community members, with tiered seating on the created hill overlooking joggers, play spaces, and newly imagined games--physical versions of favorite computer games.

In the east west direction the "Canal Trace", which reflects the water based history of the area, connects the Broad Canal to the center of Waterworks at the hill of Junction Park. This too is a unique series of pedestrian activity spaces with water features.

Residential buildings on Binney Street face The Backyard to the north, and lower scale residences on the pedestrian alley frame the space to the west. Commercial buildings between the Canal Trace and Broadway can be viewed along the south edge of the park. The tallest office building is likely to be placed at the prominent location at Broadway and 3rd street. In the spirit of creating connections, a plaza at the northwest corner of Broadway and 3rd street expands the reach of Point Park across Broadway. The Volpe site gives an opportunity to create a true mixed-use environment serving a variety of inhabitants, creating an unusually synergistic heart to the Kendall neighborhood.

Our plan recommends designating the Volpe site as a Childsafe Zone. With a discovery playground and children's garden, this would be safe place for young people to be able to participate in self-directed play away from areas with traffic.



THE SPACE CENTER

As a living laboratory for active and healthy urban living, Kendall Square needs a home for multi-disciplinary research. It would, true to its mission, be open to the public. The Space Center would support research in use of urban space, successful mechanisms for public participation, for design that supports social interaction and health, green infrastructure resource use, and other related issues. Disciplines ranging from the design professions to social sciences, the sciences and fine arts can work together to test models of new, socially engaged urban places.

The Space Center, located near the Crossing would greet community members and visitors. Information, exhibits, research, art, neighborhood news and events would be available, encouraging people to participate in the day's activities. The Space Center would be a good location for neighborhood organizations and staff to offer a human presence. This would be the "command center" for the activities going on in the "Outposts" throughout the neighborhood.

THE CROSSING

The Crossing is envisioned as a major new open space at the intersection of the Canal Trace and Volpe Walk. The crossing of the two "big move" routes is significant in the hierarchy of Kendall Square as an enticing place and as a signature location in terms of intuitive wayfinding.

The Crossing is a mix of hardscape and green, providing a variety of spaces and to bring together the diverse range of people in Kendall Square and East Cambridge. It is multi-level, with parking below grade, and the park space at grade.

Because The Crossing is at the center of pedestrian routes, is ideally placed to serve the families that live in the new Volpe neighborhood and East Cambridge. The Crossing is the heart of the Childsafe Zone.

*Potential Experiences along the way:
Watch the children at the adventure playground
Shop in the small stores along Volpe Walk
Picnic on the hill, Rocket day!
Borrow a game from the Outpost*



ROGERS PARK

Rogers Park is well located for larger scale activities that bring together East Cambridge residents with the Kendall Square community. Its location is also key to the success of the Foundry Building Demonstration Project. A very attractive synergy between the proposed STEAM activities and the park is possible, but the proposed new development between the Foundry and Third Street would significantly reduce that potential.

Our first recommendation is to exchange the development site on Third Street for an equivalent size parcel on the east end of Rogers Park. This switch would offer “eyes on the park” on the east end and allow residents to look out over the park. Residents of the new development, including children, would have convenient access to the park. The lovely brick arches of the Foundry would be visible from Third, opening up to an outdoor “maker space” that could take advantage of the park across Third. This would be a marked improvement to losing the visibility of the historic Foundry, and in keeping with the Demonstration Project Plan, which calls for highlighting the historic architectural elements of the building and connecting the building to its surroundings.

The Foundry is itself an Outpost—an active place that engages the community with multi-generational programs, artistic endeavors, mentoring, apprenticeships, and “STEAM” programs that will engage segments of the population that have not had the opportunities for higher education. The more visible the Foundry, the better. The adjacent space would be ideally suited for a display edge along Third Street, with views into the maker space.

The western portion of Rogers Park can remain a flexible grassy open space for large gatherings and activities. On the center of the block, we propose creating topography—Rogers Hill—that would expand options for play with an overlook, slides and sledding in the winter months. Outposts at Rogers Park would hold the equipment for use in the park and could have hot chocolate in the wintertime or refreshments in the summer.

The atrium space in the new buildings to the south will connect to the park along a path between the new residential development and Rogers Hill.

Potential Experiences:

Rocket Day—children and mentors design and build rockets for take-off from Rogers Park

Kite Day—children and mentors design and build kites to fly from Rogers Hill. Could have kite fights or contests in various categories

Minecraft---Build and play with a life-size version of Minecraft. Could become a club activity and a build a public/ private partnership with Microsoft as sponsor

Giant bouncing ball events!
Slides on Rogers Hill during the summer; sledding during the winter

“The Foundry will be a creative, innovative center that offers a collaborative environment with a mix of cultural, educational, manufacturing, and commercial uses. The renovated multipurpose building will be designed for flexibility and will be accessible, inclusive, and welcoming to the public. The activities within will be multigenerational and multicultural, providing a citywide and neighborhood resource that is financially sustainable for years to come.”
-- The Foundry Building Demonstration Project Plan, Draft, Dec. 11, 2014



JUNCTION PARK

The “porkchop” shaped open space between Binney and the Grand Junction right-of-way is currently an island of underused grass separated by traffic and railroad tracks. The key to making this a valued place in the Kendall neighborhood is to reconnect it to adjacent uses and to find a set of uses that are appropriate to the location.

The Grand Junction right-of-way holds a promising future for Cambridge. Whether or not it is used for rail in the future, there is sufficient space for a “rails to trails” approach that will link Kendall Square with destinations in Somerville, Boston, and North Point. This new park could be a beautiful and functional junction that support safe and pleasant commutes by bicycle, with facilities for cyclists including bike storage, repair and showers. Should there be passenger transit on the route in the future, the site takes on an even stronger use as a junction. The Station is located at the south end of the park near Broadway.

The other interesting junction is below ground—the combined sewer main is just north of the park. We propose diverting stormwater from the main and pre-treating it through bioretention and/or a filter media device or hydrodynamic separator. This treated water is aerated by being pumped to a “water wall” visible

from across Binney, and directed to the Canal Trace. The functional advantage of capturing and cleansing the water is that it reduces the amount of water going into the stormwater system. Visually, the water wall will create a beautiful and interesting destination adjacent to the Station. Water walls have been used to display art and information. MIT researchers have been on the forefront of this technology. (Osaka Station City, Digital Water Pavilion, Zargoza, Spain)

Junction Park is shaped by raising the grade to accommodate the water quality treatment facility on the north end of the park. This elevation allows terraces for cascading rain gardens, and a place to climb for an overlook of the neighborhood. A water play area lies at the base of the slope.

Crossing Galileo is essential for Junction Park to be a part of the Kendall neighborhood. Trade-offs are lower speeds and a level of congestion during peak periods on Gallileo, with a reduction or removal of the left turn pocket.

“Little Binney” is recommended to become more pedestrian in nature, with two 11’ lanes and no turn pocket. That space is reallocated to generous sidewalks; some time in the future there may be an active use on the north side of Little Binney. A pleasant Little Binney would invite people from Wellington Harrington and Area Four neighborhoods.

Potential Experiences:

Bike or jog along the Grand Junction trail

Play in the waterdata fall

Visit the Waterworks and the artist/scholar in residence

Climb the hill and look out over the neighborhood

Get your feet wet in the Waterworks Pond



CANAL UNDER PARK

Access to the Charles River is a key contextual component of an open space system, however, the opportunities to engage with the river are surprisingly sparse. The Broad Canal, the sole remnant of an important feature of the history of Kendall, is attractive but only partially realized because the uses flanking it--parking and the Power Plant--are private and have no interaction with it. The kayaks, which can be rented, are a popular way for some to experience the river. The Canal Walk was a bold idea but leads pedestrians to heavy traffic on Memorial Drive with a dangerous condition for those who cross Memorial Drive to access to the river.

We propose avoiding the traffic barriers by going under the bridges to the river. From the existing walkway a ramp would lead to a path, suspended from the beams above. This would first take us to a new park at the median of the two bridges. This land between the two bridge structures slopes down to the water, and currently has lovely, mature trees. Steps attached to the masonry piers would connect to this existing green space above.

Proceeding through to the river under the second bridge the path would engage with an existing quay and finally move up slope to join the existing river path where improvements are proposed. Making this river connection would be the culmination of the Canal Trace, a major east west path through the site, which is planned as a key neighborhood amenity. This proposal could be one of the early implementation items, and have a major impact on accessibility to the Charles River.

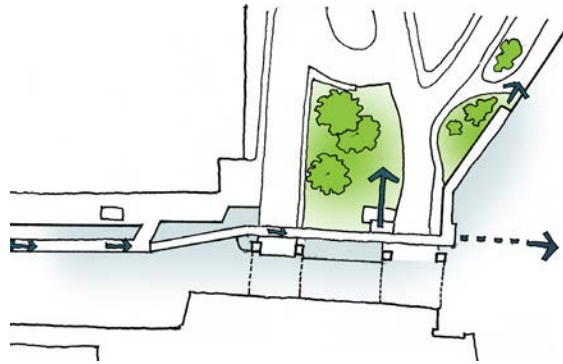
Potential Experiences:

Walk, bike or jog to the river

Sit on the hillside and people-watch or eat lunch

Fish in the canal

Go to an underpark theater performance



FRONT PARKS AND FRONT PARK TRIANGLE

Charles Eliot envisioned the Charles River waterfront in 1892, long before the automobile changed urban America. The stretch from Lechmere Canal to Broad Canal is one of the few parts of the riverfront that does not have a heavily trafficked roadway separating it directly from the river. Existing Front Park is a remnant of the original idea of magnificent open space along the river.

Our framework looks at the collection of parks near the river—Front Park, Charles Park, the riverfront, the existing but currently disconnected parcel described as the Under Park, and the newly acquired triangle of land as an assembly of Front Parks. The challenge is to create a feeling of connection across Land Boulevard and through to the river. But it is the expansion of these open spaces, and their dominance over traffic and buildings that did not respect the integration of open space, that will create much-needed successful links to the river.

Front Park Triangle provides a forecourt to the 1895 Atheneum Press building on First Street, and its new neighbor to the north. The Atheneum building is home to the Le Cordon Bleu College of Culinary Arts in Boston and the Cambridge Athletic Club. These uses are excellent candidates to bring life to the park, and we recommend that First Street be reconfigured along

the park as a pedestrian street, with traffic diverted to Land Boulevard at Binney. Like the other new parks, their connection to buildings with activating uses is critical to success.

Front Park Triangle draws on the culinary art school as inspiration for growing food and bringing the people together around a common dining table. Herbs and edible plants grow in raised beds along the south end of the park, with a slight incline to diminish the effects of the traffic along Land Boulevard. The north side emphasizes the connection diagonally across Land Boulevard to the existing Front Park.

Potential Experiences:

Have happy hour at an outdoor café outside of the Athenaeum

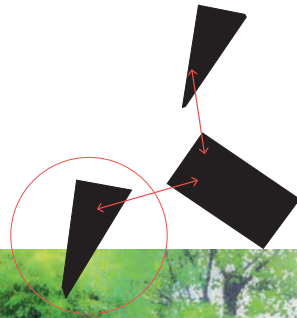
Walk in the herb gardens

Go to a cooking demonstration in the Outpost

Read a book in the sun during lunch hour

Eat at the experimental dining community table

"Open space is needed," Charles Eliot wrote in 1894; "nowhere west of the State House can so much well-distributed space be had for so little money as on the banks of the Charles." 29 Report of the Joint Board Consisting of the Metropolitan Park Commission and the State Board of Health upon the Improvement of Charles River from the Waltham Line to the Charles River Bridge, April, 1894, Boston, 1894.



THE RIVERFRONT

Reconnecting Cambridge and the Charles River is one of the most exciting aspects of the Connect Kendall Square project. People will be drawn to the river via the Under Pass or the improved crossings associated with the Front Parks. Along the riverfront itself, people can choose to be on the lower boardwalk, close to the water, or upland along the Cambridge Park(way).

Walking along the boardwalk you can see the swim pier off of Front Park. On a summer day, the river is full of people swimming off of the pier, kayaking and canoeing on the river.

Along the upland route, people are jogging, strolling, and sitting along the edge of the wall. Outposts offer a place to change into swimming suits and buy refreshments.

Potential Experiences:

Walk, bike or run along the edge of the river

Swim at the pier

In winter, enjoy a fire at the warming hut

Have a glass of wine at one of the outdoor cafes

Families can take kayaks out along the river

Hop on a hot tub boat to Boston



POINT PARK

Point Park is at the confluence of the two “High Street” retail streets: Main Street and Third Street. The character of Point Park draws on the retail nature of the juncture as a plaza space for people to meet in the course of the day’s activities. It is bustling day and night. The design includes iconic overhead cloud canopies that are colorful and lit in the evening. They help visually connect Point Park with the Kendall/MIT station as part of a larger pedestrian node.

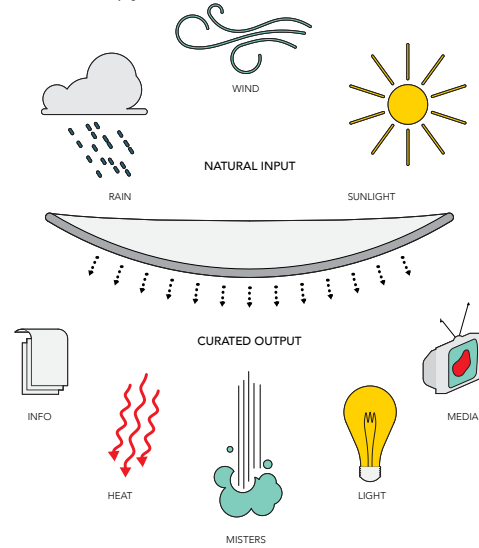
The other function of Point Park is as an entry into Kendall from Boston. This entry needs to be effective at both the pedestrian and vehicular scale. The playful canopies can be enjoyed by people passing through the park, and are large enough to make an impression as drivers come across the Longfellow Bridge into Cambridge. The canopies tilt upwards to increase their visibility, and to catch the sunlight on their solar panels.

We have brought the steam back into the park as the Steamworks. It may be used to warm seating in the winter, and provide a unique ambiance as part of “winterscape”.

Potential Experiences

Stop and talk to your neighbors as you run errands
Eat a sandwich from one of the nearby shops
Wait on a steam-warmed bench for a friend walking across the bridge
Read the book you bought at the MIT Coop

Reactive Canopy



CANAL TRACE

Canal Trace begins at the Junction Park Waterworks, taking cleansed water through the heart of Kendall to the Broad Street Canal. It is one of the new signature connections defining the new neighborhood.

Canal Trace changes along the route, with lush landscape in some segments, urban hardscape in others, and areas designed for water play. The level of water changes depending on the amount of recent rainfall—in dry seasons, the only water may be from the Waterworks.

There are different types of Canal Trace Types:

- Steps and Seating demonstrates areas where at certain points the canal walls steps down to invite people to interact with the water and sit along the edge
- Wetland Habitat are points along the trace where wetland plants are introduced. The species that tolerates more water a planted at deeper elevations with riparian habitat planted at higher elevations.
- Borders and stepping stones are used to create playful points along the canal
- Bridges and overlooks connect the Trace across streets and to the Under park.

Potential Experiences :

Splash in the shallow waterways along the canal

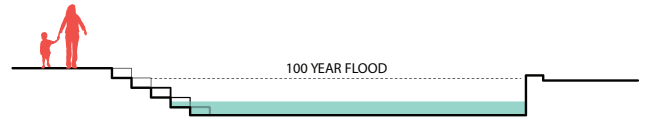
Sunbath in seating pockets

Join a remote control boat race

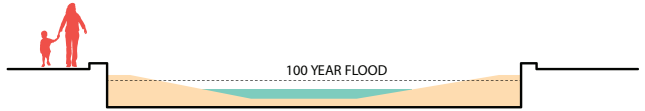
Eat at one of the many restaurants adjacent the trace

CANAL TRACE TYPOLOGIES

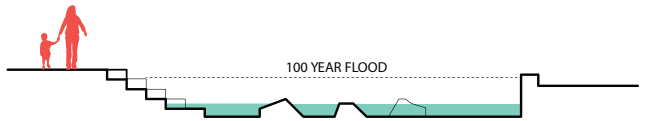
STEPS AND SEATING



WETLAND HABITAT



WADING POOL



BRIDGES AND OVERLOOKS

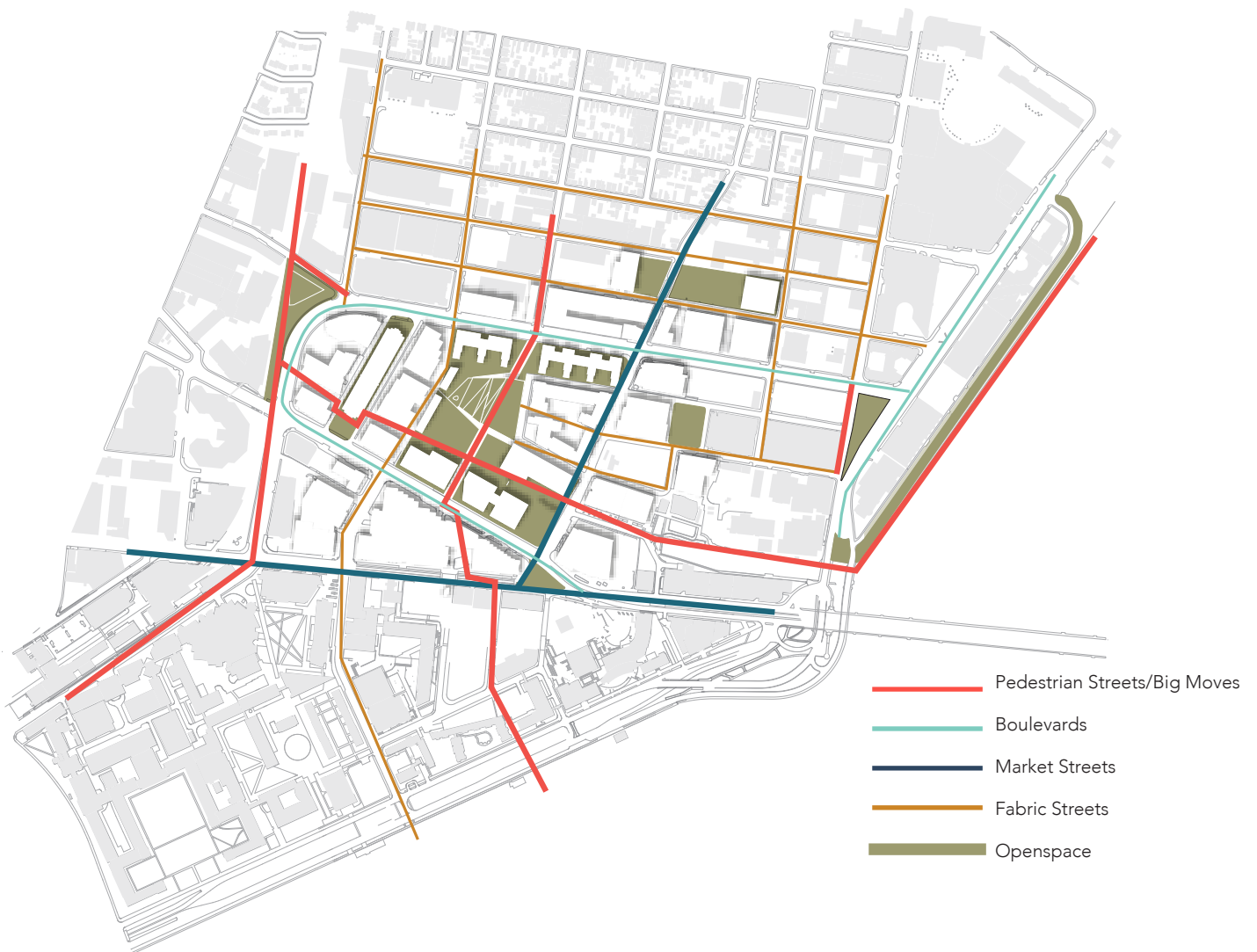


KENDALL SQUARE PUBLIC SPACE CENTER PLAN

MOVEMENT SYSTEMS

MOVEMENT AND CONNECTIONS

The streets of the Kendall neighborhood are key components of the open space system. It falls to City regulators, with public input, to allocate the mix of functions that various streets will best play, and to ensure that the design by public and private actors reflects desired uses and characters. This framework identifies a set of street typologies that help inform the uses and character of the network of streets.



BIG MOVE ROUTES

Canal Trace
Volpe Walk

The Big Move routes are pedestrian routes with place-defining character—unique, memorable, and participatory. The design is particular to each route. Design excellence and continuity of function is paramount for Big Move Routes. Street concept design, codified in City policy, is key to implementation.

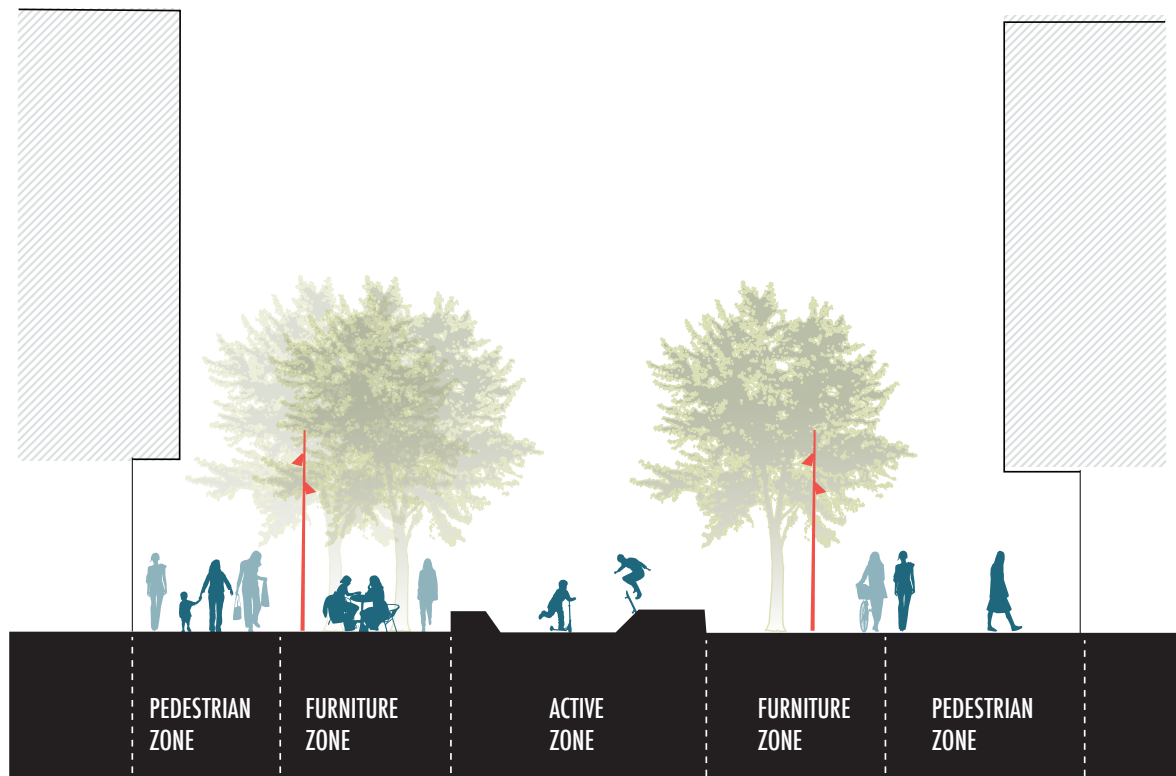
Pedestrian - Bike Only

Ames Street (between Broadway and Binney)
Grand Junction
Broad Canal walkway

Along with the proposed Big Move connections, there is unusual potential for car-free connections in Kendall Square. This makes walking and cycling on these corridors particularly safe for children. The Public Space Center plan should take full advantage of this condition to safely integrate children into the life of the neighborhood, with a designated Childsafe zone at its heart.

The existing walkway on Ames is delightfully green. The Public Space Center plan adds buildings that face the walkway, and other newly created walkways in order to increase the natural activation and safety. Pedestrian lighting will be an element of continuity in public realm furnishings along each of the walkways.

Shared bicycle and pedestrian space is recommended where cyclists are moving slowly, such as the Broad Canal walkway. Routes such as the Grand Junction trail will be heavily used by commuters, and separating cyclists and pedestrians may be prudent.



BOULEVARDS

Galileo / Binney
Broadway
Land Boulevard

Boulevards accommodate major vehicular movement between wide tree-lined edges that are comfortable for pedestrians. The challenge on the Boulevards is allowing pedestrians to easily cross, so that Boulevards do not become barriers.

To effectively connect the public realm of Kendall Square, selected Boulevard crossings are critical. In the Public Space Center plan, crossings to be particularly emphasized include:

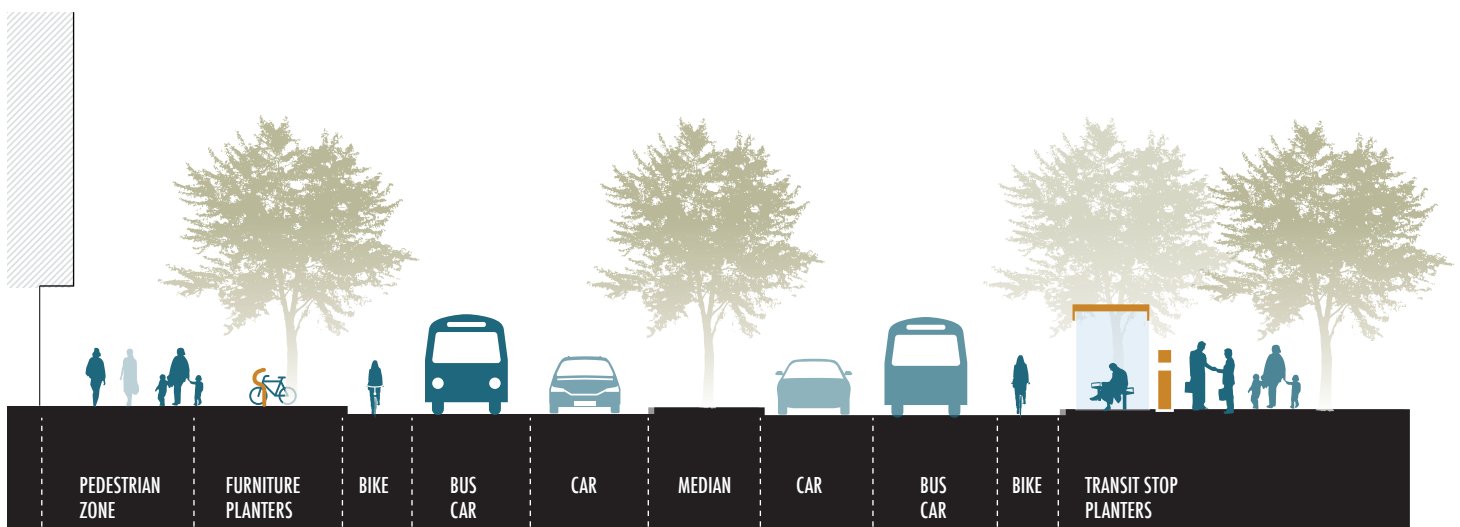
- + Two crossings of Land Boulevard--at Binney and Rogers—connect Front Parks to the Charles River.
- + Two crossings of Galileo--at Canal Trace, and possibly the extension of Potter Street—connect to Junction Park and beyond.
- + Three crossings of Broadway--at Ames, Volpe walk, and Third Street—connect to the Main Street area, MIT and the T Station.
- + Crossings of Binney including Ames walkway, Volpe Walk and Third Street—connecting Kendall and East Cambridge.

The crossings should have design treatments that emphasize visibility, with traffic slowed for safety in the Kendall neighborhood. To improve pedestrian safety and the walking environment, we recommend squaring

the corners at all intersections that are to be improved in order to slow the turning speed of traffic. In addition, we suggest that all stoplines and crosswalks are pulled back 3' from the intersection to make crossing pedestrians more visible to turning traffic before drivers begin to execute turning movements.

“Tabled” intersections with special materials and in-road warning lights should be considered where possible. Medians can serve as pedestrian refuges that ease crossing for people who are less mobile. Where no signals exist at key crossings, add them where possible with pedestrian countdown signals.

A near term recommendation is to improve connections to the north and south of the existing pedestrian/bike route on Ames Street. Specifically, at the intersection of Broadway and Ames Street, a cyclist-activated signal phase should be introduced to allow southbound cyclists to travel diagonally across the intersection to the protected curbside bike lane without conflict from other traffic. Sharrows should be placed in the street to direct cyclists along this path and provide information for both vehicles and pedestrians that this is the path cyclists will be taking. This cyclist-activated signal phase should also benefit cyclists traveling northbound on Ames Street, removing the conflict with right-turning vehicles for cyclists heading straight into the pedestrian path. There should also be a cycle box for northbound cyclists, allowing them to get out in front of traffic to complete straight or left-turn maneuvers. The cyclist signal phase should be able to be accommodated in the pedestrian phase, provided cyclists are reminded to yield to pedestrians in crosswalks.



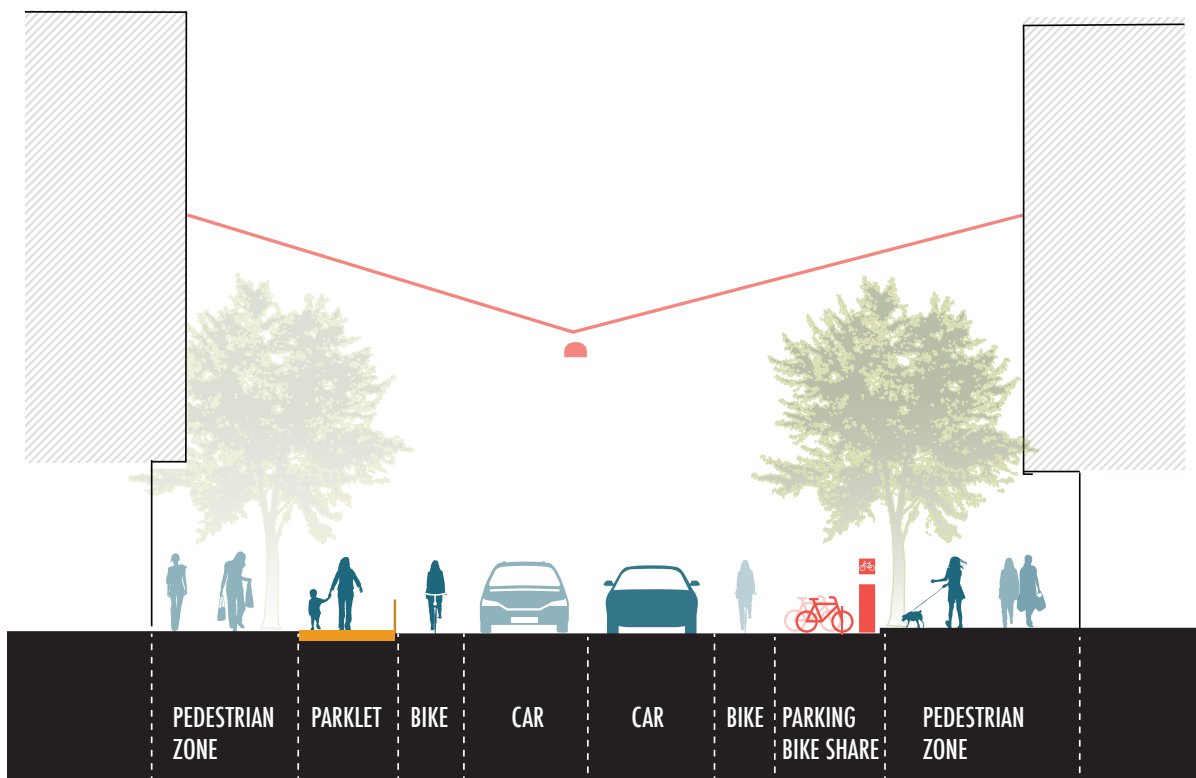
MARKET STREETS

Main Street

3RD Street

Market Streets are lined with shops, restaurants and cafes. They have generous sidewalks, often with outdoor seating, and typically have parallel parking at the curb. Pedestrian lighting, street trees and speed limits of 25 mph preferred.

Square all corners and move crosswalks and stoplines 3' back from intersections. Verify that land use codes require pedestrian-oriented uses and transparent facades at street level.



FABRIC STREETS

Broad Canal Way
Atheneum Street
Potter Street
Munroe Street
Linsky Way
Rogers Street
Bent Street
Kendall Street
Second Street
West Kendall Street
Little Binney
Cambridge Parkway
Second Street
Fifth Street
Sixth Street
Fulkerson Street

Smaller streets in Kendall Square would become more pedestrian oriented and connected over time wherever possible, creating an inviting web of streets and pathways. For a variety of historic reasons, Kendall Square did not develop the grid that exists in East Cambridge. The advantage is that major traffic uses a limited number of streets, and the discontinuities in the interior of the Kendall neighborhood allow a mix of pedestrian oriented streets and pedestrian pathways.

In weaving this new web of connections, required access points and minimum vehicular needs should be identified. Other traffic should be discouraged through

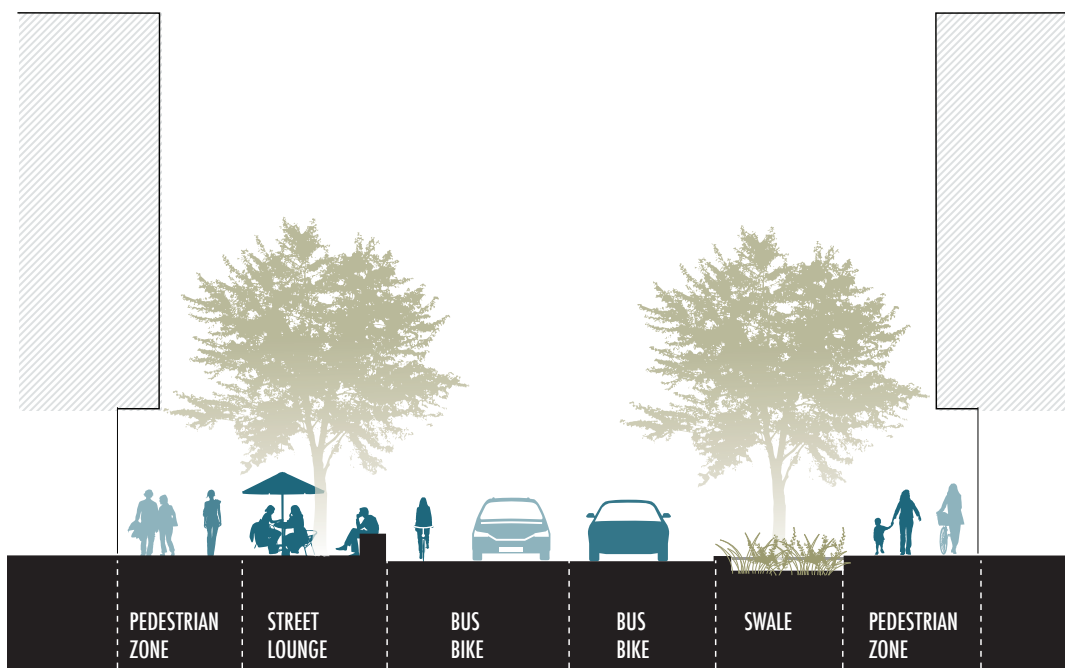
design cues and stop signs at intersections wherever possible. Space in the right-of-ways outside minimum vehicular needs should be claimed for the best suited public realm uses: pedestrian movement, landscape, activated spaces, or other uses to be determined through experimentation by the Space Center.

Street concept plans are highly recommended. They may be flexible in nature, codifying the space that is available for public realm.

The Fabric Streets do not need to individually serve all modes or functions. The web is better considered as accommodating the broad variety of uses as a system, rather than on each individual street.

Many of the Fabric Streets merit their own plan. For example, Rogers Street connects the Foundry, Rogers Park, Charles Park, Front Park and the river. It could be targeted as a Dog Walk street that would mix East Cambridge and Kendall residents. Amenities along the street could be targeted at both the dogs and their owners. A portion of the street could be closed off at lunch hour as a dog run, and hosed down before reopening.

Athenaeum, Kendall and Potter have been identified as bicycle-oriented in the Cambridge Bicycle Network Plan, with reduced speed and volume. Second, Sixth and Fulkerson Streets are also designated as bicycle streets. Sixth Street and Fulkerson are significant for children and families as routes to the Kennedy Longfellow School.



KENDALL SQUARE PUBLIC SPACE CENTER PLAN

WATER SYSTEMS

WATER LIFE

Water is a powerful element in the Plan. Beginning at the Water Works, there is expression and opportunities for play. Shallow water play areas, spray jets, and the water wall are exciting interactive ways for newly-cleansed water to make its way down Canal Trace. The design takes advantage of the many moods of water—reflective, sparkling, rippling. The canoes and kayaks offer wonderful opportunities for spending time on the water. Swimmers can now—with the cleaner Charles—fully enjoy the life of the water in Cambridge.

WATER SYSTEMS: ENGINEERING APPROACH

We recommend using an integrated water design approach tailored to Kendall's location next to the river.

We recommend maintaining the City's three-pronged approach to stormwater management of retention, detention, and water quality treatment, but modifying the way that these three requirements are applied for the drainage basins directly adjacent to the Charles River.

Retention

We recommend retaining the 95th percentile event (1.6-inch), which will increase the level of water quality treatment, as only those storms over 1.6 inches will create runoff. Retaining this level results in a more effective rainwater harvesting system, because the system will receive water in every rain event as opposed to only in the larger events.

Detention

We recommend detention for 2-year, 24-hour events and larger to protect the capacity of the existing infrastructure. Applying these policy adjustments to the Kendall Square watershed will allow the area to mimic historic drainage patterns and yield a more effective rainwater reuse system while reducing the cost to developers.



Water Quality

Understanding the preciousness of water and the financial implications associated with buying it from the City, we recommend going beyond rainwater harvesting in a step toward water self-sufficiency. The stormwater requirements outlined above will cost less for developers; we recommend shifting those cost savings to help pay for treatment of the project's gray/black wastewater. This creates the opportunity to meet the project's non-potable water demands (i.e. irrigation, toilet flushing, HVAC, water feature) with recycled water (i.e. treated storm and wastewater). Cleansing the gray/black wastewater reduces the project's burden on the City's wastewater infrastructure while at the same time future-proofing the project against future utility rate escalation.

Canal Trace

The design proposal calls for construction of a Canal Trace that follows the historic alignment of Broad Canal. This trace is to become a public amenity, creating an open space corridor that can be enjoyed by all while doing much more. The Canal Trace calls for an ever-present stream of water that varies in section as it makes its way from Junction Park (the Porkchop parcel) to the western edge of Broad Canal. If this stream was climate dependent, it would vary from wet to dry. Given the previous discussion about water stress and rates, it would not be prudent to propose that it be served by city water. Thus, a perfect opportunity exists to divert wastewater from the combined sewer just north of Junction Park into the park itself to be treated and reused as the supply for this stream. This concept was previously employed in the Dockside Green development in Victoria, B.C. as shown in Figure 21.

With respect to stormwater, the stormwater off of the areas within the campus development will be pre-treated through some form of treatment device, be it a low impact development technique such as bioretention or a man-made technique such as a filter media device or hydrodynamic separator. A high-flow bypass system will route storms above the 95th percentile storm to the detention system. After treatment, the treated water will enter the retention system for reuse. The retention system will overflow to the detention system and the detention system will outlet into the Canal Trace. This will significantly benefit the existing stormwater network as several

areas will no longer drain into the existing stormwater network.

The Canal Trace will be capable of conveying flows up to the 100-year storm.

Riverfront

The Canal Trace will expand public access and connections to the riverfront as the water corridor is extended west from Broad Canal to Junction Park, bringing more visitors down to the water. Though a lot of good work has been done over the years to improve the water quality in the Charles River and make it suitable for swimming, the Public Space Plan seeks to further improve the existing condition.

The proposed design will benefit the water quality in the Charles River in several ways. First it will reduce the volume of stormwater discharge as the majority of it will be retained on-site. Second, it will improve the quality of water that is being discharged as stormwater over and beyond the first flush will be retained on-site. Third, it will reduce combined sewer overflows as proposed development areas will be disconnected from the combined sewer and treated on-site. Fourth, it will further reduce the combined sewer overflows by reducing the amount of wastewater in the combined sewer network as some of it is diverted from the system to be treated and reused in the design proposal. Finally, as areas within the design proposal will be disconnected from the existing storm drain network they will be further protected from flooding issues in the future as the result of sea-level rise that backs up existing storm drain outfalls.

Improvements along the Riverfront will need to follow pertinent permitting requirements, maintain navigable waterways as well as offset any displaced flood volumes. The design will need to account for plant and wildlife habitat and provide proper mitigation measures such as light penetrating surfaces.

WATER SYSTEMS: ACTIVATION ELEMENT

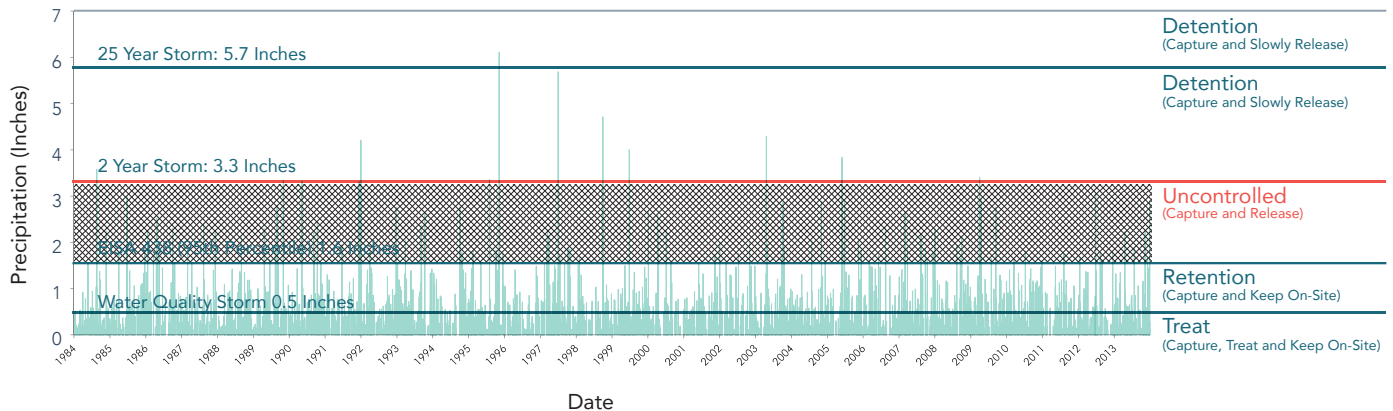
We have looked at water from the engineering and sustainability standpoint, but also as a powerful way to connect with the natural environment.

Starting at the Water Works, the water cleansing equipment will be visible below the created topography. These systems can be quite beautiful, and express what it means to reclaim water as a precious resource. The water wall is useful in aerating the cleansed water, but also offers an attractive terminus for people walking toward Grand Junction station. Water walls have been used for artistic and fun expressions. This wall can show, among other things, rainfall data or other information that relates to the sewer mining operation and water levels in Canal Trace. It can be programmed as interactive art, perhaps by an artist in residence at the Water Works.

There are many ways to enjoy the water as it makes its way to the river. Spray jets during the summer delight children, and the young at heart. Shallow runnels or water sheets can reflect the sky, sparkle in the sun, or show the pattern of raindrops. Toy boats have proved very popular with a variety of ages, and would be excellent projects for people to make themselves.

The canoes and kayaks available at Broad Canal are well-loved activities already. To these, we have added a swim pier, and support facilities, such as changing places. There are many opportunities for interpretive information to help people understand the hydrology, the habitat and the history of the river at the Outposts.

Proposed Stormwater Policy | Canal Trace
Recommended EISA 438 Retention



CONCEPTS FOR PROGRAMMING, OPERATIONS AND MAINTENANCE

PROGRAMMING

Kendall Square and East Cambridge already recognize the importance of programming in vibrant neighborhoods, and many organizations work hard to bring the neighborhood to life. The Kendall Square Association and the East Cambridge Business Association are actively creating successful events in the neighborhood—Rib Fest and Harvest Hoedown, Lunch & Learns, game nights, classes and farmer’s markets. The Cambridge Carnival International brings thousands of people for an annual festival celebrating Caribbean and worldwide cultures. Many businesses and institutions have programming or a human presence in the way of maintenance and security staff.

This kind of Purposeful Programming is excellent to build on for Kendall’s future, as more residents and employees arrive. The strength of the organizational structures is a valuable asset.

Our Kendall Framework Plan includes Purposeful Programming led by the Space Center. This entity would be the “brain” of activities in the neighborhood. Not only would the Space Center be in charge of a number of events and activities, it would also monitor how people are using space and the success of events. It would serve as an interdisciplinary think-tank on the future of the public realm, researching and exploring ideas for community engagement. The Space Center itself would be at the Crossing, with numerous Outposts in the parks and streetscapes of the neighborhood. Many of the Outposts will have a human presence—a caretaker or scholar/artist in residence.

Because purposeful programming is resource intensive, we look for ways to leverage efforts to activate the neighborhood through what we call Invitational Programming. This approach puts elements into the public realm that invite people to interact with their surroundings and with each other. A simple bench is

an invitation to linger, perhaps to people watch or to share a conversation.

Kendall is an exciting place to test invitational programming. We would aspire to bring some of the many ground-breaking ideas being explored inside the offices and labs into the public realm. Some of this is happening in building lobbies, but there could be incredible richness by making the public realm an actual participatory gallery of ideas. A neighborhood full of ideas is an inherently interesting place.

In our framework, there are built elements that extend the reach of the Space Center and serve as invitations. These may show data or information; there can be interactive elements. Some could hold equipment that could be used in the parks. Invitational elements are indicators of the human presence that cares for the public realm without being physically present at all times.

Another strategy to create well-stewarded places is through Synergy-of-use Programming. This strategy co-locates uses that are mutually beneficial, encouraging people to make spaces their own, even as public spaces. Common examples include the café with sidewalk seating, or residential stoops along a street or open space. Currently, many park spaces in Kendall suffer from a lack of adjacent synergistic uses—instead they are surrounded by streets. We are looking to increase synergy-of-use programming by suggesting that the Foundry take advantage of adjacent open space, and that Rogers Park benefit from adjacent retail. At Front Park Triangle, removing traffic from the portion of First Street along the park means that buildings can interact with the new open space.

Programming approaches that allow people to have deep interactions with the public realm encourages Natural Stewards—people that watch out for, and help

activate the places they love. These stewards may be nearby business owners, school children, or the people who live and work nearby.

Fostering natural stewardship means engaging people on a deeper level than simple casual use. In some cases, this means giving up a degree of institutional control.

Consider the idea of adventure playgrounds, where children can actually shape their environment. Part of the public realm should offer this deep level of interaction—an adventure neighborhood for all ages and kinds of people.

PUBLIC SPACE CENTER MENU OF IDEAS

+ A major event (possibly recurring) producing temporary architectural or “gameful architecture” interventions, like 72 Urban Action

+ Regular public “playtesting” sessions where design ideas are explored in 1:1 scale (Local institutions could use open spaces to test projects that they are working on; individuals/artists/designers could create temporary installations or activities using the space)

+ An annual festival that celebrates placemaking culture, perhaps in collaboration with existing community oriented arts events like Figment Boston or Illuminus Boston

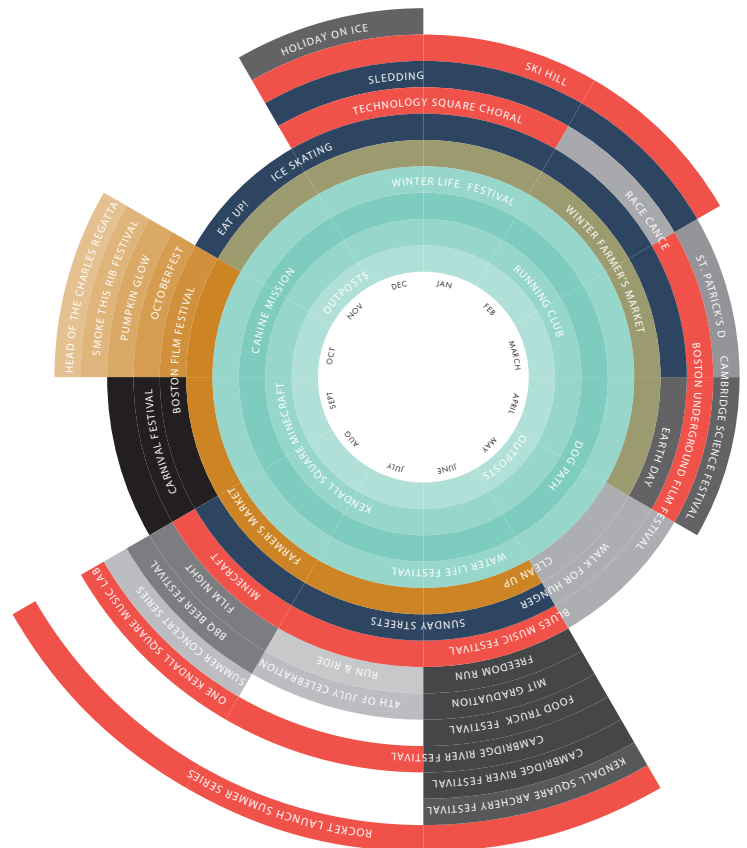
+ Installations that expose technical and natural infrastructure - make flows of trains, electricity, information, water etc. visible

+ Displays of the rules of the “playful commons”—a system of clear guidelines and mapping for what is allowed and possible to do in each space, be it public or “privately owned publicly accessible”

+ Public/Private Partnership-based activities: as an example, “Minecraft” blocks that can be connected across public spaces and encouraging participation from locals, but also game enthusiasts across the world, as well as engaging Microsoft in a local project.

+ A volunteer committee in charge of public program, with clear rules on joining, changes frequently, democratic process to award funds for projects or a full time curator/manager of the Public Space Center Process. Regular public workshops to teach/learn placemaking skills

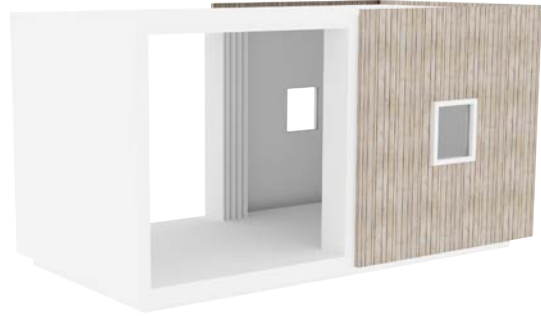
+ Multiple Kendall Square Public Space Center “residencies” for locals for that want to create at the Space Center and use facilities, receive special support and contribute to the dynamic creative community



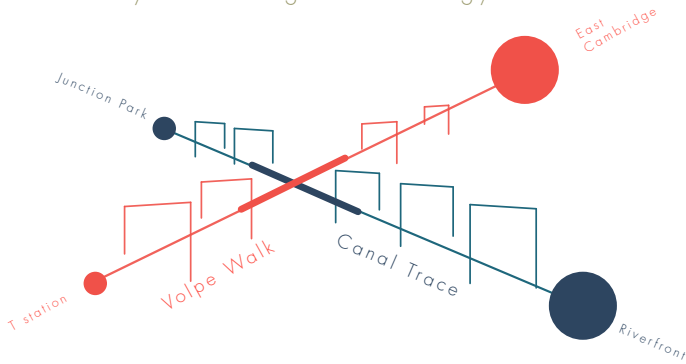
EXAMPLE PROJECTS TO LAUNCH THE PUBLIC SPACE CENTER

Outposts and Elements

“Outposts” of the Space Center. These include a family of elements that support activities in the neighborhood in a variety of ways. Some may have residency programs for scientists or artists. Some may be warming huts during the winter. Others may store equipment for activities and play. Others are gateways, with digital information displays for all kinds of information and wayfinding. The Outposts on Volpe Walk use color as a wayfinding device—when walking towards MIT/Kendall, the Outposts are red, and the color deepens toward the T Station.



Identity and Navigation Strategy

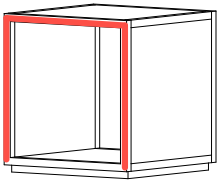


Winter Warming Outposts

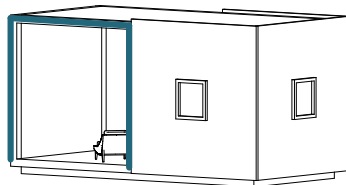


■ warming outposts
■ warming "pop" spaces
⊙ At wind chill levels below minus 18 F, frostbite can occur on exposed skin in 30 minutes or less. If the temperature dips below 0 F or the wind chill is extreme consider taking a break of choosing an indoor exercise instead. (Mayo Clinic)

Menu of Uses

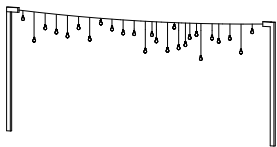


Observation star gazing
 Kitchen Kiosk
 Coffee outpost
 Workspace
 Playspace

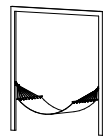


Kayak Locker
 Changing room
 Play room
 Activity Center
 Winter Ski Center
 Digilab
 Science lab

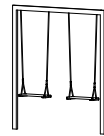
Performance Platform
 Space Center Artist in Residence
 Live/work plugin
 Mobile Office
 Makerspace
 Mini Market



lights



hammock



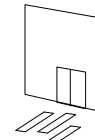
swings



community table



bike rack

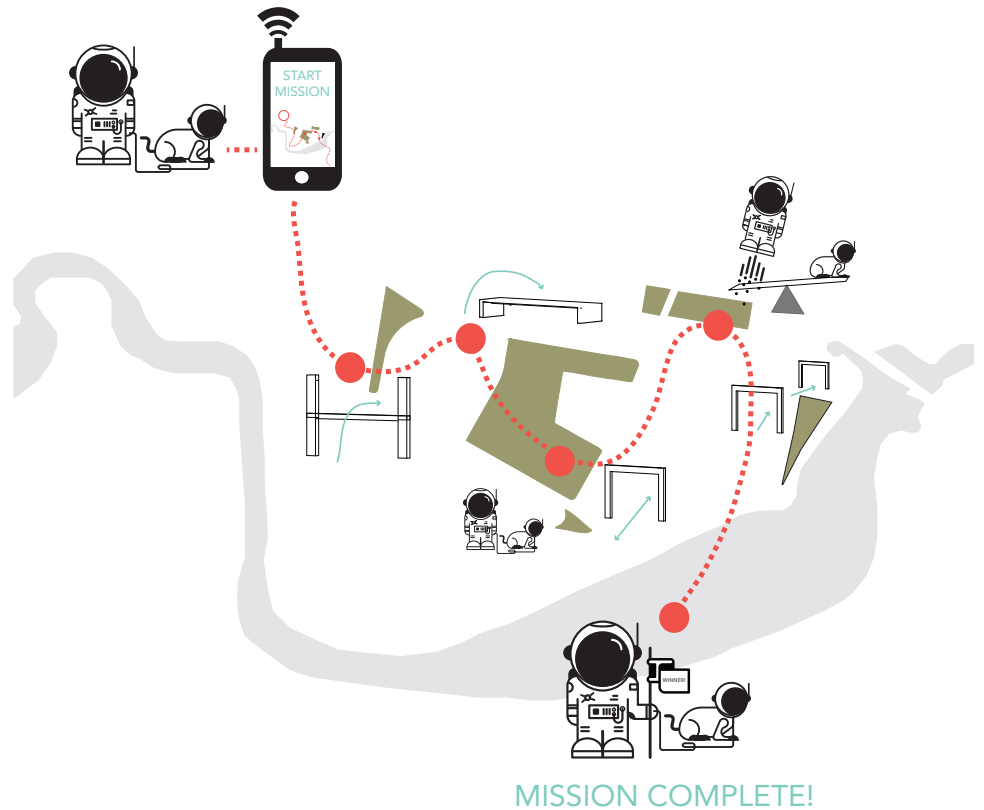


"pops" welcome mat

Canine Mission

Canine Mission, a game for humans and canines is a digital app with daily physical challenges for you and your dog to complete!

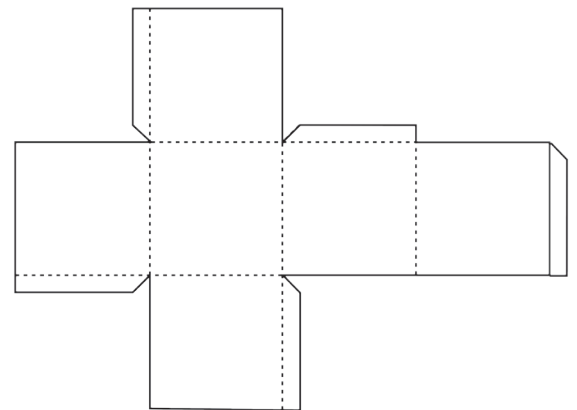
The physical challenges are found within the Kendall Square neighborhood with missions changing daily. Each morning your phone will let you know what mission you and your canine should complete. Each completed mission wins you points toward a locally sponsored prize given at the end of each month!



Public / Private Partnership : Real World Minecraft

Public/Private Partnership-based activities are a way to kickstart relationships between neighborhood stakeholders and the city, helping to build community identity, local placemaking and embracing a change in perception.

As an example, "Minecraft" a virtual game acquired by Microsoft, could be turned physical. Blocks, located across public spaces can encourage participation from locals while a large event could attract game enthusiasts from across the world. Allowing for an activities such as real world "Minecraft" could engage companies in a local project, create a nice "buzz" for business, while also developing community through a fun participatory event in the neighborhood.



make your own Kendall Square block!



OUTPOSTS + ELEMENTS

The Elements and Outposts extend the reach of the Public Space Center throughout the neighborhood. New visual icons for Kendall, they serve multiple functions:

- + Displays for sharing research, artistic endeavors, data, news, information and ideas
- + Markers for wayfinding
- + Containers for equipment, games, toys, books or other things to enjoy
- + Mini-studios for visiting artists, craftspeople or scholars
- + Warming huts to provide shelters for individuals or small groups during cold weather
- + Restrooms where people will spend longer periods of time in open spaces
- + Bath houses near the river in the summer
- + Infrastructure such as power or water, perhaps where sinks are needed for hand washing
- + Gazebos for outdoor seating or community tables

Imagine an Outpost that held an artist in residence. Similar to a “parklet”, the Outpost could take the place of two parking spaces, but it would be a structure with a small work space and a display space. The artist may be working at the intersection of visual arts and new technologies: there could be a film loop available to watch, perhaps sparking a discussion with the artist or with another viewer. The artist could be doing work that makes the invisible patterns of nature or social interaction visible—with changing displays that may make the walk to work something to look forward to each morning.

Outposts on the Canal Trace and Volpe Walk will play a particular role in wayfinding. Volpe Walk connects the East Cambridge neighborhood and the T Station. When walking from the T Station north to the neighborhood, the elements will be a neutral color. The other side, however, will be a red-maroon color that will deepen in hue as one nears the Red Line T Station and the MIT campus. On Canal Trace, the elements will become a deeper blue as one moves toward the river.



PRIVATELY OWNED PUBLIC SPACES

Many cities have relied on the private sector to contribute open space as part of the entitlement process, sometimes as a trade-off for zoning concessions. This strategy has produced many successes, but there is a perennial problem with the privatization of public space. How do people know which spaces are public? What is it okay to do in these spaces?

Kendall's privately owned public spaces—"POPS" are important components of the open space network, and our plan calls for making the public nature of the spaces very clear via insertions in the ground plane and/or ceiling. Illuminated strips in the ground at the entry denote a public space, and information can be included on the illuminated strips, indicating, for instance, that there are ADA restrooms available, that the building opens at 8, or an event is scheduled. These could be controlled from the Space Center.



SEASONALITY

Cambridge has a humid continental climate, with distinct seasons. The 44 inches of annual rainfall are fairly evenly spread throughout the year. In July, average high temperatures are above 80 C; in January and February average highs are in the 30's, with average lows in the 20's. Average snowfall is 44 inches.

For the framework plan, we offer a variety of options for walking, with open areas when sun is desirable, shady canopies in warmer months, and overhead weather protection for rainy or snowy days.

Changes in climate are likely to increase rainfall and severe weather events. The City of Cambridge has undertaken a study in climate change vulnerability as a basis for a preparedness and resiliency plan. Responses to these findings should be incorporated into Kendall Square's framework plan.

SUMMER LIFE

The generous open space in Kendall Square is well used in the summer, with plenty of places to spend time out of doors—eating lunch in the parks, kayaking,

swimming, cycling. Play areas are full of children, and there are many community events and festivals. Shady walks along Ames Street or the boulevards may be preferred routes during the heat of the day, and Canal Trace is a good place to get your feet wet. The Outposts along the river have turned into bath houses for swimmers.

WINTER LIFE

When snow falls, the neighborhood becomes magical. Skating at the plaza attracts people of all ages, and now there is a sledding hill at Rogers Park. Outposts become inviting spots for warming up and spending some time with neighbors. The walk along the river and the cocoa in the warming huts has become very popular on crisp winter days.

At wind chill levels below minus 18 F, frostbite can occur on exposed skin in 30 minutes or less. If the temperature dips below 0 F or the wind chill is extreme consider taking a break of choosing an indoor exercise instead. (Mayo Clinic)

IMPLEMENTATION

Start immediately and scale up

Bring the ideas of Kendall Square into public space. The beginnings of the Space Center could be done quite quickly. Find a set of partners and let the experimentation begin! Put up Outposts along the waterfront and in the park spaces before they are redone.

The Volpe site design is absolutely critical

This site is the heart of Kendall Square. It is highly attractive real estate. Make sure that the design and the public amenities are world-class.

Consider the land swap between the Foundry and Rogers Park

Park space is much more effective with active edges. If the window of opportunity is still open, this trade gives valuable, visible outdoor space to the Foundry's programs. It will bring "eyes on the park" to Rogers Park.

Adopt a beautiful plan and create beautiful policies that will result in the vision

The City of Cambridge will have four enticing visions for an open space framework. With such a rich set of ideas, adopt a set of policies that will enact the vision over time. Bold policies are needed to create a bold new vision!

Fix the barriers

Kendall Square has amazing assets, but the open space system cannot live up to its potential unless the route through the Marriott is bold and intuitive; the connections to the river are visible and comfortable; and the crossing of Galileo/ Binney is improved.

OPERATIONS AND MAINTENANCE

There are strong community and business organizations in Kendall Square and East Cambridge. The City is forward thinking and engaged. One of the most prestigious research universities in the world is next door. Kendall Square could not be better positioned for a uniquely strong organization that creates the highest quality urban environment.

Build on these organizational structures and foster strong leadership to begin to enact the vision through engaging the community and persevering through the many challenges to enacting change.

There are a number of models for ongoing maintenance. The Kendall Square Association may be the appropriate entity to take on many of the needed tasks for a clean, safe and programmed neighborhood. They may not be the lead for the Public Space Center; an academic or resident may be more appropriate.

Funding can come from a mix of sources that are already likely in place--tax revenue generated by developments; by contributions from property owners, businesses and institutions; and by user fees.

CREATE BEAUTIFUL POLICY

Designate Childsafe places

The center of Kendall Square can easily become an area without dangerous traffic. Zones that are either car-free or with speed limits of 15mph can be places where children can play and explore without constant supervision. These zones could be identified and designed with plentiful natural surveillance from adjacent use and seating. Adventure play areas and invitational programming would be very appropriate in these areas. Safe crossings at surrounding streets would allow children to expand the areas of comfort as they get older.

Precedent: There is no known exact precedent.

Create Street Concept Plans

Development in Kendall has typically been in multi-building “chunks” through urban renewal or other similar planned development. The Volpe site will be a similar process. While these planning processes take street design into account, the focus is on the area itself, rather than the right-of-way as a connective public space. Street Concept Plans can be proscriptive or a set of more generalized guidelines, but they can set dimensions, elements of continuity (such as lighting), mode allocations (i.e. bike lanes) and character. These concept plans clarify desired street improvements when development occurs, or capital improvement projects are done by the public sector.

Precedents:

South Lake Union Street Concept Plan http://www.seattle.gov/dpd/cs/groups/pan/@pan/documents/web_informational/dpdp025729.pdf

Terry Avenue North Street Design Guidelines <http://www.seattle.gov/transportation/docs/TerryAveFinal4-5-05.pdf>

First Hill Public Realm Action Plan http://www.seattle.gov/dpd/cs/groups/pan/@pan/documents/web_informational/p2179629.pdf

Clarify “POPOs” as Public Spaces

The privately owned public open spaces are an important element in Kendall Square’s public realm. Marking them more clearly as public space would immediately strengthen the network of open space. We suggest a common design element in the ground plane at entries that could not only identify the space as public, but also help people know what was available in the space, and what activities are encouraged. Another good tool is a map with these spaces located, and the available amenities. San Francisco has a good model for the mapping.

Precedents:

<http://www.sf-planning.org/index.aspx?page=3339>

Create Green Space with Development

Kendall Square will benefit by an increase in trees and plantings at grade, and by more sustainable stormwater approaches. The Green Factor is a powerful tool that requires development to incorporate green space and sustainable solutions in a flexible manner, so that the requirement can be met in a manner appropriate to the circumstances of the site. Tools such as the Green Factor set the level of expectation for developers. This is critical to maximizing public benefit in locations where development pressure is strong.

Seattle, Washington

<http://www.seattle.gov/dpd/cityplanning/completeprojectslist/greenfactor/background/default.htm>

Malmö, Sweden

http://malmo.se/download/18.d8bc6b31373089f7d980008924/1383649554866/greenspacefactor_greenpoints_grabs.pdf

Revise Stormwater Policies to Direct Resources toward GIS

Per the discussion about stormwater and developer requirements, consider a shift in those requirements in the Kendall Square watersheds to effective retention, detention and water treatment, with cost savings shifted to green infrastructure solutions. See Appendix for more detailed information.

Cultural Stewardship Program

Kendall Square is uniquely positioned to the creation of an entity like the Public Space Center. Researchers from many related disciplines could be brought together to experiment, explore and monitor how people use public space, and how it could be more engaging. The resources in the vicinity are globally significant. Kendall Square would be an excellent laboratory.

There are many ways to structure this activation and research hub. The City could work with MIT, neighborhood organizations, the new Foundry programs and local schools to create and sustain the most engaging set of urban open spaces in the nation. The physical hub would be located at The Crossing. Outposts would support wayfinding, cultural activities, artists and scholars in residence, workshops and activities. The activities and research bring joy and stronger social networks to the neighborhood, and could be of world-wide significance. Consider:

- + a small, agile cultural organization that works in the hub and curates an ongoing public program throughout Kendall Square, runs workshops, invites artists, manages collaborations with other local organisations

- + Connections to researchers, designers and neighborhood residents

- + a set of experimental policies and licenses that allow for citizen driven urban design (See "Playful Commons" at <http://playfulcommons.org>)

- + online and offline mapping of the entire Kendall Square area

Precedents:

Kendall Square's version should be unique, but interesting precedents to consider as inspiration include:

<http://officeus.org/> - OFFICE US, the US pavillon at 2014 Venice Architecture Biennale. An architecture "office" with 6 partners, remixing US architecture projects in public over a 6 month period. Result: ongoing public performance (people could walk in any time), a series of public events, a series of new plans for future architecture projects around the world

<http://fieldofficebudapest.tumblr.com/> - Field Office, a site-specific game design space run by Invisible Playground in Budapest, Prag and Copenhagen. Open for three weeks, the Field Office hosted workshops and conversations with locals, published an ongoing worklog, and together with locals developed a set of site-specific games that were launched in a series of playful walks in the context of public art festivals.

http://www.mattiapacorizzi.com/?fluxus_portfolio=ufo-exyzt-warsaw-pl - UFO, a temporary architecture installation in the form a of a UFO, run by EYZT, place for community activities, concerts, cooking etc.

<http://72hourinteractions.com> - the public info point during the 72 Hour Interactions Gameful Architecture World Championship. A meeting point for people interested in the championship, an ongoing exhibition of the progress made by the teams, starting point for playtesting tours, place for discussions.



6

TEAM MEMBERS

Lesley Bain, Framework Cultral Placemaking

Jenny Kempson, Framework Cultural Placemaking

Mackenzie Waller, Framework Cultural Placemaking

Jordan Lewis, Framework Cultural Placemaking

Tera Hatfield, Framework Cultural Placemaking

Adele Santos, Santos Prescott & Associates

Eric Morris, Santos Prescott & Associates

Drew Gangnes, MKA

Matthew Jones, MKA

Lily Siu, MKA

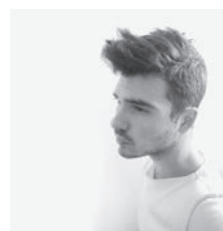
Pallavi Kalia Mande, Charles River Watershed Association

Trent Lethco, ARUP

Sebastian Quack, Invisible Playground, Berlin

Scott Burnham, Urban Strategist

Kevin Slavin MIT Media Lab







CURRENT OPENSACE

- Rogers Park
- Porkchop Park
- Point Park
- Volpe Center
- Triangle Park



PROPOSED OPENSACE

- Volpe Walk
- Canal Trace
- The Web of Streets
- Volpe Backyard
- MIT/Kendall T Station Area
- Junction Park
- Point Park
- Rogers Park
- Front Parks: Triangle Park, Front Park
- Charles Park
- Under Park
- The Riverfront
- The Space Center
- Outposts

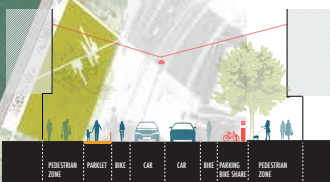


Street Typologies

FABRIC STREET



MARKET STREET



PARTICIPATE/BIG MOVE STREET



BOULEVARDS



ERS PARK

FRONT PARKS

RIVERFRONT

CANAL UNDERPARK

RIVERFRONT

SHARED STREET

T STATION GATEWAY

The T Station should be a clear, well-marked and lighted arcade from the plaza through the ground floor of the hotel to Broadway. It should reflect the spirit of the passageway to MIT on the other side of the street. Together this circulation axis would become an important element of the combined masterplan.



POINT PARK

The character of Point Park draws on the retail nature of the junction as a plaza space for people to meet in the course of the day's routine. It is bustling day and night. The design includes iconic overhead light structures canopies that are colorful and lit in the evening. They help visually connect Point Park with the Kendall Mill Station as part of a larger pedestrian node and also act as an entryway from Boston.



THE CROSSING

The Crossing is envisioned as a major new open space at the intersection of the Canal Trace and Volpe Walk. The crossing of the two "big move" routes is significant in the hierarchy of Kendall Square as an enticing place and as a signature location in terms of intuitive wayfinding.



VOLPE BACKYARD

The Backyard is located inside the Volpe site. It is designated as a Childsafe Zone, with a discovery playground and children's garden, this would be safe place for young people to be able to participate in self-directed play away from areas with traffic. The Volpe site gives an opportunity to create a true mixed-use environment serving a variety of inhabitants, creating an unusually synergistic heart to the Kendall neighborhood.



ROGERS PARK

Rogers Park is well located for larger scale activities that bring together East Cambridge residents with the Kendall Square community. Its location is also key to the success of the Foundry Building Demonstration Project. A very attractive synergy between the STEAM activities and the park is possible, but the proposed new development between the Foundry and Third Street would significantly reduce that potential.



WARMING OUTPOST



JUNCTION PARK

The "parkchop" shaped open space between Binney and the Grand Junction right-of-way's new park could be a beautiful and functional junction that supports safe and pleasant commutes by bicycle, with facilities for cyclists including bike storage, repair and showers. Should there be passenger transit on the route in the future, the site takes on an even stronger use as a junction. The Station is located at the south end of the park near Broadway.

The other interesting junction is below ground—the combined sewer main is just north of the park. We propose diverting stormwater from the main and pre-treating it through bio-retention and/or a filter media device or hydrodynamic separator. This treated water is aerated by being pumped to a "water wall" visible from across Binney, and directed to the Canal Trace.



CANAL UNDERPARK

Access to the Charles River is a key contextual component of an open space system, however the opportunities to engage with the river are surprisingly sparse. We propose avoiding the traffic barriers by going under the bridges to the river. From the existing walkway a ramp would lead to a path, suspended from the beams above. This would first take us to a new park at the median of the two bridges. This land between the two bridge structures slopes down to the water, and currently has lovely, mature trees. Steps attached to the masonry piers would connect to this existing green space above.



CANAL TRACE

Canal Trace begins at the Junction Park Waterworks, taking cleansed water through the heart of Kendall to the Broad Street Canal. It is one of the new signature connections defining the new neighborhood.



FRONT PARK TRIANGLE

Our framework looks at the collection of parks near the river—Front Park, Charles Park, the riverfront, the existing but currently disconnected parcel described as the Under Park, and the newly acquired triangle of land as an assembly of Front Parks. Front Park Triangle draws on the culinary art school as inspiration for growing food and bringing the people together around a common dining table. Herbs and edible plants grow in raised beds along the south end of the park, with a slight incline to diminish the effects of the traffic along Land Boulevard. The north side emphasizes the connection diagonally across Land Boulevard to the existing Front Park.



RIVERFRONT

Reconnecting Cambridge and the Charles River is one of the most exciting aspects of the Connect Kendall Square project. People will be drawn to the river via the Under Pass or the improved crossings associated with the Front Parks. Along the riverfront itself, people can choose to be on the lower boardwalk, close to the water, or upland along the Cambridge Park(way). The Riverfront walkway connects from MIT through Cambridge over to Boston, making a continuous pathway.



KENDALL SQUARE PUBLIC SPACE CENTER PLAN LAUNCHING EXPLORATION

ACTIVATION WILL COME FROM PROACTIVE AND NATURAL STEWARDSHIP

The Space Center—the “brains” of the research and experimentation in activation—is a unique approach to proactive stewardship. It draws on the incredible resources of MIT and other nearby institutions, and combines academic expertise with the grass roots community members of Kendall Square and East Cambridge. The efforts to invent new strategies and activities would be supported by institutions and the City, with staff to support events and activities.

Our Kendall Framework Plan includes **Purposeful Programming** led by the Space Center. This entity would be the “brain” of activities in the neighborhood. Not only would the Space Center be in charge of a number of events and activities, it would also monitor how people are using space and the success of events. It would serve as an interdisciplinary think-tank on the future of the public realm, researching and exploring ideas for community engagement.

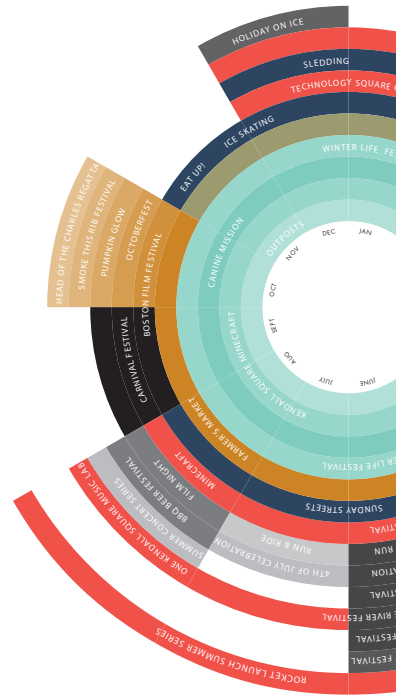
Because purposeful programming is resource intensive, we look for ways to leverage efforts to activate the neighborhood through what we call **Invitational Programming**. Kendall is an exciting place to test invitational programming.

We would aspire to bring some of the many ground-breaking ideas being explored inside the offices and labs into the public realm.

Another strategy to create well-stewarded places is through **Synergy-of-use Programming**. This strategy co-locates uses that are mutually beneficial, encouraging people to make spaces their own, even as public spaces. Common examples include the café with sidewalk seating, or residential stoops along a street or open space. Currently, many park spaces in Kendall suffer from a lack of adjacent synergistic uses—instead they are surrounded by streets.

Programming approaches that allow people to have deep interactions with the public realm encourages Natural Stewards—people that watch out for, and help activate the places they love. These stewards may be nearby business owners, school children, or the people who live and work nearby.

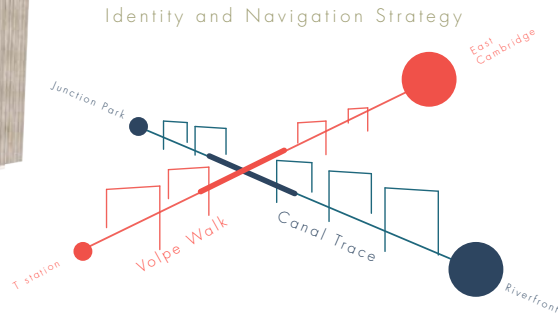
We are proposing a year of activation events, installations and moments to launch the Kendall Square Public Space Center Plan. These will occur throughout the seasons and compliment the existing festivals, events and programming already being implemented in Kendall Square.



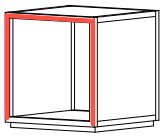
OUTPOSTS & ELEMENTS

“Outposts” of the Space Center. These include a family of elements that support activities in the neighborhood in a variety of ways. Some may have warming programs for scientists or artists. Some may be warming huts during the winter. Others may store equipment for activities and play. Others are gateways, with digital information displays for all kinds of information and wayfinding.

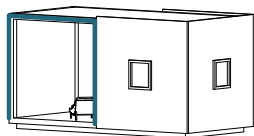
The Outposts on Volpe Walk use color as a wayfinding device—when walking towards MIT/Kendall, the Outposts are red, and the color deepens toward the T Station.



Menu of Uses



- Observation star gazing
- Kitchen Kiosk
- Coffee outpost
- Workspace
- Playspace



- Kayak Locker
- Changing room
- Play room
- Activity Center
- Winter Ski Center
- Digilab
- Science lab

- Performance Platform
- Space Center Artist in Residence
- Live/work plugin
- Mobile Office
- Makerspace
- Mini Market



lights



hammock



swings



community table

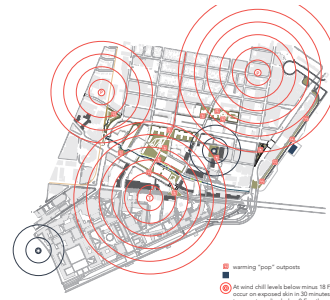


bike rack



“pops” welcome mat

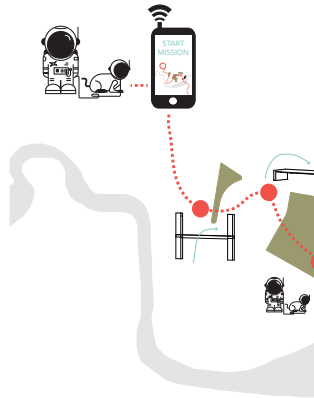
Winter Warming Outposts



CANINE MISSION

Canine Mission, a game for humans and canines app with daily physical challenges for you and your dog to complete!

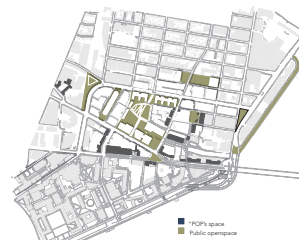
The physical challenges are found within the Kendall Square neighborhood with missions changing daily. Each day your phone will let you know what mission you should complete. Each completed mission wins you a prize. A locally sponsored prize given at the end of the month!



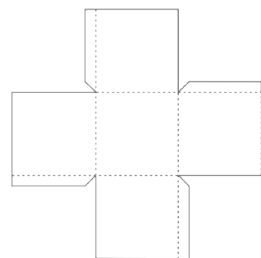
PUBLIC/PRIVATE PARTNERSHIP - REAL WORLD MINECRAFT

Public/Private Partnership-based activities are a way to kickstart relationships between neighborhood stakeholders and the city, helping to build community identity, local placemaking and embracing a change in perception. As an example, “Minecraft” a virtual game acquired by Microsoft, could be turned physical. Blocks, located across public

spaces can encourage participation from locals while a large event could attract game enthusiasts from across the world. Allowing for an activities such as real world “Minecraft” could engage companies in a local project, create a nice “buzz” for business, while also developing community through a fun participatory event in the neighborhood.



MAKE YOUR OWN BLOCK TO P...



KENDALL SQUARE PUBLIC SPACE CENTER PLAN

FUELING CHANGE

CREATING BEAUTIFUL POLICY TOWARDS IMPLEMENTATION

CREATE STREET CONCEPT PLANS

Development in Kendall has typically been in multi-building "chunks" through urban renewal or other similar planned development. The Volpe site will be a similar process. While these planning processes take street design into account, the focus is on the area itself, rather than the right-of-way as a connective public space. Street Concept Plans can be prescriptive or a set of more generalized guidelines, but they can set dimensions, elements of continuity (such as lighting), mode allocations (i.e. bike lanes) and character. These concept plans clarify desired street improvements when development occurs, or capital improvement projects are done by the public sector.

CULTURAL STEWARDSHIP PROGRAM

Kendall Square is uniquely positioned to the creation of an entity like the Public Space Center. Researchers from many related disciplines could be brought together to experiment, explore and monitor how people use public space, and how it could be more engaging. The resources in the vicinity are globally significant. Kendall Square would be an excellent laboratory.

There are many ways to structure this activation and research hub. The City could work with MIT, neighborhood organizations, the new Foundry programs and local schools to create and sustain the most engaging set of urban open spaces in the nation. The physical hub would be located at The Crossing. Outposts would support wayfinding, cultural activities, artists and scholars in residence, workshops and activities. The activities and research bring joy and stronger social networks to the neighborhood, and could be of world-wide significance.

REVISE STORMWATER POLICIES TO DIRECT RESOURCES TOWARD GIS

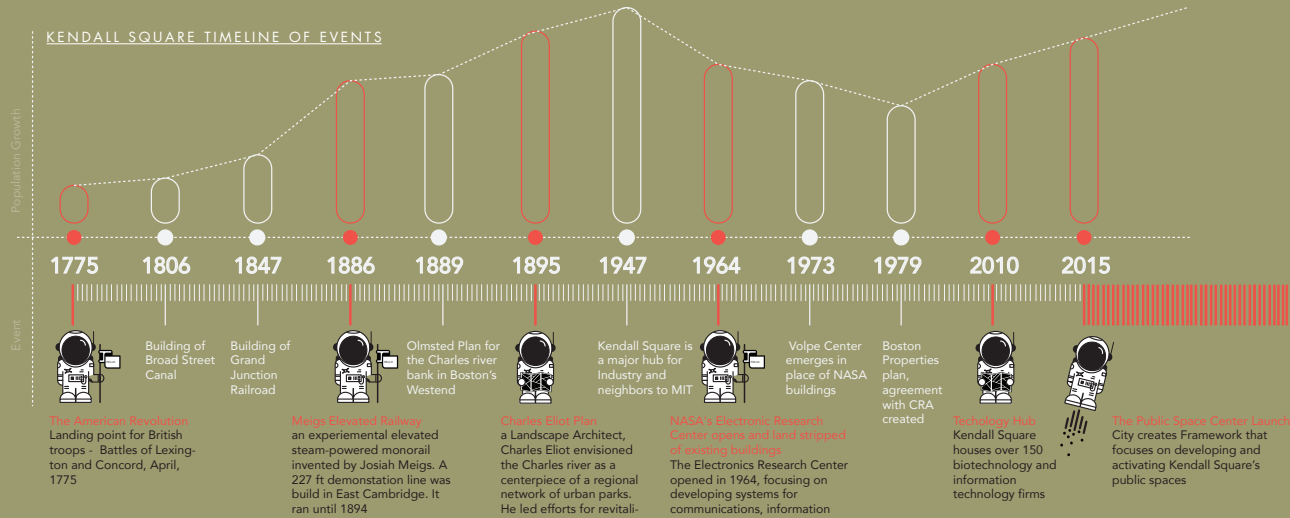
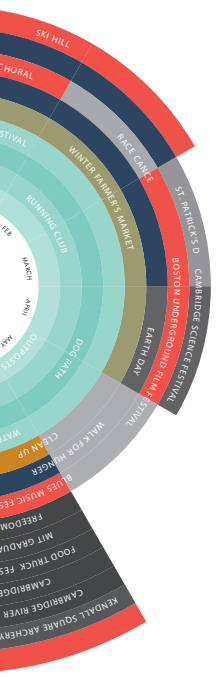
Per the discussion about stormwater and developer requirements, consider a shift in those requirements in the Kendall Square watersheds to effective retention, detention and water treatment, with cost savings shifted to green infrastructure solutions. See Appendix for more detailed information.

CLARIFY "POPOS" AS PUBLIC SPACES

The privately owned public open spaces are an important element in Kendall Square's public realm. Marking them more clearly as public space would immediately strengthen the network of open space. We suggest a common design element in the ground plane at entries that could not only identify the space as public, but also help people know what was available in the space, and what activities are encouraged. (see illustration) Another good tool is a map with these spaces located, and the available amenities. San Francisco has a good model for the mapping.

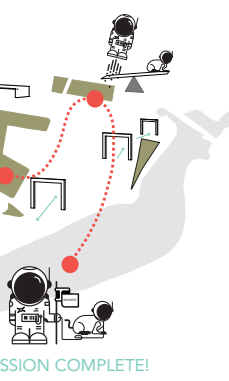
DESIGNATE CHILDSAFE PLACES

The center of Kendall Square can easily become an area without dangerous traffic. Zones that are either car-free or with speed limits of 15mph can be places where children can play and explore without constant supervision. These zones could be identified and designed with plentiful natural surveillance from adjacent use and seating. Adventure play areas and invitational programming would be very appropriate in these areas. Safe crossings at surrounding streets would allow children to expand the areas of comfort as they get older.



is a digital our dog to

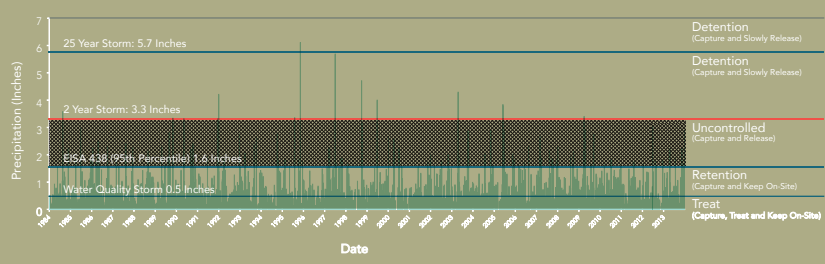
ndall Square h morning and your canine you points d of each



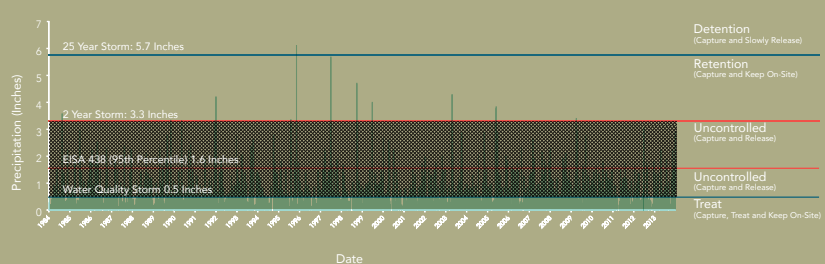
SSION COMPLETE!

PLAY IN THE PARK

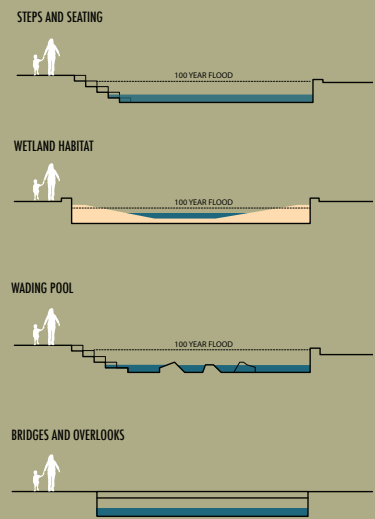
Proposed Stormwater Policy | Canal Trace
Recommended EISA 438 Retention



Current Cambridge Stormwater Policy



CANAL TRACE TYPOLOGIES



KENDALL SQUARE PUBLIC SPACE CENTER PLAN

AS KENDALL SQUARE HAS BEEN ON THE CUTTING EDGE OF CREATING THE FUTURE, WE PROPOSE MAKING KENDALL SQUARE THE PUBLIC SPACE CENTER--BRINGING THE SPIRIT OF EXPERIMENTATION, INNOVATION AND OPTIMISM INTO THE PUBLIC REALM.

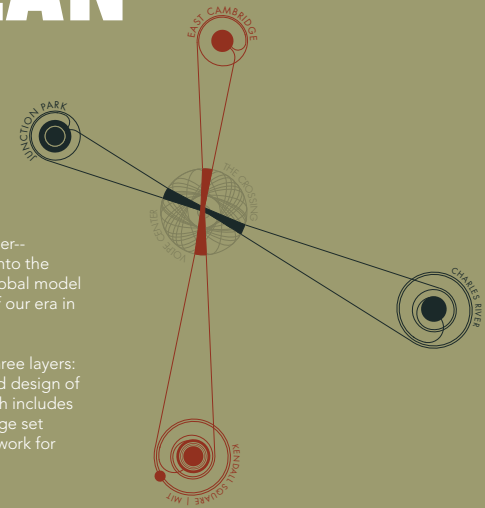
KENDALL SQUARE IS WHERE THE FUTURE IS INVENTED.

Kendall Square has always been a place for dreaming big, for exploration, research, innovation and taking risks--from the early industries built on marsh land, to the grand vision of a NASA, and to its abundant of research facilities and innovative businesses located here today. In developing a new framework for Kendall Square, we questioned: how can this heritage of innovation and ideas be continued and leveraged to address opportunities for Kendall Square today?

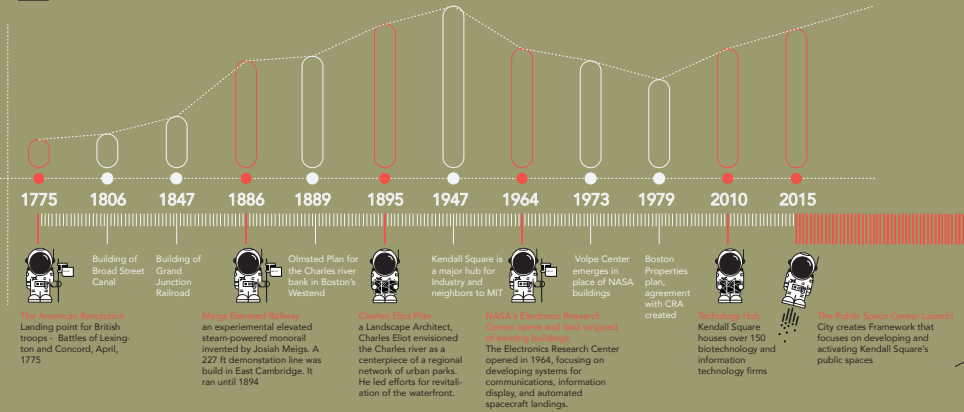
We need a shift in perspective towards a grand moment of optimism for Kendall Square. People should think of it as a destination in itself, a place to discover, the perfect place to build, to start new ways to participate in public space. Development of a public space framework allows us to ask: "what is this place?" and "how can we be curious and explore again?" while developing new public space fabric for Kendall Square.

As Kendall Square has been on the cutting edge of creating the future, we propose making Kendall Square the Public Space Center--bringing the spirit of experimentation, innovation and optimism into the public realm. Kendall Square, as Public Space Center, can be a global model that joyfully addresses the social and environmental challenges of our era in a forward-looking, healthy and humane neighborhood.

The framework for creating the Public Space Center consists of three layers: The Physical Realm, which incorporates the tangible elements and design of landscapes, buildings and systems; The Participatory Realm, which includes the ideas made visible and the activities that take place in the stage set by the physical realm; and Beautiful Policy, which lays the groundwork for fueling change towards a better public future.



KENDALL SQUARE TIMELINE



PROPOSED OPENSOURCE



- Volpe Walk
- Canal Trace
- The Web of Streets
- Volpe Backyard
- MIT/Kendall T Station Area
- Junction Park
- Point Park
- Rogers Park
- Front Parks: Triangle Park, Front Park Charles Park
- Under Park
- The Riverfront
- The Space Center Outposts

THE CROSSING

The Crossing is envisioned as a major new open space at the intersection of the Canal Trace and Volpe Walk. The crossing of the two "big move" routes is significant in the hierarchy of Kendall Square as an enticing place, and as a signature location in terms of intuitive wayfinding.



ROGERS PARK

Rogers Park is well located for larger scale activities that bring together East Cambridge residents with the Kendall Square community. Its location is also key to the success of the Foundry Building Demonstration Project. A very attractive synergy between the STEAM activities and the park is possible, but the proposed new development between the Foundry and Third Street would significantly reduce that potential.



WARMING OUTPOST



CANAL UNDERPARK

Access to the Charles River is a key contextual component of an open space system, however the opportunities to engage with the river are surprisingly sparse. We propose avoiding the traffic barriers by going under the bridges to the river. From the existing walkway a ramp would lead to a path, suspended from the beams above. This would first take us to a new park at the median of the two bridges. This land between the two bridge structures slopes down to the water, and currently has lovely, mature trees. Steps attached to the masonry piers would connect to this existing green space above.



WATER OUTPOST

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CHANGING OUTPOST

APPENDIX

A. Integrated Stormwater Design

B. Online Research on opinions about Kendall Square

A. The Need for Integrated Water Design

Like most urban areas across the country, Cambridge has dealt with water-related utilities in three distinct “silos”, whereby the City’s drinking water supply, sewage treatment and storm water management systems have been planned with little regard to economic or environmental benefits that could be derived by leveraging synergies between these three water “resources”. This conventional approach led to the development of mega, centralized water and sewage treatment plants whose charge has been to meet the needs of an entire city in more or less a single location, albeit separately for water and sewage.

The one common overlap that developed in many cities was the convenience of collecting nuisance stormwater runoff together with sewage and treating this combined wastewater at a centralized sewage treatment plant. This so-called “combined sewer” approach has proven to be a false synergy due to the inability of these systems to adequately handle the combined load, even in modest storms, leading to combined sewage overflowing to rivers, lakes, and oceans. Billions of dollars are required to retrofit existing combined sewer networks with the proper infrastructure to preclude combined sewer overflows (CSOs), billions that City coffers simply do not have. Moreover, the means to fund these major improvements is manifested in skyrocketing water and sewer utility rates. As a result, the conventional approach has proven to be both environmentally and economically unsustainable.

Integrated Water Design, an approach that bucks the conventional silo approach to water resources engineering, is needed to deal with water and sewer scarcity issues facing hundreds of cities across the country. This technique considers all the water needs or “demands” of a project and compares them to all the possible water “supplies” available at the project site (e.g. an irrigation demand could be supplied by rain landing on a roof or the toilet flushing water demand could be supplied by water that is collected from sinks, then cleansed and recycled).

Numerous optional pairings of supplies and demands can be compared against one another from an initial capital cost as well as a long-term operations and maintenance cost perspective to determine the most cost effective and environmentally responsible strategies that should be considered for the project. In short, this approach yields more “decentralized”

water resource solutions that reduce the water and sewer utility bills and redirects those monies to pay for on-site systems and their long-term operations and maintenance. In addition, these onsite systems provide the added benefit of reducing the demand on overtaxed municipal systems.

To understand the benefits that an Integrated Water Design approach could have on Kendall Square, we looked at these three water “resources” to better understand the challenges and opportunities associated with each one.

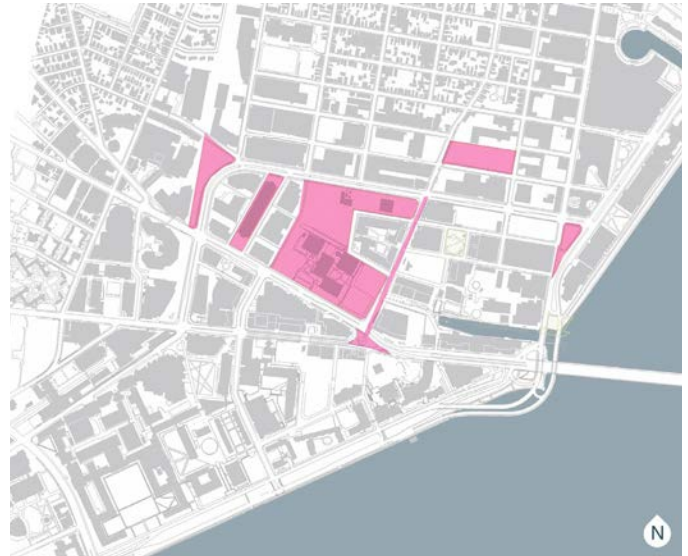


figure 1

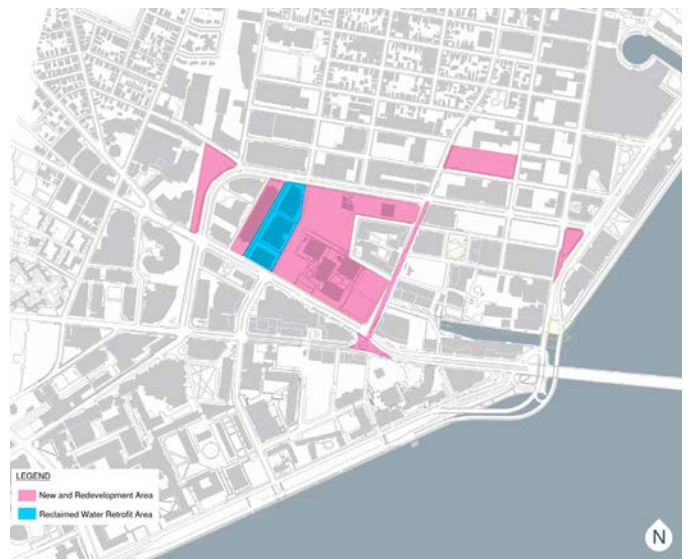


figure 2

Stormwater Management

Historic Conditions

Historically the land that Kendall Square occupies consisted of tidelands between the Charles River and the dry land to the west (see Figure 3). Between 1777 and 1870, this area was gradually filled in and Broad Canal was established as Cambridge was declared a United States Port of Delivery (see Figure 4). To the west, the area was largely forested underlain by clay soils. In its natural condition, the majority of the rain that fell returned to the atmosphere in the form of evaporation and/or evapotranspiration or returned to the ground via infiltration to recharge the groundwater. Very little rainfall turned into runoff. To understand the magnitude of each of these constituent parts, we modeled the historic conditions of the inland forest to estimate how much runoff would actually makes its way to Charles River if we looked at one block of land (see Figure 5) as well as if we looked at the entire limits of this design proposal (see Figure 6). By our calculations, approximately 97% of the rainfall that fell remained on-site with only 3% running off.

Existing Conditions

Over time, Kendall Square was developed and paved over with buildings and streets. Urbanization altered the natural landscape and historic drainage patterns which in turn modified the amount of water that runs off, the rate at which it runs off and the quality of water that runs off of a site. Today, the Charles River has been polluted with runoff from stormwater and combined wastewater to the point where the Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have joined forces to establish Total Maximum Daily Load (TMDL) amounts for Pathogens and Nutrients. As cities form and utilities are installed, inevitably the infrastructure reaches a point where it cannot handle the additional loads from continued development and the system becomes capacity constrained. Such is the case in Cambridge where the existing stormwater infrastructure can only handle runoff from a two-year storm event, or more precisely, a storm event with a 50% probability of occurrence. Any event larger than a two-year event will overwhelm the system and result in localized flooding.

Looking Ahead: Proposed Conditions

The City of Cambridge Department of Public Works (The Works) is well aware of the myriad of stormwater issues associated with urbanization. The low impact development (LID) movement that gained momentum in the 1990s strives to get back to historic conditions where the majority of precipitation that falls on a site is returned to the ground or the atmosphere. To that end, The Works put out their latest stormwater management guidelines in May 2008 that seek to maximize infiltration and require a project to meet three criteria: 1) treat the full water quality volume (generally ½-inch times the impervious area of the development), 2) retain the difference between the pre-construction 2-year, 24-hour storm event and the post-construction 25-year, 24-hour storm event and 3) detain the difference between the post-project runoff and the pre-project runoff for the 2, 10, 25 and 100-year, 24-hour events.

These criteria seek to improve the quality of the water that leaves the site by requiring treatment of the first flush. The first flush refers to the rainfall after a dry period. Treating the first flush is key because prior to a rainfall event, lots of sediment, hydrocarbons, metals, and fertilizers accumulate on the ground. When the rain starts coming down, the first few inches of runoff

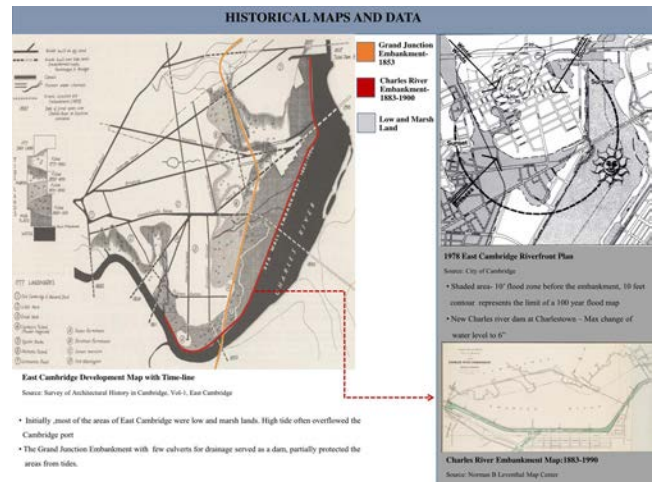


figure 3

Table 1: Stormwater Management Summary on One Block of Land

Scenario	Annual Rainfall (cf)	Annual Retention (cf)	Retention Storage Volume(cf)	Annual Runoff (cf)	Detention Storage Volume(cf)
Historic	555,000	537,000	-	18,000	-
The Works	555,000	298,000	22,000	257,000	0
Recommended	555,000	532,000	9,000	23,000	8,000

BROAD CANAL WAS DUG TO ACCOMMODATE SHIPPING REQUIREMENTS IN THE 19TH CENTURY AND WAS PARTLY FILLED AFTER 1870.

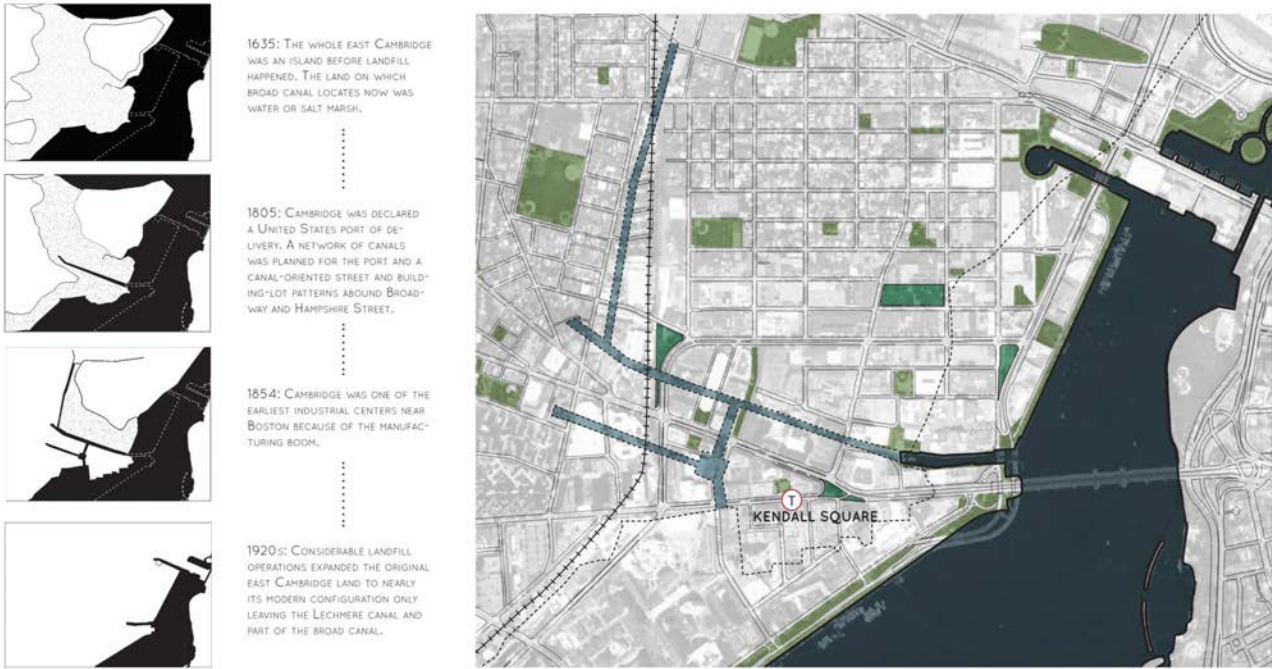


figure 4

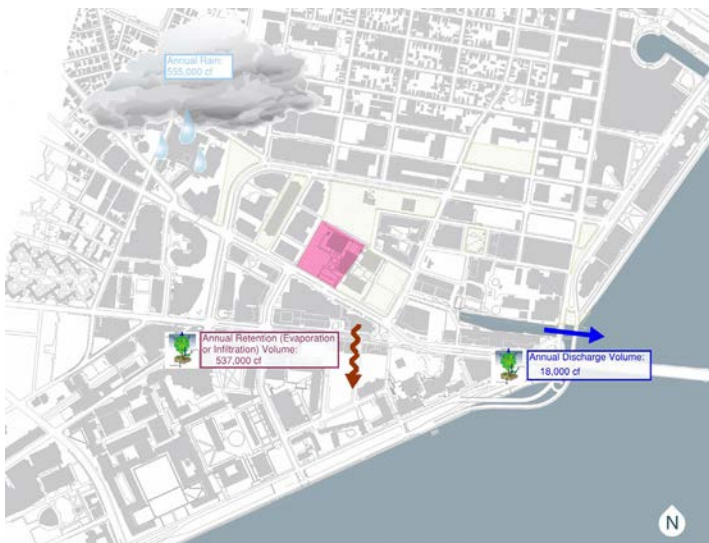


figure 5

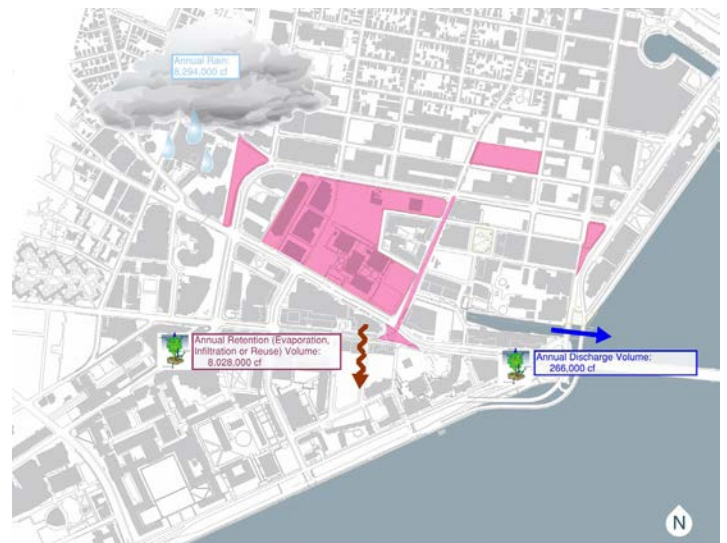


figure 6

flushes this dirty material off of the surface. Cambridge defines the first flush as the first 0.5-inches of rain. Beyond 0.5-inches, they contend that the dirty material has been sufficiently washed away and that the remaining runoff is predominantly clean. As such, the code required treatment is to treat the first 0.5-inches of runoff off of impervious surfaces.

The City's approach also addresses the infrastructure capacity issue by requiring retention and detention for 2-year, 24-hour events and larger. When looking at a rainfall histogram, one can get a better understanding of these requirements (see Figure 7). To compare these criteria against the historic conditions, we again looked at one block of land (see Figure 8) as well as the entire limits of the design proposal (see Figure 9). Recall that historically one block of land would receive 555,000 cf of rain per year of which 537,000 cf would be retained on-site and 18,000 cf would runoff (i.e. 97% retention). When applying the prescribed 2008 stormwater code, the same 555,000 cf of rain would result in 298,000 cf of water being retained on-site and 257,000 cf running off (i.e. 54% retention). This discrepancy is primarily the result of retention not being required for small events (i.e. less than the 2-year, 24-hour) which happen to occur the majority of the time. In addition, the required retention storage volumes are large as a result of trying to retain large storm events. Furthermore, given the infrequency of these large events, the retention system has a good chance of going long periods without receiving any runoff as depicted by the green storm spikes and corresponding time references shown in Figure 7.

Recommended Stormwater Policy

To understand if we could get closer to historic runoff conditions while also reducing the size of the retention systems and making them more effective by directing runoff to them more frequently, we looked to Section 438 of the Energy and Independence Security Act of 2007 (EISA 438). Based on the technical guidance document put forth by the EPA, this can be achieved by retaining

small storms on-site by one of two options; 1) retain up to the 95th percentile storm event or 2) prepare a continuous simulation to determine the historic runoff. We opted to use Option 1 whereby the 95th percentile event is retained on-site.

To comply with The Works code, we are recommending retention of the 95th percentile event (1.6-inch). This brings us into compliance with water quality criteria. Further, we recommend detention of the difference between the pre-construction 2-year, 24-hour storm event and the post-construction 25-year, 24-hour storm event as well as the difference between the post-project runoff and the pre-project runoff for the 2, 10, 25 and 100-year, 24-hour events.

By again looking at a rainfall histogram, one can understand the difference in retention and detention requirements that our design proposal recommends (see Figure 10). To compare these requirements to the historic and current code conditions, we looked at one block of land (see Figure 11) as well as the entire design proposal (see Figure 12). A comparative summary of the results on one block of land are as follows:

figure 7

Cambridge Public Works Retention

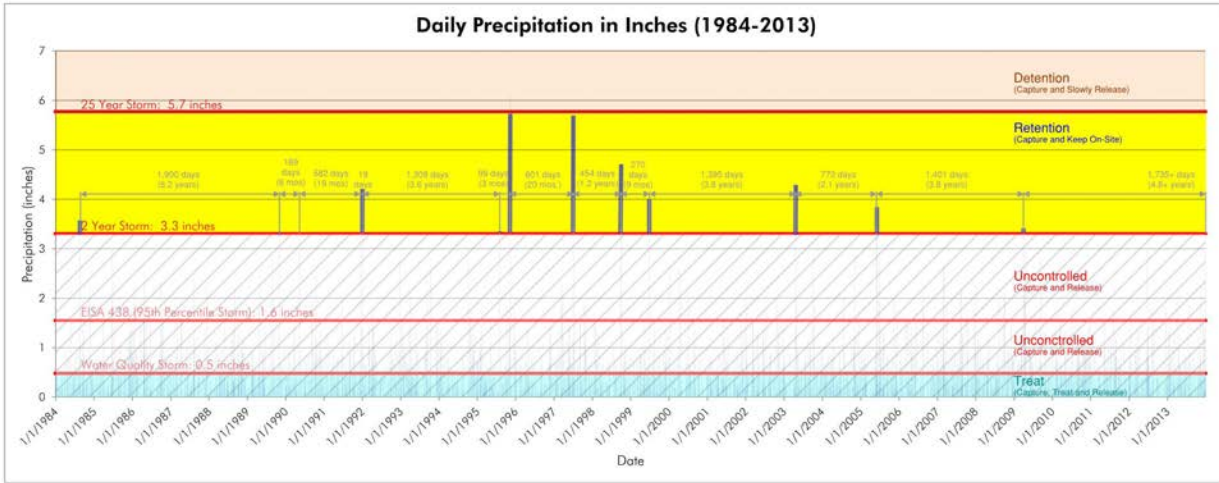


figure 7

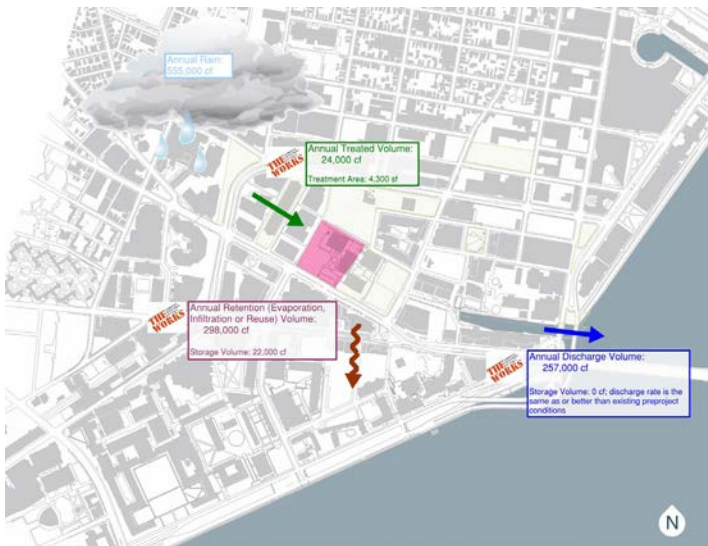


figure 8

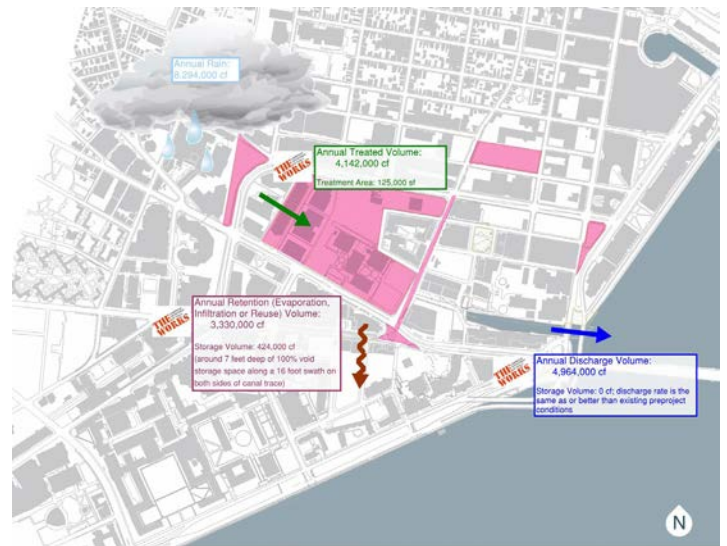


figure 9

Recommended EISA 438 Retention

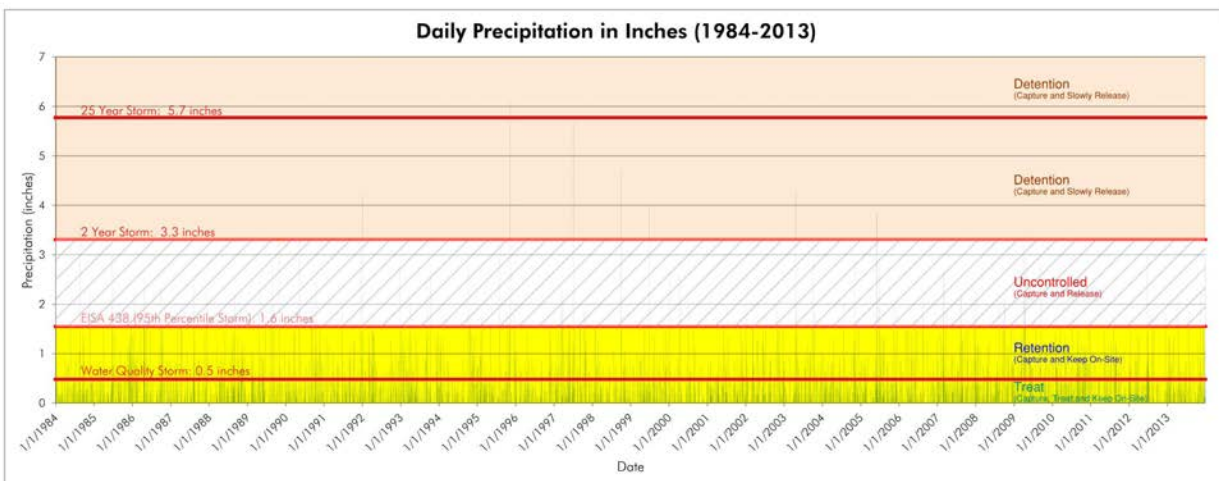


figure 10

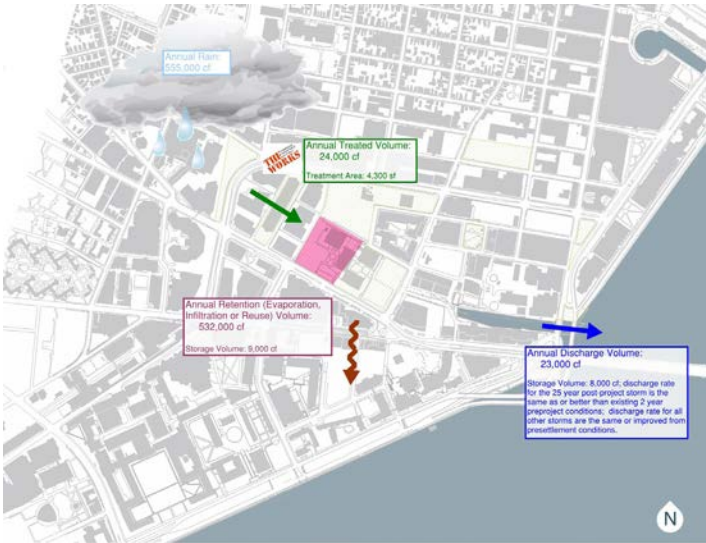


figure 11

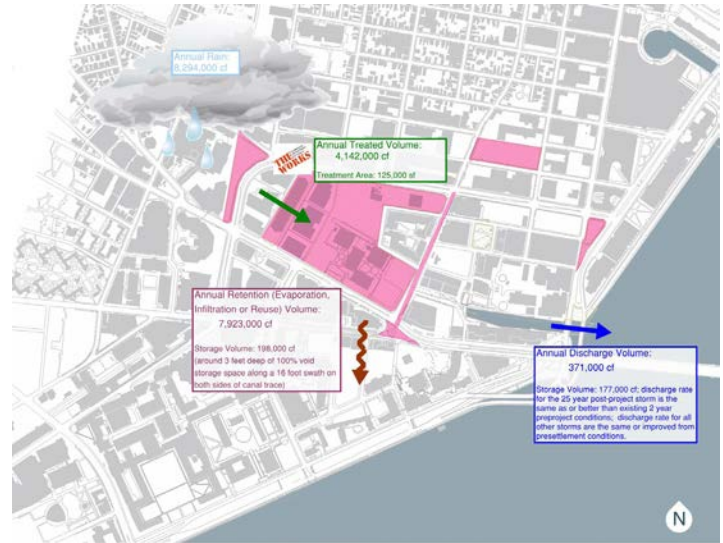


figure 12

Based on these results, the recommended stormwater code would closely match historic conditions while reducing the amount of storage required (i.e. retention + detention) and making the retention systems more effective as they will receive water during every rainfall event. Note that we are estimating that no detention would actually be required by The Works code as we believe the level of post-construction imperviousness will be less than pre-construction. When growing this one block analysis to the entire site, the differences become even more pronounced:

It is worth noting that Kendall Square has high groundwater so infiltration will be challenging. As such, the design proposal should look to alternative methods to dispose of the retained stormwater.

Table 2: Stormwater Management Summary on Entire Site

Scenario	Annual Rainfall (cf)	Annual Retention (cf)	Retention Storage Volume(cf)	Annual Runoff (cf)	Detention Storage Volume(cf)
Historic	8,294,000	8,028,000	-	266,000	-
The Works	8,294,000	3,330,000	424,000	4,964,000	0
Recommended	8,294,000	7,923,000	198,000	371,000	177,000

Sanitary Sewer

Turning our attention to sanitary sewer, Cambridge employs a combined sewer network whereby the stormwater and wastewater come together in a combined sewer network (see Figures 13 and 14). During dry weather, sanitary wastewater flows to the wastewater treatment plant for treatment. During wet weather, stormwater enters the system and if the storm event exceeds the network's capacity, the combined wastewater overflows into the Charles River. Across the country, the EPA has been working with jurisdictions to develop a long-term control plan to reduce these overflows. Typically the fixes are on the order of billions of dollars and employ a solution that often involves reducing the stormwater to the system (i.e. low impact development) and construction of large storage structures to hold the combined wastewater until the storm passes and the wastewater can be slowly released to the wastewater treatment plant. These solutions are developed using a specific storm with the goal of reducing the overflows to a reasonable number based on this design storm. However, should a storm event occur that exceeds this event, overflows will still occur. Such is the case in Cambridge and as such the proposed design should not add any additional flows to the combined sewer. Ideally, the proposed design would go a step further by reducing the flows in the combined sewer thus creating capacity in the existing pipe network and at the wastewater treatment plant while also reducing the occurrence of combined sewer overflows.

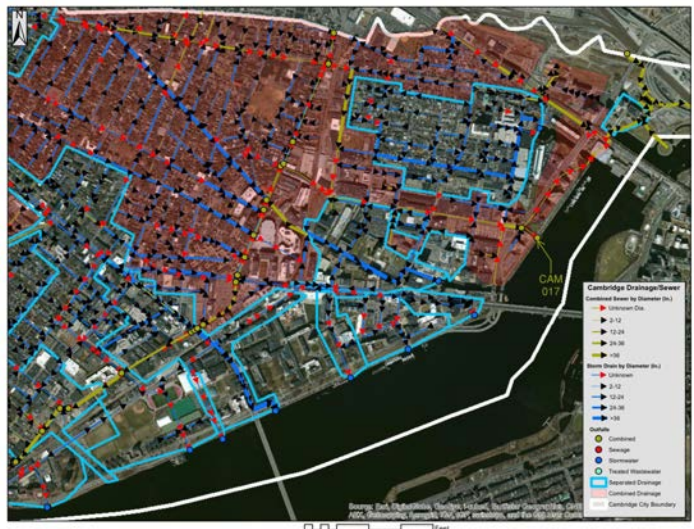


figure 13

Drinking Water

With respect to drinking water, we have come to understand the preciousness of water and the importance of treating it as such. To that end, we often start by looking at the region's water stress, defined as demand for water as compared to the available amount. Cambridge currently has "high" water stress (see Figure 15) and as the population grows and the climate changes, it only looks to worsen. Furthermore, as utility purveyors struggle to keep up with aging infrastructure and a growing population, we have watched utility rates skyrocket across the country as seen in Figure 16. Thus the proposed design should seek to minimize the amount of potable water it requires so as not to contribute to the region's water stress as well as to future-proof it against future utility rate escalation.



figure 14

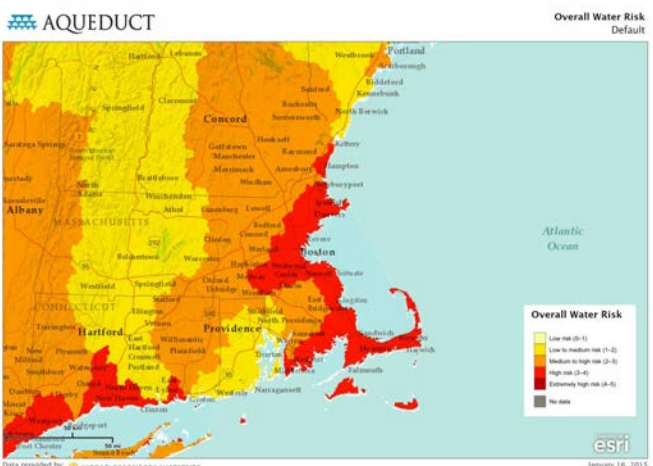


figure 15

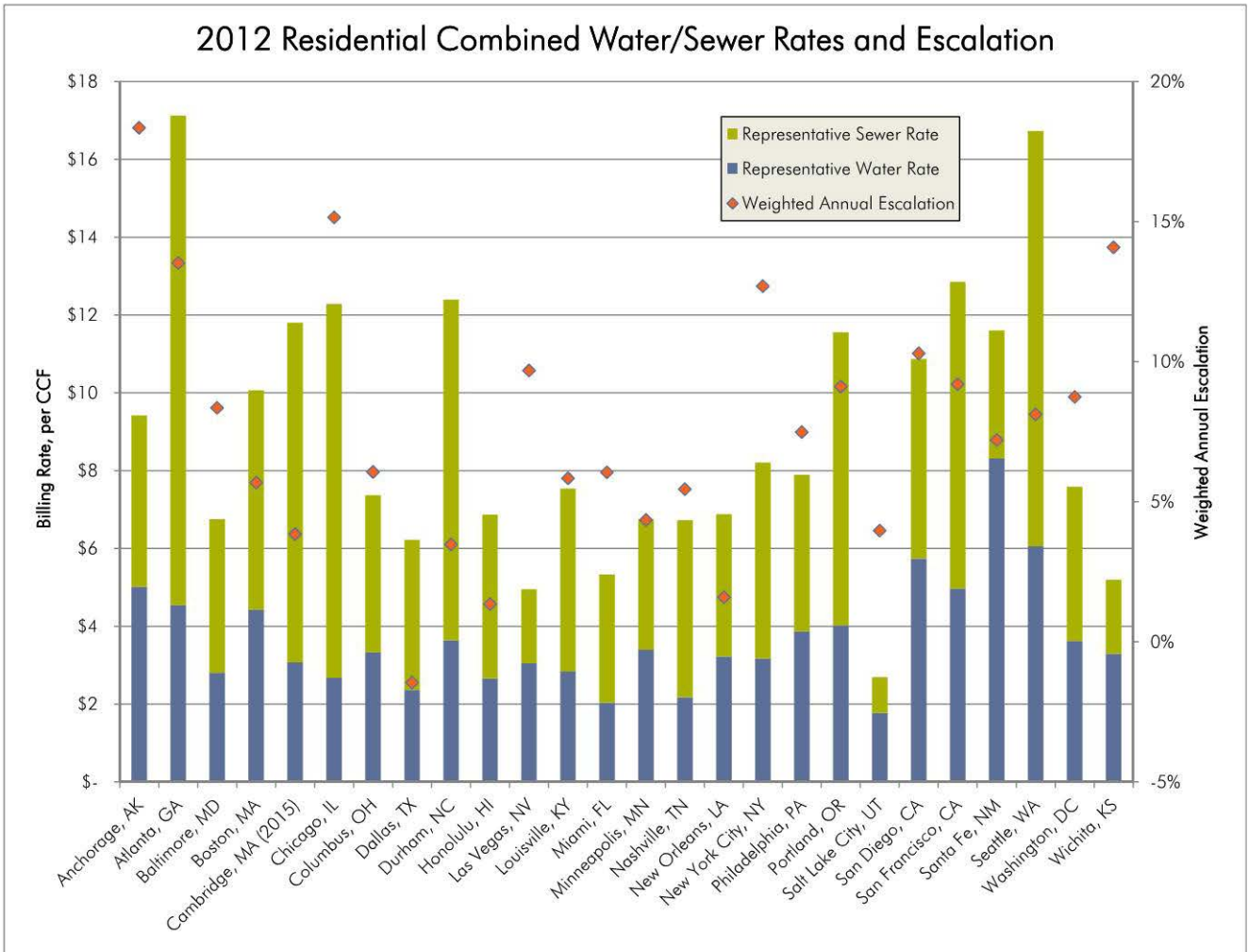


figure 16

Integrated Water Design

Based on the aforementioned challenges associated with each water resource, our proposal seeks to implement an integrated water design approach where we seek to leverage the natural and man-made supplies that are available to the project to meet the non-potable demands required by the project (see Figure 17). To that end, we performed a water audit using the recommended stormwater retention criteria over one block of redeveloped area in zone KS-2 using a 580,000 square foot building that is 40% residential and 60% commercial (see Figure 18). Our findings show that the retained stormwater (1.8M gal/yr) while sufficient to meet the proposed irrigation demand (0.1M gal/yr) is insufficient to satisfy the proposed flush demands (7.4M gal/yr) or the mechanical process water demands (2.3M gal/yr). It is worth pointing out that if the stormwater policy was not changed to match our recommendations, the situation worsens as the retained runoff is reduced significantly (0.02M gal/yr) as seen in Figure 19.

As such, to satisfy the non-potable water demands (i.e. all of the water demands aside from drinking water) and be in line with our vision of reducing our dependence on potable water, we need to find another supply source. From Figure 18, we would get a little further by harvesting the excesses of the mechanical system in the form of condensate and blowdown but we would still be at a deficit. Graywater would get us a little closer but if we truly wanted to meet all of the non-potable water demands, we would need to harvest and treat both grey and black wastewater.

Expanding the aperture from a one block area in KS-2 to the design proposal area yields similar results as seen in Figure 20.

Though we can get meet the non-potable demands of the proposed project through harvesting stormwater, greywater and blackwater, there are demands to be met today and yet it will take some time for these buildings to be designed, permitted and come online. Furthermore, harvesting on-site wastewater eliminates the project's contribution to the combined sewer but it fails to meet the other goal of reducing the existing flow in the combined sewer. If we were to divert wastewater off of the combined sewer into a wastewater treatment device located in one of the park sites, treat it and make it available for reuse today, we could then scale up the wastewater treatment system in the future when the proposed buildings come online. Not only do these concepts meet the water resource challenges, they also provide educational opportunities for MIT students and the public as well as promote expansion of the Innovation District through technology that while proven, is still considered emerging and innovative.

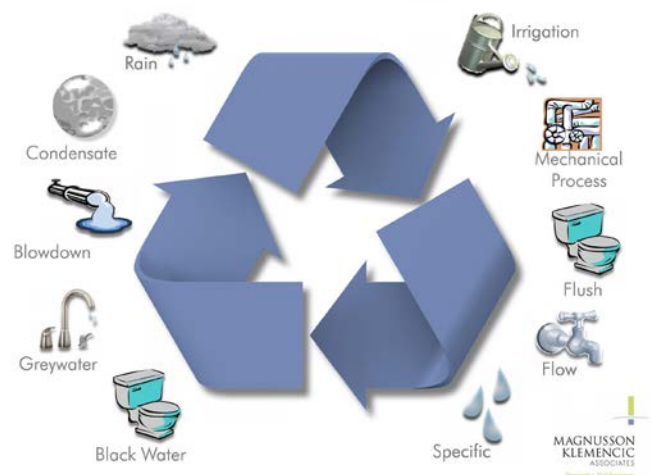


figure 17

1 BLOCK REDEVELOPMENT WATER RESOURCES- Recommended

MAGNUSSON
KLEMENCIC
ASSOCIATES
Structural + Civil Engineers

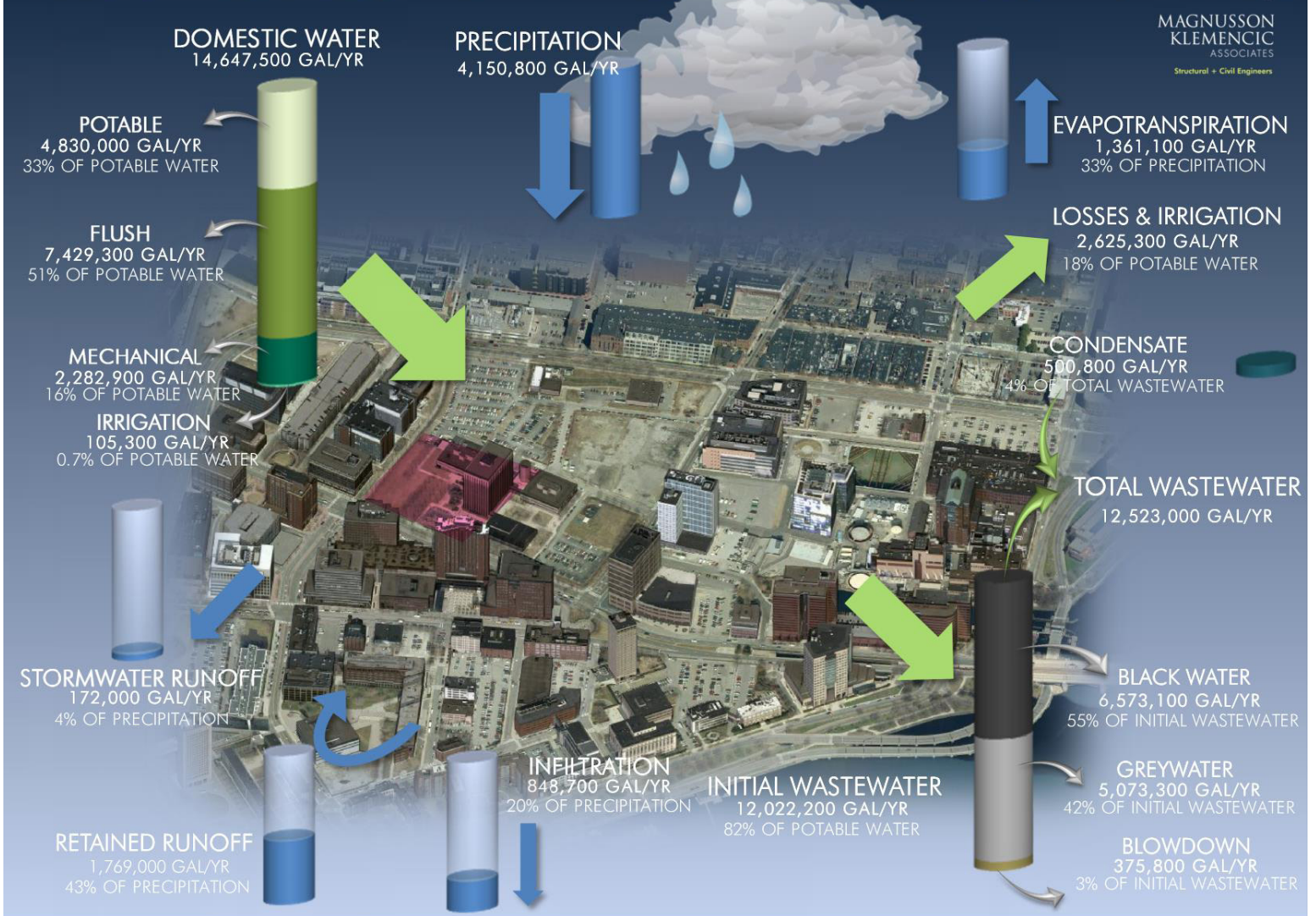


figure 18

1 BLOCK REDEVELOPMENT WATER RESOURCES- Cambridge

MAGNUSSON
KLEMENCIC
ASSOCIATES
Structural + Civil Engineers

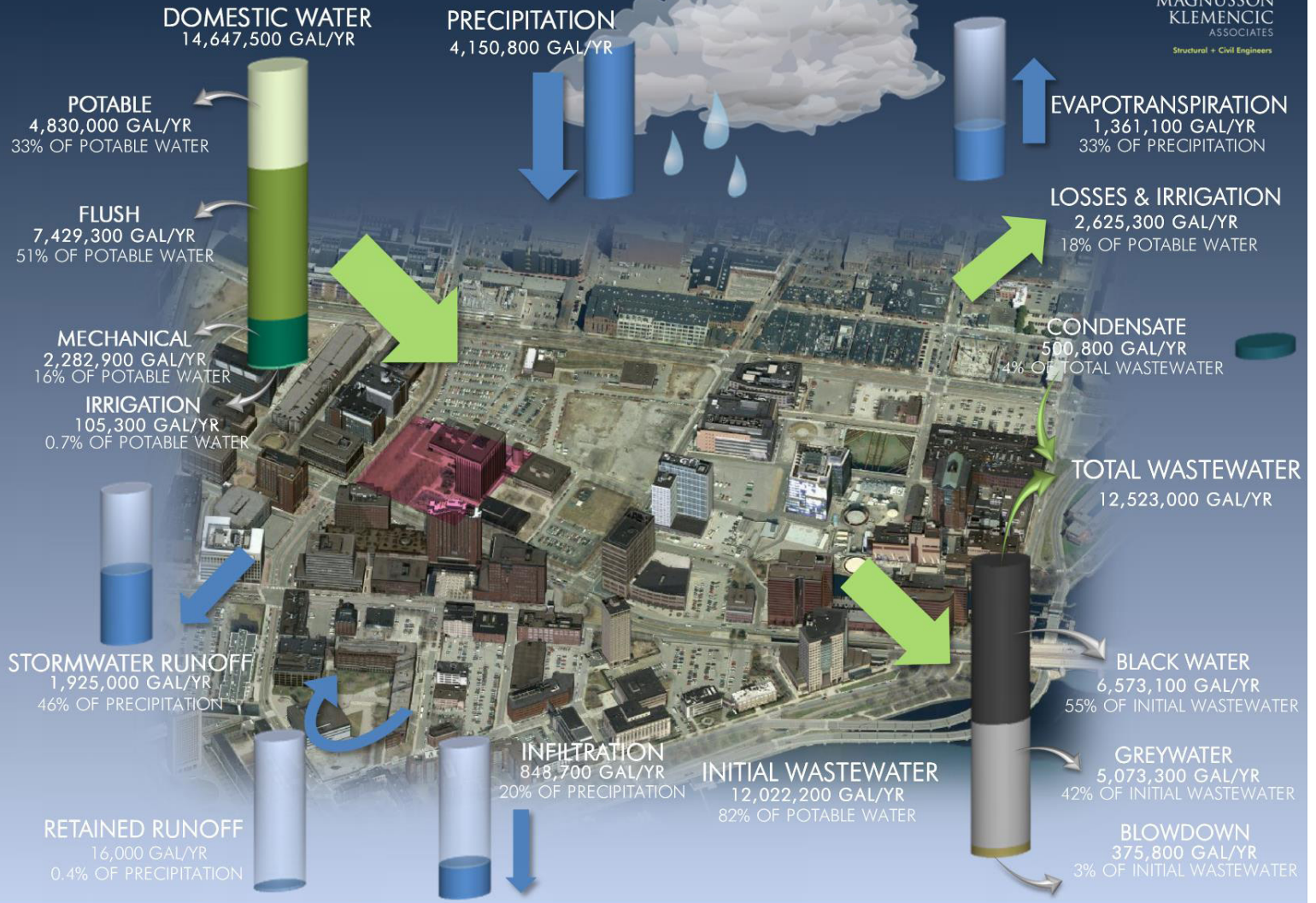


figure 19

REDEVELOPMENT AND RETROFIT WATER RESOURCES

MAGNUSSON
KLEMENCIC
ASSOCIATES
Structural + Civil Engineers

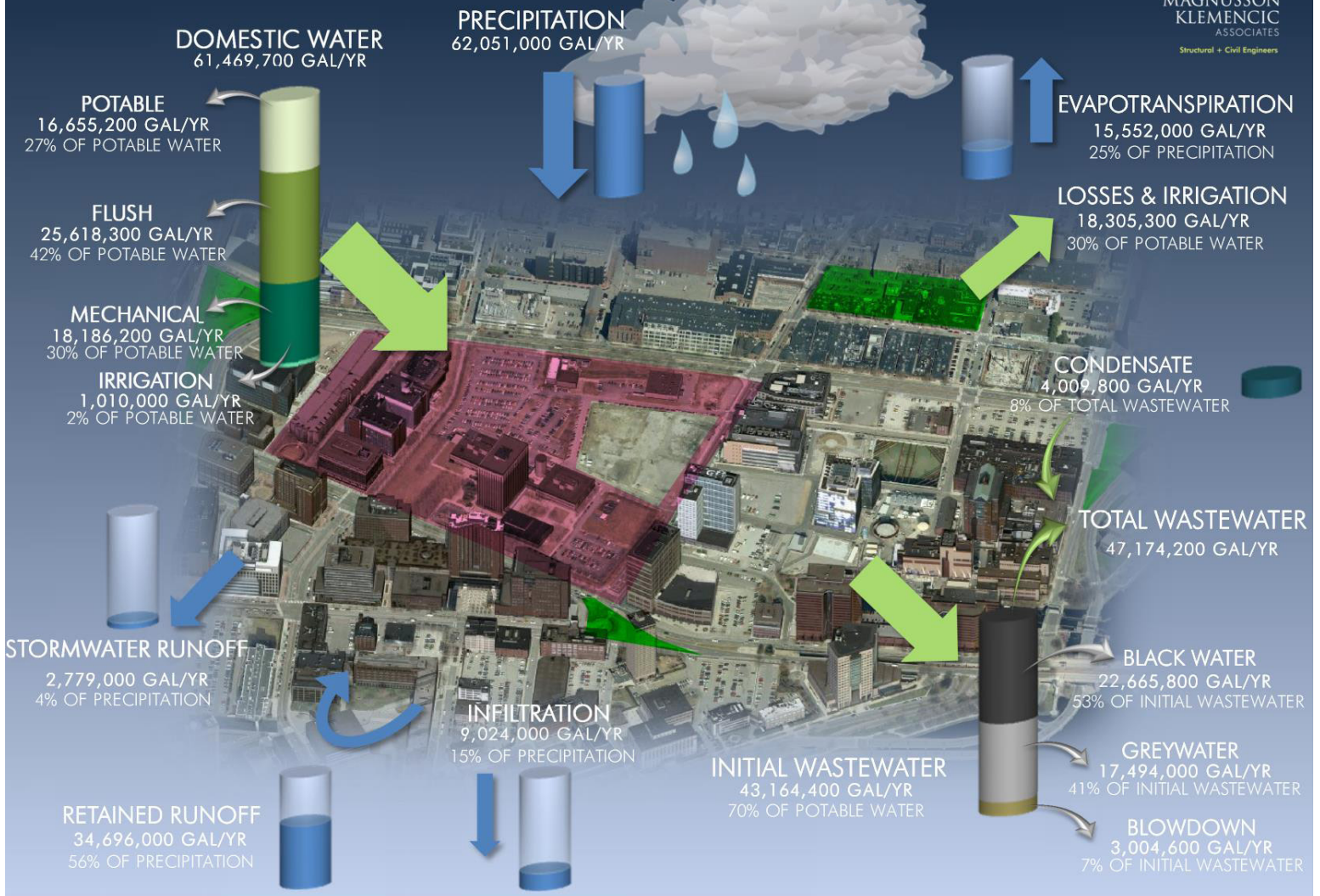


figure 20

CASE STUDY: DOCKSIDE GREEN DEVELOPMENT, VICTORIA, BRITISH COLUMBIA, CANADA

DESCRIPTION

Dockside Green is a 120 000 m² (1.3 million sq ft) mixed-use sustainable community being developed on a 6.5-ha (16-ac) former brownfield site located on the inner-harbor in Victoria, British Columbia, Canada. The development includes residential, office, commercial, and light industrial uses and is based on a triple bottom line approach to sustainable development, which includes environmental, social, and economic principles. It is the first neighborhood design to receive Canada Green Building Council's Leadership in Energy and Environmental Design (LEED™) platinum rating, the highest rating available for sustainable building, for its first-phase building called Synergy.

Dockside Green treats wastewater (augmented by rainwater) onsite to several different fit-for-use qualities depending on the reuse application which includes toilet flushing, landscape irrigation, green roof watering, and maintenance of a restored ecologically functional stream/pond complex, further reducing the community's water consumption and limiting its draw on Victoria's potable water supply. The stream itself acts as a reclaimed water conveyance (and partial polishing treatment) system integrated into the landscape as a site amenity, which enhanced residential unit values, defraying associated costs. This green space has become a major feature of the project, creating premium units and driving profits through the sale of the units bordering the naturalized creek-greenway system.



An additional revenue source results from a co-located energy plant where the wastewater treatment residuals (sludge or biosolids) will be gasified after dewatering onsite to produce feedstock for the energy plant, a small component of the recycled urban wood stock used to fuel the waste-to-energy facility. To reduce operating costs and trucking costs (and related GHG emissions), a press was installed onsite to remove water from the sludge to produce bricks.

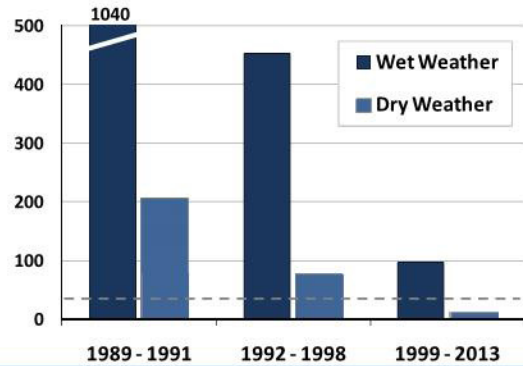
This process will reduce the amount of sludge volume at full build out to approximately one garbage bag per day. Additionally, a single operations company provides service which reduces staffing, maintenance and commissioning, and travel, reducing impacts associated with transportation and redundancy.

figure 21

Figure 11
Change in Lower Charles River Water Quality Over Time
Enterococcus bacteria counts, 1989 - 2013

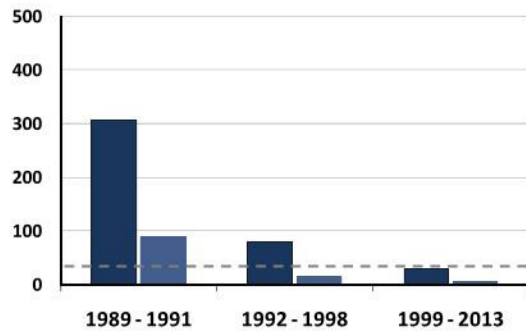
Upper Basin

Watertown Dam to upstream of Cottage Farm



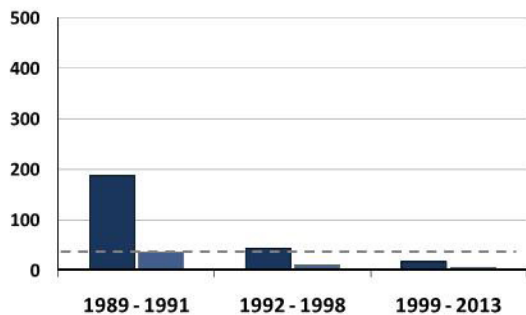
Mid-Basin

Cottage Farm to Science Museum



Downstream of Basin

Science Museum to New Charles Dam



Dotted lines are *Enterococcus* swimming standard for freshwater, 33 cfu/100 mL. Column values are *Enterococcus* geometric means. Dry weather is no rain for day of sampling and two previous days; wet weather is >0.5 inches rainfall within two previous sampling days. Other weather conditions are excluded. Results for MWRA stations 001 - 012, 144 and 145, grouped by region.

B. Online Research and Opinions about Kendall Square

DEFINITIONS OF KENDALL SQUARE RESEARCHED ON THE WEB

Welcome to Kendall Square, a 10-acre, award-winning, master-planned development growing into a community of world-class office and lab space, beautiful apartment towers, restaurants, and retail shopping linked together by 2.5 acres of lush, landscaped open space.”
Kendallsquare .org

Kendall Square is a neighborhood in Cambridge, Massachusetts, with the “square” itself at the intersection of Main Street, Broadway, Wadsworth Street, and Third Street (immediately to the east of the secondary entrance to the Kendall/MIT subway station). It may also refer to the broad business district that is east of Portland Street, northwest of the Charles River, north of MIT and south of Binney Street.

Wikipedia—it’s a neighborhood, it’s a “square”, it’s a business district...

One Kendall Square is a 667,000 square foot, mixed-use campus located in the heart of Kendall Square in Cambridge, Massachusetts.

In the last three decades, Kendall Square has been transformed from a former industrial district to one of the world’s leading centers for biotech research and innovation.

The MBTA renamed the station from Kendall Square to Kendall Station, or Kendall/MIT, and has a map for the Kendall neighborhood.

HOW DO PEOPLE FEEL ABOUT KENDALL SQUARE?

What we found on Yelp:

For some reason, I can’t exit this station without getting disoriented. It is like they put chloroform gas in the air here or something

This neighborhood is home to a bunch of enormous square buildings. MIT labs and the offices of large science companies, mostly. This adds to the feeling that the neighborhood is deserted and you are the lone person wandering amid faceless monoliths. Also the feeling that you are very, very short.

The best feature of this station is the “singing” pendulum chimes over the tracks. I didn’t realize until just recently that they move when people swing levers on the platforms -- I used to think that the pendulums just moved by themselves, whenever they felt like it.

Give it a try!

There are some really great restaurants here. It used to be that I would only be in the area for work, but now I find myself coming back to go to some of the great restaurants. And because it’s very empty on evenings and the weekends, it means that it’s incredibly easy to find parking!

Transportation-wise, I think it’s incredibly easy to both get here and get to other destinations. Not only is there a T-stop, but there are many buses that can take you to Harvard Square, Union Square, and Longwood, to name a few. I take the bus every morning and it takes me less than 25 minutes from my apartment in Somerville to my office on Vassar Street.

You can find almost anything you’re looking for, and if it’s not in/around Kendall Square, it can probably be found across the Longfellow or in Central Square. What stops me from giving Kendall Square five stars is the lack of a supermarket or pharmacy in the immediate vicinity. It would be nice to be able to make a quick run from the office

Exiting the T station is a feat of human power. I swear Kendall Square is in some kind of wind tunnel; I can

barely muster the leg energy to climb up the stairs against the strong gusts of wind coming down from the square.

Also, WHY do you always trick me with your inbound/outbound only entrances??? I always get so confused. Maybe I'm just stupid? But I invariably get on the outbound when I want to get inbound, and have to take the bus all the way to Harvard station to switch sides, because Central Square Station is stupidly one-sided too. *shakes fist*

A million points for the awesome ringing bells that are in the middle of the station. It seems like a lot of people

don't know how to use them/think they're broken, but you just have to have the strength and work up a rhythm. It always makes my day when someone decides to ring them.

Kendall Square. I love that the feel of this neighborhood is more chill; energetic in a nerdy sort of way.





framework

Lesley Bain, Framework Cultral Placemaking

Jenny Kempson, Framework Cultural Placemaking

Mackenzie Waller, Framework Cultural Placemaking

Jordan Lewis, Framework Cultural Placemaking

Tera Hatfield, Framework Cultural Placemaking

Adele Santos, Santos Prescott & Associates

Eric Morris, Santos Prescott & Associates

Drew Gangnes, MKA

Matthew Jones, MKA

Lily Siu, MKA

Pallavi Kalia Mande, Charles River Watershed Association

Trent Lethco, ARUP

Sebastian Quack, Invisible Playground, Berlin

Scott Burnham, Urban Strategist

Kevin Slavin MIT Media Lab

