CONNECT KENDALL SQUARE FRAMEWORK PLAN

RICHARD BURCK ASSOCIATES, INC.
JANUARY 30, 2015

LETTER OF SUBMITTAL

January 30, 2015

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

Dear Connect Kendall Square Jury:

We are delighted to submit this Framework Report for the competition, Connect Kendall Square | An Open Space Competition.

Richard Burck Associates, Inc. is a landscape architecture firm located in Somerville, MA, comprised of seven full-time design professionals, including Principal of the firm and Team Leader, Richard (Skip) Burck.

We have assembled a team led by Skip Burck and directly supported by our core team members, Tim Stonor of Space Syntax; Pallavi Mande of Charles River Watershed Association; and Young Park of Berkeley Investments, Inc. Other experts on our team include Steve Garvin of Samiotes Consultants, Inc., Guy Busa of Howard/Stein-Hudson Associates, Inc., Teri Hendy of Site Masters, Inc., Barbara Goldstein of Barbara Goldstein & Associates, John Swallow of Pine & Swallow Environmental, and Barbara Keene of Tree Specialists, Inc..

The professionals on our team are deeply committed to developing clear design strategies to create locally grounded, highly functional and meaningful spaces. We feel confident that this team has addressed the competition's call for an open space network that is innovative and inclusive. I (we) have read and understand the Regulations for this Competition and have complied with all regulations and requirements during the Competition process.

We are enthusiastic about the opportunity to add to your efforts towards a visionary open space network for Eastern Cambridge and Kendall Square, and appreciate your consideration.

Sincerely,

Richard Burck, FASLA, FAAR
Principal

TABLE OF CONTENTS

Framework Concept Summary	7
Framework Description	11
Response to the 10 Planning & Design Goals	23
Framework Details	35
Concepts for Programming, Operations and Maintenance	45
Listing of Team Members	55
Exhibit Boards	59
Appendix	69

FRAMEWORK CONCEPT SUMMARY

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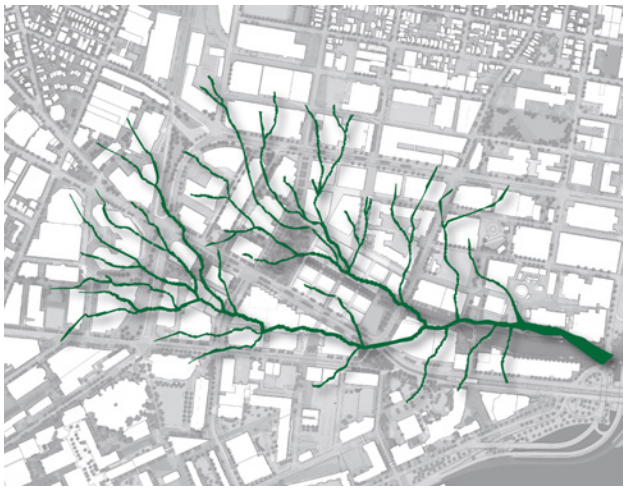
The following pages of this Framework spell out a robust set of strategies and design interventions to achieve compelling placemaking and greater connectivity within the Project Site and its environs. Recommendations to achieve this span everything from site design to park programming to municipal stormwater engineering. These various strategies look to child development, public health, art, technology, and history for direction; all face to the future to anticipate a richer, more livable Kendall Square and East Cambridge for generations to come.

^ 1838 MAP OF BROAD CANAL & ESTUARY

But the roots of our effort start with the history of the site when the Kendall Square area was originally a large marsh adjacent to a tidal river. The site existed for millennia as a functioning wetland ecosystem prior to the beginning of European settlement a few hundred years ago.

As Boston and its surroundings grew from a fledgling colony to a network of bustling villages, changes came to the marshes of East Cambridge. An expanding network of paths, roads, and bridges – most notably spanning today's Longfellow Bridge route – led to incremental filling of wetlands and open water to create land. The Industrial Revolution brought dramatic change to the site. Along the path of what may have been a naturally occurring estuary, the Broad Canal, a stone edged waterway was constructed to serve and allow expansion of Kendall Square's industry. By the early 19th century, maps illustrate a tight pattern of canals, factories, warehouses, shops and homes.



^ DENDRITIC PATTERN OVERLAY

Half a century ago, everything changed once again. Massive redevelopment projects leveled a slow-grown neighborhood and a landfilling effort shortened the Broad Canal substantially. New buildings and office parks were created on large super-blocks. Favoring motorized vehicles over pedestrians, these "redeveloped" blocks formed impenetrable edges up to a quarter-mile in length.

Today, substantial change is needed to make Kendall Square more livable, walkable, and equitable, but paying careful attention to lessons from the past, this Framework Plan represents an approach that is incremental, organic, and authentic. We propose to borrow from history in freshly interpreted ways, reestablishing water as a basis of both sustainability and circulation while at the same time, seeking to weaken the scar tissue of super blocks, allowing finer grained circulation patterns to emerge through them. Our design concept is a combination of two related design efforts, the first being CREATE Kendall Square and the second, CONNECT Kendall Square.

CREATE KENDALL SQUARE

Create a sequence of connected open spaces that are central to Kendall Square – spaces that are civic, ceremonial, sustainable, vital in their programming and authentic to Kendall Square.

Create a series of parks that are compelling and complementary – create them from natural materials to support play that is inventive and adventurous allowing discovery and growth.

CONNECT KENDALL SQUARE

Connect Kendall and the Charles River – extend and strengthen the Broad Canal to connect the interior of Kendall Square to an improved Charles River Esplanade.
Connect Circulation through Kendall – increase integration of all modes of circulation throughout Kendall Square.
Connect Kendall's Storm Water System – with an integrated, sustainable and intelligible storm water system.
Connect Kendall Visually – by developing the Volpe Center as a pedestrian-centered district, integrating art with daily circulation and through the strategic use of lighting design.
Connect Kendall to its Open Spaces – create a framework of new corridors that knit these new open spaces to their constituents in ways that are eventful, educational, creatively interpreted and sustainable.
Connect Kendall to Itself – make Kendall Square a destination draw for its larger population and have it express itself as a marketplace of ideas.
Connect Kendall to MIT – through complementary programming of Main Street and physical improvements (MBTA head house relocation, Marriott all weather through circulation), that better integrate the two communities.

^ ENHANCED CIRCULATION & CONNECTIVITY

In summary, our Framework Concept is structured on strongly connecting the Charles River to Kendall Square, and then strongly connecting Kendall Square to its surrounding parks, neighborhoods and MIT. This is a layered effort encompassing; organizing new urban form to feature open space connectedness; connecting a series of sustainable storm water strategies along the same urban alignment; and a strongly connected corridor of pedestrian procession also overlaying the same urban alignment. Abstracted, this can be described as a "dendritic" pattern overlaid on Kendall Square. A pattern that describes urban form, storm water and pedestrian circulation as all move through Kendall Square in an increasing concentrated way to the Charles River. It's a pattern that has historic roots, is authentic and rich with interpretive possibilities in connecting Kendall Square today.

^ FRAMEWORK PLAN | NTS

FRAMEWORK DESCRIPTION

FRAMEWORK PARTS

CIRCULATION

^ Proposed pedestrian connection

The needs of pedestrians, cyclists, vehicular traffic and buses need to be balanced and take into account the hierarchy of the neighborhood network. In doing so, the following conditions support the creation of a successful neighborhood center: strong links to the city center as well as its immediate surrounding context; a fine urban grain to encourage walking and cycling; a legible layout within the site to support wayfinding; public spaces located at strategic points in the pedestrian movement network i.e. the intersections of important pedestrian movement routes; the proposed Framework achieves these spatial qualities by creating an integrated and legible street network between the four open spaces, and by creating a finer scale structure and a walkable urban environment.

DEVELOPMENT

^ Direct restaurant/park adjacency

- Create a Kendall Square BID (Business Improvement District). Initiate creation of a BID to manage the branding of Kendall Square as a separate entity.
- Design and implement a street retail plan which will “brand” Kendall Square as a unique and distinct retail district. Mandate retail and other active public uses at the ground floor through zoning.
- Design a new innovative model for a sustainable transportation ecosystem based on creating an active pedestrian environment.
- Create a hierarchy of connected public spaces designed to create a sense of place. Connect recreational open spaces to adjacent restaurant/retail users as key symbiotic relationships (incorporate woonerfs if necessary to create these connections).

PLAY

^ Free play

Deep free play occurs in play environments that are less directed and provide children greater choice in how they will approach a structure. In order to encourage a healthy community, play environments must be designed to provide active free play for persons of all ages, including adults. In Rogers Street Park for example; we propose the creation of dramatic topography, developing a series of hills for year-round activity such as climbing, sliding and winter sledding. Our team also proposes a large naturalistic sand and water-play area where children can manipulate and redirect the flow of the water. We strongly encourage the incorporation of ‘loose parts’ in this natural play environment, such as suitable small stones, sticks, branches and pine cones. By creating their own physical environments, children are able to learn problem solving, cooperation, cause and effect, as well as stimulate their imaginations.

WATER

The redevelopment of the Volpe Center provides an enormous opportunity to completely rethink the open-space configuration, the site hydrology and stormwater treatment/management treatment strategies

at the heart of the study area. The framework plan envisions a stormwater management park (Broad Wetland), located at the terminus of the extended Broad Canal, which incorporates a variety of LID strategies as part of the landscape design of the site. A linear water channel ties the park to the extension of the Broad Canal, and in addition to providing a significant visual and physical link for access alongside, connects the two systems hydrologically.

^ Designed marsh at Back Bay Fens

To balance year-round habitat for wetland plant and animal species with the handling of large stormwater volumes during significant storm events, Broad Wetland is designed with two-stages. With a clay liner, the lowest stage would maintain a permanently flooded retention channel. At a higher elevation the unlined second stage of the constructed wetland could temporarily detain significantly higher volumes of stormwater promoting infiltration.

Broad Wetland, the proposed stormwater management park at the Volpe Center, is designed to not only manage stormwater from the redevelopment site but also provide additional capacity and treat overflow from the separated flows above the low flow/baseline in existing pipes along neighborhood streets like Broadway, Ames, Loughrey Walkway/6th Street, etc. The park is thus conceptualized as an opportunity to treat both on- and off-site run off and improve water quality in the Broad Canal (and the Charles River beyond) while providing an adaptive landscape that promotes discovery in an outdoor living habitat laboratory and provide educational value in real time.

The proposed parks within or adjacent to the combined sewer section of the study area, for instance Grand Junction Portal, Rogers Street Park and even Three Points Park, would promote opportunities for infiltration/storage and treatment of stormwater such that the overall volume of stormwater leaving the site and thus entering the combined system is significantly reduced. This improvement in the combined watershed system may be accomplished by designing overflows for target storm events to allow stormwater runoff to be treated or stored outside of overflowing to the Charles River or to Deer Island.

PUBLIC ART

There are a variety of ways that Connect Kendall Square can employ the work and thinking of artists to reinforce the plan outlined in this document.

- The dendritic framework described in Connect Kendall Square provides strong pathways and visual connections throughout the district. These can be reinforced by employing artists to create streetscape elements including paving patterns, street furniture, lighting, and other visual cues that emphasize the sequence of movement through the area.
- Artists can be engaged to create the visual aspects of the storm water recovery systems proposed, revealing the movement of water and celebrating its presence on the sites. The lighting and pedestrian elements of the Volpe site can be artist-designed, adding whimsy and a unique visual character to this unique opportunity site.
- We recommend that, in order to realize these opportunities, the City of Cambridge expand its public art requirement to include new private development, particularly on the Volpe site.

^ Site art by Jessica Stockholder

FRAMEWORK PLAN

^ FRAMEWORK PLAN | NTS

The central spine of our Framework Plan borrows from the estuary and canal history of the site in creating a powerful and intelligible sustainable storm water system, flanked by a pedestrian processional from the proposed parks to Kendall Square to an enhanced Charles River edge. Embracing the Volpe site, we propose a marketplace for food and for the mind, a destination that draws on the needs and desires of the diverse neighborhoods that inhabit and surround Kendall Square. Place making and pedestrian circulation conduit are one and the same transforming from dense urban and water constructs to twisting and turning back-alley connections to proposed parks and beyond to the residential neighborhoods.

This dendritic structure weaves its way through underutilized alleys and along street edges, and engulfs existing and proposed parklands. It not only links the proposed open-space parcels within the project site, but also unites all open spaces into a legible, *imageable* system.

These tendril-like pathways are envisioned to have a recognizable and consistent design language. Through repetition of colors, paving materials, furnishings, and plantings, the continuity of these routes will be recognizable to even a first-time visitor. They promote travel by foot and, in many places, bicycles. Most importantly, these routes will be designed to promote the pedestrian's sense of safety, so that they are safe enough for a young child to let go of their guardian's hand and explore.

Each route is based on field observation of existing conditions and use, as well as anticipated development. The beauty of the organic form lies in its flexibility. If unanticipated obstructions to implementation emerge, each tendril path may be rerouted as necessary. What is most critical is that each route is considered as a linear element – interruptions by doors, vehicular crossings, and untreated void spaces must be kept to a minimum.

GRAND JUNCTION PORTAL

Grand Junction Community Path – this park will engage strongly with the regional bicycle path proposed to share the right-of-way with the existing railroad.

Timbers – laid over tree trunks and upright stumps, scattered through the parcel and immediate vicinity, provide informal seating and climbing opportunities and establish a signature language; small tree branches encourage playful building of temporary structures.

Canyon Portal – pedestrians will be channeled into a constructed gorge with a geologic-inspired form; canyon connects to commercial hub at One Kendall and residential districts; rock walls promote climbing in designated zones with protective play surfacing.

Bridge – spans the canyon, framing a threshold.

Zipline- along the gently sloping (12%) ridgeline, a frame-mounted cable zipline would promote exercise for children as well as office workers on their lunch break; set back safely from street.

Multi-use posts – strategically placed, colorful hitching posts allow the stringing of hammocks or temporary tightropes for local funambulists.

"4 PARKS" ENLARGEMENT PLAN | NTS

ROGERS STREET PARK

Landforms – iconic mounded landforms, planted with shade trees establish a distinct environment and screen exposure to exterior buildings and streets; sightlines would be maintained for public safety.

Water Play – a springhead emerging from the western mound will form the beginning of a winding watercourse; along its path, children will be able to manipulate runnels, water tables, bubblers, and splash fountains.

Play Structure – built into the largest slope, a rocky wall with integrated slides and crawl tunnels will allow climbing and discovery experiences unique to the area.

Sledding Hill – from a summit of 14', an unobstructed lawn slope will create the most exciting and safest local venue for sledding during the winter months.

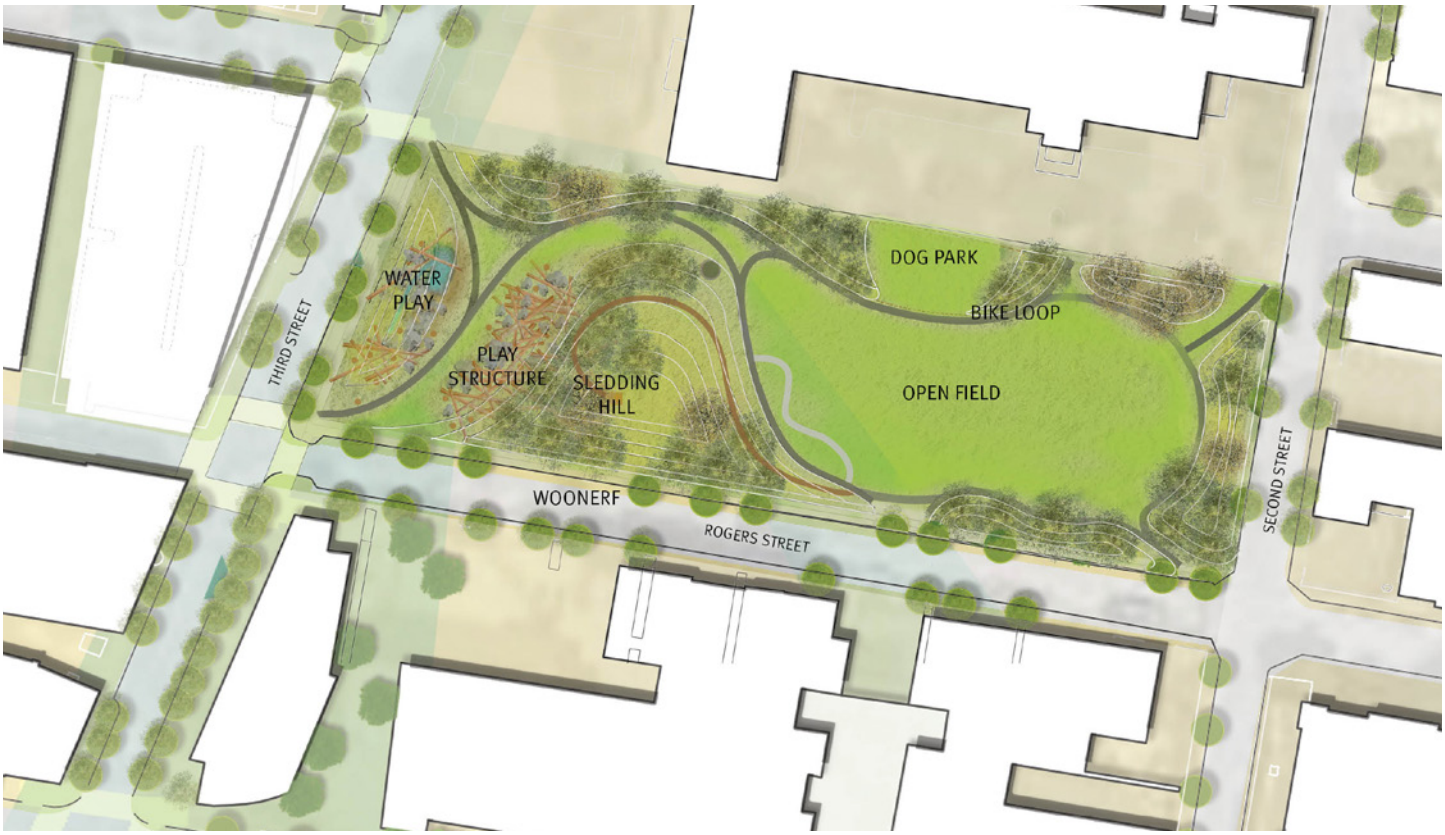
Open Field – preserves an acre of the existing expanse for unstructured play and recreation.

Bike Loop – a learning course for young cyclists; an alternate offshoot offers bumpy and noise-making pavement.

Dog Park – the closest designated dog park for public use; fence enclosure with crushed stone floor.

Woonerf – a pedestrian zone at this stretch of Rogers Street enlarges the sense of parkland and provides safe access to public bathrooms and a café at Alexandria Center.

Design For All – universal design is a key aspect of this site design; the majority of water elements will be in reach from a seated position and the bike-loop offshoot would provide a stimulating ride for all.



"4 PARKS" ENLARGEMENT PLAN | NTS

THREE POINTS PARK

Three Parcels, Unified – a realignment of the Binney Street/Land Boulevard intersection would allow creation of an intermediate "stepping stone" parcel to the north, establishing a legible, pedestrian-friendly relationship across both streets.

Woonerf – would enlarge the perceived boundaries of this modest parcel and connect directly to proposed and existing buildings (including a restaurant) across First Street; during events, woonerf would be closed to vehicular traffic.

Cinema Plaza & Lawn – moderately sized open spaces designed for informal outdoor dining and passive daily activities; the City of Cambridge would use this area for its summer movie nights on inflatable screen or permanently fixed screen.

Landforms – uniting the design, sculptural, distinctive topography would establish an identity and visually weave the parcels together.

Sculpture Program – amorphous, whimsical forms reinforce shared identity among these three sites ; sculptures would range in scale for a variety of inviting play experiences; three signature beacons, the tallest of these expressions, would lead visitors from one site to the next.

Front Park – changes to this underutilized park would bring the experience of the Charles River inland, under Cambridge Parkway and the riverfront path.

"4 PARKS" ENLARGEMENT PLAN | NTS

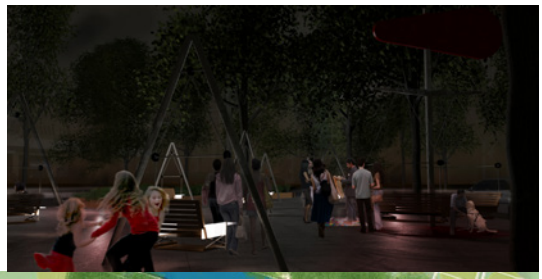
POINT PLAZA

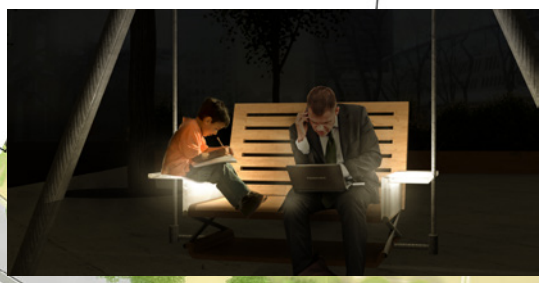
Plaza – enlarged from its present size, the plaza is envisioned as an urban oasis for adults and children alike to relax, play, dine, and congregate within a shady bosque of canopy trees; the plaza is and will continue to be a primary pedestrian thoroughfare from the MBTA Red Line station to Third Street and points beyond, which activates and enlivens the social life of the plaza; permeable paving would direct stormwater runoff to underground storage for infiltration.

Swing Benches – each unique but with a shared language, a family of swing seats are informally arranged through the plaza; these custom, modern furnishings are designed for individuals, pairs, and small groups.

Woonerf – would fuse the pedestrian plaza to the new commercial edge currently being considered by MIT on Main Street.

Wind Vane Sculpture – this towering sculptural element would be united in materials and form with the scattered swing benches; changing wind directions will be made visible on this beacon, which is placed to signal an arrival to riders emerging from the MBTA stairwells.





"4 PARKS" ENLARGEMENT PLAN | NTS

BROAD WETLAND

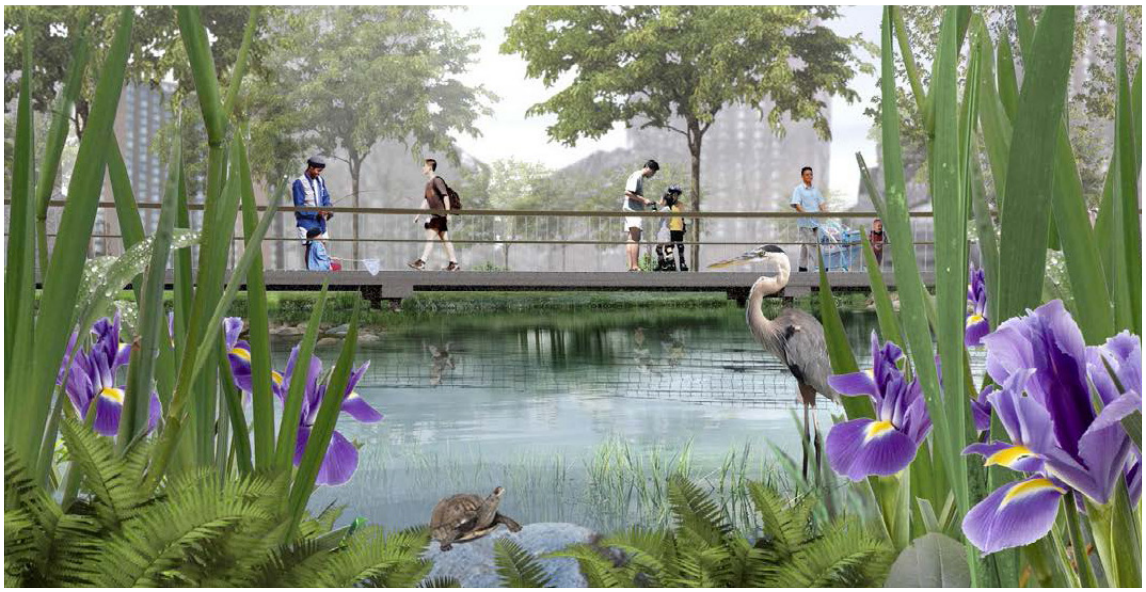
History
Not unlike Frank Law Olmsted's Fens, this wetland park is a freshwater reconception of the historic tidal estuaries that pre-dated the development of this area.

Habitat
This wetland is envisioned as a rich wildlife habitat for small mammals, birds, amphibians, fish and insets. At night in the summer, one would be treated to a chorus illuminated by fireflies.

Stormwater
Perennial channel fed by the Volpe Center stormwater with storm water surcharge volume fed by area stormwater system prior to entering the combined sewer system. Wetland biology designed to clean stormwater prior to its introduction to the Broad Canal Extension.

Elevation
About hydrologic cycle and the key role the Broad Wetland plays in it. About fauna and flora and how varying habitats provide for a rich array of wildlife.

Circulation
Dramatic connective piece of "river residences" path network.



^ VIEW OF BROAD WETLAND

^ BROAD WETLAND AS EDUCATIONAL HABITAT

^ PROPOSED SUNKEN WALKWAY ALONG THE BROAD CANAL TO THE CHARLES RIVER

RESPONSE TO THE 10 PLANNING & DESIGN GOALS

1. DETERMINE A COHESIVE FRAMEWORK

This Framework Plan goes beyond connecting one open space to another, but considers an array of social, environmental, and economic issues in order to unite Kendall Square as a cohesive *human system*. Following the call for "a more diverse, energetic, and connected set of parks, plazas, and pathways…a 'pearl necklace,' the proposed dendritic pattern is conceived of as an implementable solution to the fractured, fragmented character that currently defines large parts of Kendall Square and East Cambridge (p 63, Kendall Square Final Report 2013).

In its current state, Kendall Square leaves its varied inhabitants - low-, middle-, and upper-income residents, families, students, and daily office workers - in surprising isolation from one another. The proposed open-spaces network would implement one of the most promising interventions that can be made in such a situation: encouraging people to come together in the public realm. Regardless of ethnicity, age, or other demographics, the strategic tendril-like parklands would be comfortable, democratic places that inhabitants and visitors can share.

Like rivulets of water finding their way through small cracks in a large boulder, the tendril paths proposed would carry pedestrians safely and comfortably across busy roadways, through superblocks, along neglected easements, and beyond existing obstructions. While each path will be activated by circulation, what will truly bring life to the open-space system is the wealth of new and revitalized parks and plazas. The site recommendations embodied in this document would create acres of unique, attractive and enduring parkland, establishing space for recreation and restoration of the human spirit. The proposed park sites will be places where children can play and a community can be strengthened.

The Kendall Square/MIT Red Line station, located on Main Street, is the third most active transit station in Cambridge and the eighth most frequented subway station (out of 63 total) in the entire MBTA system (p2-2, 2-10 MBTA Blue Book 2013). In terms of local and regional travel, it will continue to be the de facto hub of not just Kendall Square, but the whole of eastern Cambridge. The dendritic spatial system proposed would tie prominently to the station at both Point Plaza and Kendall Square Plaza, but for these connections to be effective, this Framework Plan stresses that the City of Cambridge takes an active role in the proposed redevelopment of the Volpe Center. Geographically, Volpe is located at the heart of Kendall Square; how it is redeveloped will lie at the heart of Kendall Square's future.

^ EXISTING CONDITIONS: FOOD DESERT

^ ENHANCED CIRCULATION & CONNECTIVITY

Subway Operations
Ranked Station Entries and Downtown Transfers (Typical Weekday FY2013)

Rank	Station	Entrances	Route	Rank	Station
1	South Station	25,037	Red	32	Oak Grove
2	Downtown Crossing	23,478	Orange (Shared)	33	Chinatown
3	Harvard	23,199	Red	34	Andrew Square
4	Park Street	19,653	Green (Shared)	35	Lechmere
5	Back Bay	18,100	Orange	36	Mass Ave
6	North Station	17,079	Orange (Shared)	37	Tufts Medical Center
7	Central Square	16,525	Red	38	Wonderland
8	Kendall Square	15,433	Red	39	Jackson Square
9	Forest Hills	15,150	Orange	40	Fields Corner
10	Copley Square	14,021	Green	41	Broadway
TOP 10 (Percentage of total)		**187,674**	**36%**	42	Braintree
11	State	13,258	Orange (Shared)	43	Community College
12	Davis	12,857	Red	44	Quincy Adams
13	Malden	12,686	Orange	45	Aquarium
14	Charles MGH	12,065	Red	46	Roxbury Crossing
15	Haymarket	11,469	Orange (Shared)	47	Wollaston
16	Alewife	11,221	Red	48	Stony Brook
17	Government Center	10,828	Green (Shared)	49	Prudential
18	Ruggles	10,433	Orange	50	Green Street
19	Sullivan Square	10,125	Orange	51	Revere Beach
20	Maverick	10,106	Blue	52	Beachmont
21	Kenmore	9,503	Green	53	Orient Heights
22	Ashmont	9,293	Red	54	Wood Island
23	Hynes	8,946	Green	55	Savin Hill
24	JFK/U Mass	8,920	Red	56	Shawmut
25	Porter Square	8,850	Red	57	Riverside
TOP 25 (Percentage of total)		**348,234**	**67%**	58	Symphony
26	Quincy Center	8,655	Red	59	World Trade Center*
27	Arlington	8,519	Green	60	Bowdoin

2. PROVIDE INCREMENTAL FLEXIBILITY

The proposed Framework Plan builds in flexibility in two distinct ways: on a macro scale, the layout of the dendritic open-space system is able to be adjusted while maintaining its core philosophy of interconnectivity; on the micro scale, the site program for each park and plaza site is designed for changes in use over months, years, and generations.

One of the advantages of the uniquely organic and informal network proposed is that it may easily be adjusted. Each tendril segment of the overall dendritic pattern represents a linear environment designed specifically to protect, comfort, and visually stimulate pedestrians passing along it. As long as each chain is thematically unbroken and interruptions from vehicles or buildings are minimized, the specific layout is not critical. Unanticipated barriers to implementation can be circumvented and overcome. In the event that future development would threaten the continuity of any single path, the developer should be expected to provide an acceptable remedy as it would with disruption of any public utility.

^ EXAMPLE OF A DENDTRIC PATH THROUGH FOCUS AREA

On the site scale, each parkland has been considered for programmatic flexibility and adaptability. As Kendall Square continues to grow and densify, its residents and workers – the people who walk its sidewalks and rely on its parklands – will continue to change. For the most part, the woodlands, lawns, and urban plazas proposed are landscapes that offer universal interest to a variety of demographics. While the park designs include a handful of spectacular attractions like the zipline at Grand Junction Portal or the water-play feature at Rogers Street Park, if unforeseen conditions require removal of any discrete element a decade or century from now, the each park and plaza could maintain its integrity.

Efforts have been made to distribute an interesting program evenly over the whole system. As discussed in the next section, rather than providing the best features in one single space, each open-space is imagined as a unique, exciting place that addresses the needs and character of its neighborhood.

^ VIEW OF GRAND JUNCTION PORTAL ZIP-LINE

3. PROMOTE COMPLEMENTARY UNIQUENESS

In creating design recommendations for each of the key park parcels, the design team asked two critical questions:

- *Given the unique size, form, and location of the site, what public amenities can be offered here that could not easily be found elsewhere in Kendall Square and/or the larger metropolitan area?*
- *How can this open space address the needs specific to the distinct community(s) in which it is located?*

These questions gave way to important observations about each park and plaza:

Grand Junction Portal

- The form and location of this park is linear, it is wedged between an active railway and roadway, and it forms a barrier between Kendall Square and the Wellington-Harrington (Area 3) neighborhood. It has the potential to be a gateway rather than a wall.
- The adjacent buildings are filled with daily workers, mostly in technology and biotechnology, many of these employees would benefit from a unique outdoor experience during a lunch break. The local businesses and overall community would benefit from these workers being drawn out of their buildings during the work day.

Rogers Street Park

- At around two acres, this is the largest and most intact parcel of land the City has designated for building new open-space. A multi-part program should take advantage of its size while still preserving some sense of the "expanse" that makes it unique.
- Because of its proximity to the neighborhood and its location on Third Street, the residents of East Cambridge (Area 1) would be the most dedicated users of any new open space at this location. The neighborhood has a large presence of families, many of which are working-class. This calls for places for unique play experiences for young children, exposure to naturalistic scenery in the city, and recreational opportunities for people of all ages.

Three Points Park

- Located at the crossroads of three truck routes designated by the City of Cambridge, the parcel has unpleasant exposure to high, heavy traffic flows throughout the day. Any successful park located here would require design interventions to screen views and noise and provide safe, attractive pedestrian routes to adjacencies including Front Park and the Charles River.
- With a concentration of hotels, condominiums, offices, and a prominent culinary school (Le Cordon Bleu College of Culinary Arts in Boston) surrounding the site, the new open space should be programmed to tap into and bolster the energy inherent to the adjacent buildings .
- -With few historic buildings remaining in view of the site, a modern and urban design aesthetic would be more appropriate for an open space in this neighborhood.

Point Plaza

- Located at the eastern entrance to the Kendall/MIT MBTA station, this open space is well populated and experiences heavy pedestrian flows even as it is currently impacted by construction work, broken pavements, and a partially-inoperable fountain feature.
- Main Street is a significant commercial edge and current MIT development proposals would expand this. Significant design attention should be paid to fusing the park these cafés, restaurants, and retail units.

Broad Wetland

- This site, the southwestern corner of the Volpe Center would be an optimal location for the allocated open-space acreage that has been discussed as part of the redevelopment of this federally owned property.
- This site is currently a nondescript and mostly flat lawn. No sense of its history – neither its millennia as a coastal wetland or the century it was bisected by an active shipping canal – can be detected in its present condition. Interpreting the environmental history of this site in some way would enrich the identity of Kendall Square and create a resource to local schools as an easily accessible field-trip destination.

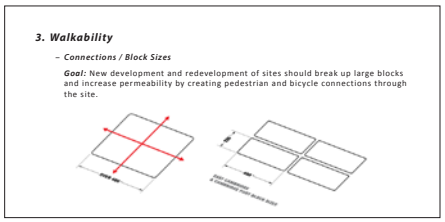
4. CONNECT PUBLIC AND PRIVATE SPACES

The dendritic open-space system proposed by this Framework Plan recognizes that to best connect Kendall Square, boundaries need to be broken down between architecture and landscape as well as between private and public realms. The new Kendall Square should be seen as a "marketplace" of innovation where businesses and institutions, public land, and private residences are together in symbiosis.

In terms of public/private overlap, the City of Cambridge has a growing list of success stories in Kendall Square and East Cambridge. From the generous pedestrian walkway through the Charles Park building on First Street, to the signature publicly accessible lobby of Genzyme Center, and the public-realm lobby that connects Main Street to the Roof Garden through Cambridge Center, there are relevant local precedents that this Framework proposes building upon.

Design Strategy

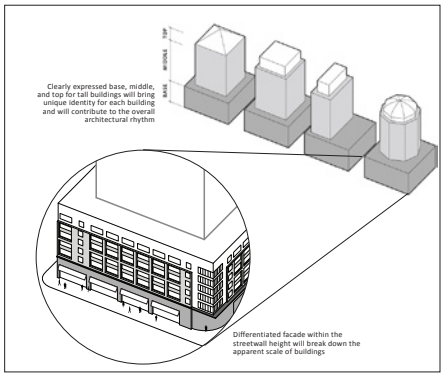
When Baron Haussmann renovated Paris in the 19th century, his strategies created impressive urban spaces but also many enemies. Strategically quite different, this dendritic system takes advantage of what already exists and what could be easily attained from private land owners; the open-space network incorporates at least seven "Special Permit Privately Owned Public Spaces" previously negotiated by the City of Cambridge.



^ KENDALL SQUARE DESIGN GUIDELINES 2013 | pg. 7

Working with New Development

Future development proposals should be required to harmonize with or expand the recommendations laid out within the Framework Plan, all new developments should be stringently required to meet or exceed the Design Guidelines established as a product of the K2C2 study. This document serves as a sufficient baseline for walkable block sizes, built form, and ground-floor uses (Kendall Square Design Guidelines 2013).



^ KENDALL SQUARE DESIGN GUIDELINES 2013 | pg. 12

Working with Existing Development

As indicated on the Framework Plan, there are several key connections that will require collaboration between private owners, tenants, and the City government. It is proposed that these designated pathways would be written into official planning documents and that the bulk of implementation be performed as part of future expansions and/or significant renovations of buildings adjacent to each path segment. Key links to be restored include the proposed pass-through at the Boston Marriott Cambridge and the link to Galileo Galilei Way from Technology Square.

Working with MIT

Massachusetts Institute of Technology has an established culture of open learning and open hallways. The "Infinite Corridor," the interior artery that defines the MIT campus and is open 24 hours per day and 365 days per year, is perhaps Cambridge's most famous example of public-realm private space. Many of the dendritic paths shown venture south of Main Street and into MIT campus, and it is anticipated that the institution will serve as a strong ally in implementing this Framework Plan.

^ MIT INFINITE CORRIDOR, VISUALPHOTOS.COM

Future Open Spaces

If the potential arises for new parklands and urban plazas to be incorporated into this system in the future, some simple guidelines should be followed:

- engage new space(s) with established dendritic paths or create new linkages to Broad Canal spine
- follow all described Kendall Square Design Guidelines
- design and detailing should embrace universal design and cultural inclusivity
- create a park/plaza with features unique within the open-space network

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5. ESTABLISH ACTIVATION STRATEGIES

Kendall Square and East Cambridge's new open spaces are designed and programmed to promote robust activity and social life throughout the day and as well as throughout the various seasons of the year. The following descriptions capture the range of activity across the open-space system on an imagined day: months:

^ VIEW OF THE BROAD CANAL

Morning

As the day's first commuters begin travelling up and down the Grand Junction Community Path, cyclists begin to mix with recreational joggers and walkers, and the offshoots of all modes funnels through the canyon at Grand Junction Portal. At Rogers Street Park, dogs relieve themselves of energy among other things, and dog owners pop in for coffee at the ground-floor coffee shop at Alexandria Center. A steady flow of subway commuters rise from the MBTA station and fan out across Point Plaza to points north and east. People stop and sit on the seatwalls at Three Points with coffee, a cellphone, or tablet as their word day begins.

Lunch Hour

At Three Points, students from Cordon Bleu and tech workers from Alexandria and Genzyme intermingle across the woonerf and generous crosswalks to take lunch by the Charles River and the small inlet at Front Park. Toddlers romp over the grassy hills at Rogers Street Park while their parents look after them from the

expansive lawn. The market and promenade at the Broad Canal bursts with activity, and a small class from Kennedy-Longfellow School takes a three-block field trip to learn about wetland habitats. A 30-something take turns with a young adult riding the zipline while coworkers at Amgen watch from their cafeteria.

Afternoon/Evening
After picking children up from neighborhood schools, parents and guardians let children get wet and even a bit muddy at the water-play feature at Rogers Street Park. Shoppers at Kendall Market take in views of the naturalized Broad Wetland over dinner and drinks on the boardwalk. A couple on their way from the MBTA station to a movie date spot the glowing landmark clock tower at One Kendall, as the pass through Grand Junction Portal. As the sunlight fades, Point Plaza glows with color; Project MUM and Firefly Arts Collective set up a redux of "Starbase," artistically weaving sculptural LEDs among the whimsical furnishings at Point Plaza, and light installation spill across the woonerf to the Main Street streetscape.

Night
Children settle down on the lawn, plaza, and playful sculptures of Three Points to watch "Frozen 2" as part of the City of Cambridge's "Summer in the City" film series. Joggers finishing a six-mile loop along the Charles River use the 'water bridge' at Broad Inlet, pass safely beneath Land Boulevard and ramping up to the previously built Broad Canal Walkway.

6. CELEBRATE COMMUNITY INCLUSIVITY

Physical Accessibility
There are minimum standards for the accessible design of playgrounds and public open spaces, but this Framework Plan demands much more from those who will design and implement new open spaces in Kendall Square and East Cambridge. In Rogers Street Park for example, the most attractive features must occur in environments where a child with physical or cognitive disabilities can play alongside his or her non-disabled sibling or friend. Accessible paths will be incorporated into all significant landforms throughout the open-space network, and nearly all sculptural elements in Three Points and Point Plaza will be equally enjoyable by all.

^ ROGERS STREET PARK

All Ages and Development Levels
A major goal of this Framework Plan is to blur the distinctions in design for different age groups. Kendall Square's sidewalks and alleyways -- currently the realm of adults -- will become safe, legible, and protective pedestrian zones where parents will feel comfortable letting their school-age and adolescent children roam free. System-wide, the proposed play elements will have appeal to people ranging widely in age and psychosocial stage. A properly designed zipline or streetscape musical features, for example, do not limit play to children alone.

Bridging Cultures and Social Groups
Kendall Square, from the MIT student population to the south and the Irish, Polish, and Portuguese Americans to the north, is a richly diverse community. Even among the neighborhood's Portuguese speakers, there is a spectrum of cultures represented; people have immigrated to this neighborhood from Brazil, Cape Verde, the Azores, and Portugal.

Within blocks of East Cambridge's existing "Boston Portuguese Festival," "Smoke This Rib Fest," and

"Annual Italian Feast of Saints Cosmas and Damian," woonerfs at Three Points and Rogers Street Park could close to vehicular traffic to host similar food festivals to highlight cultural cuisines. The dendritic system of public routes and open spaces would help unite Kendall Square and East Cambridge as dedicated mixing grounds for diverse cultures and ideas.

Shared Opportunity & Collaboration
East Cambridge is characterized as a middle-class neighborhood, but painful poverty exists within it and its surrounding neighborhoods (Areas 2-4). Within a block of Kendall Square's world-renowned biomedical research facilities, Technology Square, and MIT campus sits Cambridge's "poorest neighborhood," where there is a sentiment of being "alienated" and "squeezed out" by new development [http://www.bostonglobe.com/business/2014/11/23/shadow-future/s1KhT91JlhyqSObVOb6GqL/story.html]. The proposed open-space system fuses public and private, creating a community asset that is free and welcoming to all demographic groups.

7. INTEGRATE SAFETY, OPERATIONS, AND MAINTENANCE

Public Safety
The proposed system of open-space requires light levels sufficient for a sense of security. Given the urban context, most of the proposed routes are already illuminated from existing street and sidewalk fixtures or spillover from adjacent architecture interiors. As each tendril of the dendritic path system is implemented, however, a professional lighting consultant should be hired to consider the path for consistent illumination from start to finish. In the large, new open spaces, the park designer should select energy efficient, full-cutoff fixtures to minimize waste and light pollution.

Landforms proposed for Rogers Street Park, Grand Junction Portal, and Three Points provide a sense of enclosure, landmark identity, and surfaced for free play, but in all cases, unobstructed sight lines are preserved as necessary for effective policing. "Rabbit hole" crawl-tunnels in Rogers Street Park would feature an incline sufficient to deter unintended use. All play areas have been designed to incorporate resilient surfacing for safety without detracting from the design.

Operations & Maintenance
All open-spaces require maintenance, and the needs are greatly increased with the traffic associated with a dense, urban setting like Kendall Square. The Framework Plan has been carefully crafted to minimize expanded operations and maintenance needs, but the following are examples of new operations and maintenance responsibilities that need to be considered:

- sump clearance, filtration, pump repair, and winterization of the water-play feature at Rogers Street Park
- weekly assessment and restocking of "loose parts" in natural play areas at Rogers Street Park and Grand Junction Portal; branches, sticks, and pinecones should be sourced from Public Works projects
- programming, scheduling, and setup for performances, art installations, and film presentations at Three Points, Point Plaza, and elsewhere within the dendritic system
- cleaning, lubrication, and occasional refinishing of swing sculptures at Point Plaza
- annual assessment, replanting and removal of sediment at Broad Wetland and bioretention bays on streets
- snow removal and de-icing along dendritic pathways including Broad Canal promenade
- annual inspection and replacement of ropes, zipline cables, and climbing holds at Grand Junction Portal and Rogers Street Park

The design team believes that the new maintenance tasks listed above are reasonable, attainable, and well worth the effort. With the proximity of profitable, renowned business public-private partnerships and the legislation of a business improvement district (BID) should be investigated to assist in covering costs and completing projects.

8. CREATE A SUSTAINABLE FUTURE

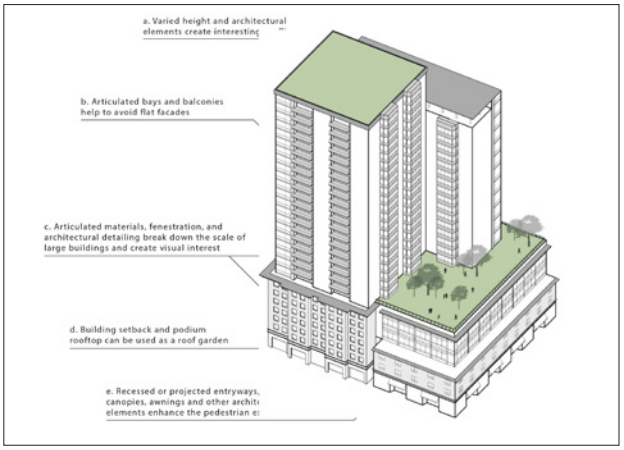
The Framework Plan takes into consideration the three pillars of sustainability; the proposed open-space system is well grounded environmentally, socially, and economically. As Kendall Square and East Cambridge continues to tighten, it will convert excessive setbacks, surface parking lots, and undeveloped parcels into new buildings that will provide housing, office, and laboratory space. (The bulk of this opportunity for densification lies on the Volpe parcel.) As this development occurs over the next decade, an increase in public-transit ridership is all but certain, as is an overall improvement in the quality of streets and walkways, which will promote walkability and cycling.

Going beyond efficient land use, the City of Cambridge and the community must demand the widespread implementation of additional sustainable strategies:

Stormwater Mitigation - Currently, more than half of the Project Site sends stormwater into a “combined” system, mixing relatively clean rainwater with raw sewage and sending the volume to be handled by the Massachusetts Water Resources Authority at Deer Island Treatment Plant. A key component of this Framework Plan would “unhook” existing stormdrains that feed into the combined sewer, redirecting them instead to the Broad Wetland. Bioretention bays along Broadway, Third Street, First Street, and Charles would encourage localized infiltration and reduce overall stormwater flows that enter the Charles River.

Urban Heat Island Effect - A combination of strategies must be employed to reduce the increased temperatures that result from the area’s concentration of pavements and rooftops. With soaring real-estate values at the Volpe parcel, new buildings should be required to incorporate vegetated green roofs to absorb the sun’s rays (and also serve the purposes of reducing heating and cooling costs and intercepting stormwater). New pavements in the paths, plazas, and parks should follow the U. S. Green Building Council (USGBC)’s LEED requirements for high-albedo (SRI) paving materials. Canopy trees, which will help define each path segment, should be generously planted to intercept sunlight (and rainfall) and increase overall biomass.

Energy Efficiency - The building interiors will continue to consume far more energy in Kendall Square than the open spaces ever could, but lighting design and selection of fixtures should employ current technology to minimize inefficiency in site lighting.



^ KENDALL SQUARE DESIGN GUIDELINES 2013 | pg. 17

9. BUILD AN IDENTITY

Kendall Square is haunted by a persistent confusion as to where, exactly, "Kendall Square" is precisely located. This uncertainty is compounded by multiple uninteresting street edges with generic ground-floor architecture.

The proposed dendritic system combines placemaking, wayfinding, and public art installations, and historic interpretation to create a pattern of open space that is imageable and memorable. Inside the buildings of Kendall Square, innovators are doing some of the world's most important problem solving, and the public realm should become a "marketplace" of ideas.

As discussed, the dendritic open-space network proposed in this Framework Plan has many important "tendrils," but it also has a "trunk." Forming the foundational spine for the entire system would be the currently obscured footprint of the Broad Canal. It was the building of the canal that gave life to Kendall Square during the industrial era, and it is only appropriate that the past is dug up for a new generation. Interpreting the Broad Canal from the Broad Wetlands, eastward to the market promenade, and further east to the Charles River does more than provide a signature avenue for pedestrian access. Tracing the Broad Canal restores a *historical* narrative that was erased by mid-19th-century redevelopment and reminds a neighborhood of its heritage and connection to the Charles River.

^ POINT PLAZA

10. ELEVATE THE USER EXPERIENCE

The concept of this Framework Plan draws its inspiration from experiential, processional path systems tracing back to ancient cities, Renaissance gardens, and even more contemporary sequential paths designed by such landscape architects as Lawrence Halprin. To a pedestrian moving along any branch or the trunk of the dendritic open-space system proposed, visual continuity is of great importance. Variety and richness is encouraged, and open-space pathways should be allowed to turn, bottleneck, widen, or move through buildings as needed. However, a sense of constancy -- established through recognizable plantings, accent furnishings, lighting, or paving -- must exist along the path, not just for aesthetic reasons but to preserve legibility of direction.

^ BROAD CANAL

Grand Junction Portal, Rogers Street Park, Three Points, Point Plaza, and Broad Wetland: each large parcel within the open-space system has been programmed with attractive features and unique environments. These spaces coalesce with the tendril pathways to create a richer, more recognizable Kendall Square. If this Framework Plan is implemented, Kendall Square will become a landmark neighborhood, not only within Cambridge, but within the entire metropolitan area of Boston.

^ SLEDDING HILL AT ROGERS STREET PARK

The most important concern of any public-realm design is the people who will use it, and this Framework Plan considers the people, both as individuals and as a community, as its top priority. This plan aims for a future where children can grow up safely but are able to make discoveries in an urban setting, where residents see chance encounters turn into the ties that strengthen a community, and where daytime office workers decide that Kendall Square is not only where they want to work but also where they want to live.

^ BROAD WETLAND

FRAMEWORK DETAILS

DENDRITIC NARRATIVE

The sequence of images that follows describes one of the dendritic branches of the Framework Plan. This particular path seeks to link the residential neighborhoods of Area 4, through the existing commercial areas of Kendall Square, to the proposed new center at the Broad Canal marketplace. By using a consistent language of trees and site furnishings, the design of the path strives to create a pedestrian friendly environment. Through strategic insertions of public arts programming and/or interactive play elements, the path fosters a sense of playfulness and exploration.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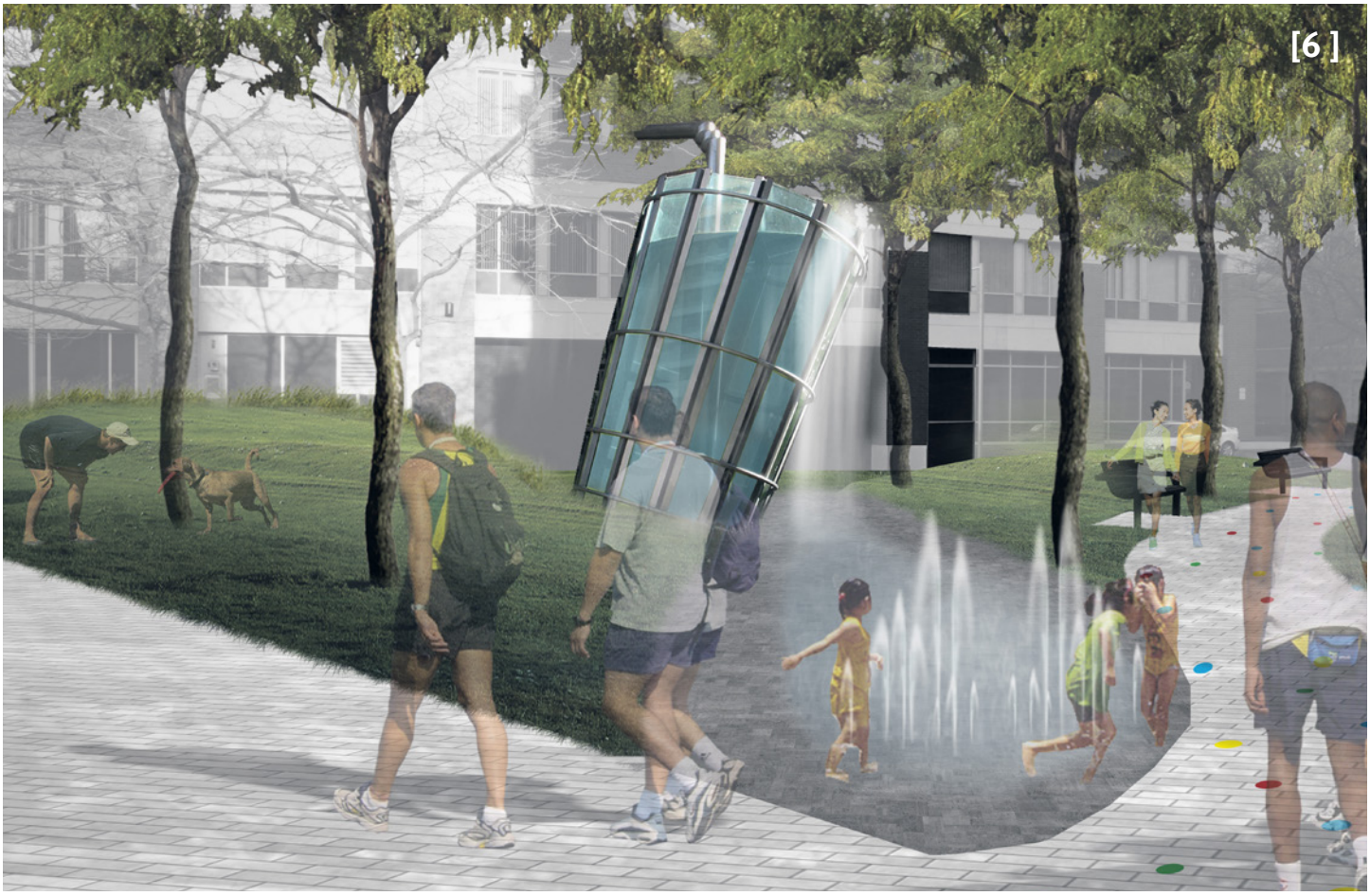
[2]


[3]
before I die...
DISCOVER A
SPECIES


[4]
100


[5]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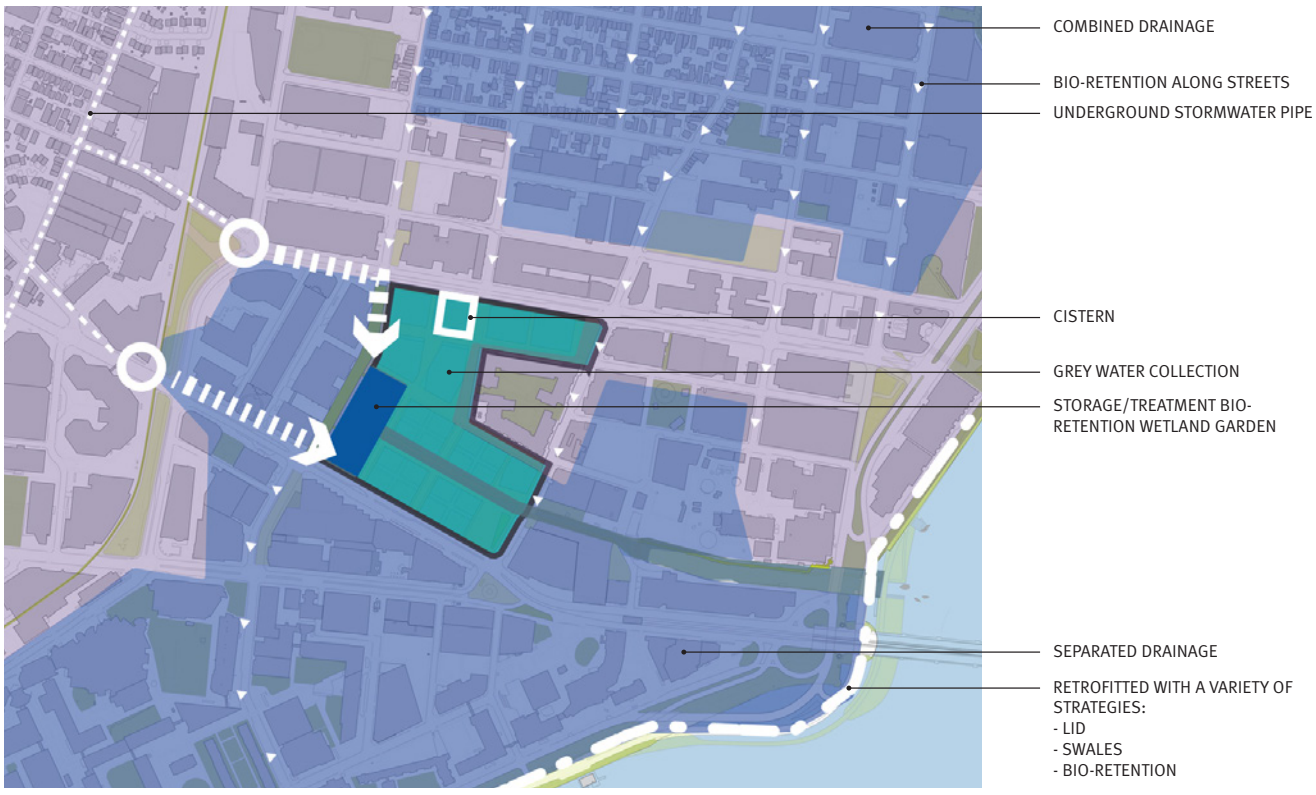
CONCEPTS FOR PROGRAMMING, OPERATIONS & MAINTENANCE

STORMWATER FRAMEWORK

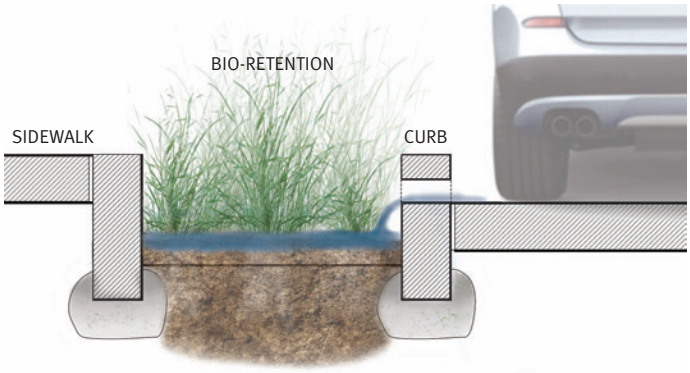
The Framework Plan draws upon historical, natural water movement in the area and interprets it in multiple layers. Open spaces within or abject to the combined sewer study area (for instance, Grand Junction Portal, Rogers Street Park and even Three Points) would promote opportunities for infiltration, storage and treatment of stormwater. Thus, overall volume of stormwater leaving these sites and entering the combined system is significantly reduced.

1. The stormwater treatment plan will use existing stormwater infrastructure in both the separated (or dedicated drainage-only) and combined drainage systems for opportunities to incorporate treatment, additional storage, overflow capacity, and retention/detention based on current conditions. The stormwater treatment plan outlines a combination of strategies proposed for the separated and combined drainage watersheds. Starting at Grand Junction Portal, treatment systems are proposed along Broadway that currently convey stormwater via underground pipes from Ames Street and the Loughrey Walkway via 3rd Street and Broad Canal Way. This volume of stormwater can now be directed to the Broad Wetland. Additionally, the redevelopment of the Volpe Center's roof leaders will be directed to underground storage cisterns. The stormwater strategy for paved and landscaped areas within this new development will direct runoff to the Broad Wetland.
2. Stormwater on the Street Plan Sections 1 & 2 visualize proposed retrofits of existing stormwater infrastructure, which will help to reduce the amount of polluted runoff flowing into the canal and improve the overall capacity and function of the current system. Furthermore, they will improve the quality of the streetscape along street corridors.
3. Any stormwater surcharge above a base flow from the existing infrastructure along Broadway will be directed to a bio-retention wetland garden proposed at the intersection of Broadway and Loughrey walkway. Broad Wetland Sections 1 & 2 demonstrate low and high water levels of the Broad Wetland. This shifting of water levels will create an opportunity for rich and diverse aquatic ecosystems.

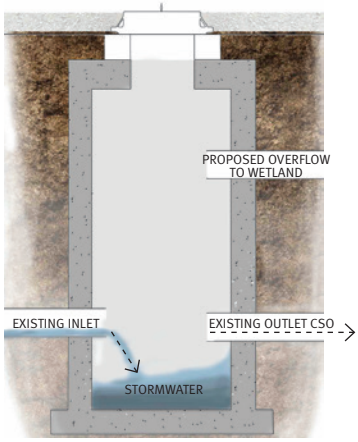
STORMWATER TREATMENT PLAN



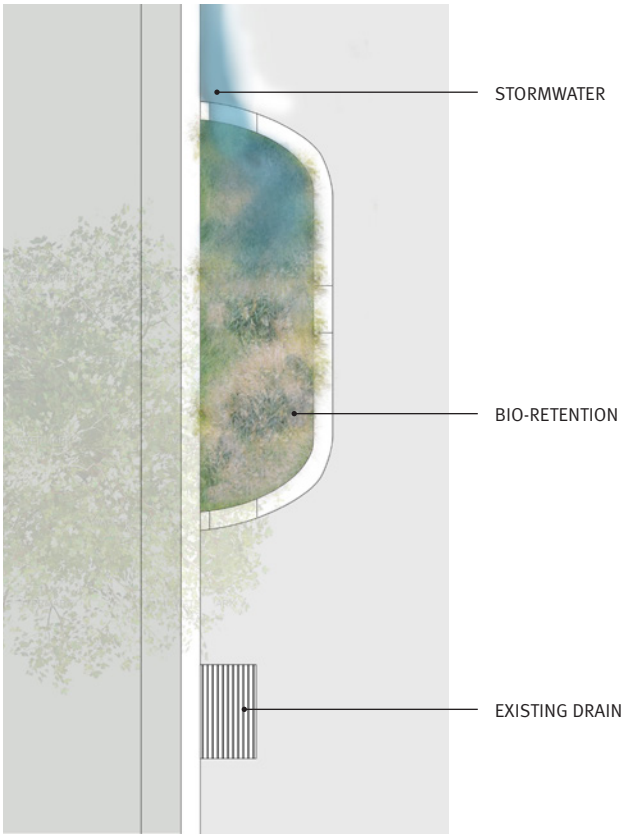
STORMWATER DETAILS



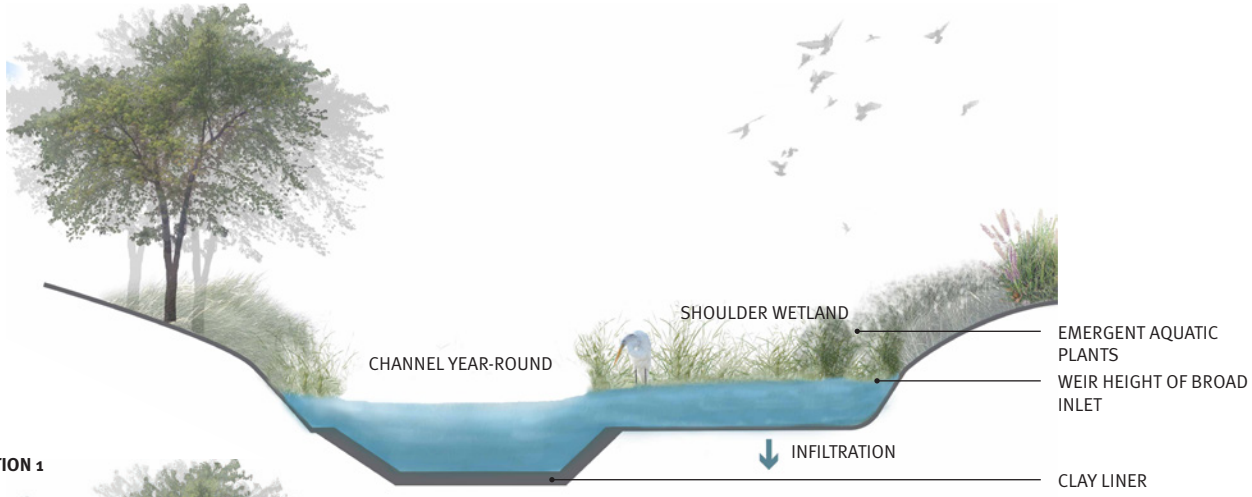
STORMWATER ON THE STREET: SECTION 1



STORMWATER ON THE STREET: SECTION 2



STORMWATER ON THE STREET: PLAN



BROAD WETLAND: SECTION 1

BROAD WETLAND: SECTION 2

PUBLIC ART STRATEGIES

Public art has the potential to enrich the parks, plazas, and paths of Kendall Square and East Cambridge, enlivening social patterns and increasing both legibility and wayfinding along different path segments. The design team looked to a variety of successful public-art programs implemented in cities across the country. Different methods are listed below, but this Framework Plan recommends an approach that combines these strategies:

1. Multiple artists might create permanent works exploring a unified theme at various points along a designated tendril path; example themes could be “Invention,” “Stormwater,” or “Home”
2. A single artist, commissioned by the City, a business, or a partnership could create a “family” of works, which might remain on exhibition for a period of six months to two years
3. Teams of artists, including members of the community, could cooperate on performance art events and temporary visual installations along a set path; these artworks could be part of an organized, coordinated arts festival

To ensure that new public artworks are well integrated into the community and strengthen the proposed open-space system, some common Performance Criteria should be followed:

1. Each object or performance piece should have visual or thematic unity with other artworks along a set paths; conversely, artwork on one path should be recognizably distinct from that of another path
2. Any fixed sculpture or permanent painting shall be site specific
3. All efforts should be taken by the artist(s) to maintain open space and comfortable pedestrian circulation; artwork causing constriction of any designated path to six feet or less will not be approved
4. All works must either draw inspiration from Kendall Square, Cambridge, or the region or aim to make connections to the people, creative culture, and heritage of Kendall Square and East Cambridge
5. Whether organized by the City government or a coalition of business owners, community input must be sought in order to maintain a balance between temporary and permanent works; a distribution of fixed works must preserve space for organized and impromptu performances

^ DAN CHEETHAM & MICHELLE TARSNEY, "PEACE CRANES"

^ WILLY DORNER, "BODIES IN URBAN SPACES"

^ LOOP.PH, "TREE LUNGS"

^ LANG BAUMANN, STREET PAINTING #5

^ JR, QUARTIERS DE MARSEILLES

^ STACY LEVY, DENDRITIC DECAY

^ FRAMEWORK PLAN WITH POTENTIAL PUBLIC ART OPPORTUNITIES

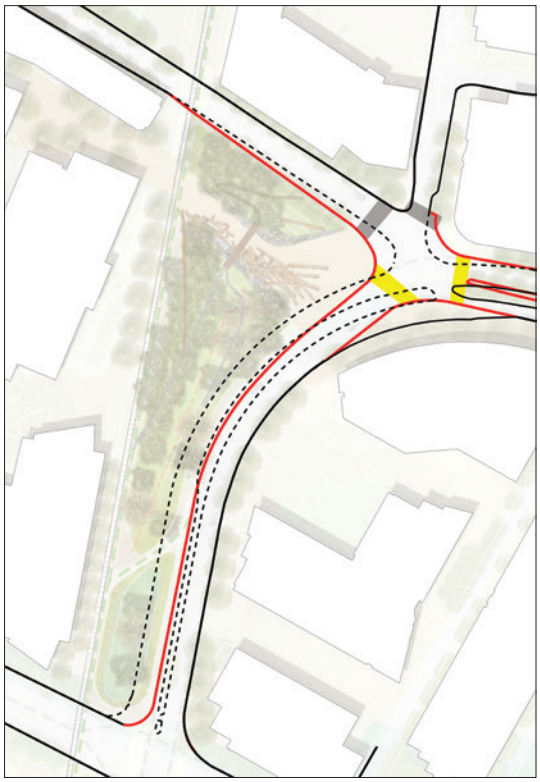
ROADWAY CHANGES AT FOUR PARKS/PLAZAS

This Framework Plan spells out complex improvements for Kendall Square and East Cambridge, and a key part of this document makes site-design recommendations for each of the new/renovated open-space parcels. Each of these four parklands – Grand Junction Portal, Rogers Street Park, Three Points Park, and Point Plaza – is bounded on all sides by vehicular routes. Across the four sites, the design team has proposed a range of changes, from significant alterations of the site boundaries and curb-lines to minimal changes. The following diagrams clarify the changes from existing condition to that which is proposed for each park and plaza:

GRAND JUNCTION PORTAL

- Roadway - A "road-diet" is proposed for Galileo Galilei Way between Binney Street and Broadway. The design team recommends, at a minimum, the removal of the median and subsequent compression of travel lanes to the east to create more parkland and reduce the effective width of the roadway at pedestrian crossings. (It is recommended that the City consult with a transportation engineer to determine if it is appropriate to reduce the quantity of lanes at Galileo Galilei Way, and to determine if a road-diet strategy can be carried southward to the intersection with Main Street.)

- Crosswalks – A simplified intersection with Binney Street and Fulkerson Street is recommended, which will require reworking of two pedestrian crossings as shown

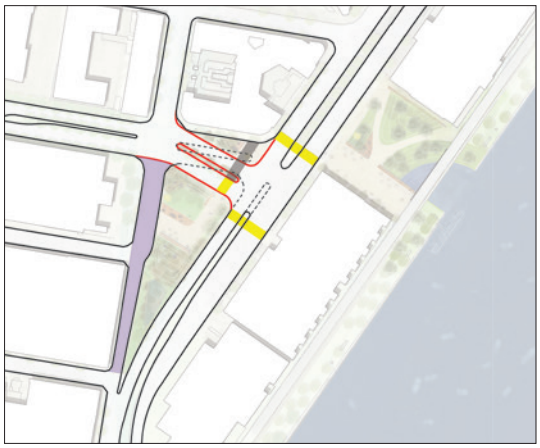


ROGERS STREET PARK

- Woonerf – Rogers Street, between Second and Third Street, should be rebuilt as a "woonerf," or pedestrianized street, where vehicular passage must yield to park users walking or wheeling at any location along its length. Street pavement is to run flush from curb to curb to allow continuous level, accessible crossing. Vehicle speed along this segment of Rogers Street must be limited to human walking speed (roughly 5 mph) even at times pedestrians are not in sight.

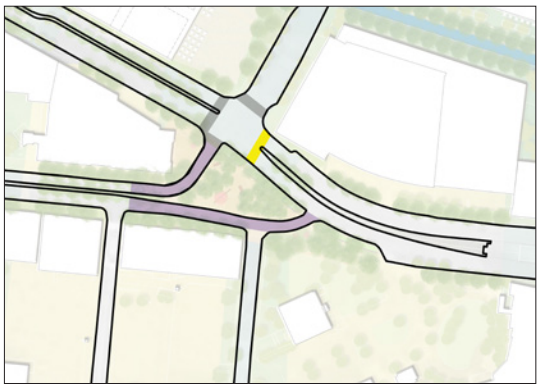
- Crosswalks – Freedom and priority of pedestrian movement is appropriate at all intersections adjacent to the park. The installation of five additional pedestrian crosswalks with clearly markings is required on Second and Third Streets.

THREE POINTS PARK



- Roadway – This Framework Plan calls for a realignment of Binney Street from First Street to Edwin H. Land Boulevard. This alteration straightens the intersection of Binney Street and Land Boulevard and creates an intermediate "stepping stone" parcel to ease park users safely across these two designated truck routes.
- Woonerf – First Street, between Binney Street and Land Boulevard, should be rebuilt as a woonerf. Pedestrianizing this street brings vehicular movement into balance with access between the proposed park and the new and proposed storefronts.
- Crosswalks – A new crosswalk should be installed on the southern end of the intersection of Binney Street and Land Boulevard. City government should work creatively with artists to implement colorful, vivid crosswalk patterns to bridge Three Points while meeting state guidelines for striping. These landmark crosswalks would attract the attention of motorists and attract park users to travel to and from the Charles River.

POINT PLAZA



- Roadway – The site design anticipates the completion of the current construction, including the Third Street connector.
- Woonerfs – To enlarge the sense of public space and slow vehicular traffic around this small island-like parcel, the design team recommends that Main Street (between Hayward Street and Broadway) and the Third Street Connector be pedestrianized. These two woonerfs will encourage free pedestrian movement and better activate the commercial edges of Main Street.
- Crosswalks – An additional pedestrian crosswalk is required at the eastern end of Point Plaza. Currently, no pedestrian access is provided across Broadway/Main Street between Third Street and the underpass beneath the Longfellow Bridge, which results in a barrier 1,500 feet long. Installing an additional crosswalk at or near the location shown would help close this gap, and could do so without conflicting with the rising tunnel of the MBTA Red Line. An eastern crosswalk would ensure foot traffic along the Main Street edge and serve to activate the full extent of Point Plaza.

ANTICIPATING MAINTENANCE

Included below is a sample maintenance schedule to indicate the new requirements associated with the proposed Framework Plan. Some of the tasks described will be new to the Cambridge Department of Public Works, others will be quite familiar:

	Item	Location(s)*	Maintenance required	Frequency
Play: "Loose Parts"	play sand	RSP	rake clean and refresh as needed; replenish from water features	3-4 times annually
	sticks & limbs	RSP	refresh with fresh sticks and limbs from DPW; diameter to range from 1/2" to 3"; lengths up to 5'; stripped free of thorns or sharp points	initially refresh weekly; adjust to monthly visits if possible
	large timbers	RSP & GJP	spring assessment for structural faults and decay; replacement	annual assessment/full replacement as required
Play: Water	play runnel	RSP	clear of sand and debris	weekly
	bubblers & spray features	RSP	winterization & spring renewal; manufacturers' instructions	seasonally
	water pool	RSP	dredge and replenish sand; strain litter	weekly
	recirculating pump	RSP	winterization & spring renewal; maintenance per manufacturer	seasonally
Ropes & Climbing Structures	zipline	GJP	inspection of cable and mechanisms; repair and replacement	weekly/monthly
	rope climbers	RSP & GJP	inspection and replacement	weekly/monthly
	hammock/ funambular posts	GJP	inspection and refinishing	as required
	safety surfacing	RSP, GJP & TP	inspection of fall zones to maintain safety requirements	weekly/monthly
Sculpture & Furnishings	play sculptures	TP	cleaning, pressure-washing, and graffiti removal as needed	dependent upon artist's materials
	swing benches	PP	cleaning, refinishing, and lubrication of moving parts	seasonally/ as needed
Standard Maintenance & Operations	pathway surfaces, furnishings & lighting	system-wide	expanded scope for trash/recycle collection, snow clearing, maintenance of light fixtures, etc.	as determined by City of Cambridge/DPW
	public safety	system-wide	police patrolling and surveillance of large open spaces	at CPD discretion

*RSP= Rogers Street Park; GJP=Grand Junction Portal; TP= Three Points; PP=Point Plaza

LISTING OF TEAM MEMBERS

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Charles River Watershed Association, *River/Watershed Consultant*
Barbara Goldstein & Associates, *Public Art Consultant*
Samiotes Consultants, Inc., *Civil Engineer*
Site Masters, Inc., *Play/Learning Consultant*
Howard/Stein-Hudson Associates, Inc., *Traffic Consultant**
Pine & Swallow Environmental Services, *Environmental Specialist*
Tree Specialists, Inc., *Tree Specialist*

** Note: Howard/Stein-Hudson added as an additional Team Member after Stage II of the competition.*

EXHIBIT BOARDS

NEIGHBORHOOD VIEWS

CONCEPT DIAGRAMS

KENDALL SQUARE c. 1938
THE BROAD CANAL AND THE ESTUARY

FIGURE/GROUND
NEIGHBORHOOD APPEARS VERY OPEN, AS IF YOU COULD WALK ANYWHERE

"DISCONNECT KENDALL"
FENCES AND LARGE BLOCKS CREATE BARRIERS TO PEDESTRIAN MOVEMENT

CONNECT KENDALL
CREATE NEW CENTRAL MARKET AND ENHANCE PEDESTRIAN CONNECTIVITY

CONNECT NEIGHBORS
PROVIDE NEW COMMUNITY "CENTER" WITHIN KENDALL TO BRING EVERYONE TOGETHER

CONNECT KENDALL

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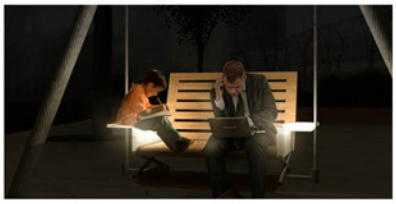
FRAMEWORK PLAN



POINT PLAZA

Plaza – enlarged from its present size, the plaza is envisioned as an urban oasis for adults and children alike to relax, play, dine, and congregate within a shady bosque of canopy trees; the plaza is and will continue to be a primary pedestrian thoroughfare from the MBTA Red Line station to Third Street and points beyond, which activates and enlivens the social life of the plaza; permeable paving would direct stormwater runoff to underground storage for infiltration.

Swing Benches – each unique but with a shared language, a family of swing seats are informally arranged through the plaza; these custom, modern furnishings are designed for individuals, pairs, and small groups.

Woonerf – would fuse the pedestrian plaza to the new commercial edge currently being considered by MIT on Main Street.

Wind Vane Sculpture – this towering sculptural element would be united in materials and form with the scattered swing benches; changing wind directions will be made visible on this beacon, which is placed to signal an arrival to riders emerging from the MBTA stairwells.

THREE POINTS PARK

Three Parcels, Unified – a realignment of the Binney Street/Land Boulevard intersection would allow creation of an intermediate "stepping stone" parcel to the north, establishing a legible, pedestrian-friendly relationship across both streets.

Woonerf – would enlarge the perceived boundaries of this modest parcel and connect directly to proposed and existing buildings (including a restaurant) across First Street; during events, woonerf would be closed to vehicular traffic.

Cinema Plaza & Lawn – moderately sized open spaces designed for informal outdoor dining and passive daily activities; the City of Cambridge would use this area for its summer movie nights on inflatable screen or permanently fixed screen.

Landforms – uniting the design, sculptural, distinctive topography would establish an identity and visually weave the parcels together.

Sculpture Program – amorphous, whimsical forms reinforce shared identity among these three sites ; sculptures would range in scale for a variety of inviting play experiences; three signature beacons, the tallest of these expressions, would lead visitors from one site to the next.

Front Park – changes to this underutilized park would bring the experience of the Charles River inland, under Cambridge Parkway and the riverfront path.

ROGERS STREET PARK

Landforms – iconic mounded landforms, planted with shade trees establish a distinct environment and screen exposure to exterior buildings and streets; sightlines would be maintained for public safety.

Water Play – a springhead emerging from the western mound will form the beginning of a winding watercourse; along its path, children will be able to manipulate runnels, water tables, bubblers, and splash fountains.

Play Structure – built into the largest slope, a rocky wall with integrated slides and crawl tunnels will allow climbing and discovery experiences unique to the area.

Sledding Hill – from a summit of 14', an unobstructed lawn slope will create the most exciting and safest local venue for sledding during the winter months.

Open Field – preserves an acre of the existing expanse for unstructured play and recreation.

Bike Loop – a learning course for young cyclists; an alternate offshoot offers bumpy and noise-making pavement.

Dog Park – the closest designated dog park for public use; fence enclosure with crushed stone floor.

Woonerf – a pedestrian zone at this stretch of Rogers Street enlarges the sense of parkland and provides safe access to public bathrooms and a café at Alexandria Center.

Design For All – universal design is a key aspect of this site design; the majority of water elements will be in reach from a seated position and the bike-loop offshoot would provide a stimulating ride for all.

GRAND JUNCTION PORTAL

Grand Junction Community Path – this park will engage strongly with the regional bicycle path proposed to share the right-of-way with the existing railroad.

Timbers – laid over tree trunks and upright stumps, scattered through the parcel and immediate vicinity, provide informal seating and climbing opportunities and establish a signature language; small tree branches encourage playful building of temporary structures.

Canyon Portal – pedestrians will be channeled into a constructed gorge with a geologic-inspired form; canyon connects to commercial hub at One Kendall and residential districts; rock walls promote climbing in designated zones with protective play surfacing.

Bridge – spans the canyon, framing a threshold.

Zipline- along the gently sloping (12%) ridgeline, a frame-mounted cable zipline would promote exercise for children as well as office workers on their lunch break; set back safely from street.

Multi-use posts – strategically placed, colorful hitching posts allow the stringing of hammocks or temporary tightropes for local funambulists.

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FRAMEWORK PLAN

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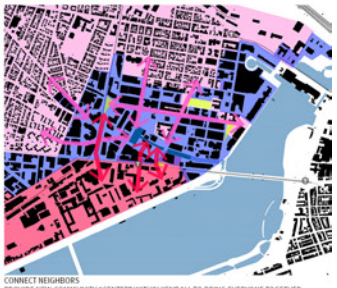
DENDRITIC FORMS: WATER AND TREES

THE BROAD CANAL AND THE ESTUARY

FIGURE/GROUND
NEIGHBORHOOD APPEARS VERY OPEN, AS IF YOU COULD WALK ANYWHERE

"DISCONNECT KENDALL"
FENCES AND LARGE BLOCKS CREATE BARRIERS TO PEDESTRIAN MOVEMENT

CONNECT KENDALL
CREATE NEW CENTRAL MARKET AND ENHANCE PEDESTRIAN CONNECTIVITY



CONNECT NEIGHBORS
PROVIDE NEW COMMUNITY "CENTER" WITHIN KENDALL TO BRING EVERYONE TOGETHER

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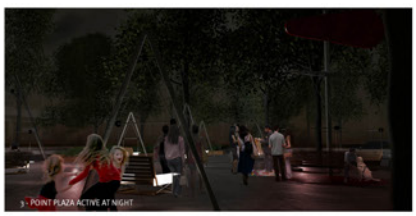
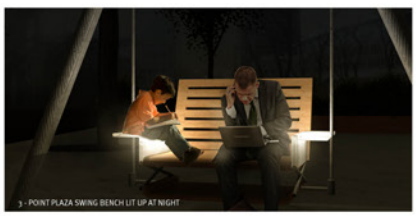
SCALE: 1" = 50'





POINT PLAZA

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ROGERS STREET PARK

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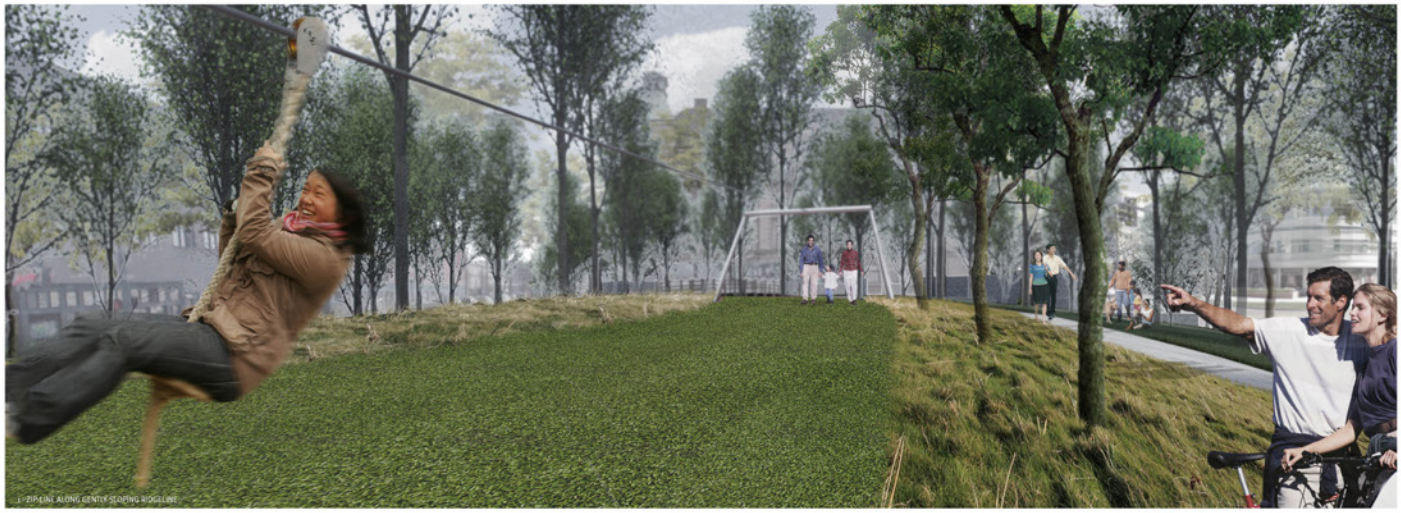

GRAND JUNCTION PORTAL

THREE POINTS PARK

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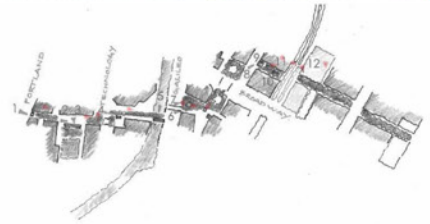
DENDRITIC PATH



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APPENDIX

URBAN PLANNING CONSULTANT:
Tim Stonor | Space Syntax

EVIDENCE-BASED APPROACH
Space Syntax has, over the last 25 years, developed a world-leading expertise in urban analysis, pedestrian movement modeling, planning and masterplan design, with a focus on the relationship between spatial layout and the social, economic and environmental performance of places. Space Syntax provides a unique evidence - based approach that allows networks of streets and spaces to be analysed, using specialist software. These network characteristics have been found to have fundamental links with the patterns of urban activity, including the distribution of movement (pedestrian, cycle and vehicular), the land use and the density. The ability to use this modeling approach during the design stages increases the chances of a successful and sustainable solution being developed which takes into account how the site will perform in the context of the wider city centre and its surroundings.

This science-based, human-focused approach has been tested and successfully applied in hundreds of projects worldwide, bringing each an evidence-based rigor in support of visionary proposals to transform places at every scale, from regional planning to detailed street design.

ANALYSING SPACIAL RELATIONSHIPS - THE SPATIAL ACCESSIBILITY MODEL
Space Syntax models explain existing and forecast future movement patterns. The approach works by transforming the street network of an area into a network “graph”. Every street segment is then evaluated using a mathematical algorithm to calculate its relationships within the network. The output is a measure of how easy or difficult it is to reach each segment from all other segments, and how likely it is that movement between different parts of the network passes along that segment - this is called “Spatial Accessibility.”
Independent research has consistently shown that spatial configuration as measured by spatial accessibility is one of the key factors that influence movement in urban areas. Spatial accessibility maps frequently provide a robust forecast of actual patterns of movement, with the distribution pattern of movement closely following the distribution of accessibility values. We call the amount of movement that can be accounted for by spatial configuration the ‘natural movement’ of an area.

Analysis can be run to understand the relationships between spaces at many scales. The strategic spatial accessibility maps illustrate the degree of global movement potential throughout the City and the degree of local movement potential, in this case, within approximately 15 minutes walking distance (1 mile). The warmer the colour of the street segment, the more likely it is that people will take that route on their journeys to and from all destinations within the city.

THE IMPORTANCE OF A ROBUST SPATIAL NETWORK FOR THRIVING PUBLIC REALM
Cities are foremost places of social, cultural and economic transactions between people. They function at their best when they are made up of a legible route network with a fine urban grain, distributing movement conveniently into the surrounding context and creating a clear hierarchy of continuous, busy main roads with key attractors and more quiet side streets attached to them. Frequently, the same parts of the network are used on short- and long-distance journeys. Land use analysis shows that these multi-scale places are typically successful commercial locations, thus demonstrating the importance of careful spatial layout design in creating multi-scale opportunities for shops to trade to more than one scale of movement and support urban economy. A good city centre supports a network of interlinked open and green spaces connected by streets lined with active frontages. The approach to the needs of pedestrians, cyclists, vehicular traffic and buses needs to be balanced and take into account the naturally emerging hierarchy of the route network.

CONNECT KENDALL SQUARE COMPETITION

The Kendall Square Open Space Framework brief calls for the creation of a connected, integrated urban fabric that will help create a sense of place around the Kendall Square and East Cambridge area. A balanced network of spaces is required to serve movement and interaction at all scales. This network must accommodate large and small-scale journeys alike and, above all, provide places in which people can meet and transact their business. The spatial changes involved have the potential to create significant improvements to the area, and in the context of a wider public realm strategy, trigger a transformation process.

KEY FINDINGS

Space Syntax used the Spatial Accessibility Model to analyse the current spatial network and test the impact on this of the proposals that emerged during the design process.

Existing:

The analysis of the model of the existing network identified current issues concerning:

1. Disconnection.
2. Imbalance in the spatial network.
3. Opportunities to create new connections, especially at the local scale.

At a global level, Kendall Square and the East Cambridge area are located at a strategic location with good connections to the wider context and Boston City Centre. Main Street and Broadway, Edwin H. Land Boulevard, Cambridge Street and Cardinal Medeiros Avenue are highlighted in the analysis as key global routes. The "multi-scale network" – those important places where global and local trips overlap and commercial uses can trade to more than one scale of movement, is also restricted to these routes.

At a local scale, the street network, particularly between Binney Street and Main Street, is fragmented and with very low permeability. This lack of a finer local grid structure supporting the super-block formed by the global routes reduce route choice and increase walking distances between local destinations. Also the area does not fully exploit the potential to link to the waterfront.

Proposed:

The following conditions support the creation of a successful neighborhood centre:

1. Strong links to the city centre as well as its immediate surrounding context.
2. A fine urban grain to encourage walking and cycling.
3. A legible layout within the site to support wayfinding.
4. Public spaces located at strategic points in the pedestrian movement network i.e. the intersections of important pedestrian movement routes.

The proposed Framework achieves these spatial qualities by creating an integrated and legible street network between the four open spaces, and by creating a finer scale structure and a walkable urban environment. The proposed routes are aligned to optimize the potential of the site.

Particularly Third Street and Binney Street are part of the multi-scale core of the city and 5th Street becomes an important local route. Also, each of the major open spaces has good accessibility. The canal is a key route and the water's edge is significantly improving. The analysis shows also that the Volpe Centre site is highly connected with potential for significant pedestrian activity.

The Spatial Accessibility Analysis of the proposed Framework, shows that it creates significantly high levels of Global, Local and Multi-scale Spatial Accessibility, which are the building blocks of social and economic vibrancy.

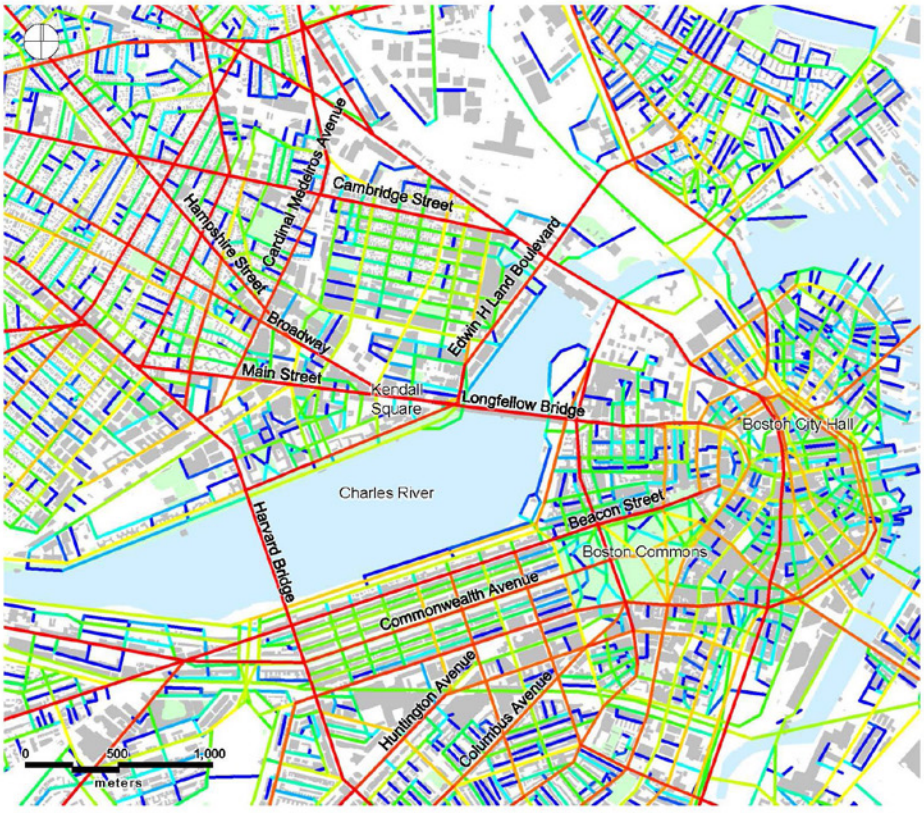
Kendall Square

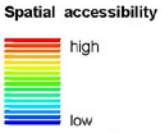
Spatial Layout Evaluation

January 2015

Space Syntax

Spatial accessibility Global Existing



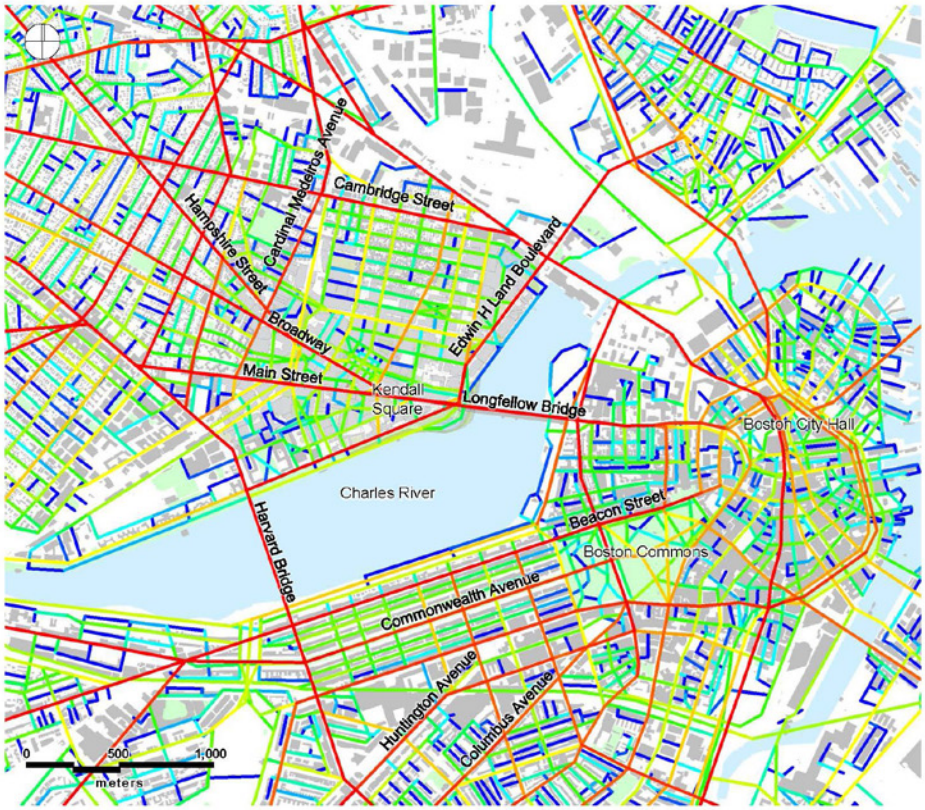


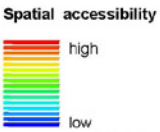
Kendall Square

Spatial Layout Evaluation

2

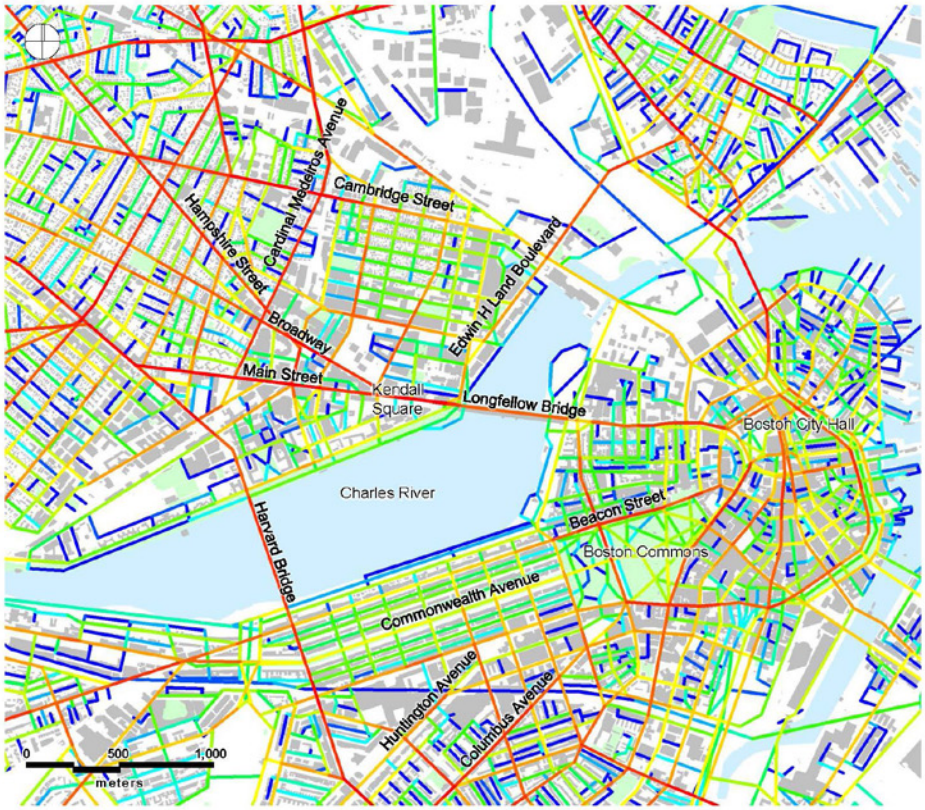
Spatial accessibility Global Proposed

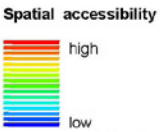




Kendall Square

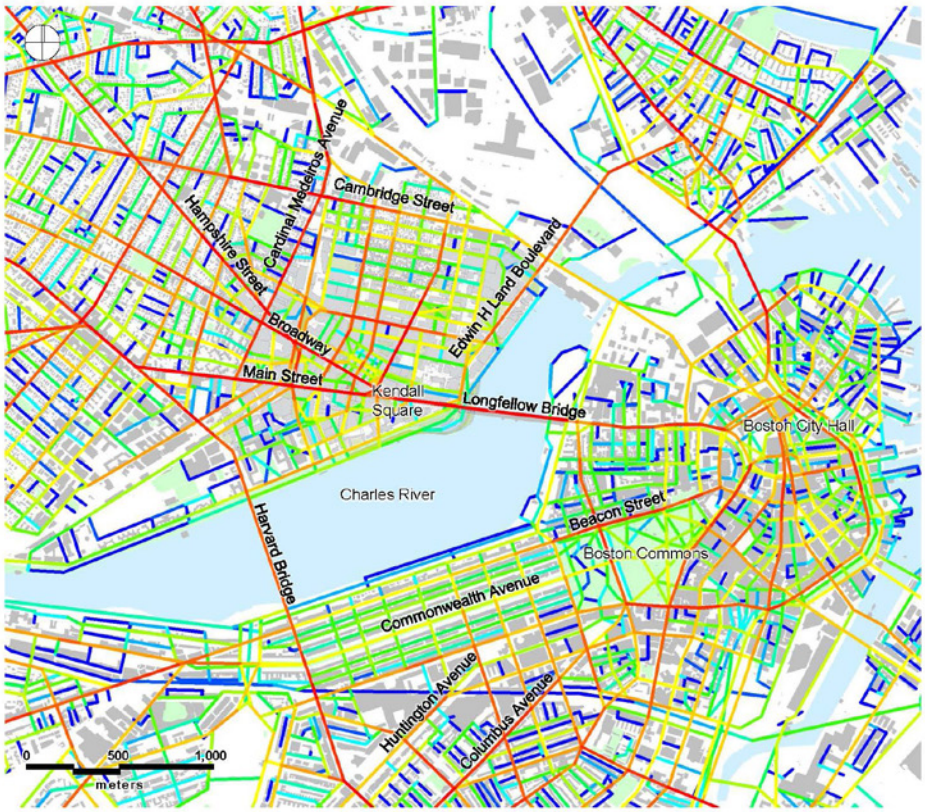
Spatial accessibility 1 mile Existing





Kendall Square

Spatial accessibility 1 mile Proposed



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Kendall Square

Spatial Layout Evaluation
5

Spatial accessibility Global Existing

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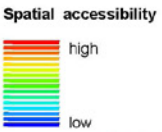
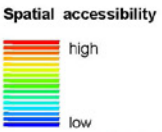
Spatial Layout Evaluation
6

Spatial accessibility Global Proposed



Kendall Square

Spatial accessibility 1 mile Existing



Kendall Square

Spatial accessibility 1 mile Proposed

Kendall Square

Spatial accessibility Multi-scale Existing

Highly accessible routes

- Primary route at both city-wide and local scales
- Primary route at city-wide scale
- Primary route at local scale (c a. 15 minutes walking distance)

Kendall Square

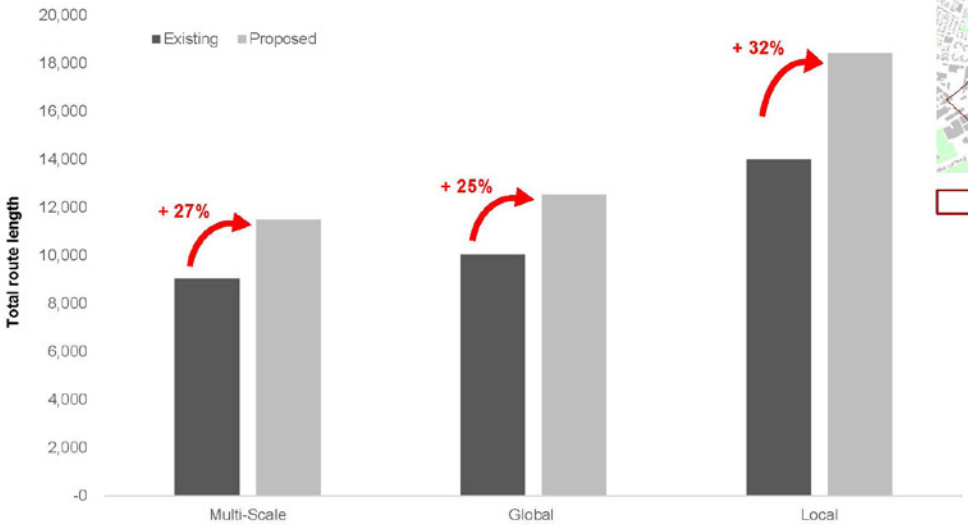
Spatial accessibility Multi-scale Proposed

Highly accessible routes

- Primary route at both city-wide and local scales
- Primary route at city-wide scale
- Primary route at local scale (c.a. 15 minutes walking distance)

Kendall Square

Spatial accessibility Multi-scale Comparison



Area of comparison

Kendall Square

Appendix Methodology Urban form analysis

Space Syntax and urban design

Overview
Over the last twenty years, Space Syntax has pioneered a unique, space-based approach to the modelling of human activity patterns in buildings and urban systems. Our models integrate multiple influences on behaviour including:

a) spatial layout hierarchy, from more accessible to less accessible places

b) the distribution of object attractors and land uses

c) the location of transport nodes.

Space Syntax models simultaneously analyse pedestrian, cycle and vehicle movement networks and have been applied in planning and design projects worldwide. Applications include the creation and evaluation of proposals for urban and architectural change at every scale, from regional urban analysis and the planning of entire cities to the design of street intersections and room layouts.

Space Syntax's approach combines this extensive global experience with robust and continuously developing technologies to forecast the effects of planning and design decisions on the movement and interaction of people in buildings and urban areas. Highly graphic and capable of providing rapid feedback to planners and designers, models are used to test proposals from concept design through to delivery.

Spatial accessibility modelling
The approach works by transforming the street pattern of an area, or room layout of a building, into a network "graph". In urban systems, the road centreline map of the area is often used as a starting point, where the network is divided into individual "segments" of space, each segment being the street or path between two intersections. In buildings or convex open spaces, the network will typically be divided into individual "tiles" of space within each space.

Each segment or tile is then evaluated using a mathematical algorithm to calculate its interaccessibility within the network, ie how relatively easy or difficult it is to reach that segment from all other segments, or how likely it is that movement between different parts of the network is likely to pass along that segment. In this way, the software calculates both the "to movement" and the "through movement" characteristics of each segment.

Key feature 1: analysis of "angular movement"
Key to the success of this approach is the discovery that movement in buildings and cities often follows a "least angle" path between origins and destinations. In other words, many people minimise the angular deviation from their origin to their destination, even if this means they sometimes take a slightly longer route.

Key feature 2: evaluation of multi-scale activity
A second key aspect of the Space Syntax approach is the multi-scale analysis of spatial layouts, allowing short and long-distance journeys to be simultaneously evaluated and showing how different parts of the same network are differently used, depending on the scale of journey. Frequently, the same parts of the network are used on short and long-distance journeys. Land use analysis shows that these multi-scale places are typically successful commercial locations, thus demonstrating the importance of careful spatial layout design in creating multi-scale opportunities for shops to trade to more than one scale of movement.

Key feature 3: integration of spatial layout, land use & transport factors
The simultaneous analysis of spatial layout, land use and transport factors is a third key factor in the uniqueness and success of Space Syntax models. By demonstrating the fundamental role of space in determining land use potentials, then showing how the specific location of individual land use attractors and transport attractors exploits these potentials or not, Space Syntax models make it possible to integrate the three essential aspects of planning and design: spatial, land use and transport.

1. Example of an unprocessed spatial accessibility map
2. Example of a processed spatial accessibility map, after values are assigned to each line

Kendall Square

Spatial Layout Evaluation
13

ECONOMIC CONSULTANT:
Young Park | Berkeley Investments, Inc.

PRINCIPLES

Kendall Square is the single most densely populated innovation cluster in the world, surpassing even Silicon Valley. This highly fertile discovery environment is the result of complex interactions and connections between the MIT community, industry and the business world. In order to sustain its growth and help its stakeholders attract and retain the best available talent, Kendall Square must increase its development capacity and create an urban setting that is attractive, engaging and will enhance the quality of life for its residents, students and workers.

KEY DEVELOPING CONNECTORS

- The Red Line is the lifeline of the knowledge economy. It now connects not only Harvard and MIT but also the burgeoning innovation clusters in the Seaport and the Financial District, Davis Square and Alewife;
- The life science cluster in Kendall Square sits midway between Mass General and the Big Pharma cluster on Main Street/Mass Ave/University Place nexus but lacks a direct transit connection;
- MIT is in the design phase of its East Campus and Gateway Development which envisions up to 1.9 million SF of new development and new connections to the MIT campus and its Infinite Corridor, the Sloan School and the Charles River;
- The GSA and DOT have issued an RFQ to develop the Volpe Center into a 3.3 million SF mixed-use development through a public-private joint venture;
- MassDoT has finally launched the extension of the Green Line to Union Square in Somerville and eventually to Medford, increasing development pressure around the relocated Lechmere Station and the entire Green Line Extension corridor;

The development of North Point (to the north of Kendall Square) is accelerating with the completion of two residential complexes and the potential of a speculative office development.

KEY DEVELOPMENT GOALS OF CONECT KENDALL SQUARE

1. Create a Kendall Square BID (Business Improvement District):
   a. Initiate creation of a BID to manage the branding of Kendall Square as a separate entity;
   b. BID would manage the public art and other entertainment activity programming;
   c. BID would create a visual and digital brand (signage, website, social media) to inform the Kendall Square community and manage its activities consistent with Kendall Square's innovation culture;
   d. Coordinate the allocation and distribution of the Community Investment Fund in concert with the City of Cambridge for its PUD projects.
2. Design and implement a street retail plan which will "brand" Kendall Square as a unique and distinct retail district:
   a. Mandate retail and other active public uses at the ground floor through zoning;
   b. Introduce tax and other incentives to attract local and regional retailers and restaurateurs rather than national credit retailers;
   c. Actively encourage a food truck program along selected streets and open spaces.

3. Design a new innovative model for a sustainable transportation ecosystem based on:
   a. Coordinated system based on the three T stops at Kendall, Central and Lechmere;
   b. New segregated bicycle lanes (similar to Copenhagen's 'cycle paths' model) which gives equal

weight to cars and pedestrian/bicycle paths;
c. Active pedestrian environment;
d. Augmented bus service including private shuttles.

4. Create a hierarchy of connected public spaces designed to create a sense of place
   a. Coordinate with DOT and GSA in creating a European style permanent public market in the heart of the Volpe Center which would structure its central square;
   b. Coordinate with MIT's East Campus Development effort to create a new gateway entrance and plaza around the Kendall Square T-stop;
   c. Connect recreational open spaces to adjacent restaurant/retail users as key symbiotic relationships (incorporate woonerfs if necessary to create these connections);
   d. Connect the T-stop and MIT Gateway with other Kendall Square open spaces through the network of bicycle and active pedestrian ways;
   e. Integrate interior and exterior public realm (MIT Infinite Corridor/One Cambridge Center connection) to create an alternative pedestrian network;
   f. Design a public art program to reflect the innovative creativity of its stakeholders.

PLAY/LEARNING CONSULTANT:
Teri Hendy | Site Masters, Inc.

The existing play facilities located in and around the Kendall Square area are typical post and platform playgrounds with separate areas for pre-school age children and school age children. The equipment is "off the shelf" providing standard climbing and sliding opportunities with little room for intergenerational play. Most play areas tend to be small and do not provide any natural play opportunities or allow for the manipulation of the environment. Some water play is provided by various sprays and bubblers, however, no areas were observed where the child is in control of the water play. None of the play environments provide many opportunities for adults to actively participate in park activities other than bench seating.

Traditional play equipment does have value developmentally for children when a variety of graduated levels of challenge are presented. Most children use post and platform structures for chase games, running up and down slides and climbers. Traditional post and platform structures often direct play, leaving little room for individual exploration and challenge. Well designed play environments create play structures that are springboards for the child's imagination.

Deep free play occurs in play environments that are less directed and provide children greater choice in how they will approach a structure. A more complex climber, for example, provides a variety of travel routes where a child has to think about where they are going to place their hands and feet. When climbers are simply evenly spaced round rungs, little thought is needed to traverse resulting in diminished developmental opportunities.

In order to encourage a healthy community, play environments must be designed to provide active free play for persons of all ages, including adults. National studies show that a lack of free play opportunities result in poor health and fitness which impacts a person's emotional, social, and intellectual health. As a result few free play opportunities, we are no longer leading the world as independent creative thinkers. Children are struggling in math, science and problem solving. To combat the newly termed, "Nature Deficit Disorder", we must get people off the couch and unplugged from their electronic devices by providing environments that are fun and exciting to be in. Many of the goals referenced in "Healthy Parks and Playgrounds" will be realized by creating playful opportunities that encourage people of all ages to engage and play together throughout Kendall Square.

In Rogers Street Park for example; we propose the creation of dramatic topography, developing a series of hills for year-round activity such as climbing, sliding and sledding. Additionally, passive uses may include sunbathing and informal seating for watching the world. Traditional play equipment may be configured in non-traditional ways to create intimate spaces, challenging climbing opportunities and the most exciting slides in the City of Cambridge for people of all ages.

Our team also proposes a large naturalistic sand and water-play area where children can manipulate and redirect the flow of the water. We strongly encourage the incorporation of 'loose parts' in this natural play environment, such as suitable small stones, sticks, branches and pine cones. The idea of 'loose parts' or materials may be described as architect Simon Nicholson stated in his 1972 Theory of Loose Parts whereby "both the degree of inventiveness and creativity, and the possibility of discovery, are directly proportional to the number and kind of variables in it." These materials can be gathered by the Department of Public Works and deposited in boxes for the children to use. By creating their own physical environments, children are able to learn problem solving, cooperation, cause and effect, as well as stimulate their imaginations. This type of deep free play does not occur in a "typical" sterile play environment.

During our survey of existing neighborhood facilities, few safe places were identified in which children can learn to ride a bike in the absence of cars. Consequently, a trike path is proposed for Rogers Street Park that will provide various textures, rumble strips, foot drums and other sound elements in the pathway geared towards stimulating children's physical and hearing abilities. Such stimulation has been identified as beneficial to children with Autism and other developmental disorders. It is also FUN!

We want to encourage the use of the park throughout the year. This natural play environment is exciting in all seasons. A sledding hill and community fire pit make the park a winter destination.

Grand Junction Portal is a unique sliver of land that provides a connection both physically and visually to other areas of the community. Similar to Rogers Street Park, we are changing the topography and creating a canyon of sorts that will direct foot traffic through it and expose a variety of play opportunities for all ages. The canyon walls will be climbable with various levels of challenge encouraging young and old alike to try scaling the walls. Log climbers and climbing nets will be present to provide a lesser challenge in getting from the bottom to the top of the wall. The play continues over the wall and onto the upper area of the raised mound. A zip line can be entered from the top of the mound providing a quick exciting ride to the bottom of the mound. We envision the tech workers in the area taking advantage of this play space to let off steam and to be re-energized through active play!

Three Points serves to connect multiple areas with playful suggestions tucked into the streetscape and landscape throughout the area. Here, play takes many forms, and does not occur on conventional playground equipment. We would like to see sculptural elements creatively placed within the landscape that encourage active interaction. To inject an element of surprise, some of these sculptures may be turned or manipulated to create sound. Some of the amorphous sculptures may be large, allowing the visitor to touch, climb or crawl into them. A spontaneous game of hopscotch on the sidewalk may be encouraged by inlaid mosaics. Adding to this playful experience may be a chess table, kaleidoscope or fixed musical instruments such as steel drums.

Point Plaza is a paved park with a canopy of trees, a floor and ceiling containing a garden of moving, illuminated seating possibilities. Directed towards adults but an attraction to children as well, the park features a series of colorful bench swings of which no two are alike. Single, double and ganged possibilities, all with wide arm rests for holding a coffee, lunch, a laptop, a coloring book. Creating a variety of social settings it's both a place to walk through and observe or linger and enjoy the moment.

When we create spaces that bring people of all ages together, children learn from each other and from the adults they encounter. Young adults learn from older adults. Older adults enjoy the interaction with youth. Culture is passed along and a community is both strengthened and enriched.

WATERSHED/RIVER & CIVIL ENGINEERING CONSULTANTS:

Pallavi Mande | Charles River Watershed Association
Steve Garvin | Samiotes Consultants, Inc.

HISTORY OF THE PROJECT AREA

In early 1600's when the Charles River was still a tidal estuary, East Cambridge was an island surrounded by water and salt marshes. The tidal marshes included mudflats, which were created naturally by the buildup of sediment deposited in the estuary.

Physical alterations to the Charles River and its environs started slowly and snowballed through the nineteenth century. In the 1790's, the marshes were drained and filled with gravel to construct bridges and causeways to create direct transportation routes across the area. The Charles River Bridge opened in 1786; the West Boston Bridge (on the line of the present Longfellow Bridge) opened in 1793 and cut the distance of travel between Cambridge and Boston to three and one-half miles from eight.

In 1805, Cambridge was declared a United States port of delivery and a network of canals were planned for the port. As development took possession of the shores near the bridges and causeways and wharves were built, the Broad Canal and Lechmere Canal were dug through the flats and marshes on the Cambridge side to accommodate shipping needs in the 19th Century. The footprint of the Broad Canal extended as far to the east as present-day Cardinal Medeiros Avenue with an extension running parallel up to what is now Cambridge Street. However, starting in the 1920's considerable landfill operations expanded the original East Cambridge land to nearly its modern configuration only leaving the Lechmere Canal and part of the Broad Canal.

KENDALL SQUARE STRATEGY

The Framework plan draws on the above history and interprets it in multiple ways:

1. It re-establishes access to the Charles River from the study area via the footprint of the canal network. Using a variety of materials and landscape treatments, the framework plan proposes a network of dendritic pathways emanating from perimeter neighborhoods weaving across the study area to the new and extended Broad Canal.
2. It uses the network of existing primary streets and open space connections to tie the four open space parcels (as identified by the City of Cambridge) into a system of interconnected greenscapes that provide legibility to the study area and improve its connection to the Charles River.
3. It examines the existing stormwater infrastructure in both the separated (or dedicated drainage-only) and combined sewer sections of the watershed for opportunities for incorporating treatment, additional storage/overflow capacity, and retention or detention practices based on current conditions.

Sub-watershed based strategies include:

1. Combined sewer watershed- Any open spaces within or adjacent to the combined sewer section of the study area, for instance Grand Junction Portal, Rogers Street Park and even Three Points, would promote opportunities for infiltration/storage and treatment of stormwater such that the overall volume of stormwater leaving the site and thus entering the combined system is significantly reduced. This improvement in the combined watershed system may be accomplished by designing overflows for target storm events to allow stormwater runoff to be treated or stored outside of overflowing to the Charles River or to Deer Island.
2. Broad Canal drainage-watershed- A combination of strategies are being proposed for the separated drainage watershed that outflows into the Broad Canal. Starting at Grand Junction Portal, treatment systems are proposed along Broadway, that currently convey stormwater via underground pipes from

Ames Street and the Loughrey Walkway via 3rd Street and Broad Canal Way. Stormwater runoff will be collected from streets, sidewalks, and any other tributary areas and directed to small bio-retention areas within the public right-of-way for treatment. Additionally, any stormwater surcharge above a base flow from the existing infrastructure along Broadway will be directed to a stormwater management bio-retention wetland garden proposed at the intersection of Broadway and Loughrey walkway.

3. Lechmere Canal drainage watershed- Bio-retention areas are also proposed along Charles Street and First Street to capture and treat stormwater runoff from the streets, sidewalks and other tributary surfaces before it is conveyed into the separated pipe network connected to the outfall into the Lechmere Canal. These retrofits would not only help reduce the amount of polluted runoff flowing into the canal and improve the overall capacity and function of the existing infrastructure, but also improve the quality of the streetscape along the two corridors.
4. Separated drainage-watersheds south of Main Street- Although owned by MIT, it is recommend that each drainage-watershed tied to outfall locations along Memorial Drive be individually retrofitted with a variety of strategies - ranging from treatment swales to bio-retention areas to any Low Impact Development (LID) techniques deemed suitable for the individual sites, most of which are in the MIT Campus. Opportunities for end-of-pipe treatment (potentially structural due to site limitations) should also be explored along the underutilized medians along Memorial Drive.

VOLPE CENTER STRATEGY

The redevelopment of the Volpe Center provides an enormous opportunity to completely rethink the open-space configuration, the site hydrology and stormwater treatment/management treatment strategies at the heart of the study area. The framework plan envisions a stormwater management park located at the terminus of the extended Broad Canal, which incorporates a variety of LID strategies as part of the landscape design of the site. A linear water channel ties the park to the extension of the Canal, and in addition to providing a significant visual and physical link for access alongside, connects the two systems hydrologically.

The Volpe Center redevelopment roof leaders should be directed to underground storage cisterns and re-used for irrigation or other non-potable water uses; the stormwater strategy for paved and landscaped areas within the new development should direct runoff to Broad Wetland. To balance year-round habitat for wetland plant and animal species with the handling of large stormwater volumes during significant storm events, Broad Wetland is designed with two-stages. With a clay liner, the lowest stage would maintain a permanently flooded retention channel. At a higher elevation the unlined second stage of the constructed wetland could temporarily detain significantly higher volumes of stormwater promoting infiltration.

Broad Wetland, the proposed stormwater management park at the Volpe Center, is designed to not only manage stormwater from the redevelopment site but also provide additional capacity and treat overflow from the separated flows above the low flow/baseline in existing pipes along neighborhood streets like Broadway, Ames, Loughrey Walkway/6th Street, etc. The park is thus conceptualized as an opportunity to treat both on- and off-site run off and improve water quality in the Broad Canal (and the Charles River beyond) while providing an adaptive landscape that promotes discovery in an outdoor living laboratory and provide educational value in real time.

TRANSPORTATION CONSULTANTS:

Guy Busa & Elizabeth Pearte | Howard/Stein-Hudson Associates, Inc.

INTRODUCTION

As Kendall Square continues its transformation into a center of biotech, high tech research, and innovation, the City of Cambridge has undertaken the Connect Kendall Square Open Space Design Competition. To support and complement changes in Kendall Square, the City has focused the design competition on the following four locations:

- Rogers Street Park between Second and Third Streets;
- Three Points at Land Boulevard and First Street;
- Galileo Way between Broadway and Binney Street (Grand Junction Portal); and
- Point Plaza at Main Street and Broadway

As one of four final design team competitors, Richard Burck Associates (RBA) has asked us to provide some thoughts on transportation issues associated with these targeted open space locations and the waterfront area near the Memorial Drive/Longfellow Bridge interchange.

ROGERS STREET PARK

This new two-acre park opened in 2013, is across from the new 75-125 Binney Street development (Alexandria Real Estate) and is an amenity for local residents and employees.

Our understanding is that RBA is proposing no changes to the footprint of or access to this park. As this park matures, it is expected that it will be a local, rather than citywide, destination and most visitors will arrive via walking/biking. Including bicycle racks within park, if are not already included, would encourage bicycle use. Vehicle access and parking should not be an issue of concern.

THREE POINTS

The small open space triangle is formed as First Street and Land Boulevard merge near the intersection with Athenaeum Street.

Our understanding is that RBA is proposing to discontinue First Street south of Binney Street and close the roadway connection to First Street at the eastern end of Linskey Way. Note that this section of First Street is part of the designated truck routes system in Cambridge. First Street between Binney Street and Athenaeum Street currently provides access into Linskey Way and Athenaeum Street, including a parking garage on Athenaeum Street between First and Second streets. The proposed reconfiguration will allow for a larger open space at the confluence of these streets.

Under the RBA plan, the intersection of First Street and Binney Street would become a tee intersection and southbound through movements on First Street would no longer be possible. With the new plan, southbound vehicles on First Street would turn either left or right onto Binney Street. Vehicles on First Street wanting to continue south would turn left onto Binney Street and right onto Land Boulevard. Adequate truck turning radii would be needed to ensure trucks can safety make these maneuvers.

Removing the First Street connection as planned would create a dead-end on Linskey Street. It's unclear how the Linskey Way stub between Second Street and the new park would be treated. Today, 15-20 parking spaces are provided along the southern curb of Linskey Way. This on-street parking would be difficult to maintain with only one access point via Second Street and insufficient width for a turnaround at the

eastern end of Linskey. There are no loading docks along Linskey Street between First and Second streets, so truck deliveries to the properties along this section of Linskey Way would not be affected.

Another seven on-street parking spaces currently exists along the east side of First Street between Linskey Way and Athenaeum Street. It's unclear what the current regulation is for these spaces. These spaces would be eliminated with the expansion of the triangle park.

Eliminating this section of First Street, though, needs to be considered relative to the extension at the other (northern) end of First Street. Today, the northern end of First Street ends at Cambridge Street, opposite the Lechmere Station. As part of the Green Line Extension and relocation of Lechmere Station, First Street will be extended to the McGrath O'Brien Highway and continue into the North Point development. This new extension will open up the corridor and likely attract vehicle trips away from Third Street and Land Boulevard. This extension will increase traffic on First Street. The elimination of the most southern segment of First Street may not be appropriate with future traffic patterns and needs to be further discussed and assessed with the City of Cambridge.

GALILEO GALILEI WAY, BETWEEN BROADWAY AND BINNEY

Galileo Galilei Way connects southward from the Binney Street/Fulkerson Street intersection, across Broadway and ending at the Main Street/Vassar Street intersection. The Binney Street/Galileo Way corridor is a major arterial serving Kendall Square connecting from Land Boulevard through to Vassar Street. With only limited breaks, a raised landscaped median separates the two directions of travel along most of the Binney/Galileo corridor, forcing drivers to turn right into and out of the numerous curb cuts along Binney Street and thereby reducing conflicting left turns.

Between Galileo Way and the Grand Junction tracks lies a parcel of open space land. We understand that the RBA plan would enlarge this parcel by narrowing Galileo Way and removing the median. Because there are no curbcuts on either side of Galileo Way in the segment between Binney Street and Broadway, the removal of the median should not affect traffic circulation. Also, the narrowing the Galileo Way would reduce pedestrian crossing distances at the Binney Street/Fulkerson Street intersection and the Galileo Way/Broadway intersection.

Because of the importance of the Binney/Galileo corridor, however, the southbound approach on Galileo at the Broadway intersection will likely still need to have two through lanes and an exclusive left turn lane. Adequate width to accommodate the proposed cycle track along the Binney/Galileo corridor must be maintained, however.

The adjacent Grand Junction corridor is the subject of a City study exploring options for creating a multi-use pedestrian, bicycle, and transit corridor that could ultimately connect from the BU Bridge, though Cambridge, to the Somerville Community Path.

No MBTA buses travel along the Binney/Galileo corridor, but the EZRide shuttle bus does. Incorporating a bus stop into this open space area for EZRide or future MBTA use could help enliven the space. Should the Grand Junction Path evolve into a corridor with DMU service, this location could become a Grand Junction stop and having a transfer to other surface transit options would be desirable.

POINT PLAZA

This park at the intersection of Third Street/Main Street is a significant pedestrian pathway between the Kendall Square MBTA Station and destinations along the Third Street corridor. The City is currently constructing a new roadway connection that will allow southbound Third Street traffic to proceed through

to Main Street eastbound. This new connection will increase circulation options for motorists in Kendall Square.

Our understanding is that RBA is proposing no changes to the footprint of or access to this park. Existing pedestrian connections to his new park should be reinforced.

OTHER PEDESTRIAN CONNECTIONS

Part of the RBA plan is to extend the Broad Canal from its current terminus at Third Street through the Volpe site (east-west) to a new water feature park at the western side of the Volpe parcel. Another aspect of the RBA plan is to provide a new pedestrian connection north-south through the Volpe parcel.

Parsing the Volpe site, which will happen as part of the planned redevelopment by the Federal government, will create new pedestrian connections and new open space opportunities. The site, however, is subject to significant planning and review and the ability to bisect the site both in the east-west and north-south directions for pedestrians may be limited by subsequent development plans and/or other design constraints.

Of the two proposed cuts through the Volpe site, we like the north-south link better as it would provide a direct pedestrian corridor from the MBTA's Kendall/MIT Station, through the Marriott lobby, across the Volpe site to Binney Street. This new pedestrian connection would lie along the natural extension of Fifth Street. The Volpe site already has a pedestrian walkway along the western boundary (which RBA intends to retain) but this new location to the east would be more convenient for the Kendall/MIT Station. Reinforcing the Fifth Street pedestrian corridor would likely be favored by residents who live north of Binney Street, as it would provide a more direct walking connection to the Kendall/MIT Station.

MEMORIAL DRIVE

Strengthening the pedestrian and bicycle connections to the Charles River across and along Memorial Drive are stated goals of Connect Kendall Square. Memorial Drive is an important regional arterial and carries a significant amount of vehicular traffic. The pedestrian and bicycle accommodations in the immediate area around the Longfellow Bridge are mediocre compared to that provided for vehicles. The amount of roadway pavement south of the Longfellow Bridge serving Memorial Drive related traffic and its connections to the Longfellow Bridge is substantially more than that north of the bridge. A full and complete set of traffic data are not available for all roadways and roadway links. Though based on the data we do have, we feel that several recommendations can be made in terms of improving pedestrian and bicycle connections while maintaining adequate regional roadway capacity.

First, a single underpass span of the Longfellow Bridge cannot provide enough roadway width for combined northbound and southbound Memorial Drive traffic. Therefore the current northbound and southbound Memorial Drive underpasses need to be maintained. Second, there is a good amount of roadway redundancy south of the Longfellow Bridge. This redundancy, combined with the long-term maintenance issues of the current Memorial Drive viaducts, provides opportunities for improved pedestrian and bicycle connections to and along Memorial Drive at Kendall Square. This could include new river access in the area of the former Memorial Drive viaducts as noted below.

The possible improvements we envision along Memorial Drive as presented in the sketch plan we sent earlier include:

- Maintaining the current Longfellow Drive underpasses for both northbound and southbound Memorial Drive;
- Relocating Memorial Drive south of the Longfellow Bridge to mostly land area just west of the viaducts,

thereby allowing the demolition of these existing northbound and southbound structures or reuse of them for pedestrian and bicycle facilities;

- Eliminating the Memorial Drive northbound exit to the Longfellow Bridge, which is currently closed today for bridge reconstruction.
- Convert this former off-ramp to northbound Memorial Drive traffic continuing to use the existing underpass that formerly served Memorial Drive southbound.
- Provide a pedestrian connection from the new river access (noted above) to the Memorial Drive median via the former southbound overpass now abandoned and serving as an overpass the relocated northbound Memorial Drive;
- Reconfiguring the southbound Memorial Drive on- and off- ramps to the Longfellow Bridge; and
- Eliminating of the redundant piece of Memorial Drive at One Memorial Drive.

PUBLIC ART CONSULTANT:
Barbara Goldstein, Barbara Goldstein & Associates

There are a variety of ways that Connect Kendall Square can employ the work and thinking of artists to reinforce the plan outlined in this document. Many of these are specifically called out in the preceding text. Each of these strategies will complement the existing art that is integrated in the street level windows and lobbies of new mega-block developments by engaging pedestrians and celebrating the natural environment. In addition, the following elements and strategies can be employed:

- The dendritic framework described in Connect Kendall Square provides strong pathways and visual connections throughout the district. These can be reinforced by employing artists to create streetscape elements including paving patterns, street furniture, lighting, and other visual cues that emphasize the sequence of movement through the area.
- Artists can be engaged to create the visual aspects of the storm water recovery systems proposed, revealing the movement of water and celebrating its presence on the sites. Artist-designed elements can include downspouts and viewing platforms, earthworks, drain covers and other features.
- The lighting and pedestrian elements of the Volpe site can be artist-designed, adding whimsy and a unique visual character to this unique opportunity site.
- We recommend that, in order to realize these opportunities, the City of Cambridge expand its public art requirement to include new private development, particularly on the Volpe site, and to insure that public investments made by transit or water agencies include funds set aside for artist involvement on the design teams.