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In October 2013 the Massachusetts Institute of Technology (MIT) commissioned Mack Scogin Merrill Elam Architects in association with Michael Van Valkenburgh Associates Landscape Architects to produce a planning study for the currently underutilized MIT East Campus which is adjacent to the Kendall Square area of the City of Cambridge, Massachusetts. This document, East Campus Urban Design Study: Final Report, marks the conclusion of this Study.

Mack Scogin Merrill Elam Architects and Michael Van Valkenburgh Associates Landscape Architects were joined by Greenberg Consultants Inc. (Urban Design), Vanasse, Hangen, Brustlin Inc. (Infrastructure, Sustainability and Traffic Consulting), HR&A (Economic Consulting) and Atelier Ten (Environmental / Sustainable Design). The resulting study illustrated here includes three campus/urban planning schemes, three landscape approaches, parking and service studies, and notes on sustainability and process are under separate cover as Appendix A and C respectively.

The area under consideration for the East Campus Urban Design Study is bounded by Ames Street, Main Street, One Memorial Drive and Memorial Drive and includes the One Broadway site north of Main St. The area is, as of April 2013 and by virtue of Ordinance Number 1355, City of Cambridge, a new Planned Unit Development 5 (PUD-5) District which grants MIT additional development rights. These development rights, in effect, establish the maximum permitted program of development for the district. (See page 16, zoning ordinance parameters)

This study follows two previous studies: (1) Kendall Square Initiative: Elkus Manfredi Conceptual Plan which resulted in the approval of the new PUD-5 and a revised zoning ordinance, and (2) East Campus / MIT gateway: Alternative Approaches generated by the faculty of the MIT School of Architecture + Planning. This study merges the most relevant aspects of the two previous studies and sets forth an urban design framework that has the capacity to satisfy academic, commercial, public and gateway goals for both the long and short terms.

A major component of the East Campus Urban Design Study was the facilitation of structured stakeholder participation. Three public Forums each were conducted for the MIT Community and Cambridge Community with the third Forum being a joint meeting of both communities. The materials in this Final report reflect the information shared with the communities. (See page 68, Index of Resources and page 16, Community Process for further elaboration)

It has been both a privilege and an honor for Mack Scogin Merrill Elam Architects and Michael Van Valkenburgh Associates Landscape Architects and the entire consulting team to undertake the East Campus Urban Design Study for MIT. MIT’s special long standing relationship with industry, its position as a world leader in technology advancement, and its enduring and reciprocal relationship with the City of Cambridge set the stage for a unique urban / academic construct. This report is submitted with the aspiration of supporting MIT in the realization of the full potential of this opportunity.
Study Intent

The study intent is to create a long-range development framework to accommodate future academic, commercial, and residential uses and a gateway into the MIT East Campus area. The property in the study area is owned by MIT and utilized by the Institute for both academic and commercial purposes. At a minimum, MIT intends to build commercial lab/office buildings with retail in the short term (within 10 years) and academic research buildings in the long term. The commercial development will enhance the vitality of the area, provide much needed amenities, and support the high tech research and development that continues to expand in Kendall Square, making it the most densely populated innovation cluster in the world.

The Framework should give equal consideration to open space, arrival experience and connections linking the main campus, MIT Sloan block, and the greater Kendall Square neighborhood. The Framework should also consider landscape/ecological systems, pedestrian circulation, vehicular circulation, materials handling, options for district energy, and parking.

Goals for the Area

MIT’s goals for the new development proposals being put forth by the Institute in Kendall Square are:

- **Enhanced Innovation Cluster**
  MIT’s success in innovation is dependent on external interactions with the extended academic and business world and collaborations within the Institute itself. The Institute has helped attract to land adjacent to campus a multitude of life science and technology companies, ranging from start up, venture backed firms to well established giants such as Novartis, Pfizer, Sanofi-Aventis, Takeda, Schlumberger, Microsoft, and Google. This fertile environment has enhanced research collaboration both within the Institute and between the Institute and industry, resulting in the creation of a highly productive discovery environment, a powerful economic engine, an extremely effective talent magnet, and one of the world’s most highly recognized life-science and technology centers. All of this helps MIT recruit and retain the best faculty, students, and staff. MIT’s Kendall Square Initiative should provide new space to allow this powerful academic industry innovation dynamic to grow.

- **Lively Urban Environment**
  Despite the excitement of the creative intellectual developments in and around Kendall Square, the physical environment is still not reflective of a world class institution, leading innovation cluster, or vibrant city square. Kendall Square is experiencing a burgeoning sense of excitement and identity but still requires the addition of fundamental amenities such as basic retail services and places to entertain, meet, and assemble that are critical to a successful urban interactive place.

- **Vibrant Gateway**
  The Infinite Corridor, the major pedestrian campus thoroughfare, ends well before Kendall Square and leaves the Sloan School disconnected. The revitalization of Kendall Square provides an opportunity to extend the Infinite Corridor and establish a major new gateway at the east end of the campus where it meets the central business district and the neighboring community.

- **Feasible Development**
  Achieving the vision of a revitalized Kendall Square will require a significant financial investment by MIT. However, to ensure that MIT does not need to divert precious academic resources from critical Institute initiatives such as faculty research and student scholarships, the commercial buildings proposed in the plan should be financially self-supporting in addition to being viable under market, physical, and legal/political considerations. Furthermore, to ensure city support, the plan should generate increased tax payments to the City of Cambridge to provide funds to help it achieve its policy objectives, such as maintaining a low residential tax rate, creating more affordable housing units, and improving the school system.

- **Goal: Provide space for both new innovative academic initiatives and commercial enterprises**

- **Goal: Create a destination gathering and arrival place with amenities and services and active streetscapes**

- **Goal: Establish a vibrant new gateway and connective link between the Institute, the central business district, and the Cambridge community**

- **Goal: Create an overall development plan that is economically viable**
Project Conditions

MIT Gateway and Campus Connections

How can MIT-specific activities to be made more prominent and varied in the East Campus?
How can connections to the Sloan School be strengthened through the East Campus?
How can the indoor and outdoor rhythms of the Infinite Corridor be transformed and celebrated in the East Campus?
How can the Infinite Corridor become a window into MIT in the East Campus?
How can MIT more immediately announce itself on arrival at the Kendall T-Stop?
How can the presence of the commercial research buildings be balanced by appropriately scaled open space?

Landscape Analysis
East Campus Existing Conditions

The central spaces of the East Campus are predominantly urban in character, defined by the irregular grid of minor city streets and largely occupied by surface parking lots. The edges of the East Campus, around the Sloan School and west of E23 are more campus-like in character. In general there is little landscape or pedestrian continuity across the East Campus, either north-south between Main Street and the river, or east-west between the Sloan School and Ames Street.

Questions related to connectivity became central to the analysis of the existing landscape conditions, connections to the rest of campus, to the city and to the river. A strategy for a well-connected public realm in East Campus started with an understanding of the existing connections and a search for potential sites for improvement.
**Connections to the City**

- How can Main Street become activated at all hours of the day and throughout the week?

- How can the increasing vitality of Kendall Square retail best serve the MIT and Cambridge communities?

- What kind of presence should the East Campus have on the urban skyline?

- How can MIT more immediately announce itself on arrival at the Kendall T-Stop?

- How can the East Campus better connect to Third Street and the fast-changing areas to the north?

- How can new public open space on the East Campus help to create a more complete open space system in this part of the city?

**Connections to the River**

- How can the Wadsworth Street connection to the river be strengthened?

- How can the river become more central to the experience of the East Campus and Kendall Square?

- How can connections across Memorial Drive to the river be made more welcoming and safer?

- How can the variety of connections to the river be increased?

- How can what kind of presence should the East Campus have on the urban skyline?
Landscape Analysis

East Campus Initial Findings

Initial findings suggest that the East Campus landscape is limited, and of poor quality, particularly in the central area between Carleton and Wadsworth Streets. In general, the open spaces in this part of campus, and the off-campus public open spaces to the north of Main Street are experienced as isolated islands rather than as an integrated system. Creating new public spaces that are part of a wider system that is well connected will be key to the success of the East Campus landscape.

Kendall Square has two recognizable centers, both with potential as gateways to East Campus from Main Street - one at the T headhouse next to E38, and one at Point Park. While acknowledging that improved connections from these centers to the river could be made along Carleton and Wadsworth Streets, the design team identified a connection through the heart of East Campus to the river as another possible way to give structure to the East Campus through landscape.
Landscape Analysis

East Campus Landscape Strategy

The landscape strategy reflects the diversity of the physical context, and aims to create spaces that welcome the range of users anticipated from the MIT community, residents of the surrounding neighborhoods, and the workers of Kendall Square. The strategy is to create a range of landscape types, from highly programmed urban plazas at different scales, to more intimate and richly planted garden-like spaces. The aim was to create a series of places that would not replicate the landscapes of extensive lawn and canopy trees commonly found on the MIT campus, but rather gives the East Campus a distinct identity that feels welcoming to users from inside and outside MIT. The variety of spaces complement each other and are designed to accommodate large communal events, small gatherings and individual use.

Examples of successful prototypes by Michael Van Valkenburgh Associates are shown on the left side of the page.
Michael Van Valkenburgh Associates tested the site area yielded by Schemes A, B and C with precedent projects from its own portfolio. Scale comparisons with both urban and campus projects led to the conclusion that the East Campus at MIT could accommodate landscape spaces substantial enough to become the centerpiece of future development. A series of landscapes connecting to Main Street, the Infinite Corridor, the Sloan School, and the river, while providing a central space of significant scale, would have the size, presence and program potential to become the armature around which future development of the East Campus could occur.
Project Conditions

Landscape Analysis - East Campus Scale Comparisons Cont.

Princeton University Campus, Princeton University

Boston Children's Museum, Boston

Jacob Javits Plaza, New York

Tahari Courtyards, Millburn

Shown with Scheme B
Project Conditions

Campus Analysis

In both institutional character and built form, MIT forges its own unique way among institutions of higher learning. The physical characteristics of the MIT campus resonate with teaching and research both of which are, paradoxically messy and exacting: microscopic and infinite; personal and institutional. The formal south lawn with the Dome at Killian Court and the informal aggregated north precinct, the restriction and simultaneous expansion of the Infinite Corridor, and the distinct separation of personal space from the collective institutional space all exemplify this physical resonance.

MIT in terms of institutional character is among other things:

1. Dedicated to the advancement of knowledge and the education of students in science, technology and other areas of scholarship.
2. A renown world leader in technology and science advancement.
3. Closely associated with industry outreach and interface.
4. An institution that generously supports its academic community.

Physically the MIT campus is characterized by:

1. Its linearity east-west along Memorial Drive and the Charles River.
2. The iconic presence of the Dome on Killian Court.
3. The strength and anchoring effect of the Bosworth plan and architectural expression.
4. The Infinite Corridor and the energy that it produces by its spatial configuration.
5. A formal face south to the Charles River at Killian Court and the Dome and an aggregated informal face to the north along Vassar and Main Streets.
6. The aggregation of buildings in the central academic core with free standing buildings to the west and east.
7. Definitive buildings in, on and around distinctive variegated landscapes.
8. Separation of student housing from institutional, academic and research spaces.
9. A physical and political symbiotic relationship with the city of Cambridge.
10. A strong visual connection to the Boston skyline.

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East Campus (PUD-5), in particular, is characterized as:

1. Underutilized, undistinguished and uninviting.
2. In a gateway position from the City of Boston across Longfellow Bridge and via the T-Stop in Kendall Square.
3. Having a developmental capacity of over four million square feet.
4. Potentially a major interface zone from the Cambridge community through to the Charles River.
5. Divided from the Cambridge community at the north edge by the assemblage of three historic buildings that currently provide no porosity or transparency to the inner block.
6. Potentially the site of a new, distinctive campus landscape space that, with Kresge Court, brackets the center academic core.
7. A zone where the Infinite Corridor can be differently re-alized and extended to promote east/west connectivity to the Sloan School of Management, north/south from Main Street to the Charles River to connect academic structures, and as a tool for engaging the greater Cambridge Community.
8. Potentially the site of a new campus/urban construct for the 21st century. A construct that merges the public realm, the academy, and industry in an identifiable uncompromised campus place that is decidedly MIT. (See Principles and Strategies pages 18 through 23)
Project Conditions

Campus Analysis - Cont.

Campus Landscape Mosaic:
The Charles River boundary and landscape are the connective elements that hold the MIT campus together. Distinguished buildings are in, on or around a variety of landscapes.

East Campus: Relationship to Boston:
The East Campus is a visual and physical link between Cambridge and Boston. It is optimally situated to receive south light and has uninterrupted views towards many of the landmarks in Boston.

Infinite Corridor Extension:
The infinite corridor is a unique experience MIT offers and the East Campus has the capacity to host the extension of the infinite corridor in any number of configurations and at various elevations.
- Minimum Publicly Beneficial Open Space for PUD-5: 15%* (*PUD-5 13.87.1)

- Ratios for Maximum Allowed Parking:
  - Office Use: maximum 0.9 spaces per 1,000 SF
  - Laboratory Use: maximum 0.8 spaces per 1,000 SF
  - Retail Use: minimum 0.5 spaces per 1,000 SF
  - Institutional Use: maximum 1.0 space per 1,800 SF
  - Residential Use: minimum 0.5 spaces per dwelling unit
  - maximum 0.75 spaces per dwelling unit

- Allowable Program in PUD-5:
  - 1,690,000 SF New Gross Floor Area by Use on Area of Study
    - maximum 890,000 sqft commercial
    - maximum 800,000 sqft academic
  - 2,275,205 SF Total Existing Buildings on Area of Study
  - 330,000 SF New Gross Floor Area by Use on One Broadway Site
    - minimum 240,000 sqft residential
    - 90,000 sqft commercial
  - 297069 SF Existing Building on One Broadway Site
  - 4,592,274 SF Total Building Capacity on PUD-5

Zoning Ordinance Parameters

On March 21, 2013 the City of Cambridge issued ordinance Number 1355 thereby creating Planned Unit District 5 (PUD-5) of approximately 26 acres as shown on the plan diagram opposite. The new Section 13.8 PUD-5, excerpted below, is intended to allow mixed-use development with increased development densities and heights.

13.81 Purpose. The PUD-5 District is intended to provide for Kendall Square’s continued prominence as a world-renowned center of innovation and a vibrant neighborhood through the creation of a mixed-use district of high quality general and technical office and laboratory uses with significant retail activity proximate to the MBTA station. The PUD-5 District helps organize placement of commercial and institutional buildings and establishes an additional mixed-use development containing a significant residential component to support the burgeoning residential corridor along Third Street and the strong links to existing neighborhoods and the riverfront. The PUD-5 District allows for continued support of the academic mission at MIT and encourages connective links, physical and otherwise, between the Institute and adjacent neighborhoods.

The PUD-5 District responds to the Kendall Square planning process and is intended to be a smart-growth, transit-oriented district and therefore allows for replacing surface parking lots with larger scale development in Kendall Square and the major public transit services located there. The PUD-5 District encourages low parking ratios, shared parking strategies, the use of public transportation and improved pedestrian and bicycle environments. The PUD-5 District further the City’s goals for sustainable development through buildings and sites that are planned, designed and constructed in a sustainable way so as to minimize adverse environmental impacts as they are initially constructed and as they are occupied and operated over the course of their useful lives.

The PUD-5 District promotes the creation of a strong retail corridor along Main Street and the enhancement of Broad Canal Way. Combined, this new public crossroads will have broad appeal as a desirable destination during and beyond the traditional workday by providing a critical mass of diverse restaurants, shops, entertainment and programming. The ground floor space will engage pedestrians and provide a variety of indoor and outdoor gathering spaces, including retail that can address the needs and reflect the creativity of the local community.

While the entire Ordinance Number 1355 is applicable, of particular influence on this planning study were issues of maximum program area for academic uses and for commercial laboratory/office uses including innovation space. Active use provisions, building height and setback regulations, parking ratios and guidelines, and publicly beneficial open spaces were also of particular importance.
Project Conditions

Community Process

MIT and Cambridge Participation

The project team engaged in three rounds of meetings with both the internal MIT community and the external Cambridge community. In the first two rounds the groups met separately, and the final round was a joint meeting.

In the first meeting principles and strategies were presented, and questions about the site were posed to encourage a discussion about the communities’ impressions of the East Campus and their vision for the future. The team encouraged participants to post comments on a large aerial image of the site, followed by a group discussion. Feedback from this meeting was recorded and presented back to the groups at the following meeting.

In the second meeting the team identified and described four critical design issues, including the use of the Eastgate site, the nature of the gateway, connections, and landscape typologies and mixed use. Feedback was invited from the participants through written responses on the site aerial and a group discussion. Again, feedback was recorded and presented back to the groups at the following meeting.

In the final meeting three campus/urban planning schemes were presented and three landscape approaches. The work was presented through diagrams, plans, 3d models and annotated before and after views. The material presented at the three public meetings is summarized and included in this final report. See Index of Resources for access to Minutes of Meetings.
Urban Planning and Framework Statement

The East Campus Urban Design Study represents a contemporary shift in the way the urban university positions itself in the city. Increasingly, there is a move away from the isolated campus as an exclusive enclave of academic buildings occupying a large land area on its own, remote from other uses, to one that is more integrated in a lively mixed-use urban setting. There are multiple advantages to this greater integration. Universities are communities, are within communities and create communities. Universities have the potential to be great city builders. They form mutually beneficial symbiotic relationships with the city around them. There are many opportunities for joint planning around a shared vision to promote shared and overlapping use of resources like access to transit, retail, community facilities etc.

The interweaving and overlap of the campus and the city produces an environment which is more like a university “quarter” as opposed to the traditional detached campus. This is inherently a more sustainable form of development as it uses scarce resources and land to greater advantage. It positions the campus as a valuable asset and catalyst, with economic spin-offs and entrepreneurship opportunities along with easier access to shared neighborhoods to meet the needs for housing and commercial nodes to provide daily life necessities of the academic community.

Within this perspective the East Campus Urban Design Study is a search for an inventive and unique solution which moves beyond previous normative or formulaic thinking; a solution learning from but moving beyond precedents that no longer resonate with this academic generation. The way MIT grows and makes itself physically has everything to do with the well being of the academic and intellectual community and the ability of the institute to attract and keep faculty, students and researchers of extraordinary ability.

In many ways the future of Kendall Square is not dissimilar to its past, a place where people can work, live, study and play, and this future can only be realized through the active participation of all in the Kendall community. During the MIT rezoning process a consensus emerged between MIT, the City of Cambridge and neighborhood groups that a density of mixed-use development supported by public open space, ground floor retail, and residential development was a critical component of the way ahead. The East Campus Study process a consensus emerged between MIT, the City of Cambridge and neighborhood groups that a density of mixed-use development supported by public open space, ground floor retail, and residential development was a critical component of the way ahead. The East Campus Study process a consensus emerged between MIT, the City of Cambridge and neighborhood groups that a density of mixed-use development supported by public open space, ground floor retail, and residential development was a critical component of the way ahead. The East Campus Study process a consensus emerged between MIT, the City of Cambridge and neighborhood groups that a density of mixed-use development supported by public open space, ground floor retail, and residential development was a critical component of the way ahead.
Principles and Strategies

Early in the study process, the collective MIT and consulting team developed the following principles and strategies. Just as these principles and design strategies informed this study, they are tools and guidelines that are intended to move forward with the future development of the East Campus.

Principle 1: As a gateway, the East Campus project will be emblematic of MIT in the 21st Century.

Strategies:
Create a physical and intellectual porosity between the academic campus and city, supporting MIT’s academic mission, and its urban context.

Rather than a singular entrance to MIT, the gateway will be a node of activity and a multifaceted series of spaces and portals.

Leverage the potential of the East Campus as an appropriate and memorable presence on the ground and on the skyline of Cambridge.

Principle 2: The project will engage and enrich Kendall Square as the most densely populated innovation cluster in the world, and an important cultural, business and social partner of MIT.

Strategies:
A vital and varied MIT presence will be expressed on Main Street.

The vision should consider adaptive reuse options as a way to enrich the layered experience and diversify the scale of Kendall Square.

The 24-hour nature of research will be served with safe, welcoming public spaces and amenities open at all hours of the day and throughout the week.

Principle 3: Developing economically viable commercial research buildings integrated with the overall vision for the East Campus plan will be essential to the plan’s success.

Strategies:
The plan will be flexible enough to allow for academic and research uses that have not yet been thought of, and for unanticipated funding sources.

The incremental development of the East Campus will be economically viable at each step of its realization.

The architecture of the commercial research buildings will reflect the unique market opportunity of being on the MIT campus, – innovative and distinctive, yet flexible.

Principle 4: The utilization of landscape and architecture will provide:
a. A unique blending of city and campus,
b. Increased connectivity,
c. An enhanced sense of place,
d. A sustainable urban ecosystem.

Strategies:
The East Campus will be both a recognizable part of the MIT campus, and a part of the wider city.

Open space in the East Campus will complement the mosaic of existing campus landscapes.

The ground plane will be liberated to include an interrelated exterior and interior public realm with welcoming, open ground floors and a density of private program above and below.

Equal consideration should be given to open space, the MIT arrival experience, and connections to the Charles River.

The Infinite Corridor needs to find a new and appropriate expression in the East Campus.

Multiple modes of circulation, transportation and parking will make a balanced contribution to the vision with a priority given to active transportation, a high quality pedestrian environment, and well managed materials handling facilities.

Principle 5: The project will embody an “MIT-ness” both in its process and product.
Principle 1:
As a gateway, the East Campus project will be emblematic of MIT in the 21st Century.

Strategies:
Create a physical and intellectual porosity between the academic campus and city, supporting MIT’s academic mission, and its urban context. (1a)

Rather than a singular entrance to MIT, the gateway will be a node of activity and a multifaceted series of spaces and portals. (1b) (1c) (1d)

Leverage the potential of the East Campus as an appropriate and memorable presence on the ground and on the skyline of Cambridge. (1e)
Principle 2:
The project will engage and enrich Kendall Square as the most densely populated innovation cluster in the world, and an important cultural, business and social partner of MIT.

Strategies:
A vital and varied MIT presence will be expressed on Main Street. (2a)

The vision should consider adaptive reuse options as a way to enrich the layered experience and diversify the scale of Kendall Square. (2b)

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- Increased connectivity,
- An enhanced sense of place,
- A sustainable urban ecosystem.

**Strategies:**

- The East Campus will be both a recognizable part of the MIT campus, and a part of the wider city. (4a)
- Open space in the East Campus will complement the mosaic of existing campus landscapes. (4c)
- The ground plane will be liberated to include an interrelated exterior and interior public realm with welcoming, open ground floors and a density of private program above and below. (4e)
- Equal consideration should be given to open space, the MIT arrival experience, and connections to the Charles River. (4d)
- The Infinite Corridor needs to find a new and appropriate expression in the East Campus. (4b)
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