

One Community = One Campus

and

A Summary of West Campus Planning 2016 – 2018



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Introduction

In February 2016, the MIT Building Committee – the committee responsible for long-range space planning and utilization for the Institute – charged the Dean of the School of Architecture + Planning, Hashim Sarkis, to help develop a framework for the planning of the West Campus. The charge entailed defining guiding principles to help in decision-making about such needs as new dormitories and parking, in the absence of a recent comprehensive master plan but with the need to make these decisions connected to each other and made in such a manner that does not hinder a long-term vision. The idea was to enable long-term thinking with short-term steps and to empower the larger vision with discrete decisions.

The considerations for updating the West Campus framework in 2016 were:

- Develop a longer-term vision that informs the location of additional dorms (470 undergraduate beds to enable renewal; ~250 graduate beds). In addition, consider the possible demolition of W70 (New House) and the consequent necessity to relocate 290 beds. In total, the location of 750 new undergraduate beds has to be considered.
- Consider sports and student activities
- Consider parking and transportation
- Consider sites for future education programs: micro masters, summer programs
- Consider the Bexley site / Religious Center
- Preserve the option of a music facility adjacent to Kresge
- Develop alternative uses for the Metropolitan Storage Warehouse which preserve the maker space on the ground floor

It quickly became clear that the West Campus itself had to be placed within the larger context of the whole MIT campus and the Cambridgeport area. The exercise therefore extended to develop a series of principles that would guide the larger campus vision that would in turn guide the West Campus framework.

The framework draws directly from ideas generated by previous studies prepared for the campus over the past 20 years. An extensive amount of studies have been commissioned by MIT for different parts of the campus, from the scale of the overall campus, to the West Campus, to Northwest Campus, and for different land uses including housing, athletic facilities, parking, and transportation. Many aspects of those prior studies remain valid. The report therefore draws on the recommendations that are relevant to current and future needs. Importantly, it puts these recommendations together in a coherent framework to help MIT make interconnected decisions about the future of the campus.

This report by no means replaces a campus plan and further studies for the different sectors and areas of the campus. It simply lays out the basic principles and framework to guide future planning and design studies.

During the preparation of this report, several MIT departments and committees were consulted, including:

Building Committee

Faculty Committee on Campus Planning

West Campus Study Steering Committee

Office of Sustainability

MIT Integrated Learning Initiative (MITili)

Department of Athletics, Physical Education, and Recreation (DAPER)

Division of Student Life

Student groups related to Campus Planning

Committee for Renovation and Space Planning (CRSP)

Participants in the generation of ideas regarding this report were: Professor Anton Garcia Abril, particularly for the Metropolitan Storage Warehouse and surroundings, Professor Chris Zegras for transportation, Professor John Fernandez and Dr. Julie Newman, Director of the MIT Office of Sustainability, Architecture Professor Meejin Yoon, and Dennis Swinford, Director of MIT Campus Planning at that time. This study benefited immensely from the previous report for the West Campus prepared by Professor Andrew Scott.

Design framework for the Campus Commons was completed by Reed Hilderbrand Landscape Architects in collaboration with the Office of Campus Planning in 2017.

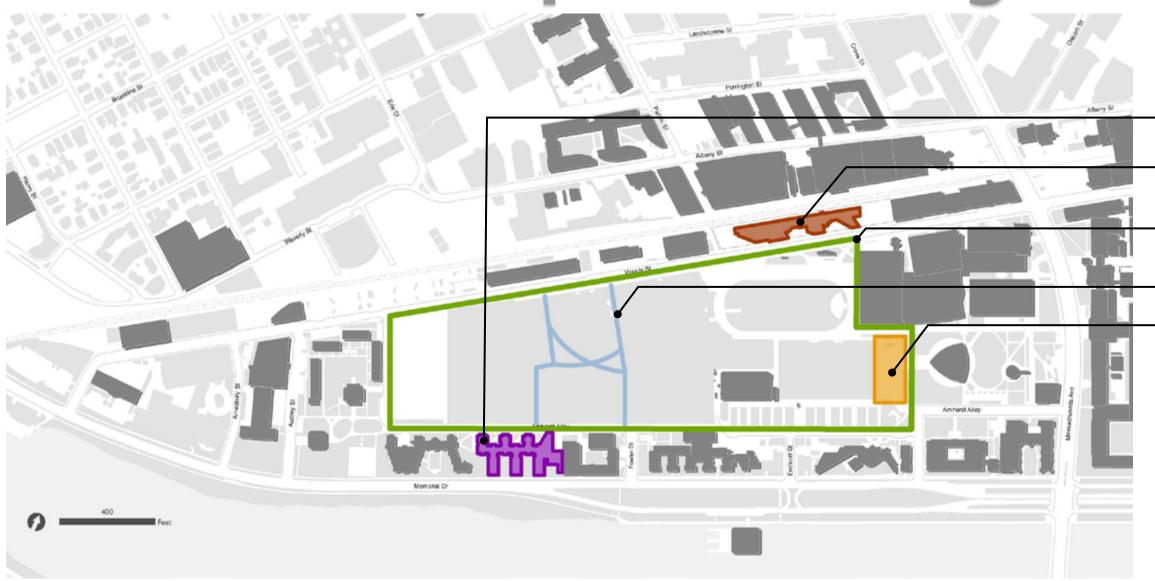
The work was conducted in close collaboration with the Campus Planning team and the offices of the Provost, Chancellor, and Executive Vice President and Treasurer.

All of the report's analyses, proposals, and drawings were prepared by Roi Salgueiro and Gabriel Kozlowski.

The framework's release supported the siting of two new buildings: the Vassar Street Dormitory and the Music Building. It also served as the basis for the West Campus Commons study focused on landscape elements. These updates to the framework are summarized on the next page. In Academic Year 2019 we are planning continued studies of the West and Northwest Campus, as well as extending the framework to the East Campus.



IlliT West Campus Planning 2016 - 2018



Since the development of the *One Community* = *One Campus* framework plan in 2016, MIT has embarked on a number of West Campus initiatives, including:

- 1) Preservation and renovation of New House, W70 (completion, summer 2018).
- 2) Siting and construction of a new undergraduate residence hall on Vassar Street (completion, summer 2020).
- 3) A 2017 West Campus Commons (WCC) study investigating options for West Campus improvements including:
 - 4) Proposed interim connections through the athletic fields.
 - 5) The siting for a new music building near Kresge Auditorium.

A new planning-focused subcommittee of MIT's Committee for Renovation & Space Planning (CRSP), P-CRSP, is investigating parking needs and strategies, as well as options for evolution of the West and Northwest areas of campus. A particular focus of P-CRSP is the area identified in the *One Community = One Campus* plan as the West Vertex.



1) Renovation of New House (W70) began in 2017.



2) A site on Vassar Street was designated for a new undergraduate residence, and enabling work began in 2017.



3) A 2017 West Campus Commons Study (WCC) looked at long term options for the West Campus landscape.



4) Paths were proposed through the athletic fields as interim connections between Vassar and Amherst Streets.



5) A site next to Kresge Auditorium has been endorsed for a new music building.

May 2018



One Community = One Campus

A Framework for the MIT West Campus

Principles for One Campus

MIT thrives on being one large, integrated community. It distinguishes itself for its unity and openness to the outside world, for its collaborative and experimental spirit, and for the high degree of interaction between faculty, students, and staff. However, its current campus does not fully reflect these qualities. While the buildings are open to the general public, their labyrinthine layout disorients residents and visitors alike. Its corridors are vibrant and interconnected, but the campus has a limited number of common spaces for sustained encounter and interaction. And while the spaces of the Main Group have constantly been rearranged to adapt to the changing needs of the community, this has occurred at the expense of the clarity of its organization and quality of its spaces. The unity of the community is not reflected in the fragmented and incoherent layout of the campus. Finally, MIT's growing attention to improving the quality of life on campus is greatly compromised by the duct-tape-and-shoelace attitude that characterizes the experimentation ethos of MIT but that has over the years unnecessarily become the prevailing aesthetic of the campus.

MIT's "one community" would greatly benefit from "one campus" that would give it the dignified, vibrant, and coherent environment it deserves. This framework is built on one larger principle:

ONE COMMUNITY = ONE CAMPUS

Over the past five years, MIT has put in front of itself a series of ambitious challenges around which the future of the Institute is being shaped. These bold and visionary challenges have direct implications on the shape of the campus. Reciprocally, these challenges will not be possible to imagine and to meet without transforming the campus. The campus is an integral element of MIT's future.

The main opportunities with direct implications on the shape of the campus are: the future of MIT education, innovation, sustainability, and capital renewal. As a point of departure, this report aims to extract from these opportunities their main implications on the future of the campus. The implications are presented here in the form of basic principles to guide decision-making about the future of the campus.



One Community = One Campus

Opportunities

- Future of Education
- Innovation
- Sustainability
- Capital Renewal

Future of Education

In *The Future of MIT Education* report, published in 2014, the Institute-wide task force put forward a series of recommendations to radically rethink the way MIT conducts its primary mission. In several of its recommendations, the spatial implications are explicitly discussed. In Recommendation 15, the report calls for forming a working group that imagines the future spaces of learning and teaching. In this sense, the report calls on the MIT community to consider the campus as the living laboratory, as both the laboratory and the experiment, for the Future of MIT Education. In line with this report, major transformations in the nature of residential life are expected from the MIT Integrated Learning Initiative and from the expansion of the MIT community to include online learners.

Some of the key spatial implications of the future of MIT education on the campus include:

- Re-imagining Residential Education: With the advent of online learning and with the transformation of curricula to integrate online courses, the nature of residential education is going to radically change to focus on more face-to-face teaching and quality interaction among students and faculty. As such, it is imperative in any campus planning effort to re-imagine the MIT learning environments along these new terms.
- Integrating Life and Learning in Residential Life Spaces (Commons, Residence Halls): The current separation between the teaching and residential spaces on the MIT campus is seen as a hindrance to a more vibrant and diversified learning environment. It is important to bring social and academic life to the residential side of campus and to create a stronger sense of community among the residence halls.
- Expanding the Community of Learners on Campus: As MIT embarks on expanding its online outreach through MITx and bringing some of its participants to the campus through the boot camps for the micro-masters and other MITili constituencies, campus planning efforts should take into consideration new constituencies that include:
 - 1. Students who slip in and out between education, startups, and jobs
 - 2. A large number of transient MITx boot camp students
 - **3.** Students who graduate and continue to get an MIT education online, interspersed perhaps with weekend stints at MIT

These groups will have their specific needs and spaces, but they will also need to be integrated into the larger MIT community.

- Encouraging Maker Culture: The growth of maker culture as part of the curricular and extracurricular life on campus has prompted MIT to increase the number of maker spaces, to distribute them between residential and academic buildings, and to network among them through a centralized organization. This new network should be integrated into the campus plan.
- Diversifying Spaces for Education to Nurture Diversity of Intelligences: With the growing diversity among its community members, the campus should attend more to the diversity of needs, aspirations, and intelligences (interpersonal, intrapersonal, visual-spatial, physical-kinesthetic, etc.) and provide a broader variety of spaces that cater to and express this diversity.
- Creating Academic Villages: Along the lines of the Future of MIT Education, interdisciplinary collaboration would be greatly enhanced by the creation of nodes of interaction among scholars from different schools around campus in the form of "academic villages that provide environments for enhanced interactions to occur both inside and outside of the classroom and laboratory settings."

Innovation

One of the key components of the MIT Campaign for a Better World, the Innovation and Entrepreneurship initiative, is compelling us to imagine changes both within the campus and between the campus and its surrounding community. Internally, the introduction of MIT.nano as a shared-use research facility in the heart of the Main Group (buildings connected directly to the iconic domes at 77 Massachusetts Avenue) is leading to a reorganization of circulation and connectivity. In terms of the relation with the surrounding "innovation ecosystem of Kendall Square," the East Campus development heralds a new gateway to MIT but also a more porous type of campus. The physical implications of the Innovation and Entrepreneurship initiative could be summarized in the following principles:

- Providing Infrastructure for Teaching to Support Innovation: Beyond MIT.nano, the Innovation and Entrepreneurship initiative calls for courses to support startups and new methods of teaching that require more hands-on work on the part of the students to be able to demo and deploy more effectively. It also requires better interface with industry, both large and small.
- Incubating Businesses for Students and Alumni: The introduction of incubators and accelerators helping students' startups transition into the business world could create transition spaces and even interim residences for recent graduates to support the innovation process at this critical point.
- Interfacing with Businesses and Venture Capital in the Larger Ecosystem of Kendall Square: The ecosystem of the Kendall Square area is already one of the most important innovation hubs in the world. In the East Campus development, MIT is re-imagining its edges and actively creating more spaces of overlap and interaction with this venture and industry hub. Connecting with this hub will have larger implications on the overall campus beyond East Campus, given the spread of activities to Cambridgeport, Allston, and a broader network in the metropolitan region.



Sustainability

MIT's commitments to sustainability are well laid out in three key venues: the MIT Environmental Solutions Initiative, Office of Sustainability, and Plan for Climate Action. These have direct implications on the layout and operations of the campus. As MIT advances an active period of construction and restoration, it is important to highlight the main principles that lead to a sustainable campus. Here again, MIT could set the standard for sustainable development among universities. As with the education challenge, the Institute could become the living laboratory of sustainable solutions.

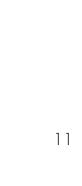
- Managing Storm Water for MIT, Cambridge, and the Charles (Retention and Flow): Given MIT's adjacency to the Charles River, and construction of the MIT campus on backfilled land, the increased chances of flooding require a partnership between MIT and Cambridge and the introduction of innovative technologies in the landscape and infrastructure design of the campus to mitigate storm water.
- Containing Climate Risks: With increasing climate risks, the campus should be well equipped to handle climate crises, and its public spaces and buildings designed to address extreme weather conditions.
- Improving Public and Alternative Transportation and Reducing Parking: Reducing dependency on cars and increasing the reliance on public transportation and bicycles as well as alternative modes of transport will require a concerted effort between transportation and campus design to maintain the campus' accessibility while decreasing the reliance on cars.
- **Producing Energy and Reducing Energy Consumption:** With the renewal of the Main Group and with every additional building, MIT should be able to decrease energy consumption using advanced technologies and behavior changes as well as increase the production of its own energy through a variety of more sustainable sources, some of which are being developed at MIT.
- **Growing and Managing Food:** Introducing awareness and healthier habits among MIT community members requires improving the quality and sustainability of food. It could also encourage food growing on campus as part of the extracurricular life of the students.
- Reducing Waste in Building Occupancy: MIT could take it upon itself to reduce the dependence of its buildings' occupants, particularly in the dormitories, on furniture and supplies that get frequently trashed and replaced. The challenge lies in developing spaces with more carefully considered built-in furniture.



Capital Renewal

The MIT capital renewal challenge is most directly connected to the vision of the campus. This challenge extends beyond the renewal of the Main Group - which includes the interconnected buildings along the Infinite Corridor spanning from Building 7 to 8 - to touch upon its connectedness to the rest of the campus and on how this renewal process could showcase new spaces for learning and research and bring the Main Group, and its flexible and interconnected qualities, into the 21st century.

- Showcasing the Main Group's Capacity to Support Contemporary Needs: This is being achieved by aligning the Campus Renewal program with new academic needs and priorities and improving on the possibilities of interaction among its different occupant groups.
- Making Sound Decisions about What to Remove and What to Adaptively Reuse: Over the past hundred years, the Main Group has proven its resilience and adaptability to change, but many of the surrounding facilities have not. Such decisions about what to keep and what to remove need to balance the historical value of the structures with the sustainability impact and cost.
- Improving on the Interface between Main Group, Rest of Campus, and Outside World and Reinvigorating the Infinite Corridor as MIT's Main Connector: Openness and porosity have always been characteristic of the MIT campus, but with time and growth, the campus has become less accessible and legible to visitors. It would be important to restore these qualities back to the Main Group. Emanating from the Main Group and extending to the East Campus, the Infinite Corridor has the capacity to change and weave through a variety of spaces while giving MIT its unique and connected identity.
- Leveraging the Campus Renewal Program to Advance MIT's Sustainability Posture: This entails bringing the Sustainability Challenge Principles to bear on the rehabilitation of the Main Group.



One Community = One Campus	– Re-imagining residential education
	 Integrating life and learning in residential life spaces (commons, residence halls)
	– Expanding the community of learners on campus:
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	– Encouraging maker culture
	 Diversifying spaces for education to nurture diversity of intelligences
	– Creating academic villages
• Innovation	Providing infrastructure for teaching to support innovation
	 Incubating businesses for students and alumni
	– Interfacing with businesses and venture capital in the larger ecosystem of Kendall Square
• Sustainability	– Managing storm water for MIT, Cambridge, and the Charles (retention and flow)
	– Containing climate risks
	 Improving public and alternative transportation and reducing parking
	 Producing energy and reducing energy consumption
	– Growing and managing food
	– Reducing waste in building occupancy
• Capital Renewal	– Showcasing the Main Group's capacity to support contemporary needs
	- Making sound decisions about what to remove and what to adaptively reuse
	 Improving on the interface between Main Group, rest of campus, and outside world and reinvigorating the infinite corridor as MIT's main connector
	- Leveraging the campus renewal program to advance MIT's sustainability posture

Summary

The nineteen One Campus principles provide general guidelines for the future of campus planning at MIT. The intent is that they evolve with the evolution of the vision. They may well be revised as MIT moves forward with its campus planning and construction. However, it is important to highlight that the campus needs to be guided by the academic vision for the Institute and vice versa, to understand the campus as a constitutive part of the vision.

This report also serves as a first attempt to use these One Campus principles to guide the development of one part of the campus, namely the West Campus.

The MIT Triangle

From an urban design and physical layout perspective, the larger MIT campus distinguishes itself from other campuses in that it has a simple, legible shape: a triangle. Many campuses have been built around a clear core, usually a rectangular yard or quad, but MIT's favorable situation is that its larger expanded campus also has a distinguishing shape.

This triangle is generally delineated by Memorial Drive to the south, Main Street to the east and Sidney Street to the west. It is important to note that MIT is not fully contained within this triangle and that there are other residential and commercial owners inside the figurative triangle. The organizational figure of the triangle will likely remain vital to the expanded campus.

The current campus qualities, challenges, and opportunities could be explained through the geometry of the triangle:

Vertices: The MIT Triangle has three vertices which act as gateways. Only one of the three, Sloan School, is occupied by an MIT facility. The other two, the intersection of Sidney Street and Main Street and the intersection of Sidney Street and Memorial Drive, do not announce clearly that these are entrances to a special zone or campus area. Seen from the center of the campus, these two vertices are not destinations. The campus identity is diluted as one moves towards the north and west vertices. Both vertices have the potential to house MIT facilities that mark the entrances of the triangle in a more emphatic way. The Sidney/Main vertex could house programs that interface with the Cambridge community. The Memorial/Sidney vertex is remarkably large and could accommodate a program such as the distance learners campus or a new innovation center that connects to the Allston and Medical areas.

Bisectors: The MIT Triangle has two clear bisectors that cut across the campus: 1) Massachusetts Avenue, that pierces through the middle of Memorial Drive and connects to the vertex of Central Square, and 2) Vassar Street, which plays the role of a bisector as well going from the western vertex to the middle of Main Street traversing the big divide between east and west campus along Mass. Ave. Because of the parallel train tracks along its northern edge and the athletic and recreational fields on its south, Vassar Street feels a bit removed on the western side of campus. However, the future need for dorms in the western campus and the growing innovation area along Main Street strongly suggest that Vassar Street could play a vital role in connecting through the campus and within it as a public transport spine. This mile-long connector could include shuttle buses, bike lanes, and/or alternative and autonomous modes of public transport that display and test MIT's experiments in this domain.

The lack of a third bisector, from the Sloan vertex to Sidney, has been compensated on the eastern side by a network of paths that are connected around the Infinite Corridor.

The western side of the campus includes a series of barriers that run east-west and that separate the northwestern part of the campus from the residential area and from the river. These are namely: the train tracks, the fields, and the line of buildings along the river that create something of a perceptual

wall between the river and the western campus. It would be vital for the connectivity of the West Campus to introduce north-south connectors that break through these barriers.

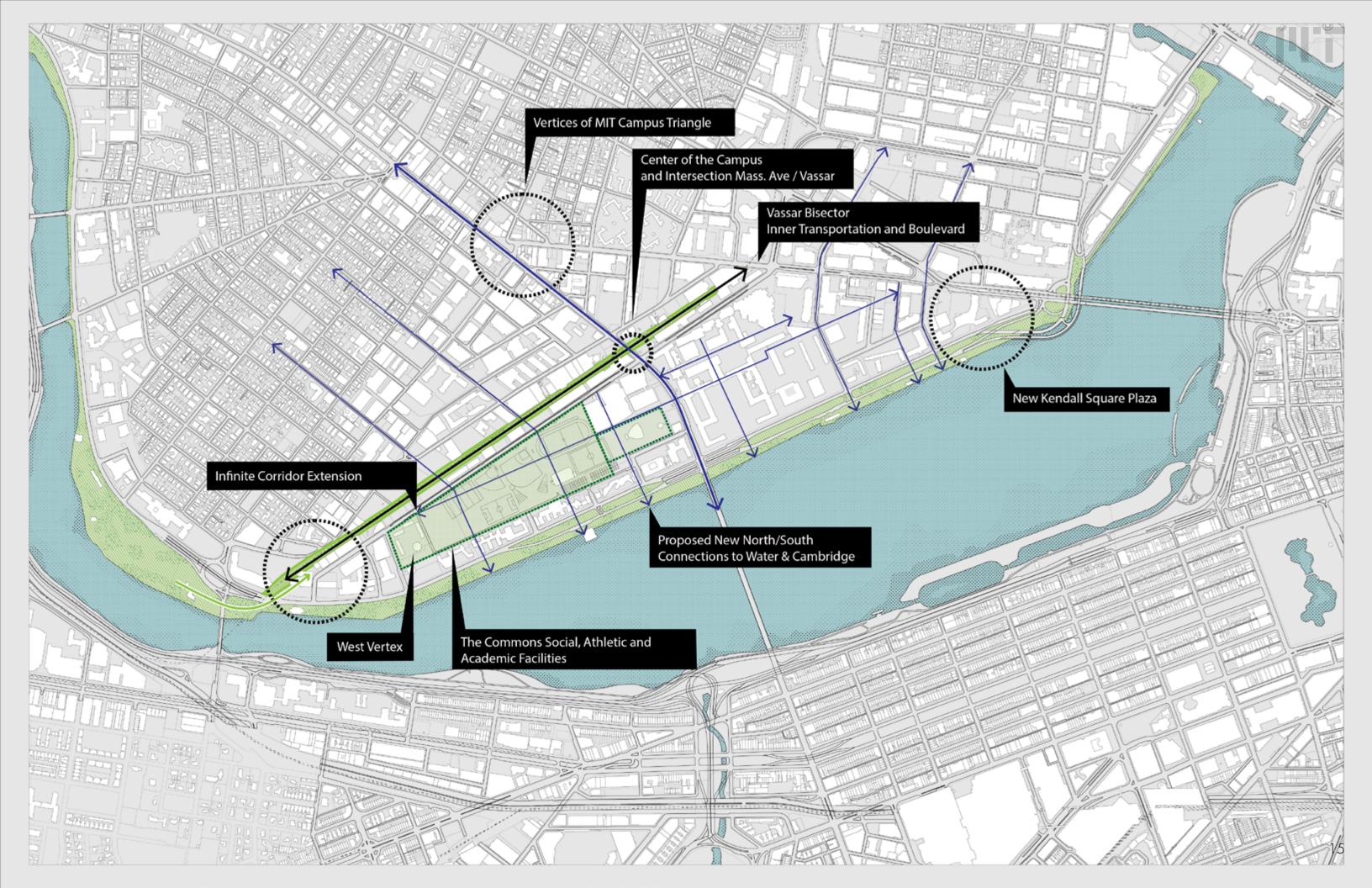
It would also be important to extend the Infinite Corridor to the western side of the campus to provide pedestrian continuity and to connect the two pedestrian networks, on the east and on the west of Mass. Ave., with each other.

Center: The intersection of the two bisectors Vassar Street and Mass. Ave., the center of gravity of the campus, consists of four parcels that are currently occupied by the Metropolitan Storage Warehouse, a Bank of America teller-machine, a small shed facility and yard, and a parking lot in front of the nuclear reactor laboratory. At the most central and exposed point of the triangle, the campus does not display anything about itself. It would be important to consider these four parcels as sites for placing central facilities that could be equally accessed from all parts of the campus and that showcase MIT to the world.

Recommendations:

Based solely on this urban analysis of the conditions of the triangle, the following recommendations can be extracted:

- Pronounce the vertices of the triangle with strong MIT-related programs.
- Use the Vassar bisector for public transport, connecting across the east-west divide of the campus.
- Create north-south connectors through the west campus to overcome the east-west barriers that strongly divide this area.
- Place central and public programs at the intersection of Mass. Ave. and Vassar.
- Extend the infinite corridor to the western side to become the pedestrian spine of the whole campus.



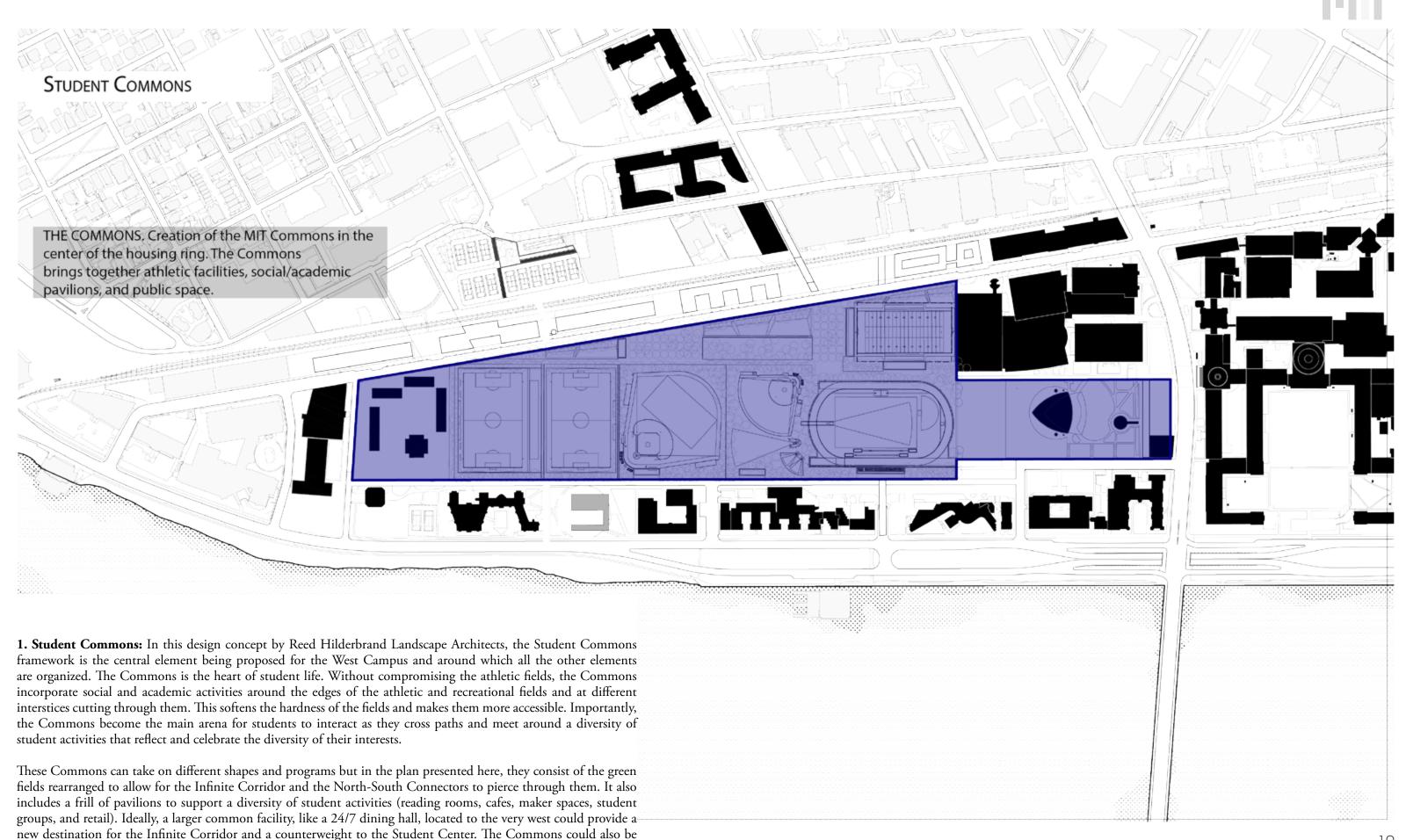


West Campus Main Elements

West Campus Main Elements

- Student Commons
- Residential Ring
- Extended Infinite Corridor
- West Campus Connectors
- Vassar Axis
- West Vertex-Open MIT





understood as a series of outdoor rooms delineated by trees each with its theme (eg. sports, cultural, social.)

