

A Framework for Development through 2026 and Beyond

December 2017

PRINCETON UNIVERSITY CAMPUS PLAN

A Framework for Development through 2026 and Beyond



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A Mission-Centered Vision for the Campus

Princeton University is a community of talented faculty, staff, graduate students and undergraduates engaged in the active pursuit of learning and dedicated to the nation's service and the service of humanity. The University has a responsibility to maximize the capacity of this extraordinary concentration of talent and resources to contribute to society and make a positive difference in the world. With that purpose in mind, the University has recently undertaken extensive planning efforts to identify priorities and guide selection of new initiatives and projects.

In January 2014, the University's Board of Trustees launched a comprehensive strategic planning process that, two years later, produced a flexible, revisable framework that described the University's values, challenges, opportunities, and goals. Five months later the University launched a similarly comprehensive campus planning process to create a flexible, revisable framework to inform decisions about the physical development of the campus.

The <u>strategic planning framework</u> describes what Princeton seeks to achieve, and some of these aspirations require new buildings or other structures. These include a new residential college to allow Princeton to increase the size of its undergraduate student body; new space to support the exceptional teaching and research in our School of Engineering and Applied Science and in environmental studies; and increased capacity to participate in interactions and partnerships with the non-profit, corporate and government sectors in an expanded innovation ecosystem.

The campus planning framework suggests where we might locate these and other structures if we are able to build them. It aims to provide options that allow Princeton to achieve its strategic objectives over the next ten years, while preserving its capacity to respond flexibly to changing needs over the next thirty years and beyond.

Princeton's campus is beloved and beautiful, and the new campus plan is appropriately sensitive to the University's "distinctive sense of place." Its ultimate value, however, will reside in its capacity to promote the activities that define Princeton's mission. The campus must not only house programs and people; it must also foster collaboration, invite serendipity, nurture inclusivity, cultivate argument, inspire creativity, generate community, and facilitate the rigorous, fearless, and path-breaking pursuit of truth.

This campus plan seeks to fill that tall order. It develops a mission-centered vision both for the campus's more historic precincts and for areas whose identities are still being shaped – including the campus lands east of Washington Road and south of Lake Carnegie.

The planners and other experts who have helped develop this framework; the many members of the campus, alumni, and neighboring communities who contributed to it; and the trustees who oversaw its development at every step of the way have provided us with exactly the kind of guidance we need to make wise and informed decisions as we safeguard, develop, and enhance the precious Princeton asset that is its historic and yet ever-evolving campus.

Christopher L. Eisgruber '83President of the University





01 Introduction

Princeton University's mission, as formally adopted by its trustees in 2015, is to "advance learning through scholarship, research, and teaching of unsurpassed quality, with an emphasis on undergraduate and doctoral education that is distinctive among the world's great universities, and with a pervasive commitment to serve the nation and the world."

The University's defining characteristics include "a human scale that nurtures a strong sense of community, invites high levels of engagement, and fosters personal communication;" "a commitment to welcome, support, and engage students, faculty, and staff with a broad range of backgrounds and experiences and to encourage all members of the University community to learn from the robust expression of diverse perspectives;" and "a vibrant and immersive residential experience on a campus with a distinctive sense of place that promotes interaction, reflection, and lifelong attachment."

Princeton has long taken pride in the beauty of its campus and the extent to which it supports the pursuit of its mission. As the University continues to grow and improve and expand, this campus planning framework provides guidance for its development through the next decade and beyond.

A Historic and Evolving Campus





In 1756 the College of New Jersey, which spent the first ten years of its life in Elizabeth, then Newark, New Jersey, moved to the agrarian village of Princetown, centrally located halfway between Philadelphia and New York. The college originally occupied four-and-a-half acres of land and consisted of only two buildings: a home for its president, now known as Maclean House, and historic Nassau Hall, which at the time was the largest academic building in the American colonies. Over the next thirty years Nassau Hall would serve as a focal point in the Revolutionary War Battle of Princeton; as the capitol of the newly established country for a few months in the summer of 1783; and as a locus of learning for many of the country's early leaders, including its fourth president, James Madison.

Top: This 1875 lithograph illustrates the idea that originated at Princeton of using the word campus to describe a college setting.

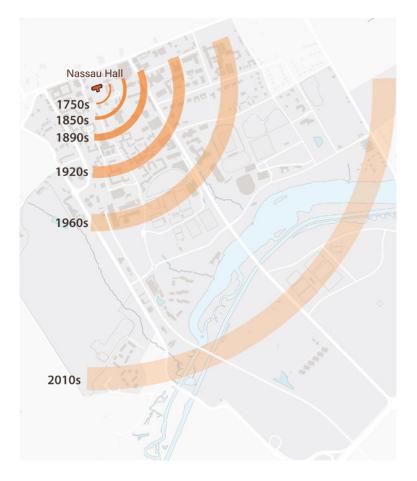
Bottom: Students gather for an informal seminar on one of the campus's outdoor sculptures.

In siting Nassau Hall, the college trustees did something no college or university had ever done before. They set it back from the street, on an elevation that looked north across a green into the town and south over fields and stream valleys. In the 1770s the college began referring to this northern green as a campus, from the Latin word for field, thus introducing for the first time the use of the word campus to denote the grounds of a college.

Over more than two-and-a-half centuries, the tiny College of New Jersey has evolved into one of the world's leading research universities. In 1896 it adopted the name of its town when it became Princeton University, and in the ensuing years it has expanded in size, scope, complexity and impact. As it grew, it expanded first to the south, and later to the east and west; up until now almost all of its buildings have been within the town of Princeton.

In the early 1920s, the University began to acquire lands to the south of Lake Carnegie in the township of West Windsor, where it now owns almost 500 acres. In later decades of the twentieth century it began to acquire lands in the township of Plainsboro - some for campus uses and some to shape commercial development in positive ways along the nearby Route 1 corridor. The University's Forrestal campus in Plainsboro houses the Princeton Plasma Physics Laboratory, the leading U.S. Department of Energy national laboratory conducting research in the field of fusion energy.

Princeton's first expansion added buildings along the edges of the front campus and created a back campus that is now called Cannon Green. In the late nineteenth century, beginning under President James McCosh, a more substantial campus expansion occurred with the emergence of the modern concept of a university and the arrival of the railroad. The rough symmetry of the historic campus gave way to a more informal and picturesque landscape, with expansion to the east and west along established ridgelines



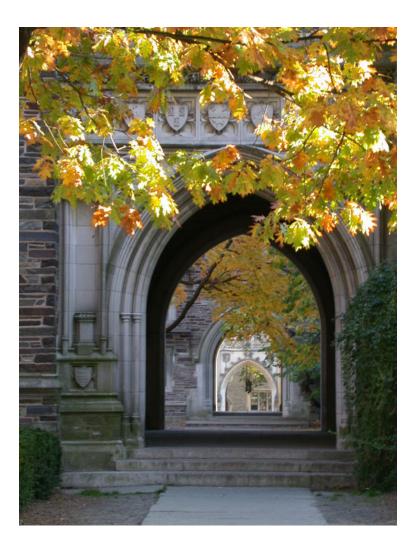
Over the course of its 260year history, Princeton's campus has grown in rings radiating outward from Nassau Hall.

and expansion southward through a series of downward-stepped terraces. The adoption of Collegiate Gothic architecture at the turn of the twentieth century introduced enclosed and semienclosed courtyards, linked lawns, and what current University Architect Ron McCoy *80 has described as "a magical rhythm of episodic vistas and emerging spaces." These new spaces complemented the older portions of the campus through the careful integration of walks and sightlines, and a balance between open and enclosed spaces, flowing landscapes, archways and buildings.

The place-making patterns in the early twentieth century became the template for further expansion of the campus southward and eastward across Washington Road. The southward movement brought the campus closer to Lake Carnegie and its related landscapes; the lake is a defining feature of the campus and the region, and it serves as both an important ecological resource and a valued community amenity. The preservation and enhancement of the woodlands surrounding the lake and its related finger landscapes that extend into the campus have been, and will continue to be, a priority, and over time the lake itself is likely to evolve from being on the edge of the University's twentieth century campus to being a more central attribute of its twenty-first century campus.

The historic core of the campus features "a magical rhythm of episodic vistas and emerging spaces."

Vista through archways at Holder Hall







The campus's mid-twentieth century expansion sought, first, to accommodate dramatically increased federal support for university-based sponsored research, especially in the natural sciences and engineering, and then to accommodate a substantial increase in both the size and diversity of the student body, beginning with the introduction of undergraduate coeducation in 1969. The opening of the new Engineering Quadrangle in 1962 on the site of a former varsity baseball field was front page news in the New York Times, which described it as the country's most state-of-the-art laboratory for research and teaching in engineering and the applied sciences. The expansion of the student body and then the decision in the early 1980s to house all freshmen and sophomores in residential colleges required both new and reconfigured spaces.

By the early 2000s it is fair to say that while the campus remained distinctive, attractive and beloved in many ways by students, faculty, staff, alumni, townspeople and visitors, there was a pressing need for a fresh look at how the campus had evolved, along with an assessment of what needed to be done to improve the efficiency and design of at least some parts of the campus, to achieve important objectives related to land use and sustainability, and to accommodate new technologies. The University also needed to determine how best to accommodate new buildings that would be needed to implement trustee decisions to expand the undergraduate student body by ten percent, increase substantially the University's capacity to support the creative and performing arts, and play leadership roles in several emerging fields in the sciences and engineering.

Top: Lake Carnegie is likely to be a more central attribute of the twenty-first century Princeton campus.

Bottom: Butler College is one of six residential colleges; it is one of the three that house students from all four classes. The green roofs on some of its dorms are used for research and monitoring of storm water management techniques.



Andlinger Center for Energy and the Environment connects state-of-the-art research and teaching spaces with gardens and courtyards.

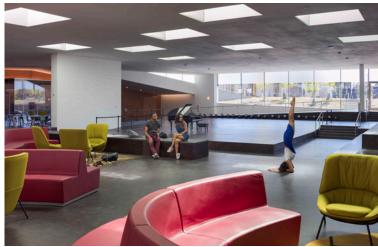
In the mid-2000s the University launched its first-ever comprehensive campus planning initiative, with the goal of making recommendations for campus development over a ten-year period ending in 2016. The legacy of the 2016 campus plan is considerable: Butler College dormitories, Frick Chemistry Laboratory, Sherrerd Hall, Peretsman Scully Hall, the Princeton Neuroscience Institute, the Andlinger Center for

Energy and the Environment, the Julis Romo Rabinowitz Building, the Louis A. Simpson International Building, Streicker Bridge, Roberts Stadium, Lakeside Graduate Apartments, and, most recently, the buildings and spaces of the Arts and Transit Neighborhood are all integrated into the fabric and flow of the University, and new and enhanced woodlands are lush and thriving.

To accommodate the continued expansion of the student body and advancements in teaching and research, the campus has continued to grow and evolve.



While comprehensive in some senses, the 2016 campus plan focused exclusively on the University's central and east campus areas – it explicitly ruled out consideration of development south of Lake Carnegie – and while it offered some thoughts about possible development options beyond 2016, it was, by design, a ten-year plan.



Top: The atrium at Frick Chemistry Laboratory

Bottom: The forum at the Lewis Arts complex

The 2026 Plan

In July 2014 the University launched an even more comprehensive campus planning process that was intended to build on the 2016 plan, but that differed from it in several important respects:

Whereas the 2016 plan had an explicit ten-year horizon, this framework was asked to propose guidelines for development over the next ten years in the context of potential needs and developments over a thirty-year period.

The objective was two-fold: to avoid making land use decisions in the near term that precluded potentially higher priority uses over the longer term, and to make sure that appropriate infrastructure was in place when the time came for future uses of particular lands.

Whereas the 2016 plan focused on proposed locations for a number of projects that had already been approved, the 2026 plan began with no inventory of projects waiting to be sited. The goal was not so much to produce a "plan," as to develop a framework that would guide the University in making wise land use decisions over the years ahead.

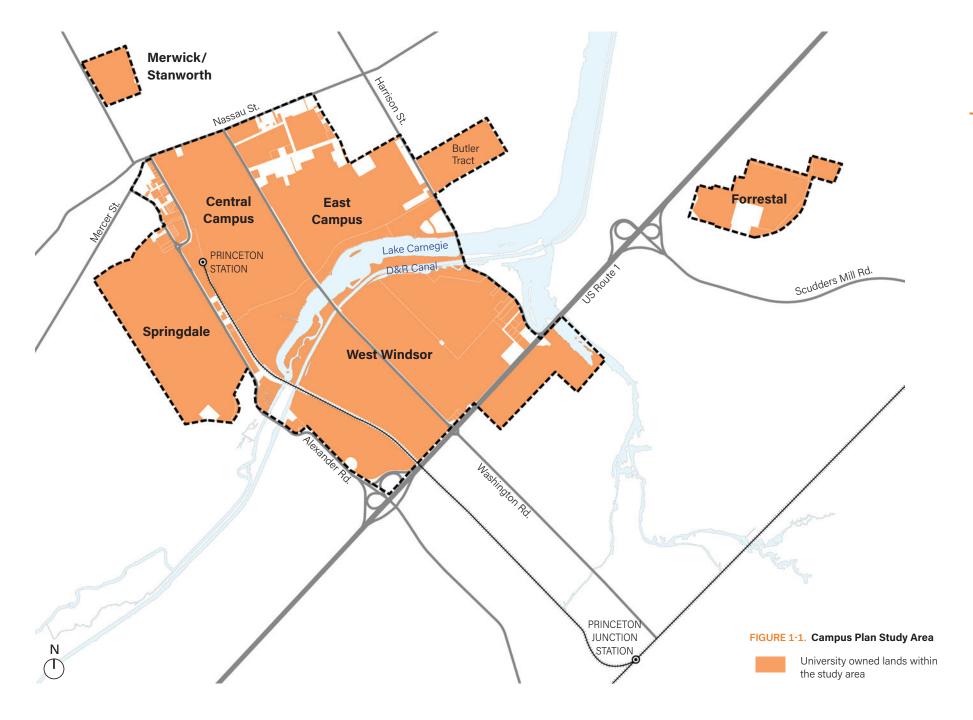
Since this campus planning process was not beginning with a set of approved projects, it needed to be closely integrated with other University planning processes, and especially with a strategic planning process that was charged with identifying University priorities, including some that would require new, expanded or improved facilities over the next ten to thirty years.

The trustees adopted a strategic

planning framework in January 2016,
and several of its priorities were then
incorporated into the development
of this campus planning framework,
including:

- A further ten percent increase in the size of the undergraduate student body, with the resulting need to construct at least one new residential college;
- An expansion and enhancement of space to support the teaching and research of the School of Engineering and Applied Science;
- New and improved space for programs in environmental studies, including the Princeton Environmental Institute, the Department of Ecology and Evolutionary Biology and the Department of Geosciences;
- Interactions and academic partnerships with the corporate, government and non-profit sectors in an expanded innovation ecosystem that can help the University to carry out its teaching and research mission and enhance its impact on the world.

The development of a planning framework for the next ten years in a thirty-year context meant that this process could not be restricted to the central and east campus areas, but instead needed to look at all of the University's campus-related lands. This included the University-owned lands south of Lake Carnegie in West Windsor, lands on the Forrestal campus in Plainsboro, and lands in Princeton west of Alexander Street (including the grounds that are currently leased to Springdale Golf Club) and lands east of Harrison Street (including the Butler Tract that until recently was the location of World War II-era graduate student housing).



While the 2026 planning framework differs from the previous plan in these respects, in other respects it shares important characteristics. Like the previous plan it fully integrates and builds upon the goals of the University's 2008 sustainability plan, although with an even greater emphasis on ensuring that sustainability becomes an integral and tangible part of the Princeton culture and experience. The campus planning framework includes a <u>sustainability framework</u> that was developed in coordination with the Princeton Office of Sustainability as part of its development of an updated 2018 Princeton Sustainability Plan. The sustainability framework addresses the campus's physical development, while the 2018 sustainability plan will also address issues that are operational and programmatic in nature.



The 2026 planning framework also addresses issues related to movement to and around the campus, landscape, and infrastructure. It considers the future needs for all campus utilities, including information technology, and it is guided by a new Infrastructure Master Plan (IMP) that coordinates Princeton's utility infrastructure needs with its anticipated development, land use, and sustainability and resiliency objectives. The IMP is Princeton's most comprehensive infrastructure planning endeavor of recent history; it incorporates the evaluation of dozens of utility infrastructure systems and approaches to achieve utility systems that (a) deliver reliable and secure functionality, even in the face of stresses and shocks; (b) meet the University's requirements while minimizing resource consumption and environmental impact; (c) complement other systems to achieve synergies and optimize performance; (d) maintain the ability

to adopt new approaches or emergent and future technologies; and (e) provide opportunities for students, faculty and staff to explore and test new approaches that may find broader application throughout the world.

Movement, landscape, sustainability and infrastructure were never seen as "separate" components of the plan. They were fully integrated throughout the planning process, and because the campus planning framework, the campus plan sustainability framework, and the IMP were mutually informing, the sustainability goals and infrastructure plans shaped land use, place-making, landscape and transportation systems, and vice versa.

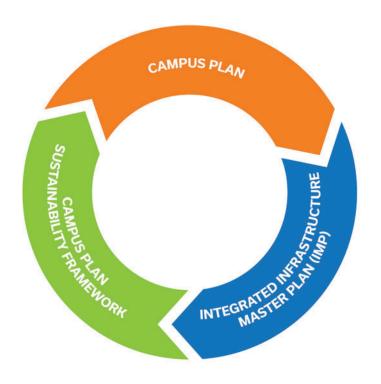


FIGURE 1-3. The Integrated Planning Process

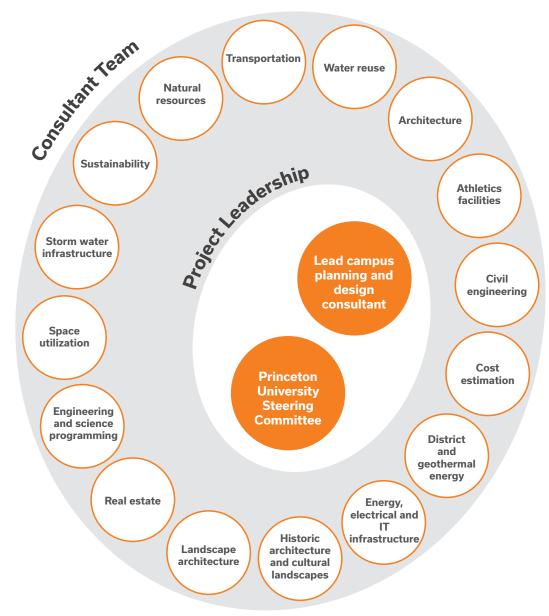
The Planning Process

Comprehensiveness, collaboration and integration have been hallmarks of the 2026 campus planning process. The principal consultant was the Torontobased planning and design firm of Urban Strategies, Inc., while other consultants contributed expertise in areas ranging from architecture and landscape architecture to sustainability, athletic facilities, space utilization, historic preservation, transportation, parking, energy, information technology, storm water management, water reuse, civil engineering and real estate.

The development of the planning framework was overseen by a <u>Steering Committee</u> including senior University officers and chaired by the President of the University, Christopher Eisgruber '83, with leadership provided throughout by University Architect McCoy and members of his staff. The executive sponsor, responsible for overall coordination of the project, was Executive Vice President Treby Williams '84.

The planning team held individual and small group interviews with University administrators, deans, academic department chairs, alumni and others.

FIGURE 1-4. Campus Planning Leadership and Disciplines



They also held focus groups with graduate and undergraduate students, as well as with staff members in specific departments and offices. In addition, members of the University and local communities were invited to engage directly with the planning process through online and social media platforms. The Princeton Campus Plan blog website provided a platform for comments, questions and up-to-date information. An interactive campus mapping tool called "Campus Compass" was developed specifically to allow students, faculty, staff and alumni, as well as members of the community, to "travel" virtually around the Princeton campus, describe how they use and perceive it, and share their ideas for improving it.

Beyond the campus, conversations were held with officials and senior staff from Princeton, West Windsor, Plainsboro and Mercer County, and at the state level with representatives from the Department of Transportation, the Department of Community Affairs, the Department of Environmental Protection and the Delaware and Raritan Canal Commission. Open public

meetings were held in Princeton and West Windsor in the fall of 2016 and the spring of 2017 to review and receive feedback on the progress of the plan.

The Board of Trustees provided ongoing guidance and oversight through its Committee on Grounds and Buildings and through several presentations to the full Board. The plan also benefited from conversations with a number of strategic planning task forces and the task force reports, as well as from the contributions of groups such as the Princeton Sustainability Committee, the Sustainability Steering Council, the Sustainability Leadership Group, the IMP Working Committee, the Energy Advisory Committee and the Information Technology Advisory Committee.

As indicated, the campus planning framework has been developed in active and continuing dialogue with the University's <u>strategic planning framework</u>. In the words of President Eisgruber, "it aims to provide options that allow Princeton to achieve its strategic objectives over the next ten years, while preserving its capacity to respond flexibly to changing

needs over the next thirty years and beyond." While the campus planning framework identifies possible locations for the projects contemplated by the strategic planning framework, it does not determine whether or when the University will proceed with the projects or what they will look like. The University is developing a capital plan that will determine which structures it will aim to build and when, and it is engaged in a campaign planning process to determine how much it will be able to raise from alumni and friends to help pay for these projects.

In reading this framework, it is important to remember that the purpose of campus planning is to provide guidance for where development might occur, but whether, when, and how such development will occur depends on the outcomes of these other capital planning and campaign planning processes.





O2 Principles and Key Elements

This section has two purposes: to present the foundational principles upon which the campus planning framework is built, and to provide an overview of some of its key elements. It concludes with an illustration of the potential components in the planning framework.

Principles

The campus planning process identified five principles, based on the University's values and priorities, to guide the evolution of the campus. The five principles are as follows:

Provide an integrated environment for teaching, living, learning and research

Enhance the campus's distinctive sense of place

The campus planning framework will identify and site a range of indoor and outdoor spaces and infrastructure to support formal and informal discovery and learning in a holistic, dynamic and integrated setting. It will support a culture of curiosity, contemplation, creativity and innovation, and it will encourage interchange through planned events both large and small, and serendipitous encounters of various kinds. It will prioritize the spaces and facilities that best support today's requirements while maintaining maximum flexibility to respond to emergent requirements in the future.

Princeton's buildings and landscapes create a unique and inspiring setting that is integral to the campus experience. The campus planning framework will preserve and enhance this special character by promoting human scale, spatial cohesion and walkability. It will encourage the continuing creation and renewal of spaces that are beautiful, functional and enduring.

Foster a setting that is welcoming and supportive and encourages positive interaction and exchange

Create a climate that encourages thoughtful and creative approaches to sustainability

Serve communities that extend beyond the campus

The campus planning framework will support Princeton's deeply held commitment to bring together people from all backgrounds and circumstances to learn, collaborate, engage and share experiences. The campus's physical design, facilities and amenities will clearly signal that the campus has been planned to be broadly welcoming, supportive and accessible. It will provide a setting that encourages meaningful engagement among students, faculty, staff, alumni, community members, and other academic, governmental, nonprofit, and private sector partners, locally and globally.

The campus planning framework will support the University's goal of playing a leadership role in achieving sustainability and will embed sustainability as an integral part of the University's development and operations. The campus will be designed to ensure a reliably high standard of service and resilience across all facilities, infrastructure and systems, even in the context of changing climatic, social and economic conditions.

The Princeton campus will continue to respect and strive to achieve mutually supportive relationships with neighboring communities, and its future development will be sensitive to the broader community and regional context. The campus planning framework will also emphasize the University's continuing stewardship of physical, intellectual and cultural resources that are of importance to the wider scholarly and educational community.





Key Elements

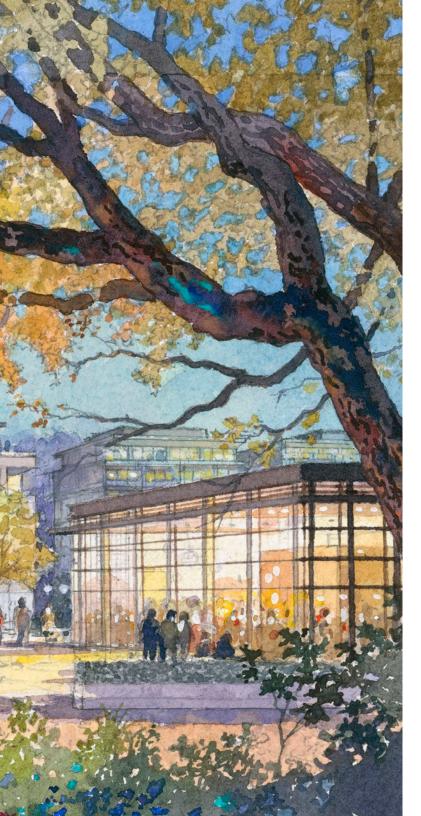
The campus planning framework has many components, but the following five key elements would play a central role in enabling the University to achieve its highest priorities and goals.

Continued Stewardship and Renewal of the Central Campus

Even as the University expands over time, the central campus will remain a focus of many aspects of University life. It includes the historic campus core that is such a fundamental part of Princeton's identity and history, but it also includes many other buildings and spaces that support important academic, residential and administrative functions. The central campus will require ongoing renewal and improvement to maintain its unique sense of place, while also improving circulation patterns and accommodating new technologies, new approaches to teaching and research, evolving student interests, and the University's overarching commitment to diversity and inclusion. There will be opportunities to make more efficient use of space; encourage more interchange, both planned and serendipitous; and promote synergies, reinforce existing relationships, and foster new ones.

One section of the central campus that could benefit from significant improvement includes a number of the 1960s Wilson College dormitories that are not well suited to the needs of today's students. If some of the existing buildings are replaced, this site offers significant capacity for supporting residential, academic or student servicerelated uses. New construction could be designed in a way that permits creation of a significantly improved east-west pedestrian connection between Dillon Gym and the Frist/Guyot/McCosh area, with an expectation that both of these areas could be expanded over time to meet demands for additional space in support of campus life or other needs. An enhanced diagonal walk extending from Mathey College to Poe/Pardee fields could intersect this east-west pedestrian walkway at this site, facilitating movement in all directions throughout the central campus. In the interim, this is one of a number of locations on campus that could benefit from improved way-finding through more and better signage.





Enabling Expansion of the Undergraduate Student Body

For more than thirty years, Princeton has housed all freshmen and sophomores in residential colleges, and for more than a decade it has offered spaces in three of the six residential colleges to juniors and seniors. The colleges are vibrant communities that provide dormitory, dining and social space, along with access to advising, academic and cultural activities, intramural sports and study breaks. Each college is led by a full professor who provides vision and direction; each college's full-time staff includes a dean, director of studies, director of student life, college administrator and college secretary. Each college also has faculty fellows, ten graduate students in residence, and an idiosyncratic college culture that can change over time. The colleges foster environments where all members of a diverse campus community can engage with and learn from each other.

The trustee decision to expand the undergraduate student body by 125 students in each entering class, or a total of 500 additional students, recognized (in the words of the strategic framework) that "Princeton now turns down a higher number, and a higher percentage, of qualified applicants for undergraduate admission than at any point in its history. Each year we turn down students who have the talent and character needed to reap the full benefit of a Princeton education, who would add to the diversity and luster of our student body, and whose Princeton education would enable them to contribute significantly to the world after their graduation." The campus planning process was asked to propose a site for a residential college that could house the additional 500 undergraduates. The proposed location is south of Poe Field. east of Elm Drive, and near the existing Butler, Wilson and Whitman colleges.

FIGURE 2-1. The proposed site for new residential colleges is located where the more formal landscapes of the central campus lead into a natural woodland landscape. The site's proximity to other colleges would foster interaction and extend the existing closely-knit residential community. (This artist's interpretation looks east across Poe/Pardee fields.)

While only one new residential college is needed to accommodate the increase of 125 students per class, the planning process sought to identify a site that could accommodate a second college if needed in future years. Such an additional college also could provide "swing space" to permit the kind of extensive renovation, refurbishment, or even replacement of some existing dormitories that cannot be done while they are occupied during the academic year. A second college would also allow the University to move toward a system in which all residential colleges are able to offer spaces to interested juniors and seniors. The eastern portion of the recommended residential college site could accommodate a second college if needed.

The proposed location would extend the University's residential district southward to a point where the more formal, compact landscapes of the central campus lead into the natural landscapes of Lake Carnegie. The proximity to other residential colleges and the recreational open space on Poe/Pardee fields would support interaction, engagement and a strong sense of community.





Top: Julian Street Library, Wilson College Bottom: Dining in Rockefeller College

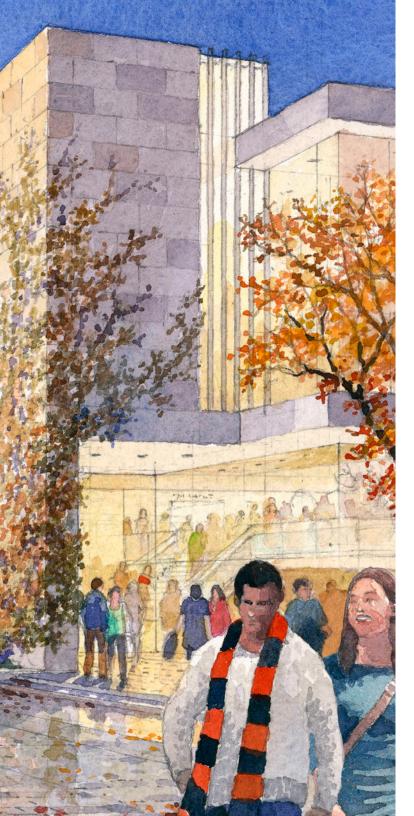


Students participate in recreational activities on Poe/Pardee fields near the site of the proposed residential colleges. Icahn Laboratory is in the background.

Development of the first residential college on this site would require the relocation of the Class of 1895 Softball Field and the Lenz Tennis Center. It is proposed that new facilities for softball and tennis be included in the planning for the University's campus lands south of Lake Carnegie; it is anticipated that these facilities south of the lake would be able to benefit from enhancements that would be difficult to achieve in their current locations.

Development of a second college would necessitate relocation of the Roberts Soccer Stadium and Myslik Field to the site of the current practice field, which in turn would require construction of a new soccer practice field. The new practice field could be located east of Washington Road or at other locations, including an existing facilities department services site just south of the new college and adjacent to Bedford Field, with the services site relocated elsewhere.





Expanding and Enhancing Engineering and Environmental Studies

As the University's strategic framework points out, "Princeton's outstanding School of Engineering and Applied Science [SEAS] ... uniquely blends the qualities of a great engineering school and Princeton's commitment to the liberal arts." This gives the University "a special advantage in addressing technological change and its consequences for society." In recent years the School has grown in size and impact; traditional fields have evolved; and exciting new fields have emerged, in many cases attracting significant student interest. The framework notes that "over the past decade, the number of students concentrating in computer science has tripled, and the enrollment in computer science courses has quadrupled. The University has already begun to expand the size of its computer science faculty; it also will have to cultivate and grow its faculty in statistics and machine learning to serve as an intellectual leader in the field and form strong connections to the many other disciplines within the University that will benefit from this field's

work and influence." SEAS has added a number of important spaces in recent years, including the Andlinger Center for Energy and the Environment, but many of its facilities are no longer adequate to support its research and teaching, and it needs additional space to support both its growing existing programs and new initiatives in emerging fields.

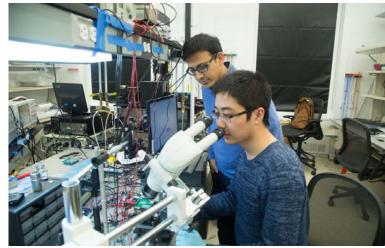
Similarly, Princeton has outstanding faculty in its Department of Ecology and Evolutionary Biology, Department of Geosciences, Department of Civil and Environmental Engineering, Princeton Environmental Institute (PEI), and related units, and there is strong and growing student interest in all aspects of environmental studies. The scholars in these fields do excellent work, but they do it in outdated facilities that cannot support modern research or accommodate current levels of interest. Princeton also has other faculty in the natural sciences, engineering, the social sciences and the humanities whose scholarship and teaching intersect with the study of the

FIGURE 2-2. The campus east of Washington Road would take on increased significance with the expansion and enhancement of SEAS and new facilities for Environmental Studies. (This artist's interpretation of potential long-term development looks west along Ivy Lane toward Lewis Library and Guyot Hall.)

environment, as, for example, in the Woodrow Wilson School's Program in Science, Technology and Environmental Policy. In planning to meet the needs for improved and expanded facilities for environmental studies, it is important to do so in ways that facilitate and encourage interaction with faculty and students in other fields.

The planning framework proposes lands on the north side of Ivy Lane and Western Way for the expansion of engineering and environmental studies. The proposed location would facilitate regular interaction between engineering and environmental studies, as well as with nearby natural science departments and the Woodrow Wilson School of Public and International Affairs. The location is near existing engineering spaces that will remain in place, and as the following section of this report points out, once new spaces become available decisions will have to be made about whether to renovate. repurpose or replace some or all of the existing E-Quad buildings. Decisions also will have to be made about best uses for the spaces in Guyot and Eno Halls that would be vacated by the Department of Ecology and Evolutionary Biology, the Department of Geosciences, and PEI.





New facilities will support contemporary research and teaching needs.





Top: Students at the E-Hub collaborate in a spirit of invention and innovation. Bottom: A start-up fair at Lewis Library

The proposed location of new facilities for engineering and environmental studies is along roads that are owned and maintained by the University. Much of this area is currently occupied by surface parking lots, although the proposed sites also would encompass land that currently houses the Ferris Thompson faculty and staff apartments. Developing this area offers an opportunity to meet pressing academic needs in the near term, but it also opens up possibilities for further development over the longer term, and it offers an opportunity to extend into this part of campus more of the landscaping, building patterns and campus design features that have been long established west of Washington Road. Amenities could be incorporated into these spaces to enhance a sense of community and foster exchange, invention and innovation. As we describe in the next section of this framework, this proposed development could play a catalytic role in reimagining the entire campus east of Washington Road as a location for future academic, social and residential development with greatly improved circulation patterns within this part of the campus, and between this part of the campus and campus lands west of Washington Road and south of Lake Carnegie.

Cultivating Community

The growth in campus enrollment and the introduction of new and expanded fields of academic inquiry will result in a University that is larger and more diverse than ever before. The planning challenge is to create opportunities and incentives for this new population to share experiences and build community. One way to do this is to introduce two key corridors - or campus connectors - to knit together a rejuvenated Central Campus, a reimagined East Campus, and an exciting new Lake Campus south of the lake. The East-West Campus Connector would extend from the Graduate College on the west to a new East Campus node, and the North-South Campus Connector would extend through the East Campus from Nassau Street across Lake Carnegie and eventually to Route 1. These connectors would help to facilitate pedestrian and cycling movement throughout the campus and between the campus and its surrounding communities.

Another strategy for facilitating interaction and community is to create "nodes" that provide settings, amenities and services that support serendipitous and planned encounters among students, faculty, staff and colleagues, along with community members and visitors from outside the University. These can be social or dining settings, mixed use spaces, or other kinds of spaces that bring members of the campus and outside communities together to explore, critique, collaborate and develop new ideas. The future campus will need spaces where students and faculty can work together on innovative ideas not only with each other, but with outside partners from the academic, corporate, non-profit and government sectors.





The campus planning framework envisions a campus with three distinct yet cohesive areas: Central Campus, East Campus and Lake Campus.

The campus would be connected through multiple internal walkways and pathways, but also by:

Washington Road, a corridor that would actively connect the three parts of campus to one another and to surrounding communities;

An <u>East-West Campus</u>
<u>Connector</u> that would facilitate
movement between the east and
central campus while supporting
further growth over time on the
east campus; and

A North-South Campus
Connector that would enhance connectivity between the existing campus and new campus development south of the lake.

<u>Lake Carnegie</u> would become a signature feature and a highly valued campus and community amenity at what would become the geographic center of the campus.





Creating a Lake Campus

In 1922, several Princeton alumni informed the Board of Trustees that they would donate to the University a farm that extended south from Lake Carnegie along Washington Road to Route 1 if the trustees would purchase an adjoining farm to the west that had just come on the market. The trustees accepted the donation and made the purchase, which gave the University ownership of 216 acres to the west of Washington Road between the lake and Route 1. In 1945, and then again in 1948, the trustees purchased the two farms that were located between the lake and Route 1 to the east of Washington Road. They obtained these lands with the expectation that "these properties will be needed by the University in the next fifty years." With these acquisitions, the University owned almost 400 acres between the lake and Route 1 and between Alexander Road and Harrison Street. In 2001, the University added to its West Windsor lands by purchasing approximately eighty-one acres from the Sarnoff Corporation along the northbound side of Route 1.

The 1922 trustees were prescient in recognizing that, in time, the University would need its lands south of the lake to help achieve its mission of teaching and research, although the timetable for extensive use of these lands has turned out to be closer to one hundred years than to fifty. The University's strategic framework recognizes that for Princeton to advance its mission in the years ahead, it is important "to cultivate interaction between its faculty members, researchers and students and their counterparts in the non-profit, corporate and government sectors," and that one way to do this is "by planning for the development of campus lands in ways that make possible productive interactions."

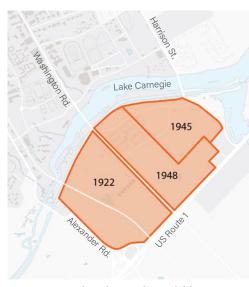


FIGURE 2-5. University Land Acquisitions
South of Lake Carnegie

FIGURE 2-4. A proposed pedestrian bridge, sensitively integrated into the Lake Carnegie landscape, could provide a safe and scenic link between Princeton and West Windsor. (This artist's interpretation looks north from the Lake Campus, showing entrances to the campus from the proposed bridge and from Washington Road.)

One outcome of this planning process is a judgment that the time has come for the University to begin developing its lands south of Lake Carnegie into a lively and integrated campus community that, at least in its initial development, could support innovation initiatives and academic partnerships, as well as housing for graduate students and postdoctoral researchers (post-docs), retail and gathering spaces of various kinds, varsity athletics and recreational uses, administrative functions and parking. All of these uses could be located within a gently curved landscape that could emerge from the southern terminus of a proposed new pedestrian bridge that would connect the Lake Campus to the campus lands north of the lake.

Throughout its history, Princeton has created a powerful sense of campus identity through the interaction of landscape and architecture. The goal on the Lake Campus would be to create a space that is experienced as a natural yet distinctive extension of the central campus; one that is defined by

the unique setting of Lake Carnegie, the D&R Canal, and the gently sloping landscape of the lands south of the lake. The landscape of the Lake Campus would be unique to this site, but it would carry forward the campus tradition of pathways, vistas and connections, along with its tradition of creating spaces for encounter, reflection and inspiration. The landscape features would serve such sustainability goals as managing storm water and providing potential sites for geothermal exchange wells. The programmatic elements of the initial campus development would be sited with options for flexible expansion, radiating outward from a central landscape. Certain buildings would be positioned as inviting gateways, with the design of the buildings supportive of the overall campus experience.

The new bridge for pedestrians and cyclists could cross Lake Carnegie and the D&R Canal at a location between Washington Road and Harrison Street. The bridge would be sensitively integrated into the existing natural

landscapes, crossing the waterways in such a way as to preserve the historic canal's character and natural features while facilitating public access to this valued community asset. The bridge would provide faculty, staff, students, visitors to the campus and the general public with a safe and scenic way to cross the lake without having to use such existing vehicular roadways as heavily travelled Washington Road, and it would be integrated into the regional bicycle and sidewalk networks in Princeton, West Windsor and Plainsboro.

The bridge would be integrated into the proposed North-South Campus Connector, thereby providing a direct link between the expanding engineering school and innovation activities that might be located on the Lake Campus. It would connect student athletes to existing support facilities north of the lake, and it would provide access to classrooms and research venues north of the lake for graduate students who would live on the Lake Campus and whose assigned parking would be at



FIGURE 2-6. The Lake Campus walk would connect athletics facilities, academic partnership buildings, administrative space and graduate student housing. (This artist's interpretation looks south toward a transit hub and the meadow.)

their place of residence. The bridge would enhance and improve public access to lands and walkways on both sides of the lake and along the canal; it would provide access to parking areas on University property near the proposed bridge terminus north of the lake that would be available for use by visitors to the D&R Canal State Park on weekends and holidays.

The bridge terminus south of the lake would bring pedestrians to a <u>walkway</u> that would lead them into a network of paths and plazas. To the west there could be buildings that would house <u>academic partners and administrative space</u>, along with a pathway for pedestrian and cycling access to Washington Road. To the east could be <u>athletics fields</u>, beginning with facilities for softball and tennis, but potentially expanding to accommodate other athletic uses over time. To the

south could be a housing community for graduate students and possibly post-docs, with retail and other amenities to support living and social needs on the Lake Campus. Convening spaces for University use could be integrated into a number of the buildings. A transit hub would be developed to facilitate transfer from a new parking location to bikes or shuttle buses that can be used to travel to other parts of the campus. To the south of the initial development would be a <u>campus meadow</u> that, in time, could serve as an important natural feature as well as a connecting space to much longer term development on these lands.



FIGURE 2-7. Tiger Lane Crossing would be an important setting for amenities and interaction among all campus communities. A hub would facilitate transfer to bikes or shuttle buses to other parts of the campus. (This artist's interpretation imagines the bike and transit hub.)

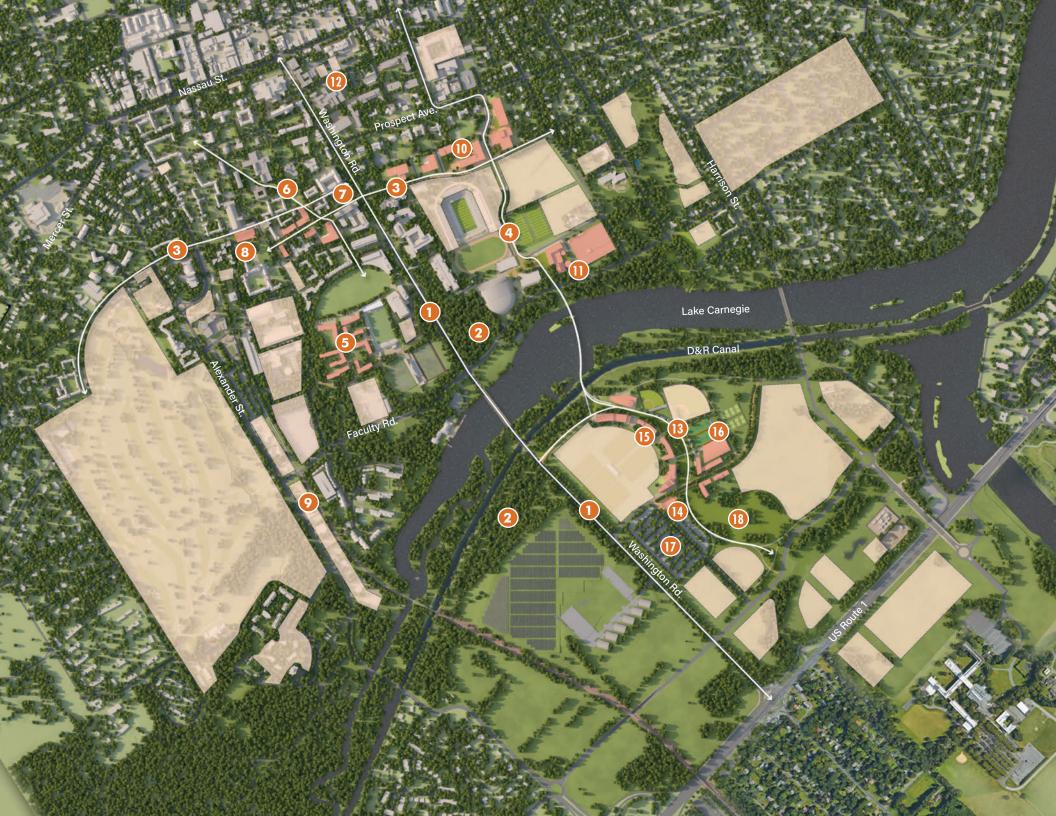


FIGURE 2-8. To the south of Tiger Lane Crossing would be a campus meadow that would serve as an important natural feature and, in time, could become a connecting space to much longer-term development adjacent to these lands. (This artist's interpretation looks south over the campus meadow.)

Other Elements

Through its campus planning, the University seeks to achieve a number of critically important sustainability goals; support strategies designed to promote cycling, walking and other alternatives to single occupancy vehicles; foster the development and expansion of an innovation ecosystem for the campus and the surrounding region; develop a campus infrastructure that can meet the demands of the coming decades; incorporate guidance from an athletics facilities plan that is being developed; and identify potential locations to reserve for future housing for faculty and staff as well as for graduate students and post-docs. Two such housing locations, in addition to the possible inclusion of graduate student and post-doc housing on the Lake Campus, are the Butler Tract east of Harrison Street, and Alexander Street south of the new arts complex and the train station. The University will be working with the municipality to develop appropriate zoning for both locations.

The planning process recommended preserving future flexibility for long-term use of the Springdale lands to support the University's educational mission, but it has made no recommendation regarding specific uses of those lands. In public meetings the University made clear that it contemplated no development of these lands for at least the next ten years, recognizing that the current lease to the Springdale Golf Club extends at least through 2026. Any future development of these lands would be sensitive to potential impacts on the adjacent neighborhood; would enhance the stream corridor through these lands and recognize the historic attributes of the property; and would seek to improve public access to open space on the site, including via pedestrian and cycling pathways. In response to questions, the University confirmed that it had no need and no plan for a connecting road between Alexander Street and Springdale Road.





Potential Components in the Planning Framework

We conclude this section with a reminder that while campus planning does not determine what will be built, it does make suggestions about where buildings might be located and how they might be integrated into a campus environment that retains Princeton's distinctive sense of place and enables the University to carry out its mission. The accompanying graphic shows where the projects referenced in this section could be located, and the following section provides more detail about each of them.

Potential Projects and Initiatives

Campus-Wide

- 1. Washington Road Streetscape Enhancements
- 2. Lake Carnegie Landscape
- 3. East-West Campus Connector
- 4. North-South Campus Connector

Central Campus

- 5. Residential College Sites
- 6. Diagonal Walk
- 7. Frist/Guyot/McCosh Node; Wilson College, Eno Hall, 1915 Hall Sites
- 8. Dillon Gym Expansion
- 9. <u>Potential Residential Mixed-Use</u> <u>Corridor</u>

East Campus

- New Space for Engineering and Environmental Studies
- 11. East Campus Entry
- 12. Enhancements behind 185 Nassau Street and along William Street

Lake Campus

- 13. Lake Campus Walk
- 14. Tiger Lane Crossing and Transit Hub
- 15. <u>Academic Partnerships, Innovation</u> <u>Space, Administration and Housing</u>
- 16. Athletics
- 17. <u>Parking</u>
- 18. <u>Campus Meadow</u>

Forrestal Campus

- 19. <u>Landscape and movement</u> improvements
- 20. Cycling connection improvements to main campus and Forrestal Village
- 21. ReCAP Facility

FIGURE 2-9. An illustration of the potential initiatives of this planning framework, along with longer-term opportunity sites that are indicated by the masked areas.





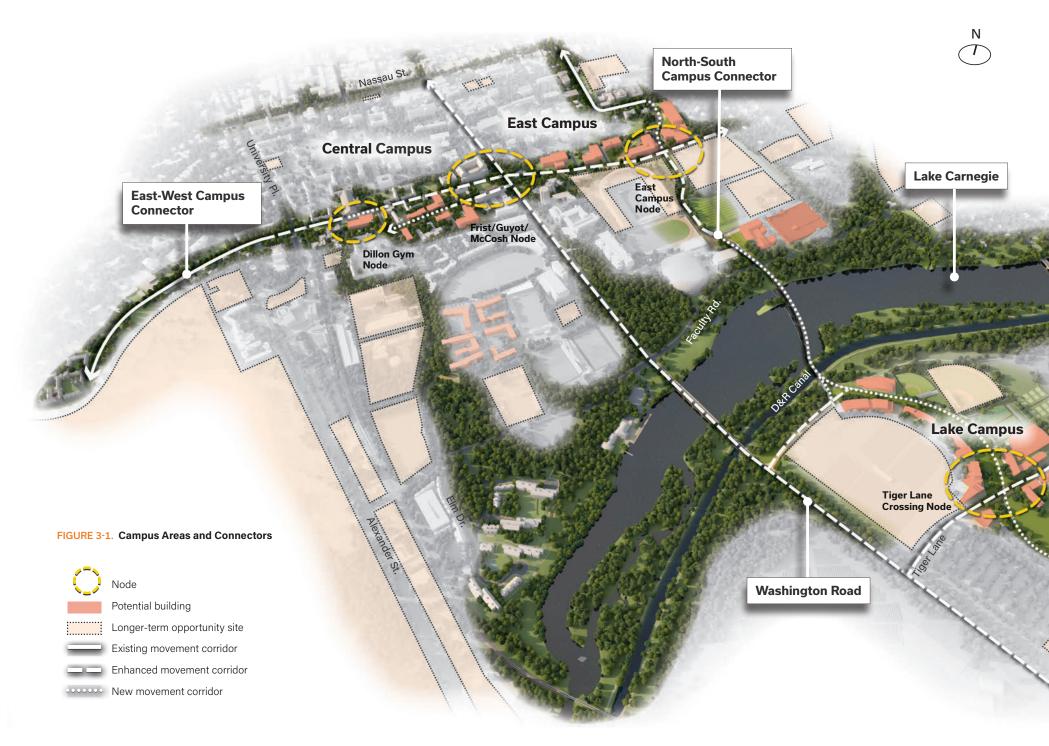
03

Projects and Initiatives

This section provides greater detail about the projects and initiatives that were described in the previous section. They are organized under the following sub-headings:

- · Campus-Wide
- Central Campus
- East Campus
- Lake Campus

There is also a brief discussion at the end of this section about the Forrestal campus.

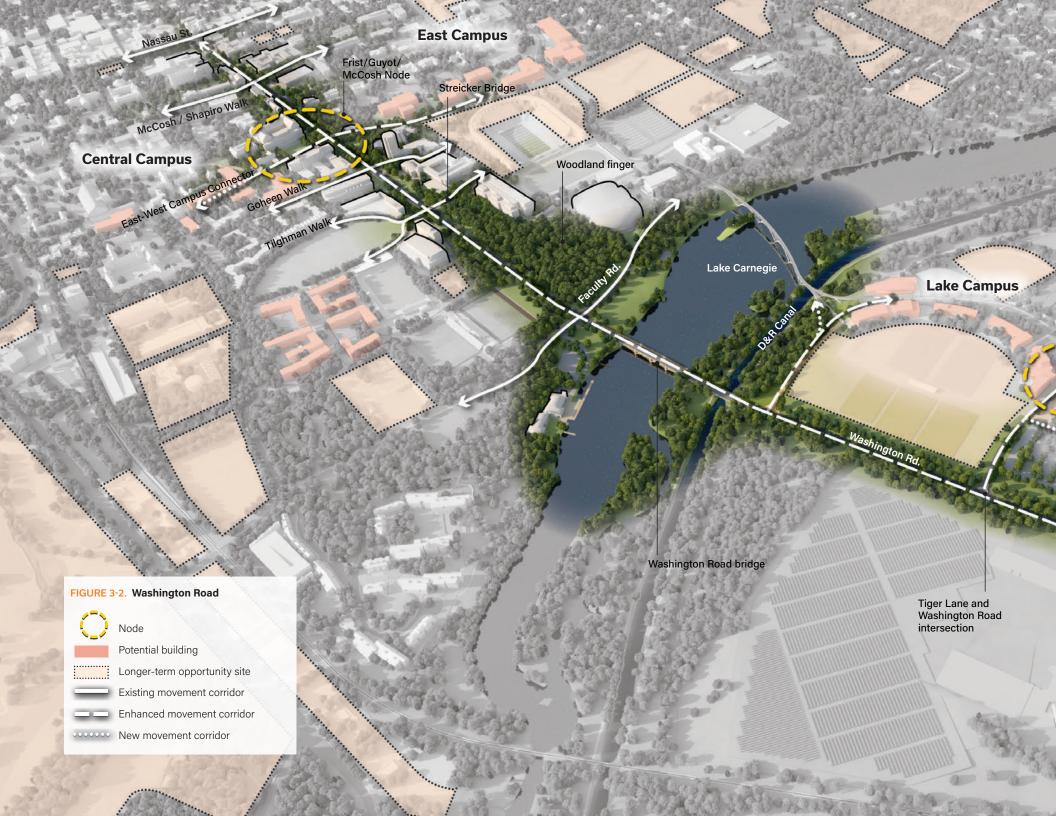




Campus-Wide Projects and Initiatives

Four campus-wide projects and initiatives are proposed to improve connections across the various parts of the campus, especially as substantial further development takes place on the East Campus and the University undertakes the initial stages of development on the Lake Campus.

- Washington Road Streetscape Enhancements
- Lake Carnegie Landscape
- East-West Campus Connector
- North-South Campus Connector





Washington Road Streetscape Enhancements

Washington Road already plays a significant role in shaping the experience of the Princeton campus, and its impact is likely to increase over time. It serves as:

- a historic arrival gateway to town and campus from Route 1
- a connection to the towns of Princeton and West Windsor, and to the region and the state beyond
- a seam that connects the Central,
 East and Lake campus areas to each other
- a multi-modal transportation route for vehicles, pedestrians and cyclists.

Between Nassau Street and Goheen Walk, Washington Road is embedded within the campus, with frequent pedestrian and bicycle crossings. While it has some characteristics of a campus street, it is constrained by narrow sidewalks, a lack of cycling infrastructure, and buildings that both flank and face the street, creating a discontinuous street frontage. The planning framework envisions this portion of Washington Road becoming more of a "complete street," supporting all modes of movement. Proposed strategies include painting indicators (sharrows) on the roadway to signal sharing by cyclists, and raised islands at Goheen Walk to calm traffic and alert drivers to high levels of pedestrian and bicycle crossings.

South of Goheen Walk, Washington Road changes character; fewer buildings flank the street and road speeds increase. Along this segment buildings are elevated above the road, and pedestrians and cyclists cross safely via Streicker Bridge. The planning framework proposes the addition of north-south cycling infrastructure in this area; as this segment of Washington Road has a wider rightof-way, a bike lane and buffer could be installed on either side of the street. To enhance safety, speed feedback signs could be located on both sides of the road along with flexible reflective bollards within the buffer to provide vertical separation.





Top: Washington Road passes by Scudder Plaza, across from the terminus of McCosh Walk.

Bottom: Farther south, Washington Road passes by Lewis Library at the intersection with Ivy Lane.





Top: Streicker Bridge crosses Washington Road, connecting the east and central campus areas.

Bottom: The Washington Road elm allée is an iconic gateway to Princeton.

Washington Road presents challenges to pedestrians and cyclists as it crosses Lake Carnegie, and these will need to be addressed in connection with the development of the Lake Campus. Pedestrians and cyclists who arrive at the Lake Campus from Princeton along Washington Road would enter the campus through a pathway along its northern perimeter that would connect with other Lake Campus walkways. Further south it may be desirable at some point to extend the existing Canal Pointe Boulevard into the Lake Campus to facilitate movement to and through the site. These improvements would require the support and coordination of various government agencies.

Along Washington Road between the lake and Route 1 is the historic allée of elm trees that provides a dramatic entrance to the Princeton campus. A dense hedge of forsythia between Washington Road and the existing farmlands to the east further contributes to this character. Going forward, the historic, welcoming character of Washington Road would be enhanced by establishing additional landscape that maintains the vista along the allée of elm trees, while also providing framed views into the Lake Campus to reinforce the arrival experience. Over the thirty-year time horizon of this planning framework, creation of the Lake Campus would be expected to introduce development along the eastern frontage of Washington Road; over the longer term, there may be development along the western frontage as well. When this development occurs, it could introduce structures that announce the presence of the Lake Campus - and thus the presence of the University – to all who pass by on Washington Road.



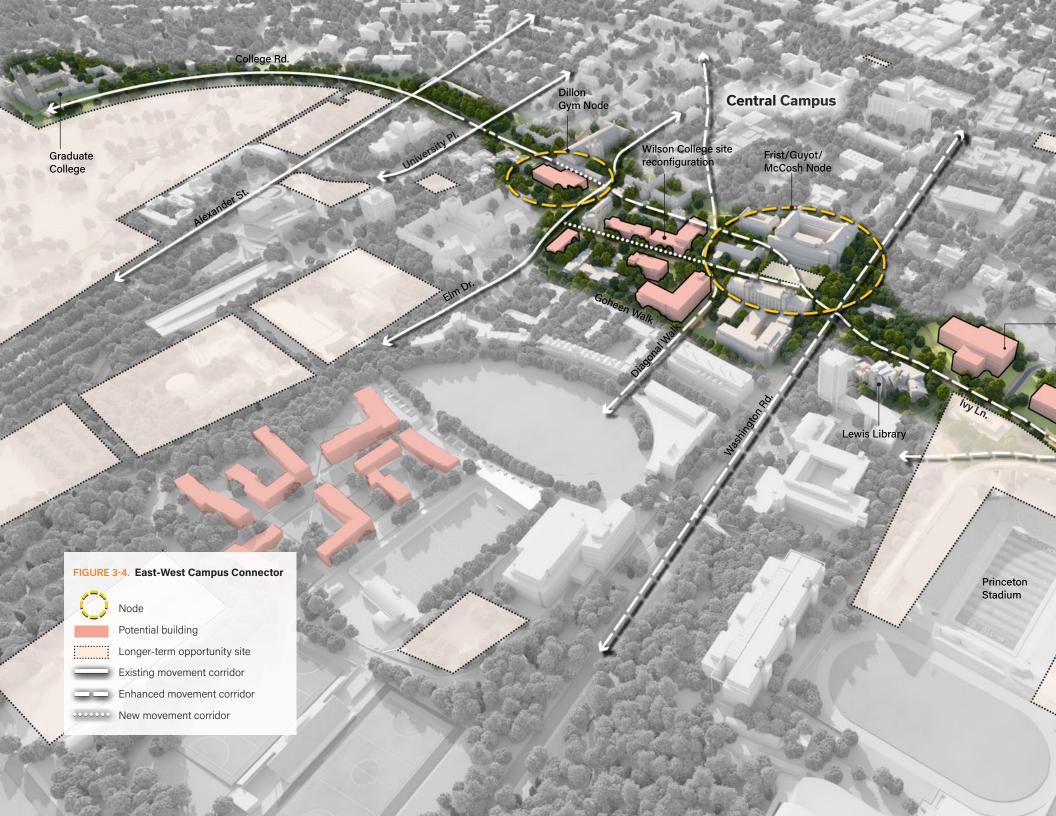




Lake Carnegie Landscape

Over time the Lake Carnegie landscape is expected to evolve from a feature that defines the southern edge of the campus to a feature that is central to the campus, connecting campus lands to its north and its south. It is anticipated that members of the campus community and the public will increasingly want to experience the natural beauty of the lake and the adjacent canal park, and that the proposed pedestrian bridge would provide access that is safe and convenient for pedestrians and cyclists. Any development in the area would respect the historic character and status of the lake and the canal, and recognize the degree to which the lake supports a number of important environmental and ecological functions. The campus planning framework takes into account the environmental constraints and regulations that pertain to development adjacent to the lake, and proposes that any development be sensitively integrated into this natural environment.

The planning framework proposes that the University continue to extend the natural setting of the Lake Carnegie landscape into the campus on both sides of the lake. In many areas of campus the scenic landscape of tributary waterways and associated woodlands has already been extended like "green woodland fingers" into the built campus landscape. This serves important environmental and ecological objectives, and it is proposed that over time there be similar extensions into the proposed new residential college site, and into other areas north of the lake.





East-West Campus Connector

To enhance connectivity and promote social interactions and engagement, the campus planning framework proposes a new East-West Campus Connector to provide a continuous path from the Graduate College through the Central Campus to the East Campus. This connector would complement the existing east-west campus network created by McCosh, Goheen and Tilghman walks. It would support pedestrian movement through existing and proposed nodes of activity, including an expanded Dillon Gym; a reconfiguration of the area around Wilson College; new and expanded uses in the area around Frist Campus Center. Guyot Hall and the McCosh Health Center; and new spaces to encourage collaboration and community on the East Campus. Portions of this walk exist today and would be enhanced, while others would need to be created.

Between University Place and Washington Road this walk would be restricted to pedestrians and cyclists, as is the case with the existing walks. On the East Campus, this connector would extend along a reconfigured Ivy Lane/Western

Way. While pedestrians and cyclists would share the street with vehicular traffic. streetscape improvements with extensive landscaping would create an environment consistent with the character and quality of such spaces on the Central Campus.

Ivy Lane and Western Way could be reconfigured to accommodate pedestrians, bicycles, Tiger Transit, carts and service trucks, with ample provision for shared lane markings, a shared use path, and wider landscape buffers and sidewalks. The widening of the vegetated buffers and sidewalks would create a comfortable and safe pedestrian experience, and would be accompanied by the removal of on-street parking.

The East-West Campus Connector could be integrated into a larger strategy for this portion of the East Campus that would aim to create an active interface between the landscape and the new buildings through design strategies such as transparency (glazing), porosity (multiple entrances, archways), and walkways and terraces directly adjacent to buildings.





North-South Campus Connector

The proposed new North-South Campus Connector would consist of three segments that together would create a safe and continuous connection from the existing Engineering Quadrangle, through the proposed new sites for engineering and environmental studies, to the Lake Campus. The East Campus portions of the connector would mirror the nature and role of Flm Drive on the Central Campus, providing an attractive pathway for pedestrians and cyclists along with modest vehicular use, while the proposed bridge and Lake Campus Walk would be designed for pedestrians and cyclists. The connector would be composed of three distinct segments, but with a goal of establishing a sense of cohesiveness along its full length.

The northernmost segment of this connector would be a new East Campus Drive that would extend from Prospect Avenue to an area near the current Lot 21. The drive would begin by curving around Bobst Hall, and in doing so would necessitate removal of the buildings at 87 and 91 Prospect Avenue. South of Ivy Lane/Western Way, the drive would expand the existing service lane east of Princeton Stadium to accommodate vehicular, cycling and pedestrian circulation.

The East Campus Drive could end at the entrance to the proposed new Lake Carnegie pedestrian bridge, at a location near DeNunzio Pool. The bridge would allow pedestrians and cyclists to cross the lake and the canal safely. As described in Section Two, the pedestrian bridge would be fully integrated into the landscape; it would be designed and engineered in harmony with the lake and the canal. It also would be designed and engineered to ensure safety and accessibility. The bridge's length and grade would seek to minimize the slope for cyclists and pedestrians to promote ease of connection between the north and south of the lake for both the general public and members of the University community.

At its southern end, the pedestrian bridge would arrive at a Lake Campus Walk. This new walk would serve as the major pedestrian and cyclist circulation route within the Lake Campus. The landscape along this walk would present an attractive outdoor setting, while also accommodating storm water management and other performative functions to support sustainability goals. Over time, the walk could support a future extension across Route 1 to provide a cycling connection all the way to Princeton Junction Station.



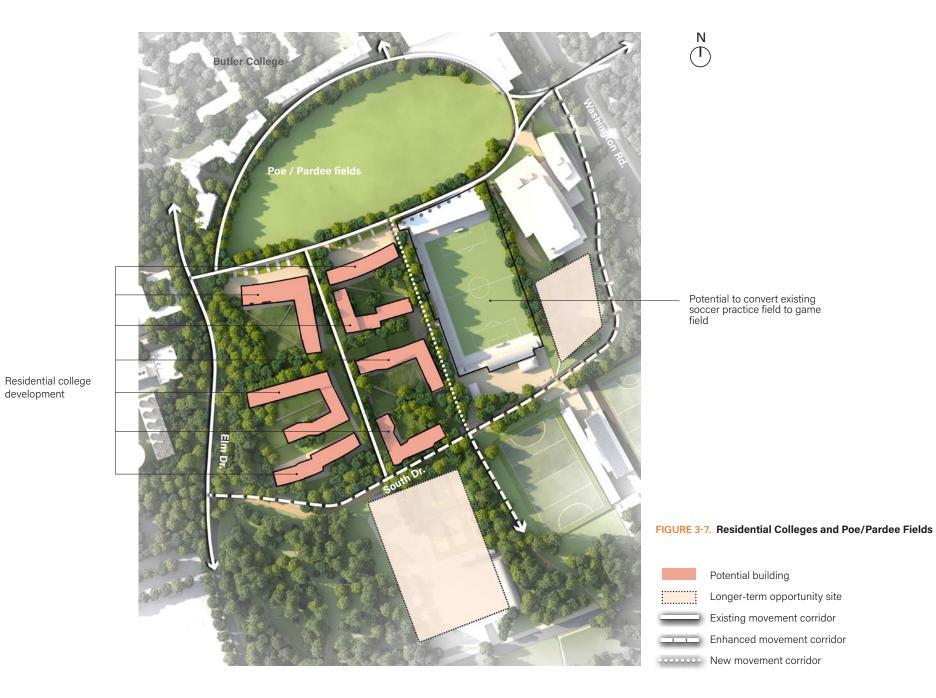


Central Campus Projects and Initiatives

The Central Campus will remain the focus of many aspects of university life. There could be incremental renewal and enhancement to accommodate growth and evolution, and to improve use and circulation in some areas. Some of this evolution would take the form of sensitive infilling, while in other areas redevelopment is proposed to accommodate undergraduate residential uses, academic uses and enhanced campus life programming.

The most significant potential changes and improvements could take place in the following areas:

- 1. The proposed residential college sites south of Poe/Pardee fields
- 2. The diagonal walk
- 3. A Frist/Guyot/McCosh node and the Wilson College, Eno Hall and 1915 Hall sites
- 4. Dillon Gym expansion
- 5. A possible residential mixed-use corridor along Alexander Street.



Students prepare to conduct an experiment on Poe and Pardee fields.

Establishing Residential Colleges Adjacent to Poe/Pardee Fields

The University's strategic planning process identified expansion of the undergraduate student body as a priority, and the trustees have authorized an increase of 125 students per class. This expansion requires at least one new residential college, which has been proposed for a site south of Poe/Pardee Fields that also could accommodate a second college, either in the near or longer term. This site would provide convenient access to three nearby residential colleges, academic buildings, and athletic and recreation facilities.

The first residential college is expected to include several buildings of varying heights. The college would include at least 500 beds, social spaces, a dining hall, and a kitchen/servery that would have the capacity also to support the adjacent college if and when it is built. The second college would be located to the east of the first, and would likely

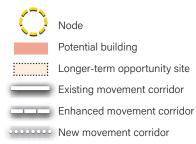
be similar in size and configuration. The massing of the new buildings would take advantage of the topography of the site, which slopes downward toward the lake, while maintaining a sense of height and scale that is consistent with the broader residential college neighborhoods to the north. Servicing of the buildings would take place via a new access route from Elm Drive.

The design of the new colleges would enhance the perimeter of the Poe/Pardee Fields. The colleges would have active frontages to the fields; these frontages would be integrated into a pedestrian movement and landscape treatment along the edge of the fields that would complement and extend the condition that currently exists along their northern edge. The colleges also would be well situated to take advantage of the woodlands setting in which they would be located.





FIGURE 3-8. Diagonal Walk Extension







Extending the Diagonal Walk

The existing "diagonal walk" is a campus connector that extends from Mathey College in the northwest to the servicing access lane north of McCosh Health Center. At that point the walk terminates due to a lack of clear, accessible connections to continue further southeast.

An extension of the diagonal walk would establish a continuous pathway all the way from Mathey College to Poe/Pardee Fields, with connections beyond to academic buildings, the new residential college, athletic fields, the

East Campus and the Lake Campus. A critical component of this would be the improvement of Guyot Lane for pedestrian use; this would be achieved through the consolidation and improved design of servicing functions and the inclusion of consistent landscape design and pedestrian infrastructure.

Top: The diagonal walk looking northwest toward Alexander Hall and Mathey College

Bottom: The diagonal walk looking northwest toward Dod and McCormick Halls



A Frist/Guyot/McCosh Node and the Wilson College, Eno Hall and 1915 Hall Sites





The diagonal walk would intersect with the East-West Campus Connector in an area that could undergo significant change and improvement in the future. To the east is Guyot Hall, which would be vacated and renovated if its current occupants move to a new environmental studies building on the East Campus. While Guyot Hall is expected to continue to accommodate academic uses primarily, there could be opportunities for portions of the building to house some campus life programming and some administrative uses.

To meet the needs of the expanded student population, the capacity of University Health Services has to be increased. This could be addressed in several ways, including by locating some of these services outside of McCosh. One among many long-term options for providing health services would be to construct a purpose-built facility on the current site of Eno Hall following a relocation of environmental studies to the proposed new site on the East Campus.

The construction of a new health center would make the existing McCosh building available for other uses. McCosh would be suitable for a number of campus life programs, including some that might relocate from the Frist Campus Center. This in turn could make additional space available in Frist.

The Frist/Guyot/McCosh area could increasingly serve as a "node," or focal point of activity and interchange. Improvements in design and in the landscaping of outdoor spaces could give a greater feeling of engagement and community, and provide an attractive setting for a mix of academic, programmatic and social activities.

Top: The south lawn of Frist Campus Center, looking toward Guyot Hall

Bottom: This cherry blossom allée leads from the Frist/Guyot lawn toward Wilson College.

To the west of this node is the Wilson College site. Many of the existing Wilson College dormitories are not well suited to the needs of students. Removal of these dormitories could create capacity for academic space in this central location or for newer and enhanced Wilson College facilities. This site reconfiguration could significantly improve circulation through the area and enliven the East-West Campus Connector with building frontages that could include visible programmatic space at grade.

At the western end of this area is 1915 Hall. This site is prominently located at the intersection of the East-West Campus Connector and Elm Drive. If a time comes when 1915's bed spaces can be accommodated elsewhere, this would be an attractive site for programs that would benefit from centrality and visibility.



Top: 1960s-era Wilson College dormitory

Bottom: 1915 Hall, as seen from Elm Drive



The Expansion of Dillon Gym

The increase in the size of the undergraduate student body will make it desirable to provide additional campus fitness and recreation space. One option is to expand Dillon Gym onto the Dillon Court site to the south of the gym. Such an expansion could accommodate a range of activities, including additional fitness space.

There are several planning considerations that would need to be solved through the design process for an expansion project. Among other considerations, the expansion site would be situated along the planned route for the western portion of the East-West Campus Connector; maintaining pedestrian access through the site would be important for the completion of this significant campus pedestrian pathway. The expansion also would require relocation of uses currently housed in the Dillon Court temporary office buildings. The potential uses under consideration for the initial stages of proposed development of the Lake <u>Campus</u> include additional capacity and flexibility for the University to meet its needs for administrative space.

FIGURE 3-10. The Expansion of Dillon Gym

Node

Existing movement corridor

Potential building

Enhanced movement corridor

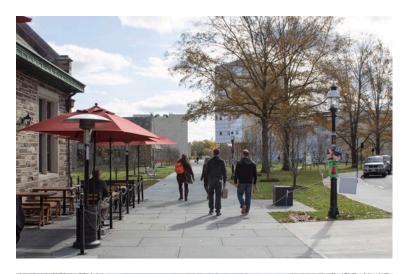
New movement corridor



FIGURE 3-11. Conceptual Illustration of a Location for a Potential Residential Mixed-Use Development



A Potential Residential Mixed-Use Corridor





The 2016 campus plan proposed a site at the intersection of Alexander Street and University Place for what it described as an arts and transit neighborhood. That site now offers expanded programs of teaching and performance in theater, dance and music; two restaurants in former train station buildings that were renovated and expanded; spectacular landscaping (including a land sculpture by the architect Maya Lin); and a new train station and Wawa convenience store. The project dramatically expanded the University's capacities in the arts; increased the connectivity of the Central Campus to Forbes College, the Graduate College, and the University's Springdale lands: improved traffic circulation in the area; provided multi-modal access to town and campus; and set a high standard for nearby development.

currently consists of small businesses. retail and restaurants, and a number of University uses, within an inconsistent asphalt-paved streetscape of detached structures and parking lots. The area continues to be zoned for service businesses, hearkening back to a time when it contained lumber yards, feed stores and a gas station. If rezoned for residential mixed use, the corridor could be developed in a manner that included housing of various kinds, along with some mix of retail, office, innovation partnership and convening space, potentially a hotel, and other uses of interest to the community and the University. Such a redevelopment of this corridor could significantly enhance the streetscape and create an attractive gateway to town and campus. The corridor is within easy walking distance of the campus and of the multi-modal transit hub that centers on the train station.

The area immediately south of this

neighborhood along Alexander Street

Top: Blair Walk, looking south toward the Lewis Arts complex and the train station

Bottom: Princeton's multi-modal transit hub includes the train station and the Wawa convenience store.





East Campus Projects and Initiatives

The campus planning framework envisions significant development on the East Campus and a transformation over time from its existing street and block pattern to a finer grained and variegated campus setting akin to the Central Campus. The most significant projects and initiatives would include:

- New facilities for the School of
 Engineering and Applied Science
 (SEAS) and for Environmental Studies
- 2. A new East Campus entry
- 3. Enhancements behind 185 Nassau Street and along William Street.



Create New Space for Engineering and Environmental Studies

Increased and improved space for teaching and research in engineering and environmental studies was identified as a major priority in Princeton's strategic planning process. The campus planning process has proposed the creation of new engineering and environmental studies facilities along Ivy Lane and Western Way.

It is anticipated that Operations Research and Financial Engineering (Sherrerd Hall) and the Andlinger Center for Energy and the Environment would remain in their recently constructed facilities while, over time, other engineering departments and programs would relocate to new facilities that would include laboratories, computational studio space, administrative space and classrooms. As these relocations take place, new uses can be found for the Friend Center, the Computer Science building, and the existing E-Quad. The E-Quad could be reused as is (e.g., for swing space), or renovated or replaced, consistent with the zoning for that site, to serve academic or administrative purposes (including potentially to support future engineering expansion).

The new facilities for environmental studies and engineering would be strategically located to enhance desired proximities. The building designs would complement the proposed Ivy Lane/ Western Way enhancements, collectively establishing an active and attractive campus setting for the East Campus community. The overall design for the area would include a "node," or point of intersection between east-west and north-south connectors, where students, faculty, staff and others could come together over food, conversation or recreational activities that would help foster interaction and community.

The planning process identified opportunities for engineering and other academic expansion to the south of Ivy Lane/Western Way east of Princeton Stadium that could be considered over the next thirty years and even beyond. Such an expansion would require relocation of varsity baseball. The planning process also explored a potential stadium renovation to create a more dynamic experience for athletic competitions and other events. It has been estimated that in

future decades removing the upper tier of seating at the stadium could achieve this objective while permitting approximately 250,000 square feet of additional development to support longer-term expansion of academic, athletic or other uses in this area. The planning process noted that while the current site for the baseball fields south of Western Way and west of FitzRandolph Road could be used over the longer term for academic expansion, they also could be an attractive potential site for future residential colleges if the University were to decide in the future to incorporate undergraduate residential space into the living and learning dynamic of the East Campus.







East Campus Entry

The northern end of the proposed pedestrian bridge connecting the East Campus and the Lake Campus could be sited near DeNunzio Pool, west of the former elementary particles laboratory. This area would become an important entrance to the East Campus, both for pedestrians and cyclists using the bridge and for members of the campus community and visitors who park in Lot 21. This area also could accommodate important new program elements, including a new satellite energy plant.

To achieve an inviting environment, Lot 21 could be reconfigured as structured parking. This would reduce the overall footprint of the lot while increasing its parking capacity. A plaza could be created at the foot of the bridge with the new parking facility to its east; a new building framing part of the parking facility's perimeter would house the new energy plant and office space. This hot water plant would not be combustionbased, and its relatively quiet equipment would not need to be buffered from other campus uses. This satellite plant would include external thermal energy storage tanks which can be positioned as visible elements of the plant with appropriate architectural treatment, or can be positioned in the interior of the site. The construction of this new building would require the demolition of the former elementary particles lab facility on that site that is currently being used solely for storage.

Top: DeNunzio Pool and the surrounding area could become part of a new entrance to the East Campus and the Lake Campus.

Bottom: Faculty Road and the adjacent woodland





A New Campus Setting for William Street/185 Nassau Street

A north-south pedestrian connection from Nassau Street through William Street to Shapiro Walk is proposed to improve the pedestrian experience and increase connectivity in the northwest quadrant of the East Campus. Landscaping along this connection would provide an attractive setting for the renewal of Green Hall as a prime location for the humanities, and for 185 Nassau Street.

Accompanying this project could be a reconfiguration of William Street to a "complete street" that would accommodate vehicles in a way that also welcomes pedestrians and cyclists.

Top: 185 Nassau Street, home of the Program in Visual Arts, is part of the Lewis Center for the Arts.

Bottom: An example of a complete street that accommodates pedestrians, bicycles and vehicular traffic





Lake Campus Projects and Initiatives

The campus planning framework envisions a new Lake Campus as an integrated extension of the existing campus. It is envisioned as a vibrant, mixed-use community with space for academic partnerships and innovation initiatives; administrative offices; athletics and recreation; graduate student and possibly post-doc housing; retail, convening, amenities, and potentially a hotel; and campus and visitor parking. The Lake Campus contains more than 210 acres east of Washington Road, and additional acreage west of Washington Road, that could be used to support Princeton's teaching and research mission over the ten- and thirty-year time horizons of this campus planning process, and well beyond.

Just as the incremental development of the Central Campus responded to its physical context (such as ridge lines and topography that slopes gradually toward the lake), the Lake Campus would respond to its unique site characteristics by establishing a central landscape to unify the campus, buffer and protect the sensitive ecosystems of the D&R Canal, provide visual connections, and create a crossroads threaded into its daily life. The proposed pedestrian bridge over the

lake and canal would bring this part of the campus within walking and cycling distance of the rest of the campus, and would help to integrate the Lake Campus into the overall tapestry of Princeton campus life.

The planning framework focuses all initial development on the east side of Washington Road, while reserving the lands west of Washington Road for future development. (This means that, at least for now, the 27 acres west of Washington Road that house solar panels would continue to do so; these panels provide between 5-6% of the University's total annual electricity use.)

The following elements of the Lake Campus proposal are described in this section:

- 1. Lake Campus Walk
- 2. Tiger Lane Crossing and Transit Hub
- 3. <u>Academic Partnerships, Innovation</u> <u>Space, Administration and Housing</u>
- 4. Athletics
- 5. Parking
- 6. Campus Meadow.

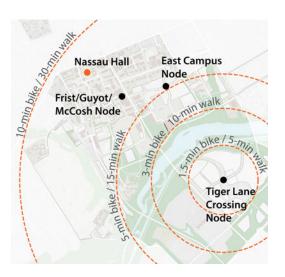
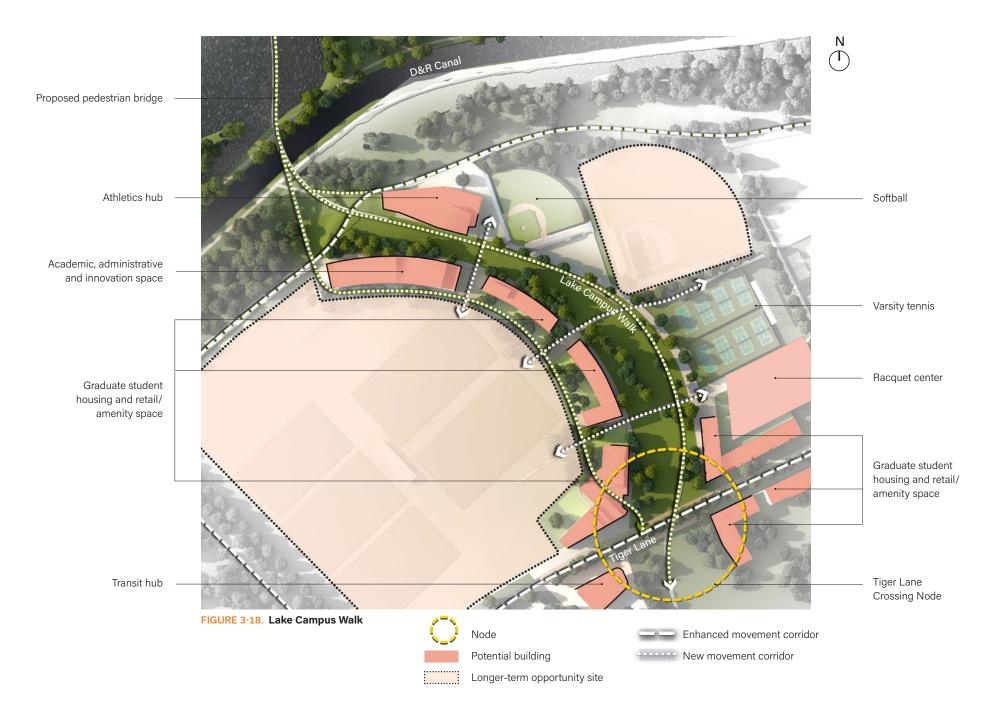


FIGURE 3-17. Walking and Cycling Distances from Tiger Lane Crossing Node





McCosh Courtyard, looking toward East Pyne, is a communal space where chance encounters can occur and where informal seating invites conversation or quiet reflection.

Lake Campus Walk

The proposed new pedestrian bridge over Lake Carnegie and the D&R Canal, and the pathway along the northern perimeter of the campus from Washington Road, would lead into the Lake Campus Walk. As a major circulation route through the Lake Campus and to the pedestrian and bicycle entrance from Washington Road, the walk would be flanked by buildings, fields and plazas. To its east would be an athletics hub, and to its west would be academic partnership, administrative and innovation space. Moving southward, the walk would pass through housing, retail, amenity and outdoor spaces, and then to a transit hub and parking area. The walk is envisioned as a connector, but also as communal space in its own right, where chance encounters can occur and where colleagues, friends and visitors can converse, sit, or walk together in an attractive outdoor setting.

The landscape along this walk would provide high-branched trees for both sun and shade and long views beneath the tree canopies. The walk would play a significant role in the management of storm water, while also providing a subsurface easement to accommodate underground utilities. The walk would accommodate cycling through the Lake Campus, and in time it could provide connections to locations farther south, including Princeton Junction Station.







Tiger Lane Crossing and Transit Hub

At the center of the Lake Campus would be the Tiger Lane Crossing, where Lake Campus Walk would intersect with the existing dirt road known as Tiger Lane. Through a synthesis of hard and soft landscape designs, this focal point would provide a range of outdoor spaces for encounters and interactions. The crossing would contain a bike and transit hub where those living, working or engaged in athletic and recreational activities on the Lake Campus, as well as campus commuters and visitors who use the nearby parking lot, can obtain or store a bike or board Tiger Transit to get to other parts of the campus. In recent years, the

University's shuttle system, Tiger Transit, has expanded its capacity and scope, and it will play an important role in providing regular and reliable connections between this hub and other campus locations. The hub would also function as an important meeting place, with a range of amenities (such as bike storage, Tiger Transit schedules, campus maps, and perhaps some retail spaces) to support residents, visitors and commuters to campus.

Top: North Plaza, Monash University, Australia, is an example of a transit hub.

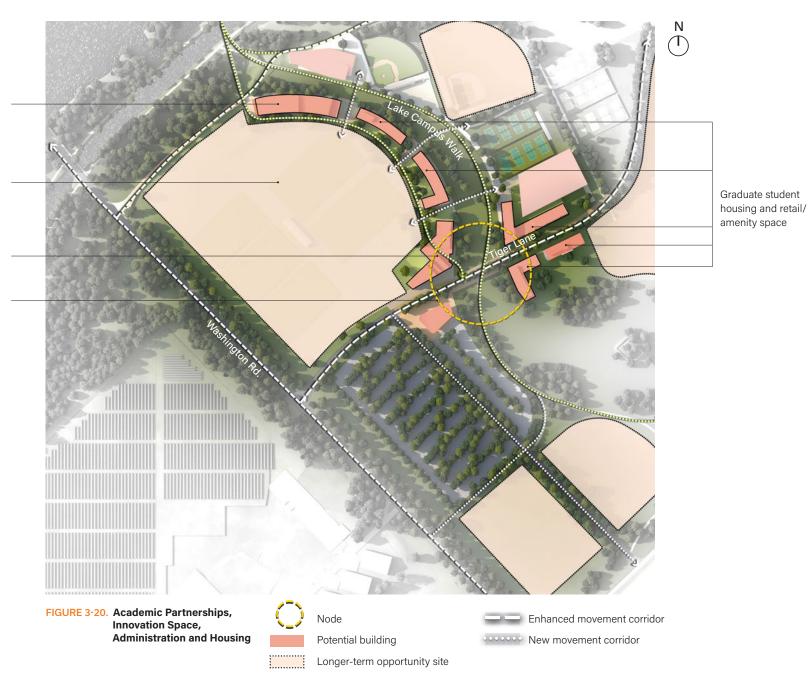
Bottom: An example of a transit hub from Helsingborg, Sweden

Academic partnership, administrative office and innovation space

Future opportunity site for academic partnership, administrative office and innovation space, and graduate student housing

Graduate student housing and retail/ amenity space

Tiger Lane Crossing Node







Academic Partnerships, Innovation Space, Administration and Housing

The west side of the Lake Campus Walk would include administrative and academic partnership facilities, innovation space, housing, and community amenities of various kinds. In the near term, the campus could provide space for administrative offices, academic partnerships and innovation, along with housing for up to 500 graduate students (and perhaps housing for post-docs as well). The campus could also include convening space and retail - such as restaurants, a convenience store or small grocery, or other walk-in services - either on the ground floors of the new buildings or around Tiger Lane Crossing. There also could be amenities such as fitness space or child care. In the nearterm the new buildings would be located along Lake Campus Walk, while the existing recreation and rugby fields along Washington Road would remain.

In the longer term, administration and academic partnership uses could expand toward Washington Road, with the recreation and rugby fields relocated elsewhere on the Lake Campus adjacent to other athletics uses. This expansion of the northwest quadrant of the Lake Campus could accommodate additional administrative, academic partnership and innovation space, additional housing, additional retail and convening space, and perhaps a hotel.

Top: E-Hub activities at 34 Chambers Street contribute to an innovation ecosystem.

Bottom: The University's newest graduate student housing, at Lakeside







Athletics

Athletics facilities are currently integrated into the Central Campus and the East Campus, and it is proposed that such facilities become an integral element of the Lake Campus as well. Planning for these facilities would be guided by the athletics department's three planning principles that support the student-athlete experience: campus integration, quality of facilities and resource management.

To the east of <u>Lake Campus Walk</u> would be an athletics area accessible to the proposed pedestrian bridge, which would provide a direct connection to Jadwin Gym, Caldwell Fieldhouse and other athletic facilities north of the lake. Initially, the Lake Campus would become the home for softball and outdoor varsity tennis, as those sports are relocated from the proposed site of the new residential

college. The new tennis site would include a racquet center for indoor tennis and squash, along with other outdoor courts for recreational use.

Over time it is anticipated that other sports might be located on the Lake Campus, including potentially a hockey arena with two sheets of ice to replace the aging Baker Rink. A proposed Lake Campus athletics hub would include locker rooms, coaches' offices, training facilities and other amenities. The campus shuttle service would be scheduled with careful attention to the needs of student athletes to get to and from practice and meals in a timely way. Careful attention would be paid to the design and siting of all athletics facilities to be sure they are well integrated into the overall landscape and flow of the Lake Campus.

Top: Rugby players on the Lake Campus

Bottom: The cross-country course traverses the scenic Lake Campus setting.







Parking

The Lake Campus would include parking spaces to serve at least three objectives. One is to provide parking for members of the University community who live or work on that campus. Another is to provide spaces for commuters to campus who would park on the Lake Campus before walking, biking or riding a campus shuttle to other parts of the University. There would also be visitor parking for people with destinations on the Lake Campus or elsewhere on campus. This last category could include guests of graduate students living on the Lake Campus; visitors to that campus's academic partnership or administrative buildings or to other parts of the University; fans attending athletic events or individuals using the recreational tennis courts; patrons of the Lake Campus retail establishments; or people enjoying the landscapes and pathways of the campus and the adjacent lands along the lake and canal.

Over time, the parking areas that flank the roadway could be redeveloped to accommodate buildings and parking structures. Landscape features with extensive screening would minimize the visual impact of vehicles in the surface parking lot; if a parking structure is built over the longer term, it would be screened by landscaping and/or buildings, much as was done when a parking structure was incorporated into the design of the Lakeside graduate student apartments.

Top: This small parking area is located near Peretsman Scully Hall and the Princeton Neuroscience Institute.

Bottom: Tiger Transit plays a key role in transporting people from parking areas to destinations both on and off campus.



Campus Meadow

The Campus Meadow could accommodate storm water management, geo-exchange infrastructure and longerterm athletic uses. It would continue to provide an attractive location for the varsity cross-country course and for passive recreation. The landscape design would respect the Penns Neck Cemetery's historic and cultural significance and would retain the existing wind rows and other evocations of the site's agricultural past.



Top: A meadow area at Butler Tract

Bottom: The meadow on Lake Campus, with the cross-country course





Forrestal Campus Projects and Initiatives

The Forrestal campus is located a few miles from the Lake Campus along the northbound side of Route 1. In addition to the Princeton Plasma Physics Laboratory, it currently supports other academic and research activity (including NOAA's Geophysical Fluid Dynamics Laboratory), as well as storage, infrastructure and other campus support uses. The planning framework supports retention of these types of uses and suggests modest incremental development, along with enhancements that would improve this campus's landscape, circulation patterns and connections to the rest of the University and the community.

This section outlines several potential projects and initiatives on the Princeton Forrestal Campus:

- Forrestal campus landscape and movement
- 2. Cycling connections to main campus and Forrestal Village
- 3. The ReCAP facility and the Gas Dynamics Laboratory.

Forrestal Campus Landscape and Movement

Many of the potential future development areas of the Forrestal campus are at its north end. The existing circulation system is limited primarily to Forrestal Road, an interior ring road that serves the core of the campus. Further development would require a higher degree of connectivity, particularly to Campus Road, which is currently accessible only at the southern end of the campus lands. The planning framework identifies options to augment the circulation network. In addition to allowing for improved access to the development opportunity sites, this would establish a new point of arrival onto the campus. New and enhanced open spaces along the northern edge of a Forrestal Road extension would create a more cohesive and welcoming campus setting, and would extend the pattern of open spaces that exists in the core of the Forrestal campus.

Cycling Connections to Main Campus and Forrestal Village

Currently it is challenging to travel by bike between the main campus and the Forrestal campus, and the cycling connection between the Forrestal campus and Forrestal Village is also difficult. While there is a vehicular underpass connection under Route 1, there is no direct cycling connection to the village, which is the closest commercial amenity area. The planning framework identifies potential routes that could improve cycling connectivity between Forrestal campus and both the main campus and Forrestal Village. These improvements would require the support of government agencies and other land owners, and would benefit the wider community as well as members of the University community.



The High Performance Computing and Research Center is one of the buildings on the Forrestal campus.

The ReCAP Facility and the Gas Dynamics Laboratory

The Research Collections and Preservation Consortium (ReCAP) is a library and archival collections preservation repository on the Forrestal campus. It was built in 2000 through a partnership of Columbia University, The New York Public Library and Princeton University. The current facility has a total capacity of approximately 17 million items. It is anticipated that ReCAP will need to expand over time.

A future phase of ReCAP expansion is planned for the current site of the Gas Dynamics Laboratory, which is facing constraints due to its age. There are several possible replacement sites on the Forrestal campus for this laboratory, although some of these sites are currently assigned to other uses which would then need to be relocated.





04 A Sustainability Framework

A defining characteristic of Princeton's planning process has been thorough integration of campus planning and infrastructure planning with sustainability planning. The campus planning framework includes a sustainability framework that identifies priorities, proposes performance targets, and suggests planning and design strategies that can be incorporated into the campus's physical development to advance Princeton's sustainability objectives. Another component of the campus planning framework is an integrated infrastructure master plan that coordinates Princeton's utility infrastructure needs with its anticipated development and sustainability objectives. This section provides an overview of the sustainability framework that incorporates sustainability objectives and strategies into campus planning.

Sustainability Objectives

In 2008, the University published its first comprehensive Sustainability Plan. Drawing on the expertise of the Office of Sustainability and partners across the campus, the 2008 plan set goals for campus greenhouse gas reduction, resource conservation, and research, education and civic engagement. Since 2008, global research into and application of sustainable solutions have accelerated and there is a more sophisticated understanding of the complex nature of systems interactions. This new sustainability framework harnesses these advances and focuses on physical opportunities to advance important objectives, always mindful that the University has an overarching goal of developing even more of a "sustainability ethos" on campus.

Built and managed environments powerfully signal the values of a community, either reinforcing an ethos of sustainability or contradicting it. The sustainability framework recognizes that achieving the desired impacts requires more than individual systems improvements; it requires collaboration among campus departments and systems, cross-cutting solutions, the ability to study and measure success, meaningful engagement throughout the campus community, and interpretive, informative communications that reinforce the value of sustainable approaches to development. To be truly effective, solutions must overcome the "siloed" nature of past sustainability efforts. Princeton is particularly wellsuited to do this, given its historically collaborative and collegial culture.

The framework incorporates three significant innovations in sustainability planning at Princeton:

Embedded Sustainability Strategies

Perhaps the most impactful innovation of the sustainability framework is that it embeds sustainability strategies within the plans and opportunities for campus evolution. Rather than publishing standalone sustainability goals that must later be reconciled with other plans, sustainability and campus planning are now integrated so that as projects are developed, the sustainability objectives are already incorporated. This means that the campus planning framework is not only consistent with the University's sustainability goals, it is a key set of strategies to achieve many of them.

A Shift Toward Broad Impacts Across Complex Systems

In 2008, goals and metrics were developed in a linear process, moving from discrete systems to campus-wide impact. In contrast, this sustainability framework adopts an ecosystem approach and acknowledges that all campus systems are inter-related and contribute to larger, multi-disciplinary impacts that extend beyond the campus. The framework emphasizes strategies that are evidence-based, innovative, scalable and repeatable, as well as impactful. The framework includes proposed targets that will be refined and embedded into an updated Princeton Sustainability Plan in 2018.

Aligning Campus Planning, Sustainability and Princeton's Educational Mission

Princeton recognizes the importance of aligning campus planning and sustainability with its educational mission. The sustainability framework achieves this in part by proposing planning strategies that provide experiential and "campus-as-lab" learning opportunities as well as design solutions that visibly demonstrate sustainable infrastructure and practices.

Components of the Sustainability Framework

The framework presented in the Campus Plan Sustainability Report was developed through the collective expertise of a large multi-disciplinary planning and design team, with thoughtful guidance from Princeton faculty and staff in a wide range of departments. This process allowed for vetting each priority, indicator, target and strategy to assure balance between goals and constraints. The process also identified interrelationships and synergies so Princeton can achieve the maximum impact possible while making effective and efficient use of its land, systems and resources.

The sustainability framework consists of the following four components:

- Impact Priorities: The impacts the University would most like to have on campus, in the region, and beyond.
- Key Impact Indicators: Metrics that can be used to measure progress toward achieving impact priorities.
- Proposed Targets: Progress the University intends to make toward achieving each of the indicators.
- Planning Strategies: Comprehensive planning, design, technology, and policy/behavior-change strategies that would enable the University to pursue its proposed targets.





Top: Lake Carnegie provides numerous opportunities for campus-as-lab experiments, including water sampling.

Bottom: Students study roof garden vegetation and storm water monitoring data.

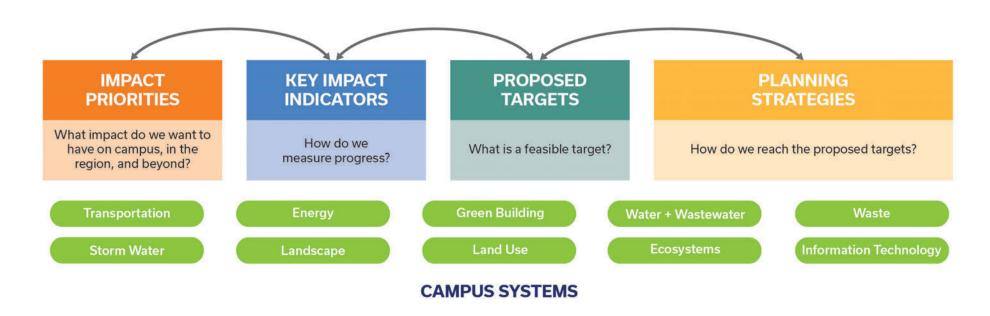


FIGURE 4-1. Components of the Sustainability Framework

Impact Priorities

The sustainability framework calls upon the University to make further progress in the following areas.



Meaningful climate stabilization:

Contribute to global climate change mitigation by dramatically reducing its carbon footprint through aggressive demand-reduction and efficiency measures, behavioral incentives, energy efficiency programs, on-site energy infrastructure changes, generation of renewables and strategic procurement of renewable energy.



Resilience:

Maintain Princeton's current high level of infrastructure resilience, ensuring the campus's ability to operate reliably through, recover from, and adapt to shocks and stresses. The concept of resilience also applies to the environmental systems of the campus, including their ability to absorb and filter storm water runoff and host robust campus habitats that are resistant to a variety of disturbances.



Healthy ecosystems:

Identify, study and manage sensitive campus habitats and manage urban ecosystems proactively to support multiple ecological and human health objectives in the region. This focus will enhance the campus environment and ensure the continuity of important recreational, experiential, educational and research opportunities.



Resource conservation and reuse:

Maximize the conservation and reuse of existing resources in order to reduce the environmental impacts of campus growth and enhance the culture of stewardship.



Efficient use of land and buildings:

Optimize the efficient use of existing and future built space to conserve campus land resources and preserve options for long-term growth.



A strengthened sustainability ethos:

Leverage projects associated with campus planning to signal to the campus community and beyond a deep commitment to sustainability as an integral institutional priority. Enhance the campus sustainability ethos by providing interpretive and informative communications about strategies to achieve sustainability goals.

Impact Indicators, Proposed Targets and Planning Strategies

The following are summaries of the proposed sustainability indicators, targets and planning strategies for achieving the impact priorities that are proposed for inclusion in the updated Princeton Sustainability Plan in 2018.

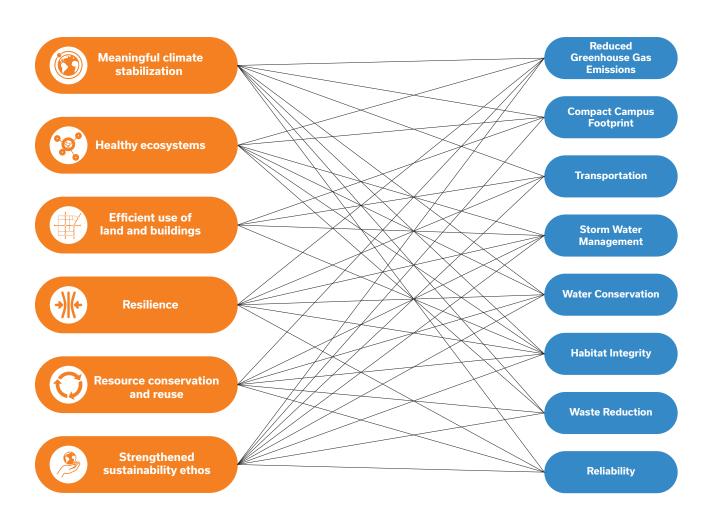


FIGURE 4-2. Relationships Between Sustainability Impact Priorities and Impact Indicators

Reduced Greenhouse Gas Emissions











The existing campus energy plant is a combined heat and power (CHP) cogeneration facility that provides electricity, steam and chilled water to power, heat and cool buildings on the Central Campus and the East Campus. Its efficiency and other initiatives have put Princeton on track to achieve the goal it adopted in 2008 of reducing carbon emissions to 1990 levels by 2020, notwithstanding the addition of 3 million gross square feet of built space over that 30-year period. The cogeneration facility reduces the University's demand for power from the public utility PSE&G, as does its 27-acre photovoltaic system located south of Lake Carnegie. While Princeton's overall system is a model of combustion-based utility efficiency, a number of its electrical and thermal utility assets are aging or nearing the end of their expected life cycles. This provides an opportunity to evaluate options to renew and extend the existing system, or to shift to a more energy efficient system that could put the campus on a course toward net neutral carbon dioxide equivalent (CO₂e) emissions by 2046.

Impact Indicator:	Metric tons of CO ₂ e per year.
Proposed Target:	Significantly decrease annual CO ₂ e emissions, notwithstanding campus expansion, and set the University on a course for net neutral CO ₂ e emissions by 2046.
Planning Strategies:	 Phased conversion from steam to a heating hot water distribution system with geo-exchange wells¹ Energy efficiency improvements² Increased use of on-campus solar power, either through dedicated solar arrays or by installing panels on rooftops and above surface parking facilities where feasible Potential increased capacity to procure green electricity Potential use of biofuels and other carbon-mitigating options.

¹ The lower distribution temperature of heating hot water compared to steam would reduce the energy required to provide heating and would allow the use of sources for heating that do not require combustion. Geo-exchange wells take advantage of the earth's temperature to store heat during warmer seasons and extract it during colder ones. Since the system is electricity-based, the University could reduce emissions further by using renewable and low-carbon energy sources and by leveraging the potential future greening of the regional utility grid.

² Energy efficiency strategies include passive strategies (orienting buildings to optimize environmental conditions, high-performance exterior wall and roof insulation, natural ventilation, access to daylight in interior spaces, solar shading), active strategies (engineered systems that use heat recovery, reduce ventilation rates and lighting loads, integrate solar panels into building design), design strategies (more intensive use of space, denser occupation of space, thermal buffer spaces such as lobbies), and behavior strategies (educational programs that influence the daily decisions of building users that can reduce demand for energy).

Compact Campus Footprint









The efficient use of land and buildings helps to achieve many sustainability objectives. Among other considerations, it can help reduce overall energy use and create conditions that permit more efficient modes of transportation. By maintaining a more compact campus footprint, the University can preserve future planning flexibility.

Impact Indicator:	Efficient use of campus lands.
Proposed Target:	Increase the compactness of the campus footprint by making more efficient use of developed lands.
Planning Strategies:	 Integrate land uses through co-location and layering, e.g., locate geothermal wells under parking lots, open spaces or athletics fields Encourage compact development footprints (increased density) Optimize campus space use through efficient design, layout and scheduling.

Transportation









Transportation modes on campus affect mobility, health, traffic, noise, storm water runoff, emissions, quality of life, and many other aspects of the University environment. An overrepresentation of single occupancy vehicles increases the need for road infrastructure and parking facilities, which are costly in terms of capital expense and land consumption. Increasing the use of more sustainable transportation modes would bring significant improvements to the campus and the wider region.

Impact Indicator:	The percentage of commuters using alternative transportation modes.
Proposed Target:	Decrease the proportion of commuters arriving in single occupancy vehicles and increase the proportion using shared or active transportation modes such as walking, cycling, transit and ride-sharing.
Planning Strategies:	 Expand transportation demand management (TDM) strategies combined with significant reductions in provision for commuter parking Increase and enhance access to on-campus and regional transit services Develop an enhanced on-campus and regional cycling and pedestrian infrastructure.

Storm Water Management









Over the past decade, Princeton has implemented more than 20 storm water projects on approximately 100 acres. This has reduced annual rainwater runoff by approximately 35% (23 million gallons/year) and has improved the quality of that runoff. The University can build on this progress to recharge water resources in local aquifers, support the long-term health of Lake Carnegie, the D&R Canal and other regional waterways, and create a more storm-resilient campus landscape. Strategies for managing moderate rain events can improve resilience during more extreme events. The proposed monitoring program for campus runoff allows for evidence-based evaluation of different management strategies. These evaluations can be shared with the broader watershed community to further enhance awareness and communitywide performance.

The complementary strategies outlined here could reduce the need for engineered storm water solutions, offer significant opportunities for campusas-lab learning experiences, create spaces for recreation and reflection, and support habitat integrity.

Impact Indicator:	Quantity of storm water managed (percent of campus that manages the 90th percentile storm depth, i.e., the amount of campus land area that can manage the equivalent of 1.25 inches of precipitation). Quality of storm water discharge (total suspended solids, phosphorus and bacteria concentrations).
Proposed Target:	Increase the quantity of storm water managed on campus and improve the quality of storm water discharged from campus.
Planning Strategies:	 Undertake ecological restoration of stream corridors, lake edges, wetlands Pursue project-scale and retrofit storm water opportunities (e.g., sub-surface infiltration, bio-retention, storm water harvesting, green roofs, porous pavement, etc.) Consider district-scale storm water opportunities (e.g. natural storm water treatment landscapes; green infrastructure corridors, etc.).3

³ Green infrastructure corridors combine landscape-based strategies with other infrastructure such as subsurface retention under roadways to collect and retain storm water from surrounding sites. Enhanced storm water treatment landscapes are naturalized performance landscapes that collect and treat storm water in a manner that mimics the natural performance of the lands prior to development.

Water Conservation











Campus use of treated potable water and well water impacts the capacity of regional treatment facilities and local aquifers. An enhanced water conservation program would help sustain local and regional water resources.

Impact Indicator:	Gallons of potable water consumed per person per day.
Proposed Target:	Significantly reduce potable water use.
Planning Strategies:	 Construct a water reuse facility,⁴ potentially reducing oncampus domestic water use by approximately 30% Phase-in conversion from steam to heating hot water distribution system with geo-exchange wells
	 Increase rainwater harvesting, where appropriate Install water-conserving building fixtures
	 Install dual plumbing in buildings to facilitate use of reclaimed water and harvested rainwater for toilets, as is done now
	 Install more-detailed water use metering and submetering.

⁴ Water reuse is the process of recycling wastewater with thorough filtration and purification to meet non-potable water demands such as use in cogeneration and cooling equipment, toilet flushing and irrigation. A water reuse system would include a treatment facility connected to campus uses through a dedicated reuse loop and would be designed for campus-as-lab educational opportunities to demonstrate this sustainable infrastructure.

Habitat Integrity











Princeton's habitat areas frame the campus and provide important areas for wildlife, regional habitat connectivity, recreation, campus-as-lab experiences and campus resilience to storms. The University can protect its highest quality habitat areas, enhance their connectivity to adjacent habitats along Lake Carnegie and stream corridors, and restore the health of habitat areas where exotic and invasive species are predominant without compromising future development needs.

Impact Indicator:	Habitat quality and connectivity (the size of high-quality mixed-deciduous forest areas and the distance between them).
Proposed Target:	Increase the number of areas that qualify as mixed- deciduous forest habitat areas and decrease the distance between them.
Planning Strategies:	 Make efficient use of land and buildings Engage in habitat preservation, restoration and enhancement.

Waste Reduction









Princeton recycles more than 80% of its total waste stream, though much of this recycling is not visible to the campus population. For example, construction and demolition waste, which accounts for 64% of all waste generated on campus, is recycled at a 93% rate. Princeton is committed to diverting an even greater proportion of its waste streams from landfill, particularly soils from construction sites and waste from campus users.

Impact Indicator:	Percentage of waste streams diverted from landfills.
Proposed Target:	Increase the percentage of waste streams diverted from landfills toward sustainable reuse options.
Planning Strategies:	 Enhance capture and conversion of campus food scraps Establish a soil recycling yard Establish an enhanced resource recovery and recycling sorting area.

Reliability









A central component of a resilient campus is the ability to ensure reliable delivery of essential functions even in the face of significant shocks and stresses. Risks such as storms, security breaches and other hazards threaten to disrupt the campus's electrical, heating and cooling, and communications systems. Princeton's utility planning to date has fostered a high degree of resiliency and had limited disruptions even during Superstorm Sandy in 2012.

Impact Indicator:	Minutes per year of unplanned outages for campus heating, cooling and power systems. Percentage of annual availability of communications systems.
Proposed Target:	Maintain a high level of reliability of the University's electrical, heating and cooling, and communications systems, expressed in terms of total annual availability.
Planning Strategies:	 Phase-in conversion from steam to heating hot water distribution system with geo-exchange wells, which could be located under playing fields, surface parking areas, or other dedicated open space or structures Renew existing combined heat and power equipment Add a new satellite energy plant Ensure IT plans are as flexible as possible to respond to emerging technologies and standards Eliminate single points of IT failure and add wireless internet backup across campus Continue on-going hardening and redundancy of critical utilities.





A Powerful Sense of Identity, An Authentic Sense of Place

Since the construction of Nassau Hall in 1756, Princeton University has sustained a tradition of campus planning that is among the most thoughtful and successful in the history of the American college campus. In the years following the American Revolution, the first expansion of the campus was designed by Benjamin Latrobe, considered to be America's first professional campus planner. Over the course of 260 years, planning at Princeton has utilized the skill and knowledge of educators, architects, landscape architects and planners such as Joseph Henry, Ralph Adams Cram, Beatrix Farrand, Venturi and Scott Brown, Beyer Blinder Belle, and Michael Van Valkenburgh. Now, with the expertise of Urban Strategies, Inc., the 2026 plan provides a clear and comprehensive framework for a significant new chapter in the evolution of the Princeton campus.

The tradition of campus planning is characterized by its ability to create an ideal form of community, where landscape and architecture co-exist to create a powerful sense of identity and an authentic sense of place. In 1912, Ralph Adams Cram recognized this tradition and described his plan as an attempt "to express, in adequate architectural form, the lofty ideas of character, education and scholarship" of the University. The ideals to which the 2026 campus plan are dedicated have been established in the University's Strategic Framework, published in 2016, which recognizes that "the scale and organization of the campus reinforce the ethos of the University by encouraging interpersonal contact, interdisciplinary association, and thoughtful contemplation."

While the University has nurtured thoughtful planning solutions throughout its history, the discipline of campus planning has changed dramatically. Cram's plan of 1912 was brilliant but, by today's standards, limited in scope. It was focused on presenting an artistic vision and formal composition, one that would combine

a unifying structure – the grand axis extending south from Nassau Hall – with a fabric of intimate and relaxed settings for landscape and for academic and residential buildings. Contemporary planning, as demonstrated in the <u>campus plan of 2016</u>, and even more so with the 2026 framework, is comprehensive and complex, involving broad community participation and an extensive team of consultants with expertise in planning, architecture, landscape architecture, movement, infrastructure, energy generation, sustainability, storm water management, bio-habitat management, regulatory requirements, cost estimating, and more.

The 2026 plan will be remembered for providing flexible options for stewardship of the central campus, renewal of the eastern campus and, with the option to expand across Lake Carnegie, a vision for a fundamentally new era in the history of the campus. Our challenge was to create a framework that will guide the development of a campus as successful and meaningful to our successors as the campus we have inherited has been to all generations of Princetonians.

The traditions of planning, architecture, and landscape design at Princeton have consistently nurtured a remarkable sense of place and a meaningful sense of community. Careful planning provides coherence, connections, identity, and a deep sense of belonging. The success of the 2026 plan will be measured by its ability to sustain these characteristics and achieve the aspirations of our campus planning principles while supporting a new generation of strategic priorities and initiatives.

Ron McCoy *80 University Architect





05 Land Use

This section describes the historic and potential future organization of campus land uses and identifies opportunities for future development. The principles of the 2026 campus planning framework that are described in Section Two call for providing an integrated environment for teaching, living, learning and research, and fostering a setting that is welcoming, supportive, and encourages positive interaction and exchange. These principles recognize the importance of effective land use planning in supporting the mission of the University and maintaining the quality of the academic and residential environment that is central to the Princeton experience. In addition to the physical beauty of the campus, careful arrangement of uses in relation to each other within the campus and to the land uses adjacent to the campus contribute greatly to Princeton's vitality and sense of community.

The Organization of the Campus

The organization of the campus has evolved through generations of growth that reflect the expanding mission of the University. The primary academic and research areas have grown outward in nearly concentric circles from Nassau Hall, primarily to the south and east, to the point where currently there is more academic and research space east of Washington Road than on the west side. These uses now stretch to Olden Street on the east, along Washington Road to the south, and to Alexander Street on the west. The Forrestal campus, established in 1951 approximately three miles from the central campus, provides additional support for research and administrative operations.

Following Ralph Adams Cram's plan of 1908, a substantial proportion of undergraduate housing is located along the western edge of campus. It extends east and south into the central campus, and now forms the northern edge of Poe and Pardee fields. Graduate student housing has evolved on the edges of the campus, beginning with the creation of the Graduate College in 1913 at the northern end of the Springdale lands. Lawrence Apartments were created at

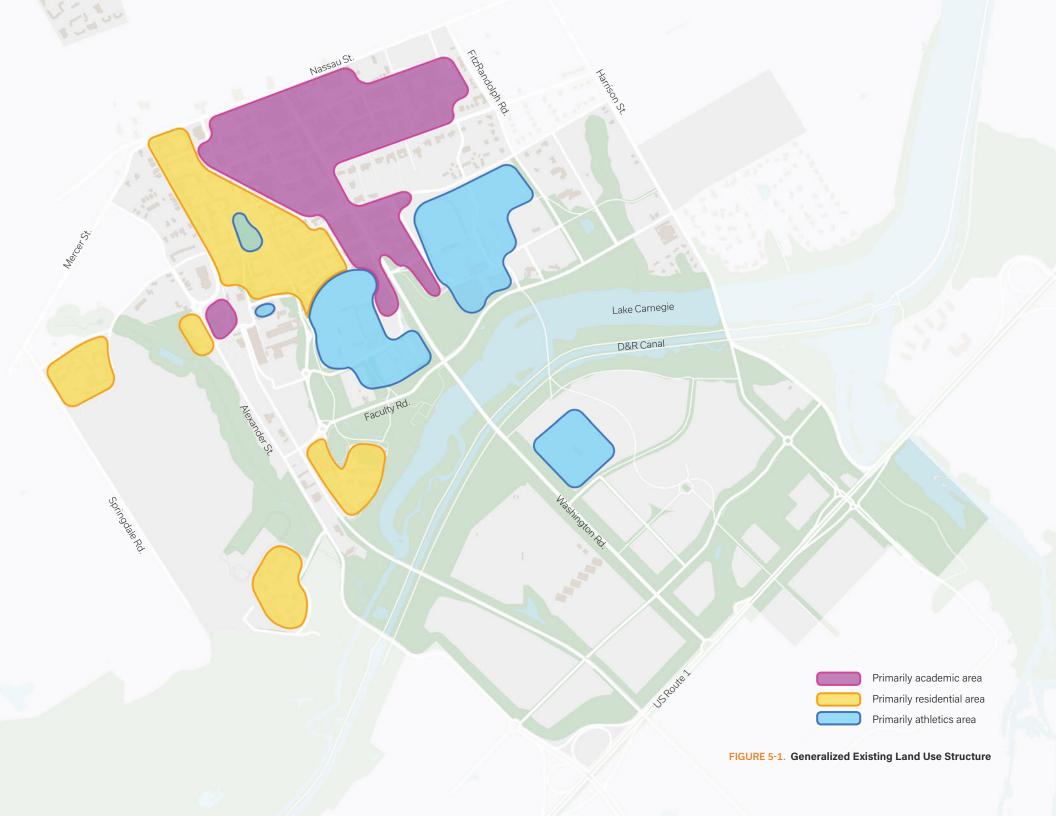
the southern end of Springdale beginning in 1966, and the Lakeside Graduate Apartments (which superseded 1940s-era graduate student housing on the Butler Tract) were completed in 2016 adjacent to Lake Carnegie on the site of the former Hibben and Magee apartments.

The University's goal is to integrate athletics and recreational facilities into the life of the campus, as it does now. Over time, athletics facilities have been located at many sites that are now occupied by buildings, including Whitman College, the Engineering Quadrangle and the Andlinger Center for Energy and the Environment. The current locations are distributed through the Central and East campuses, with a primary anchor in the area that includes the Caldwell Field House, Princeton Stadium, Weaver Track and Jadwin Gymnasium. Additional sites are on the Springdale lands, Baker Rink, Dillon Gymnasium, lands south of Poe and Pardee fields, at the boathouse, and, for rugby and cross country, on the proposed Lake Campus.

Programs supporting campus life are distributed throughout the campus, but concentrated at the Frist Campus Center,

which opened in 2001 and is located in what is now the center of the campus lands north of the lake, as well as at Dillon Gymnasium, the McCosh Infirmary and the Carl A. Fields Center. Administrative and support functions are also distributed throughout campus; over recent years, some of them have moved to off-campus locations, such as 701 Carnegie, to make centrally located sites available for other uses. (One example is the conversion of office space in New South to be used as student dance studios.)

The planning framework builds on this existing organization of the campus and provides options for future growth, with flexibility to accommodate a range of potential land use patterns to meet both anticipated and emerging needs and priorities. Most of the sites available to meet future needs can accommodate more than one type of land use. This permits the University to make choices as the campus evolves, but within an overall structure for the campus that ensures the distribution of land uses relate appropriately to adjacent uses, key movement networks and campus nodes.



Opportunities and Objectives

Strategically Utilize Opportunity Sites on the Existing Campus

The planning framework recognizes opportunities to develop some sites on the existing campus. These opportunities include existing parking lots as well as sites that are currently underutilized with inefficient or functionally inadequate buildings. The efficient use of these sites could create a more vibrant and convenient campus experience and reduce the need for vehicle use while encouraging walking and cycling. This strategy can increase the utilization of campus transit systems and reduce the need for costly and inefficient extensions of utility and transportation infrastructure, including parking.

The development capacity of these sites is estimated to be approximately 1.8 million gross square feet. The planning framework recognizes that some of these sites could be renovated or redeveloped within the time frame of this plan, while other sites should be preserved to support future needs for centrally located programs.

These opportunity sites could be used to support the full variety of programs that are currently distributed throughout the campus. They would be developed carefully to preserve buildings and places that are historically and culturally valuable, and to introduce new land uses in ways that are sensitive to and compatible with existing uses, architecture and settings. This is especially important in the case of infill development.

Identify Opportunity Sites for Growth Beyond the Existing Campus

Based on growth trends over the past thirty years, the opportunity sites on the existing campus would not have sufficient capacity to accommodate campus expansion over the next thirty years. The planning framework therefore identifies opportunity sites on University lands south of Lake Carnegie, at the Butler Tract, and on lands along the east side of Alexander Street south of the new arts complex and train station. The framework suggests preserving the Springdale lands west of Alexander Street for uses consistent with the planning principles and in support of the University's educational mission, but only after the University's lease with the golf course has come to an end.

South of Lake Carnegie the planning framework proposes a vision for a vibrant Lake Campus community that would include facilities for varsity

05

and recreational athletics, housing for graduate students and potentially for postdocs; retail and amenities; administrative, convening, and potentially hotel space; locations for academic partnerships in support of a regional innovation ecosystem; and parking. A critical mass of activities would be established in the early years of development, and the campus would retain significant flexibility to evolve in response to future University priorities.

Butler Tract has been identified as a potential location for additional housing for faculty and staff, as well as for graduate students and post-docs. The University is working with the municipality to develop appropriate zoning for these uses.

The lands on Alexander Street are envisioned as a potential location for a mix of uses including housing for faculty and staff, graduate student and post-doc housing, retail, a hotel, administrative uses and academic partnerships.

Preserve Capacity for Future Evolution

Careful land use decisions have allowed for thoughtful evolution over more than 260 years while still leaving significant land areas available for growth over many generations to come. The planning framework incorporates two key strategies to ensure that University development preserves as much capacity as possible for future evolution.

Use space efficiently: A key objective of efficient land use is to make optimal use of existing facilities. Efficient spatial arrangements can make it possible for spaces to accommodate a greater intensity of use; for example, contemporary workspace design can simultaneously improve the collaborative nature of work environments and save space. The University will also seek opportunities to improve scheduling so that spaces such as classrooms and meeting rooms have a higher utilization rate throughout the day.

Integrate land uses: The University can reduce the overall footprint of campus development by strategically co-locating land uses that would otherwise occupy dedicated space. In some cases, this may entail combining different uses into one building or facility in a configuration that maximizes space efficiency and reduces redundancy of support space, circulation space or infrastructure. There are also potential opportunities to "layer" land uses that can compatibly be located on top of or beneath one another. For example, the University can place infrastructure such as storm water retention or geo-exchange wells beneath other land uses or add solar photovoltaic panels above parking facilities. Land use planning for landscaped areas can create land-optimizing scenarios where the landscapes fulfill geothermal or storm water functions while also supporting habitat integrity, recreation and a high-quality campus experience.

Reinforce Existing Campus Nodes and Create New Ones

The 2016 campus plan recognized that several parts of the campus are organized into neighborhoods around academic programs that share research affiliations and facilities. These neighborhoods exist in the humanities, the social sciences, engineering, and the natural sciences. While recognizing the functional and programmatic advantages of neighborhoods, the 2026 planning framework also acknowledges the importance of campus nodes, which encourage planned interaction and serendipitous encounters for the entire campus community. Nodes are areas of concentrated activity and movement that punctuate and accentuate the campus's larger settings and provide important places of animation and shared experience. Important nodes currently exist at the Frist Campus Center and at the concentration of activities around Firestone Library, East Pyne and Chancellor Green.

An emerging node has been created at the new Lewis Arts complex, which includes academic facilities for the Music Department and the Lewis Center for the Arts, the train station and retail and restaurant amenities, all of which bring together members of the University community and members of the larger community. The planning framework would reinforce these existing nodes, and encourage new nodes as part of renovations and additions to Dillon Gymnasium, on the East Campus with the development of new facilities for environmental studies and the School of Engineering, and on the Lake Campus.

Additional opportunities to foster community could be encouraged through cross-programming, in which buildings would be intentionally and carefully programmed to bring together different campus constituencies. An example of this exists at Fine Hall, where Taplin Auditorium, one of the premier venues for music, shares space with the home of the mathematics department. If designed with greater degrees of transparency and interaction than one finds at Fine Hall, such cross-programmed facilities could ignite a richer tapestry of campus life.

Pursue Appropriate Mixed-Use Development

The new Lewis Arts complex integrates academic, retail and transit uses to serve and enliven the campus, the community, and the McCarter and Berlind theaters. The planning framework identifies other opportunities for future mixeduse development that could include a combination of residential, retail, hotel, convening, commercial and amenity uses. One possible location would be south of the Lewis complex along Alexander Street, and the Lake Campus would provide significant opportunities for this type of development.

Princeton Forrestal Campus

The Princeton Forrestal Campus includes academic research facilities, storage facilities, utility infrastructure, and other facilities that support the University mission. Some uses at Forrestal are there because they require a degree of seclusion from other campus uses, because they do not need to be more centrally located, or because there is not sufficient space in more central locations. Other uses are located at the Forrestal campus because they benefit from being located near other uses on that campus.

Components of the Land Use System

The planning framework identifies several options for where future land uses could be located on campus, and many sites are suitable for more than one land use. The following are the categories of land use at Princeton.

Academic

Academic land uses include those that most directly serve the University's academic mission, such as classrooms, laboratories, libraries and departmental and faculty offices. This land use category also includes compatible and supporting uses such as administrative offices, campus life services and amenities, and infrastructure and operational uses. Many central development opportunity sites north of Lake Carnegie would be prioritized for academic uses.

Residential

The residential land use category includes all forms of student housing as well as housing for faculty and staff on University-owned land. The residential areas of campus include the western edge and interior portions of the Central Campus, the eastern edge of the East Campus, the Lakeside apartments on the north shore of Lake Carnegie, and areas immediately north and south of the Springdale lands. The University recently opened new faculty and staff off-campus housing on lands it owns at the Merwick and Stanworth sites in downtown Princeton.

Undergraduate housing is a fundamental component of campus life at Princeton. Residential colleges and upperclass dorms are home for nearly all of Princeton's undergraduate students and are essential places for study, rest, community-building and co-curricular activity. Their locations should support these functions and provide convenient access to the other key components of undergraduate life. The planning framework identifies opportunities for future undergraduate housing on sites south of Poe and Pardee fields and on sites south of Western Way, between the proposed East Campus Drive and FitzRandolph Road. The current site of Wilson College could be redeveloped over time to provide additional capacity for undergraduate housing, and could also support academic or student servicerelated uses.

Graduate student and post-doc housing also contribute to the academic and residential life of the campus. Locations for graduate and post-doc housing should provide convenient and cost-effective settings for living, studying and creating community. Potential locations for graduate and post-doc housing have been

identified on the <u>Lake Campus</u>, the Butler Tract, <u>Alexander Street south of the new arts complex</u>, and lands adjacent to the Lawrence Apartments.

The Butler Tract and the Alexander Street sites have also been identified as potential sites for faculty and staff housing. Housing on Alexander Street would be convenient to the train station and its transit hub, and would enliven an active mixed-use neighborhood while enhancing an important gateway entrance to the community and campus. The Butler Tract provides opportunities to create a faculty housing community that would be thoughtfully designed to meet contemporary needs and preferences while also respecting the scale of the area and connections with the surrounding neighborhood.

Athletics

Athletics are an essential element of the Princeton campus experience, and continuing to integrate athletics uses throughout the campus is a goal of the planning framework. The framework identifies near and long-term options for athletics uses and provides for flexibility when determining specific locations. Some of the existing athletics facilities immediately south of Poe/Pardee fields would be relocated to accommodate a new residential college (and perhaps a second college), while some athletics facilities east of Princeton Stadium could, over time, be relocated to accommodate the evolution of the East Campus. It is anticipated that enhanced facilities for these teams – and perhaps other athletics facilities over time - would become foundational elements of the Lake Campus and would be well-integrated into its overall ambience and design. Plans call for new locker rooms, training facilities, athletics offices and other amenities on the Lake Campus, and for timely shuttle service to other parts of the campus.

Administrative

The administrative land use category refers to dedicated office buildings for campus administration. Some administrative activities may require a specific location on campus. Those departments that do not require a central location could be located on Alexander Street south of the Lewis Arts complex or on the Lake Campus, Administrative functions could also occupy E-Quad space when it becomes available following the relocation of existing uses to new facilities. The spaces required for most administrative uses are typically compatible with the requirements of academic partnerships, so facilities for these functions could be flexibly assigned to either use.

Academic Partnership

Academic partnership land uses would support interaction between faculty members, researchers, and students and their counterparts in the corporate, government and non-profit sectors. The University is fortunate to have significant opportunities for partnership space throughout the campus, particularly on the Lake Campus and on Alexawnder Street south of the new arts complex. These sites would provide convenient access and connectivity to the rest of the campus and provide a prominent presence for partners.

Operations and Support

Operations and support land uses ensure the proper functioning and maintenance of the University. These include work yards and shops, as well as storage and sorting facilities. Operations and support uses generally require convenient vehicular access and unencumbered spaces, and are best situated in locations that are buffered or remote from daily campus activities. However, these services can also be combined or co-located with other uses, and therefore do not necessarily require entire development sites. Two operations and support areas currently exist south of Lake Carnegie (one south of the solar photovoltaic arrays and one east of the shot put and discus practice field), and one exists on the central campus south of the tennis courts. If the creation of a second residential college south of Poe Field requires the relocation of the soccer practice field to this site, the operations and support facility would need to be relocated. Consideration is also being given to a new package and

mail services facility (perhaps as part of the proposed Frist/Guyot/McCosh node), and to possible locations for an enhanced waste sorting and recycling area, which would be an essential facility for achieving the waste reduction sustainability target outlined in the previous section of this report. The Forrestal campus is also a site that accommodates operations and support uses, and could support additional or expanded uses in the future.

Utility Infrastructure

Utility infrastructure is essential for the campus to function, and it requires long-term locations that can be appropriately buffered from everyday campus uses. The framework identifies potential locations for dedicated above-grade utility facilities, including electrical substations; heating, cooling and power generation plants; ground-mounted solar arrays; and a potential water reuse facility. Utility infrastructure that is underground or integrated into other facilities is also critical to campus operations, but is not identified as a distinct land use in this framework.





06 Movement

A key element of campus planning involves strategies for moving students, faculty, staff, visitors and others to and around the campus. The nature, quality and variety of transportation modes affect land use, mobility, accessibility, quality of life, public health, sustainability goals, and many other aspects of the University environment.

The planning process found that a much higher percentage of Princeton faculty and staff commute to campus in single occupancy vehicles than at any other campus that was studied, including peer institutions in similar settings. This over-dependence requires substantial investment in road infrastructure and parking facilities, which are costly in terms of capital expense and land consumption; reducing this over-dependence would have multiple benefits, including reductions in traffic on local roads and in emissions. The planning framework proposes a significant shift toward more sustainable modes of transportation, such as mass transit, carpooling, walking and cycling, as part of an enhanced commitment to the University's transportation demand management (TDM) programs and policies.

The framework acknowledges that technological advancement, innovation and changes in personal preference could fundamentally transform the transportation paradigm in the years to come. Given uncertainty about the future of transportation, the framework preserves flexibility to accommodate long term changes, mitigates overinvestment in parking lots in the near term, and addresses a variety of other transportation and parking needs.

Objectives

The proposed reduction in reliance on single occupancy automobiles to travel to, from and around campus could achieve the following objectives:

- Prioritize the use of campus lands for mission-related purposes such as academic, residential, athletics, campus life and student servicesrelated programs, rather than for roads and parking.
- Foster a campus environment that builds on the network of campus walks and open spaces and supports a culture of walking and cycling.
- Minimize conflicts between vehicles, bicycles and pedestrians on campus.
- Achieve the University's transportation sustainability target.







The campus plan framework seeks to enhance existing connections and create new ones to accommodate all modes of movement, including pedestrians, cyclists and transit.

Components of the Movement System

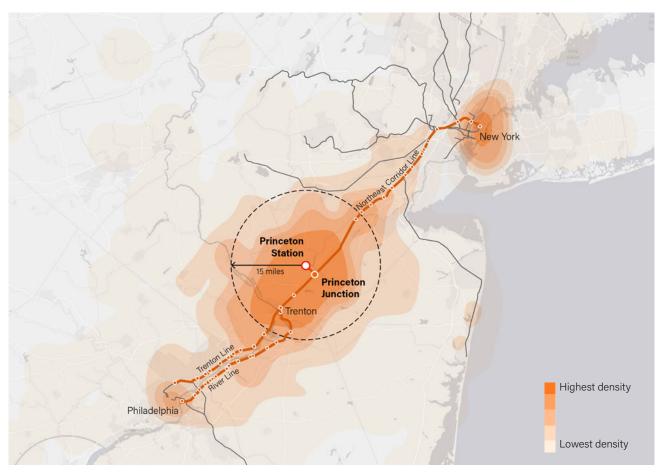


FIGURE 6-1. Geographic Concentration of Campus Commuters

An analysis of the travel patterns of Princeton's faculty, staff and graduate student commuters reveals that nearly 80% of them live within fifteen miles of campus; one-third live within biking or local transit distance (three miles); and one in six live within walking distance. Approximately 16% live in proximity to rail stations north of Princeton Junction Station, and an additional 12% live near Trenton, SEPTA stations or along the River Line. Approximately 28% live within a quarter-mile of a stop along New Jersey Transit bus routes. This suggests that there are opportunities to increase the number of commuters who use modes other than single occupancy vehicles to reach campus.

The planning framework seeks to enhance existing connections and create new ones to accommodate all modes of movement, including vehicles, pedestrians, cyclists and transit, and all support functions, such as servicing, maintenance, operations and parking.





Pedestrian Movement

A defining feature of Princeton's campus is its system of campus walks and paths that together create a fluid and nuanced pedestrian experience. The framework identifies a pedestrian network composed of three types of pedestrian routes:

- Primary pedestrian routes include walks, streets, trails, major pathways and other key connections across the campus that can accommodate a high capacity of pedestrian traffic.
 Among others, these include McCosh, Goheen, Shapiro and Tilghman Walks.
- Secondary pedestrian routes are minor pathways and connections that augment the primary pedestrian network and provide access to buildings and other destinations.
- Mid-block pedestrian connections are anticipated pathways through development parcels. The specific alignment of these connections will need to be defined in conjunction with the development projects.

While the Central Campus has a finegrained pedestrian network, the East Campus does not currently have an interconnected network, and the Lake Campus is largely undeveloped. To achieve a comprehensive and interconnected pedestrian network of consistent character and quality, the planning framework proposes a new East-West Campus Connector and an extended Diagonal Walk on the Central Campus. It also proposes an enhanced Ivy Lane/ Western Way and a North-South Campus Connector to serve the growing East Campus and to connect with the proposed Lake Carnegie pedestrian bridge and Lake Campus Walk. Complemented by landscape features and amenities, these new walks would extend the pedestrianoriented character of the Princeton campus to the East and Lake Campus areas and would help foster an integrated, multi-nodal campus environment.

These walks would be designed to ensure a complete network of accessible paths across the campus. The East-West Campus Connector and extended Diagonal Walk would bridge the gaps in the existing accessibility network within the Central Campus and address the topographic challenge around the Frist/ Guvot/McCosh node. The new walks on the East Campus and the Lake Campus, along with the proposed pedestrian bridge, would extend the accessibility network to new areas of development and provide access for all members of the University community and the general public.

Cycling

Achieving the University's movement and sustainability objectives will require a comprehensive strategy to foster an enhanced culture of cycling at Princeton. The framework proposes a campus-wide cycling network that integrates with the neighboring municipalities' networks and addresses the needs of commuters, community members and on-campus cyclists.

This cycling network includes two major types of bicycle routes:

- On-road paths run along vehicular streets and are used primarily by commuters who value convenient routes that accommodate long travel distances. On-road paths may feature shared lane markings, marked bike lanes, or buffered/separated bike lanes.
- Off-road paths are separate from vehicular traffic. They include shared use paths, separated cycling/ pedestrian paths, and trails.





The campus planning framework proposes a campus-wide cycling network to foster an enhanced culture of cycling at Princeton.

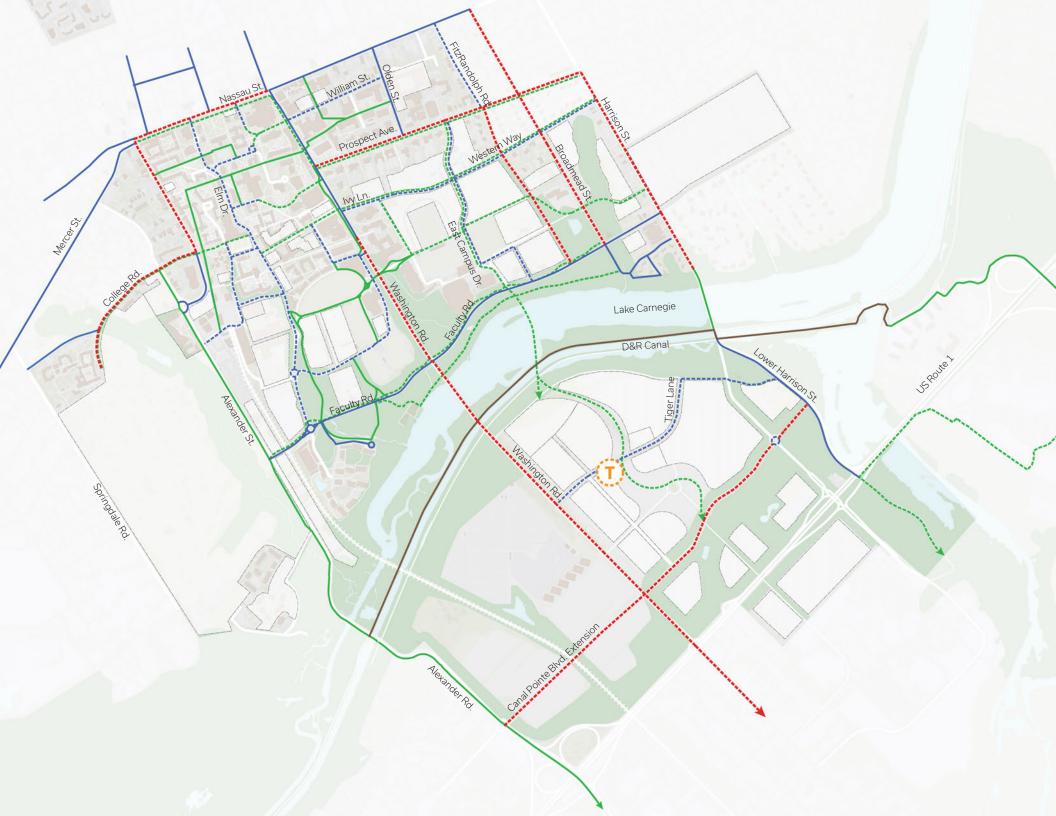


FIGURE 6-3. Three Campus Zones

Historic
Transitional
Flexible

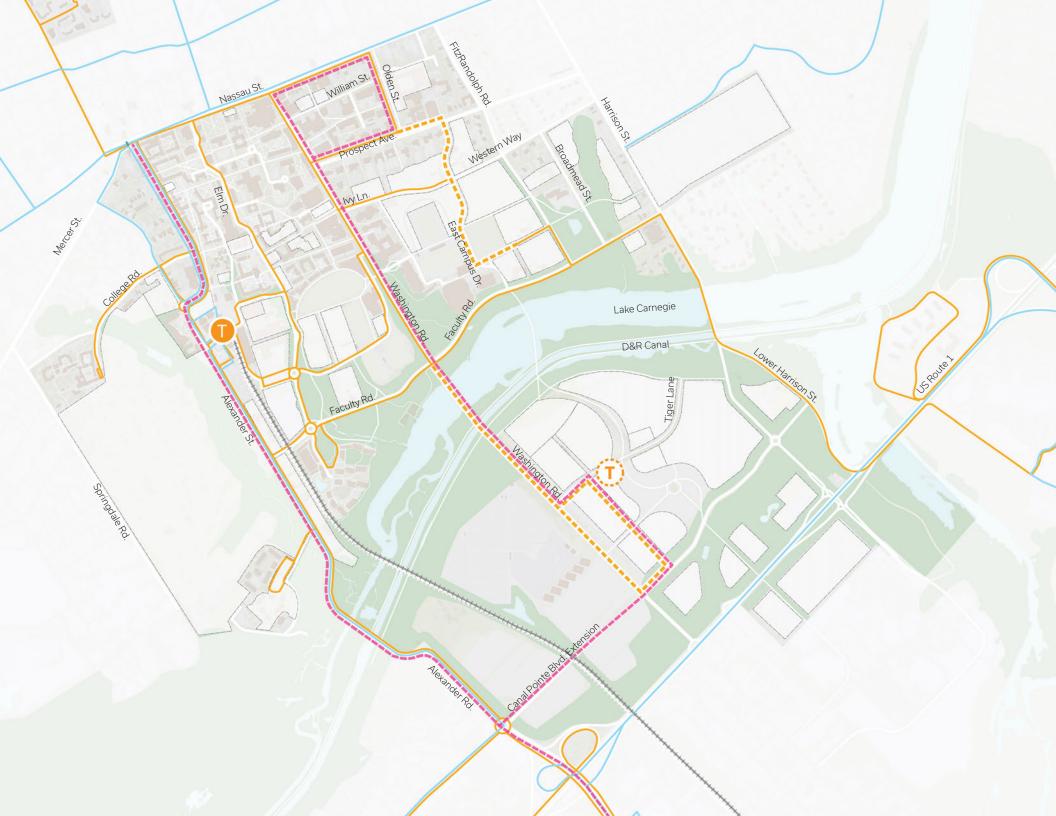
The cycling network would establish guiding principles to address each campus zone.

- Historic core: Improvements to the municipal cycling infrastructure, such as the on-road paths along Nassau Street, Washington Road and University Place, would offer safer bicycle routes for commuters. Enhancements to the internal campus pathways would focus on the proposed <u>East-West Campus</u> <u>Connector</u> and Elm Drive.
- Transitional zone: The transitional zone surrounding the historic campus would play an important role in making seamless connections to the new residential colleges, the growing East Campus and the emerging Lake Campus. This zone focuses on new paths and improvements of key intersections to ensure a continuous and safe cycling experience across various campus areas.
- Flexible zone: The Fast and Lake Campuses have the flexibility to accommodate higher-order cycling infrastructure to support travel within these areas or to other parts of the campus. Major new routes would include shared lane markings and a shared use path along East Campus Drive, the proposed Lake Carnegie pedestrian bridge, and Lake Campus Walk. The North-South Campus Connector would begin to provide linkages to the towns of Princeton, West Windsor and Plainsboro, the Princeton Forrestal Campus, and other destinations in Mercer and Middlesex counties.





To achieve its full potential, the cycling network would require an interconnected system of both on- and off-road paths as well as a range of bike amenities – such as bike-share stations, changing areas, showers and lockers, secured (and perhaps covered) bicycle storage, and connections to campus transit services – at appropriate campus locations, including the proposed Lake Campus transit hub.





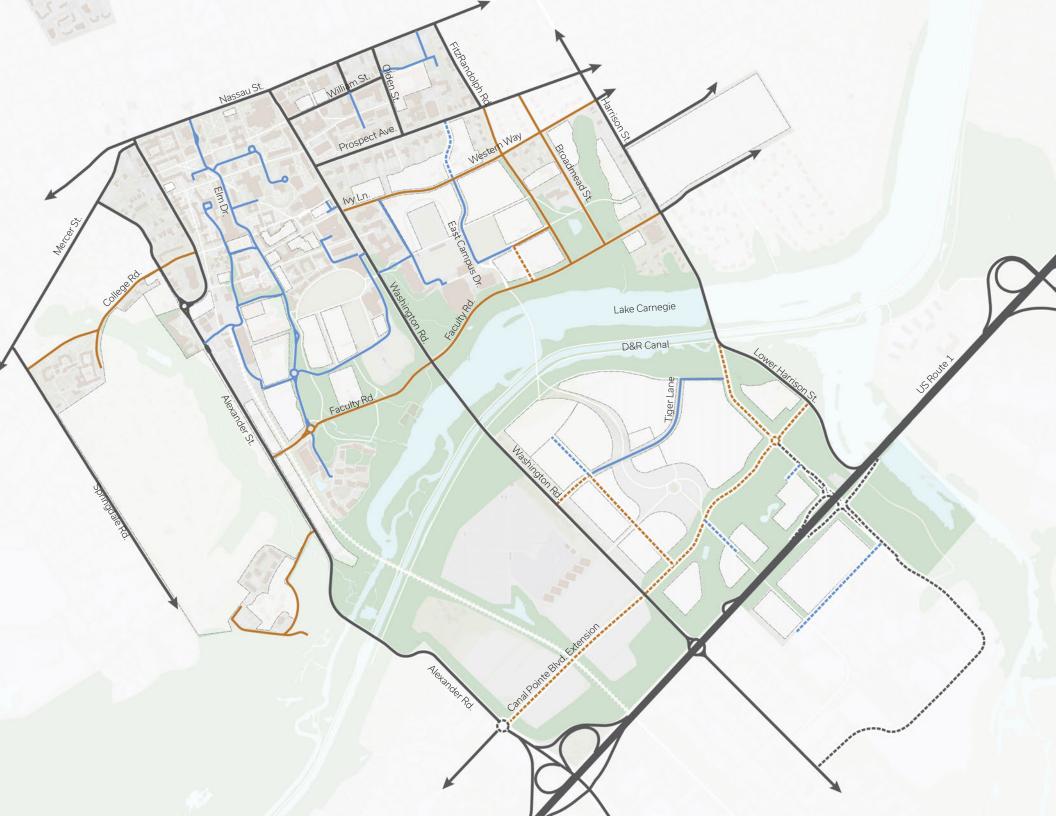
Tiger Transit

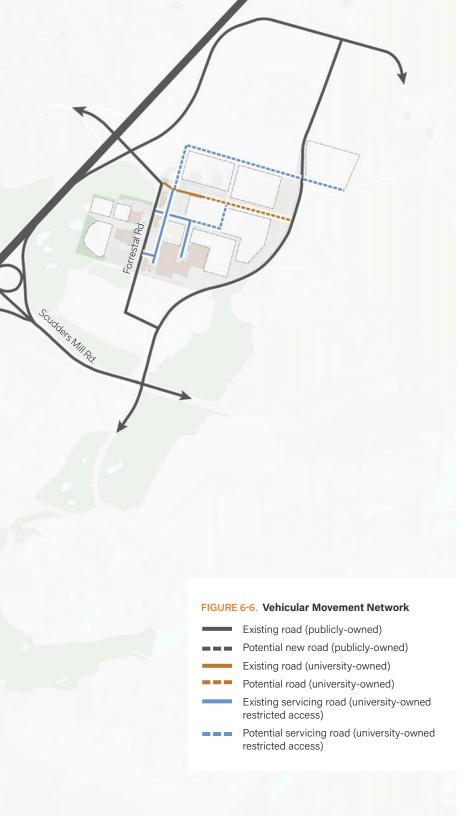
The University has made several improvements to its transit network in recent years to encourage non-vehicular travel to and from campus. The new Lewis Arts complex includes a multi-modal transit hub and train station, and Tiger Transit routes have been reconfigured and expanded to create better connectivity across and beyond the campus.

The planning framework proposes further expansion of the Tiger Transit system to serve areas of major development. A new transit hub would be created on the Lake Campus to provide comfortable and convenient connections between Tiger Transit shuttles and the pedestrian and cycling paths, parking areas, bike storage stations, and residential, athletic, administrative, academic partnership, convening and retail spaces on that campus. Throughout the entire campus there would be signage showing walking and cycling distances to various campus destinations, as well as regularly updated information from TigerTracker providing Tiger Transit arrival times, maps and schedules.

Regional Transit

Roughly half of Princeton commuters could access the campus via transit either with a short drive to a commuter rail lot or by walking to one of the regional transit buses that service the campus. To encourage more transit users, the planning framework proposes enhancing the pedestrian, cycling and shuttle networks to provide convenient and efficient access between transit locations and key campus destinations. The framework also suggests possible ways to augment the regional transit system by extending service along Washington Road and Alexander Street, and perhaps throughout more of the surrounding community. A future extension of Canal Pointe Boulevard could support additional transit services over the longer term.





Vehicular Movement

The Princeton campus is served by state, county, municipal and University-owned road networks. Alexander Street, Washington Road and Harrison Street function as the major north-south connections, while Nassau Street, Faculty Road and Route 1 are the major east-west routes. Vehicular circulation on this network has long been constrained by traffic congestion at key junctions of Route 1.

The planning framework identifies opportunities to improve traffic flow, access and circulation on the growing East Campus and the emerging Lake Campus. The proposed North-South Campus Connector and an enhanced lvy Lane/Western Way would complete a vehicular network on the East Campus.

For decades the New Jersey Department of Transportation and the municipalities and major landowners in the region have recognized the desirability of improving traffic movement along and over Route 1. A number of interim steps have been taken (road widening, traffic light adjustments, signage improvements), and a major improvement was achieved 20 years ago with the construction of an overpass at Alexander Road. The planning framework recognizes that a new interchange at Harrison Street and Route 1, perhaps coupled with an extension of Canal Pointe Boulevard to Harrison Street, could significantly ease congestion on Route 1 and facilitate vehicular and cycling movement across it. It is important that any new interchange at Harrison Street be appropriately spaced to achieve maximum improvement in traffic flow, along with minimum impact on the natural environment and on fragmentation of the Lake Campus lands.



Parking

Princeton provides a variety of parking facilities to meet the demands of faculty, staff and visitors to the campus. Over 4,000 parking spaces are provided in surface parking lots, structured parking garages and some on-street parking. The planning framework anticipates some reduction of parking spaces in the small lots of the Central Campus, and a significant removal of spaces along lvy Lane and Western Way on the East Campus with the construction of new facilities for engineering and environmental studies.

Princeton must mitigate the demand for campus parking spaces if it is to achieve its sustainability goals for a compact campus footprint and transportation.

Parking demand is typically expressed in terms of occupied parking spaces per commuter, or "parking ratio." To limit the amount of land dedicated to parking, Princeton aims to reduce its parking ratio from .63 today to .54 in the near term and .45 in the long term. This would bring Princeton's ratio in line with such similarly situated institutions as Cornell and Stanford universities, where the current ratios are .47 and .59 respectively.

Even with these reductions, the University will need to accommodate new spaces as well as spaces displaced by campus development. The framework proposes to accommodate these spaces on a few strategic sites, including a parking structure on Lot 21 on the East Campus, a new surface parking lot at the Lake Campus's Tiger Lane Crossing in the near term, and another campus commuter lot on the Lake Campus west of Washington Road over the longer term.

This strategic concentration of parking would promote more pedestrian and cycling-friendly campus environments and achieve more cost-effective and energy-effective operations of parking and shuttle services. This strategy mitigates the risk of overinvesting in parking infrastructure at a time of anticipated major shifts in transportation technology. There is potential for technologies such as automated vehicles and smart campus systems to lead to significant changes in the way people arrive on campus and the manner in which vehicles are parked.

Overall, the combination of ambitious <u>TDM strategies</u> and the consolidation of parking facilities at the campus periphery would minimize vehicular traffic in the surrounding communities; the goal is that even as the campus population grows, the vehicular impact would not.





07 Landscape

This section outlines the University's landscape objectives and describes the components of the campus landscape framework.

One of the great strengths of the Princeton campus is the loose arrangement of buildings within a generous expanse of landscape, with the long and informal views through the campus that this allows. While there are some buildings with completely interior courtyards, such as Holder Hall and Brown Hall, most buildings stand alone, rather than in groupings that define orthogonal spaces. Facades are consciously not lined up to create edges and boundaries; instead, landscape moves around the individual buildings, transitioning from one informal space to another as an unselfconscious continuum. This imparts a powerful visual and experiential continuity and flow to the landscape.

Within this fluidity, the campus landscape is organized by east-west walks such as McCosh, Shapiro, Goheen and Tilghman. These pathways of clearly identifiable, direct, relatively tree-lined allées orient movement through campus and connect disparate elements. This design legacy has helped to establish an engaging and active campus environment, while also supporting environmental performance. Current landscape functions in support of campus sustainability include sites for geo-exchange, storm water conveyance and infiltration, habitat creation, wetland protection, shade, erosion control and sound protection.



McCosh Walk extends across campus, blending architecture and landscape, and connecting residential areas to academic and student-activity space.



The amphitheater at Butler College

Objectives

The campus planning framework recognizes the importance of landscape in defining the identity and functionality of the Princeton campus and establishes a comprehensive landscape framework to accomplish the following objectives.

Sense of Place

The planning framework honors the campus's distinct sense of place while adapting landscape design strategies to the unique conditions of new development sites. As the campus evolves and is further developed, the coherent and cohesive relationships between landscape and buildings will continue to be an essential feature. Similarly, the traditions of vistas and pathways for pedestrians (enhanced to provide greater support for bicycles) can help maintain a sense of orientation and welcome.

Support Community and Interaction

The campus landscape plays an essential role as the campus commons. It supports chance encounters as well as programmed events. The campus should be a setting that allows space for reflection and affords opportunity for exploration and imagination.

Enhanced Functionality

Despite its many attributes, the Princeton campus does not fully support some requirements of a modern campus. The planning framework recognizes the need to expand the network of accessible pathways and provide better support for a bicycle culture. In new areas of development, the landscape should be designed to support pedestrian access and comfort while incorporating requirements for service deliveries, parking and transit.

Stewardship

The planning framework recognizes the importance of maintaining and enhancing the quality and character of existing natural and cultural landscapes. The landscape of Stony Brook and the tributary woodland fingers provide a beautiful and ecologically important setting that supports reflection, recreation and research. Successive generations of important landscape architects, such as Beatrix Farrand, have endowed the campus with a network of landscapes with historical and cultural significance. The planning framework proposes options that support and enhance the quality of these landscape conditions.

Performative Landscape

The landscape performs important functions in relation to storm water management, geothermal exchange, wetland buffers, bio-habitat connectivity, woodland preservation, and teaching and learning. The framework calls upon the landscape to accommodate a range of functions that support long-term sustainability and resiliency while also contributing to the distinctive Princeton campus experience.





Components of the Landscape Framework

The Princeton campus features a complex interaction of landscape types, which together help to create its sense of place.

Each of the four types of landscapes possesses a distinct character and performs specific functions for the campus:

- natural landscapes
- linear landscapes
- campus open space
- <u>historic and culturally-significant</u> <u>landscapes.</u>



Scudders Mill Rd. FIGURE 7-2. Natural Landscapes Existing landscapes with natural character Proposed and restored landscapes with natural character Landscapes that are regulated and to be preserved

Natural Landscapes

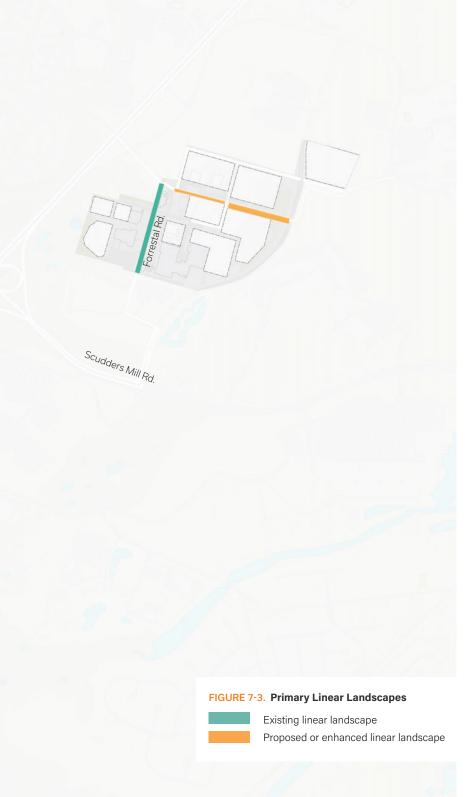
As the campus grows, it has opportunities to maintain, restore and enhance the natural woodland landscapes. These landscapes perform important ecological functions, but their current functional capacity is limited due to disturbance from development activities. The framework sets out priorities for restoring and enhancing the ecological ability of the wetlands, streams and habitats of the campus, particularly around <u>Lake</u> Carnegie. These priorities relate to the proposed habitat integrity and storm water management strategies that are presented as part of the discussion of sustainability in Section Four.

The existing condition of the Lake Campus features an agrarian character, with expanses of agricultural fields interspersed with areas of woodlands and wetlands. As this area of campus is developed, these woodland and wetland areas would be preserved and integrated into a network of performative campus landscapes.

Within the natural landscape there are environmentally regulated areas that are identified as unsuitable for future development. Such areas consist of slopes greater than 15%, riparian areas and the natural landscape associated with Lake Carnegie and the D&R Canal. The planning framework provides guidance on development around these areas. For example, it would maintain a band of environmentally protected landscapes running east-west near Route 1 by designing any extension of Canal Pointe Boulevard to bypass along its edge. The development of new landscapes of natural character would be planned in this area by setting aside lands within the existing open fields for added vegetation.

Over the long term, development may occur on the Springdale lands. The framework calls for the preservation of important natural features in this landscape, including the restoration of the natural character of the Springdale stream. Restoration is also envisioned at the East Basin, with the day-lighting of a stream to bring a hidden water feature back to the natural landscape. Among other goals, these strategies would serve important storm water management functions.



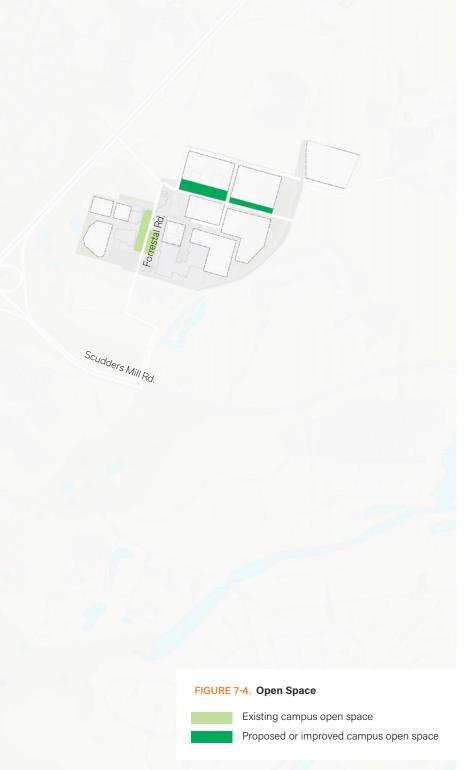


Linear Landscapes

Linear landscapes are corridors of movement and circulation that connect the spaces of the campus. They comprise a loose network of roadways and paths that provide coherence and connectivity throughout the campus.

The planning framework incorporates some linear landscapes into vehicular movement corridors. These include the public streets and campus drives, which together form a spine for campus servicing, Tiger Transit and private automobiles. These linear landscapes include Washington Road, Elm Drive, Ivy Lane/Western Way, the proposed North-South Campus Connector, William Street, Tiger Lane and the proposed Lake Campus Walk. Other linear landscapes are designed to prioritize movement primarily on foot. This system of major east-west campus walks and the complementary and intersecting diagonal and north-south pathways create a comfortable pedestrian network that is woven through a diverse range of smaller landscapes, while keeping cars in the background.





Campus Open Space

The open spaces of the campus are "rooms" within the overall structure of the landscape, providing places for pause and congregation. These spaces are the quads, lawns, plazas, courts and other spaces that balance the built density of the campus.

The planning framework sees these open spaces as a cohesive system that extends throughout the campus and enhances educational interchange, encourages social and recreational uses, and contributes to a more sustainable campus. Proposed strategies include the creation of outdoor spaces that can support meetings and discussions, amenities and infrastructure to support teaching and learning, occasional seating and flexible structures for formal and informal socializing, and other landscape features to animate the campus. Some open spaces may someday also have geo-exchange well fields beneath them, helping to heat and cool the campus sustainably without compromising the quality of the open space above. These geo-exchange well fields would be an important strategy in seeking to achieve the carbon reduction target proposed in Section Four.

Buildings and Landscapes of Historical and Cultural Significance

The planning framework respects
Princeton's buildings and landscapes
of historical and cultural significance.
It identifies existing heritage buildings
and places within the study area that are
listed as national historic landmarks or
that appear on the New Jersey Register of
Historical Places or the National Register
of Historical Places. Several Princeton
buildings, primarily on the Central
Campus, are listed on the registers and
are subject to official protections. The
Lake Carnegie Historic District and the
Delaware and Raritan Canal Historic
District are also listed on both registers.

The University recognizes that many buildings and places without official heritage status are historically and culturally significant, and campus planning and development would take this into consideration. The process of preparing the framework included the identification of such cultural landscapes. These landscapes often provide an impactful first impression for visitors to the campus and they are significant markers of the University's past. These spaces are prioritized for preservation and restoration with the goal of enhancing and reinforcing their distinct identity and historic value.





Top: Prospect Gardens are a campus oasis for students and visitors.

Bottom: Relocated several times throughout its history, Joseph Henry House now enjoys a prominent location near Nassau Street as part of the Andlinger Center for the Humanities.







08 A Look Ahead

Just as the Princeton campus will continue to evolve as projects are approved and new opportunities and priorities emerge, so too is this planning framework intended to evolve over time and with experience. As a framework that looks ahead over both ten-year and thirty-year horizons, it leaves the door open to multiple possible directions for the future, while providing enough guidance to inform decision-making over the nearer term.

By integrating planning for development with planning related to land use, sustainability, infrastructure, transportation and landscape, it allows the University to pursue multiple objectives in a comprehensive way. The framework is backed up by the indepth work of experts in many fields, and by analyses and assessments that provide detailed guidance to the University planners, senior officials and project managers who will have responsibility for overseeing the development of the campus not only over the next ten to thirty years, but beyond.

When alumni return to campus, as many do each year, they frequently comment both on how much the campus has changed, and how much it hasn't. There is something about the look and feel of the campus that is immutable, powerful, and both comforting and uplifting, and for more than 260 years it has managed to retain its core characteristics while becoming much larger, much more multi-faceted, and much more diverse.

This framework envisions a campus with an expanded student body and one or more new residential colleges; substantially expanded and improved space for engineering and environmental studies; a thoroughly reimagined East Campus; a lively and attractive Lake Campus fully integrated into the rest of the University; a geography in which Lake Carnegie has moved from the periphery to the center of campus; enhanced achievements in multiple forms of sustainability; a significant shift from single occupancy vehicles to other modes of transit,

including walking, cycling, shuttling and mass transit; and new academic partnerships in an innovation ecosystem that supports the mission of the University and increases its capacity to have a positive impact on the world.

The purpose of the planning framework is to help the University make wise and informed decisions as it pursues these goals and others that undoubtedly will emerge over time, while sustaining the distinctive sense of place that has long characterized the campus lands that have been entrusted to its care.



Acknowledgments

While Princeton University has a long tradition of thoughtful campus planning, the 2026 Campus Plan Framework represents the most ambitious and comprehensive planning process in its history. A project of this magnitude required extraordinary effort from a multitude of individuals, and as the plan's executive sponsor I am grateful for the remarkable work by so many dedicated people. The pillars of the framework include deep knowledge of the institution and the campus, a vision for its future, a commitment to innovation, and active collaboration to achieve near-term strategic priorities while preserving long-term opportunities.

Essential to the success of the framework and core to our approach was the integrated nature of the input and planning process. Over more than three years, the campus planning team engaged an extensive network of campus community members, University leaders, municipal neighbors, local officials and consulting partners to inform and shape the conversation. Building on the strong foundation of our previous ten-year Campus Plan, this new Campus Plan Framework focuses on the decade leading up to 2026, while anticipating and reserving options to accommodate University needs over thirty years and beyond. Significantly, the framework looks across Lake Carnegie to our West Windsor lands, envisioning a vibrant Lake Campus integrated with the campus lands north of the lake. The framework allows us to plan for the strategic priorities of our time while reserving land for the priorities of our successors. I hope it will be helpful to future generations as they consider their options and opportunities.

A true integrated planning effort requires the perseverance of many. While I would like to thank them all individually, I will call out University Architect Ron McCoy who, with a core campus planning team and our lead consultants, Urban Strategies Inc., oversaw a network of nearly twenty consulting firms advising on a multitude of dimensions. Insights came from such varied sources as the "Campus Compass" survey, through which nearly 2,000 students, faculty, staff, alumni and town members shared their favorite paths across campus and into the town of Princeton, the strategic planning task force reports, meetings with academic and administration departments, and planning studies ranging from athletics and sustainability to an infrastructure master plan. I appreciate this essential feedback from so many members of our campus community, our alumni, our neighbors, and the many municipal, county, and state officials with whom we met.

We were fortunate for the advice and guidance we received from the Grounds and Buildings Committee of the Board of Trustees and the vision of the Campus Plan Steering Committee, chaired by President Eisgruber. We are grateful to Vice President and Secretary Bob Durkee who applied his extraordinary writing skills and decades-long knowledge of our campus to the organization and text of this publication. Finally, I want to thank each and every individual who played a role in creating this framework to guide the development of our evolving campus.

The breadth and depth of this multi-dimensional approach to planning are exceptional, and rare if not unique among institutions of higher education. A tremendous commitment by many has brought us to this point; we are now poised to take advantage of opportunities that lie ahead for Princeton as we approach the middle years of the 21st century.

Treby Williams '84Executive Vice President

Campus Plan Team

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