

# E. NORTH CAMPUS “ACTIVATING THE CORE”

## NORTH CAMPUS

More than 40 years ago, the coalition of University of Buffalo, SUNY, and New York State government officials came together to envision a “University of the 21st Century” in rural Amherst. The ambitious plan was borne out of a period of rapid growth for the university that saw the South Campus quickly becoming filled to capacity. As options for local expansion were explored, roadblocks were encountered in negotiations with the city leaving few alternatives for UB other than to expand elsewhere. Today, many see the North Campus as epitomizing the misguided impulses of the modernist era, creating a campus that is distanced from the urban core, full of bunker-like structures, laced with high-speed roads and vast concrete plazas, and laid out as a monument to logic and rationalism without sensitivity to human scale or experience. Planned primarily for the automobile, the campus is inaccessible to anyone without a car and its image is dominated by parking lots lining its perimeter. Much of the expansive landscape surrounding the core remains stunted by poor growing conditions. Many parts of North Campus can feel cold and isolated even on the sunniest days.

The goal of the Facilities Master Plan for North Campus is to improve and build on its essential assets, the dense academic core, Lake LaSalle, and the ring of naturalized lands that surround them, to create a more beautiful, more active, and more welcoming campus. While professional schools such as the School of Social Work, and Law School will relocate to South Campus, the North Campus will expand and improve the College of Arts and Sciences, Fine and Performing Arts, Humanities, Sciences, Social Sciences, School of Engineering and Applied Sciences, and School of Management. The plan provides modernization of facilities, campus life initiatives, infrastructure renewal, a new heart-of-the-campus, and public realm improvements. Through these measures, the plan will be able to apply lessons learned from prior decades to create a more unified and vibrant place of learning, research, and work.

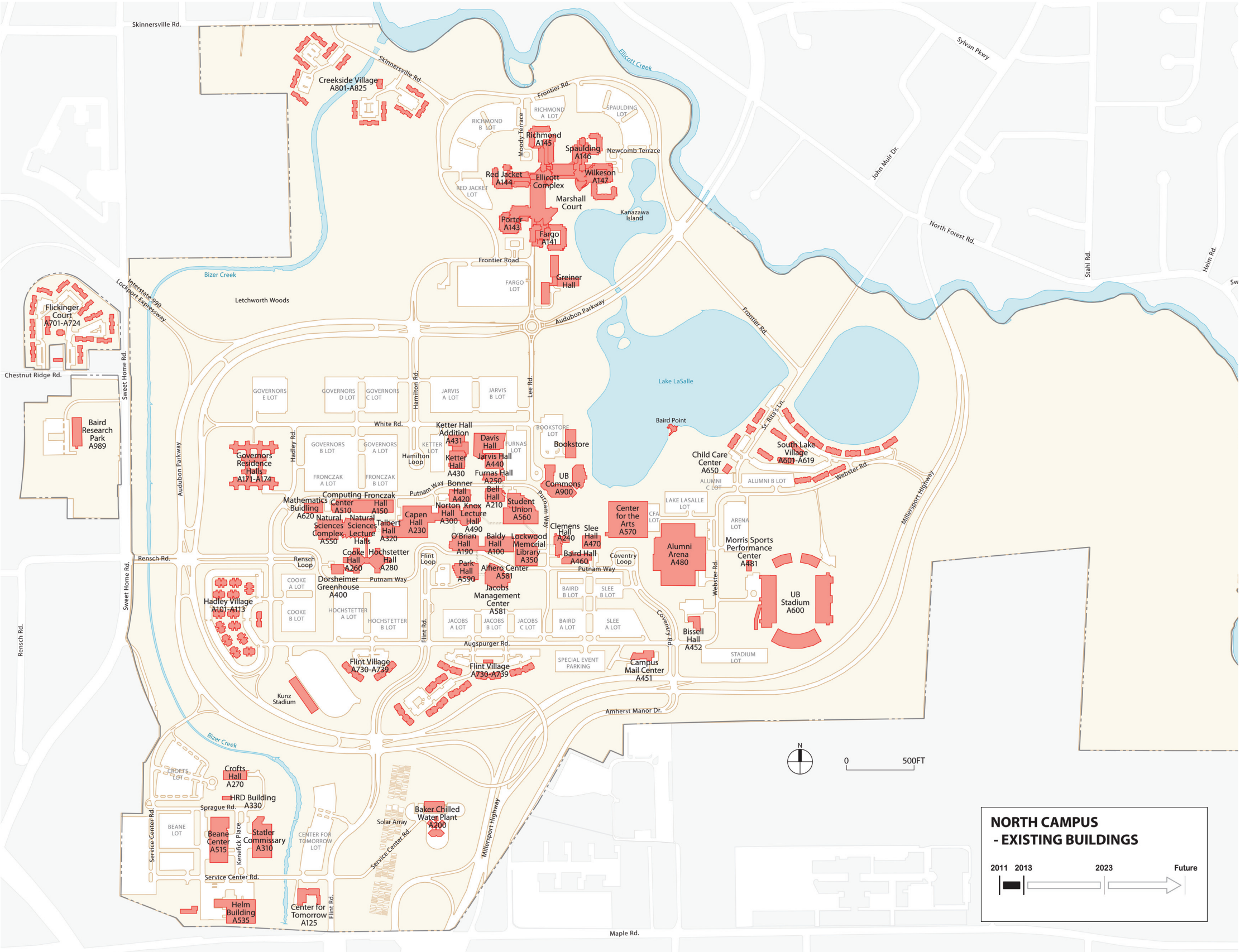


Figure E-133: North Campus Existing Buildings.



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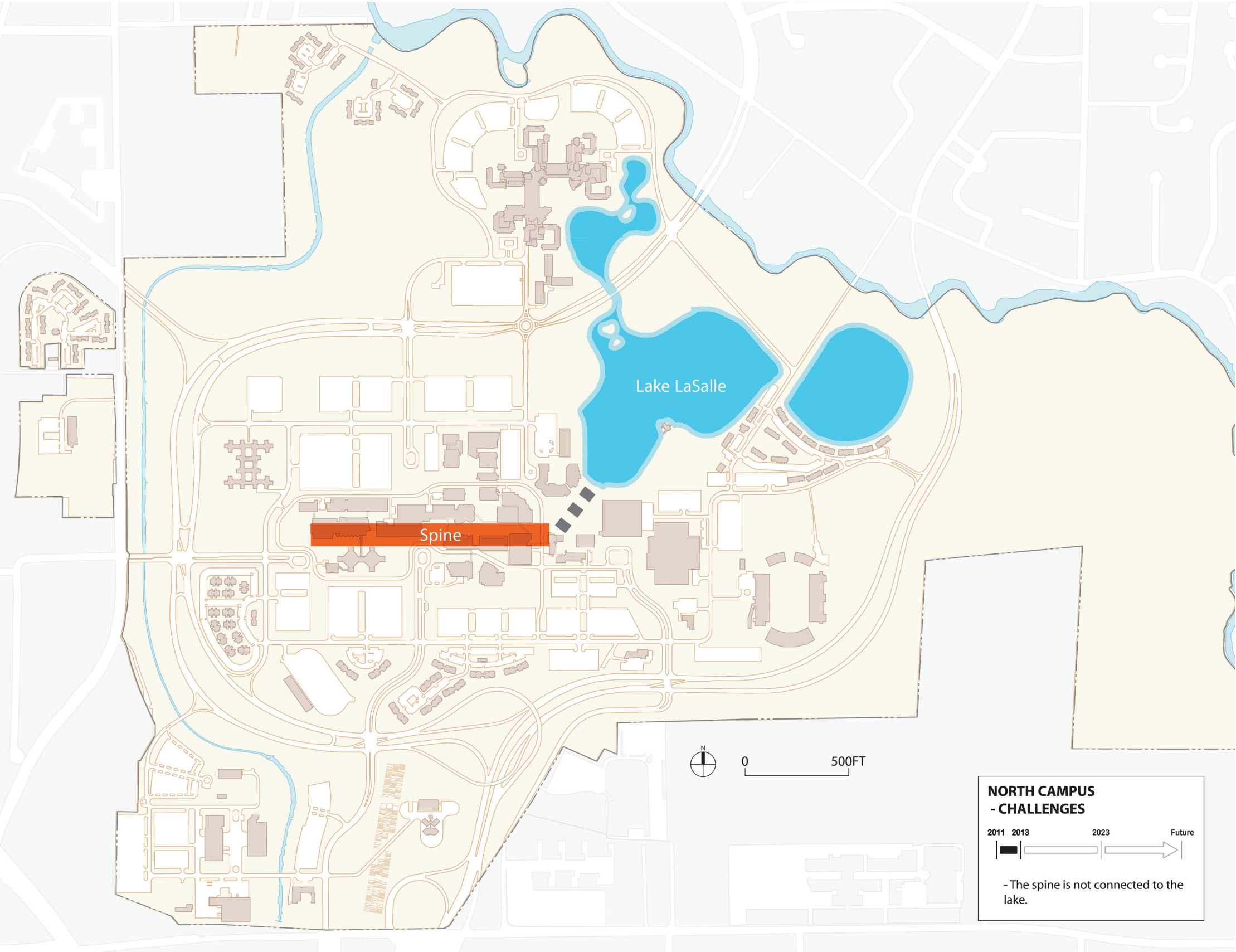


Figure E-134: North Campus Challenges.

CURRENT LAND AND BUILDING USE

Despite its shortcomings, the North Campus has some solid foundations to build upon. The dense Academic Spine of buildings provides a core cluster of academic, administrative, and support functions with interspersed enclosed gathering spaces. Lake LaSalle is an amenity that provides the campus the most picturesque vistas. The Ellicott Trail System is a recreational amenity enjoyed by both the UB community and the surrounding neighborhoods connecting UB to off-campus assets nearby.

While the assets give real potential to the campus, any vision for the campus cannot be met without first understanding the challenges set by its existing conditions. Among them is the physical isolation of the Ellicott Complex. Originally conceived as a destination that is linked with a continuous activity corridor, the Ellicott Complex stands today as a cluster of living-learning facilities separated from the main campus. Pedestrians must traverse across long walkways without adjacent buildings to provide activity or cover from the elements. Also, the development of residential villages isolated from the campus core provided no opportunity for students to live in or activate the academic core during weekend or evening hours. Without parking garages, the core is surrounded by a sea of parking that is unwelcoming and disorienting. As built, the comprehensive roadway network has an inner loop that is too constraining, a middle loop that is not connected with itself, and an outer loop that is over-scaled for the volume of traffic it holds. Lake LaSalle, while a beautiful amenity, lacks an attractive outdoor plaza to engage it. Instead, there is a grassy slope between the Center for the Arts and UB Commons that has no programmatic connection to either building and is considered as a leftover space.



The campus today has few places that are attractive or memorable. The spaces that are the most actively populated are nearly all indoors inside buildings such as the Student Union. Outdoor spaces are often dark, foreboding, or awkward, formed by campus buildings that are starkly homogeneous. The massive architectural forms, broad plazas and dark color palette established during the primary phase of campus construction created an intimidating scale and somber atmosphere throughout most of the campus. Still, there are ways to preserve, enhance, and celebrate positive elements of the campus as its overall physical character is improved.

DESIGN PRINCIPLES

The strategy for transforming North Campus to a vibrant and memorable campus is built upon a set of guiding design principles:

- Improve public realm to create active and attractive outdoor spaces.
- Create campus life corridor connecting Ellicott Complex to academic core.
- Improve recreation and athletics venues for campus life.
- Create an active public space that engages Lake LaSalle, connecting it with campus core.
- Improve entry experience and image of the campus by providing a clear and welcoming front door.
- Create a heart-of-the-campus to center student services and concentrate common activities.
- Improve campus circulation to be more pedestrian-oriented.
- Consolidate and re-size loop roads to be more appropriately scaled to the campus environment.
- Connect spine to Lake LaSalle

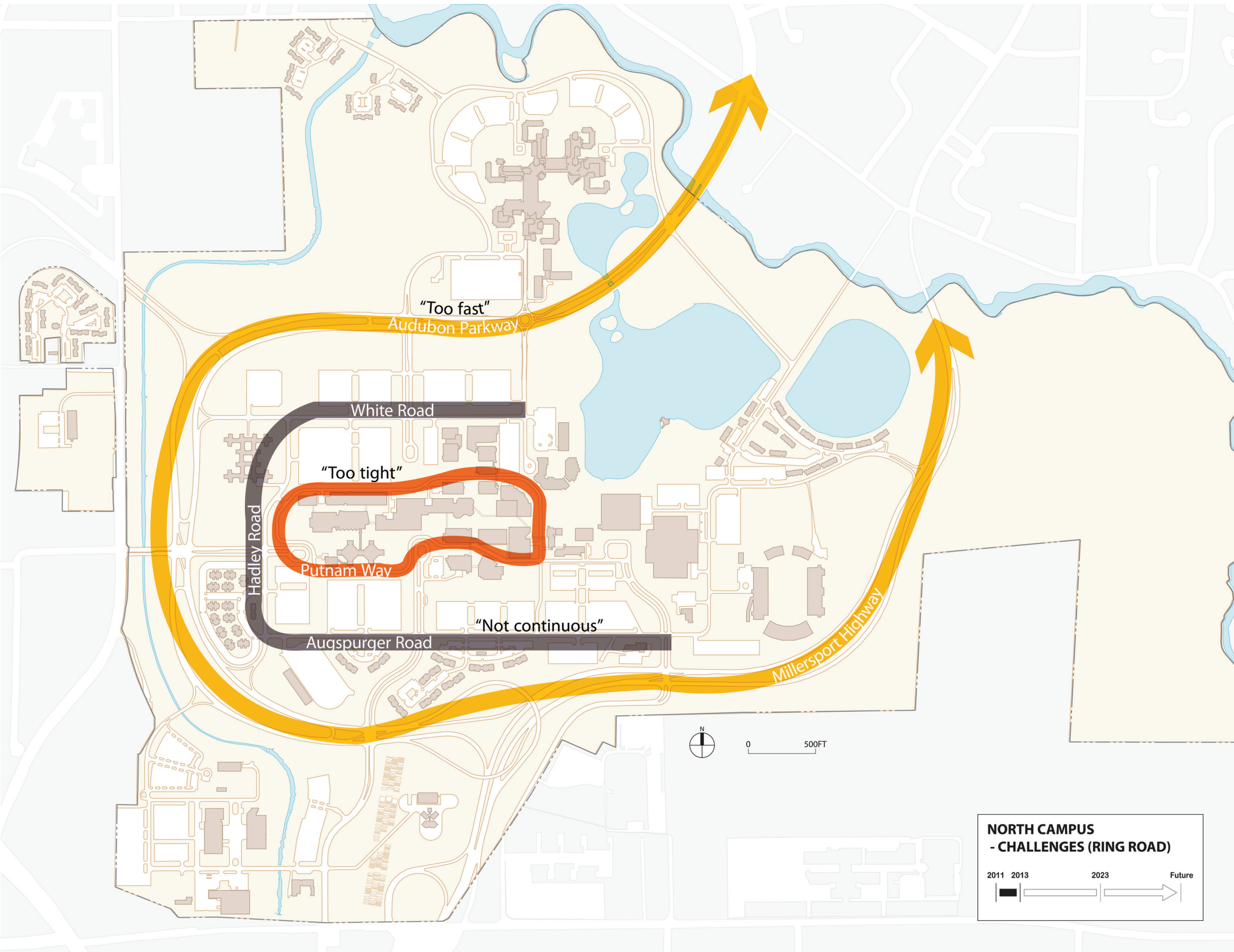


Figure E-135: North Campus Challenges Ring Roads.



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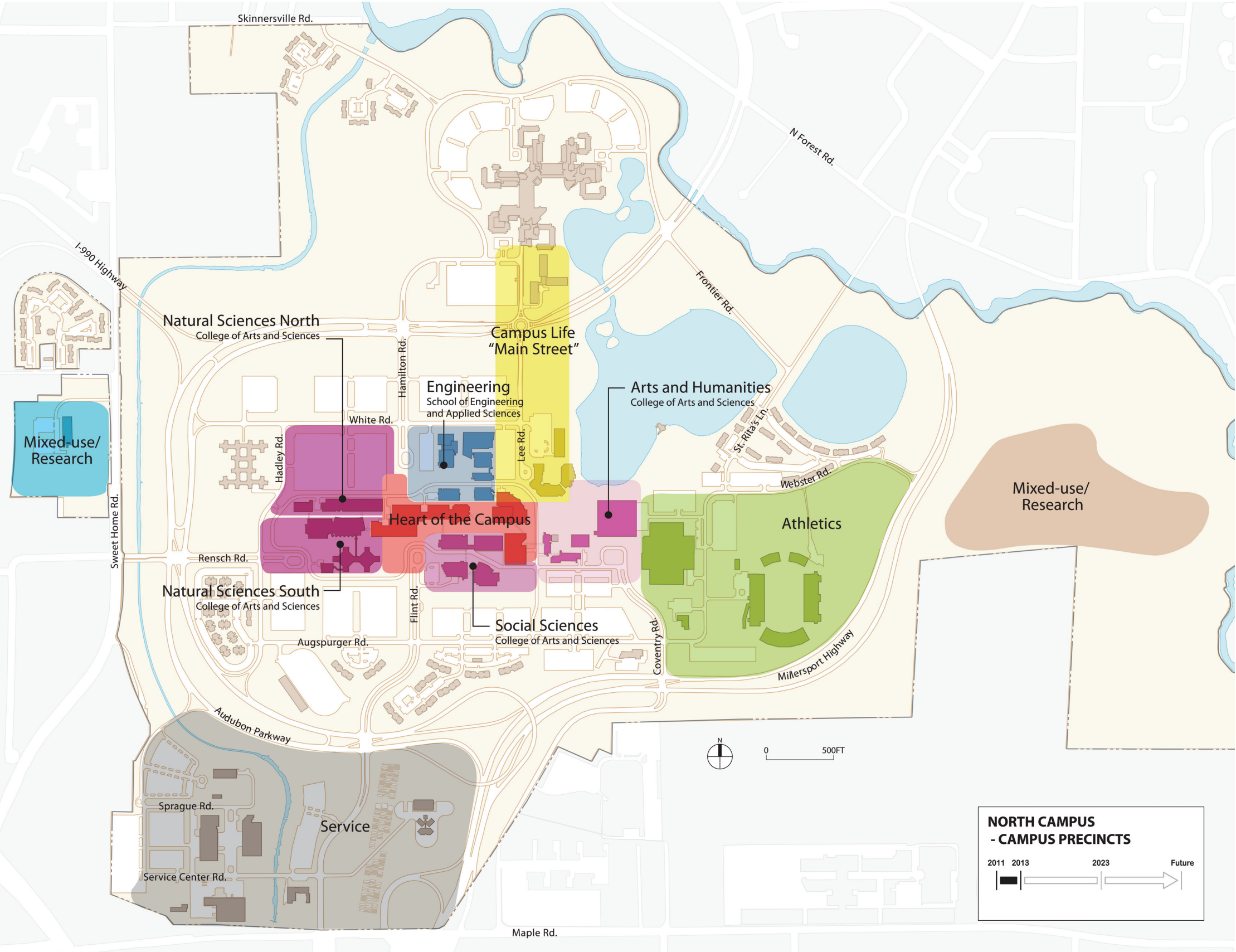


Figure E-136: North Campus Precincts (Building UB, 89).

DESIGN APPROACH

The Facilities Master Plan builds upon the existing assets of the campus. The dense academic core will be extended to finally engage Lake LaSalle. At the end of this extension, a great lawn, the Oval, will be formed as a place to gather and repose, engaging the lake and providing a way to access and enjoy the water from the campus core. The Oval will be a venue for year-round activity engaging the student union and a new recreation and wellness center. It will become a major crossroads on the campus as Lee Road develops as a new “main street” lined with a mix of buildings and uses designed to generate the activity typical of an urban streetscape.

Lee Road will be designed to prioritize walking, bicycling, and transit, with wide tree-lined sidewalks, protected bike lanes, and a shared right-of-way for cars. As Lee Road is populated with campus life functions such as a new recreation and wellness center, living-learning center, bookstore and new residence halls, it will become a popular axis of activity joining the campus core to the Ellicott Complex. The dense spine itself will be widened to incorporate new structures and also allow for multiple pathways. Implementing the final build out will begin with the construction of the buildings planned for the west side of Lee Road. Beginning with these buildings will establish an important connection between the campus core and the Ellicott Complex, will provide a barrier from the winter winds for those traveling from the Ellicott complex to the campus core, and provide replacement facilities for student residences as existing facilities reach the end of their life.

Putman Way will be reserved for pedestrians, bicyclists, and transit vehicles. It will have wider, tree lined sidewalks with cafes and meeting spaces engaging it. All visible service entrances are to be relocated so that they are hidden from view. Putman Way and Lee Road will provide a walkable system that uses secondary pathways, landscaped plazas and quads that offer attractive, varied outdoor spaces that are memorable and active. The White-Hadley-



Augspurgen loop road will be converted to handle the bulk of private cars and service vehicles traveling around the campus core, as Putman Way is designated for pedestrians, bicycle and transit use.

At the center of the spine, Capen, Norton, Talbert Halls along with Lockwood Library will be made into the new heart-of-the-campus. Capen will become the central visitor destination for North Campus. As the “front door” it will receive a facelift at the north and south entrances facing Hamilton and Flint Loops. In addition to admissions offices, Capen Hall will also serve as a “service commons” for student support services and dining venues. The perimeter of the campus will be buffered with improved, naturalistic landscaping and with traffic circles controlling speeds and creating entrance markers. The combination of these efforts will provide the framework for a future campus that is welcoming and memorable commensurate with UB2020 intentions.

As a large campus, multiple entrances are necessary to serve the large volume of vehicular traffic and to provide connections to adjacent arteries. The Facilities Master Plan will ameliorate the entry experience by identifying Capen Hall as the front door to the campus. With updated façades and entrances, the north and south sides of Capen Hall fronting Hamilton and Flint Loops are to be given a face-lift with new hardscaping and landscaping shaping the entry experience.

Providing new facilities for athletics and recreation is an important part of the FMP in addressing campus life needs. A new Health and Wellness Center will be located along the northern edge of the Oval at Lee Road. This direction as documented in UB2020 helps concentrate campus life activities at the Oval and Lee Road to transform it into an active hub.

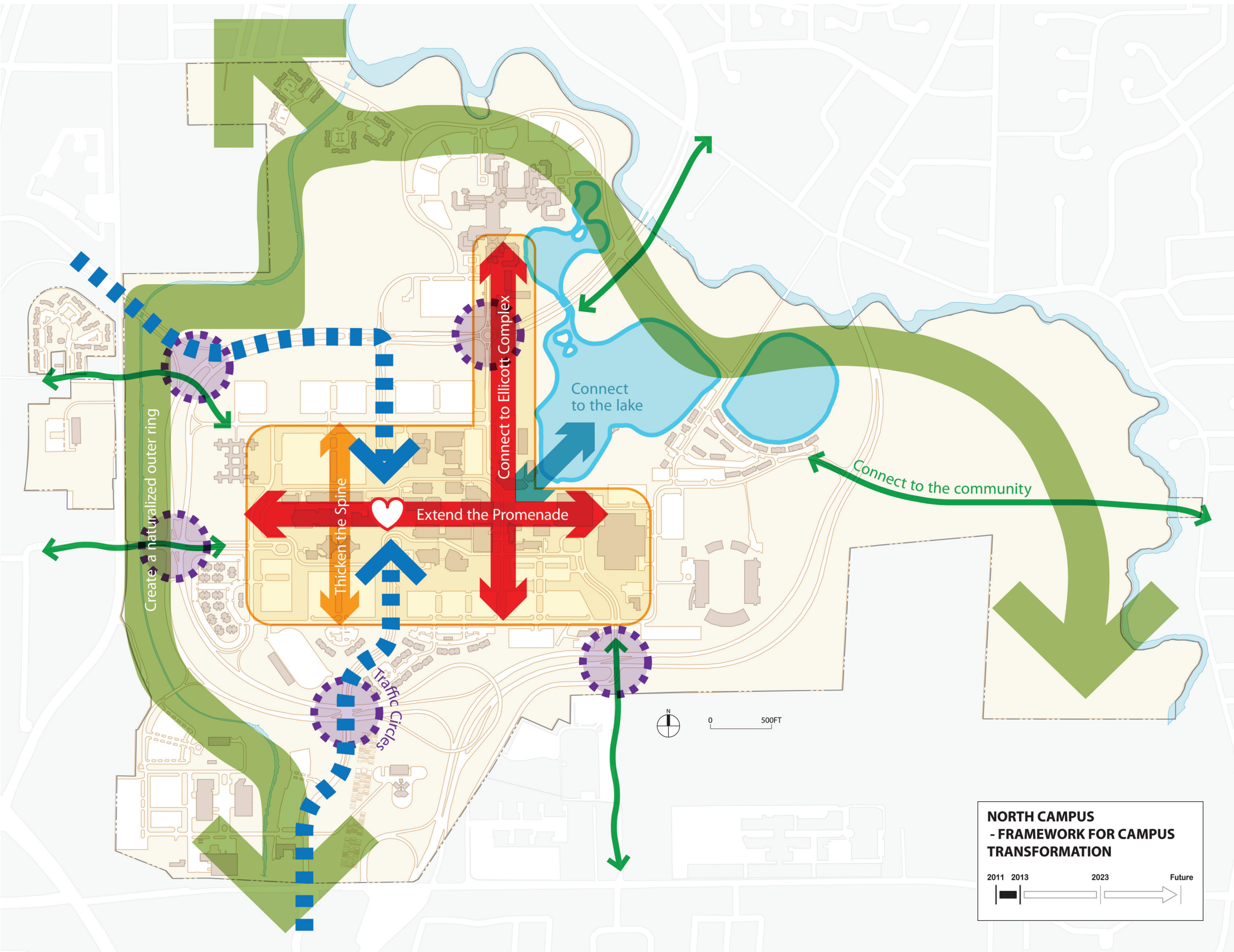


Figure E-137: North Campus Framework for Campus Transformation.



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COMPONENTS

In shaping the future of North Campus, much of the necessary work will include improvements to existing stock and sitework. Roadwork, hardscape, and landscape improvements will perhaps provide the most significant impact on the character and experience of the campus, facilitating wayfinding and placemaking. Renovating existing buildings is key to the re-appropriation of facilities following academic realignments and in addressing the space needs of schools and departments. A priority in renovation projects is the transformation of Capen, Norton, and Talbert Halls as the new Heart-of-the-Campus. New construction targets campus life needs, beginning with the Oval. This project will realign Lee Road, establishing a hub of campus life activity. Buildings identified for development by 2023 are a new field house, tennis complex and recreation/wellness center. The addition of these developments will help the University meet its athletics needs. For other campus life needs, the Living-Learning Quarter, a mixed-use facility containing campus life functions such as food venues and bookstore as well as residences, will be added on Lee Road opposite the Recreation & Wellness Center. In order to meet parking volume and to bring activity to Lee Road, the Lee Road Parking Garage will be added. Finally, along the southern edge of the Oval, the University Club will be added to house faculty and alumni meeting spaces and dining.

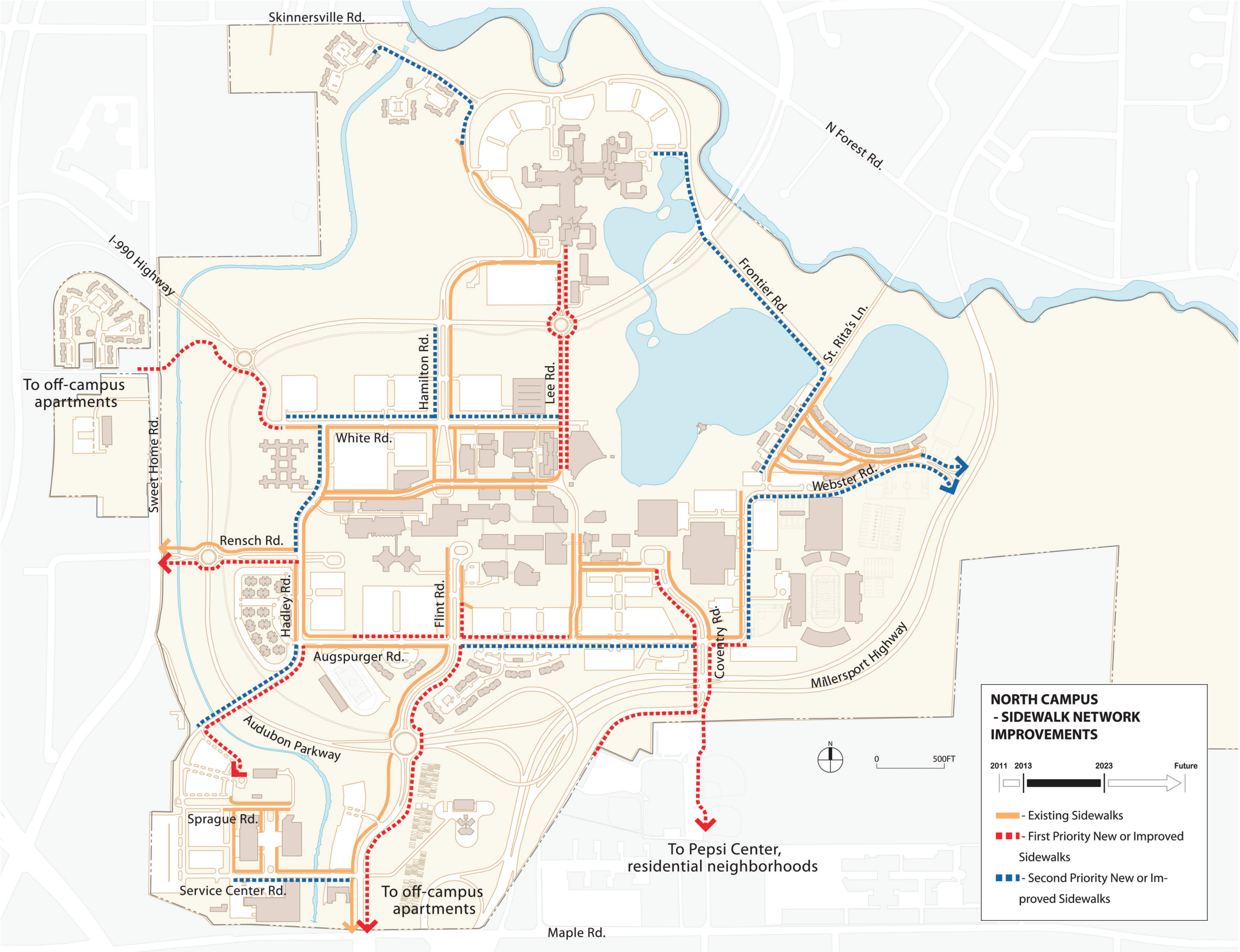


Figure E-138: North Campus Sidewalk Network Improvements.



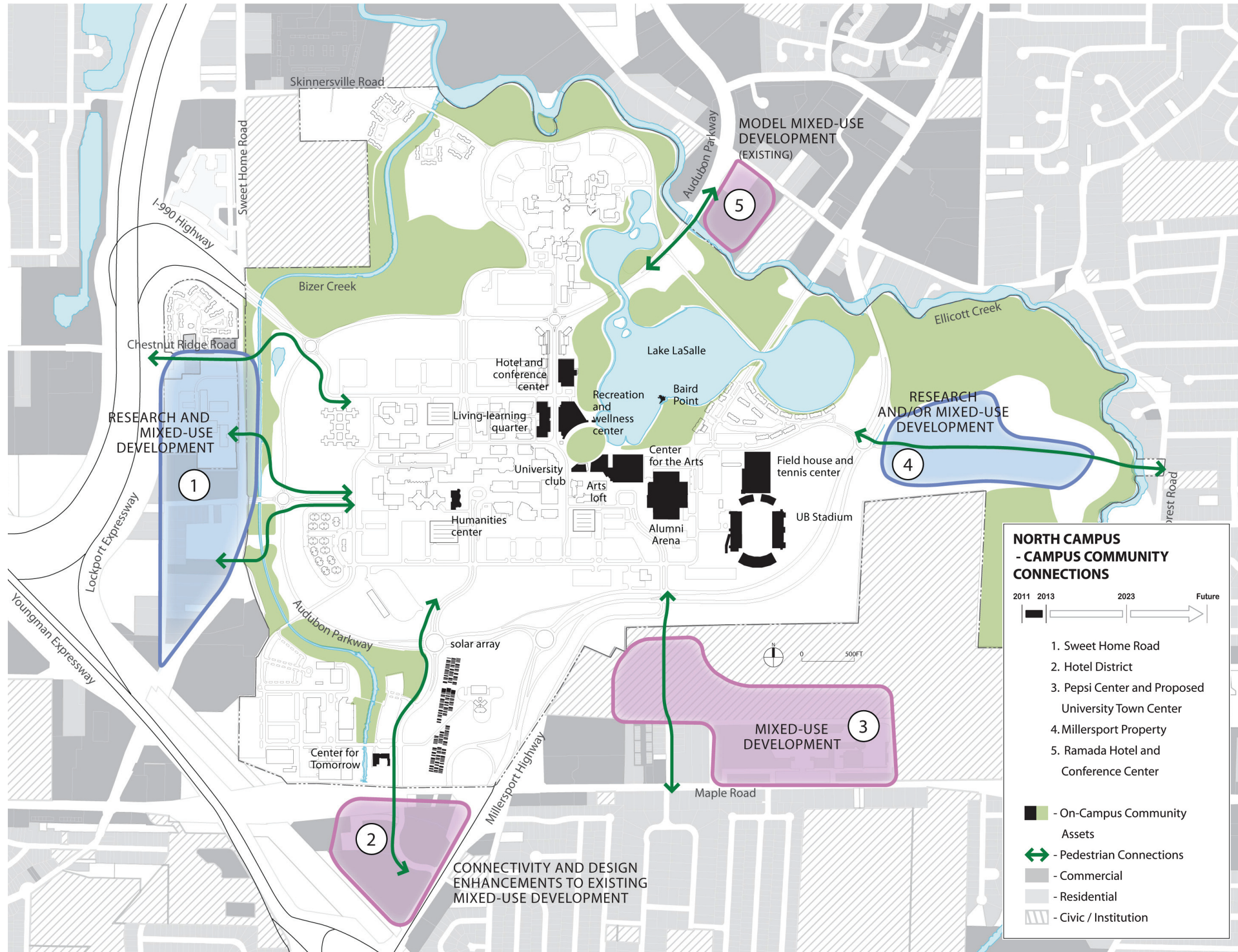


Figure E-139: North Campus Community Connections.

## COMMUNITY ENGAGEMENT

Growth of North Campus is closely tied to the development of the Town of Amherst and the Main Street-Millersport Highway regional corridor. Making the most of that growth for all parties will require a stronger physical and programmatic relationship and better access to a broader array of transportation options. The plan builds upon existing resources and relationships to turn North Campus into a center of economic, educational, cultural, and recreational activity for the surrounding neighborhoods, and a hub of local and regional transportation networks.

Essential to engaging the community is providing more community-oriented spaces. These include recreational and cultural resources such as the Center for the Arts, Alumni Arena, and UB Stadium programmed with year-round events. New facilities will provide a recreation and wellness center, boathouse and marina, trails, lawns, galleries and performance spaces, new restaurants, hotel and conferencing (2, 3, and 5). An alternative energy education and research center at the repurposed Center for Tomorrow will provide a place for residents of the Buffalo Niagara region to learn about ways in which they can make their homes and businesses more environmentally sustainable (1 and 4).



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RENOVATION AND DEMOLITION

All the existing buildings on North Campus are less than 40 years old with relatively low Facility Condition Index (FCI) ratings. Under the plan, most North Campus buildings will retain their primary use, but many will be renovated to add or improve spaces for gathering and collaborating, accommodate changing program requirements, and raising energy performance and other measures of environmental sustainability. In order to create the heart-of-the-campus, Capen, Norton, and Talbert Halls will be rehabilitated along with the Lockwood Library as library collections are consolidated. The Cooke/Hochstetter complex will be backfilled with College of Arts and Sciences departments such as Biology and Geology as the School of Pharmacy relocates to South Campus. The Furnas Building will be renovated and house members of the School of Engineering. Baldy and O'Brian Halls will be renovated for use by the College of Arts and Sciences and School of Law as The Schools of Social Work and Education relocate to South Campus. Finally, the Computing Center CIT Server Room will be renewed and relocated into Norton Hall.

Demolition is conducted only after thorough evaluation on the condition and usefulness of existing structures weighed against long-term development goals. The plan proposes the demolition of the UB Commons and University Bookstore to make way for the new recreation and wellness center. The two buildings that predate UB's presence in Amherst, the Campus Mail Center building and Bissell Hall, will both be demolished after their respective functions are relocated.

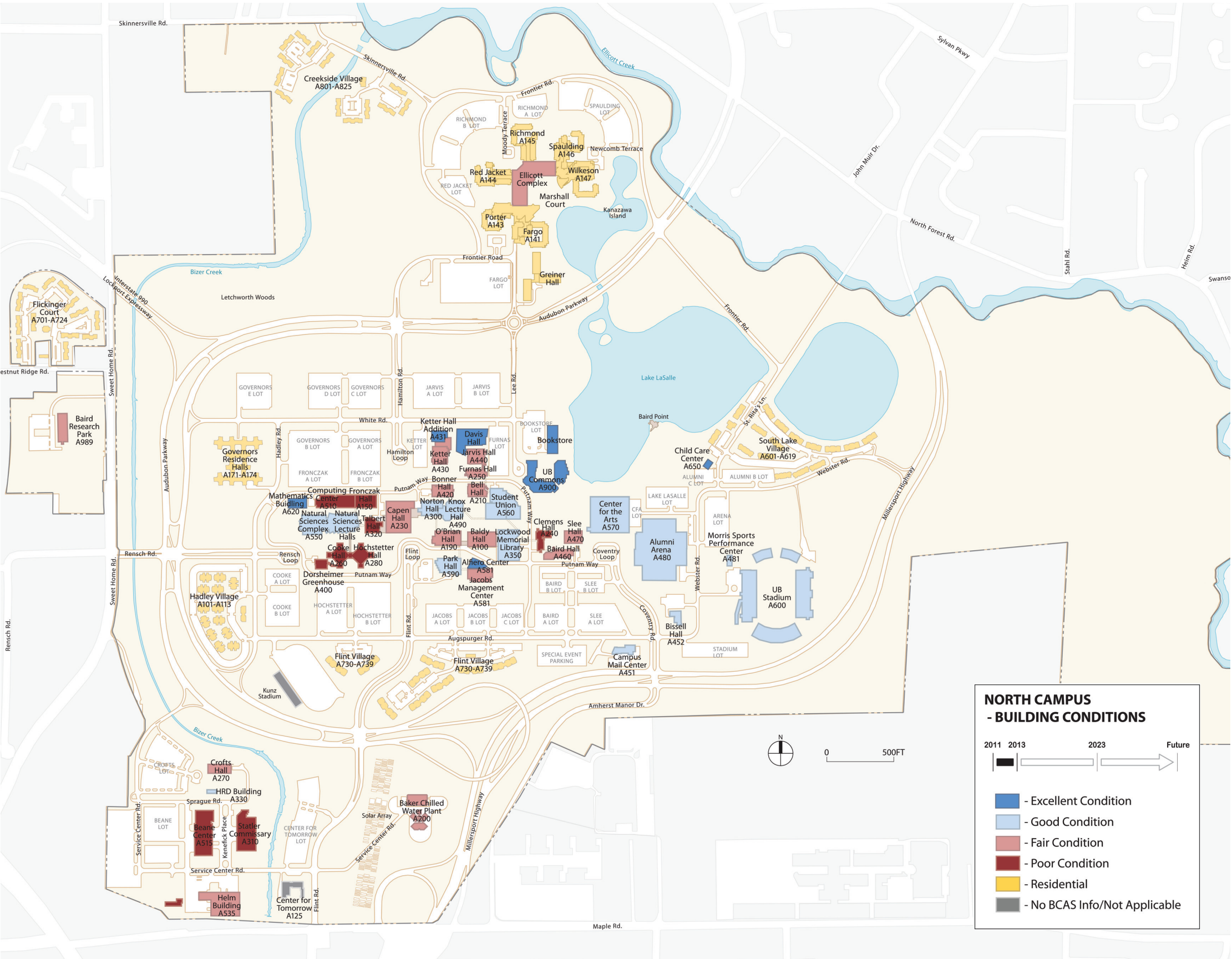


Figure E-140: North Campus Building Conditions.



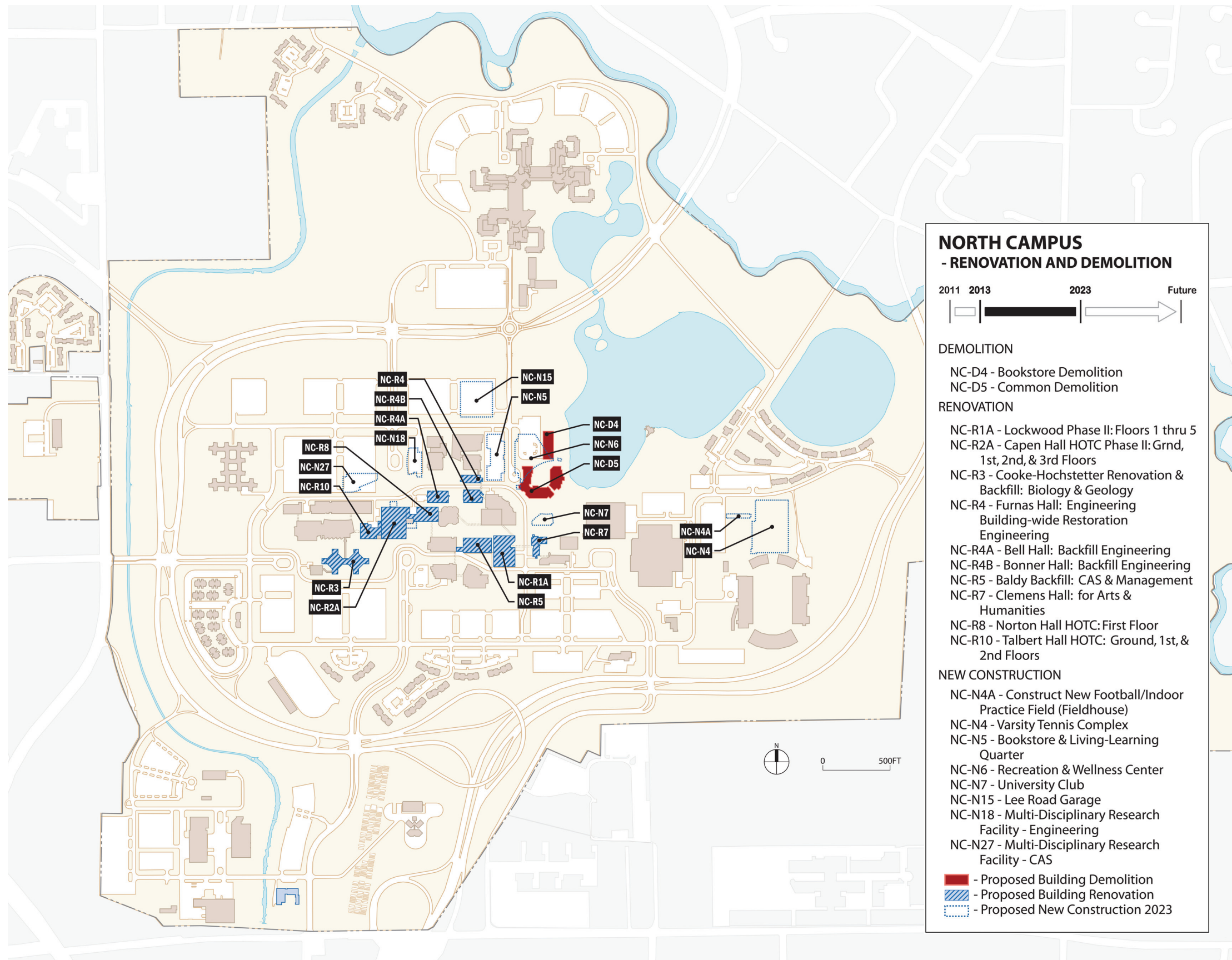


Figure E-141: North Campus Renovation and Demolition.



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NEW CONSTRUCTION

New building construction for North Campus mainly addresses space need for campus life activities. In the area of athletics and recreation, a new Field House and Tennis Center will be added to meet competitive athletics facility standards. For students and faculty, a new recreation and wellness center will be provided at the Oval, engaging Lee Road as the center for student life activities. Also on Lee Road is a new mixed-use living-learning center that houses residences for students and faculty as well as bookstore, café and other campus life amenities. Forming the southern edge of the Oval will be a new university club hosting alumni, faculty and staff events.

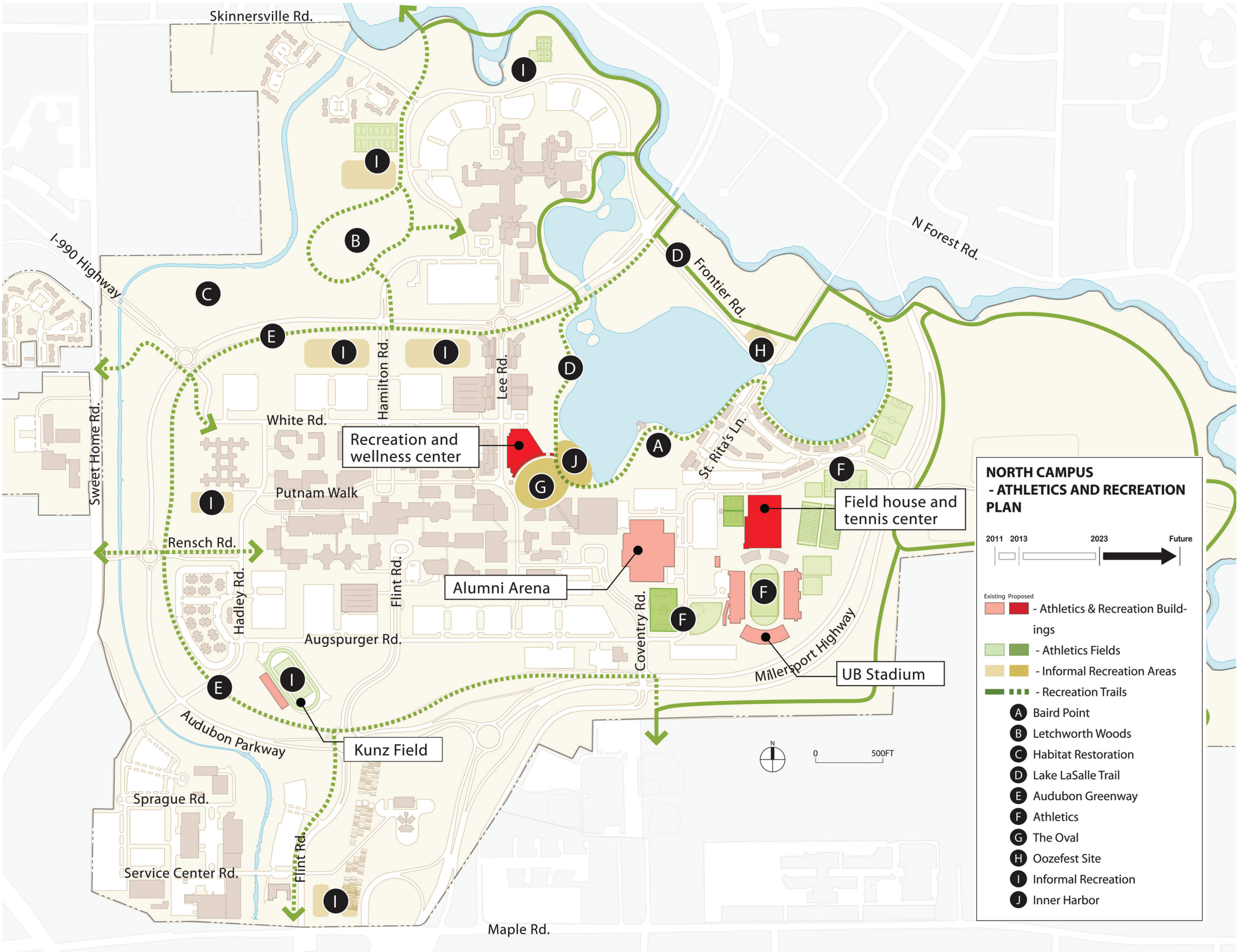


Figure E-142: North Campus Athletics and Recreation Plan.



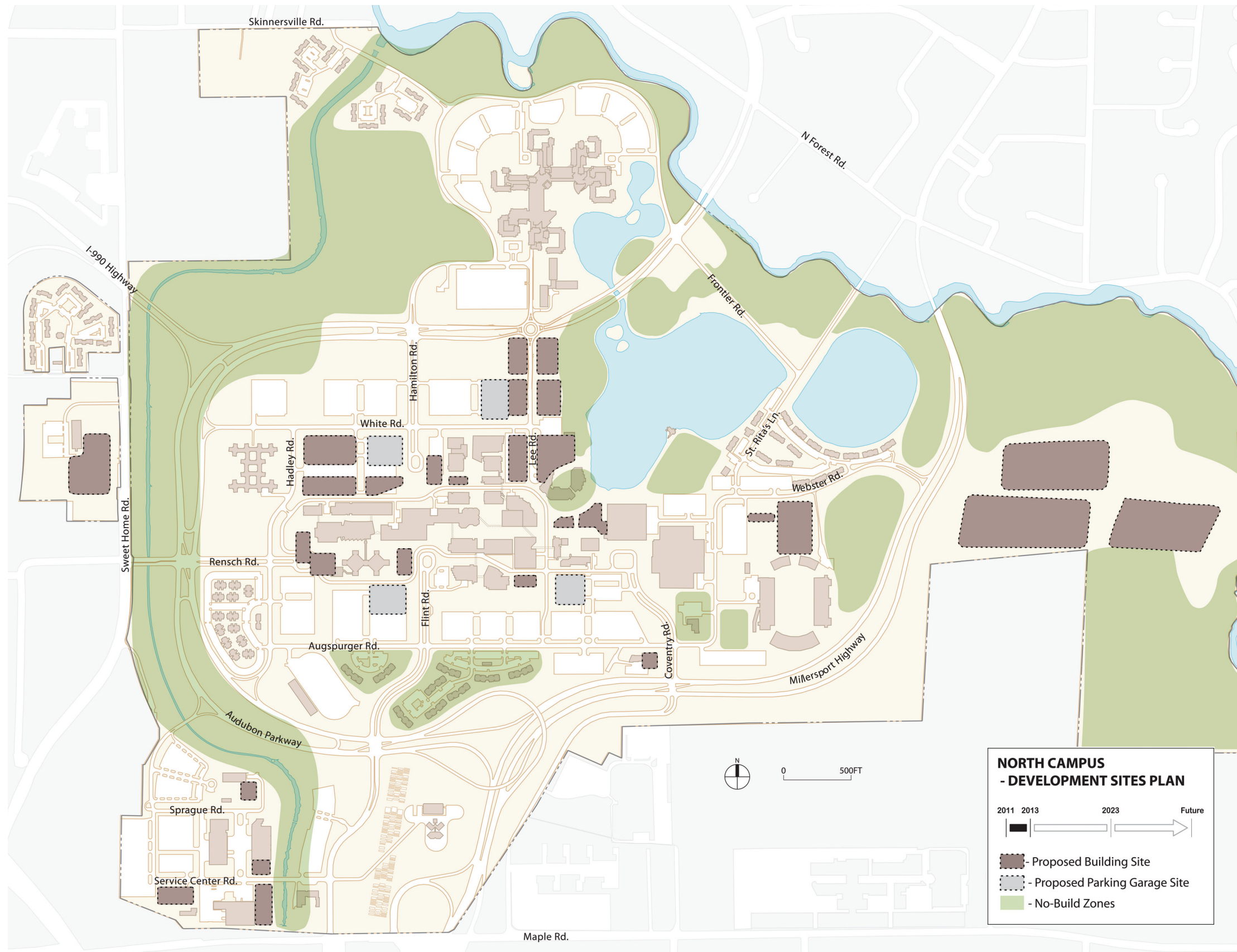


Figure E-143: North Campus Development Site Plan.



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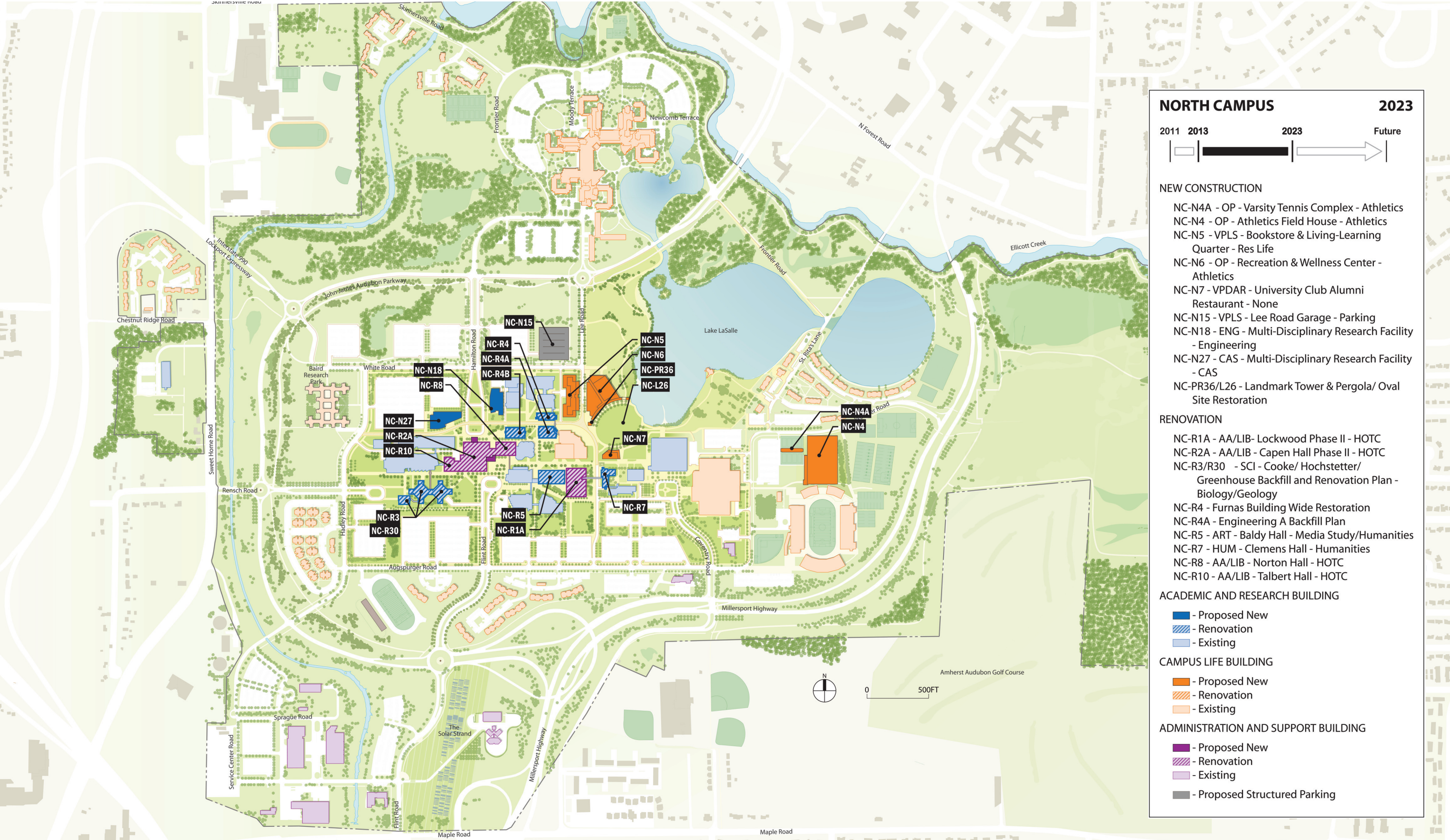


Figure E-144: North Campus 2023 Illustrative Plan.



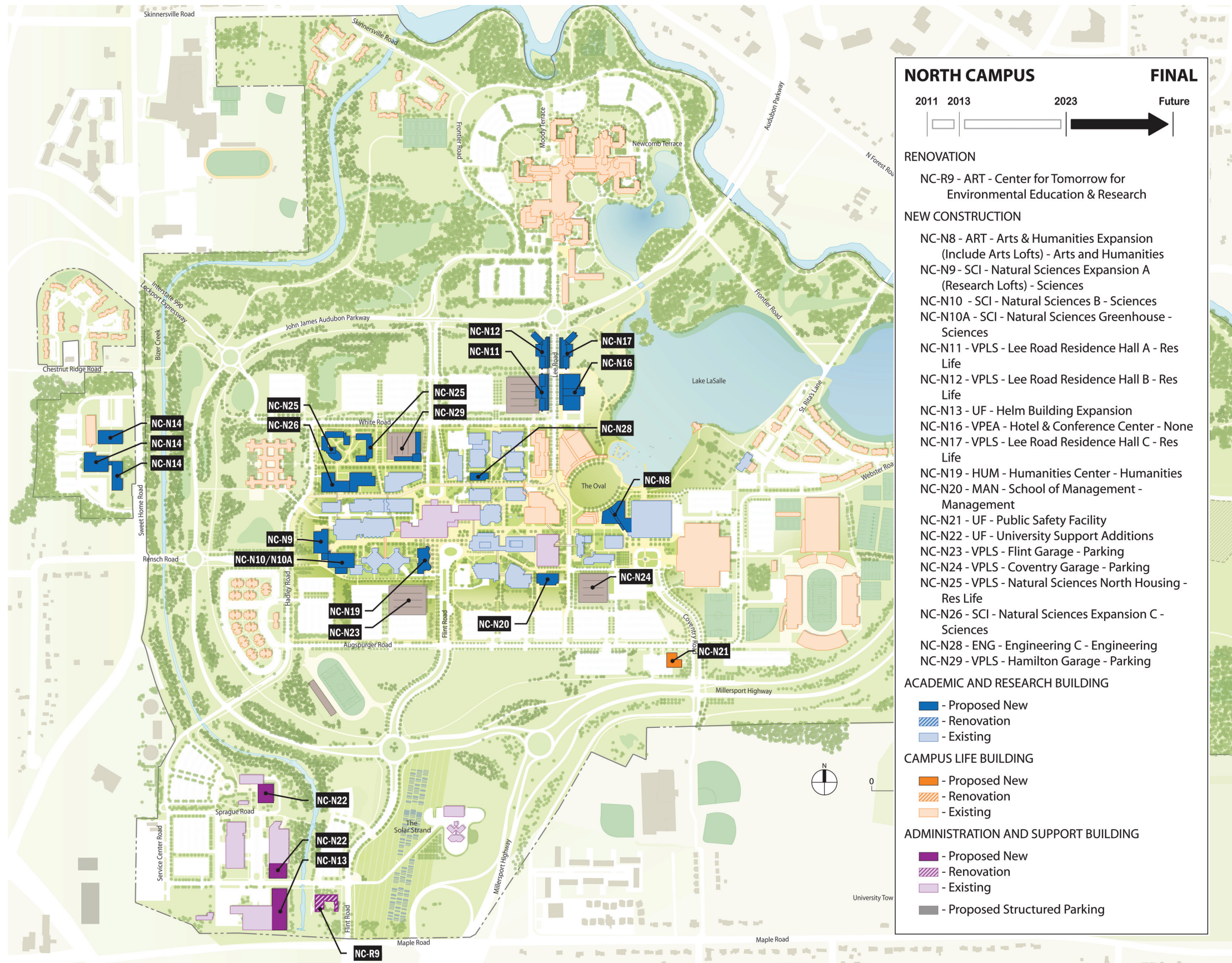


Figure E-145: North Campus Final Illustrative Plan.

## ULTIMATE BUILDOUT

When the vision for North Campus is fully realized, the campus will become an active, walkable environment characterized by indoor and outdoor places that are inviting, memorable, and full of vitality. The ultimate buildout of North Campus will hold increased density at the campus core with improved landscaping within as well as along the perimeter edges. The John James Audubon Parkway will be reduced to be a single tree-lined roadway that is interrupted by traffic circles to control speed and be sized appropriately for traffic volume. A hike and bike trail will follow the parkway as a community amenity. Added academic facilities will fill out the core with natural sciences buildings expanding the width of the spine while a new residential hall at the northwest corner help transform the academic core into a living-learning environment. A new humanities center will frame the south entry experience at Flint Loop while a new expansion to Arts and Humanities will complete the Oval. Lee Road will be built out to concentrate campus life activity with residence halls, street level retail and food venues as well as the hotel-conferencing center. Other administrative and support facilities will be added to serve the needs of the growing institution.



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PUBLIC/ PRIVATE DEVELOPMENT

Specific projects are ideal candidates for public/private development. These include all future buildings slated to activate Lee Road. The residence halls and student life functions are very much in keeping with current trends of successful mixed-use urban development. Hotel-conferencing can be an attractive development opportunity for developers in collaboration with hotel operators. The Health and Wellness Center and other athletics facilities could be developed privately, ultimately attracting alumni or private funding as well as developer involvement.

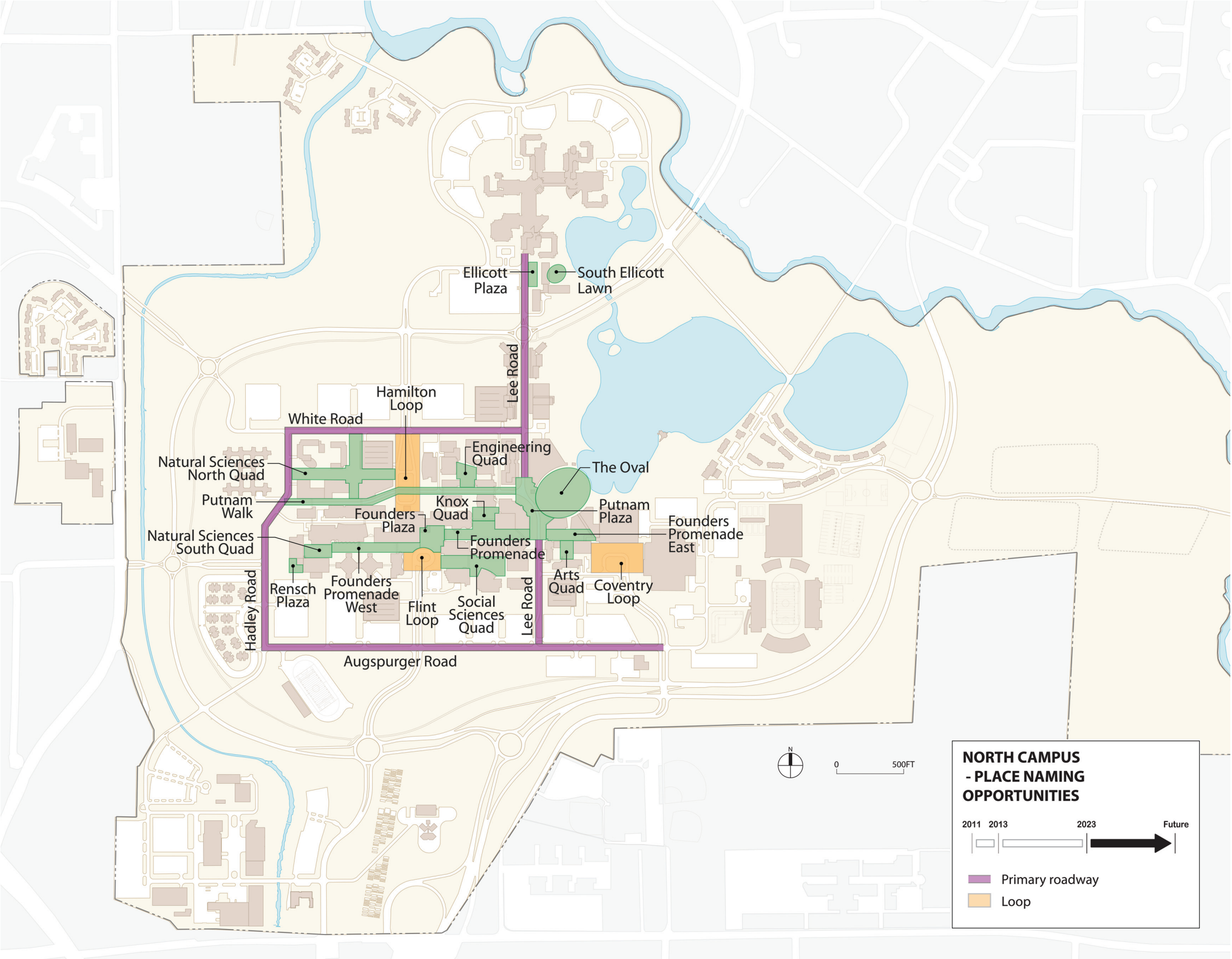


Figure E-146: North Campus Place Naming Opportunities.



WAYFINDING

EXTERIOR SIGNS VEHICULAR CIRCULATION

The path from roadways to parking to building entries would be aided by enhancements to campus identity and building identity, to address line-of-sight issues. The size and stature of the North Campus should be projected at roadway entries by architectural elements employing masonry and permanent types of graphics; cast-in concrete or wall-mounted and ground lit to minimize maintenance requirements. Monument wall features working in harmony with landscape and hardscape to express messages proportional to the size of UB campuses and facilities will impress and prepare visitors for the scale of the campus within.

Directional signs can be re-proportioned to present a more readable listing of destinations and be less obtrusive to the landscape. Components from the existing sign system may be recycled and re-used in this process to save labor and materials. The state of the art in copy application is film application to solid substrate and digital printing. Revisions and changes should be made in the field. A single typeface would elevate the corporate image of the University.

All the North Campus buildings could be better identified. Building identity can be employed in place-making, which aids wayfinding. More building identity sign types could better link the various map references to the built environment, i.e. clearly identified building numbers and place names as they appear on maps downloaded before a visit.

Use of the University Seal would lift the brand back to an academic profile. Future designs should achieve a balance in logo/seal art applications where appropriate, to provide for clearer communication of the directional and identity messages. The font ‘Clear view Highway 2-W’ will allow for heightened legibility and readability as this font allows for larger letters with more characters per line.

Additional building identity sign types and directional sign types can solve these issues and enhance

appearance of views as seen from parking and on plazas. Additional sign types are needed to fit architectural conditions and link names to entrances.

There is also a need for creation and application of policy display standards, for entries and spaces adjacent. Sign systems are “living entities” which are in a constant state of growth and change. Re-establishment of the position of Sign Guidelines Administrator working in concert with the University Facilities Customer Service Department would provide for better coordination in the display application, and removal of, permanent and temporary messages, which are an important part of campus life.



Figure E-147: North Campus Monumental Signage Types.



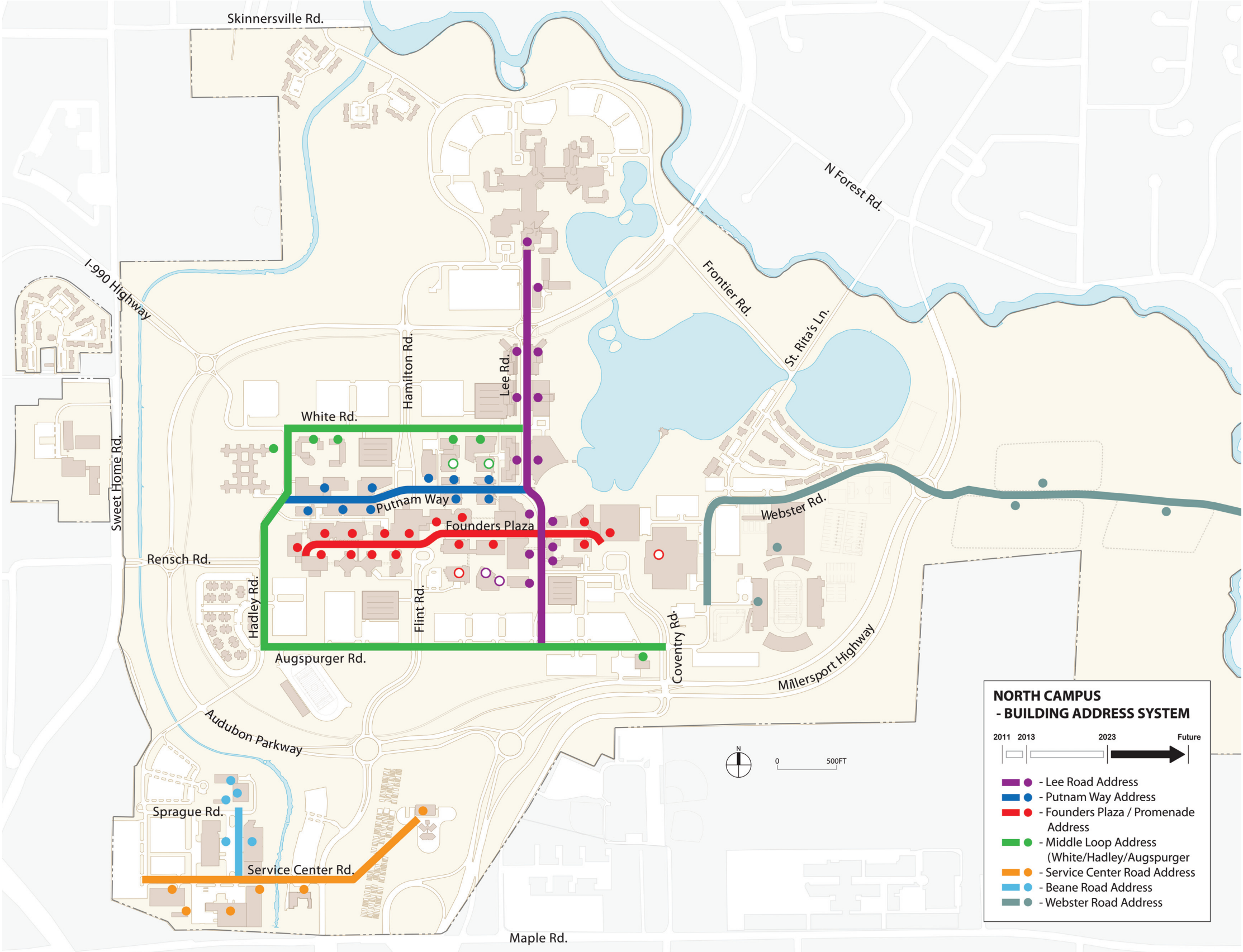


Figure E-148: North Campus Building Address System.



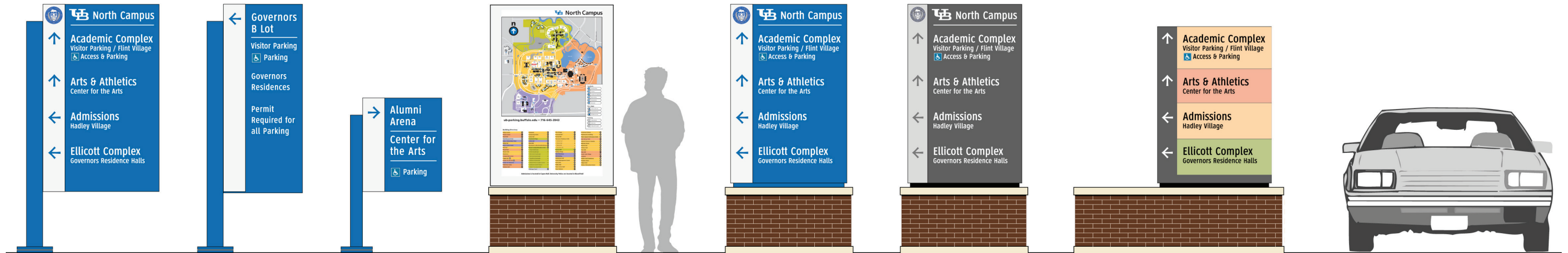


Figure E-149: North Campus Directional Signage Types.

### Directories

Display of map art on freestanding non-illuminated single-face signs in key locations should be larger. The amount of space dedicated to UB identity should be reconsidered and the configuration of cabinet elements could be reduced to make this vehicle more affordable. Double-sided displays would increase their effectiveness. Where displays are positioned for the posting of temporary messages, the reinstated Sign Guidelines Administrator should coordinate the succession of regular events (blood drive, campus club rush, games, shows, etc.) onto banners for proper display at entries toward an enhancement of school spirit.

### Directional & Parking Identity

Simpler configurations and sizes would significantly reduce material and maintenance costs. Obsolete signs left in place after the 2002 sign replacement, should be removed. The success of these signs has been the changeability of film messages which are created and installed by UB Facilities. The effectiveness of directional messages can be improved by reduction of identity elements not necessary at these locations, and removal of temporary and policy messages which belong elsewhere. A simple kit of parts will reduce the fabrication and maintenance costs significantly.

Directional area color coding is not easily distinguishable. Deeper saturated hues will function and coordinate better with UB blue, and better serve that aspect of wayfinding. Project Standard Arrow art can be improved. The geometry of arrow shapes within a circular field is less effective than arrow art as typographic character (without circle) and will allow for larger arrows as current arrows are too small in proportion to legends / sign messages.

Additional sign sizes should be created to fit the needs at various lot boundary island locations, reducing the appearance of sign clutter, and future fabrication costs. Some coordination with landscaping or addition of footing cover, would enhance appearance which is of particular importance at these high visibility, and numerous, locations.

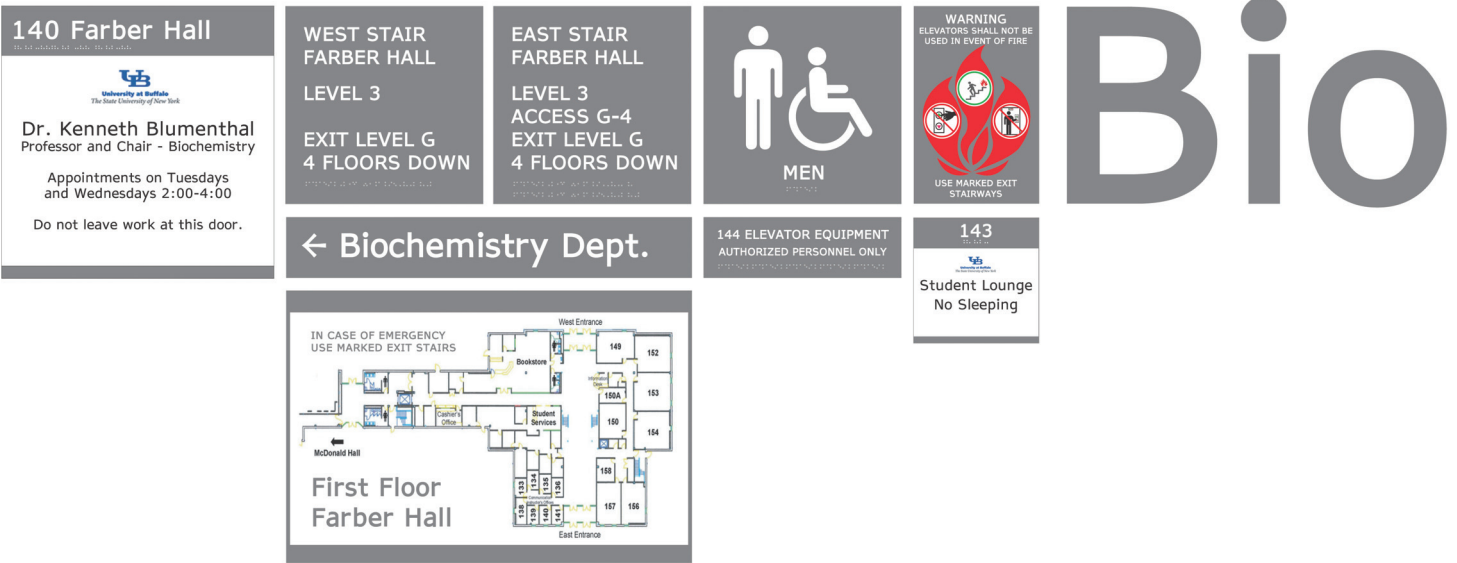
### EXTERIOR SIGN TYPES - PEDESTRIAN CIRCULATION

Pedestrian wayfinding signs around campus need to employ taller stanchions for messages in more of a flag configuration as a practical solution easily implemented with some of the existing materials and extrusions. The addition of building identity and names for facades and entries will further support directional signs as the current scheme leaves one at the parking lot making finding a building a challenge.

In addition to new letter sign types for building facades, there should be a development of the 'dedication plaque' concept to fit the architectural experience at building entries. Likewise, film and applications of digital graphics can serve to improve wayfinding within a reasonable budget. A re-design of a plaque type H-3 is proposed to remove the unnecessary 'tombstone' header. These signs should further coordinate with the bulk of interior signs at rooms / doors: sign type 6" square plaque. Future security constraints will close numerous entries creating a need for new directional sign types to lead visitors to proper (and accessible) entries, from closed doors.

Policy messages call for uniform display of entry hours of operation and other standard messages that will be organized to prevent sign clutter at building entries. The best typeface / font available for exterior signs is 'Clearview Highway,' developed by the US Highway Department for use on the roadway network across the US.





Where interior signs are concerned, there is a need for a more integrated practical system so that various facilities can afford signs that are necessary to satisfy ADA legislation and code. Sign frames are not necessary. Windows for paper inserts work well for academic and multi-use environments and should be employed more often. The best typeface / font for interior signs is APH font developed by the Federation for the Blind.

“YOU ARE HERE” Signs

Interior maps are not in place. A concerted effort is needed to create the quality of maps necessary to implement this sign type’s better function, with a simple header providing better information.



Figure E-150: Interior Sign Types.

INTERIOR SIGN TYPES

UB will be enhanced by the addition of place-making graphics to create landmarks along the path between buildings and a cohesive system of ADA compliant signs for base building facilities.

Sign systems are “living entities” which are in a constant state of growth and change. The re-establishment of the position of Sign Guidelines Administrator will be important for working in concert with the University Facilities Customer Service Department to provide for better coordination in the display application, and removal of, permanent and temporary messages, which are an important part of campus life.

Directional sign types

The plan suggests a design for an efficient header and directional sign system for lower cost implementation and with better contrast. UB should provide user groups with sign specifications for directional sign standards, with a family of sign types and sizes to fit varying architectural conditions.

Department/Building Designation Signs

UB needs sign specifications for department identity and interior building identity / transition sign standards with options to fit different architectural conditions and dimensions while maintaining a corporate uniform appearance commensurate with the stature of school.

ADA and Code-required Sign Types

Development of new simpler sign standards, with cost-effective profiles is needed to satisfy the spirit of ADA ADAAG legislation and protect the University from litigation. Way-finding will be improved in the process because user groups are more apt to follow a system that is clear and consistent and uniform.



In order to express some of the predominant entrances as gateways to the North Campus, more than road realignments and traffic circles will be needed. Architectural signage and strategically placed monuments will establish the identity and location of each campus gateway. Unlike much of the signage in use today, future signage should incorporate the architectural language of the campus by integrating monumental brick walls with cast stone bases, caps, inset panels, landscaping and/or ornamental fencing. The panels should incorporate permanent lettering that is either cut or incised into the panel as it would reduce long-term maintenance as well as establish permanence. The scale of monumental signage should be commensurate with the space near the roadway and speed of traffic.

Other ways to help establish gateway locations include the addition of flagpoles and accent lighting. Flagpoles prepare visitors for the entrance from greater distances, allowing traffic to adjust and slow during the approach. Ground lighting signage, landscaping, and flag poles will command attention, establishing the gateway, as well as providing the most efficient method of illumination at night.

Intersections and traffic circles at Flint, Rensch and Hamilton Road entries should be marked by tall, vertically oriented directional signs at a primary scale, while directional signs ‘on campus’ should be reduced to serve slower moving traffic. Reducing directional signs would be more economical as there are numerous required locations at intersections and parking entries.

Beyond sculptural elements, campus landmarks can also be created by significant sign installations. Large building name signage viewed from a distance serves as a better meeting place and provides heightened orientation, which also helps establish that particular building as a landmark in and of itself. Adjacent to these landmark buildings would be an ideal location for larger scale directories, vehicular and pedestrian oriented directional signs, and useable boards for the

posting of temporary messages about campus events and activities.

Signage that incorporates Electronic Message Centers [EMC] has the flexibility that a diverse University needs. Information from a remote central processing unit can provide easy and frequent updates or changes to various displays, which is a feature desired by larger user groups. The existing EMC location at Coventry Road should be incorporated into a more permanent feature-wall. Similar expressions at Flint, Rensch and Hamilton Road entries should also be incorporated in order to complete the system. The Electronic Message Centers would eliminate the need for the posting of temporary ‘bandit signs’ that only serve to distract drivers and do not provide for memorable communication.

Within the campus network of parking lots and walkways, a pattern of street signs and pedestrian directional signs, which are related in size, appearance and placement, would be a cost effective way toward identifying names of places, directions to buildings and providing orientation to the walking public.

Better applications of individual letters and panels displaying building names at entries and key visibility locations will complete the system from gateway to doorway.



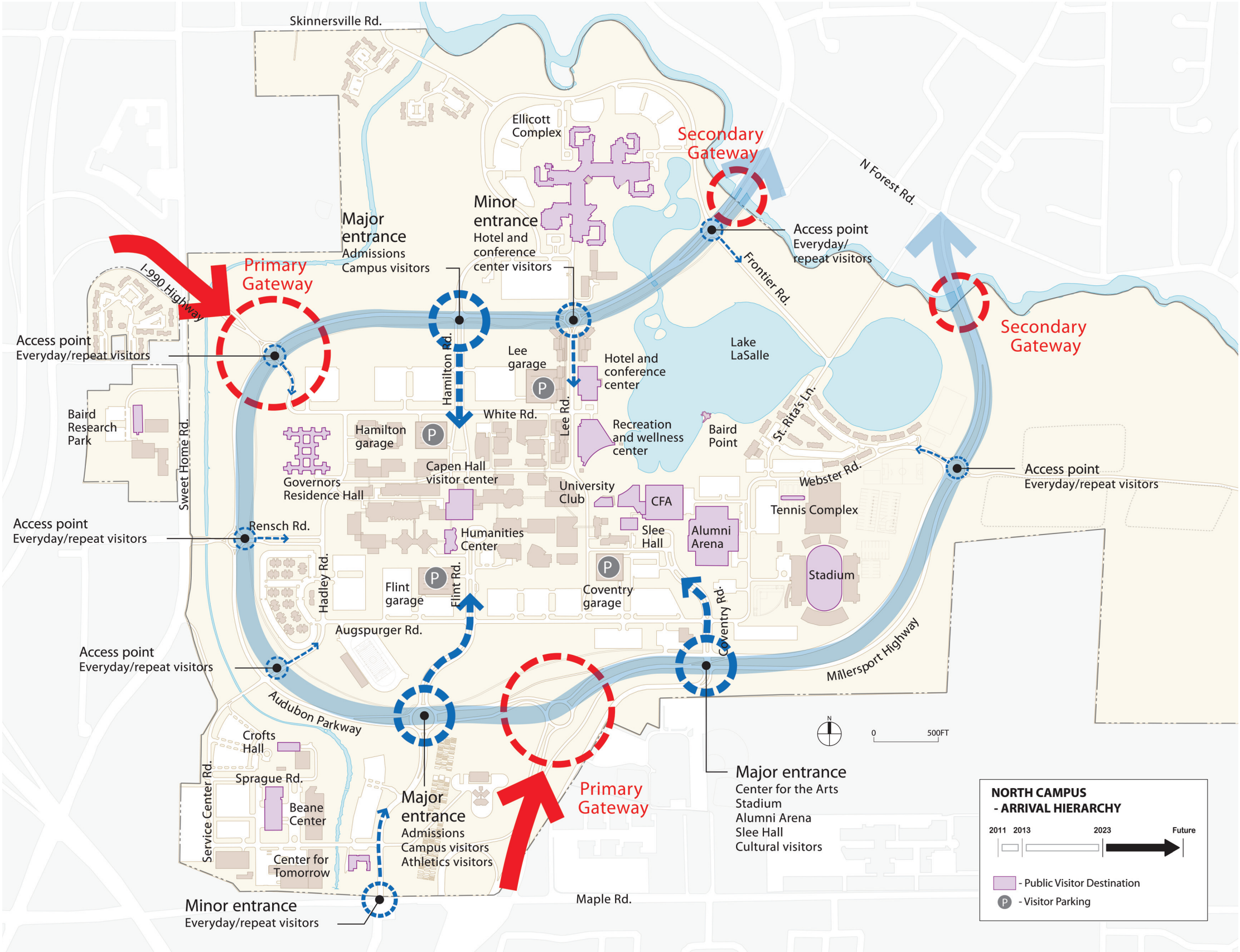


Figure E-151: North Campus Arrival Hierarchy Plan.



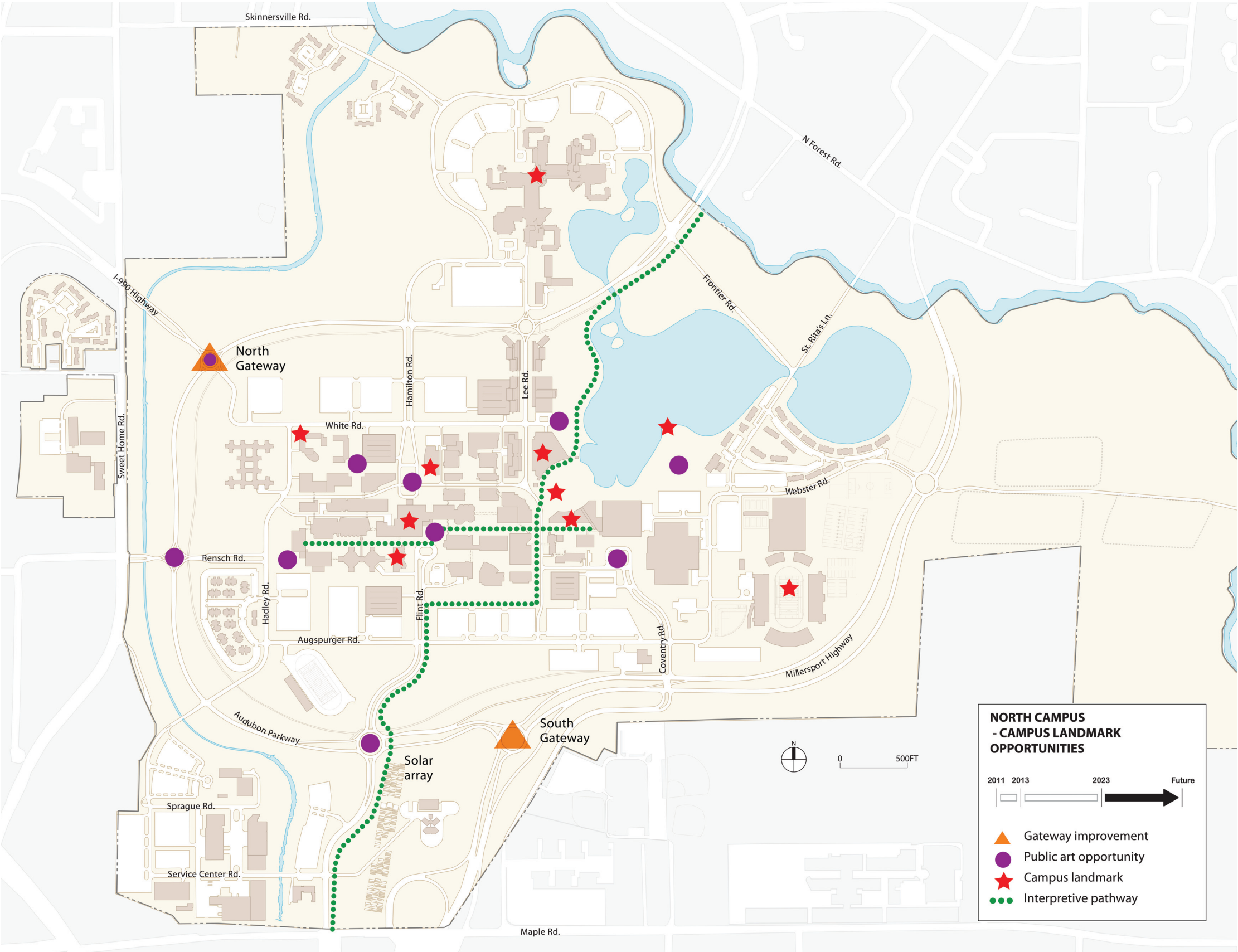


Figure E-152: North Campus Landmark Opportunities Plan.



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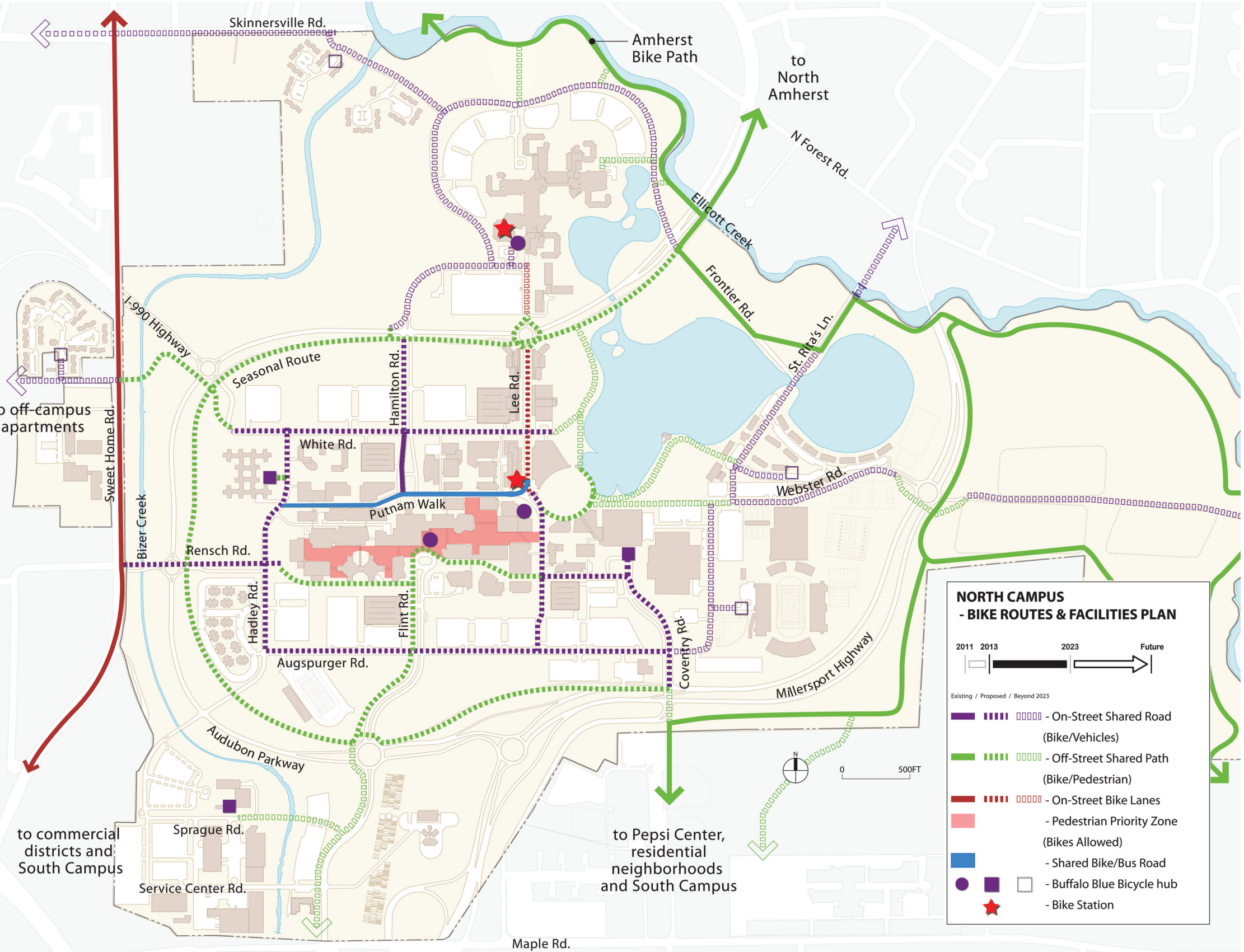


Figure E-153: North Campus Bike Roads and Facilities Plan.

CIRCULATION

PEDESTRIANS AND BICYCLES

The FMP proposes a number of pedestrian and bicycle projects that would be implemented by 2023 in support of the rest of development on the campus. Because much of the FMP for North Campus focuses on improving quality of campus experience and quality of life, the pedestrian and cycling elements become particularly important. In general, the goal is to improve connectivity through pedestrian-focused improvements for any roadway, parking facility, or intersection possible.

The major roadway redesigns proposed in this FMP will result in a major benefit for pedestrians and cyclists. Two major projects are the conversion of Audubon Parkway's inner carriageway to bicycle and pedestrian use only, and the construction of roundabouts at each of the Audubon Parkway intersections. The removal of the inner carriageway from vehicular use will result in a complete loop and connection around the campus for both pedestrian and bicycle transportation, as well as for recreational use. With the removal of half of Audubon Parkway, the size of intersections will decrease significantly, which benefits non-motorized users. The construction of roundabouts would calm traffic, contributing to a more pedestrianized environment. The design of the roundabouts, however, must carefully consider pedestrian and cyclist safety, so they are not overlooked when traffic signals or stop signs are removed. Additional pedestrian and cycling elements in this FMP include:

- Converting Putnam Way on the north side of the loop to very slow speed traffic (almost shared pedestrian/vehicular space), and also renaming this portion of Putnam Way to Putnam "Walk" shifts the emphasis so the focus is on pedestrian use.
- Conversion of Putnam Way on the south side of the loop to pedestrian and cycling use only.
- Addition of crosswalks at all intersections.



- Signage and markings informing drivers to “Share the Road” with cyclists through the use of “sharrow” markings on pedestrian oriented roadways like Putnam Walk and Augspurger Road.
- Installation of striped 5-foot wide bike lanes on main roads where feasible. These lanes will help identify the presence of bicyclists and strengthen off-campus connections.
- Installation of bicycle racks in covered areas of campus, or within new parking structures.
- Connections from the north side of campus, near the Ellicott Complex, to the Amherst Bike Path.

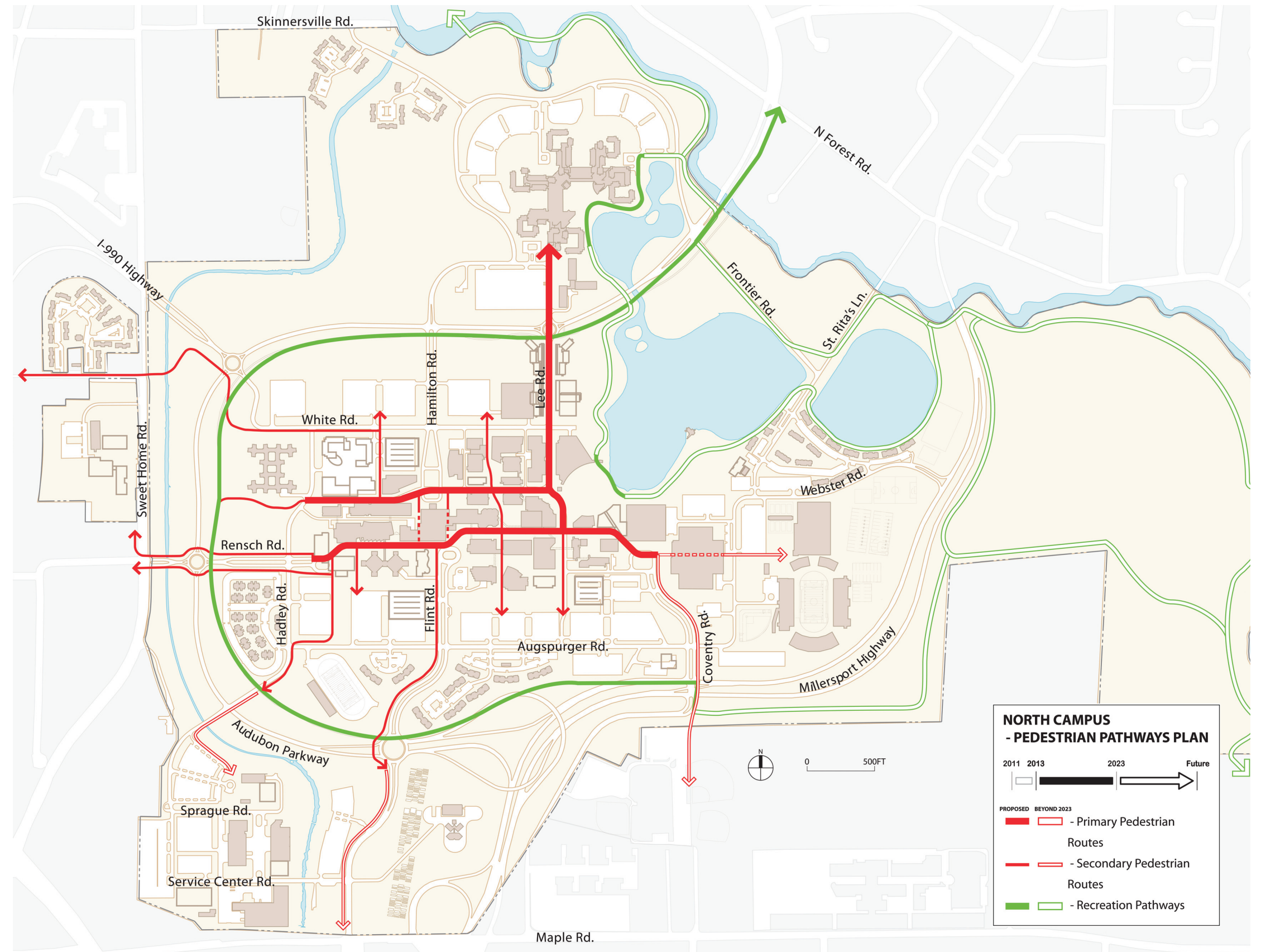


Figure E-154: North Campus Pedestrian Pathways.



TRANSIT

There are no major facilities investments proposed for transit for the North Campus. UB2020 calls for a realignment of routes and bus/BRT stops to best serve demand. The UB Stampede service would be rerouted to ensure service to the areas of most demand during the FMP time period. In particular, service to the HOTC and to South Campus will continue to be prioritized. The installation of bus shelters and pedestrian connections from buildings to bus stops would also be implemented. The improvements to roadways around campus and to the loop roads within campus would be designed to accommodate buses and ensure smooth operations and access. The campus should continue to study the development of a BRT system, possibly in partnership with NFTA.

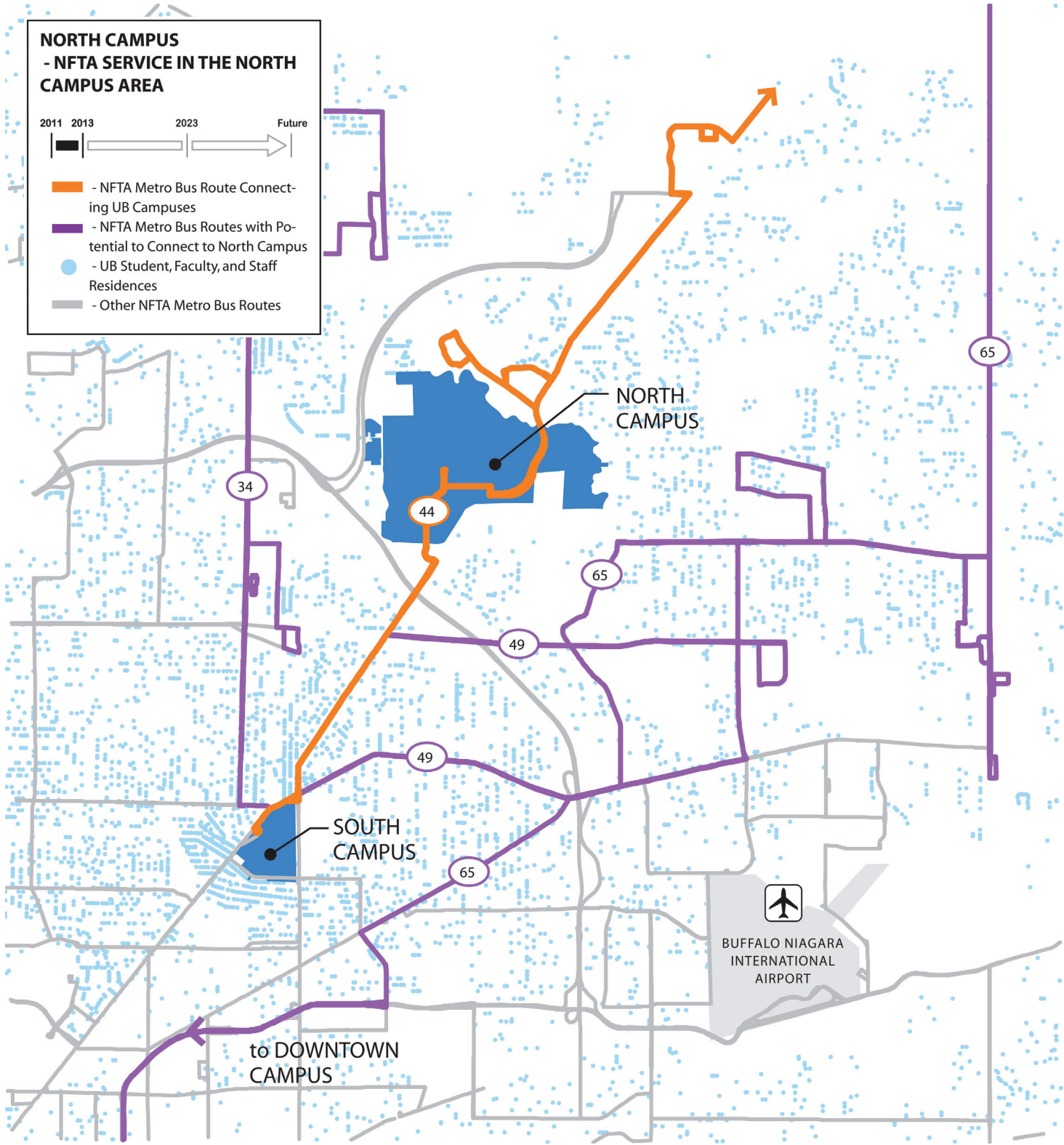


Figure E-155: Service in the North Campus Area Plan.



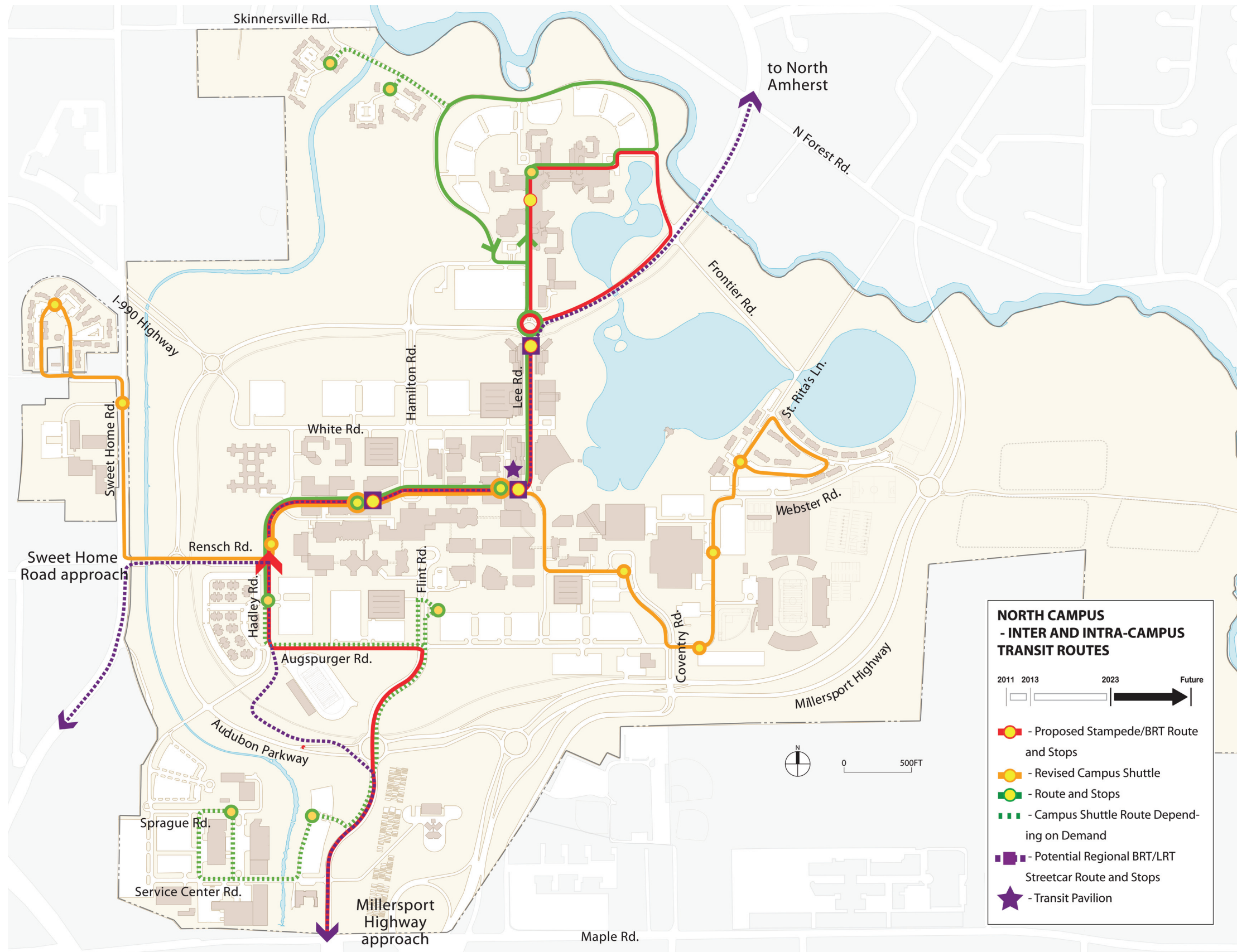


Figure E-156: North Campus Inter and Intra Campus Transit Roads.



[E. NORTH CAMPUS]

VEHICULAR CIRCULATION

UB2020 planned for major roadway changes to address the fact that North Campus was designed with a roadway capacity for a campus population that UB now never intends to reach. The proposals to remove or reconfigure roadways to better match the future demand are partially implemented with this FMP. The changes to vehicular circulation would include the following projects:

- Audubon Parkway – convert the inner carriageway from vehicular use to bicycle and pedestrian use, and reconfiguration of the outer carriageway to accommodate two way traffic.
- Roundabout construction – at the intersections of Audubon Parkway with I-990, Rensch Road, and Flint Loop, convert the existing intersections into roundabouts. This will require traffic flow and design studies to determine the required traffic capacity of the roundabouts, and to ensure pedestrian and cyclist safety. The conversion of the intersection with Millersport Highway would be done after the timeframe of the FMP as part of the full implementation of UB2020.
- Flint Loop and Hamilton Loop – these would be reconfigured and extended deeper into the campus to provide more direct access to the HOTC and support these as the first implementation of the major entrance points to the campus. Coventry Loop would be similarly improved as part of the full buildout of UB2020.
- Putnam Way – as described above, most of Putnam Way would be closed to vehicular traffic with the exception of service and transit vehicles. The east side of Putnam Way, however, would be connected to Lee Road to create a connected internal loop road with Augspurgen Road.

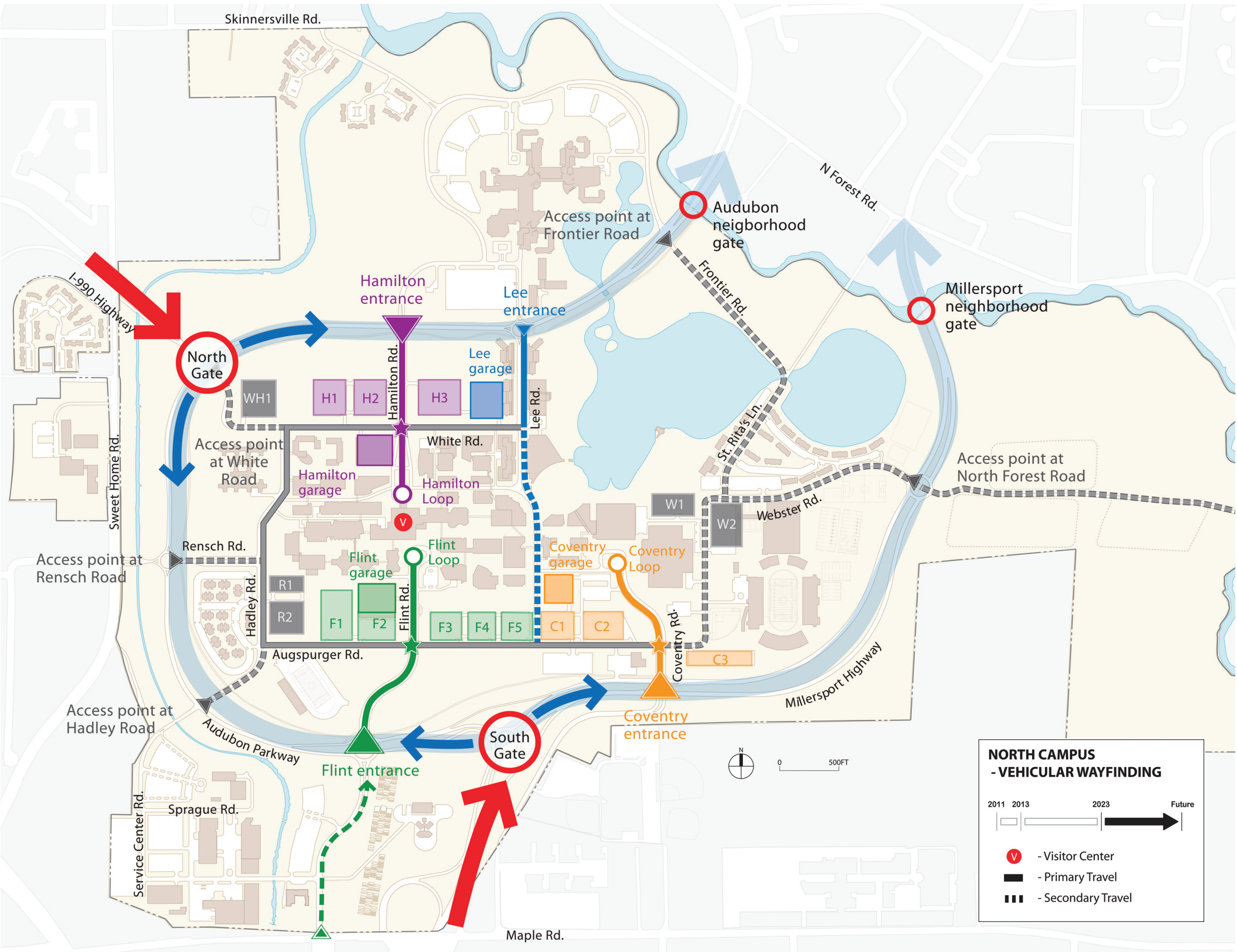


Figure E-157: North Campus Vehicular Wayfinding Plan.



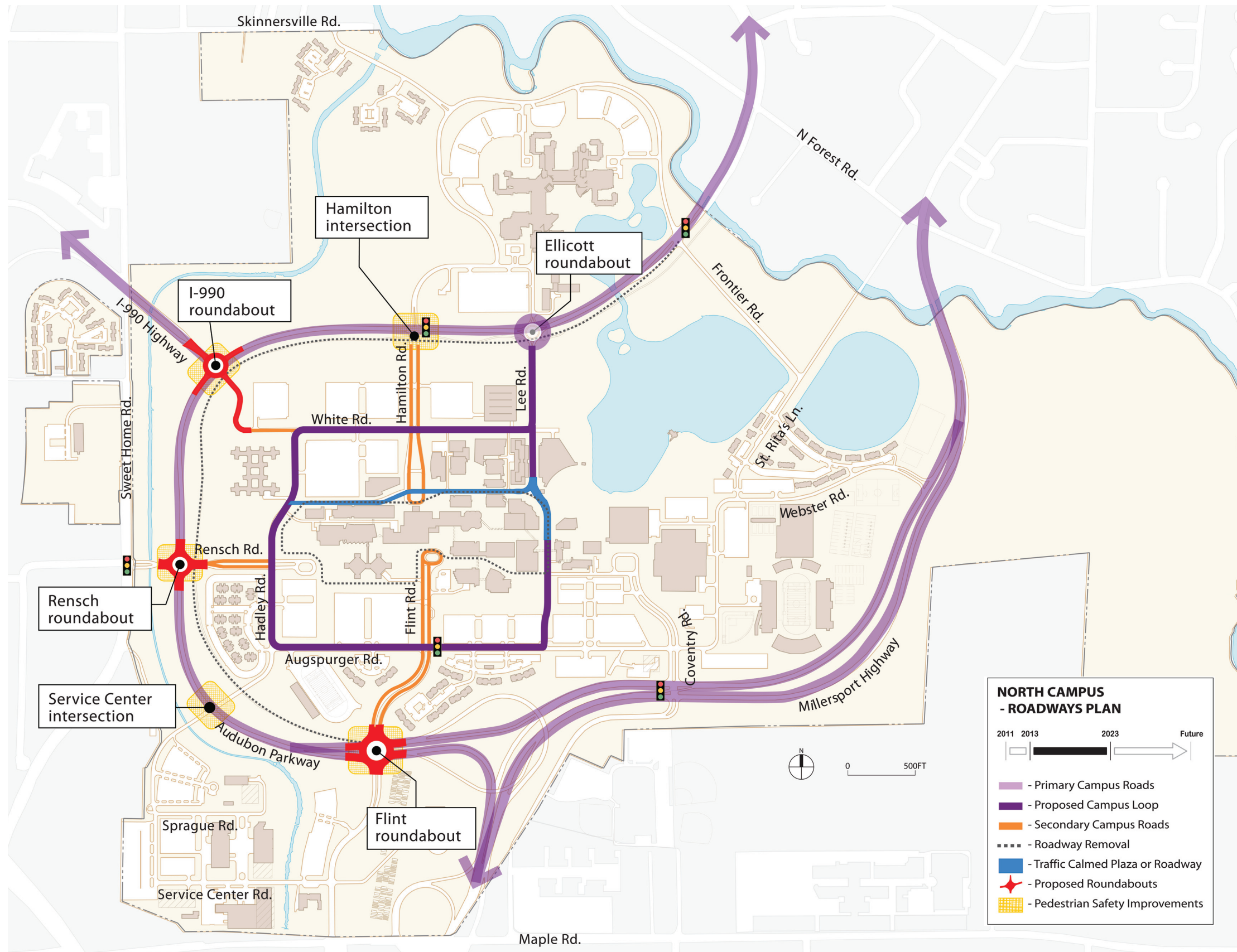


Figure E-158: North Campus Roadways Plan.

The combined effect of these projects will be, as the UB2020 strategy states, to have improved “the fit between cars and the campuses.” The roadway network becomes calmer due to roundabout construction and less roadway capacity, circulation is improved through the completion of an inner loop road that preserves the HOTC, and access to the campus center is improved with changes to Flint and Hamilton Roads.



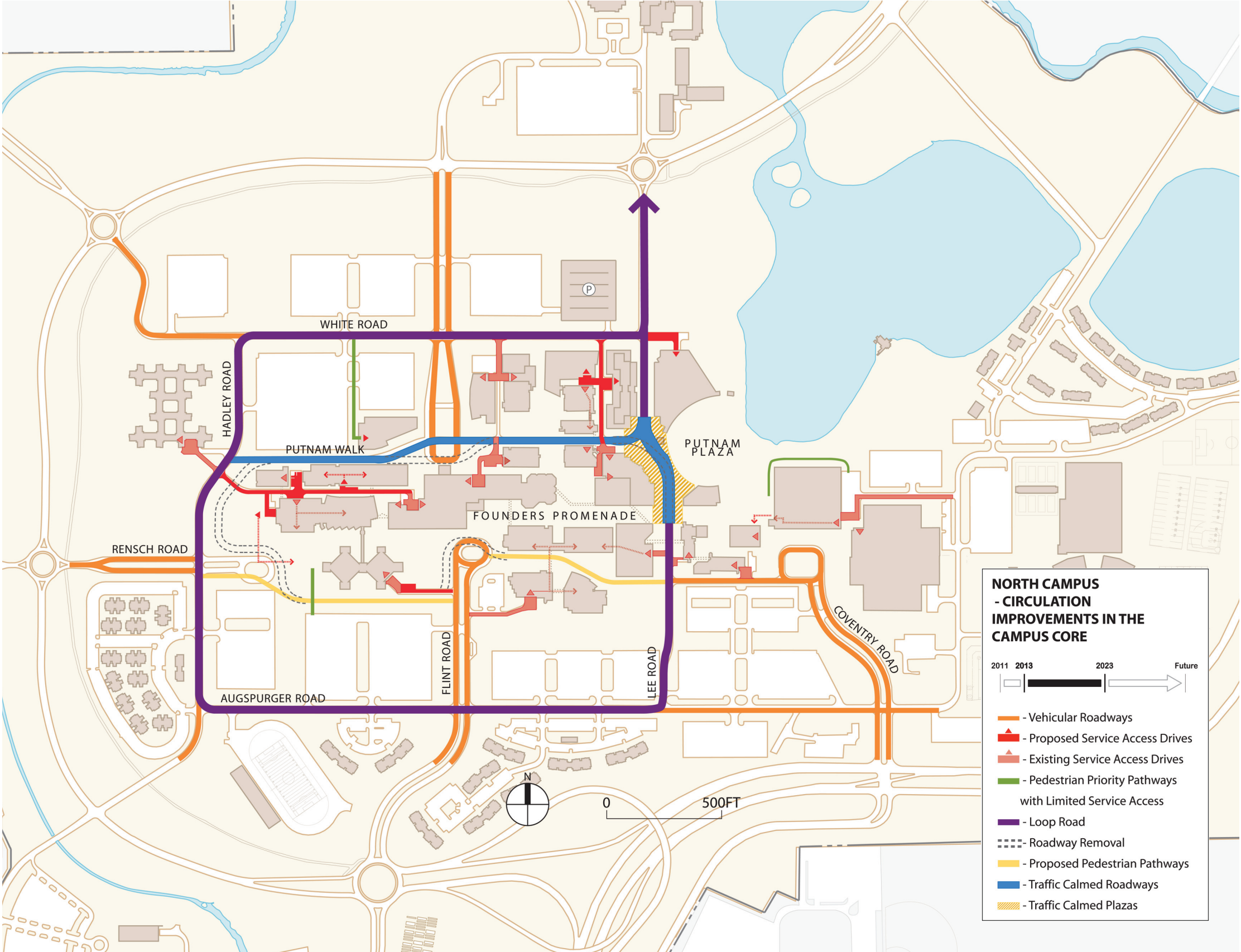


Figure E-159: North Campus Circulation Improvements In the Campus Core.



PARKING

UB2020 calls for construction of parking structures including the 700-space Lee Road Garage implemented as part of this FMP. The Lee Road Garage would be located on the site of an existing surface parking facility, the Jarvis B lot. This structure would contain three levels of parking and would replace parking lost due to the construction of a new building along Lee Road. As the updated parking analysis shows, Phase 2 has a projected surplus of over 700 spaces attributed to lower campus population projections than shown in UB2020. With this surplus, however, UB would be able to adjust the management of parking to better accommodate any potential future growth changes, or to have swing parking space available during parking garage or other building construction. The table E-10 summarizes the parking projections.

Parking Spaces	North Campus (each phase cumulative)				
	Existing 2010 <sup>(1)</sup>	2013	Phase 1 2018	Phase 2 2023	Beyond
Demand	12,141	11,925	10,988	11,208	10,848
Displaced Parking	-	-225	-502	-986	-2,477
New Parking	-	0	0	900	2,690
Total Supply	12,625	12,400	12,123	12,539	12,838
Contingency (5%) <sup>(2)</sup>	631	620	606	627	642
Total Available Supply	11,994	11,780	11,517	11,912	12,196
Surplus/Shortfall	-147	-145	529	704	1,348
NOTES: (1) Existing 2010 parking supply numbers were assumed the same as the 2008 existing parking supply inventory provided in the UB2020 analysis. (2) Contingency rate was similar to the UB2020 analysis.					

Table E-10. North Campus Parking Summary.



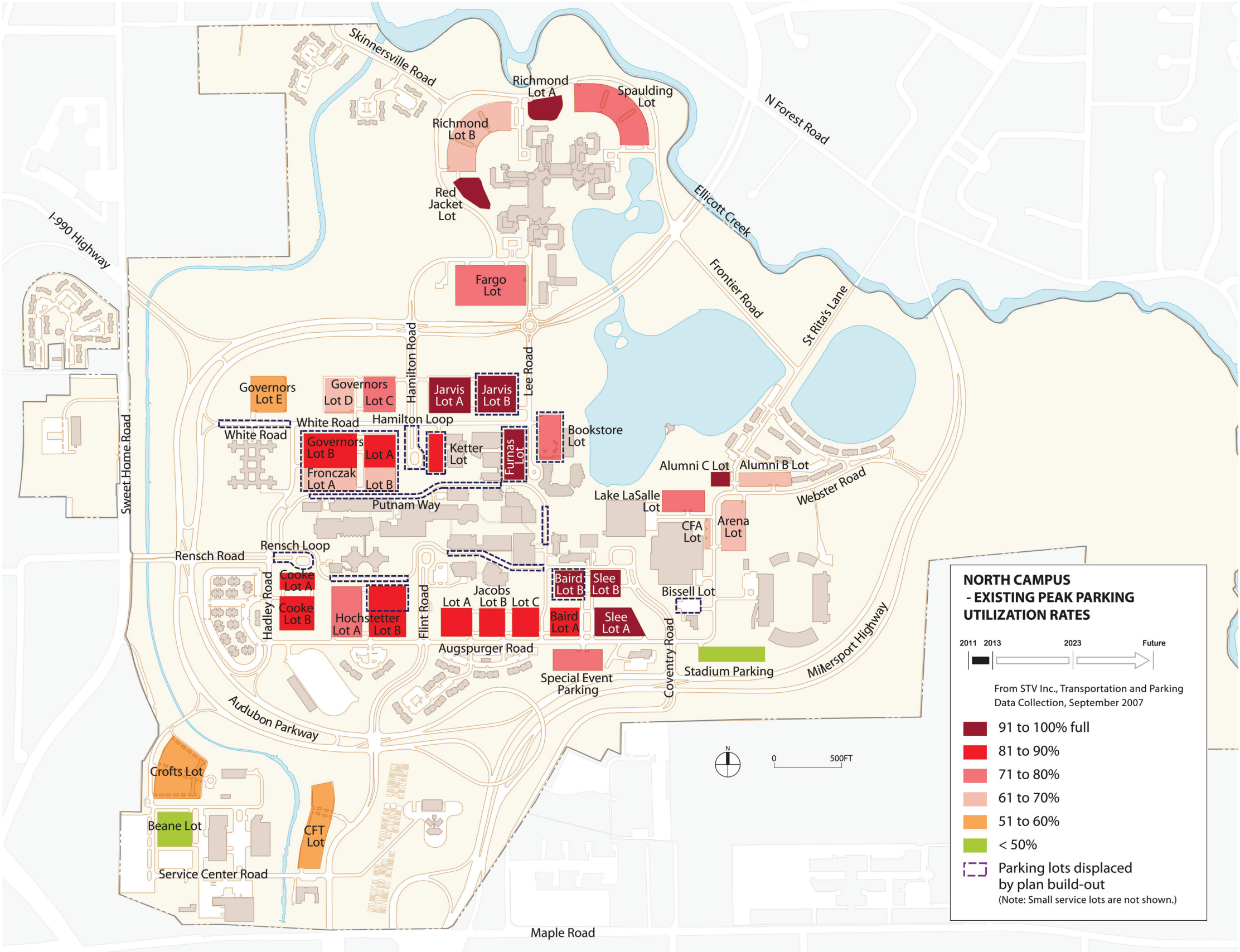


Figure E-160: North Campus Existing Peak Parking Utilization Plan.



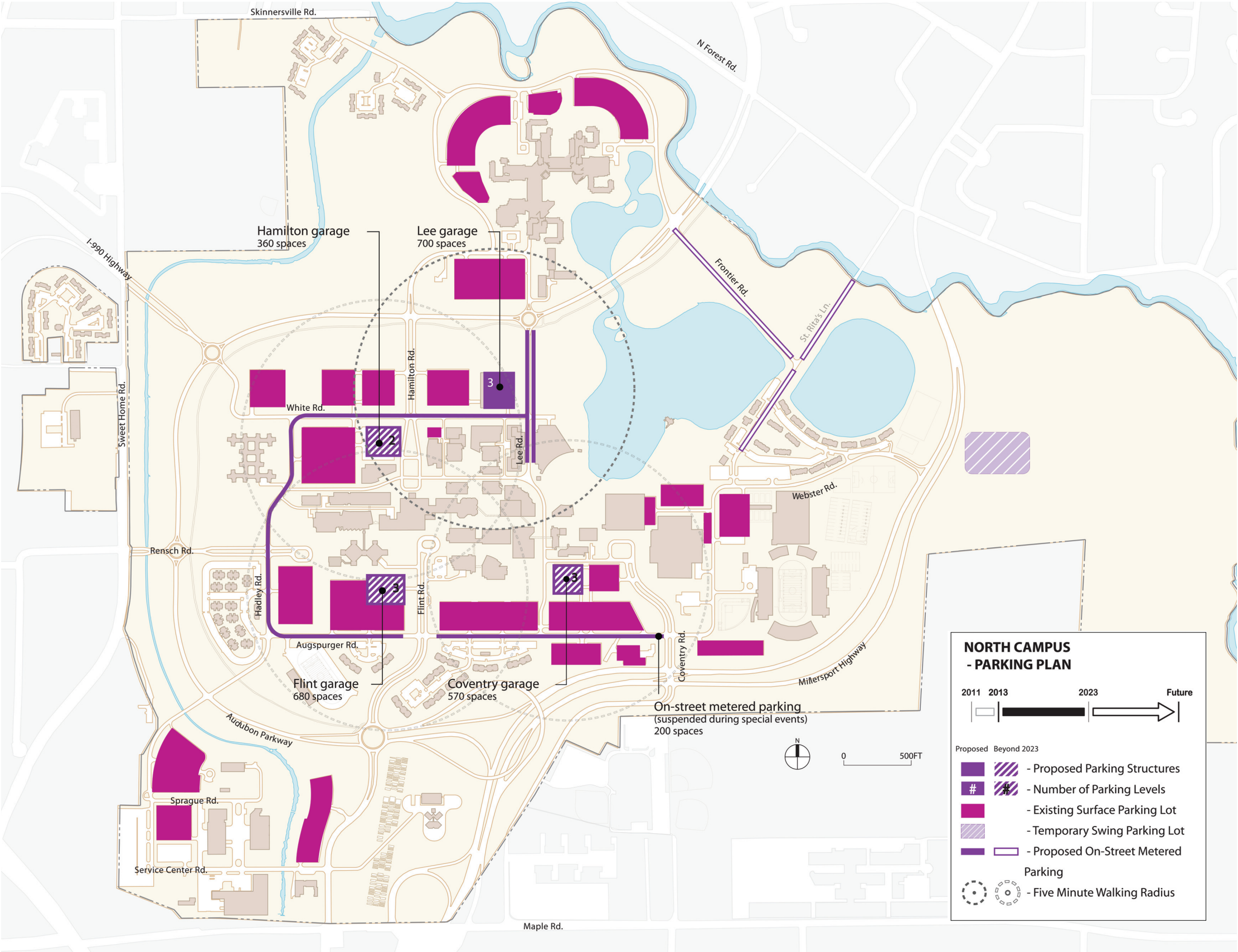


Figure E-161: North Campus Parking Plan Map.



[E. NORTH CAMPUS]

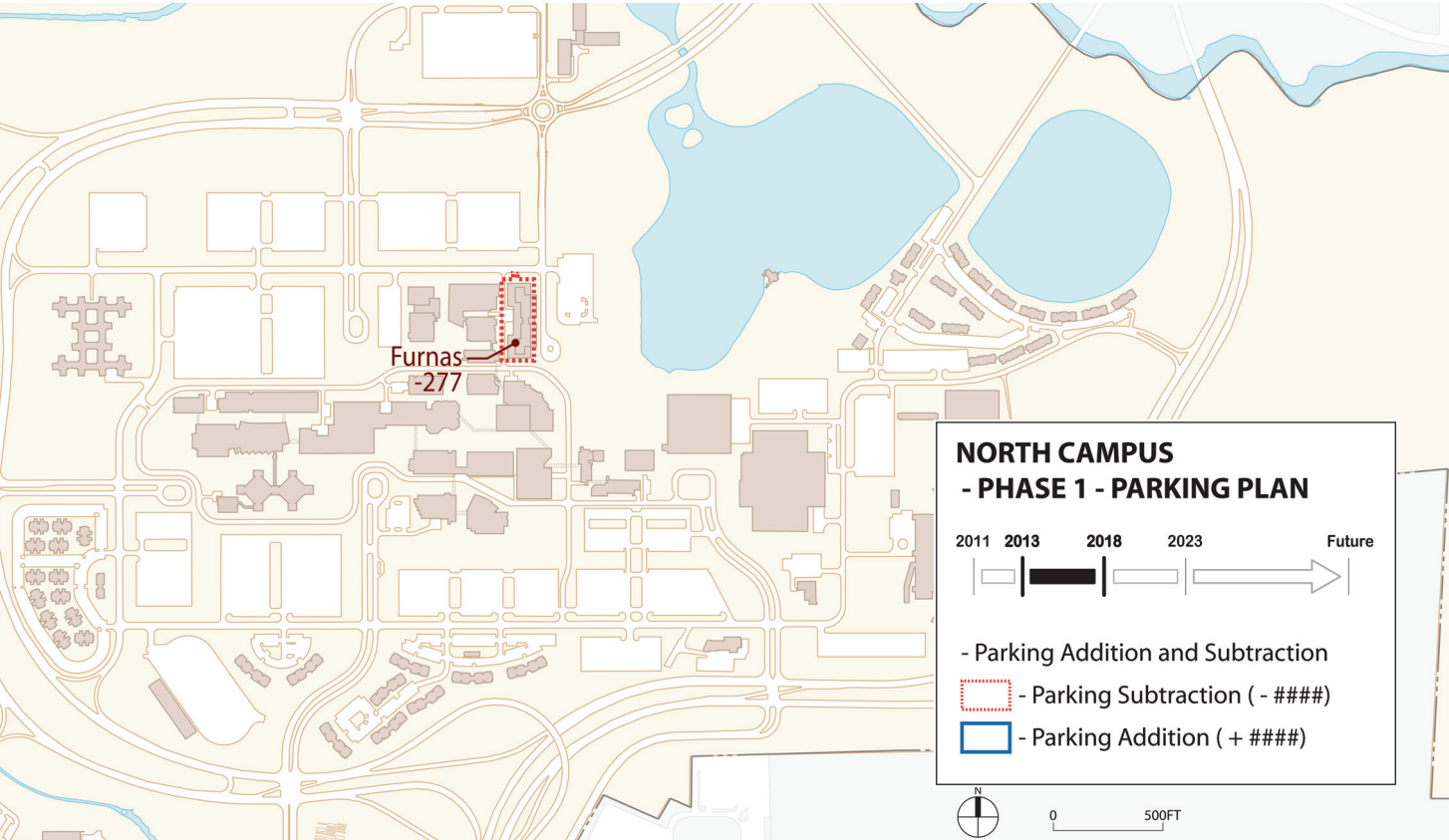


Figure E-162: North Campus Parking Plan Phase I.

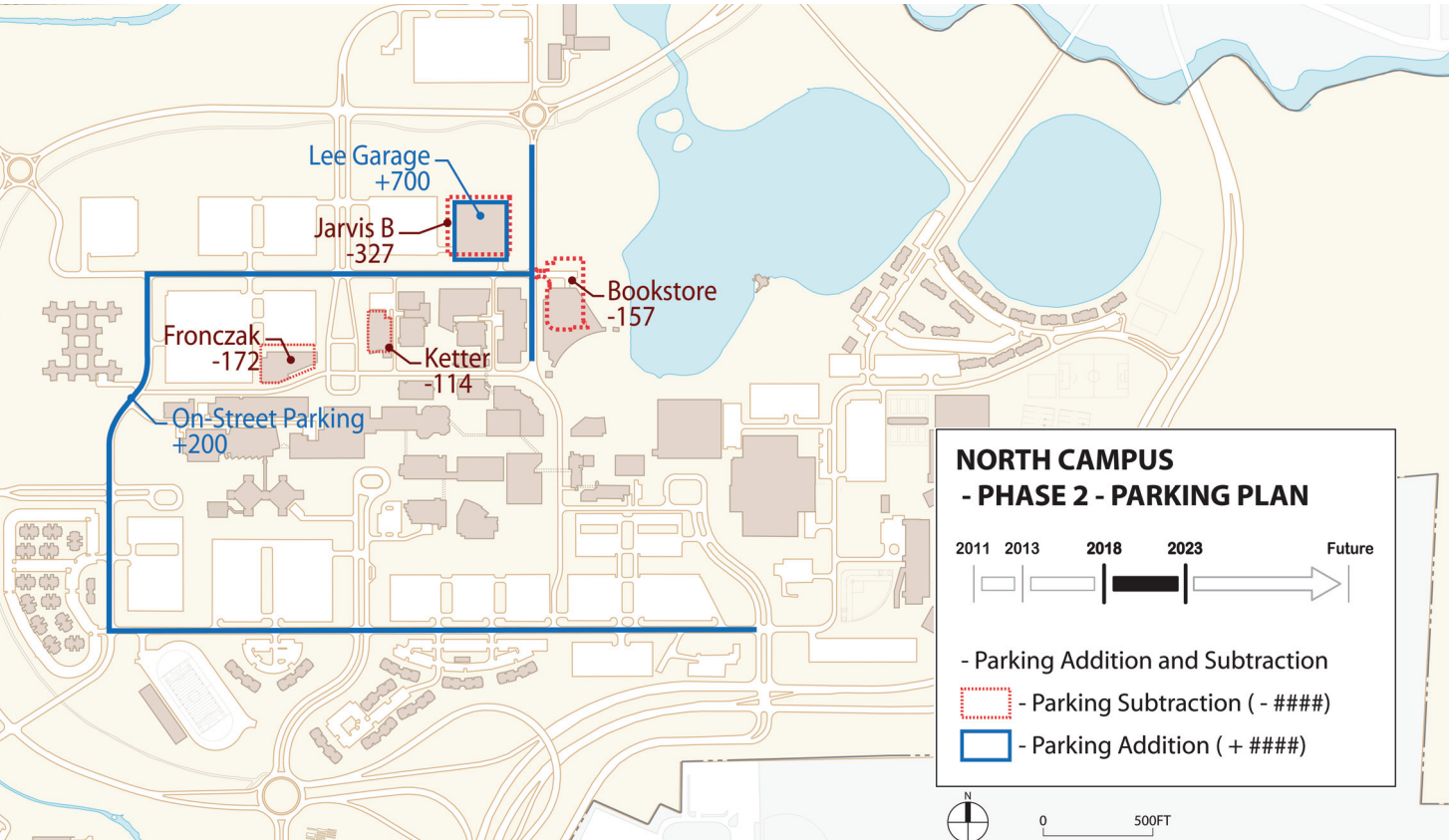


Figure E-163: North Campus Parking Plan Phase II.

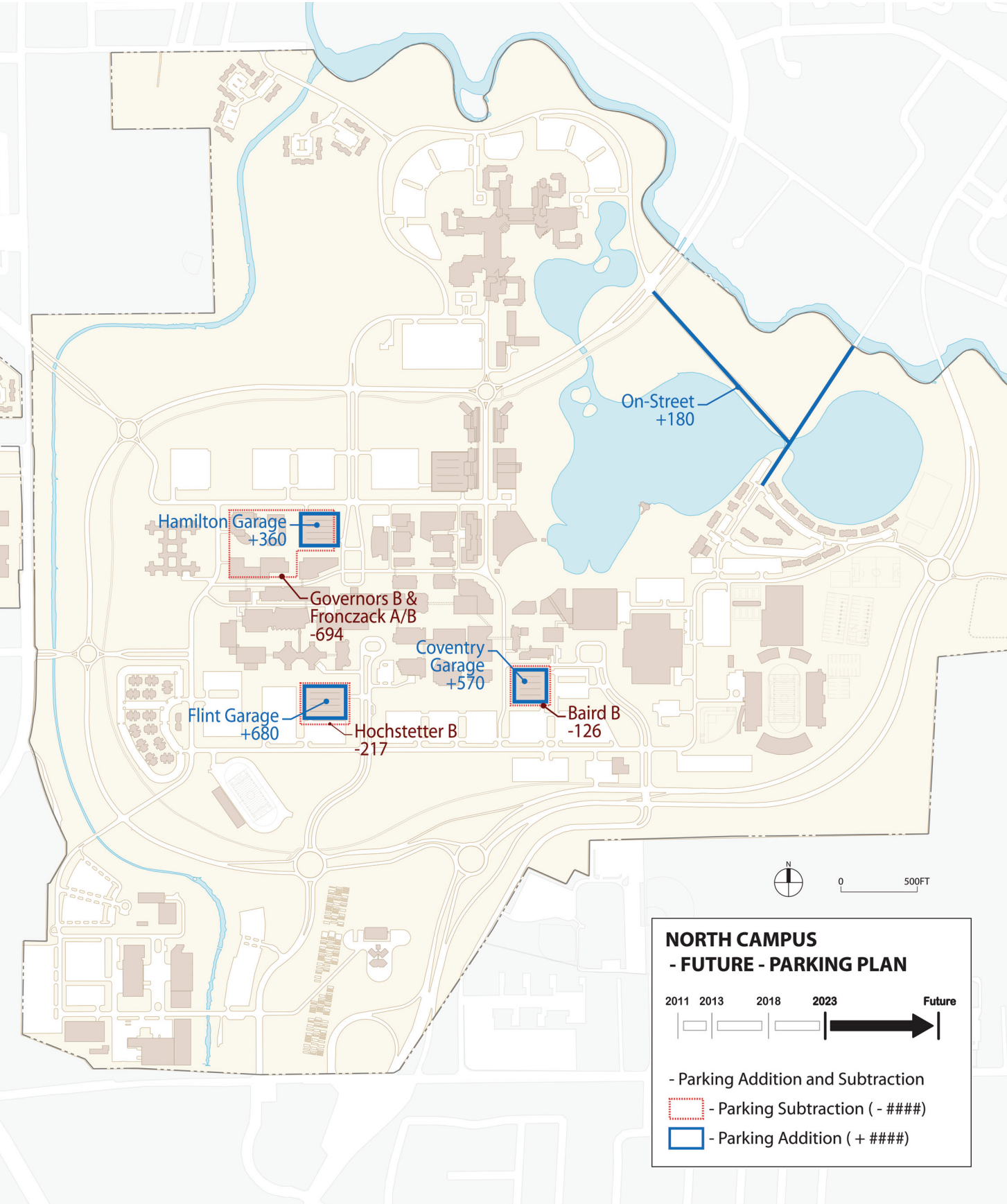


Figure E-164: North Campus Parking Plan Beyond 2023.



LANDSCAPING

NORTH CAMPUS LANDSCAPE- CONNECTING TO THE ECOLOGICAL CONTEXT

Assets

The landscape of North Campus varies from the “urban” core with many car-free plazas and street trees to large areas of undeveloped open space. The amount of open space available at the campus perimeter offers many opportunities for the application of green infrastructure storm water management practices. Another asset to North Campus is the habitats of Lake LaSalle and Ellicott Creek. Their associated habitats combined with diverse and abundant undeveloped open space offers many opportunities for ecological enhancements to these important features on campus. The Campus scale and topography are compatible with an expanded Active Transportation System. Bicyclists and pedestrian can use the repurposed vehicular pavement that exists today as part of a more environmentally conscious campus.

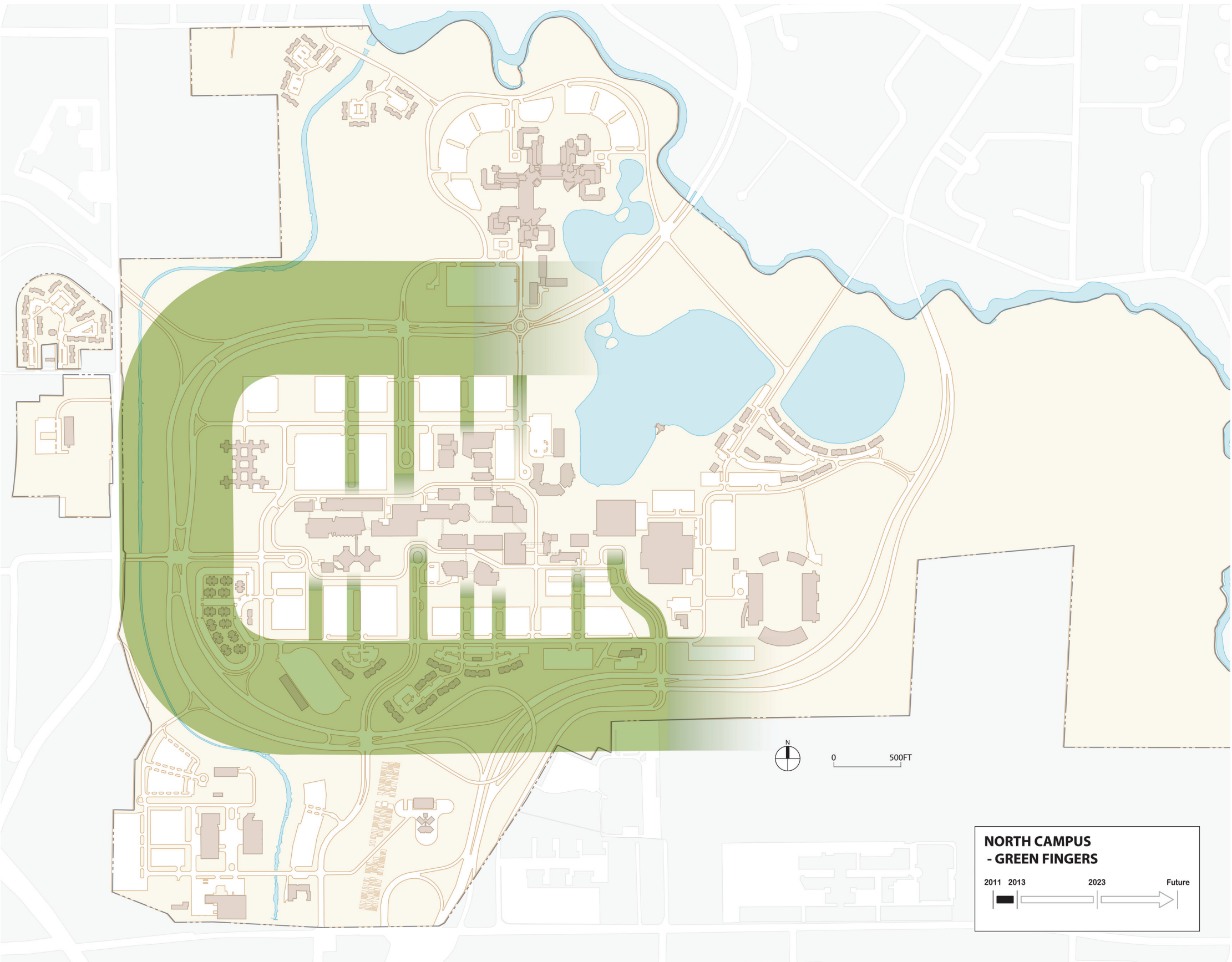


Figure E-165: North Campus Lawn and Naturalized Setting Plan.



[E. NORTH CAMPUS]

Challenges

The main challenges at North Campus are the over-built and constraining campus roadway system and the amount and scale of the open space around the Campus that isolates it from the community. The landscape is suffering from poor soil conditions and many of the trees have been damaged by severe weather. The landscape continues to be susceptible to further decline due to the harsh micro-climate conditions. The existing natural resource areas are not well connected to the main campus and many large buildings are not well connected to adjacent landscape spaces.

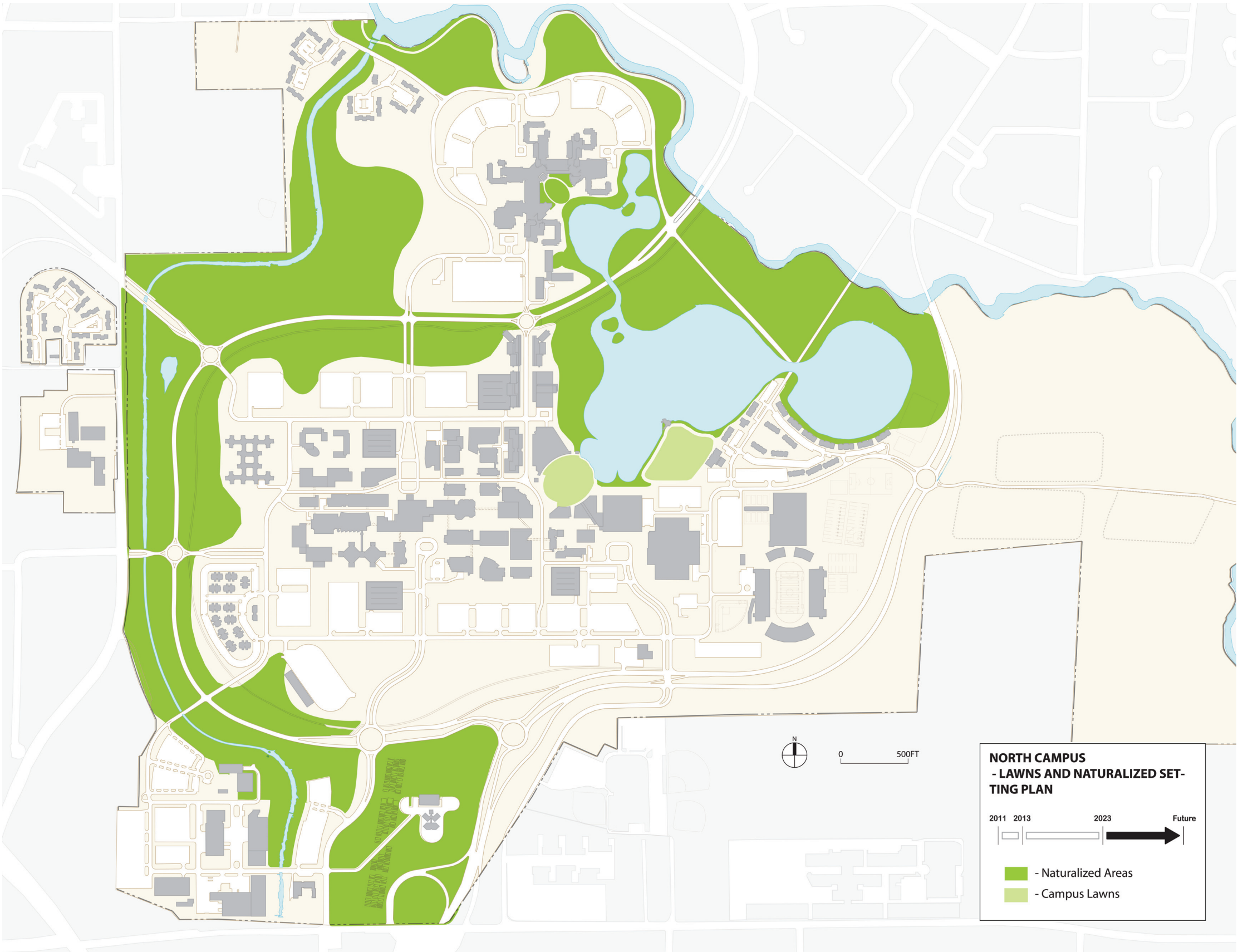


Figure E-166: North Campus Lawn and Naturalized Setting Plan.



Design Direction

Landscape concepts for the North Campus emerge largely from an emphasis on remediation of impacts from earlier construction and development. Common threads that are found among many of the projects include soils remediation, re-vegetation with sustainable native plant communities, and a re-balancing of transportation modes and related infrastructure.

- Soils remediation on all site restoration projects, following Technical Guide on Soils.
- Significantly increase vegetation on North Campus through landscape application of native plant communities, following the Technical Guide on Plants.
- De-paving and re-purposing of redundant vehicular infrastructure.
- Design for micro-climate improvements to encourage year-round walking and cycling.
- Upgrade and coordinate walkway configurations and materials as well as benches, receptacles, signage and other improvements that will help establish the identity of the North Campus landscape.
- Utilize natural assets for year-round recreation.
- Apply concepts of Crime Prevention through Environmental Design (CPTED) to improve safety and security.
- Utilize ‘Green Fingers’ to connect campus core to outer-ring habitat enhancement areas.
- Revitalize Lake LaSalle and enhance the lake shore with a network of sustainable outdoor public spaces.
- Provide infrastructure and comprehensive programing for an Active Transportation network that will include walkers, runners, bicyclists of various skill levels, skate-boarders, in-line skaters and cross-county skiers.

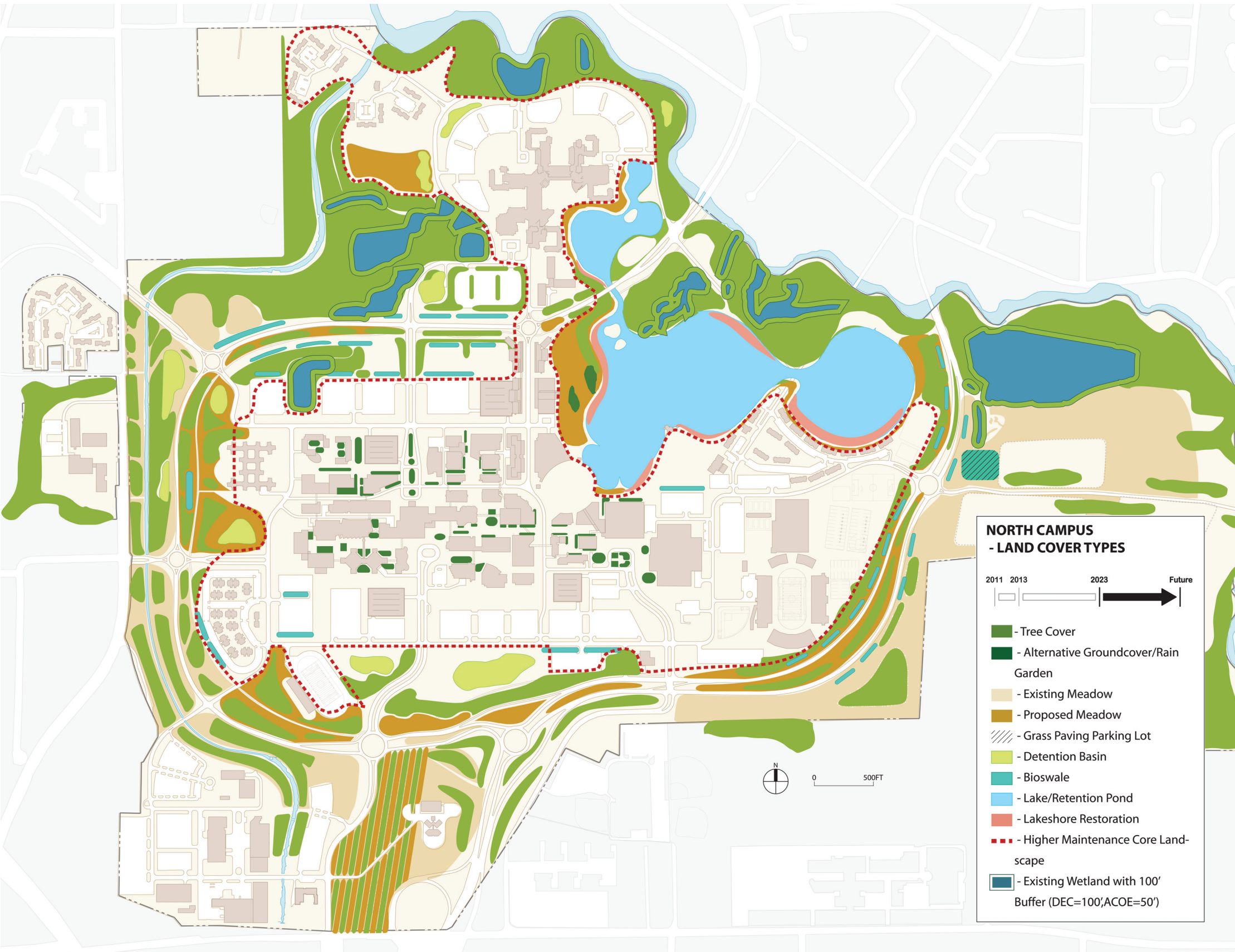


Figure E-167: North Campus Land cover Types.



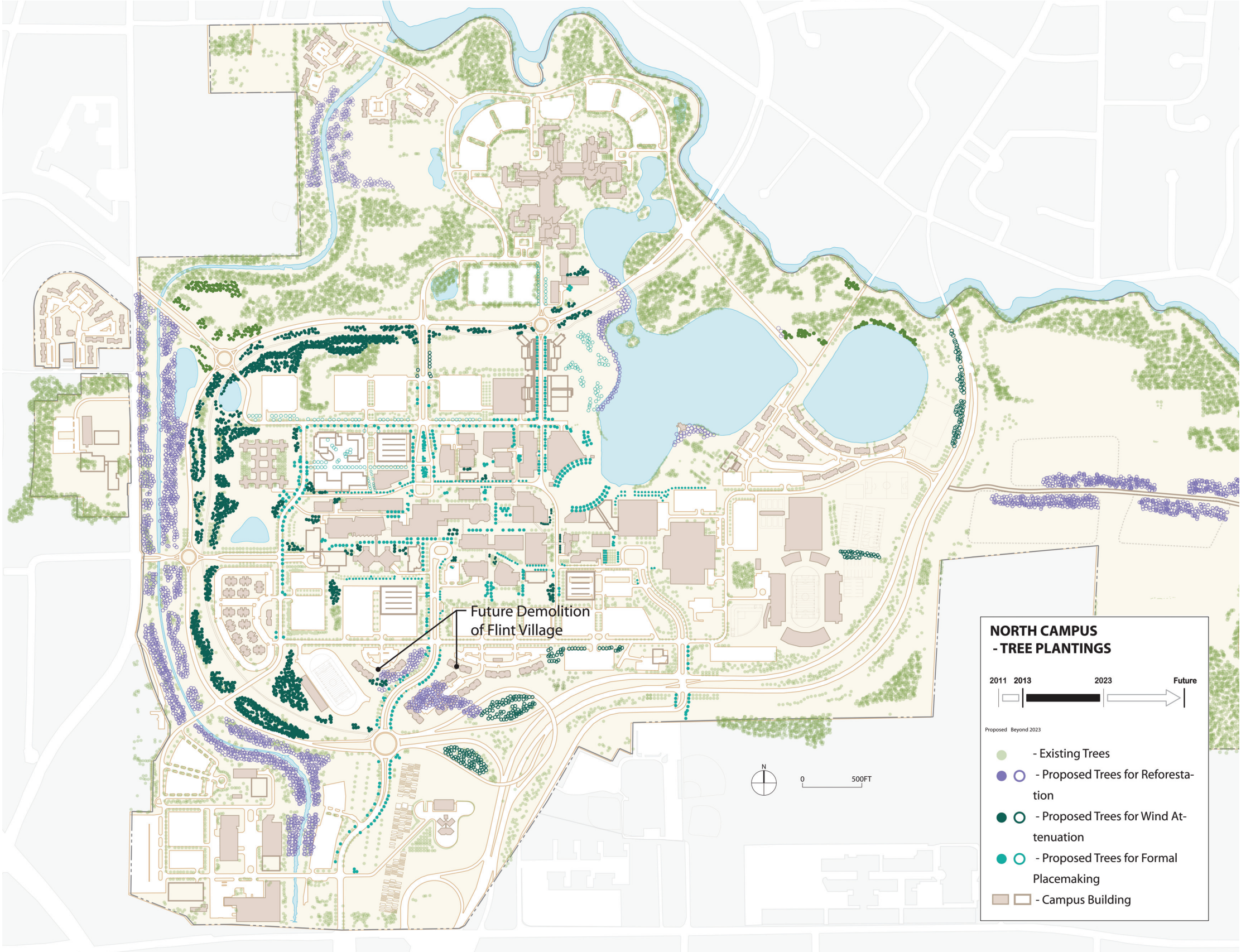


Figure E-168: North Campus Tree Planting Plan.



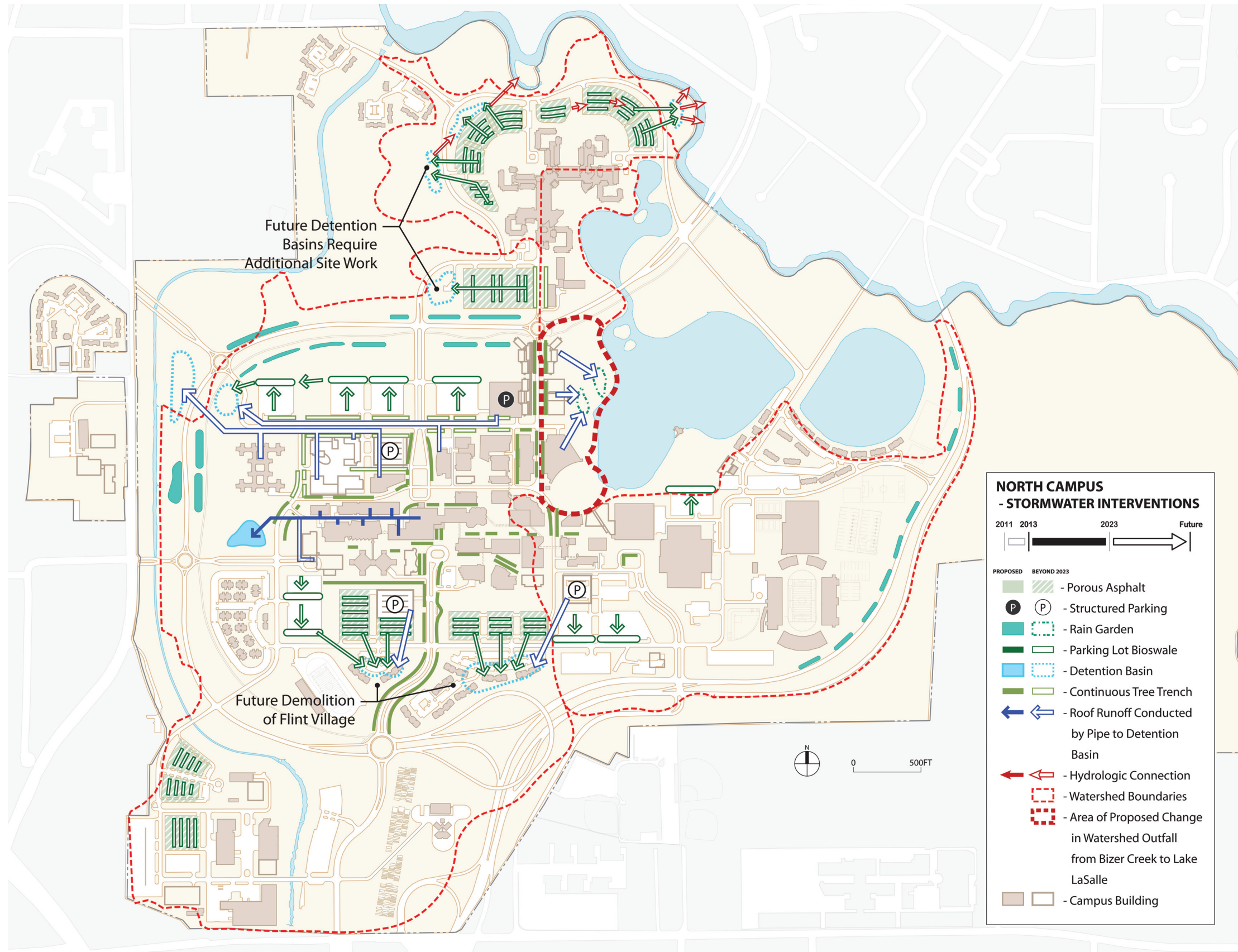


Figure E-169: North Campus Storm Water Intervention.



[E. NORTH CAMPUS]

REPRESENTATIVE PROJECTS

Audubon Greenway

Open Space Type: Naturalized Settings and Ecological Restoration

The removal of the inner carriageway of Audubon Parkway to slow traffic and improve pedestrian safety will create room for a new Audubon greenway. Trails through the naturalized greenway landscape will link new athletics and recreational facilities including a new field house and tennis center with Lake LaSalle and the Ellicott Trail System. Open year-round to the UB community and visitors alike, the greenway will be part of a complete circuit that will be suitable for walking, running, and bicycling, as well as snowshoeing and cross-country skiing. The greenway will be set in the naturalized outer ring of meadows, woodlands and wetlands planned for the outer edges of North Campus. The project will involve the removal of existing asphalt pavement, creation of a new off street shared recreation pathway, and planting new trees. This landscape project addresses the following open space goals: simplify landscape maintenance, create self-sustaining campus ecosystems, provide for active transportation, and improve winter use of campus.

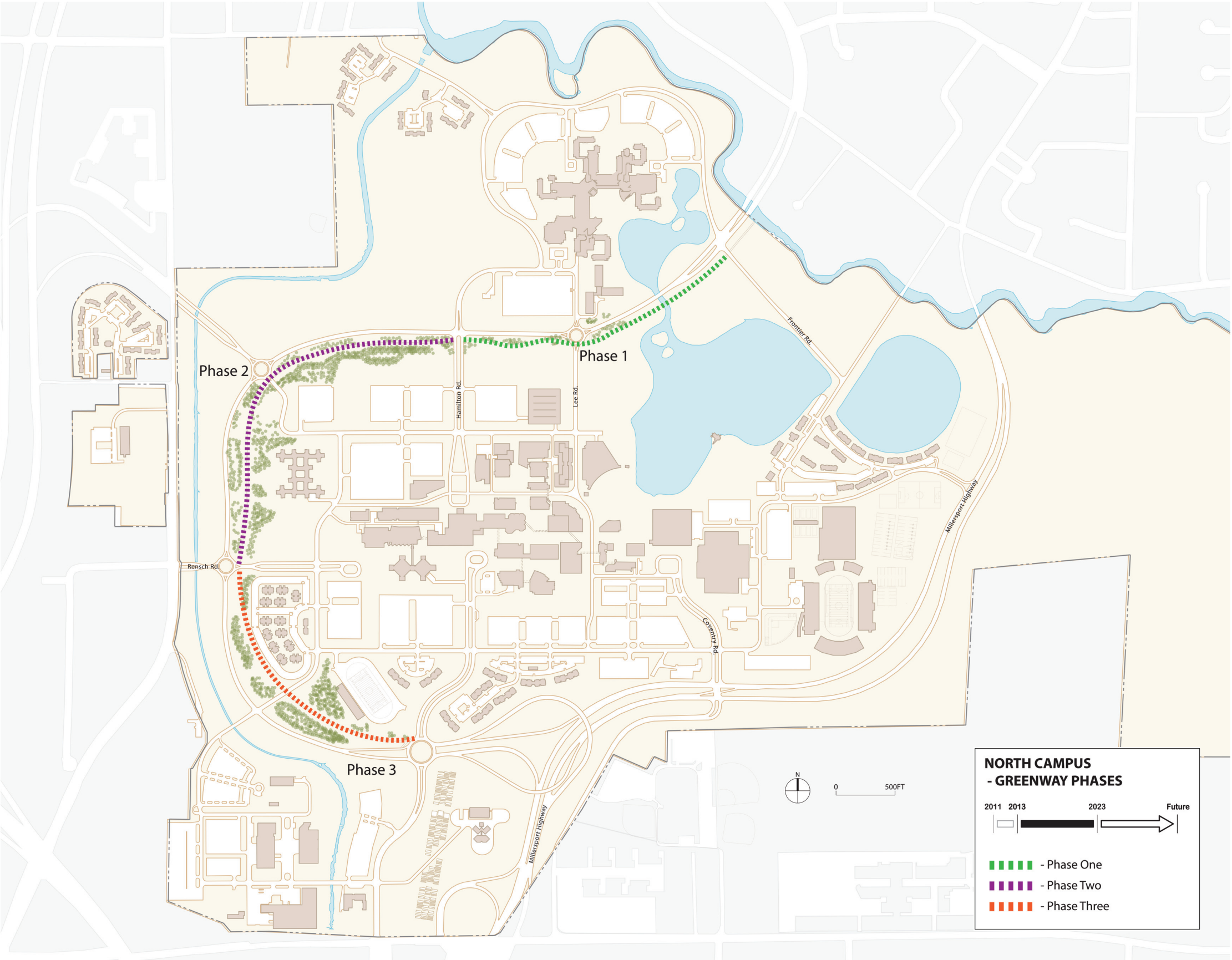
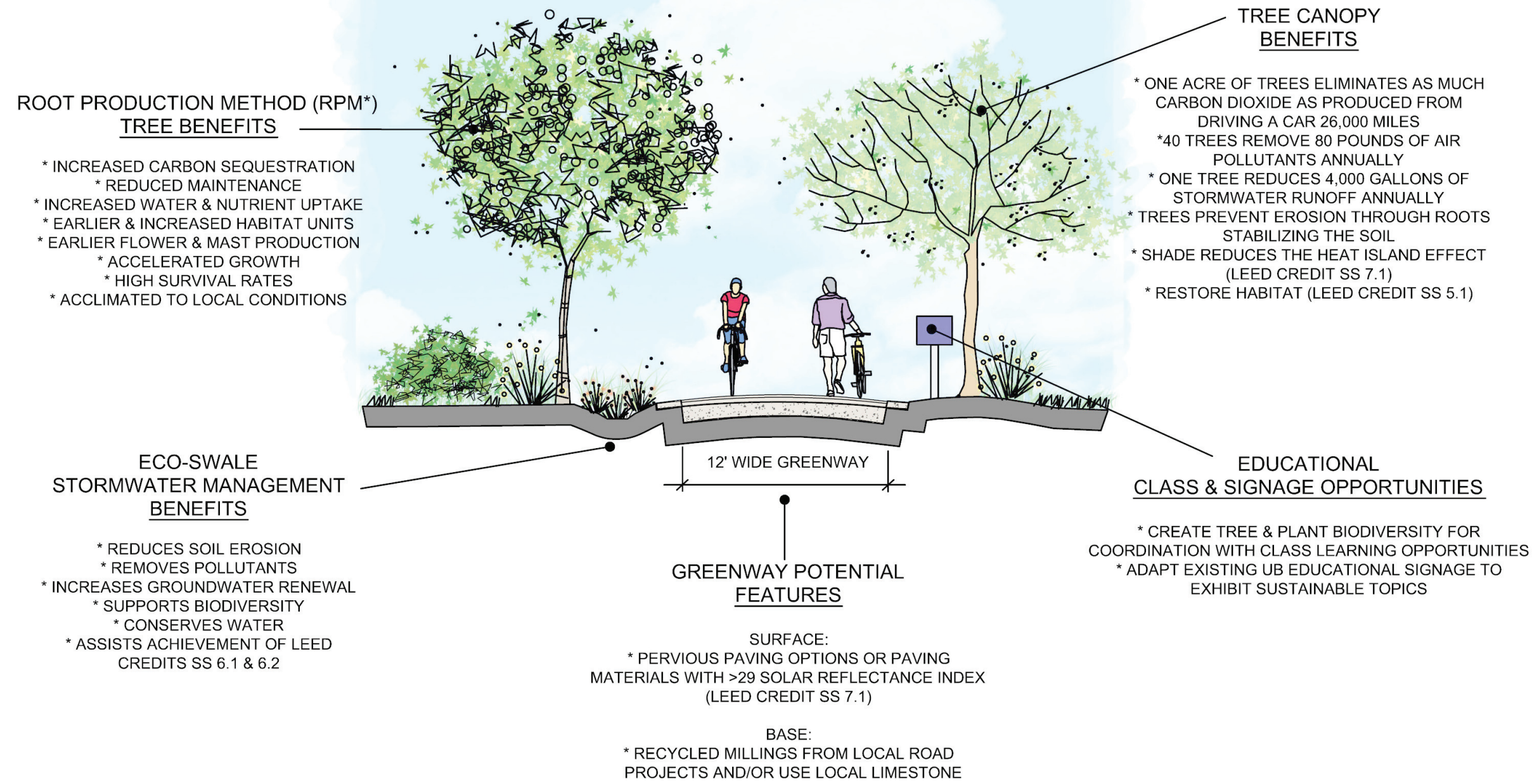


Figure E-170: North Campus Greenway Phasing Diagram.



# SUSTAINABILITY OPPORTUNITIES NEW GREENWAY CONSTRUCTION



\*\* RPM IS A ROOT PRODUCTION METHOD PRODUCED BY RPM ECOSYSTEMS IN DRYDEN, NY. THE PROCESS PROMOTES GREATER BASAL DIAMETER, SHOOT LENGTH AND ROOT VOLUME. RESULTING IN A TREE THAT SPEEDS TO MATURITY THREE TIMES FASTER THAN NON RPM TREES.  
Figure E-171: North Campus Greenway Construction Diagram.



[E. NORTH CAMPUS]

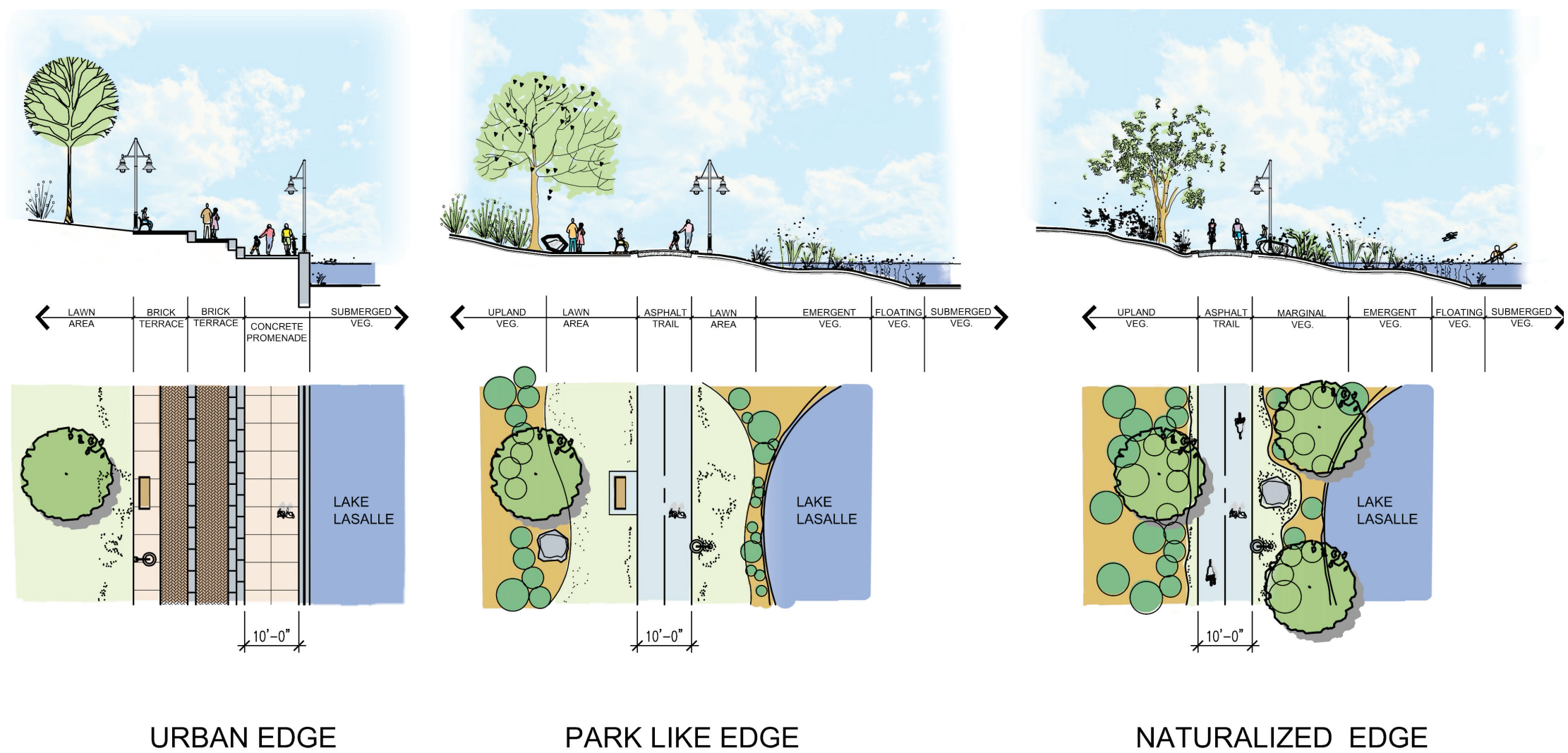


Figure E-172: Lake LaSalle Edge Conditions Diagram.

Lake LaSalle Revitalization

Open Space Type: Naturalized Settings and Ecological Restoration

Lake LaSalle will be at the center of North Campus outdoor recreation, with ice-skating, small craft boating, a continuous shoreline path, and other waterfront activities. Lake LaSalle can provide a stunning backdrop to campus views, but it can be much more: a center for year-round campus and community recreation, a healthy natural habitat that sustains a variety of wildlife, a symbol of UB's commitment to sustainability, a place that attracts people from across the region to enjoy a stroll along its shore. Today, Lake LaSalle is too shallow to support a freshwater ecosystem, and its steep, lawn-covered edges do not allow for habitat development. Selective dredging will deepen the lake to support underwater habitat and keep the water cooler, preventing blooms of algae. Fill from the dredging will be used to shape the lake edge with a gentler slope that can support wildlife, and partially enclose a shallow inner harbor that will freeze quickly in the winter for recreation. Connecting the two parts of the lake under St. Rita's Lane in front of South Lake Village will create a bigger continuous body of water, which will provide better habitat. Grading modifications and new vegetation will be used to establish emergent marshes, wet meadows, and upland meadows. Improvements also include a new off street shared recreation pathway, lighting, benches, and signage. This landscape project addresses the following open space goals: program the landscape, create self-sustaining campus ecosystems, provide for active transportation, and improve winter use of campus.



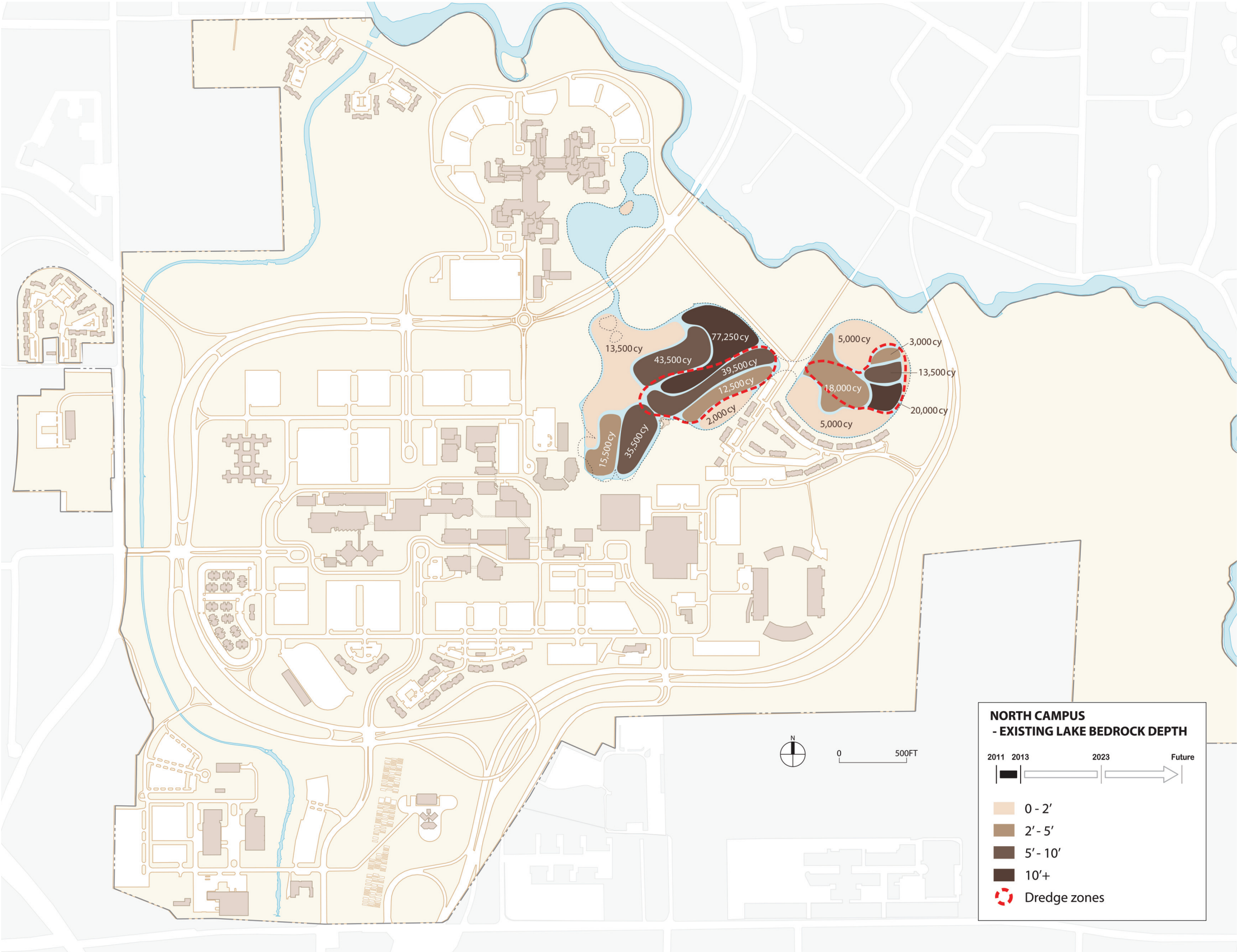


Figure E-173: North Campus Existing Lake Bedrock Depth.



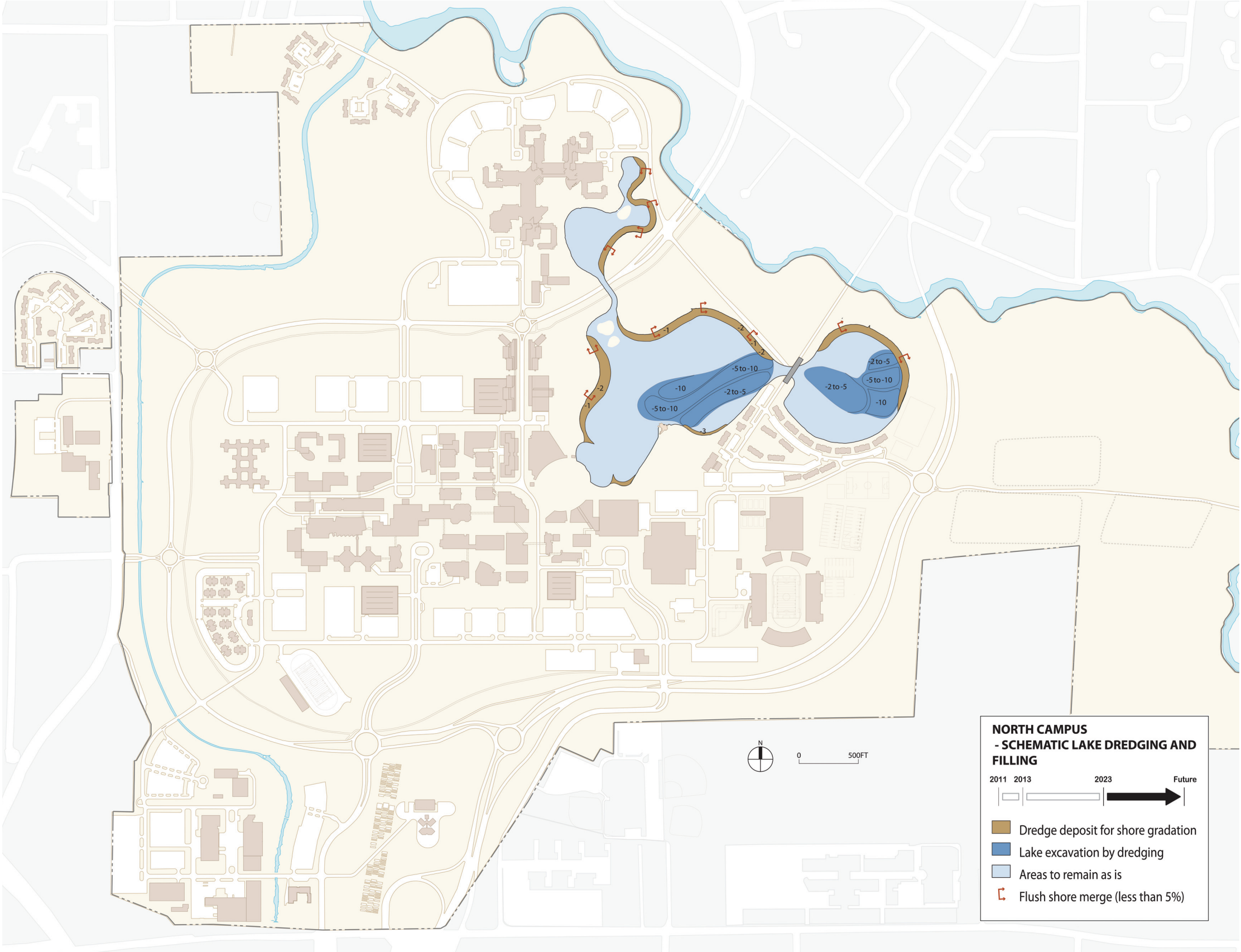


Figure E-174: North Campus Schematic Dredging and Filling Plan.



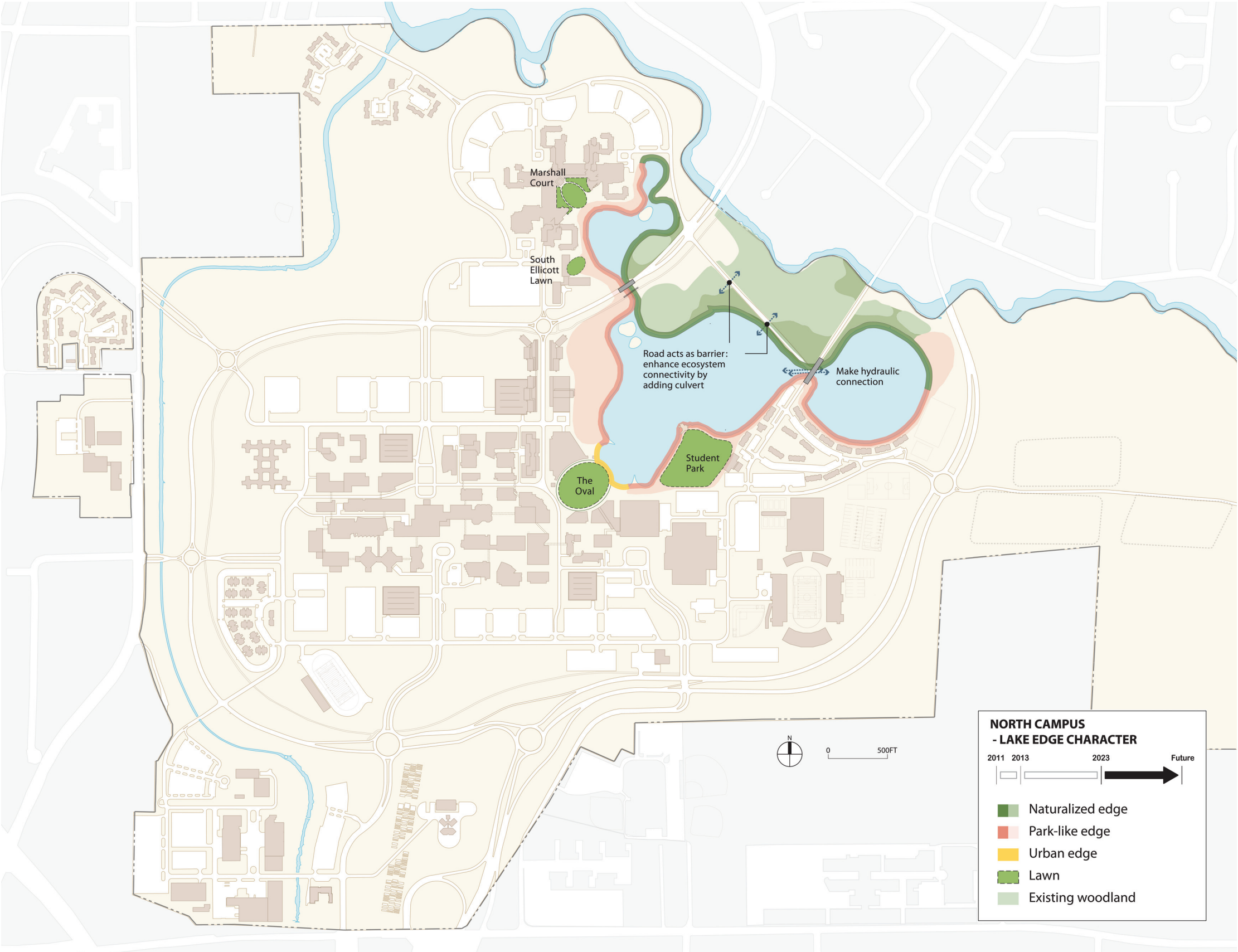
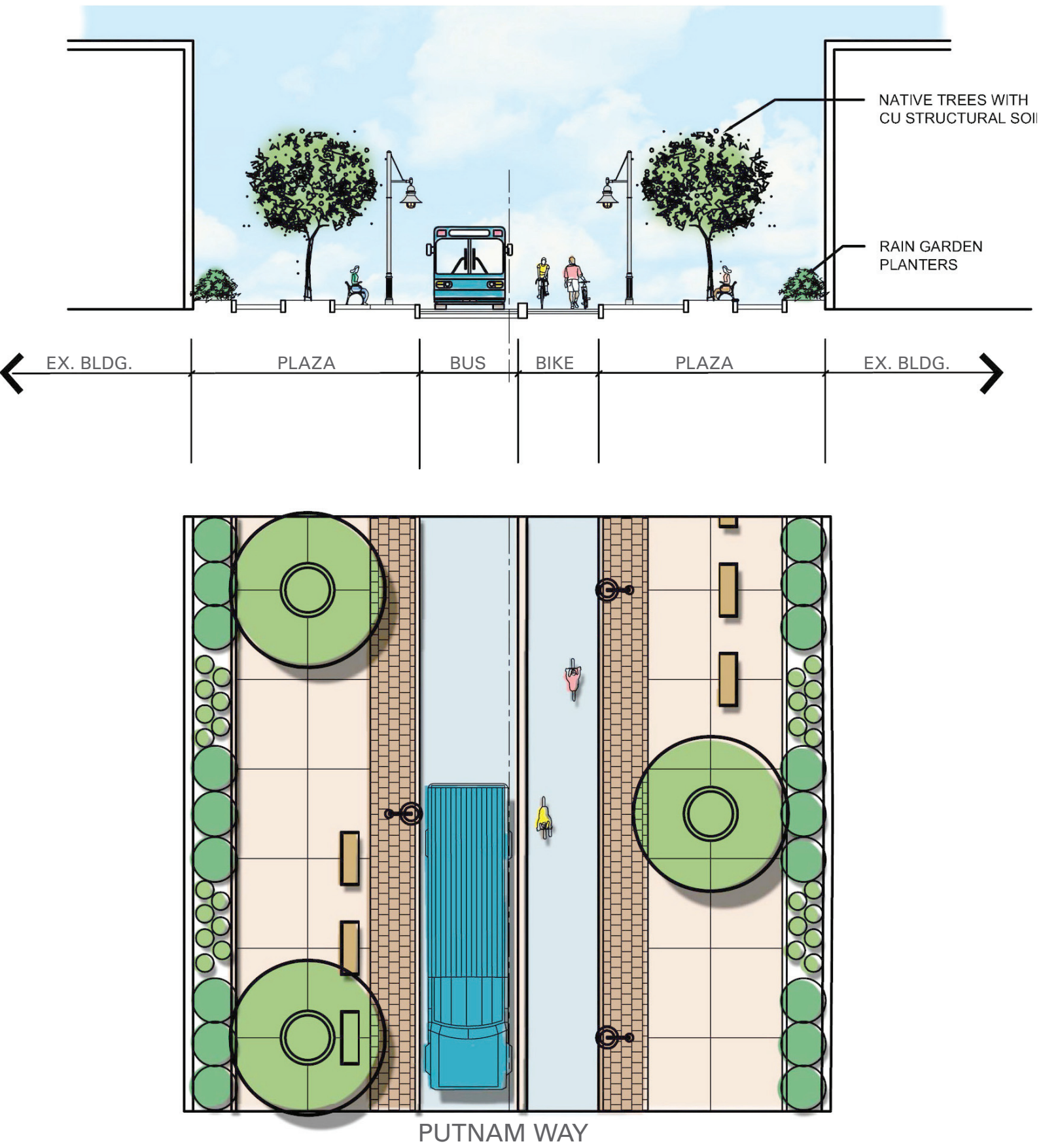


Figure E-175: North Campus Lake Edge Character Plan.





**Realign Putnam Way**

**Open Space Type: Corridors and Promenades**

The inner loop, Putnam Way, is currently too tight and will be given over to pedestrians, bicyclists, and transit, converting it into a vital part of the campus core landscape and loosening physical constraints on the thickening of the Academic Spine. Instead of a safe, pleasant place to walk or bike, Putnam Way looks and functions as a utility zone filled with cars, trucks, parking, and loading docks. Without a change, these conflicts would intensify as new buildings are built along the Academic Spine, increasing pedestrian, bike, and transit traffic along and across Putnam Way. The roadbed will become a shared pedestrian-bicycle path on its southern segment, and a shared pedestrian-bicycle-transit route on its northern segment; its eastern segment will become part of Lee Road. To accommodate transit vehicles, the northern segment of Putnam Way will be designed as a traffic-calmed roadway. Putman Way will have wider sidewalks lined with trees. The project will involve removing existing roadways and curbing, and constructing concrete sidewalks and striping bike lanes. Improvements also include planting shade trees, and installing site furniture such as benches, trash/recycling receptacles, bicycle racks and lighting. This landscape project addresses the following open space goals: program the landscape and provide for active transportation.

Figure E-176: Putnam Way Improvements Diagram.



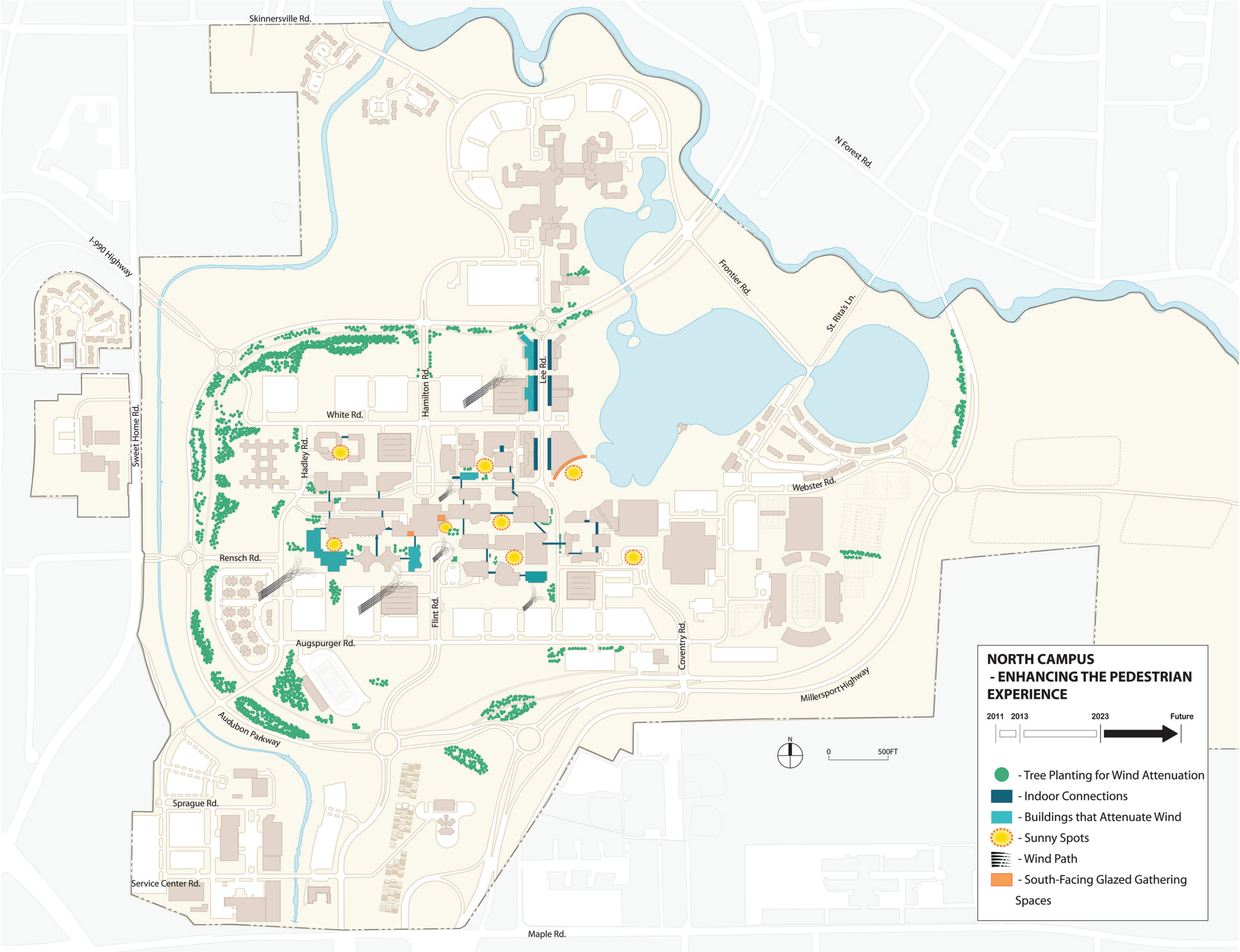


Table E-11. North Campus Enhancing the Pedestrian Experience.



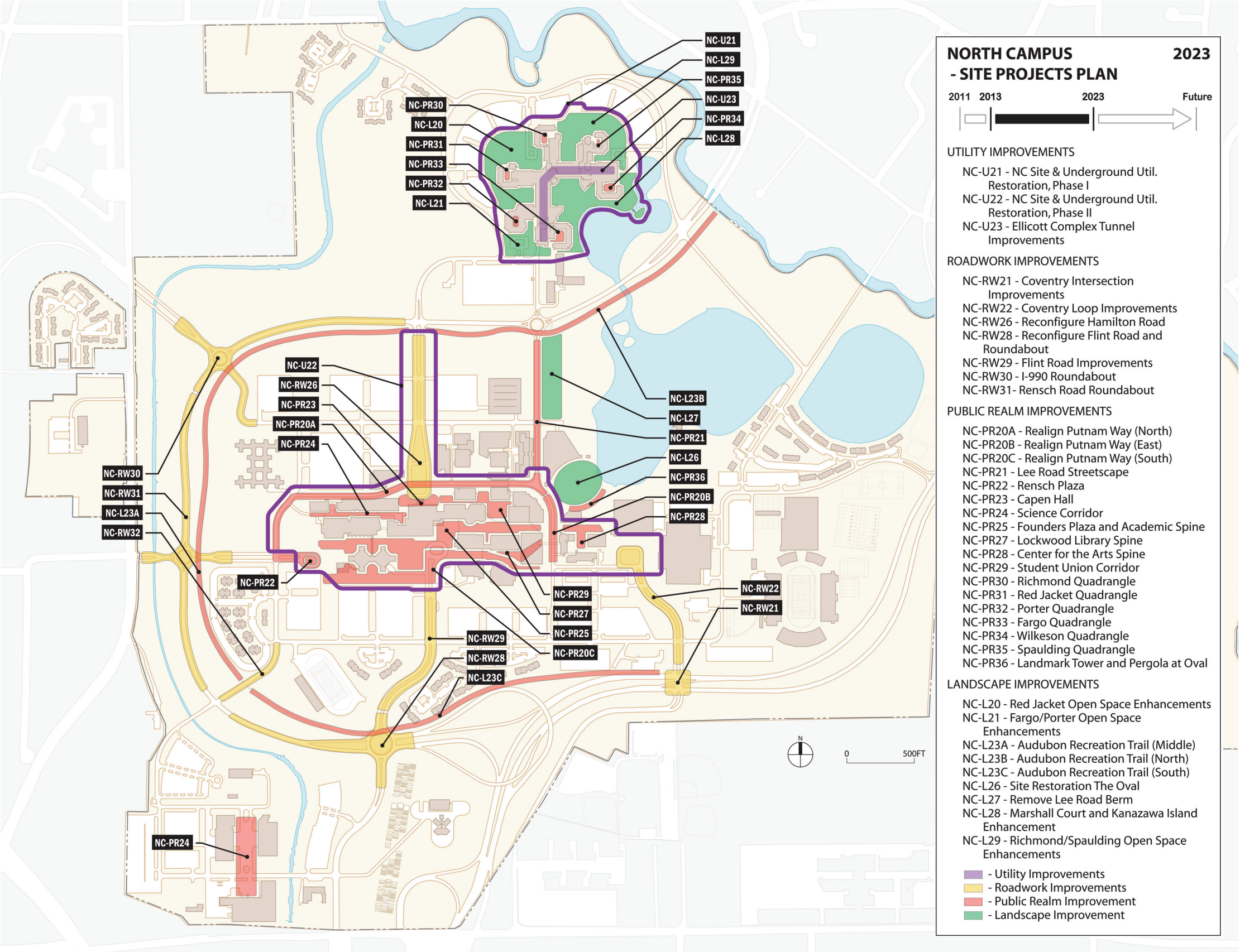


Figure E-177: North Campus Site Work Plan.



SITE / INFRASTRUCTURE ENHANCEMENTS  
UTILITIES

Similar to the South Campus the Facilities Planning and Design Group has identified various projects to improve and maintain all existing underground utilities and infrastructure. As building projects come on line it should be assumed that the North Campus utility systems should have the required capacity and are in good condition. The exception to this are projects that are located in areas where there are no significant utility services and projects where the proposed work may involve relocation of existing utilities. Such two projects are the Field House (N4) and Tennis Complex (N1) The construction of these facilities will require the extension of electric, water, sanitary and chilled water lines from approximately 600 feet away. As this is a standalone project it should be identified with the building project. In addition the proposed pedestrian tunnel connecting Slee Hall to the Center for the Arts will require the relocation of some minor storm drain pipes.

CENTRAL CHILLED WATER PLANT

System Capacity

The University at Buffalo North Campus has a Chilled Water Plant at the south end of the campus in the Baker Chilled Water plant. Chilled water is produced by eight chillers. The total plant capacity is 18,600 tons and the peak cooling load currently is approximately 10,000 tons. The plant operates with a temperature differential of approximately 13 F which requires approximately 1.85 gpm of flow for each ton of cooling.

The cooling requirements for current and future campus buildings has been estimated based on the building square footage and an estimated cooling load of 500 square feet per ton. The North Campus Chilled Water Plant Capacity Requirements table summarizes the campus cooling load estimate.

System Condition

The chiller installation dates are indicated in the chart above. In 2023 some of the chillers will be 50 years

NORTH CAMPUS CHILLED WATER PLANT CAPACITY  
REQUIREMENTS

Estimated Heating (MBH)	
Existing Buildings	10,300
Buildings to be Demolished	4,000
Existing Buildings to Remain	4,200
New Construction	6,000
Future Plant Total	10,200

Table E-12. North Campus Chilled Water Plant Capacity Requirements.

old. These chillers represent 8,000 tons of the chiller capacity or 43% of the installed chiller capacity. Before that time new chillers should be installed to replace the aging chillers.

CENTRAL CHILLED WATER PLANT

System Capacity

The University at Buffalo’s North Campus chilled water distribution system was installed during the initial build out of the campus. The pipes to and from the Plant are 30” in diameter and get smaller further from the plant. The main distribution loop goes down to 20” pipe and creates a full loop that can be fed from either direction.

System Condition

The piping is made of transite which will last well into the future.

System Opportunities and Constraints

As buildings are renovated and built, the use of individual building cooling plants should be compared to the use of localized area cooling plants that would serve buildings in close proximity to one another.

ELECTRICAL

System Capacity

The North substation receives power from the local electric utility service provider, National Grid. The North Campus central Plant receives 34 kV feeds from the North Campus Substation.

North Campus Chilled Water Plant Equipment

	Capacity Each, Tons	Quantity	Year Installed	Make	Refrigerant	Condition
Chillers	4,000	1	1,972	York	R-134A	good
	1,500	4	1,985	Trane	R-11	good
	2,300	2	2,009	McQuay	R-134A	excellent
Cooling Towers	4,000	3	1,972	Ceramic	NA	good
	2,000	2	2,010	Ceramic	NA	excellent

Table E-13. Noth Campus Chilled Water.

The University is seeking to increase the distribution capacity at the main campus. In order to accommodate the new construction and renovation of several buildings, the University might have to increase their distribution capacity in accordance to the calculated load of proposed renovations and associated new building construction.

Additional Medium voltage distribution will need to be provided to new building construction as indicated in the Facilities Master Plan. Electrical distribution will consist of new medium voltage ductbank distribution from either existing radial/lateral electrical distribution adjacent to new structures. An electrical power study should be developed in order to verify existing circuit capacity to ensure existing feeders will handle the upgraded/new construction loads. If existing substation/feeders lack capacity, modification might be required in order to serve new loads.

Building Construction, Renovation and Demolition

Existing renovated buildings will be provided with upgraded electrical components when required. The capacity of medium voltage feeders and associated distribution will be upgraded as required, but will be re-used where they provide sufficient capacity. The electrical system of several of the existing buildings was rated poor per BCAS report. New components will be provided to existing infrastructures, such as main switchgear, power wiring, electrical distribution, lighting system, emergency power/lighting system,

fire alarm system, telecom/data system (cabling only), and specialty systems. It is recommended that an upgrade be done to the emergency power/lighting system, new lighting design, and electrical wiring distribution. Also, metering data must be gathered for each building in order to determine current load capacity and evaluate what upgrades need to be made to each building’s power supply. For all existing buildings to be demolished, a study must be done prior to demolition to determine the location of underground electrical conduit routing.

New buildings shall be provided with all electrical components: main switchgear, power wiring, electrical distribution, lighting system, emergency power/ lighting system, fire alarm system, telecom/data system (cabling only), and specialty systems.

Selected Bibliography

Beyer Blinder Belle Architects & Planners LLP. (2009). *Building UB: The Comprehensive Physical Plan*. Buffalo, NY: University at Buffalo, the State University of New York.