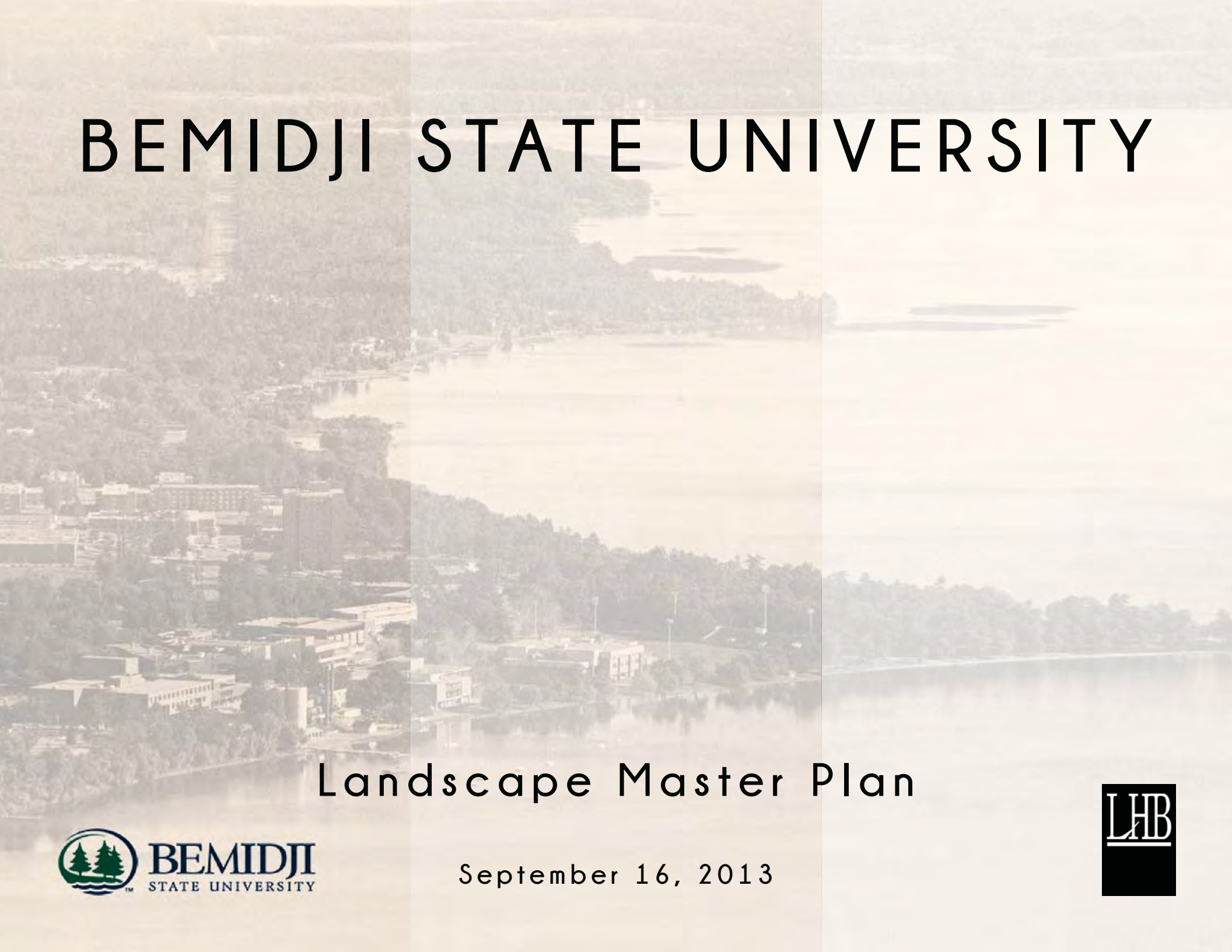

BEMIDJI STATE UNIVERSITY

Landscape Master Plan

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September 16, 2013

LHB

BEMIDJI STATE UNIVERSITY

Landscape Master Plan

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SEPTEMBER 16, 2013

Credits

BEMIDJI STATE UNIVERSITY

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Student Senate
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Part A
Introduction and Background

HISTORY OF BSU AND ITS LANDSCAPE

Arthur O. Lee's institutional history, The University in the Pines, provides a detailed view of the rivalries and intrigues underlying the competition among Clear Lake, Thief River Falls, and Bemidji to host a new Normal School. From early in the century, Bemidji's visionary citizens advocated for the creation of Lakefront Drive. The Drive links downtown with Diamond Point Park and the city forest, now on the site of BSU's dormitory precinct.

The well-designed Lakefront Drive parkway provided a scenic and accessible location for the new school. The quality of the city's park system and its weaving of parks with the campus site and downtown most likely contributed to Bemidji's winning bid for the campus. The presence of majestic pines and lakes also helped to build the case.

Even before its founding, Bemidji State University benefited from excellence in site design and the beauty of its setting. Today, that close connection between the University and its setting continues to be a source of inspiration. "Environmental stewardship" is one of University's three Signature Themes and has become a part of the campus culture.

This Landscape Master Plan, complemented and supported by the Master Facility Plan and the Sustainability Plan, provides a framework for expressing the close relationship between BSU's academic and environmental goals across its campus.

lake bemidji, ca. 1950 (courtesy of minnesota historical society, pending)

students playing in the snow beneath the pines ca. 1922 (courtesy of minnesota historical society, pending)

an existing aerial photograph of the bsu campus

THE PURPOSE OF THIS LANDSCAPE MASTER PLAN

The primary goal for this Landscape Master Plan (LMP) is to express the vision that University students and staff have for their campus landscape. Their aesthetic, social, and environmental values can become part of the physical experience of the campus. And that experience makes a difference in BSU's success. Surveys show that "prospective students consistently cite campus aesthetics as a school-choice consideration" ("America's Most Beautiful College Campuses," Forbes, 29 September, 2011). Investing in the landscape attracts and retains students.

By beginning with a clearly defined Vision for the campus experience, other decisions about specific investments can be evaluated, even if they aren't explicitly covered in this document. Choices are made about the landscape every day, and an LMP gives them context. In addition, this document explores goals and strategies specific to the landscape.

While the Facility Master Plan provides general guidance for BSU's campus, it doesn't suggest specific strategies for landscape elements. Similarly, the Sustainability Plan touches on ways that the landscape may contribute to a sustainable campus, but doesn't provide details on how these strategies might be implemented.

The LMP is based on understanding the experience that students, staff, and visitors have on campus today and envisioning an experience that would communicate the values of BSU.

EXISTING LANDSCAPE CONDITIONS

BSU is progressively transitioning toward sustainable landscapes throughout its campus. Edible gardens, native plants, lower maintenance grounds, and other enhancements have already begun to be implemented. However, like all landscapes, the campus is not suddenly "complete" in its entirety, never to be changed again. Some areas of campus will always need renovation and renewal as the landscape goes through its lifecycle and the needs of students and staff change.

Residential and Academic Areas are Disconnected

The academic portion of campus, southeast of Birchmont Drive is very separate from the residential portion of campus, northwest of the Drive. This separates students who live on campus from those who commute to school, creating two very different experiences. It also causes a pinch-point where students frequently cross Birchmont, leading to safety concerns.

the two parts of campus are divided by birchmont drive

Campus Turns its Back to the Lake

Lake Bemidji is a major asset for BSU, but the campus is built with its back to the lake. Most buildings offer few views or exits towards the lake. Loading docks and other maintenance facilities occupy valuable lakefront property. A service drive cuts off the connection between the Student Union and the lake.

building backs and non-public spaces take up valuable lakefront space

Landscape Elements Aren't Consistent

Benches, picnic tables, trash bins, and other landscape furnishings are inconsistent. Landscaping materials and plants vary widely. Without consistency, there is no sense of unity between different parts of the campus landscape and an important opportunity to promote the BSU brand is missed.

Some spaces might deserve unique landscape furnishings to distinguish their special character, but those sites should be carefully chosen. Additionally, that kind of differentiating feature is only possible if the overall campus aesthetic is consistent.

furnishings and other elements are inconsistent across campus

Few Outdoor Gathering and Learning Spaces

Despite its climate, outdoor learning has a long tradition at BSU. However, the campus currently has few outdoor learning spaces. Some important outdoor spaces, such as the area between the Student Union and the Lake, are underutilized because they aren't designed to attract visitors. Without inviting, comfortable outdoor spaces to learn, socialize, and recreate, students and staff are likely to undervalue BSU's campus landscape.

potentially valuable outdoor gathering spaces are not fully realized

The Unidentified Edge

It can be difficult to determine where the edge of BSU's campus actually is. Athletic fields make up the edge along the busiest route past campus. Residential streets become campus streets without differentiation. Without gateways, the experience of getting to campus lacks a sense of arrival.

unmarked athletic fields are the campus's face along this busy road

Pedestrian and Vehicle Conflicts

Several of the existing pedestrian connections are ineffective and even dangerous, especially when a large number of walkers are navigating across busy roads. Drivers are often going too fast and don't recognize pedestrians' right to cross. In some cases, it feels more like pedestrians are in the cars' space, rather than the other way around.

vehicle and pedestrian crossings are sometimes difficult or even unsafe

Unvegetated Paved Areas

Existing parking lots provide very little shade, which has negative effects on the users' experience and the environment. Roadways and pedestrian paths also lack the shade and aesthetic benefits of trees and other vegetation. Adding vegetation in these areas will reduce the urban heat island effect and improve the quality and quantity of stormwater runoff. These environmental benefits are important, but so are the experiential improvements. Parking lots and roads are often the first experience visitors have on campus. Without plantings, these areas miss the opportunity to introduce the campus experience from the first moment a visitor arrives. The idea of a "University in the Pines" is lost.

parking lots are currently barren expanses of paving

High Maintenance Requirements

BSU is on the cutting edge of incorporating sustainable methodologies into its campus landscape. The university holds a Sustainability Plan, which provides a clear route to achievement of sustainable facilities, and the LMP buttresses these outlined goals. However, large portions of the landscape are still conventional turf, requiring frequent mowing. This is suitable for certain areas, but may not be necessary in others. In addition, the existing sidewalk conditions also contribute to the high maintenance requirements by ensuring pedestrian safety during the winter months.

large areas of conventional turf require frequent mowing

Unmanaged Natural Areas

Existing naturalized BSU forested and lakefront landscapes offer a sense of "retreat into nature," however, some of these spaces would benefit from restoration. Without management, these areas can become unattractive and hard to maintain. Efforts to enhance, stabilize, or reforest these existing areas will improve their appearance and their ecological function. Many of the trees are around the same age. This is a concern for when they begin to die on the campus. In addition, there are few places within these areas for people to sit and experience natural landscapes. Providing more seating and other ways for people to interact with these spaces will increase their value and encourage a sense of ownership of native landscapes.

natural areas of campus sometimes look weedy

Lack of Foundation Plantings

Many of the buildings on campus have no shrubs or other vegetation at their foundations. This makes the buildings look stark and imposing, rather than seeming settled in their context. Connecting the building to the landscape with plantings helps create more continuity between parts of the campus.

In some cases, the architectural style of the building might call for it to sit on a simple plane. In those cases, an immediate and appropriately scaled landscape should be present to convey the character of the University without losing the architectural intent.

without foundation plantings, buildings look stark and imposing

Unintegrated Native and Edible Plantings

BSU has recently incorporated edible and native gardens within its campus. These gardens have proved popular and there is interest in incorporating more edible and native gardens. However, these spaces are currently separate, special spaces, and are not always recognized as being well-maintained. Careful design can result in a seamless and attractive bed and a fruitful harvest. Planning gardens with this in mind, as well as developing strategies for the long-term care of these spaces, can help reduce aesthetic and maintenance concerns.

edible plants are relegated to demonstration areas

CONNECTIONS TO OTHER CAMPUS PLANS

The Landscape Master Plan (LMP) does not exist in a vacuum. It supports and complements other efforts across the campus. It is most closely associated with the Master Facility Plan and the Strategic Plan for Sustainability, but it also is associated with the Climate Action Plan, the Master Academic Plan, and the Strategic Plan. Brief summaries of the related elements of those plans are offered here, but reading them in more detail is recommended.

the lmp is closely aligned with the 2012 mfp and other recent plans

Master Facility Plan

This LMP is meant to complement the Master Facility Plan (MFP). Sections 2a and 4a should be read as an introduction to the overall goals for the landscape. The LMP provides more detail about landscape opportunities provided by the reconfiguration of the campus. The MFP offers the following site development goals:

- Improve campus connectivity
- Develop a more "centered" campus
- Enhance connections to the lake
- Develop a unified character for the landscape
- Enhance campus boundaries
- Improve environmental quality
- Improve transportation patterns
- Identify potential property for acquisition
- Enhance existing landscape features
- Develop new landscape features
- Address parking challenges

The Strategic Plan for Sustainability

Developed in 2009, the Strategic Plan for Sustainability (SPS) outlines three Strategies and nine corresponding Goals:

Reduce our Carbon Footprint

- Goal 1: Increase energy conservation and efficiency
- Goal 2: Reduce waste and increase recycling
- Goal 3: Encourage alternative modes of transportation
- Goal 4: Promote renewable energy

Model Stewardship of Land and Water

- Goal 5: Improve water quality and increase water conservation
- Goal 6: Increase native vegetation

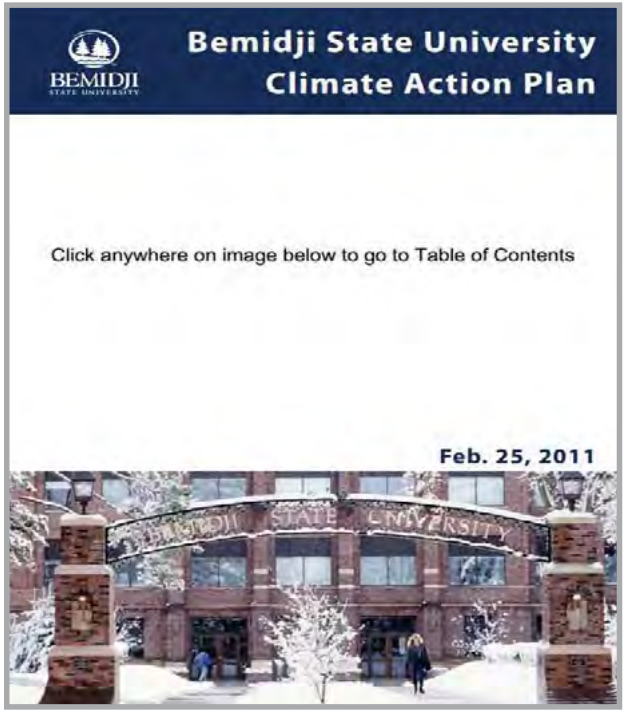
Motivate, Educate, and Outreach on Sustainability Issues

- Goal 7: Disseminate sustainability information
- Goal 8: Provide leadership on and off campus
- Goal 9: Provide incentives to change behaviors

The Climate Action Plan

Building off the SPS, the 2011 Climate Action Plan (CAP) identifies campus carbon emissions and outlines reduction strategies.. CAP Strategies relevant to the LMP include:

- 1.7 Encourage high-efficiency lighting upgrades throughout campus.
- 1.9 Promote green building design, construction, and destruction; encourage LEED certification or similar standard
- 4.1 Investigate options for solar energy on campus.
- 4.3 Investigate options for wind energy on campus and in the community.
- 6.6 Review the Master Facility Plan to ensure that sustainability of the land is incorporated.



The Master Academic Plan

The Master Academic Plan (MAP) completed in 2005 provides a flexible overall framework for the development of specific college and department plans and for academic initiatives that reflect those plans. The Master Academic Plan coordinates efforts toward the following six outcomes (unranked):

- High quality programs (provide high quality educational programs and services that support students' professional, personal, and citizenship development).
- Excellent faculty (hire and support excellent faculty).
- Secure future for Northern Minnesota (help build the future of Northern Minnesota).
- Diverse student, staff and programming (enhanced diversity).
- Excellent teaching and learning environment (support the teaching and learning environment).
- Financial stability (secure financial stability through appropriate growth and program development).

The Strategic Plan

Interim academic leadership has led to the BSU Master Academic Plan becoming outdated. The most recent version was completed in 2005. The Strategic Plan, therefore, provides a more recent overview of University goals and strategic planning. The plan includes four strategies with supporting goals and initiatives.

- Strategy A: Engage Students for Success in Careers, Communities and Life
- Strategy B: Promote Vital Communities through Involvement
- Strategy C: Innovate for a Changing World
- Strategy D: Optimize Resources to Achieve the University's Vision and Mission

STUDENT & COMMUNITY PROCESS

During the development of the 2012 Master Facility Plan (MFP), it became evident that a Landscape Master Plan (LMP) would be valuable for the campus. The LMP begins with the broad principles defined in the MFP and builds upon them. In order to develop a plan that reflected the values of the students, faculty, and staff, meetings, interviews, and an open house were conducted to specifically address landscape issues. It was also hoped that these events would initiate a dialog about the role of the landscape in campus life.

Using a series of exercises, BSU students, faculty, staff, and members of the surrounding community worked together at meetings and the open house. They provided experiential data concerning campus landscapes, especially focusing on places and routes that they valued and used frequently. Pertinent information was extracted from the data accumulated, which subsequently became the navigating force in developing the LMP.

Interviews were held with stakeholders, including facilities staff, sustainability staff, and others. These interviews were in addition to those held during the MFP process, so that specific attention could be paid to landscape issues. Information about the history of BSU's landscape, its current maintenance, and future plans was especially helpful.

The LMP is only useful if it reflects the vision and values of the campus community. While not every idea or opinion can be reflected in this document, the intent is that the vision creates a framework so that ideas that do not appear here can be evaluated in this context. Site plans, planting lists, and other details are valuable, but the vision is the most important result of the Student and Community Process and, by extension, of this document.

an example of an exercise completed during the lmp open house

compiled data interpretation. on "places" at bsu;
green dots indicate favorite places, red dots indicate places needing improvement, and blue dots indicate preferred places for new outdoor spaces; size of dot indicates relative frequency of reporting.

compiled data interpretation. on "routes" at bsu.
thickness of line indicates relative frequency of routes used

Vision Statement

BSU's academic mission has always been closely aligned to its Northwoods character and lakefront setting. This cemented relationship shapes the experience of its students and enhances individual educational goals. Building upon this legacy, the campus community assisted in development of this Landscape Master Plan. In particular, the students, staff, and faculty envision a campus that:

- supports all students in their academic pursuits with safe, beautiful, and interesting outdoor spaces to study, work, and relax.
- promotes the University's Signature Theme of Environmental Stewardship.
- encourages an environmentally, socially, and economically responsible landscape over the long term.
- educates the campus and community on sustainable landscape techniques.
- builds community between students, faculty, and staff by providing spaces to support many kinds of interaction.
- improves the health of all members of the campus community by encouraging outdoor relaxation and recreation in all seasons.
- enhances the sense of University identity and arrival, especially at the campus perimeter.
- connects the built environment of the campus with its natural setting, especially the forest and lake.
- creates an appropriate landscape for each building and gathering space on campus while yielding a connected and continuous campus landscape.

Part B
Master Landscape Plans

SHORT TERM MASTER LANDSCAPE PLAN

The Short Term Master Landscape Plan (STMLP) offers a framework for landscape investment over the next five to ten years. It focuses on goals that are easier to achieve in this time frame and prioritizes sites for investment that are especially high-profile or in need of repair.

The establishment of gateways at primary locations along the perimeter will allow passersby to experience a "sense of arrival." These gateways will also highlight the need for vehicles to be aware of pedestrians throughout the campus. Street trees and greener parking lots will provide aesthetic improvements and enhance ecological function. The incorporation of native and edible landscapes, additional seating and gathering spaces, outdoor classrooms, and relaxation nooks will foster the relationship between humans and the natural world and build momentum for future improvements.

Three existing campus spaces are targeted for renovation. These spaces will improve the sense of arrival at campus, address existing maintenance concerns, and begin to reconnect the campus with the lake.

The STMLP establishes a foundation upon which the Long Term Master Landscape Plan can develop.

LONG TERM MASTER LANDSCAPE PLAN

The Long Term Master Landscape Plan (LTMLP) continues to build on the foundation established by the STMLP, looking out ten to 50 years. It expands areas targeted for enhancements and incorporates new spaces as they become available due to building projects, as suggested by the Master Facility Plan.

The connection between academic and residential parts of campus will be strengthened. The campus will be more connected to the lakefront. Edible and native landscapes, no mow zones, and reforested areas will increase landscape diversity and improve the experience of students and staff. Changes to intersections and pedestrian routes will help slow traffic and improve safety.

The three spaces targeted in the long term plan will enhance high-visibility portions of campus and strengthen the connection between indoor and outdoor experiences. While these long-term site plans are ambitious, they are critical to support the Vision of the students and staff and they are appropriate to the long time frame.

Together with the STMLP, BSU's investment in these projects will further guide the University toward a cohesive, attractive, and sustainable landscape.

ELEMENTS OF A SUSTAINABLE LANDSCAPE

This overall concept promotes community development, establishes a sense of arrival at campus perimeters, implements sustainability techniques, and heightens the human/nature interaction. At the same time, creative environments have been planned which inspire exercise, relaxation and meditation, and study. Each goal presented reflects an element which was stipulated by the campus community.

Unite Academic and Residential Areas of Campus

The Master Facility Plan (MFP) has identified this as a major goal. It proposes closing Birch Lane and the portion of 17th St. east of Calihan Avenue and constructing new buildings and a parking ramp north of what is currently Birch Lane. Birch Lane would become a pedestrian greenway, with sidewalks and an allée. This would create a strong north-south connection through campus and would "thicken" the point where the two parts of campus meet. Long Term Site Plan Location C explores this in more depth (see Part C).

an allée creates a green spine uniting the campus

Strengthen the Connection to the Lake

Lake Bemidji is an important asset for BSU. Reorienting the campus towards the lake allows it to become a celebrated part of campus life. The most obvious opportunity is the area between the Student Union and the lake, which is explored in Long and Short Term Site Plan Location B (see Part C). In addition, restoring the lakeshore and adding small gathering spaces along the trail would create a more appealing experience, especially if long-term changes to the buildings allowed for the service drive to be reduced to a fire access route.

new spaces, both naturalized and more formal, form a new campus lakefront

Provide Outdoor Gathering and Learning Spaces

Inviting, comfortable places to study, socialize, and just watch other people are key to the campus experience. They should be available at a variety of scales, from a comfortable spot for one student to sit and read to larger spaces for classes or ceremonies. Several of the site plan designs incorporate seating and gathering spaces (see Part C). In addition, the Master Landscape Plans suggest additional locations where a few benches could create informal gathering spaces. These should offer a range of experiences, degrees of protection from the weather, and seating types. They also provide space to

seating spaces provide places to study, socialize, and watch other people

Strong Campus Edge

Creating an identifiable campus edge provides a sense of arrival for visitors to campus. It also communicates the BSU culture from the moment someone walks, bikes, or drives onto campus. It more clearly defines the campus as its own place in the fabric of the Bemidji Community.

Gateways, signage, fencing, and landscaping help define the point where roads cross into campus from the surrounding neighborhoods. Not only is this an important aesthetic and wayfinding element, it also improves safety.

a fence with native stone columns at key locations enhances the campus edge

Use Consistent Landscape Elements

Using one set of common landscape furnishings, such as benches, picnic tables, trash receptacles, lights, and so on helps create a campus-wide brand. Similarly, using similar plants and building materials across the campus will unite the campus experience and promote continuity. It also is convenient for maintenance, since it is easier to make repairs, store extras, and relocate elements that are no longer needed. See Part D for lists of preferred furnishings, plant materials, etc.

Some areas may be distinguished by having unique furnishings, but this should be deliberate. That kind of differentiation is only possible if other areas are consistent.

using similar landscape elements throughout campus creates unity

Improve Pedestrian Safety

Differentiating primary pedestrian crossings at major roads is key to improving pedestrian safety. Raising these crossings to the curb height acts as a speed bump for cars and changing the pavement type by using pavers or stamped concrete creates a physical feeling that is different from other portions of the road. Combined with visual cues, such as striping, signage, and landscaping, drivers are made aware that they are in a pedestrian zone, rather than the other way around.

Where these crossing occur on streets owned by the city or county, coordination may be required to ensure conformance with standards.

pedestrian zones will slow traffic and improve safety

Vegetate Paved Areas

Parking lots are the first place many visitors see of the BSU campus and they have an important role in introducing the campus experience. Trees and other vegetation can make these areas more attractive and improve their ecological function. They humanize spaces that are otherwise only used to store cars. Trees and other plants shade cars and pavement, reducing the heat island effect, while intercepting precipitation to improve stormwater performance. When combined with street trees and gateway elements, they become a powerful part of the BSU landscape.

trees and landscaping enhance parking lot conditions

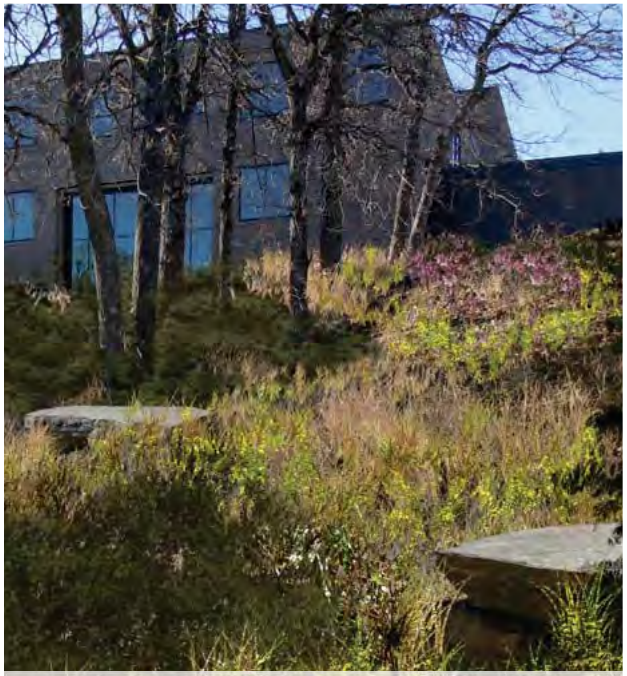
Reduce Maintenance Requirements

Expanding areas of low-mow lawn and naturalized landscapes reduces the maintenance needs of the campus landscape. These areas should be carefully chosen so that they fit with the aesthetic goals for the campus. Low-mow grass might be most appropriate in less visible areas behind buildings and in places where mowing steep slopes isn't practical. Creating an edge for these areas, either with mown strips or edging and providing educational signage helps improve acceptance of this kind of grass. The Master Landscape Plans highlight potential areas for low-mow and naturalized landscapes.

areas of low-mow grass help reduce the need to mow

Restore and Expand Natural Areas

Lakeshore and forested areas are so important to BSU's culture that they are featured on its logo. Enhancing, stabilizing, and reforesting portions of campus with a more "natural" character increases their apparent value by making them seem more cared for. It also makes them easier to maintain and more ecologically functional. In these areas, appropriate native plant communities can be mimicked with a high degree of diversity which will make them more resilient. Educational signage, distinct boundaries, and walkways and seating areas provide cues that these areas are valuable and unique.



careful plantings in natural areas makes them more attractive

Plant at Building Foundations

Shrubs and other plantings around buildings help connect the buildings to the surrounding landscape and soften stark building walls. They can also contribute to reduced heating and cooling needs because of the protection they provide from sun and wind. Plants should be chosen carefully to reduce maintenance requirements (see Part D). Open habits and a soft, somewhat informal appearance reduce the need for pruning and other maintenance while improving safety.

foundation plantings connect buildings to their context

Integrate Native and Edible Plantings

Integrating native and edible plants into the landscape enhances aesthetics and ecological function when it is well-designed. In most cases, these plants can be mixed into traditional landscape beds. Planting large swaths of similar plants, choosing a careful palette of colors and textures, and planning for suitable maintenance ensure that the plantings look attractive. See Part D for lists of suggested plants.

Specific areas for community vegetable gardens can also provide great places for gathering, education, and growing fruits and vegetables. Using raised beds and other built elements help keep them attractive and productive.

native plants contribute to a beautiful and sustainable campus

BEFORE AND AFTER PROJECTED PERSPECTIVES

before

Low Maintenance Landscapes

Adding low-mow grass areas throughout campus will reduce maintenance demands, reflect a more sustainable landscape, and introduce an innovative visual aesthetic element. Additionally, low-mow grass stabilizes embankments, reduces mowing on dangerously steep slopes, and makes it easier to plant trees since it will not be necessary to mow around them. Locations should be chosen where this less-formal aesthetic will be more acceptable, such as behind buildings and in lower traffic areas. Using signage and creating clear boundaries with mown strips or edging helps improve acceptance of these areas.

after

before

after

Parking Lot Tree Implementation

Parking lot vegetation has multiple aesthetic and environmental benefits. Trees reduce the heat island impact from pavement and improve stormwater run-off quantity and quality. Islands provide safe routes for pedestrians and places for snow storage and vegetation can reduce blowing and drifting snow across large expanses. Parking lots are also the place where many people first experience the campus and their appearance can impact visitors' impressions of the University.

before

Street Tree Implementation

The benefits of street trees have received a lot of attention recently. Their aesthetic and environmental benefits translate into a real return on investment. They provide shade on the road and sidewalks, making them more comfortable and reducing the heat island effect. They improve stormwater function. Studies have also shown that street trees tend to slow traffic. Increasing street trees along campus roads contributes to the sense of this as a wooded place, supporting the overall campus aesthetic.

after

before

after

Foundation Plantings

BSU's campus architecture sometimes appears abrupt and heavy due to the sparseness of foundation plantings. The patterns of foundation plantings should take cues from the architecture of the building--using landscape patterns that more directly connect the building to its setting. Carefully chosen foundation plantings make buildings seem more integrated and can reduce heating and cooling costs by providing protection from sun and wind. Using plants with open habits and an informal arrangement reduces pruning and other maintenance needs and improves safety.

before

Restore Natural Landscapes

The naturalized areas of BSU's campus will be enriched by seasonal plantings of diverse color, size, shape, and texture. Unlike the more highly designed planted spaces, a wide variety of species typical of native plant communities should be used. These plantings will reduce maintenance needs by out-competing weeds and offering more resilience to disease and climate. Such areas of enhancements will also function as embankment stabilization, attract wildlife, and improve stormwater quantity and quality. Rocky outcroppings provide places of rest and invite people into the natural landscape.

after

before

after

Create Campus Gateways

Consistent signage and landscaping at major intersections around the campus perimeter communicates a sense of arrival on campus. These spaces become the face of campus to surrounding neighborhoods and can draw visitors to campus. This sign, based on an historic precedent, supports the campus aesthetic and uses native materials that fit the Northwoods setting. Additionally, incorporating trees and other plantings enhances that effect.

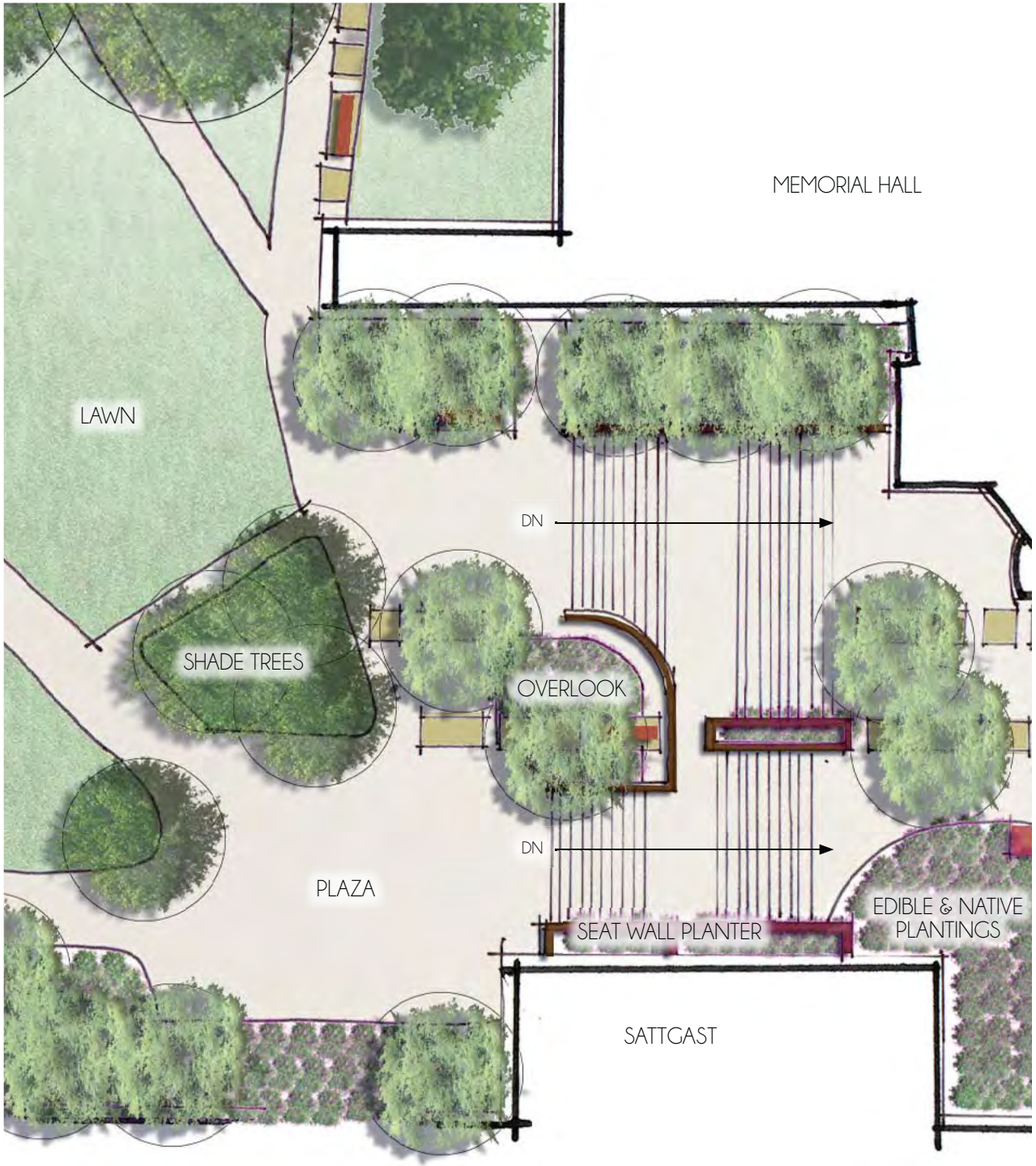
Part C
Site Plans

SHORT-TERM SITE PLANS

Short Term
Location A
The Back Alley

The Back Alley is a main route for pedestrians walking from the northwest to the south tip of campus. It is currently somewhat disjointed, with multiple surfaces in varying conditions, and no unifying landscape. The proposed plan seeks to create a multi-functional, pedestrian-oriented space that both accommodates large amounts of foot traffic moving through the space and supports outdoor gathering and study.

Landscape islands are shaped to reflect the building forms of Memorial Hall and are inspired by the patterns in an existing guardrail. They also provide places for respite, with benches that allow a wide variety of seating options. Plantings and trees provide space for stormwater infiltration, shade, and a visual break. Long lines of pavers intersect the islands and follow the line of traffic, giving pedestrians a visual cue that evokes tree trunks or the current in a stream. Seat walls and planting areas along the buildings soften the verticality of the space and add seating.



Key Plan

Graphic Key

- = TURF
- = PLANTING AREA
- = CONCRETE PAVING
- = BITUMINOUS PAVING
- = WATER
- = SEATWALL
- = MOVABLE FURNISHINGS
- = EVERGREEN TREE
- = ORNAMENTAL TREE
- = DECIDUOUS TREE

Short Term
Location B
The Quadrangle I

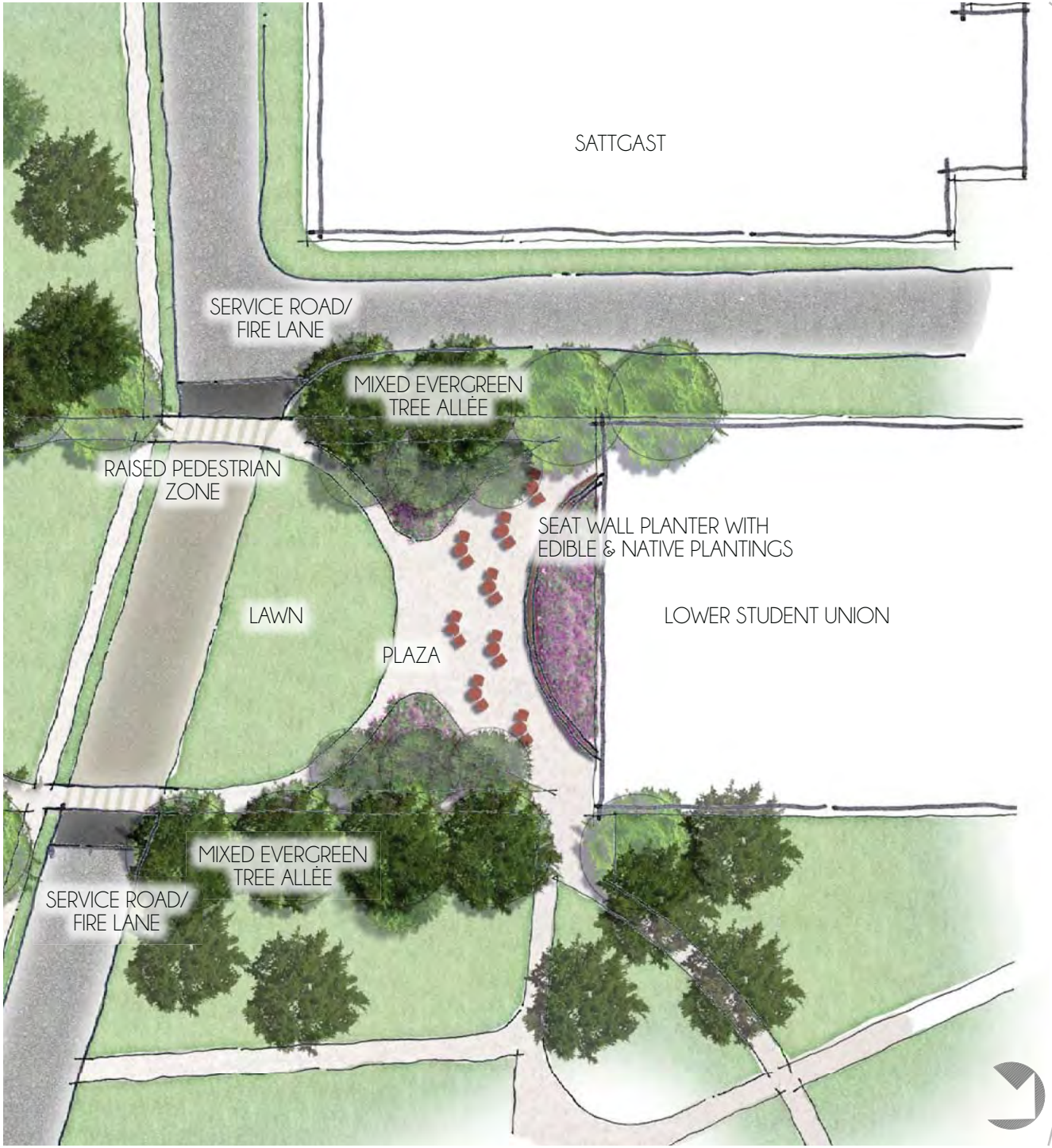
Few campus spaces in the Midwest are as memorable as the Terrace at the University of Wisconsin Student Union. It attracts hundreds of visitors, exciting events, and is a draw for returning alumni. BSU has many of the elements that make the Terrace so successful: a vibrant student community, a beautiful lake, a large space for students to gather, and a Student Union serving food. However, the lawn between Lower Student Union and Lake Bemidji is under utilized.

This plan begins the process of creating a central space for the academic part of campus. It links the Union and the lake, opens views (while masking views of nearby utilitarian areas), and creates a variety of spaces for gathering.

At the lakeshore, a boardwalk with steps down to the water provides an opportunity for visitors to enjoy lake views and dip their toes, without disturbing lakeshore habitats. The shore itself can be restored, providing a great opportunity to demonstrate the rich ecology of this area.

On the other side of the trail and near the Lower Union, plazas with moveable furnishings provide spaces for students and staff to gather and study. The lawn provides space for informal relaxation and recreation.

The service road cuts through the space, but a raised pedestrian zone, with unique paving and set at the lawn level, reduces conflicts as much as possible.


SATTGAST
SERVICE ROAD/
FIRE LANE
MIXED EVERGREEN
TREE ALLÉE
RAISED PEDESTRIAN
ZONE
SEAT WALL PLANTER WITH
EDIBLE & NATIVE PLANTINGS
LAWN
LOWER STUDENT UNION
PLAZA
MIXED EVERGREEN
TREE ALLÉE
SERVICE ROAD/
FIRE LANE

Key Plan

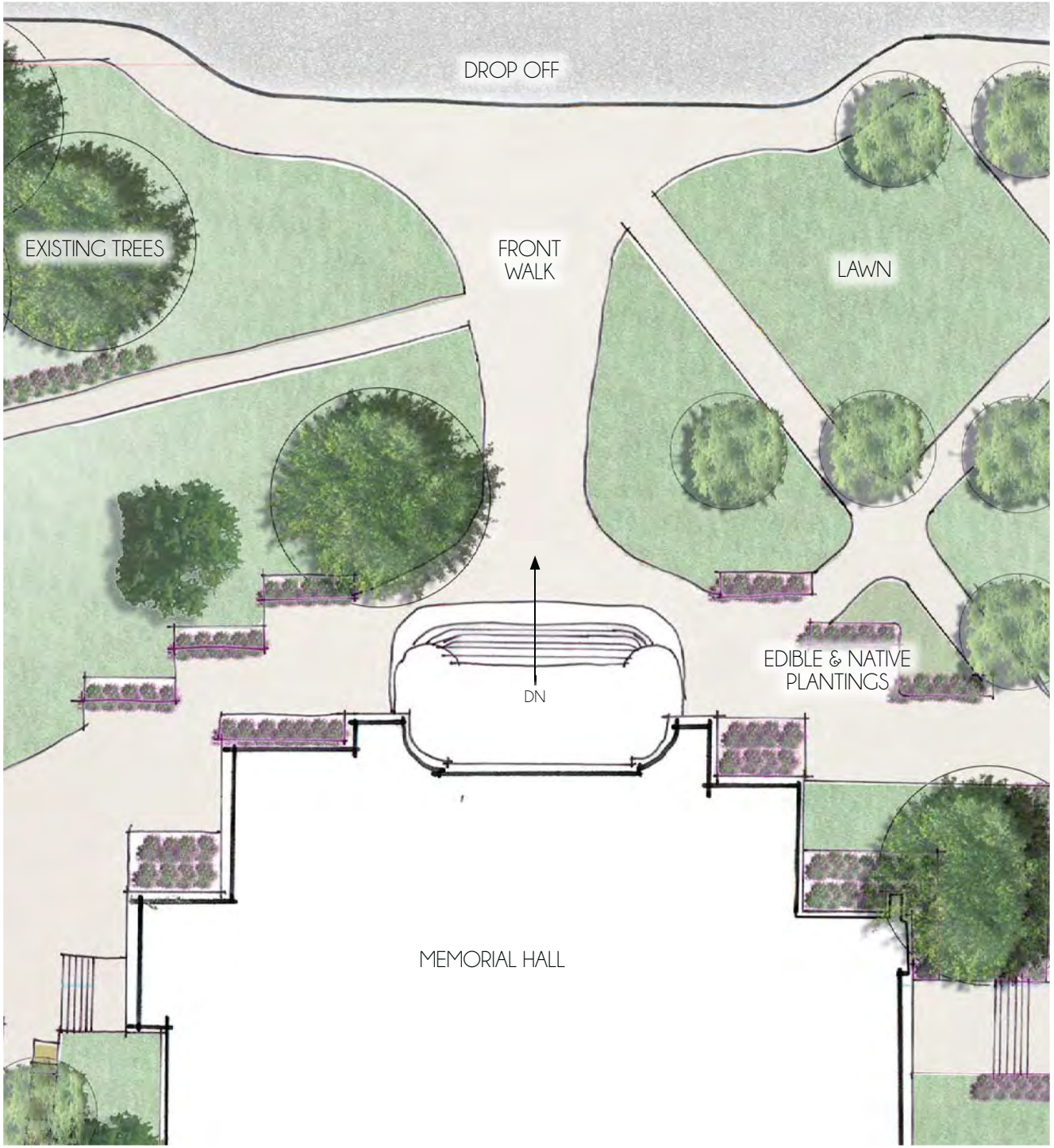
Short Term
Location C
The Front Lawn

With Sanford Hall scheduled to be removed in the summer of 2014, Memorial Hall and Upper Student Union form the front face of the academic campus along Birchmont Drive. However, the lawn in front of the buildings is crossed with illogical paths and the concrete area in front of the Upper Student Union is an uncomfortable expanse of pavement and a garden area in need of replacement.

The many existing paths are the result of pedestrian foot traffic crossing this area in many directions. Accommodating these patterns but providing a more formal pattern helps create a tapestry-like space that is appealing and functional.

Adding planting areas and trees in logical patterns also helps organize the space visually, which is appropriate for formal front spaces of campus.

A plaza, with moveable furnishings, seat walls, and plantings, creates a destination space between the Library and the Union that attracts activity without seeming forced. It also is slightly smaller than the existing space, to better fit its actual use without eliminating the possibility for larger gatherings.



Key Plan

Graphic Key

- = TURF
- = PLANTING AREA
- = CONCRETE PAVING
- = BITUMINOUS PAVING
- = WATER
- = SEATWALL
- = MOVABLE FURNISHINGS
- = EVERGREEN TREE
- = ORNAMENTAL TREE
- = DECIDUOUS TREE

LONG-TERM SITE PLANS

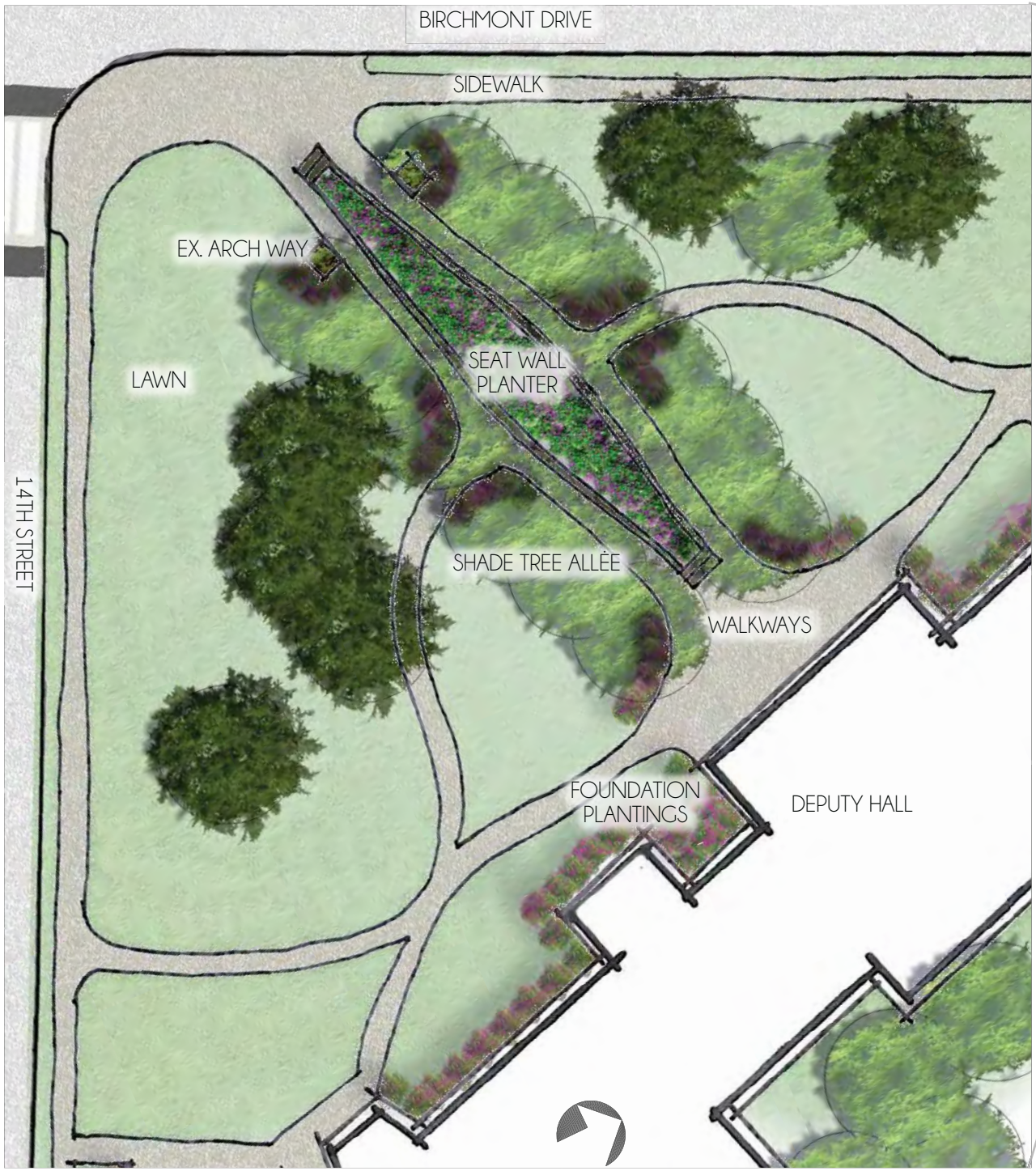
Long Term
Location A
The Historic Entry

Deputy Hall, with its formal architecture and historic arching gateway, forms what many people see as the front door to BSU. However, the landscaping between the building and the intersection of Birchmont and 14th Street is dated and will need replacement.

It should remain a formal space, with symmetry and traditional plantings. However, introducing some modern forms and reducing the overall paving helps create a space that is more in keeping with BSU's modern values.

A large seatwall-height planter forms the central axis and provides seating options without the clutter of benches, which seem underutilized in this area. Replacing the high shrub hedge with soft landscaping and an allée of trees maintains traditional forms without seeming stiff.

Many students using this route are actually going around Deputy Hall, not into it, so paths should flow around the building without seeming random or unplanned. The broad expanse of lawn remains in place as a traditional front entrance element.



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= TURF

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= EVERGREEN TREE

= ORNAMENTAL TREE

= DECIDUOUS TREE

Long Term
Location B
The Quadrangle II

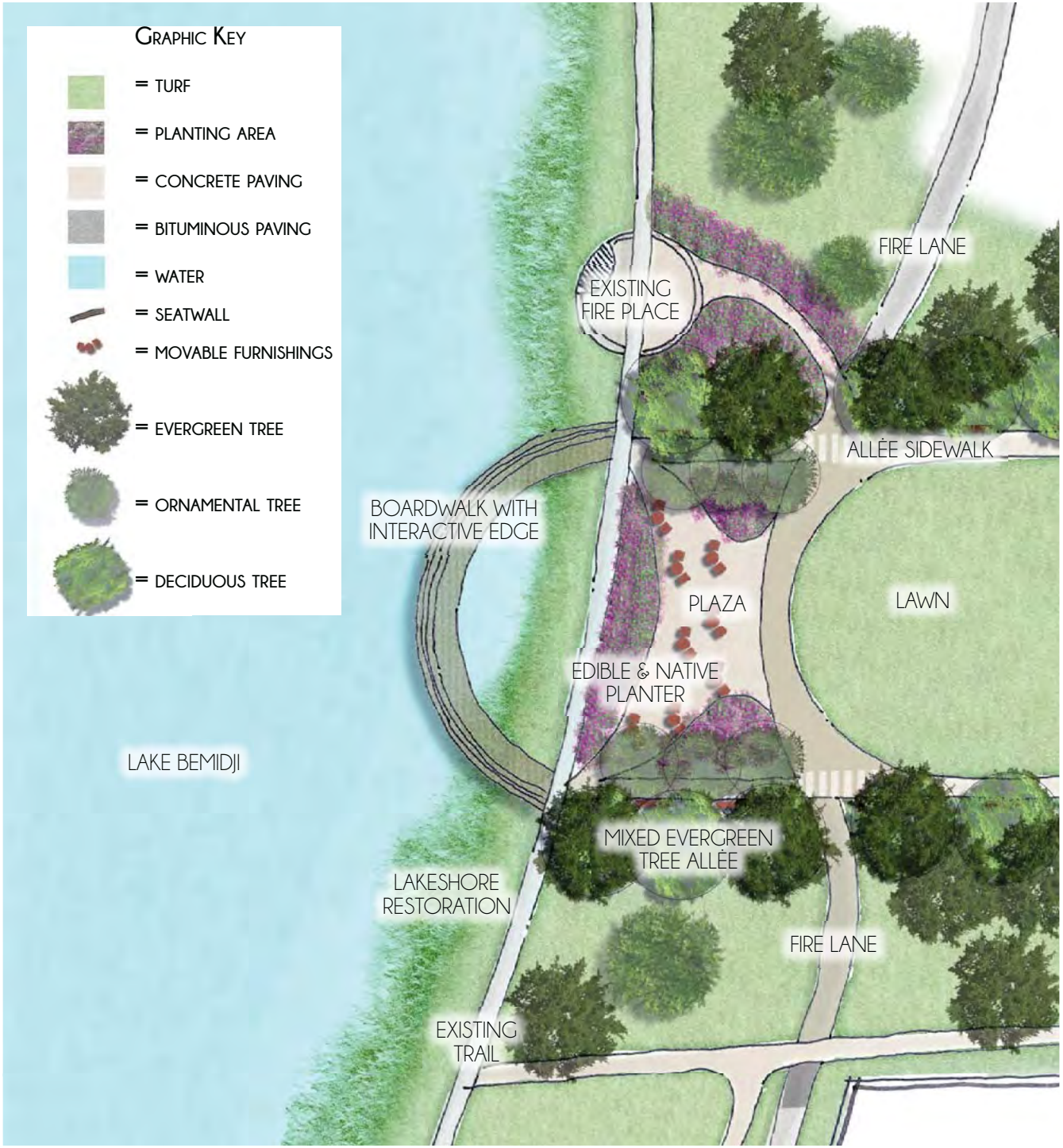
After the replacement of the Student Union, as described in the Master Facility Plan, the Quadrangle begun in the short term can be expanded to create the central space for the academic part of campus. It would link the campus to the lake and create iconic spaces for study, recreation, performances, and ceremonies.

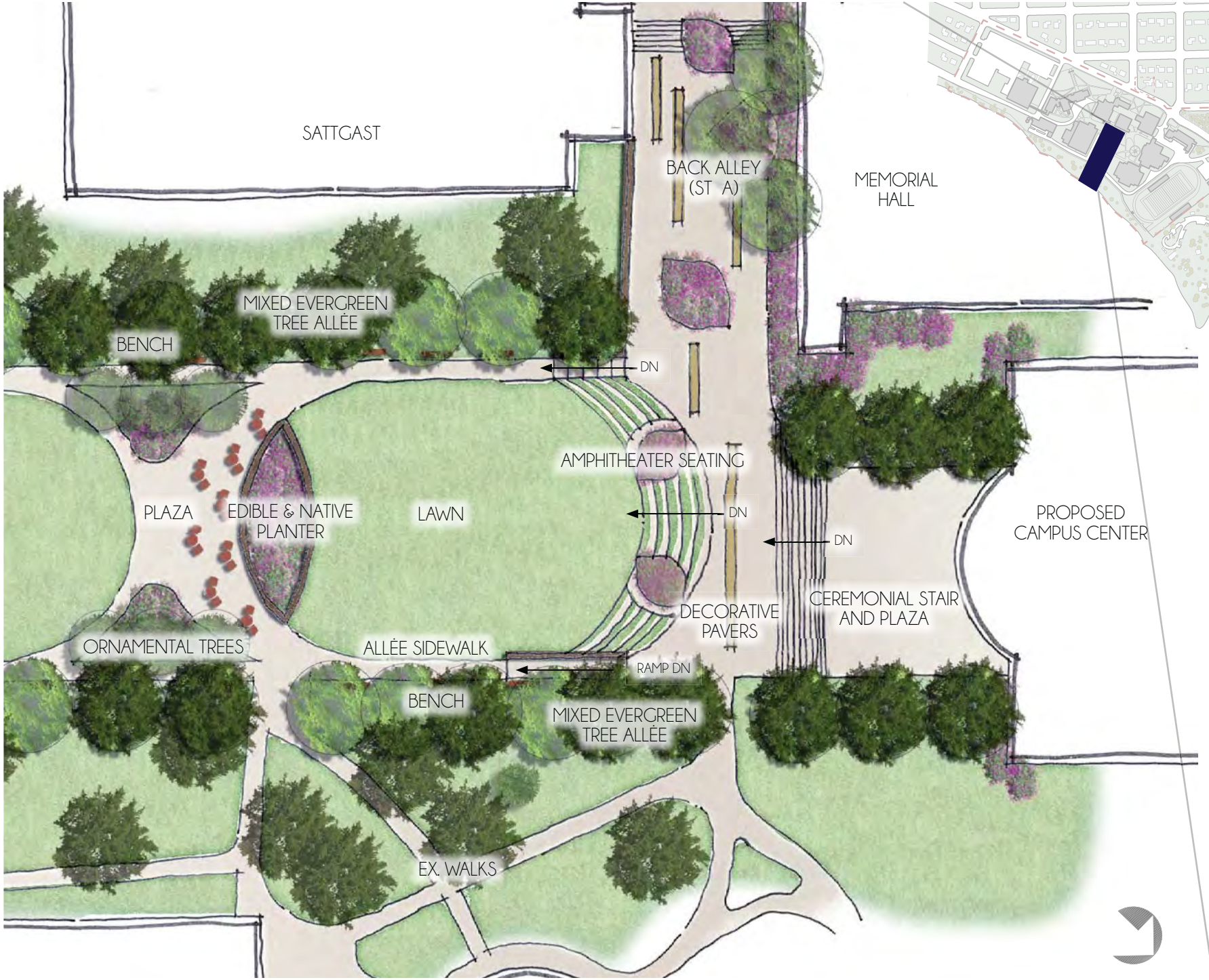
A second great lawn would be added, continuing the allée. At its northwest end, large grass steps would form an amphitheater, bringing grade up to match the Back Alley and providing space for programmed and informal performances. The Back Alley would connect with the Quadrangle, forming a logical connection.

Adjacent to the planned Campus Center, a ceremonial plaza and stair, scaled to accommodate graduations and other important ceremonies, would have long views to the lake. When not in use for ceremonies, this space could function as a plaza.

This space should speak directly to the "University in the Pines" character of campus. Establishing a mixed evergreen tree allée in the short term design would provide a mature pine-sheltered space in the long term.

As a whole, the Quadrangle provides the quintessential university campus experience, with long vistas and a slightly forced perspective. It provides an iconic image of the campus as well as a dynamic space for students, faculty, and staff to study and play.




SATTGAST
BACK ALLEY
(ST A)
MEMORIAL
HALL
MIXED EVERGREEN
TREE ALLÉE
BENCH
DN
AMPHITHEATER SEATING
PLAZA
EDIBLE & NATIVE
PLANTER
LAWN
DN
DN
PROPOSED
CAMPUS CENTER
DECORATIVE
PAVERS
CEREMONIAL STAIR
AND PLAZA
ORNAMENTAL TREES
ALLÉE SIDEWALK
RAMP DN
BENCH
MIXED EVERGREEN
TREE ALLÉE
EX. WALKS

Key Plan

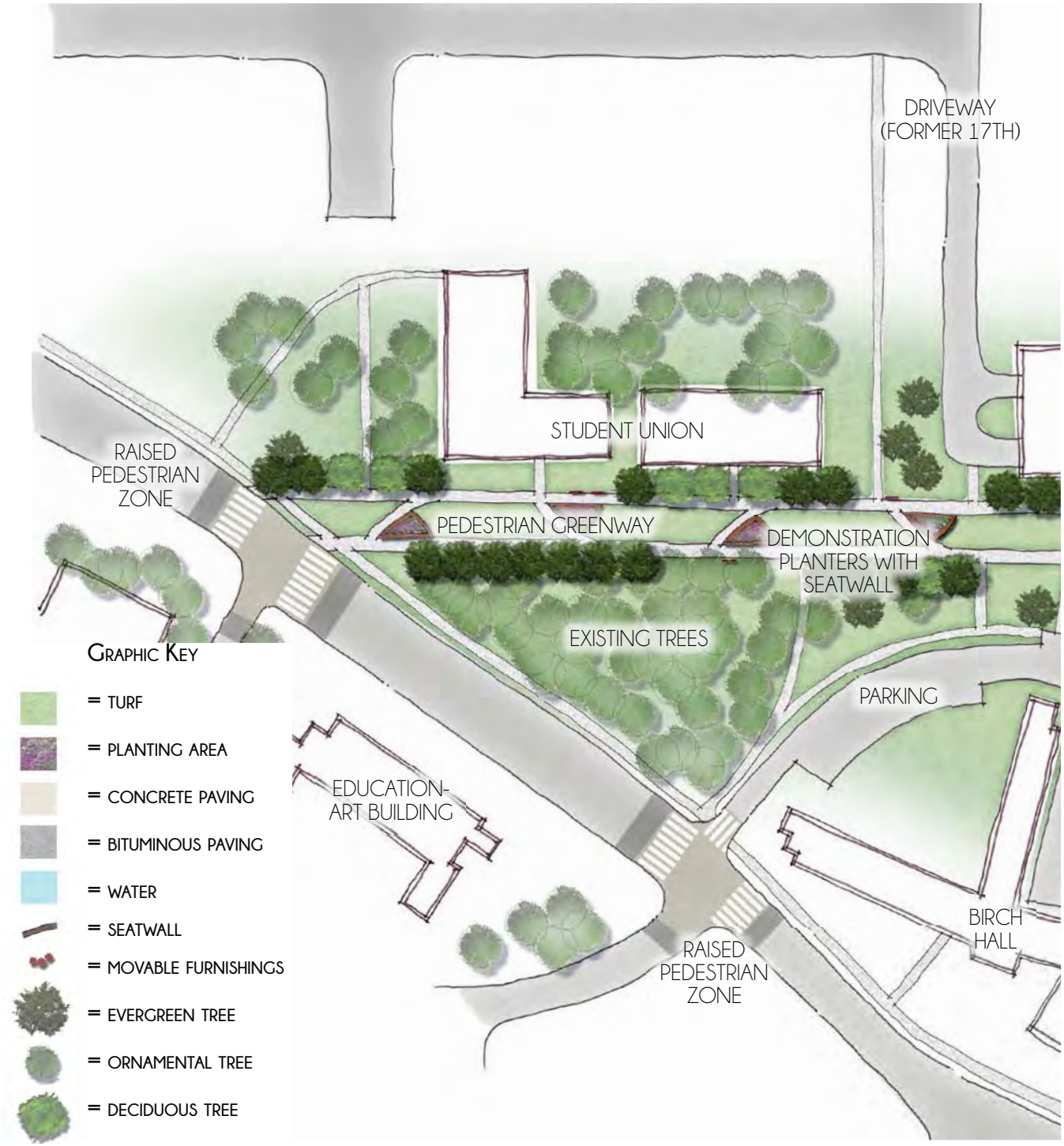
Long Term
Location C
Pedestrian Greenway

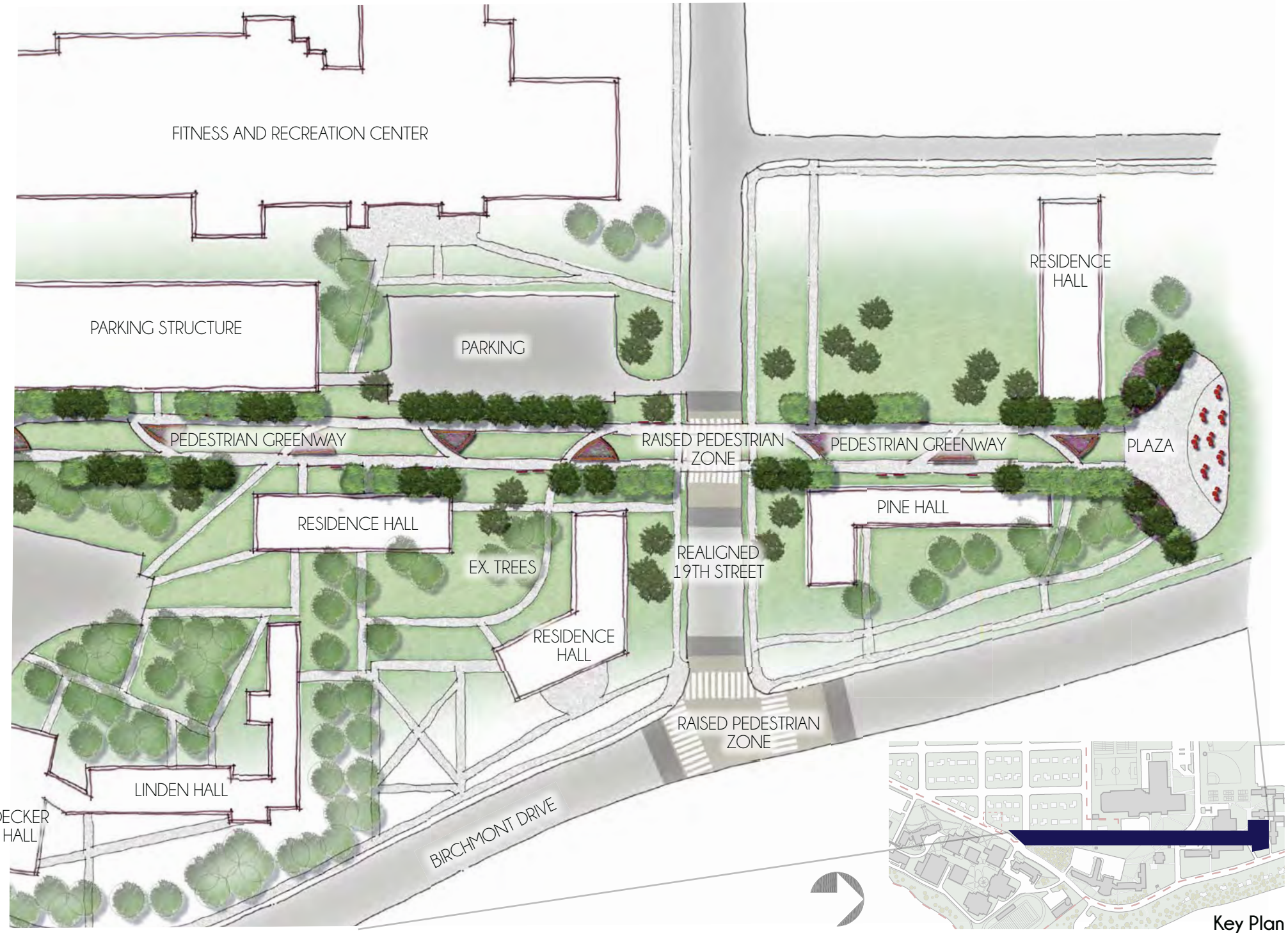
The Master Facility Plan (MFP) describes the connection of the residential and academic portions of campus as a high priority. It proposes closing Birch Lane and creating a Pedestrian Greenway. This would become an important campus greenspace and would make a frequently travelled route more appealing and safe.

The Pedestrian Greenway is essentially two parallel paths, shaded by an intermittent allée of trees, similar to the mixed evergreen allée from the Quadrangle, linked by paths crossing a central lawn. The crossing paths should occur at logical locations, but not so frequently that they break up the greenspace too much. Creating raised planters at the corners of the crossing paths would provide seating, help reduce wear on the lawn, break up the long expanse, and become a space for demonstration gardens.

Where this important pedestrian route crosses roads, the road should ramp up to curb height, creating a speed bump and delineating a space that belongs to the pedestrian, rather than the car. That raised platform can incorporate a different surface, such as pavers or stamped concrete, to further differentiate it. Signs, striping, and landscaping would also provide important visual cues.

The Greenway would terminate at the residential end in a small plaza that would provide a central space for the residential halls.




FITNESS AND RECREATION CENTER
PARKING STRUCTURE
PARKING
RESIDENCE HALL
PEDESTRIAN GREENWAY
RAISED PEDESTRIAN ZONE
PEDESTRIAN GREENWAY
PLAZA
PINE HALL
RESIDENCE HALL
EX. TREES
REALIGNED 19TH STREET
RESIDENCE HALL
RAISED PEDESTRIAN ZONE
LINDEN HALL
DECKER HALL
BIRCHMONT DRIVE
Key Plan

Part D
Guidelines

PLANT PALETTES

Northwoods Tree Palette

The following is a list of indigenous tree species which can be introduced into the BSU campus either individually as stands of trees or as groups of mixed forest types.

Boreal Forest Community

- *Abies balsamea*, Balsam Fir
- *Pinus glauca*, White Spruce
- *Betula papyrifera*, Paper Birch

Mixed Hardwood Forest Community

- *Tilia americana*, Basswood
- *Tsuga canadensis*, Hemlock
- *Acer rubrum*, Maple
- *Quercus macrocarpa*, Bur Oak
- *Populus tremuloides*, Quaking Aspen
- *Ostrya virginiana*, Ironwood

Pine Woods Community

- *Pinus banksiana*, Jack Pine
- *Pinus resinosa*, Red Pine
- *Pinus strobus*, White Pine
- *Alder rubra*, Alder

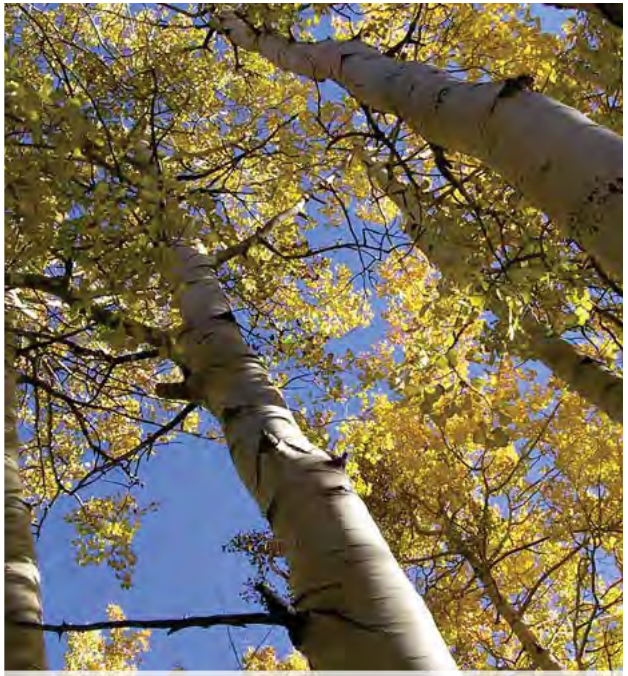
Second Growth Forest Community

- *Populus tremuloides*, Quaking Aspen
- *Betula papyrifera*, Paper Birch

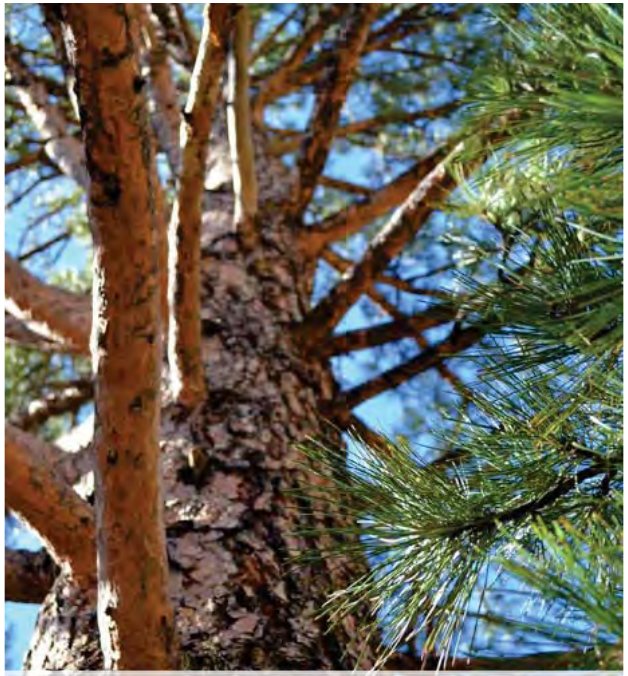
Climate-resilient Species

- *Ulmus americana, Ulmus thomasii, Ulmus rubra*, Elms
- *Celtis occidentalis*, Hackberry
- *Tilia americana*, American basswood
- *Quercus macrocarpa*, Bur Oak
- *Quercus alba*, White Oak

Bur Oak (*Quercus macrocarpa*)



Quaking Aspen (*Populous tremuloides*)



Red Pine (*Pinus resinosa*)

White Spruce (*Picea glauca*)

Summersweet (*Clethra alnifolia* 'Hummingbird')

Gray Dogwood (*Cornus racemosa*)

Taunton Yew (*Taxus x media* 'Tauntonii')

Creeping Juniper (*Juniperus horizontalis* 'Blue Prince')

Shrub Palette

Woody species, suitable for garden spaces, hedges, foundation plantings, and the understory of forested areas, are critical for providing structure and mass in the landscape. Like the perennial plants, shrubs should be grouped in large swaths, with a carefully chosen and limited palette of colors, textures, and forms in any given space. This list is not all-inclusive and in some cases the species or an alternate cultivar may be appropriate.

Deciduous shrubs

Amelanchier canadensis, Shadblow serviceberry	N
Betula papyrifera 'Prairie Dream,' Paper birch	
Betula papyrifera 'Renaissance Oasis,' Paper birch	
Clethra alnifolia 'Hummingbird,' Summersweet	
Comptonia peregrina, Sweet fern	N
Cornus sericea 'Alleman's Compact,' Red-twig dogwood	
Cornus racemosa 'Muskingham,' Gray dogwood	
Cornus racemosa, Gray dogwood	N
Corylus americana, American hazelnut	N
Fothergilla major 'Mount Airy,' Witch alder	
Viburnum rafinesquianum, Downy arrowwood	N

Evergreen shrubs

Juniperus chinensis 'Sea Green,' Juniper
Juniperus horizontalis 'Blue Prince,' Creeping juniper
Picea glauca 'Conica,' White spruce
Pinus mugo, Mugo pine
Taxus x media 'Tauntonii,' Yew
Thuja occidentalis 'Techny,' Arborvitae

Minnesota Prairie Perennial Palette

The following is a list of species inspired by the Minnesota prairies. While prairies weren't common to the Bemidji area, this palette includes species suitable for sunny and part-shade parts of campus. Not every plant on the list is native (those that are are marked "N"), but they are hardy, low-maintenance species and cultivars that complement the overall aesthetic and environmental goals. Plants should be grouped in large swaths, with a carefully chosen and limited palette of colors, textures, and forms in any given garden space.

*Minnesota Prairie Community**

Adiantum pedatum, Maidenhair fern	N
Allium senescens 'Glaucum,' German garlic	
Allium tanguticum 'Summer Beauty,' Nodding onion	
Allium thunbergii 'Ozawa, ' Ornamental onion	
Amorpha canescens, Lead Plant	N
Amsonia 'Blue Ice,' Bluestar	
Andropogon gerardii, Big bluestem	N
Anemone patens, Pasque Flower	N
Aralia racemosa, Spikenard	N
Aruncus 'Misty Lace,' Goat's beard	
Asarum europaeum, European wild ginger	
Asarum canadense, Canada wild ginger	N
Asclepias incarnata, Swamp milkweed	N
Asclepias tuberosa, Butterfly weed	N
Aster laevis, Smooth aster	N
Aster oblongifolius 'October Skies,' Aromatic aster	
Astilbe 'Alive and Kicking,' Astilbe	
Astilbe 'Snowdrift,' Astilbe	
Athyrium felix-femina 'Lady in Red,' Lady Fern	
Baptisia alba, White wild indigo	N
Baptisia australis, False Indigo	N
Calamagrostis brachytricha, Feather reed grass	
Calamintha nepeta, Lesser calamint	
Carex pensylvanica, Pennsylvania sedge	N
Dalea purpurea, Purple Prairie Clover	N
Dryopteris marginalis, Eastern wood fern	N

Little Bluestem (*Schizachyrium scoparium*)

Blazing Star (*Liatris pycnostachya*)

Prairie Smoke (*Geum triflorum*)

Ornamental onion (*Allium tanguticum* 'Summer Beauty')

Lead Plant (*Amorpha canescens*)

Swamp milkweed (*Asclepias incarnata*)

, Wild lupine (*Lupinus perennis*)

Purple Prairie Clover (*Dalea purpurea*)

*Minnesota Prairie Community, cont.**

Epimedium x rubrum, Red barrenwort	
Eupatorium dubium 'Little Joe,' Joe Pye weed	
Eupatorium maculatum, Joe Pye weed	N
Gentiana andrewsii, Bottle gentian	N
Geranium cantabrigiense 'Biokovo,' Geranium	
Geranium maculatum, Wild geranium	N
Iris versicolor, Blue flag iris	N
Liatris aspera, Rough blazing star	N
Liatris pycnostachya, Prairie blazing star	N
Lupinus perennis, Wild lupine	N
Molinia caerulea 'Moorhexe,' Purple moor grass	
Molinia caerulea 'Strahlenquelle,' Purple moor grass	
Molinia litoralis 'Transparent,' Purple moor grass	
Monarda 'Raspberry Wine,' Monarda	
Osmunda cinnamomea, Cinnamon fern	N
Osmunda regalis, Royal fern	N
Panicum virgatum 'Heavy Metal,' Blue switch grass	
Parthenium integrifolium, Wild quinine	N
Phlox divaricata, Woodland phlox	N
Rosa blanda, Smooth wild rose	N
Schizachyrium scoparium, Little bluestem	N
Sporobolus heterolepis, Prairie dropseed	N
Stachys monnieri 'Hummelo,' Lamb's ear	
Thalictrum dasycarpum, Purple meadow-rue	N
Vernonia fasiculata, Ironweed	N
Veronicastrum virginicum, Culver's root	N

**based on a planting plan from Silverwood Nature Center, Three Rivers Park District*

Ornamental Edible Plant Palette

Edible plants can be an attractive and productive addition to the campus landscape. Fruit trees, berries, vines, and edible annuals can complement more traditional plantings.

Fruit trees

Apple (Malus)
Cherry (Prunus)
Plum (Prunus)
Serviceberry

Fruiting shrubs

Elderberry
Cranberry
Currant
Raspberry
Black raspberry
Gooseberry
Lowbush blueberry
Chokeberry

Vines

Grape
Hardy kiwi
Hops

Edible annuals

Purple basil
Artichoke
Dinosaur and Redbor Kale
Broom corn
Swiss chard "Bright Lights"
Rosemary "Prostrata"
Pineapple sage
Variegated society garlic
Malabar spinach
Ornamental pepper
Pumpkin on a stick
Hmong eggplant
Purple Kohlrabi
Scarlet runner bean
Hyacinth bean "Ruby Moon"
Nasturtium
Marigold
Impatiens
Pansy
Centaurea
Sunflower
Amaranth
Millet "Purple Majesty" or "Purple Baron"
Strawberry

Sour Cherry (*Prunus*)

Currant

Hardy Kiwi

Swiss Chard

Detention Basin Seed Mix

Savanna Wildflower Mix

Shady Woodland Seed Mix

Emergent Mix

Seed Mix Palette

In areas targeted for restoration and reforestation, native communities should be mimicked. There are many resources for native seeds and plants and care should be taken to choose plants suitable for the conditions of the site. Below is a list of suggested seed mixes for the Bemidji area, by general use area. It is generally desirable to use a local seed source where possible.

Naturalized areas

Full Shade: Shady Woodland Seed Mix (Prairie Moon Nursery)

Partial Shade: Savanna Wildflower Mix (Prairie Restorations, Inc.)

Full Sun: Short Dry Upland Prairie Mix (Morning Sky Greenery)

Raingardens: Detention Basin Seed Mix (Prairie Moon Nursery)

Lakeshore: Emergent Mix (Shooting Star Native Seeds)

FEATURES PALETTE

Signage

A variety of signs are necessary for campus navigation and direction. The design of the sign should be consistent throughout the landscape to allow for individuals to identify by appearance the purpose and function of the signage. Although types vary, using cohesive materials and details creates unity.

Creating an entry sign for the campus of BSU will establish a sense of arrival when entering through main routes.

Information panels can display maps of the campus, provide landscape information, include electronic message boards, and link visitors to the campus's website.

The pedestrian directional sign is directly related to the informational panel. This amenity will provide guidance for pedestrians to major facilities on campus as listed on the informational panel.

A fence is a traditional feature of universities and helps define the campus edge. However, considering the size of the campus, the fence is not designed to be continuous, but to be used in key locations to visually define an edge. Incorporating the logo on a corner column helps identify the campus in the community fabric.

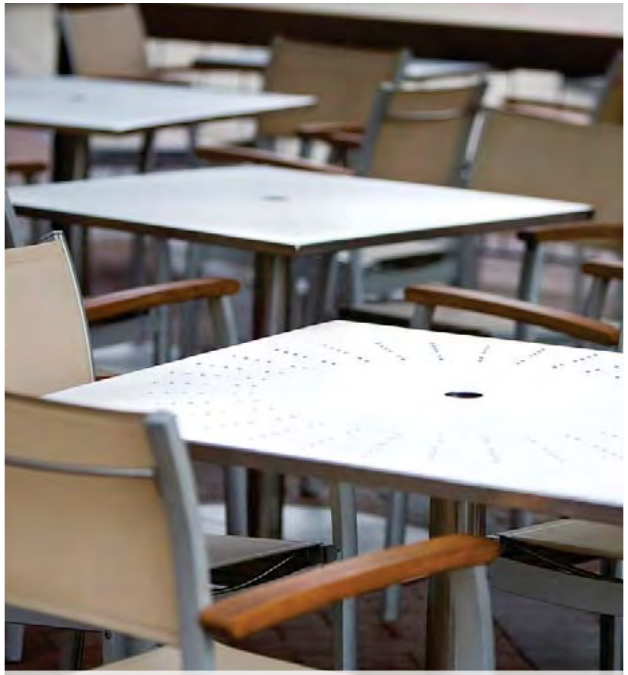
campus entry sign

informational panel

pedestrian directional sign

campus boundary fence

bike garden rack



column movable tables and chairs

duo bench

apex table

Furnishings

Using a coordinated selection of site furnishings throughout the campus helps unite different spaces and communicate the campus brand. It also reduces maintenance by making items easier to repair, replace, and relocate.

Furnishings should be simple and comfortable, with materials and forms that evoke the Northwoods setting. Wood, stone, metal, and water should be used in ways that allow them to express their inherent character.

In high-traffic areas used for a variety of types of gathering, movable tables and chairs provide flexibility. They can be secured when not in use, but allow people to take ownership of the space.

Site Furnishings

Bike Garden bike rack (Forms + Surfaces)
Column Table and Chair (Forms + Surfaces)
Duo Backless Bench (Forms + Surfaces)
Knight Backed Bench (Forms + Surfaces)
Apex Table (Forms + Surfaces)
Apex Receptacles (Forms + Surfaces)
Sitecraft Planters (Sitecraft)

Lighting

Lighting is critical to enhancing the experience of the campus and improving safety. It highlights substantial landscape elements and buildings and provides a sense of security. It is also an important part of the wayfinding system. Beyond the fixtures themselves, light is a design element.

Fixtures should provide the amount and angle of light desired for different spaces. The color of the light should be consistent across campus Pedestrian lights and bollards illuminate a broader area for visibility for both pedestrians and motorists. These fixture selections are typically utilized in higher traffic spaces. By using soft uplighting on trees and buildings, an even glow can be provided while avoiding the negative safety and ecological effects of glare. Pathlights also provide a sense of direction and safety with lower light levels than traditional pole lights.

Because of their energy performance, low maintenance requirements, and aesthetic options, LEDs are the preferred lighting option.

Lighting selections

Pole Top Pedestrian Light 7120LED (Bega Lighting)
Light Column Bollard (Forms + Surfaces)
Micro Mini iLume path light(B-K Lighting)
Gold Star Halogen uplight (B-K Lighting)
HMAO LED parking lot light (Holophane)

pedestrian scale lights


bollards


path lights


uplights

site lighting

emergency phones

design spaces with multiple views into them from windows and other areas

select plants with more open habits

BEST PRACTICES

Site Security

Site security is one of the most important considerations when designing for a campus landscape. The landscape must be safe and comfortable for students, faculty, and staff to feel comfortable outside.

Landscape lighting is perhaps the most important landscape element to create a perception of safety. Providing even lighting that minimizes glare and dramatic differences between lit and unlit areas improves people's ability to see at night. The color of the light is also important since the ability to perceive color helps us identify familiar people and features.

Emergency phones are a physical cue that a security network exists and is available. They are often just part of a system that includes campus police, safe walk/ride programs, and other features that are provided by the University.

In addition to the lighting and phone installations, the Landscape Master Plan spaces should be designed to support security as well. Providing multiple views into landscape spaces from windows and surrounding areas makes people feel more secure. Select plants with a more open habit to improve visibility and reduce hiding places. Always provide at least two ways out.

Sustainable Stormwater Management

Sustainable stormwater management is integral to BSU's Master Landscape Plan--rather than specifying separate spaces for stormwater management, it should be incorporated into every new space as part of the overall functional and aesthetic design. There are a variety of elements which will allow stormwater management to occur successfully. By utilizing pervious pavers, raingardens, green roofs, and underground infiltration systems, the quality of runoff will be improved and the quantity reduced.

The raingarden and green roof landscapes will generate a new micro-ecology into the BSU existing landscape while decreasing the heat island effect in parking lots and on top of building facilities.

The benefits of better managing stormwater include reducing erosion, controlling pollutants being carried into local streams, rivers, and lakes, normalizing water temperatures, reducing rapid rise and fall of water bodies, and controlling flooding on site.

pervious pavers

raingardens

green roofs

underground infiltration systems

plant species information app

educational signage highlighting sustainable landscape features

invite students and staff to participate in the landscape

integrate gathering spaces and sustainable landscapes

Educational Landscape Opportunities

Additional educational opportunities can be offered to faculty and students in a variety of areas in relation to BSU's Master Landscape Plan. Signage can be located strategically throughout the landscape to educate students in multiple methodologies, tactics, and techniques where practices are visible in the landscape.

The university can offer a series of informational and educational plaques in the landscape to convey the plant species data, sustainability methods, and environmental benefits. Micro-ecologies become a sustainable element from the construction of green roofs and raingardens.

In allowing the students to participate in the landscape constructions and maintenance when able, a sense of ownership will begin to form between the students and the landscape. An appreciation will develop, possibly followed by a new initiative to participate more frequently. Allowing groups to "adopt" specific spaces requires coordination and long-term commitment, but can substantially add to the manpower available for maintenance.

With available outdoor classrooms, faculty can begin to explore new and innovative teaching techniques to further connect students with their natural environment. Learning in the landscape is one of the best ways to learn about the landscape.

MAINTENANCE

BSU has a well-maintained and attractive landscape. These guidelines and suggestions for landscape maintenance are meant to complement their current efforts. They offer ways to bring maintenance practices more in line with the goals of the Sustainability Plan and other related efforts. It may not be possible to implement all of these guidelines immediately, but the goal should be to incorporate them over time as staffing allows. It may also be possible to use student and faculty groups for support of certain efforts or specific areas of campus.

Maintenance staff might also consider creating a standards manual. This would provide a quick reference for typical resolutions to common situations. For instance, if a new sidewalk is constructed that intersects with an existing walk, the manual would specify what radius should always be used. This kind of condition-response format allows long-term consistency and simplifies decision making on a daily basis.

Sustainable Turf

1. Turf areas should be designed in simple shapes resulting in wide and easy mowable spaces. Narrow, small, and winding turf areas are hard to mow and irrigate. Simple shapes of turf areas in the landscape are more efficient and reduce work in addition trimming.

2. Installation of turf should be placed over a 6" to 3" bed of topsoil over the subsoil. Healthy turf can have deep roots reaching up to 2' in depth. A prepared topsoil for turf areas will result in less frequent irrigation, quicker recovery after heavy uses, and an ability to withstand dry periods without irrigation.

3. Proper drainage of intense athletic turf spaces is more important than spaces of the occasional use. Determine the use of space and grade appropriately.

4. Mow at the highest setting acceptable, more top growth will promote deeper root growth. Keep mower blades sharp; dulled blades shred leaf tissues increasing water loss and disease susceptibility.

5. Mow with a mulching deck; remaining clippings will decompose and add nutrients back into the native soils.

6. Aerate regularly. This will prevent soil from becoming compacted in heavily used spaces.

7. Allow turf to go dormant; do not overseed in the fall seasons. This reduces water use and maintenance costs.

8. Consider if a few weeds in turf areas can be a "good thing" with the alternative option being use of herbicides and fungicides. Over time, as the turf becomes denser, the weeds will become less and less in the turf landscapes.

Water and Irrigation Management

1. Install new irrigation systems on xeriscape principles or base systems on the natural precipitation rates.

2. Replace irrigation controllers with the newest models with allow for multiple programming and the ability to run cycle and soak programs for slopes, clay soils, or newly seeded areas.

3. Irrigation systems should consider including soil probes and rain shutoff/rain sensor to prevent overwatering from rainstorms.

4. Install irrigation mainlines and lateral lines at the proper depth to prevent freezing or damage during aeration.

5. Irrigation zone design should be based on like water needs separation between landscape beds and turf areas, and sun exposures. Be sure to run zones for less time more often rather than less often for longer durations.

6. Consider rainfall collection systems to supply irrigation areas or to control stormwater runoff. Popular areas of rainfall collection include roofs, hardscape runoffs, and reclaimed grey water (public acknowledgment is required and irrigation areas are to be marked per standard ordinances and regulations). Stormwater collection can occur with bio-swales, raingardens, and curb cuts if de-icing salts are eliminated.

7. Morning irrigation is best with less evaporation occurring in the landscape.

8. Soil preparations will allow an increase soil capabilities to hold more stormwater infiltration.

9. Plant materials in the landscape should all have a minimum of 3" mulch around the base to reduce evaporation.

Sustainable Plants and Soils

1. Use diverse plant species in order to prevent loss from insects and disease.

2. Group plant material species with similar cultural requirements such as shade, water needs, soil conditions, and hardiness.

3. Select plant species to fit the existing space as opposed to pruning plants to be maintained for the space they are located.

4. Protect trees as much as possible during construction and maintenance activities. Use fencing to reduce compaction and damage to root systems. Implement a tree protection plan during all construction projects.

5. Soil test landscape planting beds in order to match plant materials with similar requirements to these areas to reduce the use of fertilizers.

6. Protect and regenerate soils whenever the opportunity arises. Incorporate organic matter to 18-24 inches deep before planting and allow plant matter to decompose on planting beds. Healthy soils reduce plant maintenance and replacement needs.

7. In maintaining plant materials in the landscape, pruning should be implemented as selected pruning as opposed to sheering the circumference of the plant. By using selective pruning (where the cuts are inside) method, sunlight will penetrate through the outer canopy reducing disease and insects, reduce amounts of future pruning, and offer a healthier plant. Sheering plant circumference will promote additional new growth from every sheered cut.

Integrated Pest Management

1. The Environmental Protection Agency (EPA) describes Integrated Pest Management (IPM) as a common-sense to control pests in an environmentally sensitive way. While it is not exclusively organic, it uses comprehensive and current information about pests to control them with minimal environmental side effects.

2. IPM programs rely on four tiers: set action thresholds, monitor and identify pests, prevention, and control. In this way, measures are as specific as possible and used only when necessary.

3. Many good sources of information about IPM are available online.

Snow and Ice Removal

1. Begin to replace plain rock salt and calcium chloride with environmentally friendly deicers.

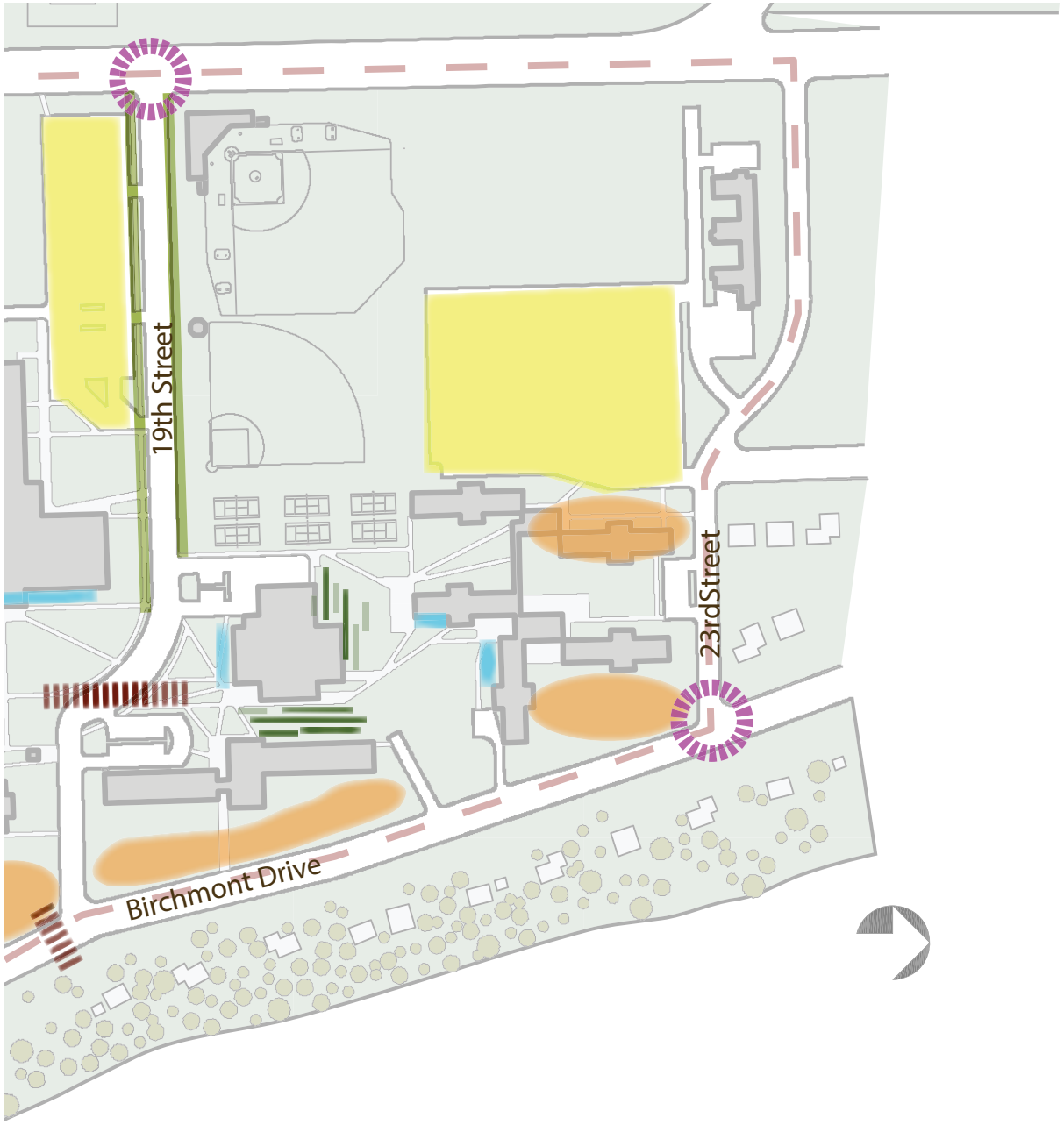
2. Operate vehicles and equipment that run alternative fuels, produce lower emissions, and are more fuel efficient.

3. Heated walks can be used in key, high-traffic areas. Geothermal heat sources are an efficient way to power these systems.

Part E
Appendix


Owned by BSU Foundation
Bemidji Avenue
15th Street
17th Street
Birchmont Drive
Birch Lane
Short Term Site Design C:
The Front Lawn
Short Term Site Design A:
The Back Alley
Short Term Site Design B:
The Quadrangle I

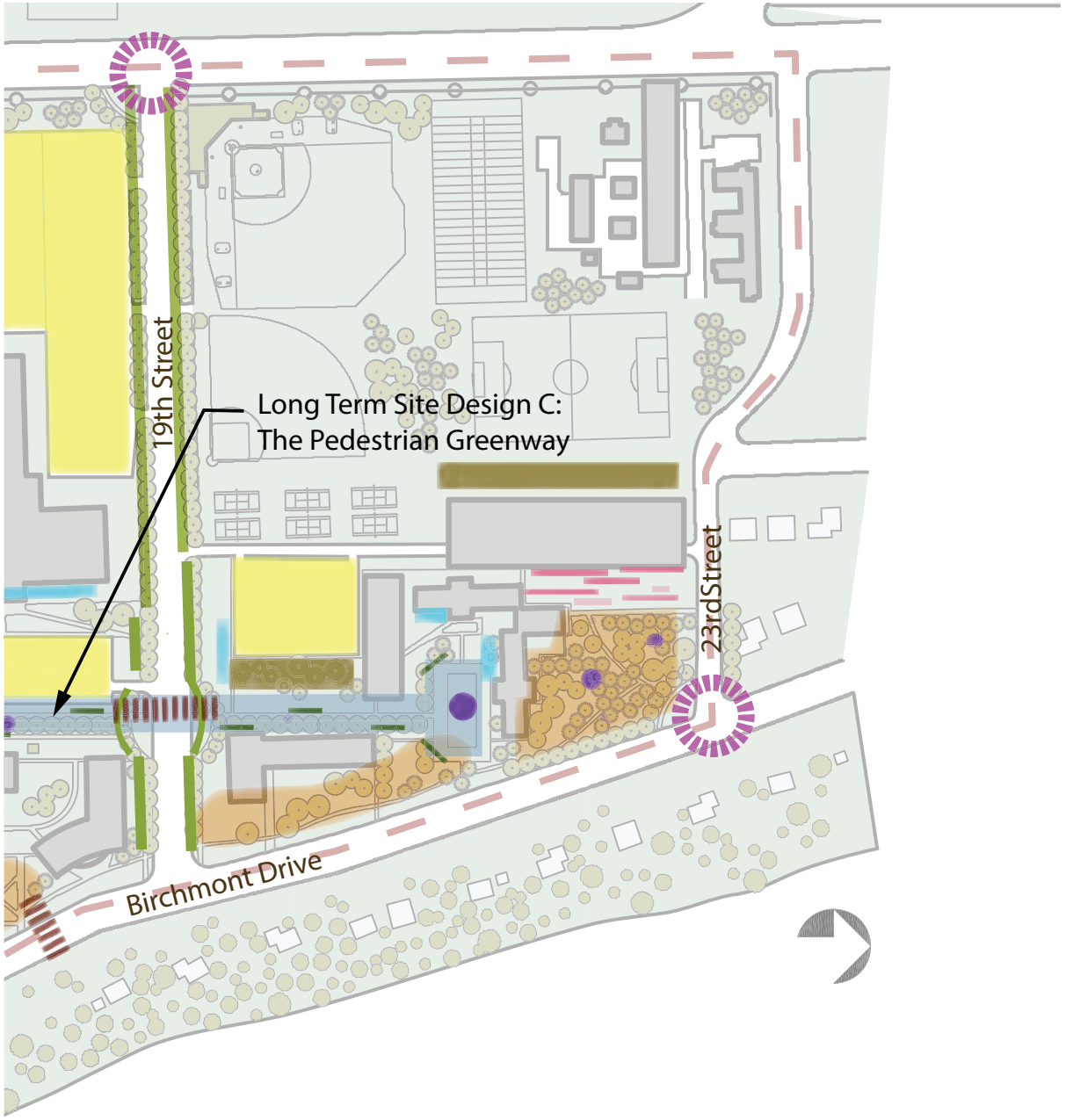
SHORT TERM
MASTER LANDSCAPE PLAN



LEGEND

- Gateway Elements
- Develop Pedestrian Connection & Reduce Vehicular Speeds
- Street Tree Implentation
- Outdoor Class/Study Rooms
- Edible Landscaping
- No Mow Zone
- Foundation Plantings
- Implement Parking Lot Green Strategies
- Enhance Naturalized/Reforested Landscape
- Community Garden
- Laurel House
- Short Term Site Design


Owned by BSU Foundation
Bemidji Avenue
15th Street
17th Street
Birchmont Drive
Long Term Site Design A:
The Historic Entry
Long Term Site Design B:
The Quadrangle II



LONG TERM
MASTER LANDSCAPE PLAN

LEGEND

- Gateway Elements
- Develop Pedestrian Connection & Reduce Vehicular Speeds
- Street Tree Implentation
- Outdoor Class/Study Rooms
- Edible Landscaping
- No Mow Zone
- Foundation Plantings
- Implement Parking Lot Green Strategies
- Enhance Naturalized/Reforested Landscape
- Community Garden
- Laurel House
- Long Term Site Design

Places and routes...

With the markers provided, please mark the following locations on the map:

green — favorite outdoor place to hang out

red — worst (ugliest, most dangerous, etc) outdoor space

blue — best place to add a new outdoor space

With the markers provided, please mark the following routes on the map:

green — route through campus I walk the most often

red — route I'd like to walk but can't

blue — fun route for a new walk or trail

KEY

EXISTING SITE FEATURES

1. Gateway
2. Small group gathering areas
3. Landscaped terrace and outdoor art
4. Sunken seating area and garden
5. Pedestrian bridge
6. Outdoor Gathering area
7. Sculptural wall and bike rack
8. Wooded triangle
9. Diamond Point Park
10. Outdoor Program Center
11. City Bike Path
12. Boathouse
13. Sculptural benches
14. Council ring and fire pit
14. Soccer Field
15. Practice Field
16. Former High School Property
17. Softball Field
18. Tennis Courts
19. Daycare
20. Volleyball and open space
21. Major parking lot

EXISTING BUILDINGS

A. Bangsberg Fine Arts Center
B. Deputy Hall
C. Heating Plant
D. Sattgast Hall
E. Memorial Hall
F. Sanford Hall
G. Hobson Memorial Union
H. A.C. Clark Library
I. Bridgeman Hall
J. Hagg-Sauer Hall
K. Education-Art Building
L. American Indian Resource Center
M. Chet Anderson Stadium
N. Birch Hall
O. Decker Hall
P. Linden Hall
Q. Electrical Substation
R. Tamarack Hall
S. John Glass Field House
T. Gillet Fitness and Recreation Center
U. Cedar Hall
V. Pine Hall
W. Walnut Food Service
X. Oak Hall
Y. Maple Hall
Z. Maintenance/ Receiving.
AA. Baseball Stadium
AB. Athletic Field Sanitation Building
AC. Otter Tail Sub Station
AD. Alumni Park House
AE. 1509 House
AF. Center for Research and Innovation

SUMMARY OF FEEDBACK: PLACES

Size of dot indicates relative frequency of response (larger dot indicates more frequent response).

This feedback was gathered at a series of meetings held with BSU students, faculty, and staff on November 15, 2012.

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SUMMARY OF FEEDBACK: ROUTES

Width of line indicates relative frequency of response (wider line indicates more frequent response).

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