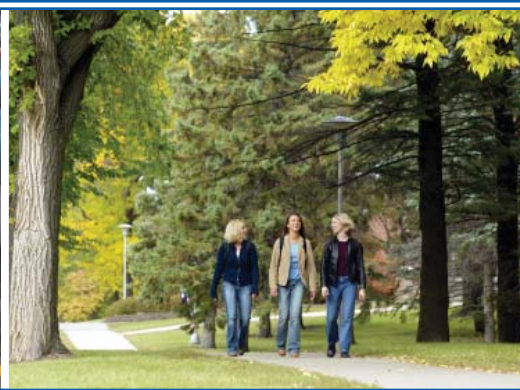


# SOUTH DAKOTA STATE UNIVERSITY 2025 DESIGN AND MASTER PLAN



SEPTEMBER 2012



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*The 2025 Design and Master Plan has been prepared by Confluence with support from Facilities and Services, University Relations, and the Office of the President.*

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# EXECUTIVE SUMMARY

Since its founding in 1881, South Dakota State University has served as a steadfast leader of higher education in the State of South Dakota, fulfilling an important mission as the state's land-grant institution. Today, the 272-acre main campus is composed of more than 166 buildings, and the university serves nearly 13,000 students with more than 2,000 employees.

The *2025 Design and Master Plan* recognizes growth and considers how the physical development of the campus over the next 10 to 15 years can continue to strengthen and serve the university. The recommendations of the plan provide innovative changes, green initiatives, improvements focused on pedestrians, campus connectivity, campus aesthetics, and quality of life by enhancing student, faculty, staff and visitor experiences.

The plan consists of four key areas:

- Facility improvements to support the institution's mission and future needs of students, faculty and staff;
- Realignment of campus parking and how parking serves as a catalyst to the development of the plan;
- Development and connectivity of campus greens for visual and functional purposes; and
- Utilization of pedestrian corridors throughout campus.

Not included is detailed information on any specific project. The plan establishes a defined vision for the campus through recognition of principles that allow for flexibility in the implementation of innovative solutions to meet future development needs. The plan is divided into four sections.

*Section 1* of the plan outlines the planning principles and defines the character of the South Dakota State campus per its physical elements. The planning principles provide guidance for the transition of the physical development of the campus. These principles create a framework that promotes an efficient, sustainable and pedestrian-friendly environment through land use, circulation and parking, gateways and community connections, accessibility, utilities and infrastructure, and architectural considerations.

*Section 2* details current physical conditions of the campus, most notably the uses of facilities and academic space, the need to provide connectivity within campus through green spaces, and how realigning campus parking in a safe

and pedestrian-friendly manner will serve as a catalyst for implementation of several components of the plan. The section also details the current supply and demand for campus parking and how the university is meeting the needs of students, faculty, staff and daily visitors.

*Section 3* contains the master plan's recommendations. These recommendations embrace the framework and guiding principles of previous and current master plans and provide information related to the implementation of future campus improvements.

The recommendations in *Section 3* propose uses and locations of facilities and academic spaces and the preference to build within the current campus footprint. The section also outlines the efficient relocation of parking from the center of campus to the outer edges, promoting pedestrian safety. The role of parking management and an overview of parking development costs are also included in this section.

Highlighted within *Section 3* are six implementation phases that represent significant changes to the physical structure of the campus over the planning period. The implementation phases support the redistribution of parking as a key for the transition to a more pedestrian-oriented campus.

The section concludes with descriptions of two prominent campus greens — the Jackrabbit Green and the College Green — and the need to develop connectivity between the two greens and among their entrances to campus. The development of the greens will allow for further creation of pedestrian corridors, thus enhancing campus connectivity.

*Section 4* contains conclusions and acknowledgements of the multiple committees and individuals involved in the development of the master plan.

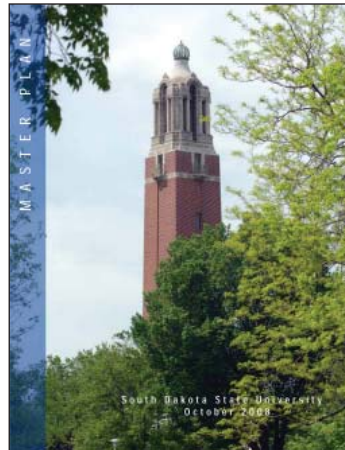


## CONTEXT

In October 2008, South Dakota State produced its *2025 Facility Master Plan*. The plan, an update from the *Millennium Master Plan* (2002), built upon the philosophical framework established in the initial plan, noted recently constructed facilities and outlined projects planned for the future.

In addition to the updated *2025 Facility Master Plan*, SDSU has conducted or commissioned several studies since 2005, covering a range of topics from athletic facilities, to residential life, to pedestrian corridor development and to campus parking.

While the information contained within these studies effectively analyzes and provides recommendations for specific campus functions, the university has become too complex to consider the development of buildings, circulation, open space and parking as isolated elements. Rather, each component must be viewed within the context of the overall campus in order to achieve a coordinated, positive and distinct physical image, and more importantly, to establish a logical flow and ease of use that will strengthen the campus and university as a whole.



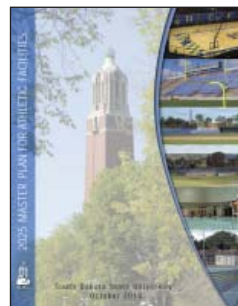
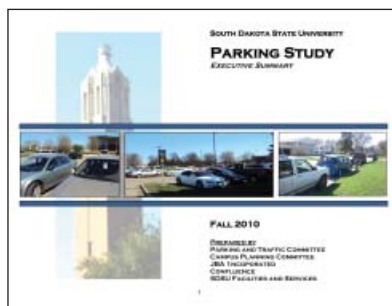
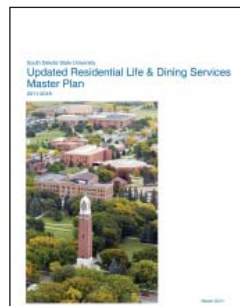
2025 FACILITY MASTER PLAN (OCTOBER, 2008)

## PLANNING DOCUMENTS

The following documents were referenced in preparation of this plan:

July 2002	<i>Millennium Master Plan</i>
May 2008	<i>Signage and Wayfinding Guidelines</i>
October 2008	<i>2025 Facility Master Plan</i>
October 2009	<i>Northwest Quadrant Mixed-Use Development Feasibility Study</i>
March 2010	<i>Jackrabbit Green Development Plan</i>
October 2010	<i>2025 Master Plan for Athletic Facilities</i>
December 2010	<i>Campus Parking Study</i>
March 2011	<i>Updated Residential Life &amp; Dining Services Master Plan (2011-2018)</i>
June 2011	<i>Brookings Area Master Transportation Plan – South Dakota D.O.T.</i>
July 2011	<i>McCrary Gardens Master Plan</i>
September 2011	<i>Bioscience and Engineering Research Laboratory Planning</i>

Copies of these documents can be found at <http://www.sdstate.edu/president/facilities/index.cfm>



# SECTION 1 – PLANNING PRINCIPLES

## 1.1 INTRODUCTION

The character of the South Dakota State University campus is defined by the numerous physical elements that combine to shape the campus environment, including buildings, roads, parking lots, pedestrian corridors and open space. The organization of these elements significantly impacts the perception of the campus environment and the image of the University. The *2025 Facility Master Plan* re-emphasized the creation of a campus framework that:

- Celebrates the university's land-grant mission and heritage;
- Promotes a partnership with the city of Brookings;
- Sets a standard for the quality of spaces within the campus to enrich students' academic and campus-life experience and engenders respect for the physical environment;
- Enhances a unique identity;
- Creates a user-friendly campus that is welcoming, easily navigable, and accommodating for visitors, students, faculty and staff; and
- Establishes an environment that nurtures interaction and communication.

The recommendations outlined in each of the following planning principle subsections provide guidance for the development of a campus environment that aligns with the campus framework described above in an efficient, sustainable and pedestrian-safe manner.



FIGURE 1.1: CONCEPT RENDERING FOR ABBOTT, SPENCER AND THORNE HALLS, COMPLETED IN FALL 2010



## 1.2 FACILITIES

Continuing to expand the quality and diversity of facilities and academic space for students, faculty and staff will have a significant impact on the university's ability to meet the challenges of the next century. The *2025 Design and Master Plan* supports facility master principles that include:

- Protecting historic buildings and open spaces;
- Extending and enhancing the character of campus through contextual design of future buildings;
- Creating and promoting environments for learning, research and social engagement;
- Promoting sustainability, environmental design and energy conservation;
- Planning for future facilities, considering the displacement of existing uses and incorporating comprehensive operational costs;
- Supporting the strategic development of a pedestrian-friendly campus; and
- Integrating modern technology.

The *2025 Design and Master Plan* builds on key guiding principles developed in the *2025 Facility Master Plan* and the *2002 Millennium Master Plan* that include:

- Maintaining existing functional districts that include academic facilities concentrated within the pedestrian core of campus;
- Locating campus housing for first- and second-year students in the southeast corner of campus in close proximity to student amenities and support facilities, thus allowing for an on-campus upper-division neighborhood to be developed in the northwest area of campus;
- Enhancing academic and functional zones, primarily in relation to agricultural sciences, life and health sciences, visual and performing arts, engineering, the academic core, and athletics; and
- In-filling existing campus footprint with new construction.

In addition, all new construction or major renovation projects must meet high-performance green building standards — a silver rating under the United States Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system, and a two-globe rating under the Green Building Initiative's Green Globes rating system – in accordance with South Dakota Codified Law 5-14-32, passed by the 2008 Legislature.

## LAND USE

Land use historically has been a major consideration in campus development. The character of any campus is defined by the unique details of its landscape, including campus greens, pedestrian corridors, gateways, building placement and orientation, and public art. Each of these landscape components leaves visitors with lasting impressions that define the university image.

As previously stated, the *2025 Facility Master Plan* design framework sets the standard for transforming the existing core of campus. In addition to working within the campus footprint, that plan also established a key guiding principle of expanding and preserving campus green spaces through a series of pedestrian corridors created by reducing or eliminating vehicle traffic in the campus core. This principle addressed a goal of minimizing pedestrian-vehicle conflict.

The *2010 Parking Study* confirmed this and concluded that it is imperative to decrease the amount of parking in the center core of campus in order to improve pedestrian safety and experiences. The findings of the parking study show that parking can be removed successfully from the campus core and consolidated along the outer edge of campus, while still providing adequate campus parking within a reasonable distance from destinations throughout campus. It is also, therefore, understood that the redistribution of parking will serve as the primary catalyst for overall implementation of the *2025 Design and Master Plan*.

## ACCESSIBILITY

The university is committed to providing equal access for all individuals to its facilities throughout campus. The development and improvement of all campus facilities must comply with the Americans with Disabilities Act (ADA) guidelines and the accessibility requirements of applicable building codes. All walkways essential to reaching a building or program will be built to adhere to the latest ADA guidelines, providing equal access to public spaces. Parking will be developed in a manner that allows for flexible placement of accessible parking stalls, responding to the changing needs of the students, faculty, staff and visitors.

## SUSTAINABILITY

South Dakota State University is committed to sustainability, sound conservation practices and environmental responsibility. In addition to the previously stated LEED certification standards, the university-wide guidelines in support of sustainability practices, which will be reviewed and updated periodically, are:

- Incorporating the principles of sustainability and energy efficiency in all planning, capital projects, renovation projects, operations and maintenance within budgetary constraints and programmatic requirements;
- Minimizing the use of nonrenewable energy sources, increased use of local renewable energy, and implementation of conservation measures that reduce energy consumption;
- Supporting alternative means of transportation to and from campus in order to reduce needs for personal vehicles;
- Continued commitment to providing on-campus housing options for all students and encouragement for private investment in housing and services nearby, which in turn, reduces vehicle traffic to and from campus; and
- Increased recycling efforts and correlated reduction in the amount of generated landfill waste.

## CAMPUS UTILITIES AND INFRASTRUCTURE

The university operates a central steam heating plant with mostly localized cooling systems. Campus utilities form an underground matrix that, in some instances, dictate where buildings can be developed and where surface access to existing utilities must be maintained. Access to campus infrastructure and the cost of relocating significant utilities or extending utilities to the outer limits of campus are essential factors to consider when evaluating building sites.

Structural concealment of necessary above-ground utilities will be strongly considered with each building project as shown in Figure 1.2.



FIGURE 1.2: MASONRY SCREEN WALL (LINCOLN MUSIC CENTER)



## ARCHITECTURAL CONSIDERATIONS

The campus contains a diverse mix of architectural styles, reflective of their individual eras of design and construction. The thoughtful integration of new buildings within the existing campus fabric will require careful consideration for the scale, proportion, form, material and proximity of existing buildings.

Architectural guidelines are contained in Appendix B of the plan. Following the guidelines, new construction will be designed to fit cohesively within existing neighborhoods, reflecting the current state-of-the-art technology in building construction. Thus new buildings become an evolving record of architectural trends and campus life; and add diversity and variety to an integrated campus environment.



FIGURE 1.4: AVERA HEALTH AND SCIENCE CENTER



FIGURE 1.3: PERFORMING ARTS CENTER



FIGURE 1.5: ADMINISTRATION BUILDING



## 1.3 PARKING

### OVERVIEW

In summer 2010, JBA Incorporated conducted a comprehensive parking study for South Dakota State University. Its primary purpose was to analyze the amount, types and location of parking necessary to support current programs and to address current and future demand.

The study balanced the need for open space, controlled access for safety, and potential building sites to accommodate the future physical development of the university. It also incorporated parking principles and supported the strategic premise of transitioning the campus to a pedestrian-oriented framework that fosters a safe, collegiate atmosphere. The study established the redistribution of parking as the catalyst for implementation of the *2025 Design and Master Plan*.



FIGURE 1.6: EXAMPLE OF SUSTAINABLE PARKING LOT DESIGN

### VEHICULAR CIRCULATION

As plans are implemented to improve the pedestrian-friendly environment, vehicular circulation will be limited to the edge of the campus as much as possible, freeing the campus center for pedestrian corridor development. The vehicle routes will be connected to a series of strategically located parking lots at the edge of campus; those lots, in turn, will be tied to the interior of campus by a clearly organized network of pedestrian corridors.

### SUMMARY OF PARKING PRINCIPLES

In the development of the *2010 Parking Study*, numerous planning sessions were held with key stakeholders in the campus community. An extensive list of goals and objectives were developed by the Parking and Traffic Committee and adopted for the *2025 Design and Master Plan*.

Strategic refinement of the *2010 Parking Study* goals and objectives produced the following principles that provide direction for the parking recommendations highlighted within this document:

- Improve parking distribution to best serve campus constituents by aligning programmatic needs with parking that does not alter a pedestrian-friendly campus environment;
- Provide adequate parking and access for emergency vehicles, support services and short-term parking that does not alter a pedestrian-friendly campus environment;
- Promote safety by reducing conflicts between vehicles and pedestrians;
- Develop an environmentally and financially sustainable parking system;
- Develop a hierarchy of parking as it applies to hourly commuters, daily commuters and residential customers;
- Support a collegiate atmosphere by removing parking and roadways from the central core, allowing development of strong pedestrian corridors; and
- Provide campus infrastructure that supports the smooth transition of a user or visitor from a moving vehicle to a parked vehicle to a pedestrian corridor.

As parking development occurs, careful consideration will be given to the visual impact of parking on campus aesthetics. Parking lots will be set back with landscaped edges to provide a filtered view from the street. User safety and the implementation of sustainable practices will be a high priority.

## 1.4 CAMPUS GREENS, ENTRIES AND GATEWAYS

Campus greens, entries and gateways play an important role in defining the campus landscape and shaping the image. These areas create impressions and convey a high-quality image of the campus. They also serve an important role in vehicular and pedestrian circulation and the relationship between a moving vehicle that enters campus to a parked vehicle on campus to an individual utilizing a pedestrian walkway to reach a campus destination.

The *2025 Design and Master Plan* acknowledges two distinct campus greens. The historic College Green, located along Medary Avenue from Berg Agricultural Hall on the north to Lincoln Hall on the south, has been home to the Coughlin Campanile since 1929. Many of the university's historic buildings reside on or near the College Green.

Jackrabbit Green serves as an east-west pedestrian corridor from Medary Avenue north of Berg Agricultural Hall to the Wellness Center and Frost Arena on the east. The Jackrabbit Green is in the early stage of development. Additional details follow in Section 3.4. A key consideration within the master plan is the connectivity between the Campus Green and Jackrabbit Green near Berg Agricultural Hall.

Campus entries and gateways serve as a first impression of campus for visitors and should include site elements such as monument signs, unique architectural features, pavement changes, ornamental landscapes, wayfinding and directional signage, and campus art. The incorporation of these elements will enhance the entrance experience, orient visitors on campus and mark a notable transition to the university environment.



FIGURE 1.7: 13TH AVENUE CAMPUS ENTRANCE (2011)



FIGURE 1.8: CAMPUS MONUMENT SIGN



## 1.5 PEDESTRIAN CORRIDORS

Campus streets, parking lots and walkways form an interconnected network for campus circulation. This circulation system should be safe and efficient with equal consideration for pedestrians, bicycles and vehicles.

### PEDESTRIAN CIRCULATION

The quality of the pedestrian corridors and outdoor spaces on campus contributes to the university's ability to attract and retain the best students, faculty and staff. Campus pedestrian corridors should facilitate a safe and enjoyable experience and should encourage social interaction on campus. Sidewalks should provide practical links to buildings, parking lots and outdoor spaces. The pedestrian corridors should be designed with features that complement the campus architecture and create a unique atmosphere. Major sidewalks should terminate at the campus limits with well-defined pedestrian gateways.

### BICYCLE CIRCULATION

Bicycle traffic has a significant presence on the campus. The university supports the use of bicycles on campus as part of its goal to encourage healthy living and sustainability. Bicycle use and parking will be considered in the development of campus improvement projects. Street intersections will be designed to provide well-defined crossings. Major pedestrian corridors will be constructed with sidewalks of sufficient width to accommodate the safe coexistence of bikers and pedestrians.

A campus bicycle-use policy will be developed in conjunction with the infrastructure to better accommodate bicycle traffic. The policy encouraging bicycle use will note the importance of safety and convenience for bicyclists.

### COMMUNITY CONNECTIONS

The campus establishes a sense of a university community. It also is an integral component of the Brookings community, particularly its retail, housing and recreation sectors. Collaborations with the city of Brookings nurture a shared vision for community growth. Planning for vehicular and pedestrian connections extend beyond the defined campus and engage and impact development in the broader community.



FIGURE 1.9: EXISTING SIDEWALK ON THE COLLEGE GREEN



FIGURE 1.10: CAMPUS COMMUNITY CONNECTIONS (VILLAGE SQUARE)

## SECTION 2 – TODAY’S ENVIRONMENT (2012)

### 2.1 INTRODUCTION

Today’s campus reflects a century of activity, growth, changing needs and time-period development philosophies. **There is now a commitment to establishing a more pedestrian-friendly campus.** In order to bring this vision to life, improvements will be identified and made to campus vehicular circulation, parking and pedestrian-corridors.



FIGURE 2.1: CAMPUS CORE (1952)



FIGURE 2.2: CAMPUS CORE (2004)

### 2.2 FACILITY USAGE

Enrollment growth has prompted new construction and major renovations to support teaching, research and student housing. On average, enrollment has increased 3.7 percent annually for the 10 years ending with fall 2011 and is expected to level-off going forward. Residence halls in fall 2011 were operating at full capacity. The opening of Jackrabbit Grove in fall 2013 will achieve supply-demand equilibrium for students required to live on campus, primarily in the southeast neighborhood.

The general-use classrooms are scheduled, on average, for more than 27 hours of instruction during daytime hours Mondays through Fridays. Since 2007, 430,000 square feet of instructional, support, and student services space has been constructed. Several major renovations have modernized existing spaces, as well.

Despite the additional square footage the university continues to operate with space restrictions. Areas previously designated as “temporary swing space” to facilitate campus reorganizations and remodeling projects are being used in a more permanent fashion, such as the relocation of faculty offices to West Hall. The Department of Health and Nutritional Sciences has been moved to the Intramural Building, previously used as swing space.

Similarly, suitable research space is at a premium with the growth of Ph.D. programs and grant-funded research projects. Overall research expenditures grew 121 percent from Fiscal Year 2007 through Fiscal Year 2011. A 2011 study classified 72 percent of research space as “marginal” or “inadequate.”



## CAMPUS GROWTH AND LAND USE

Enrollment headcount at South Dakota State University increased on an average of 3.7 percent for the decade between 2000 and 2010. In the fall of 2013, a total of 11,754 students are forecasted to attend the Brookings campus.

As the university meets its enrollment growth needs and continues its commitment to providing the best-in-class teaching, learning and research facilities, the goal is to meet this demand within the campus core. By reducing parking and roads from the campus core, land is made available for building development that allows the existing functional districts to add more square footage while enhancing open space.

The in-fill approach implements the guiding principles of the *2025 Facility Master Plan* and creates a pedestrian-friendly environment on campus. Figure 2.4 illustrates existing campus land uses.

## FACILITY EXPANSION AND IMPROVEMENTS

Since 2005 several major construction projects have been completed and have modified the campus fabric. These projects include:

- Avera Health and Science Center;
- Dykhouse Student-Athlete Center;
- Daktronics Engineering Hall;
- McCrory Gardens Education and Visitor Center;
- Multiple additions and expansions to the University Student Union;
- Three residence halls within Jackrabbit Village; and
- The Wellness Center.

The following are future improvements:

- Architecture, Mathematics and Engineering Building;
- Cow-Calf Research and Education Unit at Volga;
- Another Dining Services expansion in the University Student Union;
- Four residence halls in the Jackrabbit Grove;
- New headhouse and greenhouses;
- New and improved athletic facilities per the *2025 Master Plan for Athletic Facilities*;
- Performing Arts Center additions; and
- A Visual Arts facility.



FIGURE 2.3: THE UNIVERSITY STUDENT UNION



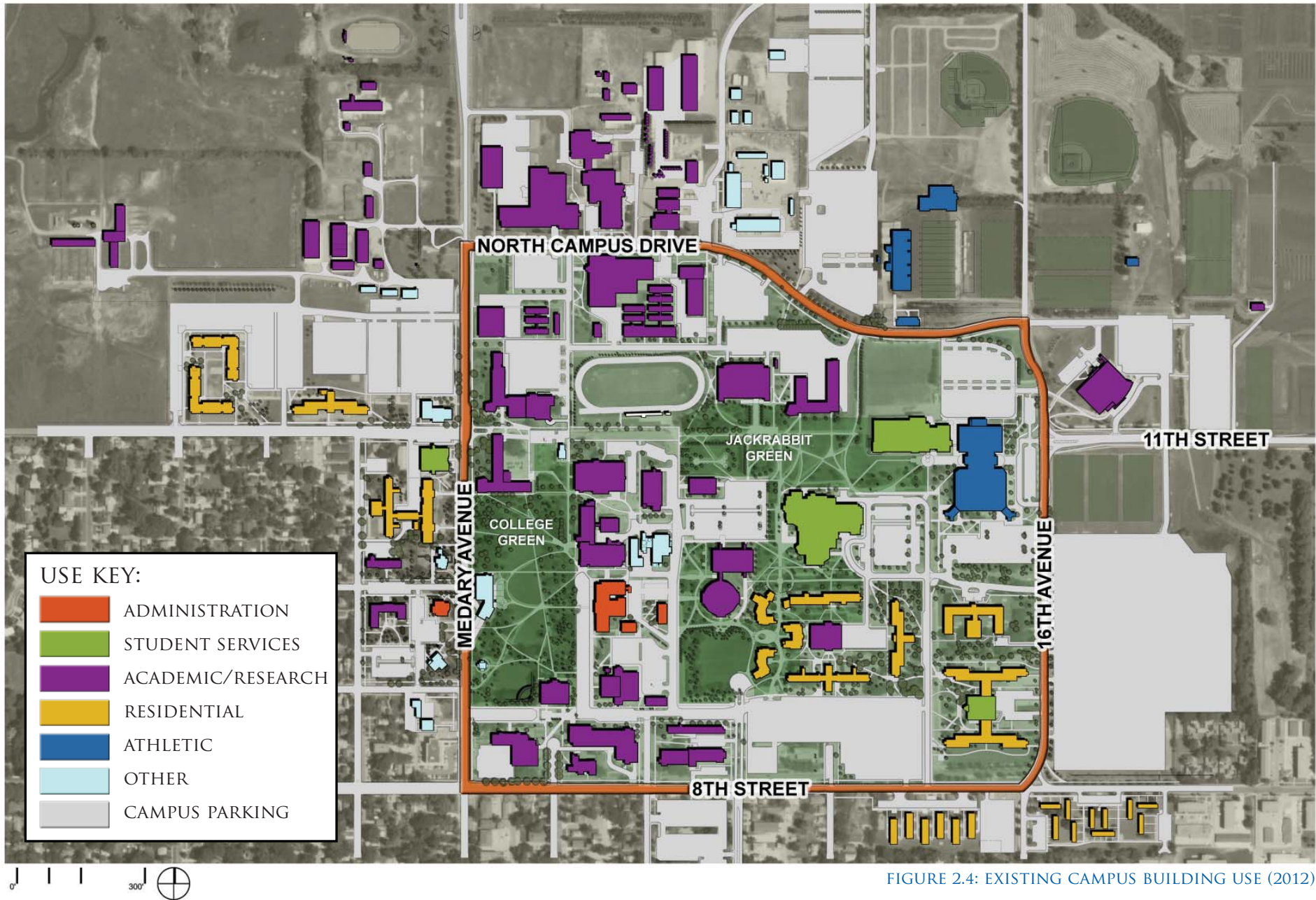


FIGURE 2.4: EXISTING CAMPUS BUILDING USE (2012)

## 2.3 PARKING

There were 70 parking lots and more than 8,000 parking spaces on campus in fall 2011. The number of parking lots exceeds the number of buildings on campus by almost 20 percent; more than 25 percent of campus is covered in pavement, creating numerous challenges related to parking lot access, pedestrian safety and storm water management.

Parking improvement projects are continual. Current parking development is focused mainly outside the campus core to reduce parking in the center of campus.

### VEHICULAR CIRCULATION AND THE “RING ROAD”

The campus is comprised of approximately 272 acres, most within a “ring road” of major streets. The ring road, shown in Figure 2.4, consists of North Campus Drive to the north, 16th Avenue to the east, Eighth Street to the south, and Medary Avenue to the west. The ring road serves as an efficient vehicle circulation route around the campus core with minimal pedestrian contact. The majority of planned parking improvements are concentrated along the ring road.

### EXISTING CAMPUS PARKING SUPPLY AND DEMAND

Demand for on-campus parking is calculated within three classifications of customers: employees, students who drive to campus and students who live on campus. The *2010 Parking Study* determined parking demand based on turnover rate by classification and lot.

Currently, five primary classifications of parking exist — reserved, commuter, residence hall, remote and a free gravel option with a minimal vehicle registration fee. A non-discriminative parking policy exists, meaning employees and students who drive to campus on a daily basis have multiple choices as to which permit to purchase. However, only resident students may purchase a residence hall parking permit.

In fall 2011, the campus had a total supply of 8,234 parking spaces and a demand of 6,705 spaces based on turnover factors for faculty, staff, commuting and on-campus student residents. The demand model accounted for the number of employees and the number of students who drive to and park on campus five days a week.

Demand for visitor parking has to be accommodated. Hourly parking is east of the University Student Union where 143 parking spaces are monitored through a revenue control system. Additionally, visitors may obtain permits for 81 visitor parking spots, most of which are currently located along Administration Lane near the Administration Building.

Table 2.1 outlines each classification of parking for fall 2011 and identifies the number of spaces in each classification along with the value options within each of the classifications.

Parking management for special event venues requiring utilization of numbered lots are coordinated between the Office of Parking Services and the respective campus department or organization hosting the event. There are several special-event venues on campus, including:

- Agricultural Heritage Museum;
- Doner Auditorium;
- Larson Memorial Concert Hall;
- Peterson Recital Hall;
- South Dakota Art Museum;
- Coughlin-Alumni Stadium;
- Frost Arena;
- Performing Arts Center;
- Stanley J. Marshall Building; and
- University Student Union.

Responsibilities for event parking include requesting appropriate parking supply, scheduling event staff to monitor parking usage, and billings for non-campus event sponsors.

Table 2.2 takes the total parking supply and incorporates the demand model from the *2010 Parking Study* for fall 2011. Employee demand was calculated by analyzing both full-time and part-time faculty and staff. The supply-and-demand analysis determined the overall employee demand and took into account that 95 percent of all employees may be on campus at any one time during a normal business day. The analysis also assumed that all faculty within the 95 percent expectation are on campus five days a week, and that all employees and student commuters drive to and park on campus.

## METHODOLOGY OF PARKING CALCULATIONS

The methodology within the supply-and-demand analysis took into account the multiple options employees have when purchasing a parking permit, and determined a percentage for lot assignments for full-time faculty and staff based on an examination of sales in previous years. Based on that data, it was determined that 50 percent of full-time faculty parking on campus should be allotted in reserved lots, 40 percent in commuter and 10 percent in remote. The breakdown also assumes a parking turnover rate of 1.0 for reserved and remote spots and .67 for commuter spaces.

Part-time faculty and staff were accounted for with 10 percent in reserved parking at a turnover rate of 1.0 and 90 percent in commuter lots with a .67 turnover rate.

Student commuters drive to and from campus at more irregular hours, with most needing parking for only a portion of the day. The parking analysis examined three scenarios to determine a parking multiplier for student commuters of .26, meaning that student commuter parking turns over nearly four times per day.

On-campus residential life demand was determined through surveys of residence hall occupants that showed approximately 88 percent of the students required to live on campus as freshmen and sophomores can be expected to bring a vehicle to campus. For planning purposes, a multiplier of .9 was adopted for residential life parking demands in the freshmen/ sophomore market segments and a 1.0 multiplier for upper-division students living in residential facilities and requiring on-campus parking.

NOTE: Current projections for student enrollment are through 2013 per the *Updated Residential Life and Dining Services Master Plan*. Future enrollment projections are being done through the University's strategic planning process that will be implemented on July 1, 2013. Some flattening of enrollment on the Brookings campus is expected; therefore the parking supply and demand for future years is expected to maintain equilibrium and certainly is in line with the anticipated 11,754 Brookings campus students that are expected in 2013.

**Table 2.1: Parking Classifications, Total Spaces and Customer Benefits (Fall 2011)**

Parking Classification	Total Spaces	Customer Option	Value
Reserved	915	Faculty & Staff, Student Commuters	Proximity to workplace, guaranteed parking space in designated lot
Commuter	2,109	Faculty & Staff, Student Commuters	Proximity to workplace, majority of lots located within campus core
Residential Life (SE)	3,248	Student Residents	Proximity to Residential Life facilities in southeast corner, family student housing, guaranteed parking space in designated lot
Residential Life (NW)	941	Student Residents	Proximity to Residential Life facilities in northwest corner, guaranteed parking space in designated lot
Remote	633	Faculty & Staff, Student Commuters	Less expensive price option, parking located outside of campus core
Gravel Lot	388	Faculty & Staff, Student Commuters	Free parking with \$5 vehicle registration fee, parking located outside campus core
<b>Total</b>	<b>8,234</b>		
Handicapped	219	Permit Required	Accessible spaces; calculated in addition to total campus parking supply
Hourly Parking at Student Union	143	Pay Lot	Calculated in addition to total campus parking supply
Visitor Parking	81	Permit Required	Various locations around campus; calculated in addition to total campus parking supply

**Table 2.2: Campus Parking Supply / Demand (Fall 2011)**

Customer Demand	Reserved	Commuter	Residential Life (SE)	Residential Life (NW)	Remote and Gravel	Total
Faculty & Staff	838	578	0	0	163	1,579
Student Commuters	0	1,482	0	0	0	1,482
Residents (SE)	0	0	2,743	0	0	2,743
Residents (NW)	0	0	0	901	0	901
<b>Total Demand</b>	<b>838</b>	<b>2,060</b>	<b>2,743</b>	<b>901</b>	<b>163</b>	<b>6,705</b>
<b>Total Supply</b>	<b>915</b>	<b>2,109</b>	<b>3,248</b>	<b>941</b>	<b>1,021</b>	<b>8,234</b>

- Parking demand and turnover rate calculations are described in the above "Methodology of Parking Calculations."
- Demand accounts for all employees and student commuters driving to and parking on campus.
- Demand accounts for all faculty being on-campus five days a week.



## 2.4 CAMPUS GREENS

For many, there is no more treasured campus location than the historic College Green. From the mature trees to the grand vistas and architectural features, this space illustrates the unique qualities that open space has on the aesthetics of the university. It is this type of connection that all planning for open space must achieve.

As the campus rose from the ground in the late 1800s, the College Green provided the organizing element for the initial buildings and has carried forward throughout the university's history. The Campus Green has served as a setting for many significant events including addresses by visiting dignitaries, ROTC inspections and commencements. Generations have participated in memorable activities on the College Green. Adding to the significance of the space, numerous historically significant buildings are still present near the College Green including: the Administration Building, Coughlin Campanile\*, Sylvan Theater\*, Lincoln Hall, Solberg Hall, Wenona Hall\*, Wecota Hall\* and Woodbine Cottage\*.

\* National Register of Historic Places



FIGURE 2.5: COLLEGE GREEN EVENT (1950)

## CAMPUS GATEWAYS AND ENTRIES

In recent years, campus gateway and entry projects have improved campus aesthetics and the visitor experience. These include:

- Installation of a landscaped median on the north end of Medary Avenue;
- Installation of a campus monument sign along the north end of Medary Avenue;
- Lighting updates and tree planting along 11th Street extending from 22nd Avenue to Frost Arena;
- Installation of a landscaped median on 13th Avenue leading up to the south entrance of campus; and
- Creation of a pedestrian entrance to campus along Medary Avenue on the north end of Berg Agricultural Hall (the west end of the Jackrabbit Green). (See Figures 1.7, 1.8, 3.10, 3.11, and 3.13)



FIGURE 2.6: PRESIDENT EISENHOWER SPEECH ON THE COLLEGE GREEN (1968)





FIGURE 2.7: PHOTO OF CAMPUS AND THE COLLEGE GREEN (1952)



## 2.5 PEDESTRIAN CIRCULATION

Figures 2.8 and 2.9 highlight the current relationship between campus open spaces and parking lots to the ring road. Existing parking and roads provide a significant disruption to the connectivity of campus greens and pedestrian corridors.

Historically, parking lots were created where space was available and as close to buildings as possible. Lots were added as the number of staff and students grew and as perceived demand increased. This parking-first pattern of development has resulted in compromised safety as pedestrians and bikers are forced to cross streets and parking lots multiple times before reaching destinations.

The areas of pedestrian-vehicle conflict on campus in 2012 are highlighted in Figure 2.10. The principles of the *2025 Design and Master Plan* will guide development and actions that will mediate these conflicts and improve pedestrian safety as well as campus aesthetics.



FIGURE 2.8: EXAMPLE OF EXISTING PEDESTRIAN-VEHICLE CONFLICT WITHIN THE CAMPUS CORE



FIGURE 2.9: EXAMPLE OF EXISTING PEDESTRIAN TRAFFIC WITHIN THE CAMPUS CORE

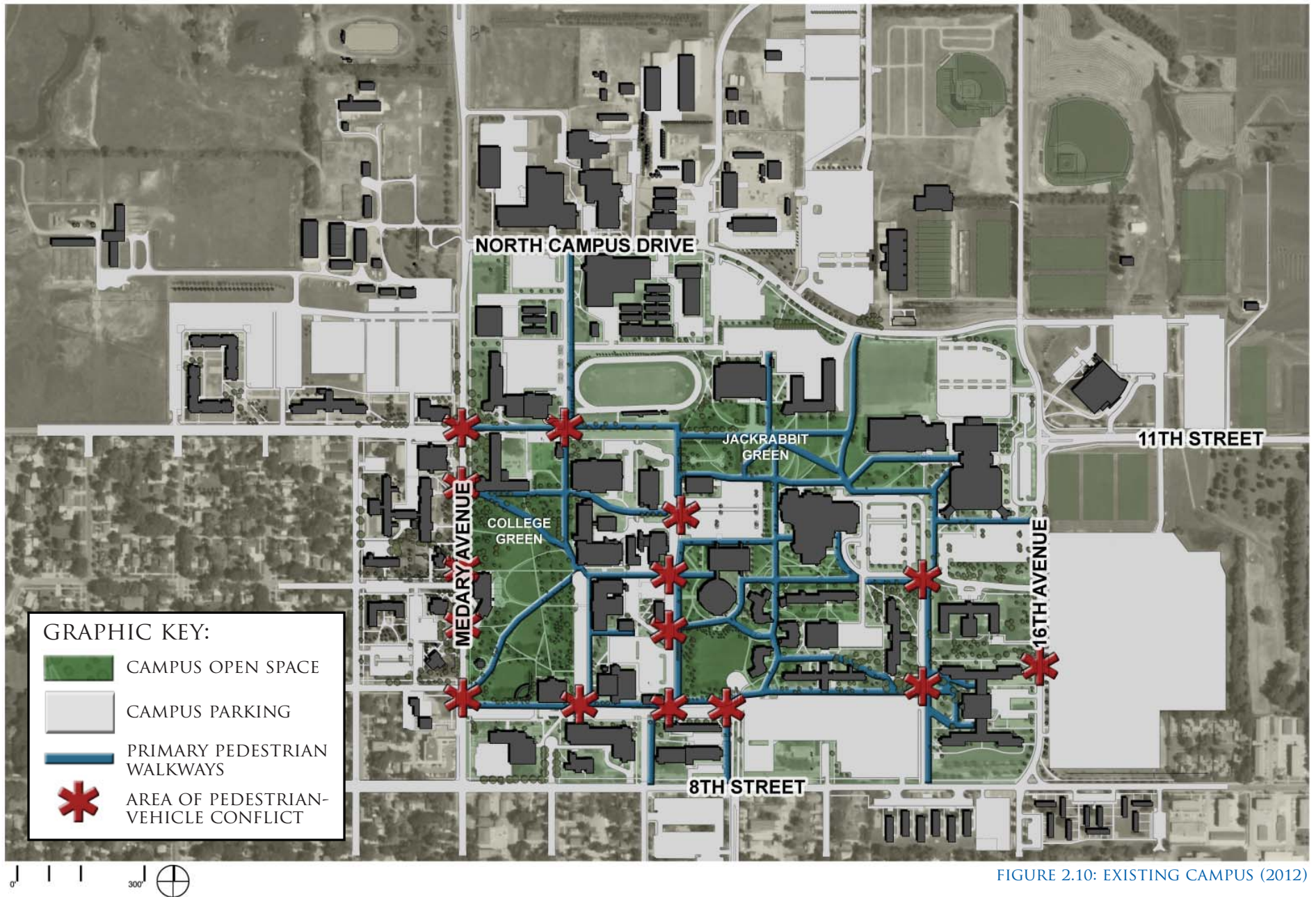


FIGURE 2.10: EXISTING CAMPUS (2012)



## SECTION 3 – RECOMMENDATIONS

### 3.1 OVERVIEW

The *2025 Design and Master Plan* recommendations identify goals, objectives and actions to further South Dakota State as the state's most comprehensive institution of higher education. Six separate implementation phases are set forth to ensure that the university's facilities and physical environment support and promote excellence for students, faculty, staff and other key stakeholders, enabling the University to fulfill its mission.

Five primary objectives exist within the implementation phases. The objectives are:

- Freeing the campus core by moving interior parking to the edge of campus;
- Supporting the guiding principle of the *2025 Facility Master Plan* of in-filling the campus with new construction and not expanding the campus footprint;
- Developing pedestrian corridors that support both north/south and east/west movement;
- Providing sufficient parking; and
- Expanding and developing green spaces, primarily within the Jackrabbit Green and historic College Green.

Each objective was derived from the various inputs into the *2025 Design and Master Plan*. The inputs were the result of previous campus master planning efforts and studies conducted, and the objectives are supported by the campus framework planning principles (page 3), facility master principles (page 4), guiding principles of the *2025 Facility Master Plan* and the *2002 Millennium Master Plan* (page 5), and the summary of parking principles from the *2010 Parking Study* (page 7).

Figure 3.2 shows the future campus build-out after the completion of the six implementation phases. The blue bars on the accompanying scale indicate the distances of typical three- and five-minute pedestrian walks, respectively. An example of a typical five-minute walk would be from the University Student Union to Berg Agricultural Hall.



FIGURE 3.1: CONCEPT VIEW OF PEDESTRIAN QUAD WEST OF UNIVERSITY STUDENT UNION (CURRENTLY PARKING)

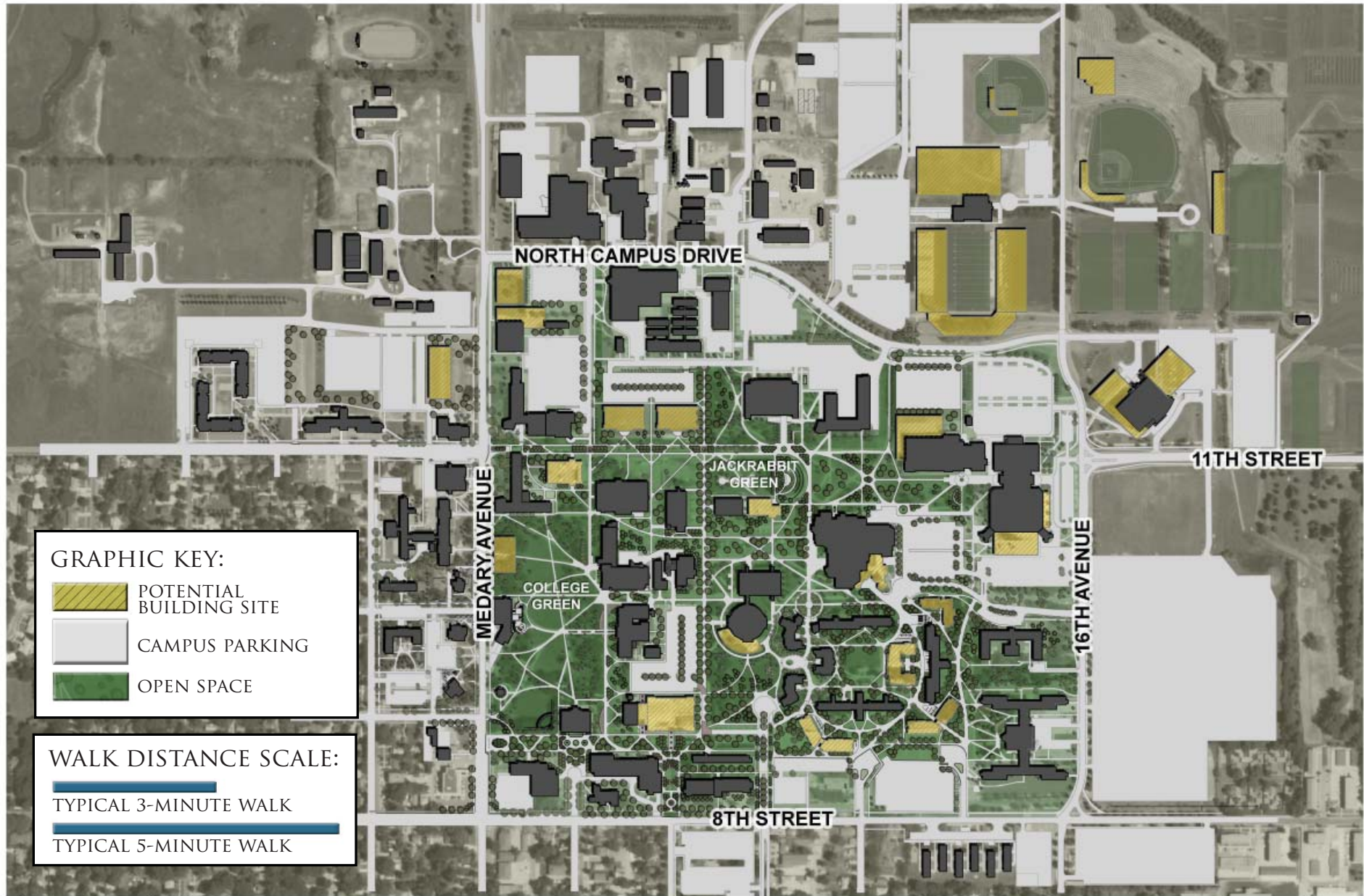


FIGURE 3.2: 2025 CAMPUS MASTER PLAN



## 3.2 FACILITIES

### 2025 CAMPUS BUILD-OUT IN DETAIL

The potential building locations indicated in Figure 3.3 reflect either specific projects identified in campus planning documents or building locations that would be available for future expansion of functional districts. In addition, these locations support the development and enhancement of new and existing pedestrian corridors and campus greens and align with parking at the edge of campus. Many locations detailed in Figure 3.3 represent projects under construction or within the approved 10-year Higher Education Facilities Fund capital improvement plan. Additional potential locations in Figure 3.3 and other graphics have been identified as sites for buildings to meet anticipated future needs.

#### LOCATION A - STUDENT UNION EXPANSION

- Identified in the *Updated Residential Life and Dining Services Master Plan*
- Planned for 2012-2013 construction

#### LOCATION B - ATHLETICS ADDITIONS

- Identified in the *2025 Master Plan for Athletic Facilities*

#### LOCATION C - PERFORMING ARTS EXPANSION

- Construction as funding becomes available

#### LOCATION D - RESIDENTIAL LIFE ADDITIONS FOR FRESHMEN AND SOPHOMORES

- Identified in the *Updated Residential Life and Dining Services Master Plan*
- Planned for 2012-2013 construction

#### LOCATION E - POTENTIAL BUILDING SITE

- Architecture / Math / Engineering building
- Planned for 2013-2014 construction

#### LOCATION F - BAILEY ROTUNDA CLASSROOM ADDITION

- Addition of general classroom space to meet increasing needs

#### LOCATION G - POTENTIAL BUILDING SITE

- Building on the College Green will require careful consideration for historical context
- Building at this location completes the definition of the west edge of the College Green that was initiated with the construction of the Art Museum
- Building should be designed to engage the College Green
- The use of the building will draw students to this location and help reactivate the College Green

#### LOCATION H - VISUAL ARTS PROGRAM RELOCATION

- Renovate and connect two existing buildings to accommodate the relocation of the visual arts program from Grove Hall

#### LOCATION I - POTENTIAL BUILDING SITE

- Building site comes available with the removal of Berg Agricultural Hall parking
- A building at this location creates an edge to the proposed Jackrabbit Green corridor
- A building at this location needs a strong entrance at the north and south facade in order to engage both the Jackrabbit Green corridor and the College Green

#### LOCATIONS J AND K - POTENTIAL BUILDING SITE

- These building sites become available with the removal of Sexauer Field
- Buildings at these locations create an edge to the proposed Jackrabbit Green corridor and increased campus density
- These two buildings should be strongly connected through scale, orientation and architectural style

#### LOCATION L - POTENTIAL BUILDING SITE

- A building at this location increases campus density and establishes an edge to the new pedestrian quad proposed west of the University Student Union

#### LOCATION M - POTENTIAL BUILDING SITE

- This building location is at a major intersection of the campus ring road
- Building at this location further defines the campus edge

#### LOCATION N - PRIVATE UPSCALE APARTMENTS FOR UPPER-CLASS AND GRADUATE STUDENTS

- Identified in the *Updated Residential Life and Dining Services Master Plan*
- These buildings are described as upscale, private, contemporary-style apartments for upper-class and graduate students
- Construction scope, scale and timeline is based on market demand as determined by private partner

#### LOCATION O - GREENHOUSE FACILITY RELOCATION

- Construction of a new greenhouse facility to replace greenhouses removed for Visual Arts program relocation; exact location to be determined



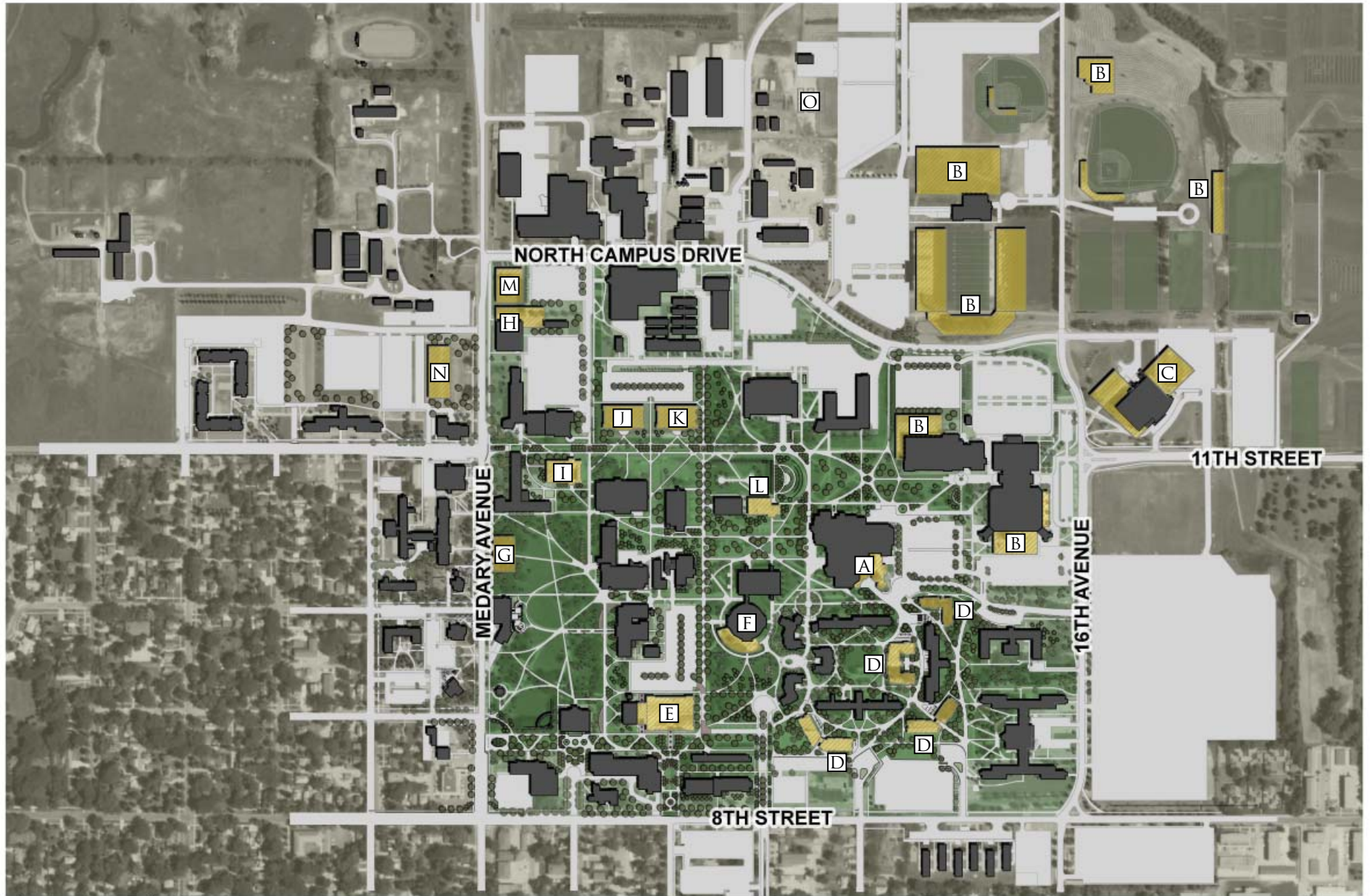


FIGURE 3.3: 2025 CAMPUS BUILD-OUT IN DETAIL

### 3.3 PARKING

The conclusions outlined in the *2010 Parking Study* indicate that available parking for fall 2011 met campus demands (Table 2.2). Future parking supply and demand is expected to remain in equilibrium based on enrollment forecasts and recommendations from the *Parking Study* that identified potential ways to meet demand for additional parking. A one-year adjustment to residential life parking will be required during the 2012-13 academic year due to the construction of Jackrabbit Grove.

The implementation plan, with some phases already in progress, calls for redistribution of some reserved and commuter parking in certain lots, expansion and consolidation of residential lots, removal of parking from the campus core, and more remote parking. The phases also consider future construction of facilities outlined in the *2025 Athletic Facility Master Plan*.

As part of the master planning process, several options were studied to control the number of parking lots within the campus core while maintaining or increasing the supply of parking and improving the overall access to parking. As capacity is added and parking redistributed to meet future needs, it is critical to provide efficient and convenient options that minimize the conflict between vehicle traffic and walking corridors to assure pedestrian safety.

The recommendations in the *Parking Study* outline a plan for shifting parking from the core of campus to locations with better access to the ring road in a manner that promotes safety and appropriate pedestrian orientation. The existing ring road is an ideal size for campus vehicular circulation and parking lot organization. Parking along the campus edge establishes a system where users quickly transition from a moving vehicle to a parked vehicle and on to a pedestrian walkway in a safe and efficient manner. The findings of the *Parking Study* indicate that the layout of the ring road creates an approximate 10- to 20-minute walk from one end of campus to the other in any direction.

The Planning and Design Committee and the Parking and Traffic Committee each determined that a five-minute walk from parking to one's facility was acceptable. The majority of the parking in the plan is within the five-minute walking distance guideline for facility access established by the *Parking Study*.

The information in the *Parking Study* recommends that parking lots located inside the ring road should be designated primarily for users requiring access to campus on a daily basis, such as faculty and staff, commuter students, vendors, visitors and maintenance personnel. This designation reduces the potential for pedestrian conflict with traffic traveling on the ring road. Parking lots outside of the ring road should be designated for users, such as on-campus residents, who less often require access to vehicles on a daily basis.

#### IMPACT OF REDISTRIBUTED PARKING

The widespread changes to parking distribution will have a major impact on the campus fabric. While some challenges may be encountered during the parking transition, the end result will be a positive change to the campus environment. Anticipated results of these changes are as follows:

- Improved pedestrian safety in the campus core;
- Development of pedestrian corridors;
- Connections between campus greens and open spaces;
- Improved campus image;
- New building access routes for service and deliveries;
- Flexible system for building access for those with mobility impairments; and
- Further walking distance for some students, faculty and staff.



FIGURE 3.4: CONCEPT VIEW OF 13TH AVENUE CAMPUS DROP-OFF



## GENERAL PARKING DEVELOPMENT COSTS

Currently all parking lots on campus are surface lots, with the majority of those covered with asphalt. Two lots outside the ring road are gravel and are utilized as remote parking lots for faculty, staff and students. Access to these lots is free with the \$5 annual vehicle registration fee that applies to all on-campus parking permits.

The *2025 Design and Master Plan* recommends continuing to utilize asphalt surface lots and a select few gravel lots for individuals wanting a no-cost parking option. On average, the cost of building a gravel lot on the South Dakota State University campus is approximately \$200 per parking space in 2012. Asphalt surface lots on campus cost an average of \$2,500 per space in 2012.

Parking garages are not financially feasible for most colleges with a campus environment similar to South Dakota State University. *RS Means Building Construction Cost Data for 2011* cites the median cost of a parking garage in the United States at \$18,300 per parking space. The figure does not take into account local economic requirements, code requirements and owners' needs.

Financial planning for the implementation phases of the *2025 Design and Master Plan* will be done through parking revenue, auxiliary service bonds and funding from specific construction projects.

## ROLE OF PARKING SERVICES

The *Parking Study* planning process defined the need to create a Parking Services office. This office, established in July 2011, has been assigned management of all campus parking operations and the establishment of a comprehensive business plan that assures a financially sustainable campus parking system. The Parking Services office works with appropriate campus entities such as the Budget and Finance division, Facilities and Services office, the University Police Department, and the Student Affairs division to promote strategic initiatives supported by the guiding principles of the *2025 Design and Master Plan*.



FIGURE 3.5: EXAMPLE - SUSTAINABLE PARKING DEVELOPMENT

### 3.4 CAMPUS GREENS

Campus greens are among the most recognizable and memorable campus spaces. They provide settings for classes, special events, recreation and contemplation. Campus greens and open space should reinforce the high-quality values and vision of the university. Characteristics of these spaces should include:

- Seamless and universally attractive campus landscape;
- Quality design and thoughtful use of architectural and landscape materials;
- Notable pedestrian “front doors” at the campus edge;
- **Efficient pedestrian and bicycle access and circulation;**
- Clear incorporation of a campus wayfinding program;
- **Incorporation of sustainable design principles;**
- Support of campus art; and
- Thoughtful incorporation of utilities and infrastructure.

### THE JACKRABBIT GREEN

*The Jackrabbit Green Development Plan*, a concept plan, serves as a guide for the creation of a strong east-to-west pedestrian corridor along the north end of campus. The concept plan for the Jackrabbit Green establishes a pedestrian corridor highlighted by gathering nodes, campus art, landscape and wayfinding signage. The plan consists of a series of open spaces connected by sidewalks within the core of campus. The existing north/south corridors connecting to the Jackrabbit Green will be enhanced, extending improvements to the historic College Green and other prominent open spaces throughout campus.

*The Jackrabbit Green Development Plan* also looks at opportunities to develop a memorable outdoor space in the areas among the University Student Union, Briggs Library and Wellness Center. The plan incorporates a stage and amphitheater into this space, activating an area of campus that has become a center for student activity. The completion of the Jackrabbit Green will result in a contiguous unified corridor spanning a significant portion of the university campus.

The development plan also takes into account Medal of Honor Park near DePuy Military Hall. The park honors Congressional Medal of Honor recipients from South Dakota State University and recognizes groups of veterans who served the United States. As the Jackrabbit Green site plan continues to develop, a corresponding Medal of Honor Park will be necessary to establish its importance within Jackrabbit Green.

The construction of the Medary Avenue pedestrian entrance began in fall 2011. This feature includes a campus monument, seatwalls and elevated ornamental plant beds. This entry is a key component for establishing the architectural language for the entire Jackrabbit Green corridor, including building materials, site details and landscape treatments.

The section of the corridor extending from the Medary Avenue entry to Briggs Library likely will occur as part of building projects associated with the Sexauer Field site. Construction of the amphitheater and the major improvements planned for the green between the University Student Union and Ag Engineering will require a major investment by the university, likely to be implemented as a stand-alone project as funding becomes available.





FIGURE 3.6: CONCEPT VIEW "A" OF JACKRABBIT GREEN



FIGURE 3.7: CONCEPT VIEW "B" OF JACKRABBIT GREEN



FIGURE 3.8: CONCEPT PLAN FOR JACKRABBIT GREEN IMPROVEMENTS



## THE COLLEGE GREEN

Over the long history of the campus, the function of the College Green has evolved. The campus has expanded, primarily to the north and east, relocating much of the residential, academic and student service functions of the campus further away from the College Green. The College Green has undergone numerous changes including the addition and removal of buildings, designation of new purposes for existing buildings, the reorganization of walkways as traffic patterns changed, and the evolution and rejuvenation of the landscape. As the campus expanded, new greens and corridors have developed on campus, though none is more treasured or significant as the College Green.

As the campus fabric is redefined, it is recommended that the university consider options to re-engage the College Green. The development of pedestrian corridors should include strong connections to the College Green. The repurposing of buildings or additions of new buildings near the green should be studied as ways to attract a portion of the student population back to the College Green. Removing the street and parking from the west side of the Administration Building will create the opportunity to develop that space into a major north-south campus pedestrian corridor.

Changes to the College Green should be done with great respect for the history of the space, with the goal of re-engaging the student population and reinforcing the significance of the College Green.

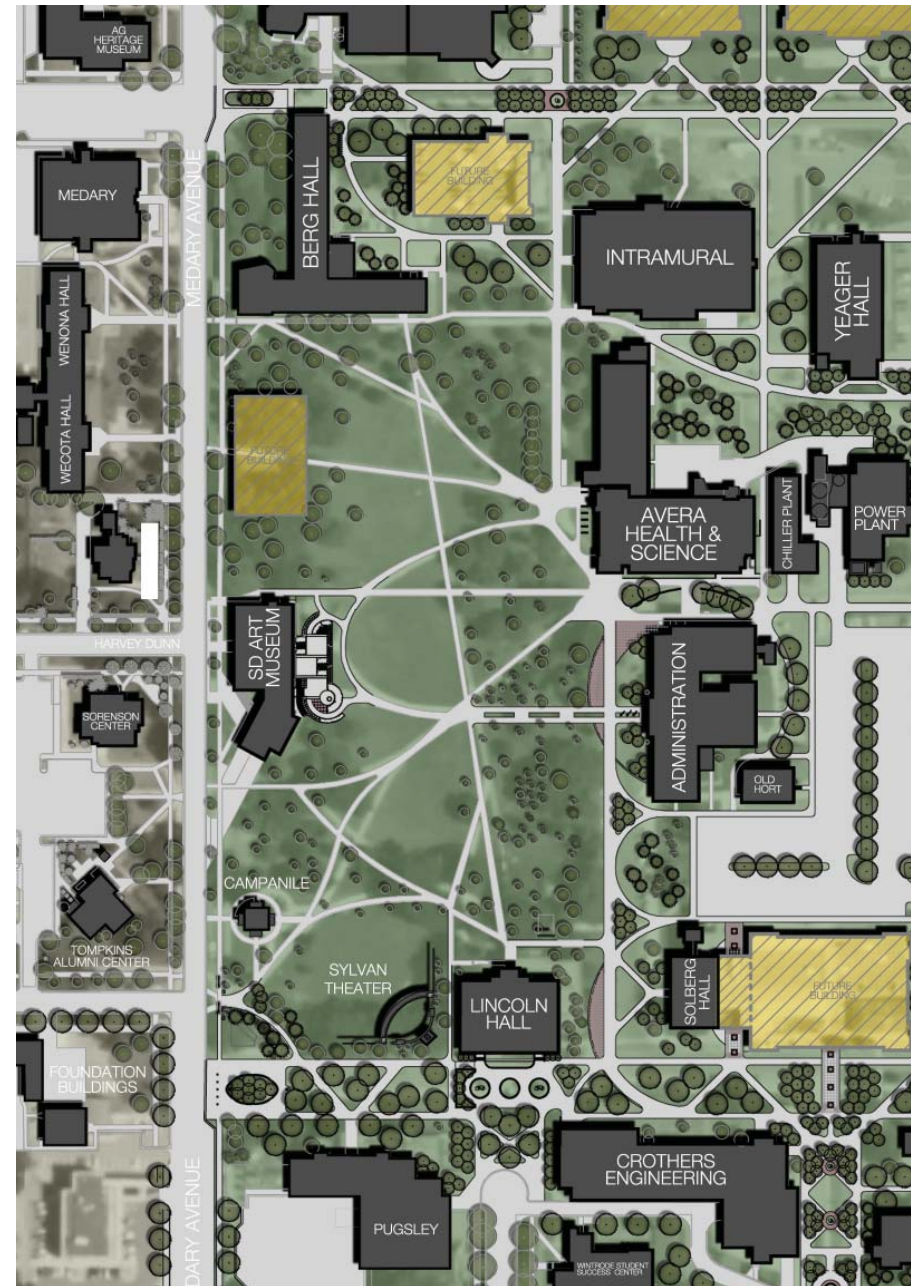


FIGURE 3.9: CONCEPT PLAN FOR COLLEGE GREEN IMPROVEMENTS



## 3.5 PEDESTRIAN CORRIDORS

### FREEING THE CAMPUS CORE

The recommendations within the *2025 Design and Master Plan* support strengthening the existing ring road by relocating parking to the edge of campus as the key driver in the efforts to change the physical characteristics of the campus core. Currently, the geographic center of the South Dakota State University main campus is an asphalt-surfaced parking lot west of the University Student Union. This effort to relocate parking will allow for the establishment of strong pedestrian corridors to connect campus greens and parking to the interior of campus. Organizing parking along the ring road frees the campus core for pedestrian traffic and opens land for building and campus green development.

### PEDESTRIAN CORRIDORS

As interior streets are removed and parking relocated, it is recommended that the university redefine these former streets as major pedestrian corridors that connect primary destinations and offer pedestrians a safe, inviting and relatively direct means of travel across campus. As previously stated, the *2010 Parking Study* determined that the majority of the relocated parking will be within a three- to five-minute walk of an individual's final campus destination.

The sidewalk network should consist of a hierarchy constructed with a consistent material palette that will help define and articulate open spaces while enhancing campus wayfinding. Major pedestrian pathways should connect to parking, campus greens and notable gateways at the edge of campus. Figure 3.12 highlights the suggested major pedestrian corridor improvements. Developing these corridors is a critical component in the successful relocation of parking to the edges of campus.

As streets are eliminated from the core of campus, alternative means of building access will be required for service and emergency vehicles. Major sections of the pedestrian corridor network should be designed to accommodate service and emergency vehicle use. Care should be taken to plan for this vehicular traffic on these sidewalks, yet include elements such as decorative paving, site furnishings, landscape, campus wayfinding signage and gathering nodes that suggest a predominantly pedestrian use of these corridors.



FIGURE 3.10: CONCEPT VIEW OF ENGINEERING QUAD AT SOUTH END OF CAMPUS (VACATED 12TH AVENUE)



FIGURE 3.11: CONCEPT VIEW OF MEDARY AVENUE PEDESTRIAN ENTRANCE



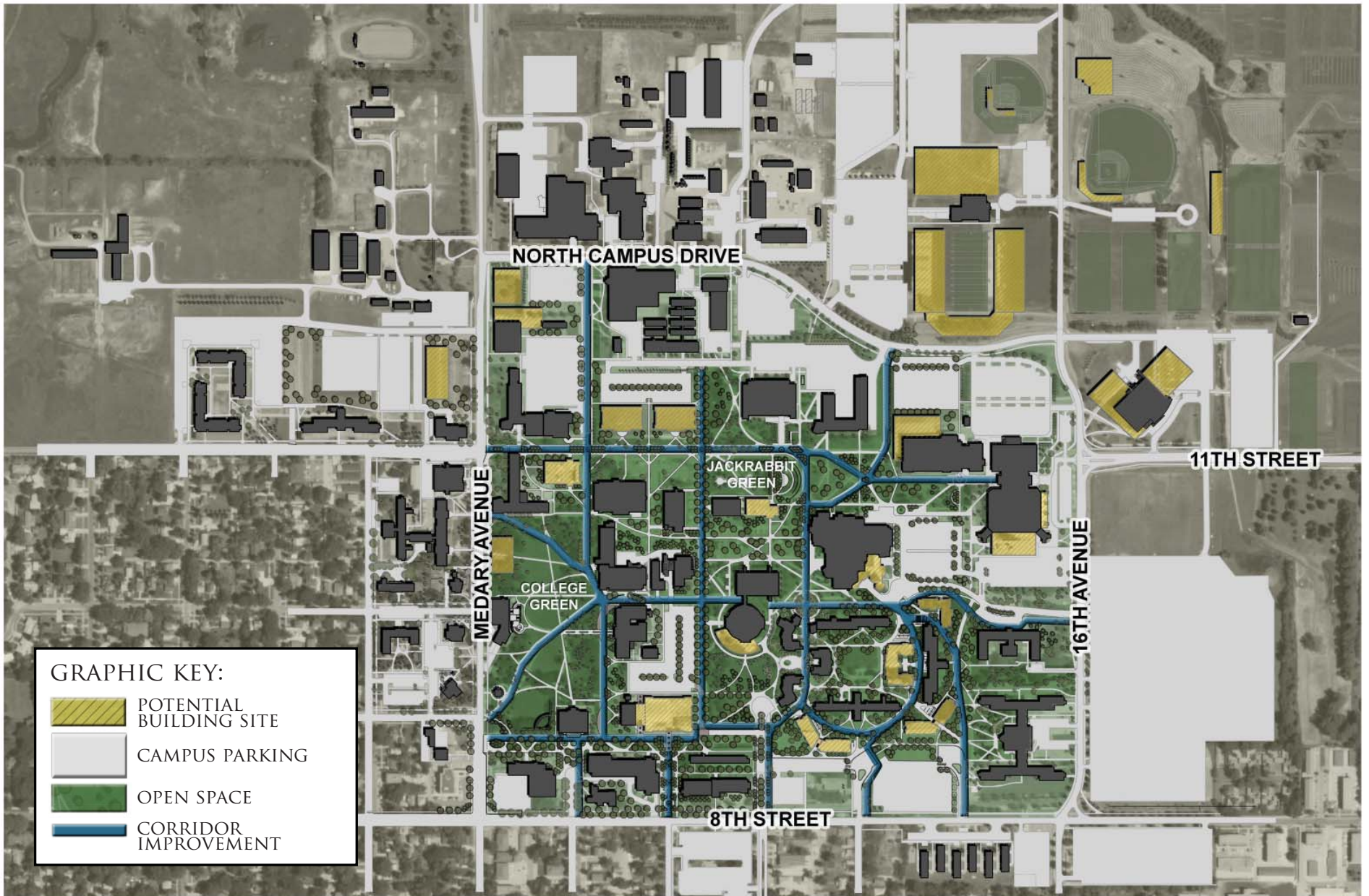


FIGURE 3.12: 2025 CAMPUS PEDESTRIAN CORRIDOR DEVELOPMENT



### 3.6 IMPLEMENTATION

The implementation phases outlined in this section represent significant changes to the physical campus structure in support of the immediate and long-term vision of the university's *2025 Facility Master Plan*.

Within the improvements outlined, the redistribution of campus parking is the key driver for initiating the transition to a more pedestrian-oriented campus environment supported by green spaces and pedestrian corridors. It is important that in the implementation of these projects, consideration is given to the incorporation of elements that will result in the creation of a campus environment that is user-friendly, welcoming, easily navigable, and safe for visitors, students, faculty and staff. The planning principles outlined earlier in the document are to be the backbone for the campus development indicated in these phases.

The timeline for implementation of the master plan can be impacted by a variety of factors such as funding, enrollment trends and other unforeseen university needs. The implementation plan lays out a set of phases, likely occurring over the next 10 to 15 years. The phases of the parking projects are organized in a sequence that meets the projected parking needs of the campus community through each development.



FIGURE 3.13: CONCEPT VIEW OF 13TH AVENUE CAMPUS ENTRY

**PHASE 1: ACADEMIC CORE EXPANSION**

**SITE 1A:**  
Redesignate parking lot west of the Seed House to commuter parking.

**SITE 1B:**  
Resurface and expand the parking lots between Alfred Dairy Science Hall and the Animal Science Complex for reserved parking.

**SITE 1C:**  
Remove parking lot between Berg Agricultural Hall and the Intramural Building to accommodate a new facility.

**SITE 1D:**  
Redesignate a portion of the Coughlin-Alumni Stadium lot to commuter parking.

**SITE 1E:**  
Convert parking lot east of the University Student Union to pay lot for visitor parking.

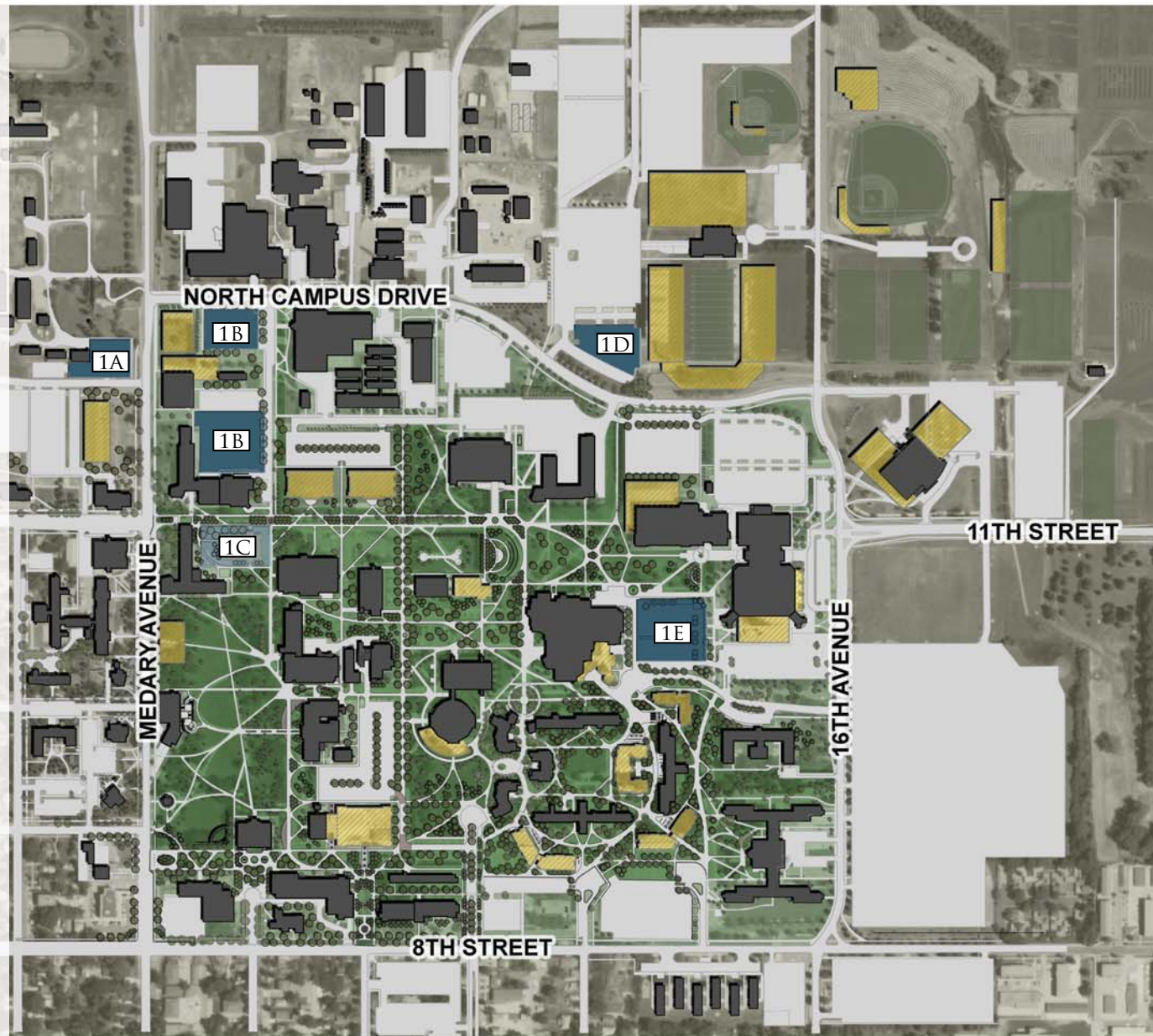


FIGURE 3.14: PARKING IMPLEMENTATION PHASE 1



**PHASE 2: RESIDENTIAL LIFE SOUTHEAST DISTRICT (PRIOR TO CONSTRUCTION)**

**SITE 2A:**

Expand and renovate the parking lot south and east of the Administration Building. This will coincide with the removal of the Communications Building.

**SITE 2B:**

Redesignate the parking lot south of Daktronics Hall to commuter parking.

**SITE 2C:**

Construct new parking lot (976 spaces) on the east side of campus. This lot will replace the parking removed south of Brown Hall and provide additional parking for the new residence halls.

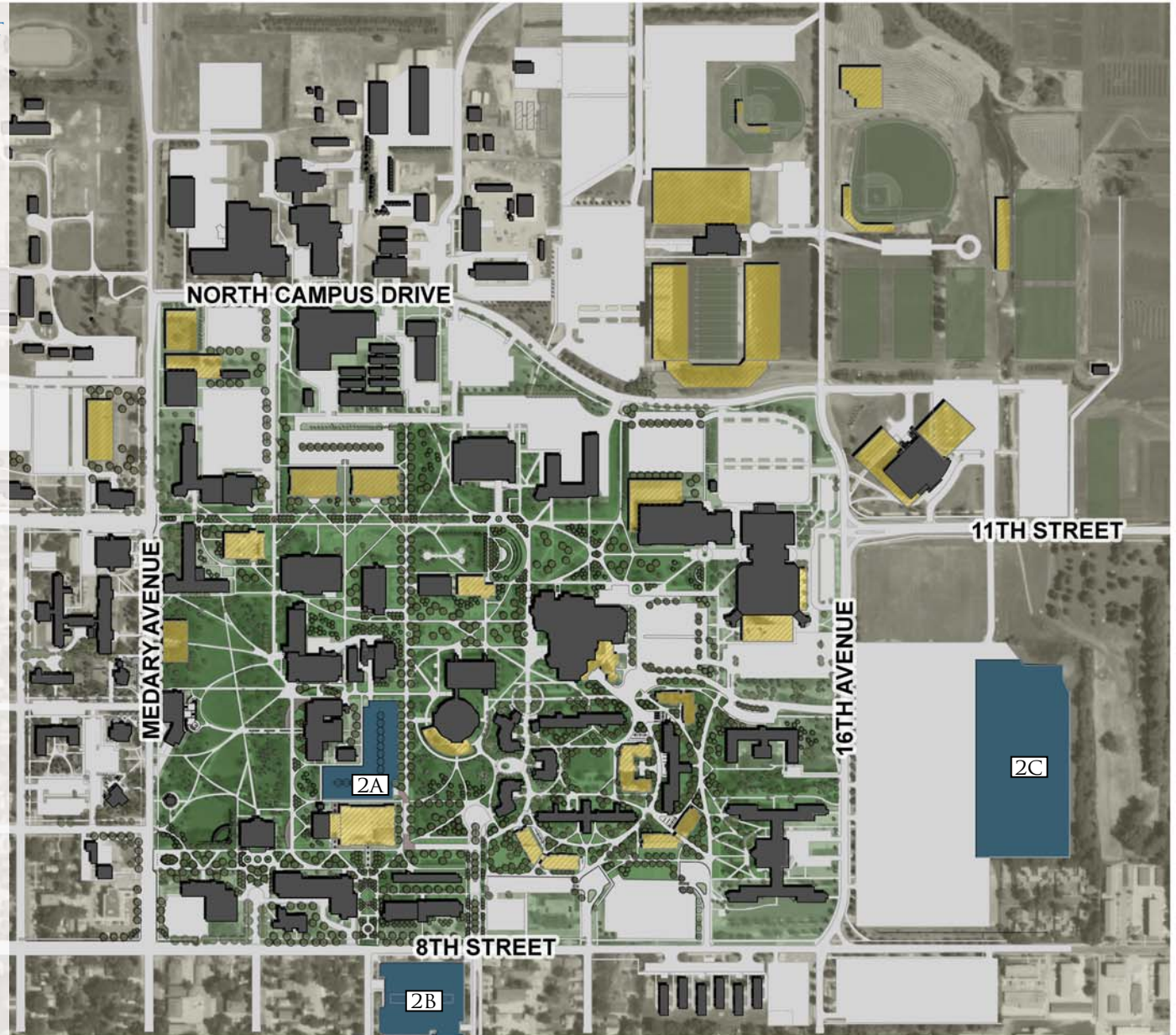


FIGURE 3.15: PARKING IMPLEMENTATION PHASE 2





**PHASE 3: RESIDENTIAL LIFE SOUTHEAST DISTRICT (DURING & POST CONSTRUCTION)**

**SITE 3A:**

Remove State Village housing southwest of Binnewies Hall and replace with a parking lot to serve residence halls in the southeast quadrant of campus.

**SITE 3B:**

Convert the parking lot south of Frost Arena to a pay lot and connect this parking lot with the lot east of the University Student Union.

**SITE 3C:**

Remove Grove Hall and adjacent parking lot to accommodate the construction of a new residence hall. Remaining area will serve as campus green space.

**SITE 3D:**

Remove portions of the Brown Hall parking lots to accommodate the construction of new residence halls.

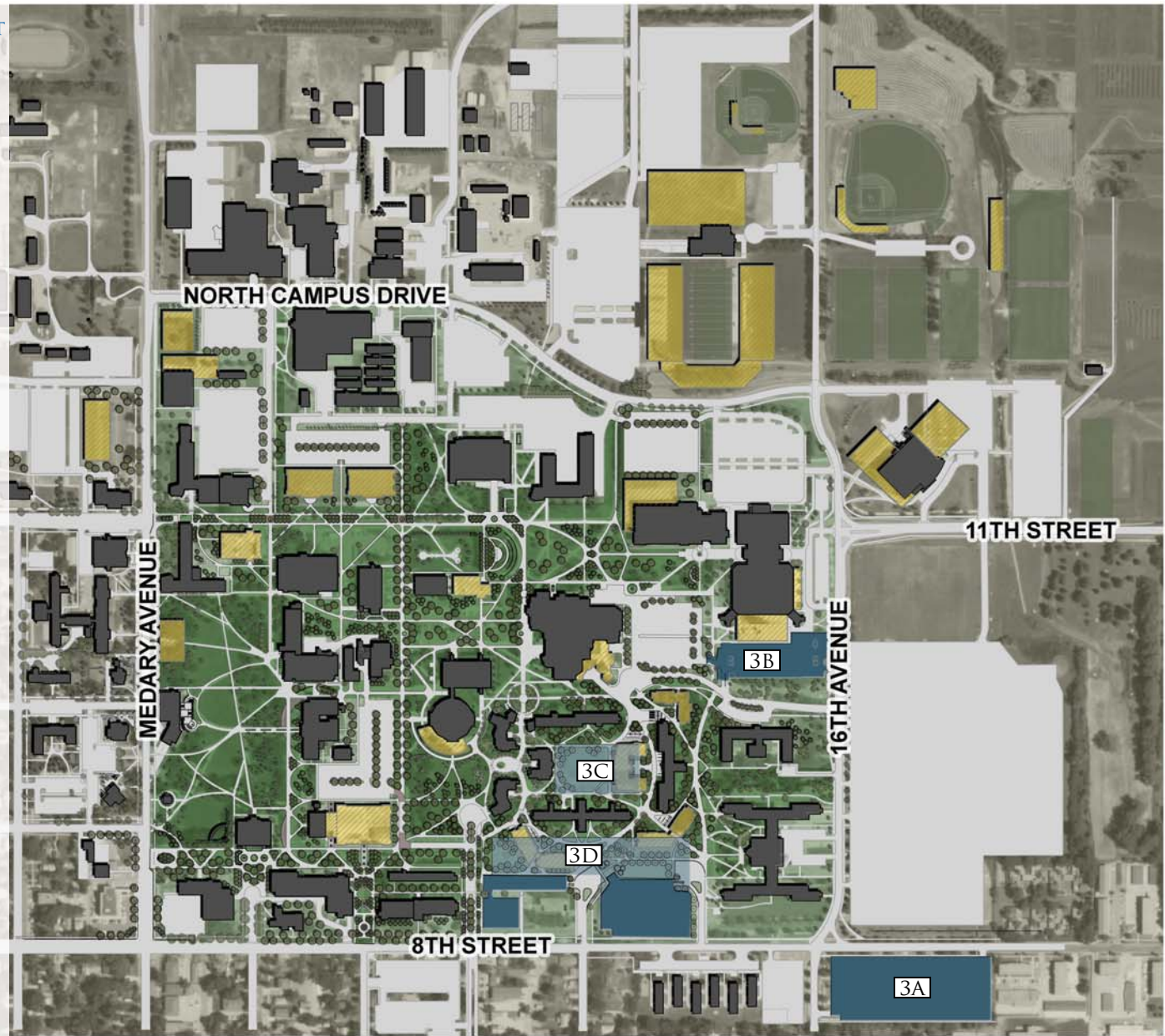


FIGURE 3.16: PARKING IMPLEMENTATION PHASE 3



**PHASE 4: ACADEMIC CORE (MATH AND ENGINEERING EXPANSION)**

**SITE 4A:**

Remove Rotunda Lane and the existing Wagner Hall parking lot. Convert the area to a pedestrian corridor and campus green space.

**SITE 4B:**

Remove parking lots north of Yeager Hall and convert the area to campus green space.

**SITE 4C:**

Remove Administration Lane and existing parking. Convert the area to a pedestrian corridor.

**SITE 4D:**

Remove the street, cul-de-sac, and parking north of the Pugsley Continuing Education Center. Convert this space to a new pedestrian corridor with gateway entry off of Medary Avenue.

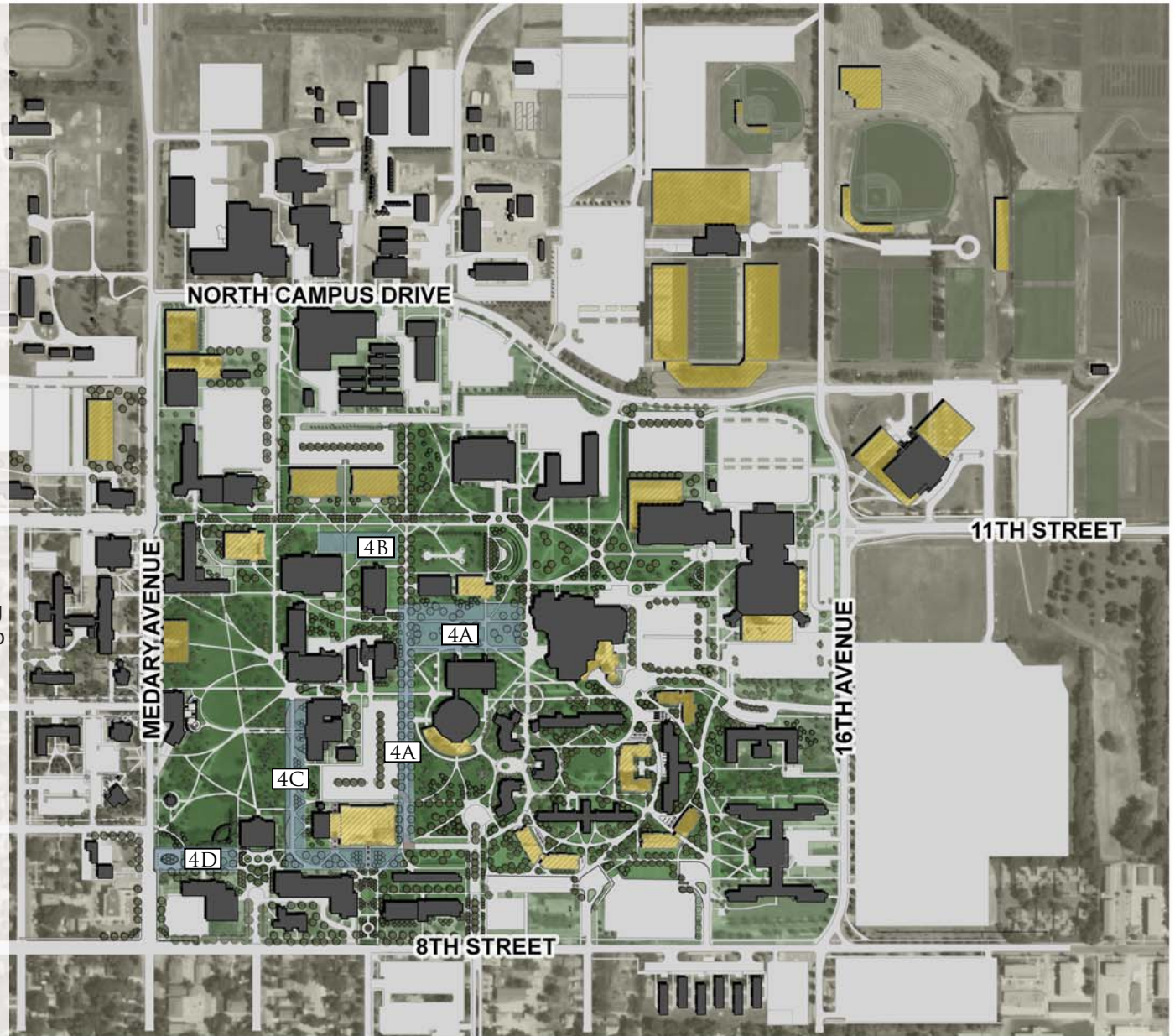


FIGURE 3.17: PARKING IMPLEMENTATION PHASE 4





**PHASE 5: NORTHWEST CAMPUS DEVELOPMENT**

**SITE 5A:**

Remove the existing commuter lot to the north of the Agricultural Heritage Museum to support the development of an upper-division and graduate student neighborhood.

**SITE 5B:**

Pave the existing gravel lots northwest of the football stadium for use as commuter parking.

**SITE 5C:**

Construct a new asphalt surfaced commuter parking lot north of Coughlin-Alumni Stadium and west of the softball field.

**SITE 5D:**

Redesignate the Coughlin-Alumni Stadium parking lot to commuter parking.

**SITE 5E:**

Construct new gravel lot for free parking north of the Animal Science Complex.

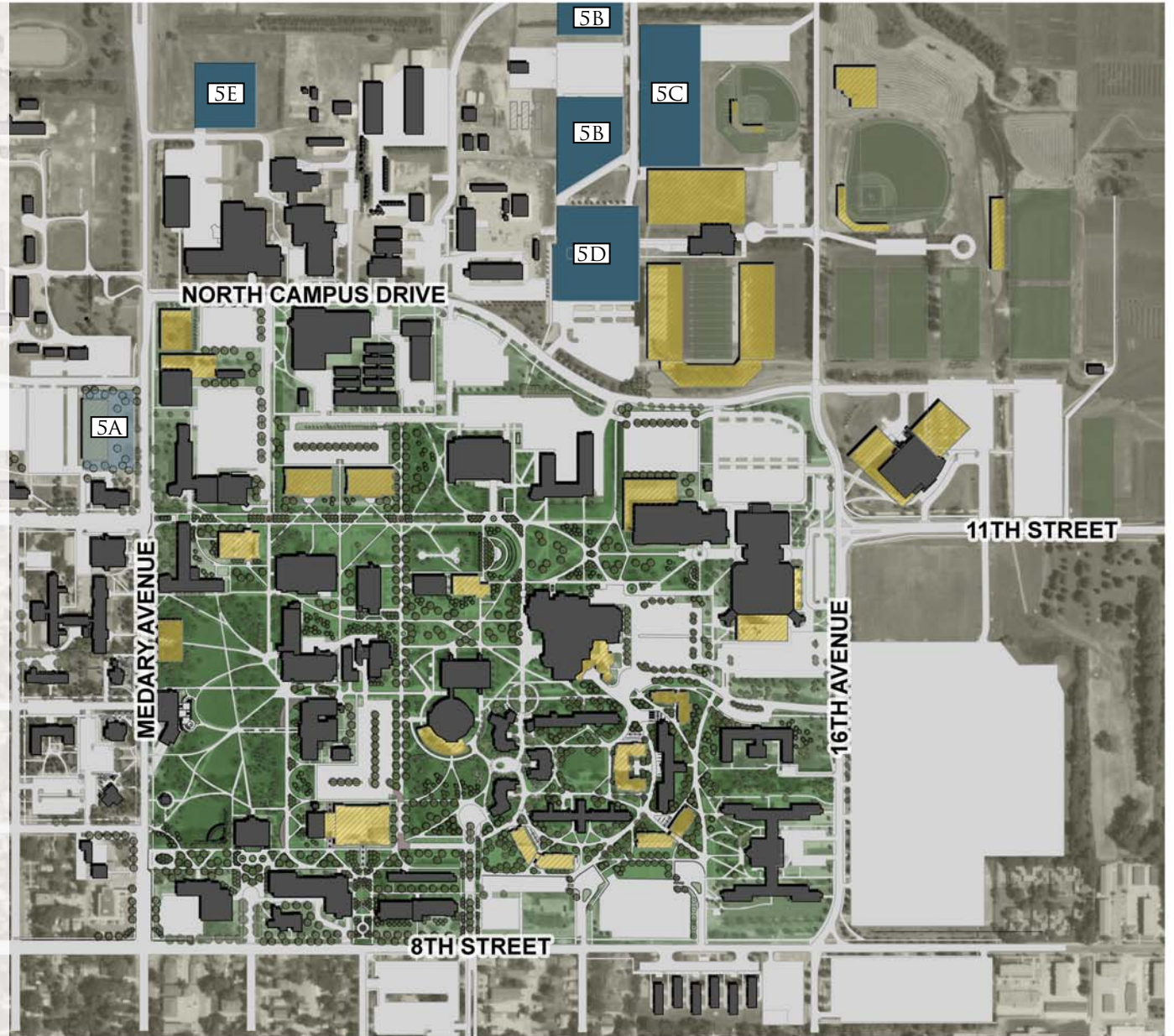


FIGURE 3.18: PARKING IMPLEMENTATION PHASE 5



**PHASE 6: ATHLETIC AND ACADEMIC  
CORE EXPANSION**

**SITE 6A:**

Construct a new parking lot north of the Wellness Center to support future expansion of athletic venues per the *2025 Athletic Facilities Master Plan*, most notably the potential for a 21,000-seat football stadium. The lot will off-set lost parking south of Frost Arena due to the building of a men's and women's basketball practice facility and volleyball competition venue and future expansion of the Wellness Center.

**SITE 6B:**

Construct a new parking lot south of Northern Plains Biostress that will coincide with future academic facilities on the Sexauer Field site. Proposed academic facilities will incorporate significant research space that will require service access. Parking lot development would be in response to demand and in concert with access road development.

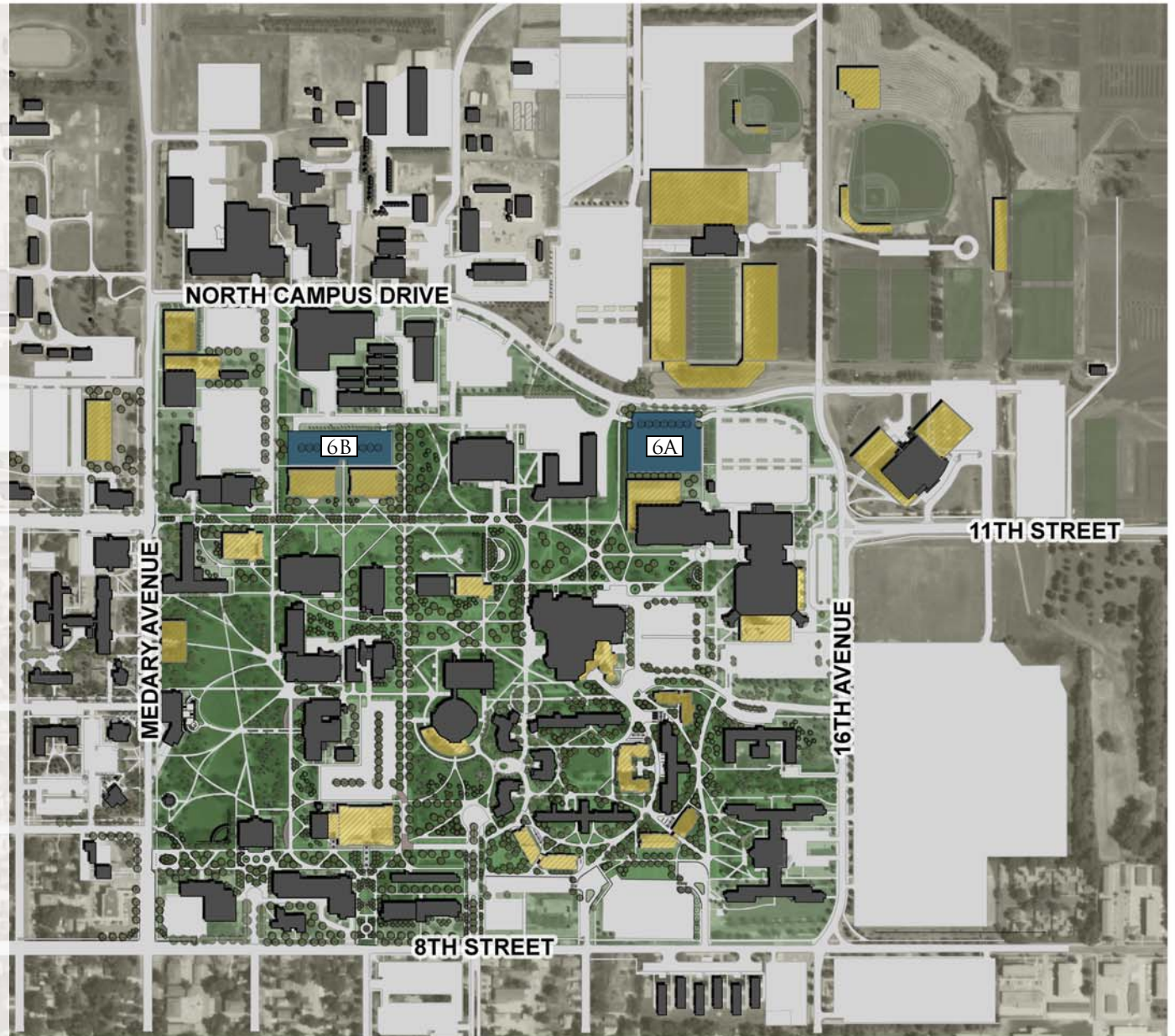
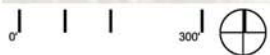


FIGURE 3.19: PARKING IMPLEMENTATION PHASE 6





## SECTION 4 – CONCLUSION

The recommendations of this master plan document set forth a plan to strengthen the South Dakota State University campus environment in order to better serve students, faculty, staff, alumni and visitors. As implementation of these projects moves forward to achieve this vision for the university campus, leaders are challenged to think not of the singular project, but of the future of the campus as a whole. The campus fabric is made up of numerous physical components, including buildings, open spaces, pedestrian corridors, gateways and parking lots. The construction of these features and how they relate to one another all impact the user experiences and the university's image. The successful implementation of the master plan will require a continued commitment by university administrators to adhere to the planning principles and recommendations of the master plan. The result of this commitment will be a transformed campus environment that reflects the high-quality values of the institution.





# ACKNOWLEDGEMENTS

Two committees were consulted in the development of the *2010 Parking Study*. The Parking and Traffic Committee coordinated all efforts of the parking analysis under the guidance of the Campus Master Planning and Design Committee. The committees worked together to provide leadership and continuous input throughout the planning process. University staff from Facilities and Services joined the committees and provided planning, design, and management services throughout the study.

Campus leadership provided programmatic direction and reaffirmation of the master planning premises. The process guided by the Parking and Traffic Committee created goals and objectives for campus parking. Input was then gathered by campus leadership, the City of Brookings and the university community prior to the conclusion of the parking study.

## CAMPUS MASTER PLANNING AND DESIGN COMMITTEE:

The Campus Master Planning and Design Committee was formed in fall 2009 and given three tasks:

- 1) To develop a master plan for the Jackrabbit Green;
- 2) To conduct work as it pertains to on-campus parking; and
- 3) To update the campus design guidelines to be consistent with the University's *2025 Facility Master Plan*.

Committee members include:

- Shad Christman, student, ex-officio
- Matt Diersen, Professor, Economics
- David Graper, Professor, Horticulture, Forestry, Landscape and Parks Department
- Dean Kattelmann, Assistant Vice President, Facilities & Services
- Jennifer Novotny, Director, University Student Union, ex-officio
- Rob Peterson, Associate Athletic Director, ex-officio
- Chris Schmit (Chair), Professor, Civil and Environmental Engineering
- Tom Schumacher, Professor, Plant Science
- Corey Shelsta, Associate Professor, Communications Studies and Theatre
- Tim Steele, Professor, Visual Arts
- Christine Steward-Nunez, Assistant Professor, English
- Lynn Verschoor, Director, South Dakota Art Museum, ex-officio
- Mike Wimberly, Associate Professor, Geographic Information Science Center of Excellence

## PARKING AND TRAFFIC COMMITTEE:

The Parking and Traffic Committee is responsible for parking and traffic regulations and vehicle registration fees and charges. This committee also reviews budgets prepared by Facilities and Services and recommends parking lot construction and maintenance priority lists.

Committee members include:

- James Beatty, Career Service
- Brandon Breitling, student
- Onyeka Ezenwoye, faculty at-large
- Elizabeth Gripenrog, student
- Eric Haiar, student
- Mark Hayes, student
- Tim Heaton, Chief of University Police, ex-officio
- Tom Henley, Career Service
- John Howard, Professional Staff
- Dean Kattelmann, Assistant Vice President for Facilities and Services
- Betty Knutsen, Career Service
- Jeri Kurtz, Associate Vice President for Finance and Business
- Anthony Sutton (Chair), student
- Billy (Lonnie) Wilburn, faculty at-large

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Fort Collins, CO 80528

# SOUTH DAKOTA STATE UNIVERSITY

## APPENDIX A - SITE DEVELOPMENT GUIDELINES



SEPTEMBER 2012







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# INTRODUCTION

The site development guidelines presented in this appendix are intended to serve as a solid baseline for campus improvements, ensuring a consistent quality and aesthetic value throughout campus. These guidelines are in no way intended to limit creativity, as each campus improvement project comes with its own unique challenges that may require innovative solutions to meet the owner's needs. The ultimate goal of these guidelines is to create a memorable campus environment with a unique sense of place and functionality, that reflects the high-quality values of South Dakota State University.



## SECTION 1 – PARKING LOTS

Parking lots are a necessary component of the campus fabric. Properly designed parking lots should consider vehicular and pedestrian flow, maintenance operations and snow removal, and the visual impact to adjacent streets and properties. Parking lot design should also account for adequate signage, landscape screening, **sustainable stormwater management options**, and should have proper illumination according to the standards established by the Illuminating Engineering Society (IES). All permanent parking lots on campus are to be constructed with a concrete curb and gutter and either asphalt or concrete surfacing.

Incorporating landscape buffers at the edges of parking lots and the use of internal landscape islands can greatly reduce the visual impact of campus parking. Landscape buffers need not be a solid continuous mass. An intermittent landscape planting at the edge of parking lots provides a balance of screening and openings for monitoring lot activity from the street. Berming of the buffer areas also increases the effectiveness of screening provided.

Internal parking islands should be consolidated to create larger linear planting spaces, as represented in Figure 1.1. These linear internal islands break up the parking mass and provide a favorable location to plant trees, collect stormwater, and stockpile snow within the interior of the parking lot. The linear islands will also help to align parking in winter when parking lot striping can be covered by snow. Trees planted within the islands benefit from a larger soil mass, resulting in increased tree health and accelerated growth.

The excavation of parking lot islands and placement of quality topsoil is an important factor in landscape success. A planting area constructed with a quality topsoil will allow for increased water infiltration, increased root penetration, and overall healthier plantings. Refer to the soil preparation notes in Section 10 of this document for specific information related to topsoil placement and subgrade preparation.



FIGURE 1.1: EXAMPLE - SUSTAINABLE PARKING LOT WITH LINEAR LANDSCAPE ISLANDS AND STREET BUFFER



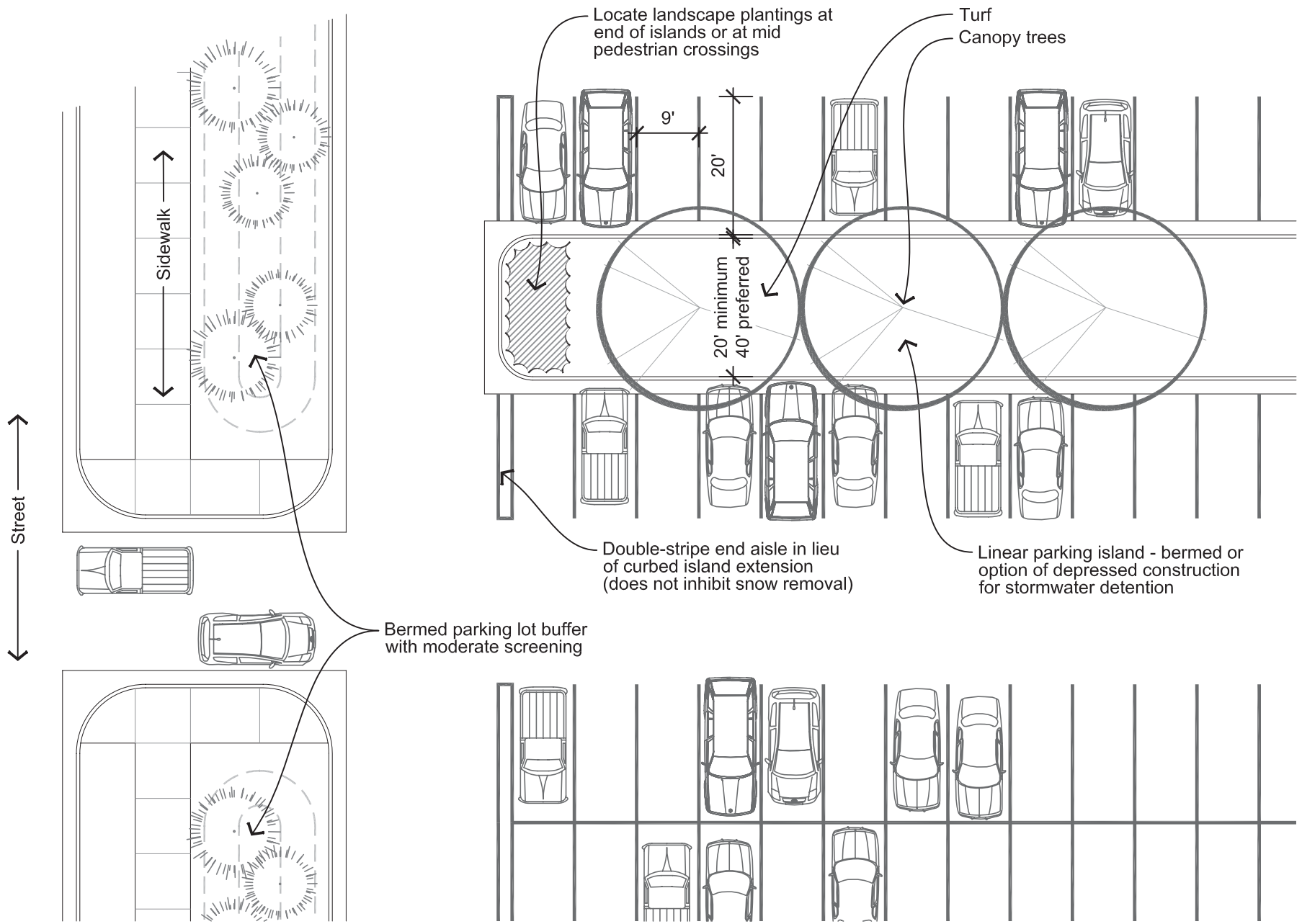


FIGURE 1.2: TYPICAL PARKING LOT CONSTRUCTION

Note:  
Placement of landscape plantings in parking lot should take into consideration locations for snow storage in winter.

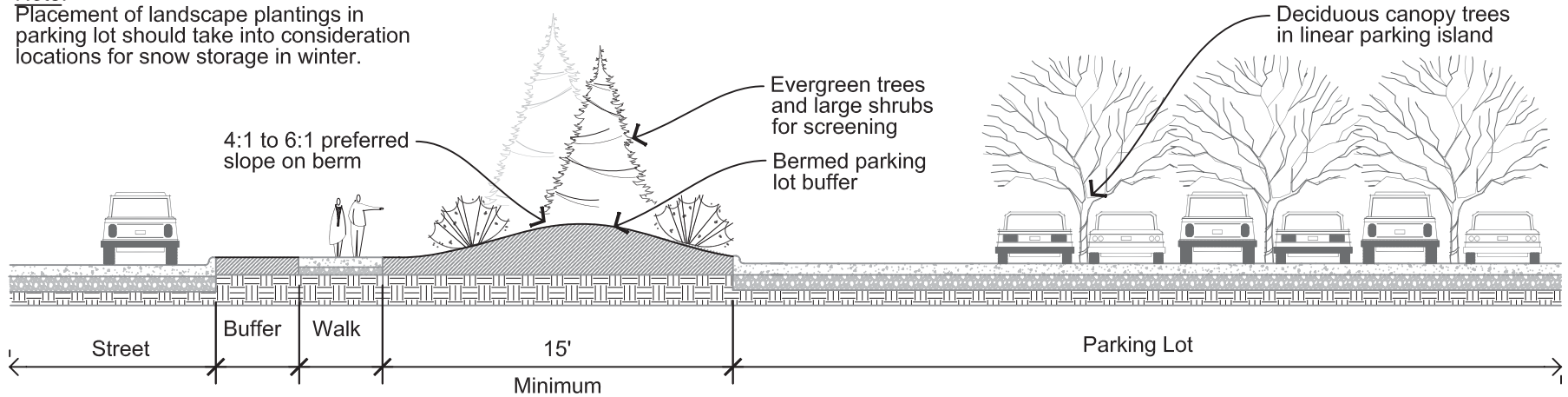


FIGURE 1.3: TYPICAL PARKING LOT SECTION

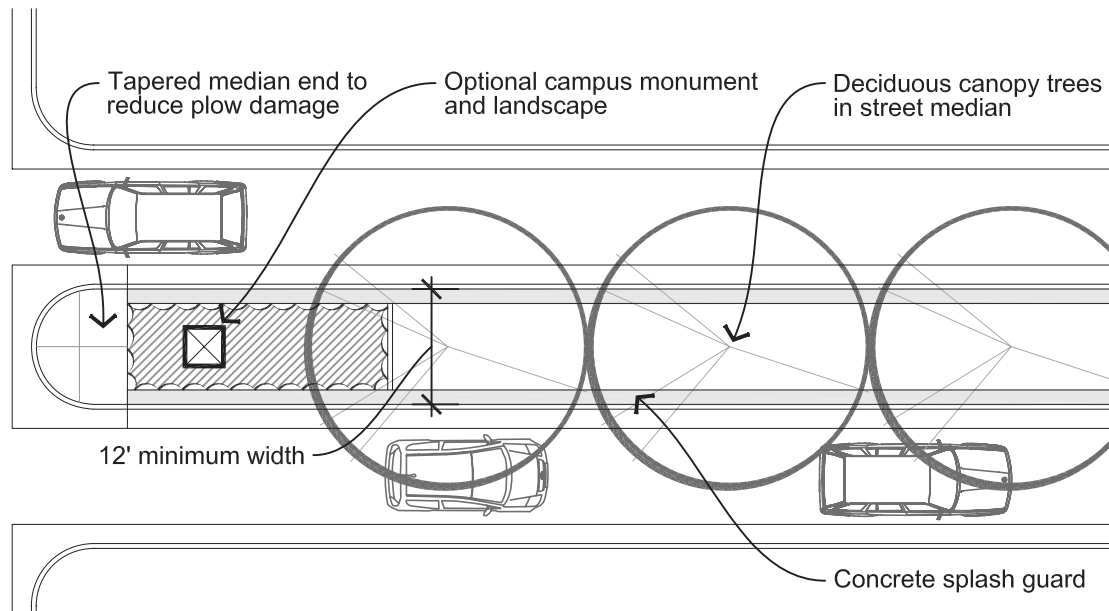


FIGURE 1.4: TYPICAL STREET MEDIAN

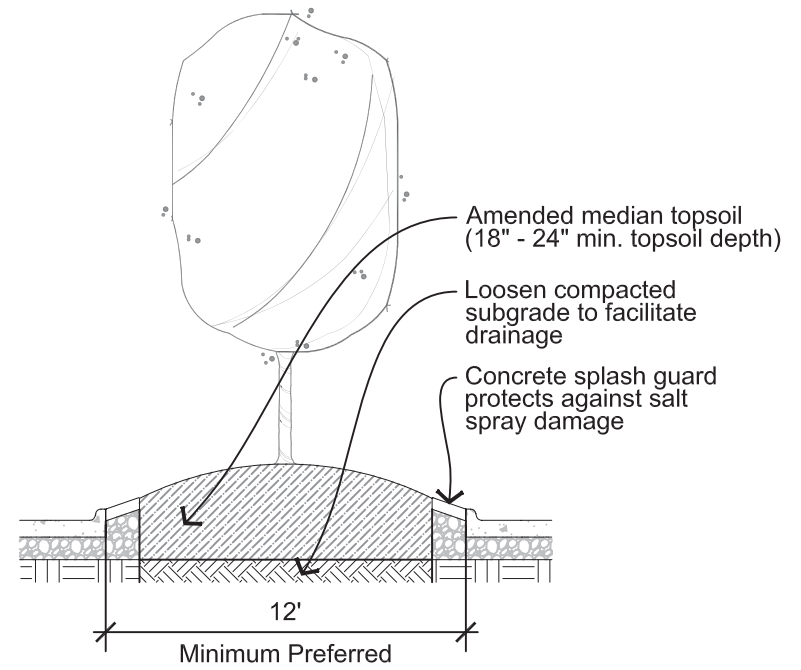


FIGURE 1.5: TYPICAL STREET MEDIAN SECTION



## SECTION 2 – PEDESTRIAN CORRIDORS AND BIKE TRAFFIC

With increasing bike traffic on campus, accommodations for bike use and parking need be considered with each campus improvement project. Every effort shall be made to assure the safe coexistence of bikes, pedestrians and vehicles on campus.

- Where possible, bike traffic should be kept on the streets;
- Where bike traffic occurs on streets, bikes should not be allowed on the adjacent sidewalks; and
- When on campus, bikers should always yield to pedestrians and abide by campus biking rules and regulations.

Refer to the *AASHTO 1999 Guide for the Development of Bicycle Facilities* for additional information related to bike traffic planning and design.

Campus sidewalks are to be 5-inch-thick poured concrete at a minimum width of 7 feet in order to accommodate service vehicles and snow removal. Walk widths are to be increased where appropriate to accommodate the anticipated volume of pedestrian traffic. In areas of campus where routine service vehicle traffic is anticipated or emergency vehicle access is required, sidewalks shall be constructed with a 6-inch concrete thickness.

All sidewalk construction is to follow ADA rules and regulations for accessibility.

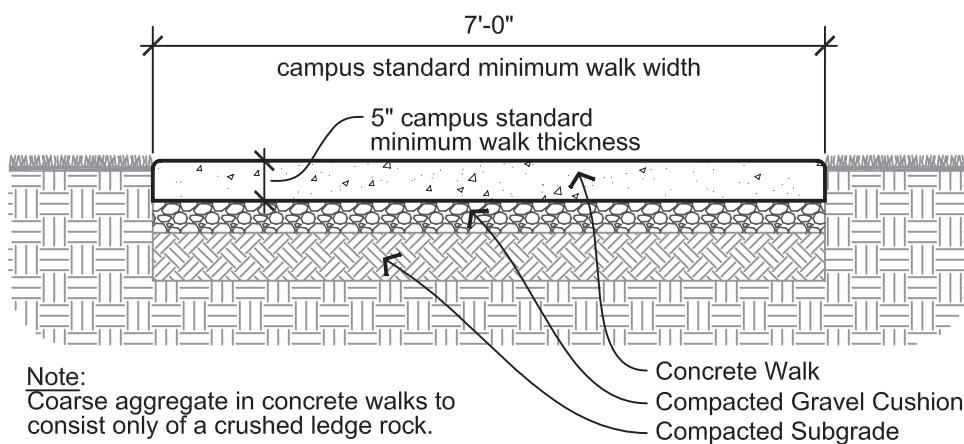


FIGURE 2.1: CAMPUS STANDARD SIDEWALK SECTION

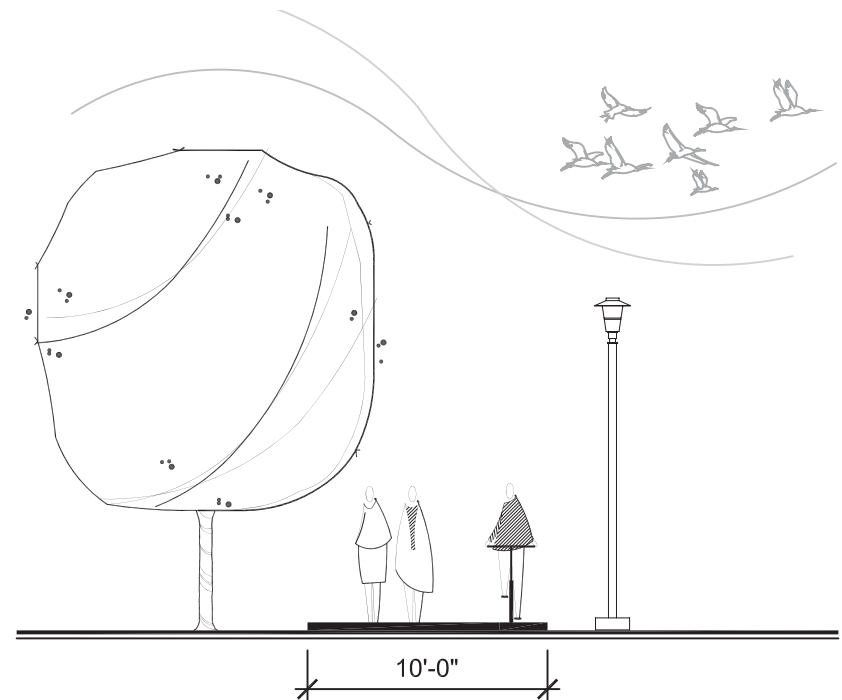


FIGURE 2.2: MINIMUM WIDTH TWO-WAY SHARED USE PATH (1999 AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES)

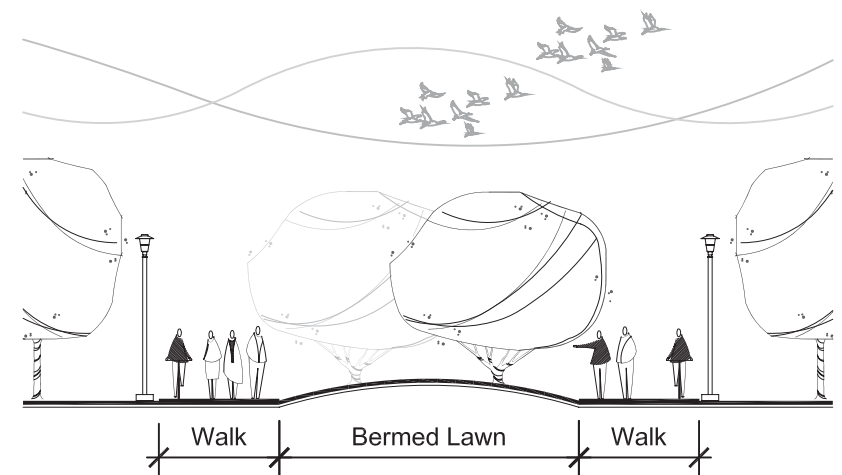


FIGURE 2.3: SECTION - PROPOSED JACKRABBIT GREEN CORRIDOR

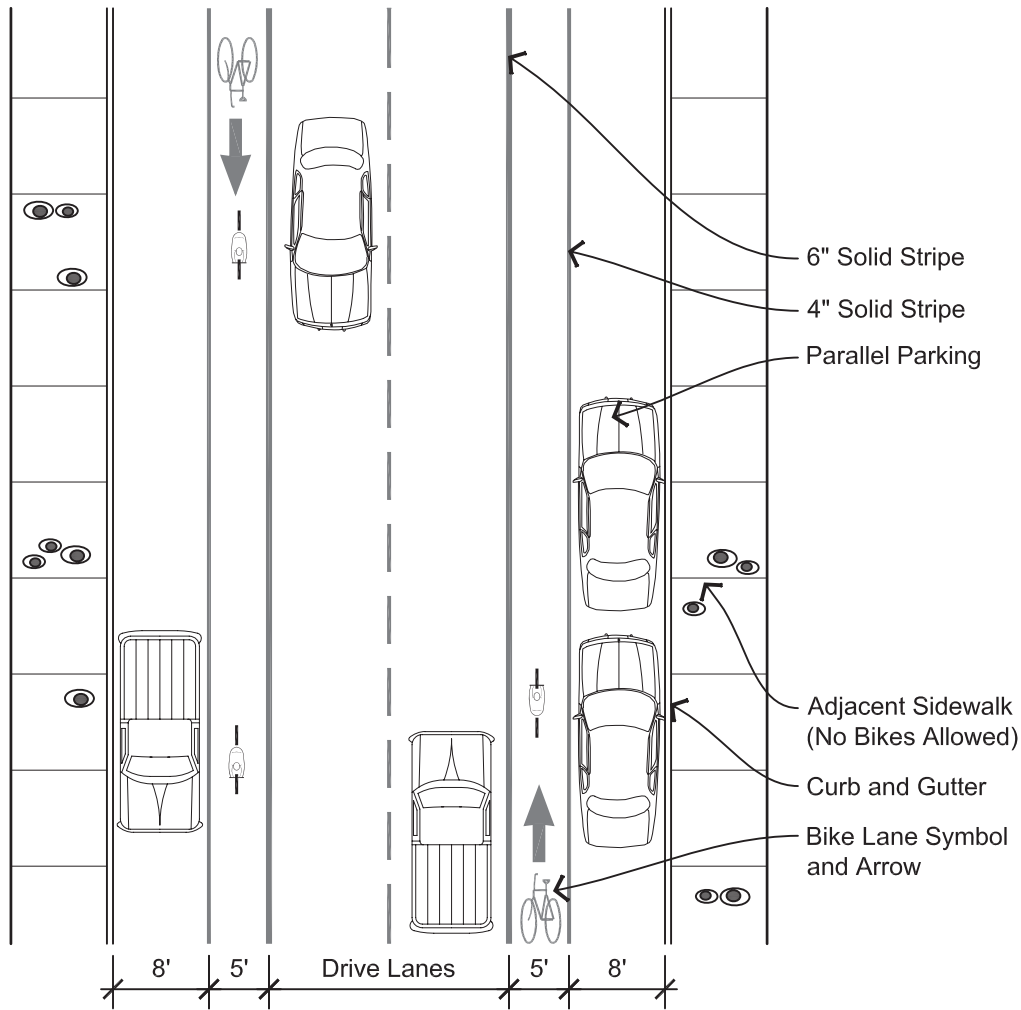


FIGURE 2.4: BIKE LANE ON TWO-WAY STREETS (PARALLEL PARKING BOTH SIDES)

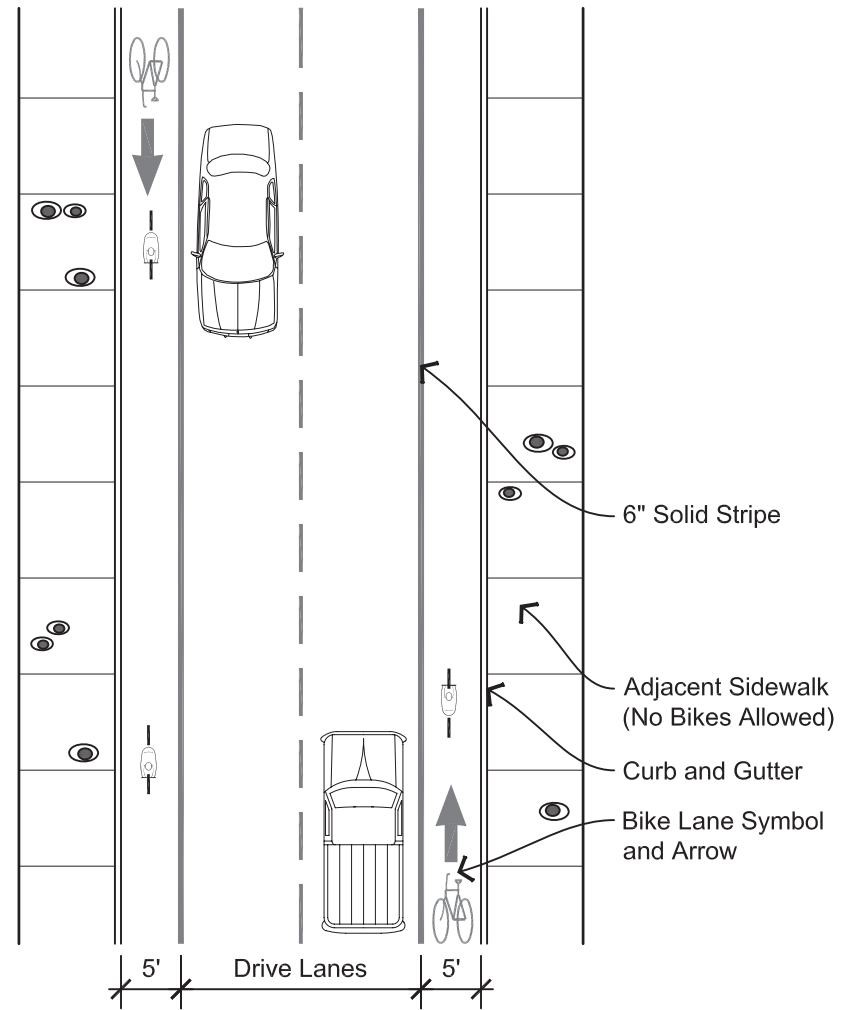


FIGURE 2.5: BIKE LANE ON TWO-WAY STREETS (NO PARKING)



## SECTION 3 – CAMPUS LIGHTING

Exterior lighting on campus should be consistent and provide an outdoor environment that is well-lit, safe and attractive. The light level recommendations listed below are in accordance with the *Illumination Engineering Society (IES) Handbook, Ninth Edition* and provide a baseline for the development of a high-quality campus lighting plan.

Area	Minimum Average Footcandle*	Uniformity Ratio**
Campus Edge	3.0-4.0	6:1 (max)
Pedestrian Walkways	0.2 (min) to 1.2 (max)	6:1
Parking Lots	0.2, 0.6, 0.9*	4:1
Building Entry	5.0	
Maintenance / Service	3.0	

\* Measurement equal to the light intensity of one candle at a distance of one foot.

\*\* Ratio of average horizontal illumination to the minimum horizontal illumination.

In parking lot lighting design, uniformity and glare control are the most important factors, as these elements have the greatest impact on nighttime visibility. Uniformity and glare should take precedence over measured light levels when evaluating outdoor lighting options.

In addition to achieving the recommended light levels and uniformity, lighting design should consider the reduction of light trespass and sky glow, as well as opportunities to reduce energy consumption.

Accent lighting should be considered for select areas on campus in order to emphasize nighttime points of interest. Campus gateways, signage, unique building facades, specimen trees, and public art pieces are all candidates for the incorporation of accent lighting. Fixtures illuminating these features should be controlled so as not to throw light beyond the intended focal point.



FIGURE 3.1: CAMPUS STANDARD PEDESTRIAN LIGHT FIXTURE

### Light Fixture:

Manufacturer: American Electric

Model: Contempo Series 245 250W Metal Halide Light; Style "A"

Finish: Satin Brushed

### Pole:

Manufacturer: Flagpoles, Inc. Aluminum Lighting Standards

Model: #FPBB4310A-3B, 12 Foot Tapered Aluminum Shaft,  
0.125 Inch Wall with Cast Aluminum Bell Transformer Base.

Finish: Satin Brushed

### Base/Hardware:

Manufacturer: Hubbell Power Systems

Lighting Foundation: T1121248

Mounting Hardware: T112-0352

**Note:** Typical pedestrian light pole spacing along campus walks is approximately 75 feet.



FIGURE 3.2: CAMPUS STANDARD HISTORICAL PEDESTRIAN LIGHT FIXTURE (LIMITED APPLICATIONS)

**Light Fixture:**

Manufacturer: King Luminaire  
 Model: K 118 Washington 208 Volt Metal Halide Light  
 KING K118-EAR-II-250MOG-MH-208-K14-PR-BK

**Pole:**

Manufacturer: Shakespeare Composite Structures  
 Model: 12 Foot Height Fiberglass Post, Shakespeare AP20-12-F-G-1-1

**Base/Hardware:**

Manufacturer: Hubbell Power Systems  
 Model: T112-0514 with T112-0309 Bolt Kit



FIGURE 3.3: CAMPUS STANDARD PARKING LOT LIGHT FIXTURE

**Light Fixture:**

Manufacturer: Spaulding  
 Model: Medallion 1 Series Quad Tap Metal  
 Halide Light; CM1-A5-S40-H3-F-Q-DB

**Pole/Base:**

Manufacturer: Spaulding  
 Model: 40 Foot Height Square Straight Steel  
 SSS-40-60-3-C2-DB

CAMPUS STANDARD EMERGENCY CALL BOX

**Call Box:**

Manufacturer: CALL24  
 Model: VHF AC 208 Volt Wireless Call Box with  
 Control Board Technology C24-14AT2-V and C24-MKIII

**Light:**

Manufacturer: Blue Strobe and BlueStar Locator Light Assembly

**Pole Bracket:**

Manufacturer: CALL24  
 Model: Round Pole Mounting Bracket; C24-MKRP-S



## SECTION 4 – CAMPUS GATEWAYS

Campus entrances play an important role in defining campus boundaries and shaping the university's image. These entries serve as a visitor's first impression of the campus and should exhibit the high-quality image that the university wishes to represent. These access points should include site elements such as campus monument signs, unique architectural elements, pavement changes, ornamental landscapes, way-finding and directional signage, and campus art. The incorporation of these elements will enhance the entrance experience, orient visitors on campus, and mark a notable transition to the university environment.



FIGURE 4.1: CONCEPT FOR MEDARY AVENUE PEDESTRIAN ENTRANCE



FIGURE 4.2: EXAMPLE – CAMPUS PIER



FIGURE 4.3: EXAMPLE – CAMPUS ENTRY MONUMENT

# SECTION 5 – CAMPUS WAYFINDING SIGNAGE

Completed in May of 2008, the *Campus Signage and Wayfinding Design Guidelines* lay out a detailed plan for campus signage design and placement. This information can be accessed at: <http://www.sdstate.edu/president/facilities/index.cfm>

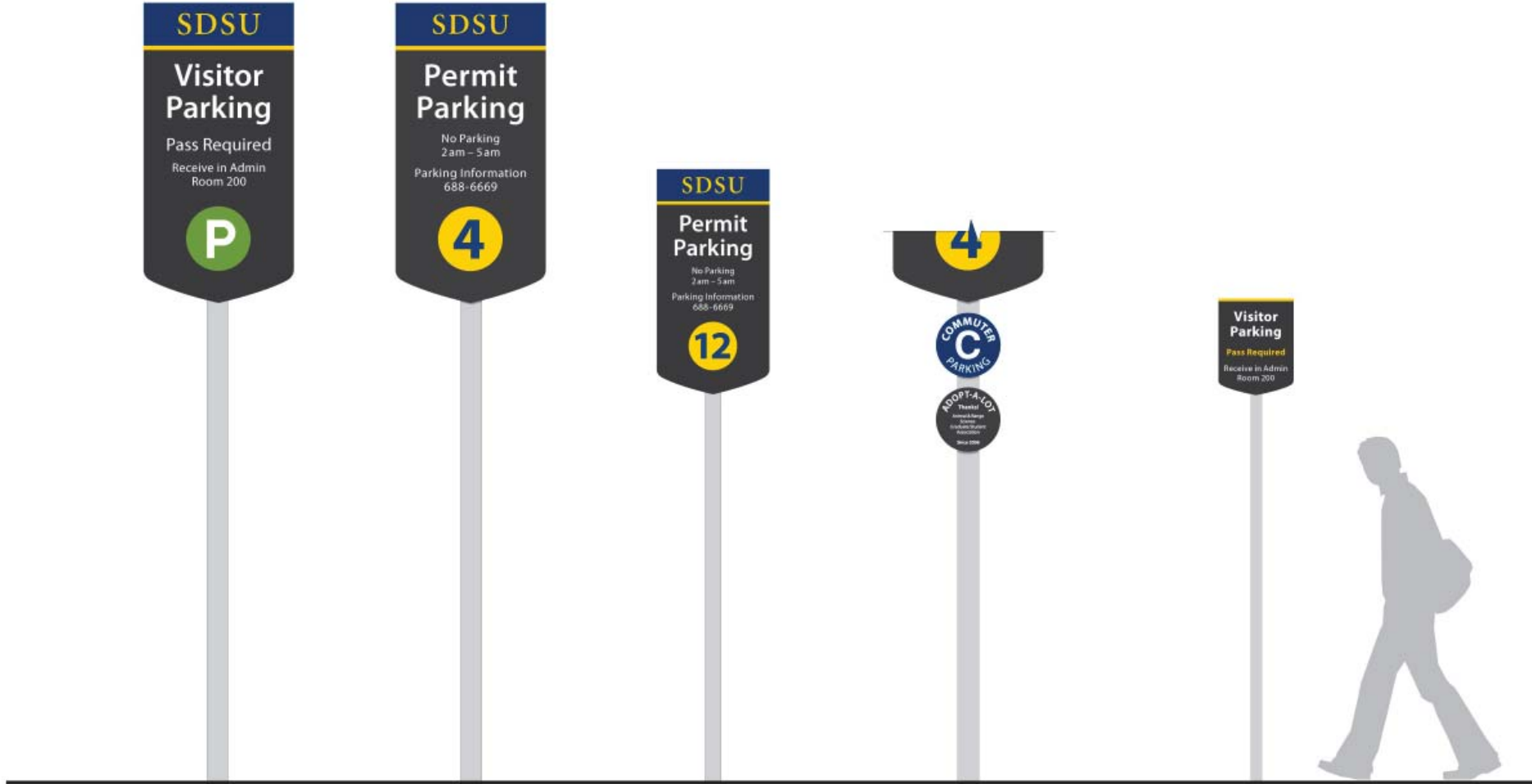


FIGURE 5.1: CAMPUS STANDARD SIGNAGE



## SECTION 6 – SITE FURNISHINGS

As the university strives for a unified campus environment, it is important to maintain a consistency with site furnishings. The following items have been approved as standard furnishings for campus improvement projects:

### **Benches:**

Victor Stanley, Inc. Steelsites Series Model RB-28, or approved equal.

### **Trash and Recycling Receptacles:**

Victor Stanley, Inc. Steelsites Series Model NSDC-36, or approved equal.

### **Picnic Tables:**

Victor Stanley, Inc.'s Steelsites Series Model RND-363, or approved equal.

### **Bike Racks:**

Manufactured and supplied by owner.

The placement of site furnishings should be in pedestrian-friendly and easily accessible locations.

All site furnishings shall be placed on concrete surfaces and securely mounted per manufacturer's recommendations. Verify that placement of site furnishings does not impede pedestrian traffic flow.

Care should be taken to incorporate bike racks in convenient locations, yet in a manner that respects the aesthetic integrity of the campus. Assure a minimum of 5 feet of clear sidewalk width around bike racks for pedestrian circulation (with bikes parked at or attached to the rack).



FIGURE 6.1: CAMPUS STANDARD PICNIC TABLE



FIGURE 6.2: CAMPUS STANDARD BIKE RACK  
(MANUFACTURED AND SUPPLIED BY OWNER)



FIGURE 6.3: CAMPUS STANDARD BENCH

## SECTION 7 – SITE WALLS

When the budget permits, utilize walls with similar materials and construction as adjacent buildings on campus. Walls constructed from brick, precast concrete, or stone have a permanent quality that reflects the institutional sense of place and character.

If budget or project conditions require the use of concrete unit walls, utilize straight-faced unit blocks in a single earthtone color. Consider the location of the wall on-site and the potential for contact with snow melt products that can potentially deteriorate the unit wall face. Make efforts to buffer the walls with landscape beds when contact with snow melt is anticipated.



FIGURE 7.1: EXAMPLE – MASONRY WALL MATCHING ADJACENT BUILDING CONSTRUCTION



FIGURE 7.2: EXAMPLE – STRAIGHT-FACED UNIT RETAINING WALLS



## SECTION 8 – CAMPUS ART

Public art on campus gives the outdoor environment a distinctive identity and helps to shape the university image.

Art location priorities include: campus gateways, outdoor plazas, nodes along pedestrian corridors, near athletic facilities, the facades of university buildings and the public lobbies of popularly visited buildings.

Art pieces shall meet the scale of surrounding spaces and be of a color and material that complements the campus standards. Art shall be durable to the unique South Dakota climate and to the conditions anticipated at its selected final location.

When appropriate, art shall be securely mounted to a sculpture base, preferably of concrete or stone. The installation of the sculpture should include consideration for the inclusion of landscape or other appropriate surroundings. The installation of any piece of art should not provide any hazards to the campus user.

Submissions for placement of art on campus are reviewed and recommended by a campus building subcommittee. Submissions approved by the subcommittee then go to the university president for final review and decision. Upon acceptance, the subcommittee will oversee the art installation and coordinate a dedication ceremony for each new piece of art. Commissioned works shall schedule project update meetings throughout the process to ensure that the final art product ultimately meets the originally submitted and accepted proposal.

Find applications for art submittals at:

<http://www.sdstate.edu/president/facilities/index.cfm>



FIGURE 8.1: EXAMPLE – SCULPTURE IN PUBLIC PLAZA

## SECTION 9 – GENERAL LANDSCAPE DESIGN PRINCIPLES

The campus landscape should be viewed as a functional component that performs just as a building or structure. Decisions related to the campus landscape need to be considered both in relation to a specific site and to how it relates to the campus landscape as a whole.

In general, the campus landscape should:

- Work with the footprint of the campus buildings to create spaces and direct views; not to be designed as an afterthought or solely as decoration;
- Match plantings to the scale of buildings and design to complement architectural features;
- Focus higher maintenance landscape plantings at areas of high visibility (building entrances, campus signage, major pedestrian nodes);
- Provide a dynamic landscape with multiseasonal interest and emphasis on fall color, winter forms, and early spring flowers;
- **Be sustainable and lasting over time; and**
- Be conscious of safety and maintenance.

Plant diversity within plant beds is encouraged but similar plant types should be grouped in mass to provide a greater visual impact, simplify maintenance, and to fit a “university scale” (Example: Consider planting groups of similar plants in quantities of 20s and 30s versus twos and threes).

As an added consideration, take care to include plant species of exceptional interest in the fall, winter, and early spring seasons. These are the seasons in which school is in session, and the times when landscape plants will be prevalently viewed. As these seasons are primarily times when deciduous plants are leafless, plan accordingly to integrate adequate numbers of evergreen plants and ornamental grasses to pique winter interest.

Not only should the greater design principles that are listed above play a role in the design of the landscape, but the particulars of a specific site should weigh greatly on plant selection. How much sun does the site receive? How much moisture will the site receive? What is the soil quality and depth? Will snow melt products be used nearby? These details should all play a part in plant selection and will have an effect on the overall landscape success.



FIGURE 9.1: EXAMPLE – MIXED PERENNIAL PLANTING IN MASS

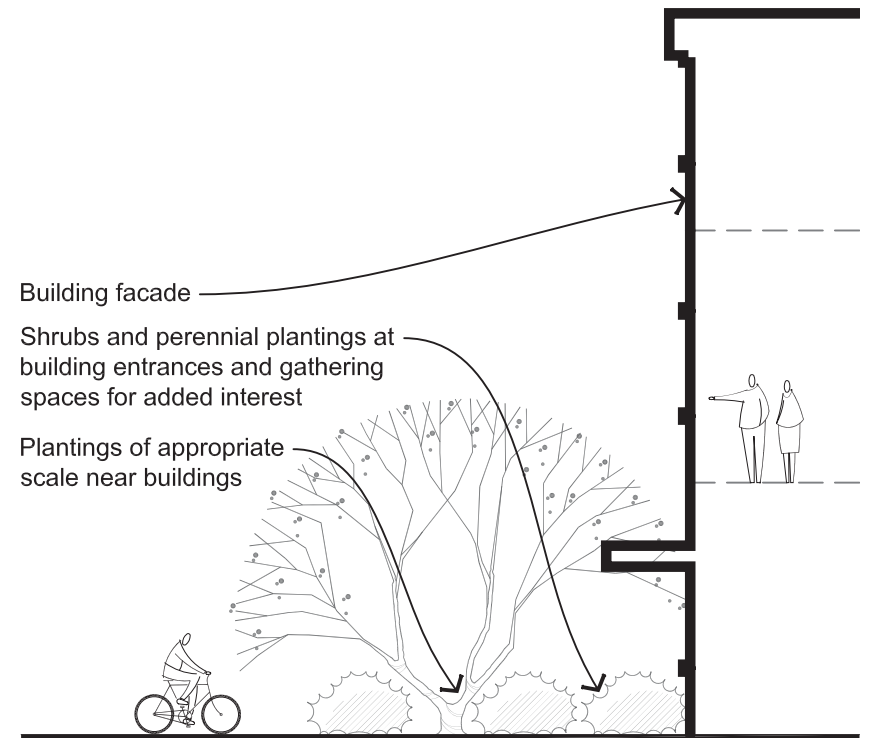


FIGURE 9.2: PLANTINGS AT BUILDING ENTRIES



# SECTION 10 – LANDSCAPE CONSTRUCTION NOTES

## SOIL PREPARATION

Soil is a critical component of the landscape that relates directly to the long-term health and success of turf and plantings. Construction activity often leaves a site with poor soil quality and a heavily compacted soil profile. The result of these conditions is a landscape that requires excessive supplemental water and nutrient input to survive. Correcting these soil conditions prior to seeding and planting will result in a landscape that is more self-sustaining, less dependent on artificial fertilizers, a decreased or eliminated dependence on supplemental irrigation, and faster growing trees and plantings.

Topsoil depth shall be a minimum of 6 inches for lawn areas, 18 inches for landscape beds, and 30 inches for parking islands. Refer to planting details for further topsoil application notes.

Correct soil conditions in lawn and landscape areas on construction sites as follows:

- 1) Maintain grade on construction site at a minimum of 6 inches below anticipated finished grade of site in order to adequately accommodate necessary subgrade preparation activities prior to topsoil placement.
- 2) Loosen compacted subgrade. This allows for root and water penetration into a deeper soil mass, providing plants with an extra water reserve to buffer against heat stress. Loosening the subgrade should be done prior to placing topsoil material.
- 3) Place topsoil. Topsoil should be a uniform mixture of organic matter, sand, silt and clay particles. It shall be pervious, friable and a darker shade of brown. Topsoil should be free of clay lumps, subsoil, grass, weeds, roots, stumps, toxic substances, litter, gravel, stones and other materials greater than 1 inch in diameter. Topsoil shall have a pH of 5.5 to 7.0.

## TOPSOIL AMENDMENTS

When possible, amend topsoil in lawn and plant beds with compost as follows:

- Lawn areas: 2 cubic yards of compost per 1,000 square feet
- Landscape beds: 3-4 cubic yards of compost per 1,000 square feet

Compost material is to be a well-composted, stable and weed-free organic matter; pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1 inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings.

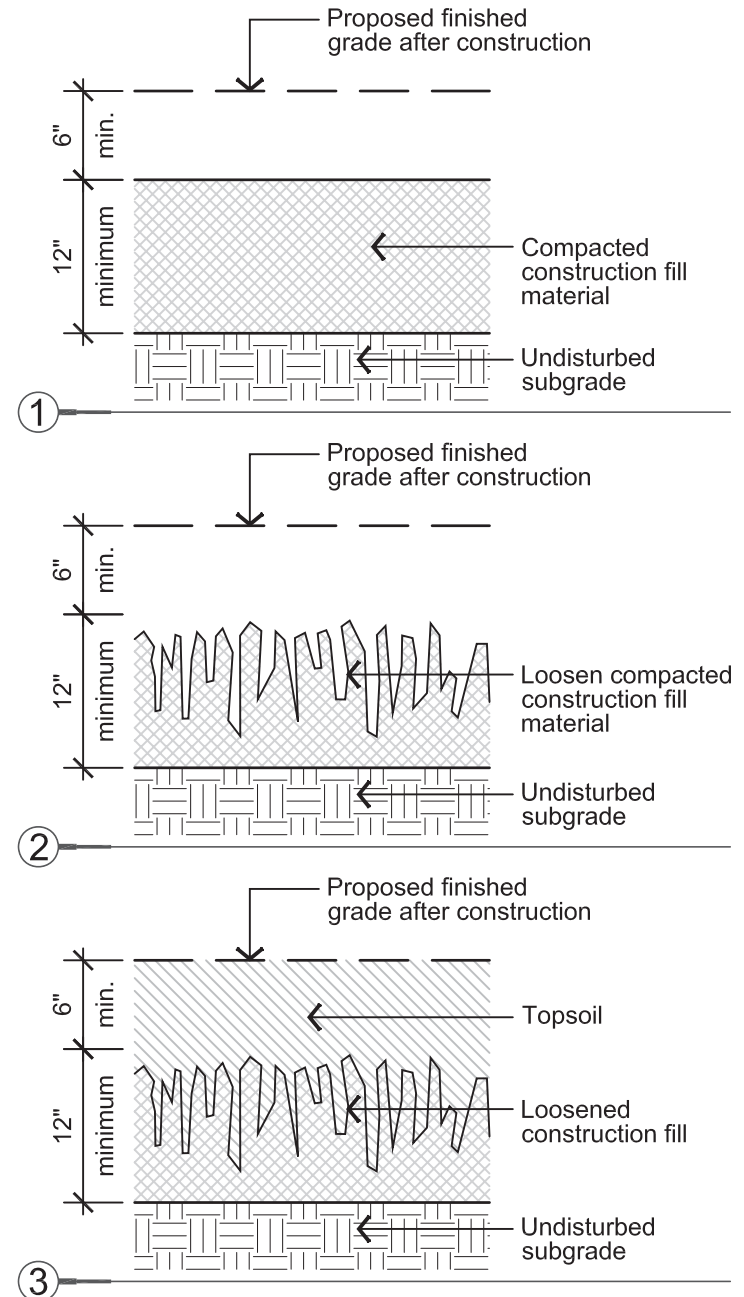


FIGURE 10.1: SOIL PREPARATION NOTES

## PLANTING METHODS

Use suitable topsoil to establish finished grades in plant beds, maintaining minimum recommended topsoil depths. Leave room in the plant beds for the addition of compost. Till plant beds to a 12 inch depth. Add compost material as recommended, tilling it into the top 8 inches of the topsoil. Smoothly outline the edges of all planting beds where indicated on the plans. Rake the soil surface smooth and lightly compact. Set out all plantings beginning with the tree, shrubs, then perennials. Adjust spacing as necessary and install plantings.

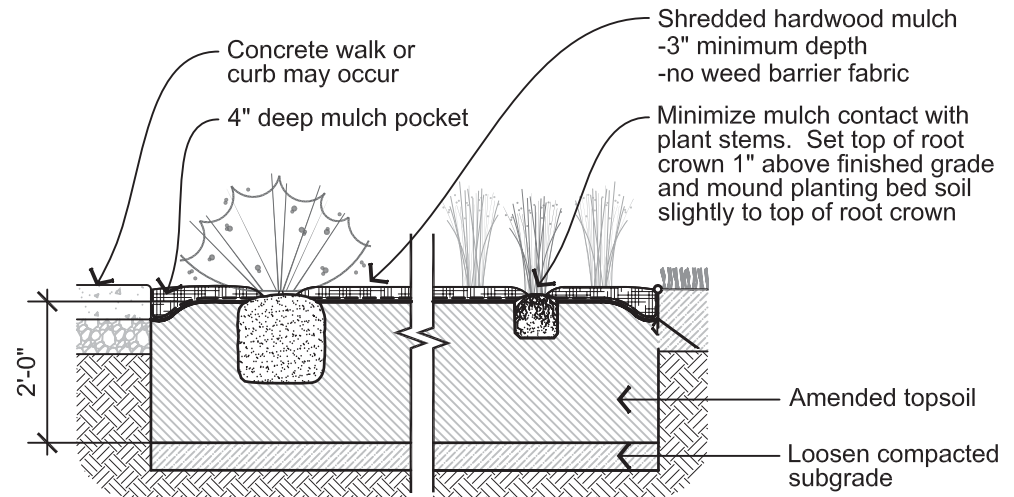
Refer to typical shrub and perennial planting detail in Figure 10.2.

## MULCH

All mulch to be used on campus shall be a shredded hardwood mulch placed directly on the prepared topsoil plant beds (*no weed barrier fabric or plastic*). Mulch shall be clean, fresh, and free from soil, rocks, diseased material and foreign organic and nonorganic matter.

Mulch for tree and shrub beds shall be 3 to 4 inches deep after settlement.

Mulch for perennial beds shall be 2 to 3 inches deep after settlement.



**Note:**

In areas of heavily compacted construction fill, excavate plant beds to a depth of 2'-0" and replace with suitable amended topsoil prior to planting.

FIGURE 10.2: TYPICAL SHRUB AND PERENNIAL PLANTING DETAIL



## TREES

The minimum recommended sizes for trees planted on campus are as follows:

Deciduous Canopy Trees:	2 1/2-inch Caliper
Deciduous Ornamental Trees:	2-inch Caliper
Evergreen Trees:	6-7 foot Height

Refer to the planting detail shown below and the “Preferred Tree List” included later in this document.

Stake all trees 2 inches in caliper or greater. Use 1-1/2 inch by 1-1/2 inch hardwood stakes, driven outside of the edge of the root ball, but within the mulched area. Attach stakes with 1/4 inch twisted natural sisal rope and fabric tree strap. Tighten rope only enough to keep from slipping, still allowing for some movement. Assure that the bearing surface of the tree strap against the tree trunk is a minimum of 1/2 inch. In no case should the rope be in contact with the tree trunk.

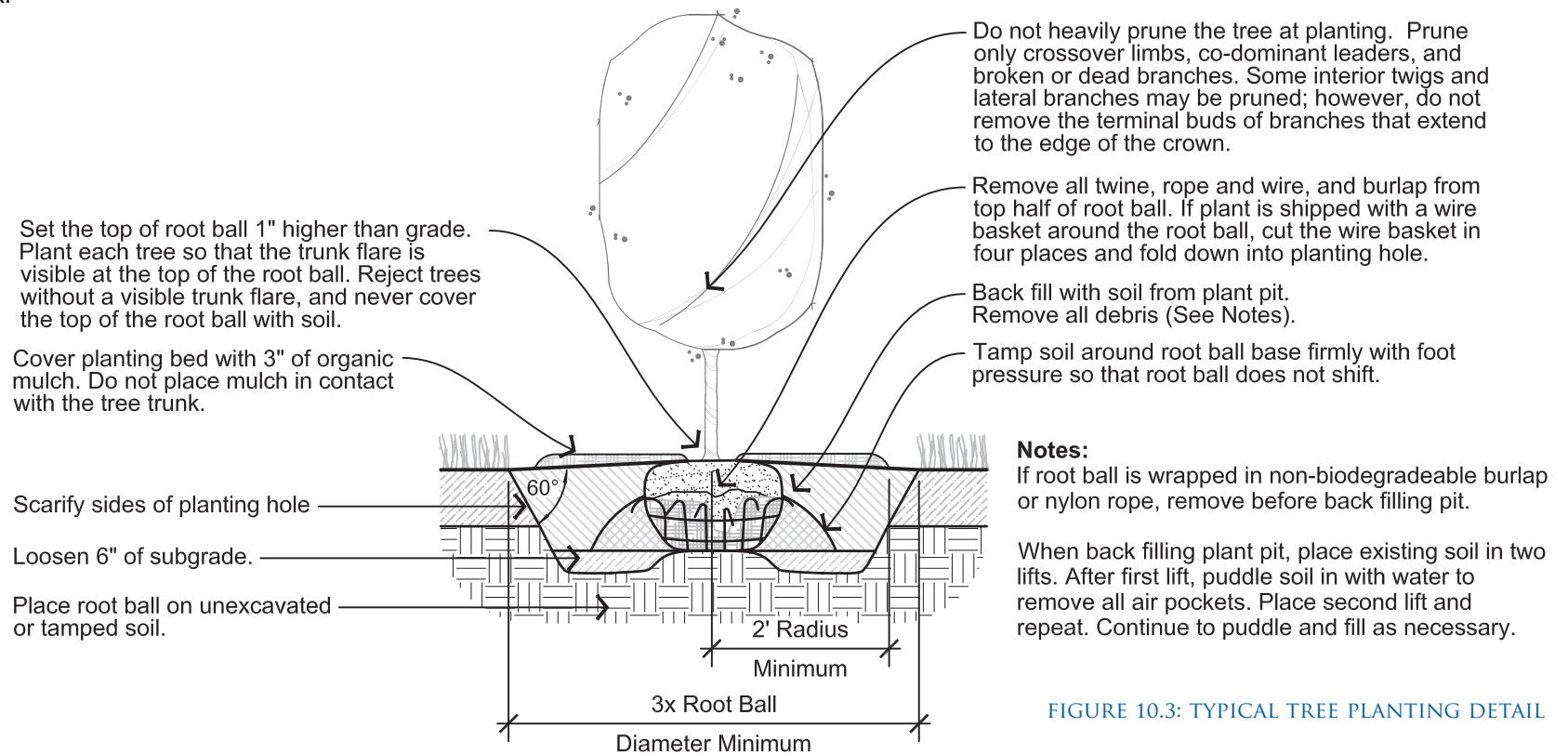


FIGURE 10.3: TYPICAL TREE PLANTING DETAIL

## TURFGRASS

All new turf seed and sod on campus shall be Turf Type Tall Fescue based blend.

To protect the building in areas where turf meets the building facade, incorporate a 1 foot wide concrete mow strip at the foot of the building. The mow strip reduces the potential for mower damage and eliminates the need to follow up mowings with additional manual trimming. The mow strip also provides a separation from the building facade and any irrigation system that may be installed.

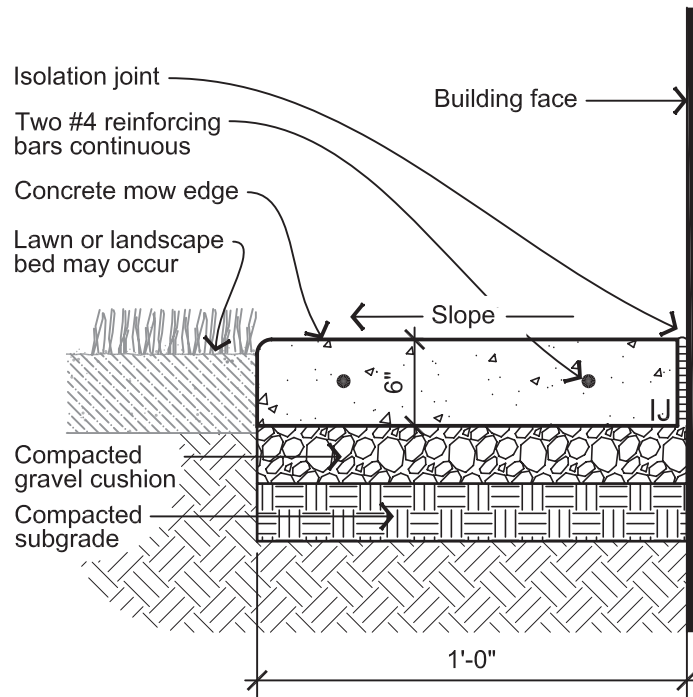


FIGURE 10.4: CONCRETE MOW STRIP DETAIL

## IRRIGATION

Evaluate plant types and turf species prior to planting to select varieties with water needs most suited to each specific site. Choose plants that do not require long term irrigation whenever possible and practical. Where irrigation is determined to be necessary, place plants with different water needs on separate irrigation zones in order to avoid over-watering and plant failures.

## PROTECTION OF EXISTING CAMPUS TREES

Existing trees on construction sites should be protected with fencing at the drip line of the tree. No material storage, parking of vehicles or equipment, or other disruption to this area should be allowed. All of these activities can result in soil compaction or contamination, and the eventual decline and death of the tree. Impacts of this damage may not be evident for several years after construction has concluded.



## SECTION 11 - PREFERRED TREE LIST

This list has been developed in conjunction with the South Dakota State University horticulture faculty as an effort to populate the campus with reliable and diverse plantings. The trees in the following list have been selected for their aesthetic quality, reliability and disease resistance. The campus also has a goal of limiting plantings of any one tree type to 5 percent of the total campus tree population. This list is certainly not all inclusive of trees allowed on campus but it should be considered as a reliable guideline for selecting plantings for the campus landscape.



### Usage Key:

- Not allowed due to over-planting or potential disease issues
- Planting discouraged due to over-planting or potential disease issues
- Planting allowed in limited quantities
- Planting allowed
- Planting encouraged














### DECIDUOUS CANOPY TREES

Scientific Name	Common Name	Notes
■ <i>Acer miyabei</i> 'Morton'	State Street Maple	Rounded form, 35'
■ <i>Acer saccharum</i> 'Jefcan'	Utility Maple	Upright form, 40'
■ <i>Acer x fremanii</i> 'Jeffersred'	Autumn Blaze Maple	
■ <i>Acer x fremanii</i> 'Sienna'	Sienna Glen Maple	
■ <i>Celtis occidentalis</i>	Common Hackberry	
■ <i>Fraxinus</i> Spp	Ash Species	Emerald Ash Borer issues
■ <i>Ginkgo biloba</i> 'Autumn Gold'	Autumn Gold Ginkgo	Non-fruiting male
■ <i>Gleditsia triacanthos</i> var. <i>inermis</i> 'Harve'	Northern Acclaim Honeylocust	
■ <i>Gymnocladus Dioicus</i>	Kentucky Coffeetree	
■ <i>Gymnocladus Dioicus</i> 'Espresso'	Seedless Coffeetree	Non-fruiting male
■ <i>Phellodendron sachalinense</i> 'His Majesty'	His Majesty Cork Tree	Rounded form, 35'
■ <i>Populus deltoides</i> 'Siouxland'	Siouxland Seedless Cottonwood	
■ <i>Prunus serotina</i>	Black Cherry	Upright/rounded form, 40'
■ <i>Quercus bicolor</i>	Swamp White Oak	
■ <i>Quercus macrocarpa</i>	Bur Oak	
■ <i>Quercus rubra</i>	Northern Red Oak	
■ <i>Quercus x macdnaielii</i> 'Clemons'	Heritage Oak	Broad pyramidal form, 50'
■ <i>Quercus x warei</i> 'Long'	Regal Prince Oak	Upright oval form, 40'
■ <i>Tilia Americana</i> 'Boulevard'	Boulevard Linden	
■ <i>Tilia Americana</i> 'Redmond'	Redmond Linden	
■ <i>Tilia cordata</i> 'Greenspire'	Greenspire Linden	
■ <i>Tilia x flavescens</i> 'Glenleven'	Glenleven Linden	Pyramidal form, 40'
■ <i>Salix</i> 'Prairie Cascade'	Prairie Cascade Willow	
■ <i>Salix alba</i> 'Tristis'	Niobe Weeping Willow	
■ <i>Ulmus</i> 'Morton Plainsman'	Vanguard Elm	Rounded, 40'
■ <i>Ulmus japonica x wilsoniana</i> 'Morton'	Accolade Elm	

## ORNAMENTAL TREES

Scientific Name	Common Name	Notes
 <i>Acer triflorum</i>	Three-flower Maple	Upright, 25'
 <i>Acer ginnala</i>	Amur Maple	
 <i>Aesculus 'Homestead'</i>	Homestead Buckeye	Rounded, 30'
 <i>Amelanchier x grandiflora 'Autumn Brilliance'</i>	Autumn Brilliance Serviceberry	
 <i>Betula platyphylla 'Fargo'</i>	Dakota Pinnacle Birch	
 <i>Cercis canadensis</i>	MN Strain Redbud	
 <i>Cornus alternifolia</i>	Pagoda Dogwood	
 <i>Crataegus crus-galli var. inermis</i>	Thornless Cockspur Hawthorn	
 <i>Maackia amurensis</i>	Amur Maackia	Rounded, 20'
 <i>Malus Spp</i>	Crabapple Species	Owner Requested Omission
 <i>Populus tremuloides 'Pikes Bay'</i>	Quaking Aspen	Upright, 30'
 <i>Prunus maackii</i>	Amur Chokecherry	
 <i>Pyrus faurei 'Westwood'</i>	Korean Sun Pear	Rounded form, 20'
 <i>Syringa reticulata 'Ivory Silk'</i>	Ivory Silk Japanese Tree Lilac	
 <i>Sorbaria alnifolia</i>	Korean Mountainash	Rounded form, 30'
 <i>Viburnum lentago</i>	Nannyberry Tree	

## EVERGREEN TREES

SCIENTIFIC NAME	COMMON NAME	NOTES
 <i>Abies koreana</i>	Korean Fir	Pyramidal form, 40'
 <i>Larix decidua</i>	European Larch	
 <i>Larix siberica</i>	Siberian Larch	Pyramidal form, 40'
 <i>Picea glauca 'densata'</i>	Black Hills Spruce	
 <i>Picea meyeri</i>	Meyers Spruce	Pyramidal form, 40'
 <i>Picea omorika</i>	Serbian Spruce	Narrow pyramidal form, 30'
 <i>Picea pungens var. glauca</i>	Colorado Blue Spruce	Owner Requested Omission
 <i>Pinus flexilis</i>	Limber Pine	Pyramidal form, 20'
 <i>Pinus koraiensis</i>	Korean White Pine	Pyramidal form, 45'
 <i>Pinus ponderosa</i>	Ponderosa Pine	Owner Requested Omission
 <i>Pinus strobus</i>	Eastern White Pine	Pyramidal form, 40'
 <i>Pinus sylvestris</i>	Scotch Pine	
 <i>Pseudotsuga menziesii</i>	Douglas Fir	Pyramidal form, 50'



## SECTION 12 - SUPPORTIVE LANDSCAPE IMAGERY



### DROUGHT TOLERANT LANDSCAPE PLANTINGS

A wide variety of trees, shrubs and perennials are available as landscape options that require no supplemental irrigation once established.



### MASS PLANTING SHRUBS

Mass shrub plantings, such as gro-low sumac are a low maintenance option for areas where turf is not practical, such as parking islands.



### ORNAMENTAL GRASSES

Grasses provide a vertical element in the landscape and offer multiseasonal interest that can extend into the winter.



### MASS PLANTING PERENNIALS

Mass plantings of perennials, such as daylilies, create a low maintenance plant bed with strong visual impact while in bloom.





#### SEATING NODES

Seating nodes along primary pedestrian corridors provide areas for quiet reflection or social interaction.



#### COMPLEMENTARY SITE CONSTRUCTION

Landscape elements can be designed as an extension of the adjacent architecture, utilizing similar materials and design language.



#### CAMPUS CORRIDORS

Landscape plantings can be used to reinforce the aesthetics of primary campus corridors; directing views and emphasizing walk connections.



#### PLANTINGS AS STRUCTURE

Trees and plantings can provide structure to a space, creating the "walls" and "ceiling" of an outdoor room.





#### ELEVATED LANDSCAPE BEDS

Elevated beds create dimension within an outdoor space and protect the plantings from foot traffic, snow melt and mulch wash-out.



#### HIGHLIGHT LANDSCAPES

Landscape can be used to frame unique building elements, shape views on campus or ground elements, such as sculpture on a site.





#### PLANT SELECTION

Plant selection should take into account the building scale, the intended function of the planting, and the unique growing conditions of the site.



#### BERMED TURF AREAS

Bermed turf areas, when located out of primary pedestrian traffic flow, create dimension within the landscape.



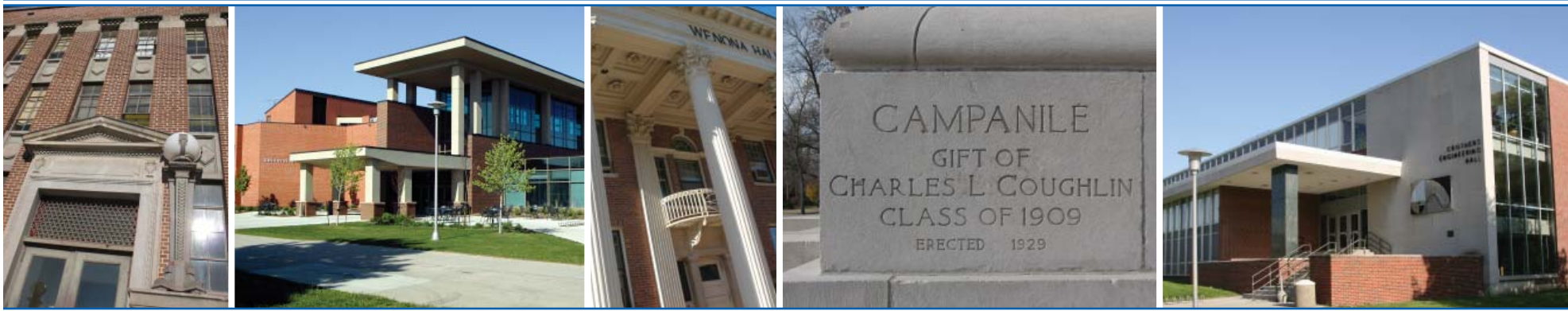
#### SPRING BULBS

Incorporating tulip, daffodil or allium bulb plantings at high impact locations add an early spring flowering element to the landscape.



# SOUTH DAKOTA STATE UNIVERSITY

## APPENDIX B – CAMPUS ARCHITECTURAL GUIDELINES



SEPTEMBER 2012







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TOMPKINS ALUMNI CENTER CLOCK TOWER

# INTRODUCTION

Each new facility improvement project at South Dakota State University should be consistent with the campus master plan or carry the burden of showing how it improves upon the plan. This appendix document acts as a companion set of details to further assist in facility development. These guidelines outline how new construction and renovated spaces are to be created and maintained with consideration for neighboring structures and the function of these facilities both on campus and in the surrounding community.

This document is intended to serve as a flexible tool for administration and design consultants to utilize in planning and designing facility improvements. The recommendations will help facilitate the development and growth of the campus in an intentional, yet dynamic, manner. This document intentionally does not provide specific recommendations related to building construction, but instead establishes the flexibility to develop creative solutions appropriate for campus construction.

Through a deliberate planning process, the campus can be developed into a functional, attractive and memorable place. It is also important to recognize that the physical characteristics of the campus can play an integral role in attracting and retaining the best students, faculty and staff. A campus of distinction, such as South Dakota State University, brings diverse people and ideas together, creating potential for intellectual and social exchange. The campus itself is not just a backdrop, but can actively facilitate learning and collaboration opportunities and create a sense of pride for its community. Campus buildings serve as meeting places and venues for events such as athletics, music, arts and exhibits, and these spaces can help inspire as well as strengthen the community. If facility planning is successful, the resulting environment will reflect South Dakota State University's mission which includes a commitment to enduring excellence and a respected heritage. Successful campus planning will also affirm the leadership position that the university has in the Brookings community, the state of South Dakota, and beyond.



COUGHLIN CAMPANILE



## SECTION 1 – PURPOSE AND INTENT OF GUIDELINES

The identity of campus is influenced by its individual buildings, by groups of buildings within districts, and by building connections to open spaces and greens. New buildings, additions to existing buildings, as well as built outdoor spaces should be successful at all of these levels, contributing to a sense of community and cohesive unity, but also demonstrating design excellence individually. The purpose of establishing architectural design guidelines is to ensure that campus facility development is respectful of historic campus buildings, while maintaining an architectural language on campus that is unique and expressive of South Dakota State University.

This document outlines the most appreciated architectural elements shared by buildings on campus. Campus buildings will not be identical, but should complement and correspond to each other through the use of materials, scale, proportion, architectural detail and connections to landscape and open space.

These guidelines are necessary to avoid designs that become disruptive to a cohesive visual character and recognition of the campus as a whole. The guidelines are intended to be a flexible framework, creating a look not of sameness, but of accord. It should reflect a commonality to campus users and visitors and convey a collegiate feel that is unique among institutions of higher education.



SYLVAN THEATRE



## SECTION 2 – ARCHITECTURAL VALUES

### 2.1 QUALITY

As the leader in higher education in South Dakota with regional and national recognition, campus facilities must reflect that prominence and prestige. A high standard of excellence must be set for campus planning and architecture in appearance, life-safety, accessibility, construction durability, long-term flexibility, low energy and environmental impact, and technology and innovation.

Consistent excellence must be seen in all aspects of the campus' physical presence, including the thoughtful integration of new buildings and spaces into the existing environment.

Building designs should be attractive and functional, with consideration for long-term operations and maintenance. Creating and supporting facility improvements that acknowledge the climate of South Dakota will result in the most success. The beauty of a design should be able to be sustained long into the future.

As a recognized research institution center, innovation should be instilled into building design and systems. When feasible, new architecture should incorporate the latest in proven building technologies.



AVERA HEALTH AND SCIENCE CENTER



ADMINISTRATION BUILDING



Facility construction and improvements represent a significant investment by the university and the State of South Dakota. Each change or addition has a profound impact on the overall campus landscape for years to come, and thoughtful planning can ensure that the impact is a positive one. Therefore, it is essential that construction be accomplished intentionally and with the highest standards of quality possible within the funds available. At times, square footage may need to be adjusted in order to maintain the desired level of quality. Programmatic needs must be met. High standards for material selections, systems choices and design components will contribute to building permanence and excellence that impacts prospective students, faculty and staff.



ABBOTT, SPENCER AND THORNE HALLS



LINCOLN MUSIC HALL



## 2.2 SUSTAINABILITY

All new campus facilities are required to be designed to achieve a minimum of LEED Silver Certification. Building construction alternatives should be evaluated that explore sustainable performance beyond this requirement.

The university intends to develop buildings that require less maintenance and operational investment over time while continuing to meet the needs of users and enhance the campus aesthetic. This can be accomplished by extending the renewal cycles for building materials, by increasing building energy efficiency, and by reducing water consumption of the building users.

These design guidelines support the achievement of fiscally sound and environmentally responsible development and the wise stewardship of all campus resources. Examples of the type of activities are:

- 1) When possible, design facilities and building systems to save non-renewable resources through the use of substitutes, recycling, and better recovery and reuse.
- 2) Include consideration for maintainability over time through potential benefits from building lifecycle cost analyses, alternative performance systems, and other strategies at time of design and construction.
- 3) Promote ongoing energy conservation practices, water conservation and waste reduction.
- 4) Address alternative transportation opportunities by developing a campus environment that encourages walking, bicycling and future transit expansion.

Campus buildings are designed for a 50-year life. Lifetime operating costs of these buildings will most likely exceed the original cost of construction. Reduction of these long-term operating costs needs to be considered when planning for new facilities. Building designs should be durable and readily maintainable, and should be flexible in design in order to accommodate repurposing of spaces to meet changing programmatic needs. This may translate into higher initial construction costs, but will ultimately reduce lifetime operating costs.

Building design should maximize flexibility to satisfy the varied demands of the present and future. The guiding standard should be that the building envelope be designed for 50 years of service, with a 15- to 20-year building interior life. A building should be able to accommodate some level of adaptation and reconfiguration without exorbitant expense or structural modification.

New architecture should incorporate the latest in proven sustainable building technologies. When possible, building placement should capitalize on solar heat gain/loss in the appropriate months and maximize the introduction of natural light and natural ventilation through the use of operable windows.



JACKRABBIT VILLAGE



## 2.3 STEWARDSHIP

Stewardship is the sensible and responsible management of resources, including not only the living landscape but also the many buildings that comprise the campus.

It is the intent of these guidelines to encourage responsible stewardship of all existing buildings. Each renovation project, therefore, should include an investigation of all aspects, systems and features impacted by the specific intervention. Conditions discovered during project evaluation, design or construction that are in need of improvement cannot be ignored.

Even in cases where budgetary or schedule constraints necessitate only a partial remediation, any building deficiencies brought to light are to be examined and documented so that they may be addressed at a future time. Additional renovation projects must be estimated and funded to include remediation of critical code violations.

All new design projects should be adaptive and flexible for future growth of the campus. Where possible, expansion opportunities should be part of the original design planning so that growth of the building footprint is orderly. All new construction should be adaptable in design such that changing programs and users are easily accommodated with renovations.

Standardize building materials and systems wherever possible to promote and take advantage of uniformity with regard to material/system technical knowledge, replacement cycles, replacement techniques, tools required, materials required, materials availability, etc. Include consideration for the available level of grounds maintenance and snow removal for all exterior features.

Exemplary planning, design and development is an obligation in response to the resources provided. South Dakota State University, one of the South Dakota Board of Regents institutions, is accountable to students, faculty and staff as well as to the people of South Dakota to make good decisions about campus facilities. Deliberate consideration must be given to design campus buildings and spaces considering lifecycle costs, not only the initial construction costs. Careful analysis and decision-making are required to ensure that the university receives the greatest possible value in relation to the funds expended.



SOLBERG HALL



## SECTION 3 – ARCHITECTURAL DESIGN GUIDELINES

### 3.1 SHAPE, COLOR AND MATERIALS

Many factors contribute to the image the university reflects, thus each new facility and site improvement project shall reflect the integrity and image of the University as a whole. Design styles change with time, but it is important to retain a sense of unity. This can be achieved through the use of standard materials, color, texture, and form that are deemed as acceptable. All new facility and site improvements should follow these standards including renovations and additions to existing buildings.

The building color palette shall be closely tied together with the choice of materials. Designers are encouraged to incorporate the use of locally sourced materials. Brick is to be the predominant building material. Masonry and glass are secondary. Those materials which create “South Dakota State University Blend” should be emphasized. Other materials should not dominate the overall appearance.

By setting a standard, the university is better able to maintain unity, without prohibiting contemporary architectural styles as long as they meet the set standards, are sensitive to the environment, and blend with the existing campus.



ADMINISTRATION BUILDING



### 3.2 BUILDING SIZE

Buildings should be in scale with the surrounding structures along with the public spaces that are adjacent to them. Proportion, massing and scale of all new construction shall correspond similarly to nearby buildings and general campus character. Scale should acknowledge surrounding context and establish the human scale. Consider both pedestrian scale at the face of buildings and from viewing corridors afar. The ratio of building height to open space shall be 1:1.5 or 1:2 to create comfortable enclosed spaces rather than wide open sprawl. This should be accomplished using two- to four-story buildings. Building height should complement surrounding architecture.

### 3.3 FACADE PROPORTION

The scale and proportion of a building impacts the sense of place within the campus. New buildings and additions should acknowledge surrounding context, but recognize and establish human scale. The design of the building should take into consideration how the design affects a person standing at the face of the structure; similarly the building's materials can influence how the building scale is read.

Building facades that face major pedestrian malls should be treated as front porches with seating, plantings, lights, etc. Entrances should be emphasized. Areas of pedestrian proximity should be given the most consideration, including building entries, arcades, shade elements and first-story features on multistory buildings.



LINCOLN MUSIC HALL

### 3.4 TRANSPARENCY

New campus buildings should be designed to blend public indoor and outdoor spaces and to create spaces that are experienced by users in multiple ways. The blurring of the indoor and outdoor boundary can be achieved through the use of transparent dividers and openings, such as large windows or a glass facade. The construction of the new Wellness Center, Avera Health and Science Center and the University Student Union are good examples of transparency on university buildings. This transparency increases the visibility of public spaces on campus. It draws

attention to both the interior and exterior space and can enhance the sense of pride in the university environment. As the university seeks to unite users through inviting public spaces, transparency should be encouraged. As a goal, a minimum of 60 percent surface area of the ground level of buildings should be glazed, and at least 30 percent surface area of upper levels of buildings should be glazed. Maintaining these transparency levels will further enhance and define the overall campus image.



WELLNESS CENTER



### 3.5 BUILDING TYPES

The campus contains a diverse mix of architectural styles, reflective of their individual eras of design and construction. The thoughtful integration of new building additions within the existing campus fabric will require careful consideration for the scale, proportion, form, material and location of existing buildings within the campus.

The university does not have a set of standards that prescribe a specific architectural style for new construction on campus. Instead, new buildings should be designed to fit cohesively within the existing neighborhoods and should reflect the current state-of-the-art technology in building construction. In this way, new buildings become an evolving record of architectural trends and campus life, and add diversity and variety to the campus fabric.

Buildings added to campus should not create a look of sameness, but of accord and should add to the cohesive visual character and recognition of the campus as a whole.

### 3.6 MASSING AND BUILDING SITES

Locations for new buildings, building additions and open space development should be compliant with campus master planning. Proximity to infrastructure and utility systems should be considered.

Care should be taken to site the building in a way that creates a positive connection between the building, walkways and outdoor spaces. For easy foot traffic navigation, all building entrances need to be placed relative to walking access, regardless of street entrance access. All entrances should appear to be main entrances, welcoming and orientating the visitor. There should be no back door access.

The building should acknowledge the setback or alignment of adjacent buildings. Adjacent buildings should also be studied in regard to their entry locations, potential for shared plaza and/or entry arrangements, and for the development or enhancement of outdoor spaces and spaces between buildings. The location of building service entrances also deserves special consideration. The view from and to existing campus landmarks should also be analyzed and incorporated when siting a new building.

Where applicable, buildings should be designed to contribute to the buildings, streets and pedestrian ways on each side. Building entrances are frequently meeting and gathering places and should be designed to encourage interaction. Gathering spaces should be designed inside the building, particularly at the entrance as well as outdoor gathering locations with inviting furnishings. The activities of the university should be visible to those passing by. Windows should be placed to light and provide views to internal spaces, but also to give walks and streets the security and interest that comes from the visibility of adjacent activity.

Each project should take responsibility for improving adjacent streets and pedestrian ways, by including funds in its budget to bring these adjacent areas up to campus standards. Projects should incorporate total site development of the adjacent grounds which may include plaza space, seating and other site furnishings, lighting, grading and drainage, retaining walls, irrigation systems, service delivery access, and parking as necessary.

Planting design should receive the same level of attention and budget stability accorded to buildings and infrastructure.

### 3.7 SERVICE AREAS AND UTILITIES

Areas devoted exclusively to building loading and services, to the removal of trash, or to mechanical equipment should be designed so that their visibility from public areas, including walkways, is minimized. Service, delivery and refuse locations shall be grouped together and tucked into infrequently used portions of campus whenever possible. Rooftop mechanical equipment should be enclosed in climate controlled structures that are integrated into the building design. Acoustic mitigation should be required to ensure the quality of the pedestrian environment.

### 3.8 ACCESSIBILITY

The university is committed to providing equal access to its facilities throughout campus for those individuals with mobility impairments. The development and improvements of all campus facilities must comply with the Americans with Disabilities Act (ADA) guidelines and the accessibility requirements of applicable building codes. All walkways essential to reaching a building or program are to be built to the latest ADA guidelines, providing equal access to public spaces. Accessible parking should be developed in a manner that allows for flexible placement of accessible parking stalls that responds to the changing needs of the students, faculty, staff and visitors.

### 3.9 BUILDING LIGHTING

All buildings on campus require lighting for safety and accessibility. Some buildings, however, are good candidates for the use of architectural accent lighting. Accent lighting can create a safer, more aesthetically pleasing nighttime experience on campus. Accent lights can also enhance building facades and ornamentation.

All architectural accent lighting fixtures shall be well-hidden from the visible eye. Lights should not distract from the intended character of the building, or be located in exposed areas of landscape beds. Light design should flow seamlessly into the building's architectural features to minimize visibility of light equipment during daylight hours. Mount all lights appropriately to both mounting material and weather resistance. Minimize light glare and focus light fixtures to shine light on intended areas only. Use glare shields, louvres or barn doors to prevent light pollution.

### 3.10 HISTORIC RESTORATION/PRESERVATION

The campus contains a number of historically significant buildings including the Coolidge Sylvan Theatre, Coughlin Campanile, the Experimental Rammed Earth Machine Shed and Wall, Woodbine Cottage, Wenona Hall and Wecota Hall, which are listed on the National Historic Register. Work on these facilities should be sensitive to historic status of the building and its materials, and preservation should take precedence over demolition whenever possible.



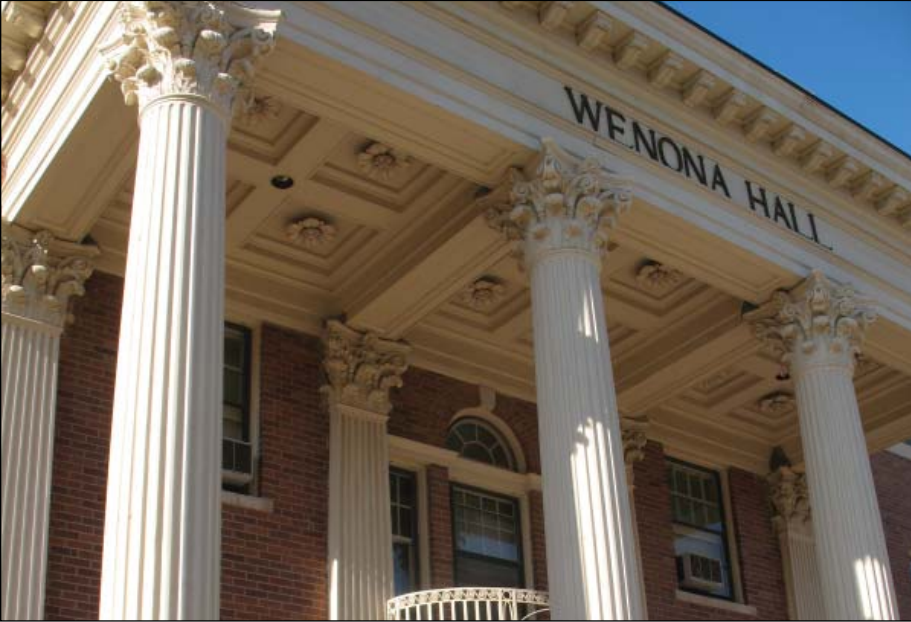
SOUTH DAKOTA ART MUSEUM



SECTION 4 – CAMPUS ARCHITECTURAL IMAGERY



WECOTA HALL



WENONA HALL



LINCOLN MUSIC HALL





AGRICULTURAL HERITAGE MUSEUM



OLD HORTICULTURE BUILDING





PERFORMING ARTS CENTER



UNIVERSITY STUDENT UNION



CROTHERS ENGINEERING HALL