

Sam Houston

STATE UNIVERSITY
A Member of The Texas State University System



2008 Campus Master Plan

The spirit of citizenship and Houston
was first to be the first students. And
there is no compromise in the building
America's first great university of
Sam Houston State University
1829

2008 CAMPUS MASTER PLAN

2008 CAMPUS MASTER PLAN



A measure of a life is its service.
—Sam Houston

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PRESIDENT'S LETTER



Dear Friends:

Sam Houston State University, like the great man for which it is named, has continually evolved to meet new and exciting challenges. Over the past decade, the citizens of Texas have asked us to educate more students than ever before. To ensure academic excellence in the future, we have paused to assess the physical requirements of our campus and define a road map for how to move forward.

We see the 2008 Campus Master Plan as a living, flexible document that will allow us to make prudent decisions about how best to develop the Huntsville campus in the years to come. This document represents a ten-month planning process, which has included the input of students, faculty, staff, administrators, and community representatives. It is truly our collective plan for Sam Houston State University.

I invite you to use this document to help protect what is sacred, provide what is needed, and dream about the future. We are all stewards of the academic traditions of Sam Houston State University. Now is the time for us to move this campus, this place, and this Grand Old University into the future.

Sincerely,

A handwritten signature in black ink, reading "Jim Gaertner". The signature is written in a cursive style.

Dr. Jim Gaertner

EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY



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SOUTH ACADEMIC QUAD

The Executive Summary, also produced as a stand-alone report for distribution to a wider audience, provides a broad overview of the master plan and its recommendations. Most of the elements that are discussed in the Executive Summary are explored in more detail in the Technical Report; however, a few general topics are only discussed in the Executive Summary. These topics include:

- Institutional Profile
- Why a Master Plan
- Planning Process
- Master Plan Illustration

The Technical Report provides specific recommendations for each planning system including campus organization, buildings and facilities, infrastructure, vehicular circulation, bicycle circulation, pedestrian circulation, open space, stormwater, and community interface. It also offers detail into the phasing and implementation of the first 6 years of the master plan.

INSTITUTIONAL PROFILE

Founded in 1879 as Sam Houston Normal Institute, Sam Houston State University (SHSU) is one of eight institutions within The Texas State University System. There are four campuses administered by SHSU: the main Huntsville campus, The Woodlands University Center, the Gibbs Ranch agriculture campus, and the University Camp. Of the nearly 17,000 students currently enrolled at SHSU, all but about 1,000 attend the Huntsville campus, for which this master plan was developed.

Academically, the university is organized into five colleges: Arts and Sciences; Business Administration; Criminal Justice; Education; and Humanities and Social Sciences. While the student population is predominantly undergraduate (about 88 percent), the university offers 52 master's and 5 doctoral programs. All of the post-graduate programs are offered in the College of Education, College of Humanities and Social Sciences, or College of Criminal Justice, which are centers of excellence for the university. The university prides itself on its intimate class size and student experience, highlighted by an exemplary student:faculty ratio of just 20:1.

The Huntsville campus has existed since 1851, when Austin Hall was built to serve Austin College. The iconic Greek Revival structure is considered SHSU's signature building and is believed to be the oldest university building west of the Mississippi River. Today, the campus is roughly 272 acres and is comprised of more than 100 buildings that are strategically located on the highest point between Houston and Dallas.



University Mission

Sam Houston State University is a multicultural institution whose mission is to provide excellence by continually improving quality education, scholarship, and service to its students and to appropriate regional, state, national, and international constituencies.

University Goals

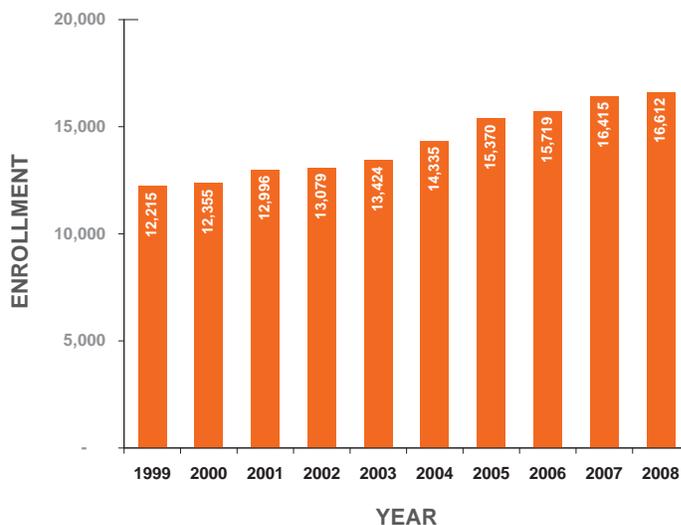
- Promote students' intellectual, social, ethical, and leadership growth.
- Recruit and retain qualified, dedicated faculty and support staff.
- Recruit and retain qualified, motivated students.
- Provide the necessary library and other facilities to support quality instruction, research, and public service.
- Provide an educational environment that encourages systematic inquiry and research.
- Promote and support diversity and provide for equitable opportunities for minorities.
- Offer a wide range of academic studies in preprofessional, baccalaureate, master's, and doctoral programs.
- Collaborate with other universities, institutions, and constituencies.
- Provide instructional research and public service through distance learning and technology.

WHY A MASTER PLAN

Over the past decade, SHSU has averaged 3.25 percent growth per year. As one of the fastest growing universities in Texas, there has been a tremendous challenge to continually meet the needs of this burgeoning student population. The campus has had extensive pressures placed upon it, from over-programmed recreation fields to a deficiency of research and teaching laboratories. If the intimate learning experience for which SHSU is known is to continue, the university has to expand and diversify the quantity and quality of the academic environment.

When the last master plan was completed in 2000, the campus was just beginning to see the growth that has defined the last decade. Enrollment estimates were exceeded in a fraction of the expected time frame. As a result, the campus has already outgrown the plan that was supposed to last until 2010.

This new master plan is guided by the patterns of the past and demographic realities of the future. As the forecast for student enrollment continues to rise, the university is poised to begin a major building initiative. This effort is intended to both rectify past spatial shortcomings and accommodate facility needs for a larger future student body. The 2008 plan defines a new trajectory for growth that is realistic and visionary. It is important to reiterate that this master plan is not suggesting growth; rather, it is designed to provide flexible guidance should the university and its leadership desire growth.



total SHSU enrollment from 1998-2007 has averaged 3.25 percent growth per year.





Planning Challenges

- The student population has grown at an unprecedented rate over the past 10 years.
- The campus has become landlocked in an increasingly urban context, making expansion complicated.
- Academic building development has not kept up with student population growth, creating an immediate need for certain space types.
- Surface parking lots are the primary developable areas on the campus, making additional parking structures a necessity.
- Several of the obvious expansion zones are occupied by small, inefficient buildings.

What a master plan is...

A master plan is a forward-thinking planning document that is a tool for developing the physical elements of the campus in the future.

What a master plan does...

- Provides a flexible framework for campus growth.
- Establishes priorities for capital improvements.
- Creates synergistic adjacencies between on- and off-campus uses.
- Sets guidelines for incremental improvements to make long-term change.
- Helps to define and enhance the spirit of place.

SHSU 2008

PLANNING PROCESS



To reach out to the entire university community, the planning team:

- Gathered over 450 comments on the existing campus during three open houses.
- Held two additional open houses to obtain feedback.
- Interviewed department representatives from each college.
- Maintained a web site and e-mail address open to everyone.

A sound process may be the most important part of any master planning exercise. SHSU developed an inclusive, consensus-oriented committee structure to provide continuity and campus-wide representation. The planning process included faculty, students, staff, administrators, regents, and community leaders. Each of these participants guided decision-making from beginning to end, providing valuable counsel to the planning team and gaining “ownership” of the major ideas and core concepts.

This ten-month planning process was divided into four major phases: Discovery, Alternatives, Refinement, and Documentation. The Discovery phase included data collection, interviews and meetings, physical analysis of existing conditions, and programmatic projections for all elements of the campus. The Alternatives phase tested possible futures. This phase explored three divergent approaches to developing and organizing the campus. The Refinement phase combined the best alternatives into a preliminary and then final plan. This portion of the process allowed users to test and refine the specific recommendations of the plan. Finally, the Documentation phase included the creation of the final illustrative graphics and the packaging of this document.

The diagram on the facing page illustrates the two aspects of the process: first, how often each committee or group provided input, and second, the progression of products from Discovery to Documentation over ten months.

Master Plan Committee Structure

- EC** *Executive Committee:*
President, Vice Presidents, and Select Regents
- AC** *University Advisory Committee:*
College Deans and Department Heads
- CC** *Community Advisory Committee:*
City and County Officials, Including the Mayor
- FG** *Focus Groups:*
Eight Groups of University Experts Including Academics, Student Affairs, Space Needs, Residence Life, Athletics, Infrastructure, Safety & Mobility, Finance & Operations, and Partnering & Outreach
- OH** *Open Houses:*
Forums Open to Everyone

DISCOVERY



Interviews & Observations



Programming & Analysis

ALTERNATIVES



A



B



C

REFINEMENT



Preliminary Plan



Draft Plan

DOCUMENTATION



Executive Summary



Master Plan Report

October 2007

session # 1
 EC

November 2007

December 2007

session # 2
 EC AC CC FG OH

January 2008

session # 3
 EC AC

February 2008

March 2008

session # 4
 EC AC CC FG OH

April 2008

session # 5
 EC AC

May 2008

June 2008

session # 6
 EC AC CC FG OH

July 2008

session # 7
 EC

August 2008

THE 2008 CAMPUS

The SHSU campus is located in Huntsville, Texas, less than 1 mile from the historic downtown Walker County Courthouse Square. The campus contains approximately 3.5 million gross square feet (gsf) of buildings and includes land holdings adjacent to Interstate 45 (I-45). The current enrollment is nearly 17,000 students, with 20 percent of the student body living on campus.

At its core, the university is organized around a series of beautiful open spaces and lively academic buildings. The historic quadrangle and Sam Houston Plaza frame the campus center, defining the character and charm of the institution. As a foundation, these open spaces set a precedent that can be extended into newer and underdeveloped portions of campus.

To understand and ultimately establish the parameters of campus development, the planning team performed a rigorous analysis to identify the strengths and weaknesses of the existing campus fabric. The systems that were analyzed included: campus and community land use; buildings and facilities; vehicular circulation; parking; pedestrian movement; open space; infrastructure; and stormwater. One of the more important outcomes of the analysis was the identification of long-term building demolition candidates. Each facility was scrutinized by planners, architects, and mechanical engineers using three criteria:

1. Highest and Best Use (Land Use and Density)
2. Building Condition and Quality (Mechanical and Structural)
3. Long-Term University Need

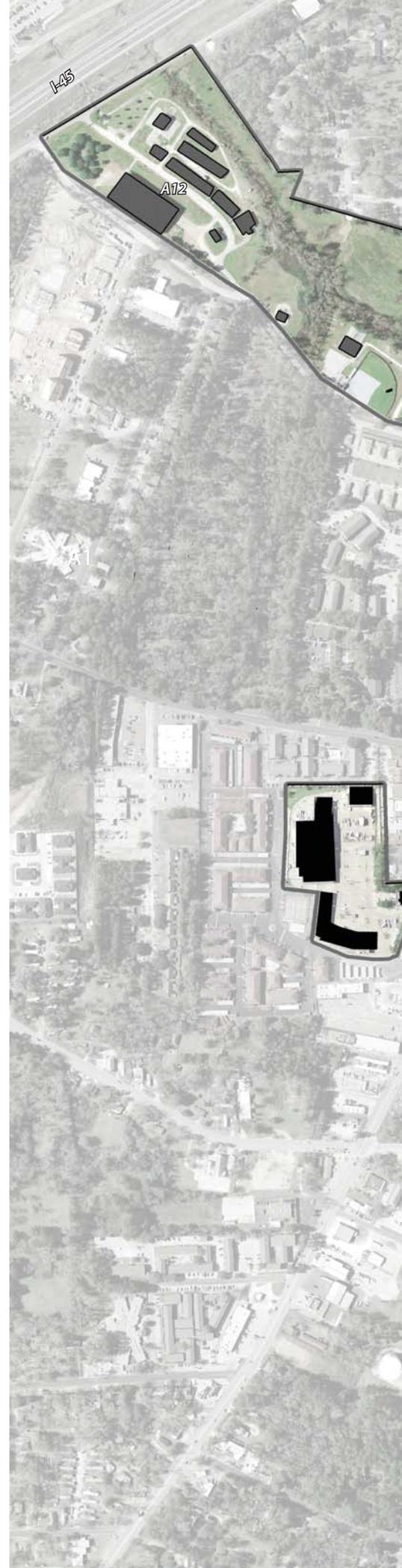
Based on these criteria, several buildings have been identified as long-term demolition candidates. Using these envelopes as potential development opportunities will allow the campus to mature into a more compact, walkable, and coherent academic environment. The following buildings are under consideration for demolition over the life of the plan:

Academic/Auxiliary Buildings

- A1 Lowman Student Center
- A2 Smith-Kirkley Hall
- A3 Academic Building III
- A4 Recital Hall
- A5 Art Complex
- A6 Thomason Building
- A7 Career Services
- A8 Residence Life Offices
- A9 Roy Adams House
- A10 Forensic Psychology Building
- A11 West Plant
- A12 I-45 Agriculture Complex

Residential Buildings

- R1 White Hall
- R2 Four West Houses
- R3 Lawrence House
- R4 Mitchell House
- R5 Parkhill House
- R6 Barrett House
- R7 Allen House
- R8 Vick House
- R9 Spivey House
- R10 Randel House
- R11 King Hall
- R12 Sorority Hill





AVENUE O

Recreation

10-Minute Walking Radius

19TH STREET

17TH STREET

16TH STREET

AVENUE M

22ND STREET

5-Minute Walking Radius

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

21ST STREET

BOWERS BOULEVARD

A11

A6

Austin Hall

R3

R4

Quadrangle

Sam Houston Plaza

AVENUE J

AVENUE J

A10

A5

A3

R5

R6

A2

A8

R11

R12

R7

A9

R8

R9

A1

R12

AVENUE I

AVENUE I

Coliseum

17TH STREET

BEARKAT BOULEVARD

15TH STREET

BOBBY K. MARKS DRIVE

Recreation

MONTGOMERY ROAD

BOWERS BOULEVARD

Athletic Campus

BEARKAT BOULEVARD

SYCAMORE AVENUE



Major findings of the benchmarking and programming study:

- The plan should accommodate an additional 1.1 million gsf of academic buildings and 0.5 million gsf of residential buildings.
- Lab space is by far the most deficient space type on the campus.
- New parking facilities will most likely be structured due to the land needed for surface parking.
- The additional recreation land needed is difficult to locate within the main campus.

Making predictions about growth over the long term at any institution is a difficult task, but a necessary one. A master plan must be flexible, but also grounded in reality. For the planning year 2020, it was determined through historical growth and estimates by SHSU that the enrollment over the next 12 years will average 2 percent per year. This will increase the university enrollment from nearly 17,000 students in 2008 to over 21,000 students by 2020.

Flexibility, related to programming, means developing an adaptable planning model for future growth. Each programmatic category—academics, residential, parking, and recreation—was analyzed based on benchmarking, national standards, interviews, current level of service, projected growth, and finally, future need. The method used for defining each element is described in more detail below.

The future program outlined the need to accommodate up to an additional 1.1 million new academic gsf, .5 million residential gsf, 15 acres of surface parking, and 10 acres of recreation fields. The following descriptions explain how each major program element was developed.

- *Academic and Auxiliary* includes eight sub-categories including: classroom, laboratory, office, library, athletics, special, general, and service. Each space category was benchmarked against six state peer institutions and a national study of similar institutions performed by the Society for College and University Planning (SCUP). Additionally, the overall needs were compared to the Texas Higher Education Coordinating Board's space need projections and confirmed through departmental interviews.
- *Residential* is based on a university defined goal of 20 percent on-campus housing. Each bed assumes an average of 400 gsf to estimate a total need in the future, which is consistent with the most recent residential buildings on campus.
- *Parking* requirements are estimated by the overall percentage of spaces per person currently provided, multiplied by the projected 2020 population.
- *Recreation and Athletics* field estimates were developed by the Department of Recreational Sports and are based on National Recreation and Park Association standards. Athletics was determined to not have any major field needs.

Summary of Future Needs



Academic and Auxiliary

Additional 1,150,000 gsf of classroom, office, laboratory, library, special, and general space



Residential

Additional 292,000 gsf of residential buildings yielding 731 new beds



Parking

Additional 15 acres of surface parking or 3 parking structures



Recreation and Athletics

Additional 10 acres of intramural recreation fields



Through the many iterations and refinements of the master plan, 13 goals and associated objectives surfaced as most important to the SHSU community. Each of these goals is represented spatially in the Campus Master Plan graphic. As a document, these goals represent the intent and spirit of the plan. Before diverging from the master plan, modifications should be tested against the goals to make sure that they are commensurate with the larger vision for the campus in the future.

1. Plan for academic excellence.

Allow for flexibility in all aspects of the plan.

Consolidate primary academic uses within a 5-minute walking radius of the campus center.

Group similar academic functions to create learning neighborhoods.

2. Strengthen and expand the academic core.

Use strategic infill to densify the core and create a compact learning environment.

Link the academic core to a new south academic quad.

3. Create unique and diverse residential districts.

Strengthen the north residential district and create a new south residential district.

Provide dining commons and informal recreation in each district.

Develop smaller housing types in areas that transition into the community.

4. Strengthen the university image through signature buildings.

Emphasize buildings that are shared by the university and by the community.

Allow the student center to be the centerpiece of the campus.

5. Develop buildings that meet the needs of tomorrow as well as today.

Apply lessons of scale and character from the historic core of campus.

Design buildings to allow for departmental growth in the future.

Implement sustainable strategies based on life-cycle benefit.

6. Provide sustainable and efficient infrastructure.

Centralize utilities for efficiency.

Create a loop system for thermal utilities.

Allow for the system to expand beyond 2020.

7. Create a clear and integrated street network.

Develop Bowers Boulevard as the ceremonial entrance into the campus.

Create a connected street grid north and south of the campus.

Create streets that accommodate street trees, walks, bicycle lanes, and transit where appropriate.

Maintain service corridors through the campus core.

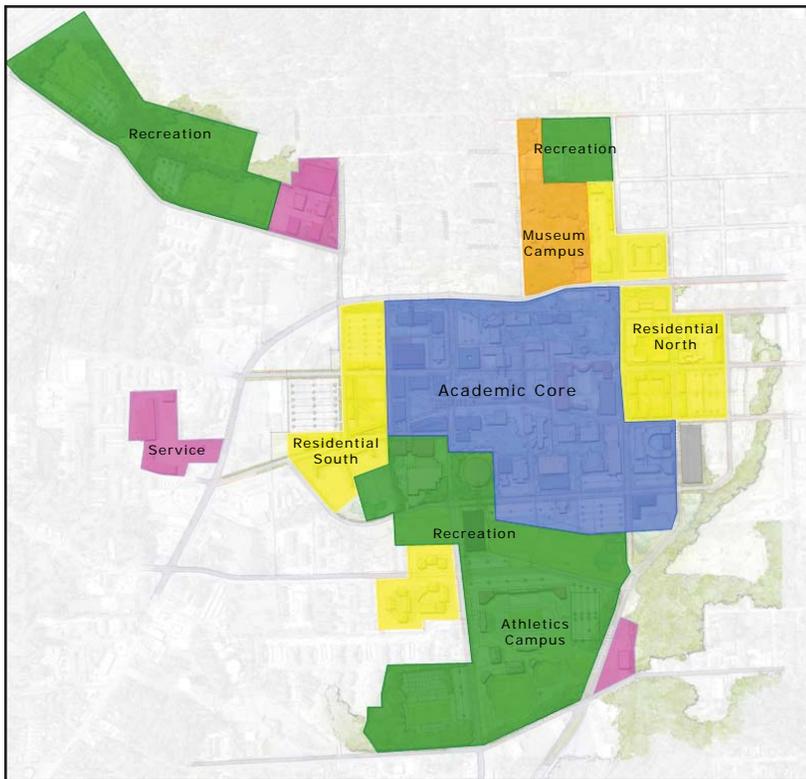
8. Enrich the pedestrian environment.

Consider accessibility in all aspects of the campus.

Connect major destinations with linear pedestrian malls.

Create safe sidewalks along all campus streets with safe mid-block crossings.

Create a trail system to connect the campus to the University Golf Course.



Campus Land Use

- 9. Balance parking needs with land availability.**
 Provide adequate quantity, distribution, and variation of parking.
 Build new parking lots or structures only when necessary.
 Create mixed-use parking structures to maximize land use.
 Implement multimodal and incentive strategies to offset parking needs.
- 10. Maintain and extend a unique campus landscape.**
 Create a hierarchy of quads, plazas, and open spaces.
 Develop a new south academic quad that will be as significant as the main academic quad.
 Integrate learning environments into the campus landscape.
 Create a green edge to the campus along Sam Houston Avenue.
- 11. Increase and diversify recreational opportunities.**
 Provide expanded recreational opportunities at the recreation center.
 Convert the property near I-45 to a recreation field complex.
 Provide informal recreational opportunities near housing districts.
- 12. Manage stormwater as a campus asset.**
 Manage stormwater detention regionally where necessary.
 Manage water quality as close to the source as possible.
 Minimize impervious surfaces.
 Integrate stormwater into the campus open space fabric.
- 13. Embrace the surrounding community.**
 Enhance University Avenue as the pedestrian link to downtown.
 Create safe pedestrian and bicycle connections to adjacent neighborhoods.
 Promote positive private development along University and Sam Houston Avenues.



CAMPUS MASTER PLAN

The Campus Master Plan graphic is the physical representation of the goals and objectives of the 2008 Campus Master Plan. It sets a broad framework or road map for SHSU to develop in the future and is intended to be flexible enough to accommodate any growth that could occur by the year 2020. How quickly the university will actually grow into the plan will depend on future expansion and funding.

Beyond the opportunities in the plan, the campus could expand farther to the north and south to meet natural edges such as the creek corridor to the north and Sam Houston Avenue to the south.

Major recommendations illustrated in the plan include:

- Strategically infilling the academic core.
- Linking the academic core to a new south academic quad.
- Creating distinctive residential districts centered on intimate quads.
- Offering commons facilities in the north, center, and south areas of campus.
- Developing the I-45 property as a recreation center when agriculture fully relocates to Gibbs Ranch.
- Phasing into a new student center.
- Developing two additional stand-alone parking structures.
- Expanding the Newton Gresham Library and Recreational Sports.





10-Minute Walking Radius

5-Minute Walking Radius

AVENUE O

Recreation

Museum Campus

AVENUE M

19TH STREET

17TH STREET

16TH STREET

22ND STREET

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

Quadrangle

Austin Hall

AVENUE J

South Residential District

South Academic Quad

BOWERS BOULEVARD

Sam Houston Plaza

Student Center

North Residential District

AVENUE J

AVENUE I

Rec Sports

Coliseum

Library

Performing Arts Center

BEARKAT BOULEVARD

15TH STREET

AVENUE I

BOBBY K. MARKS DRIVE

CREEK CORRIDOR

Recreation

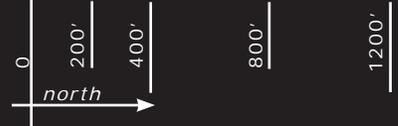
MONTGOMERY ROAD

BOWERS BOULEVARD

Athletic Campus

BEARKAT BOULEVARD

SYCAMORE AVENUE

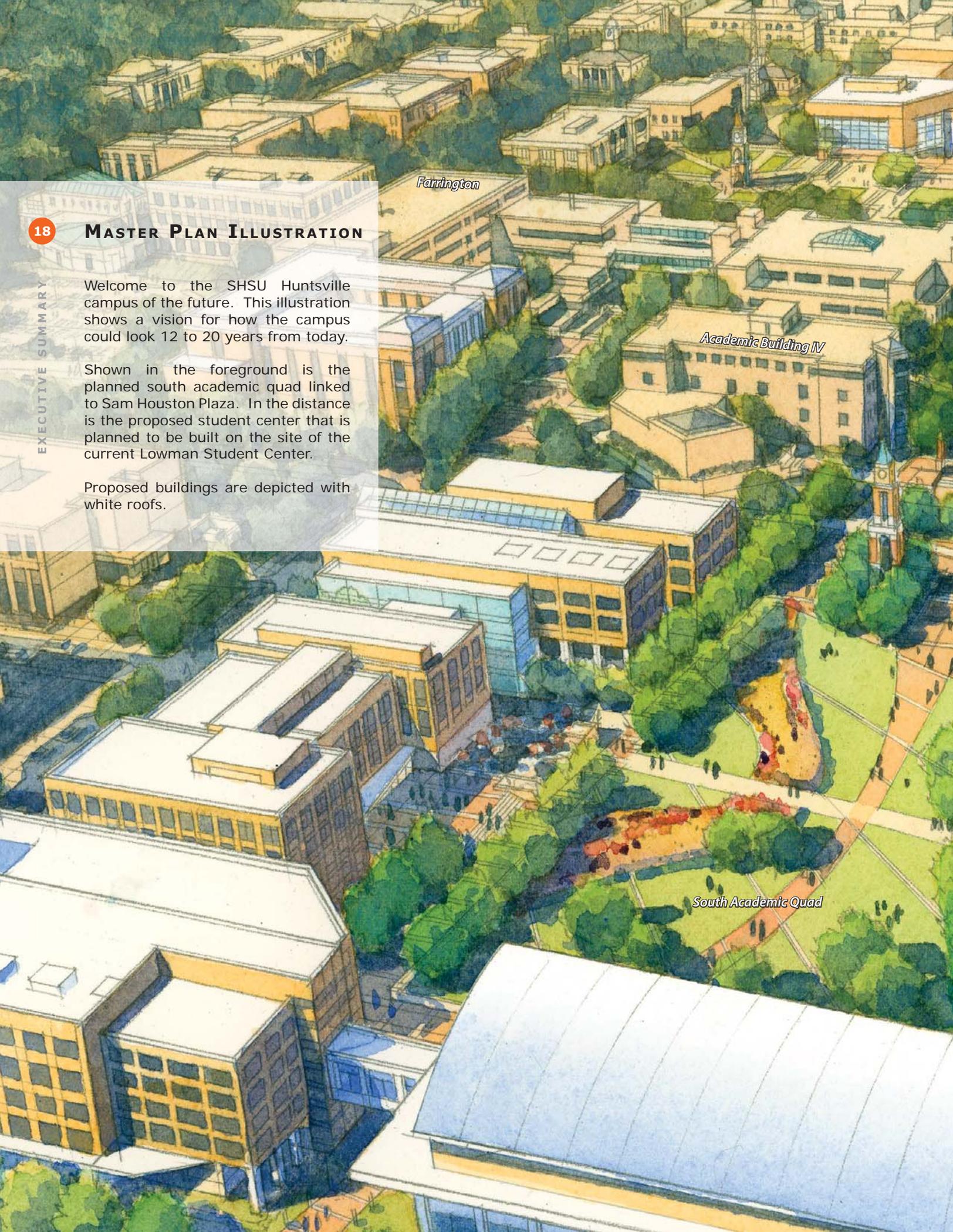


MASTER PLAN ILLUSTRATION

Welcome to the SHSU Huntsville campus of the future. This illustration shows a vision for how the campus could look 12 to 20 years from today.

Shown in the foreground is the planned south academic quad linked to Sam Houston Plaza. In the distance is the proposed student center that is planned to be built on the site of the current Lowman Student Center.

Proposed buildings are depicted with white roofs.

*Farrington**Academic Building IV**South Academic Quad*



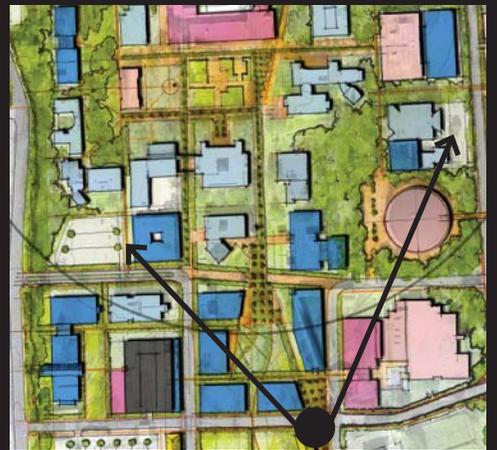
Student Center

*College of Humanities
and Social Sciences*

*Newton
Gresham
Library*

*Recreational
Sports*

key map

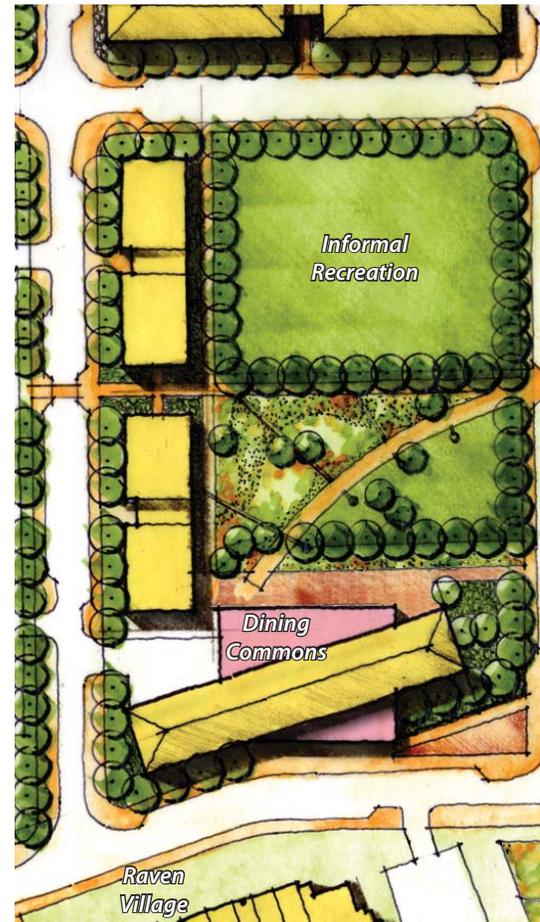
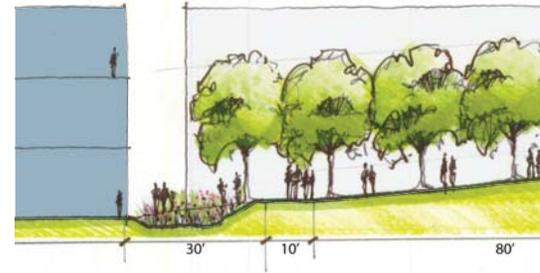


SOUTH ACADEMIC QUAD

Through the planning process there were several precinct plans developed to illustrate how the overall plan could be developed at a more detailed scale. The south academic quad precinct plan highlights how the campus could develop when pedestrian circulation, vehicular circulation, building massing, stormwater, and open space are considered at a site level.

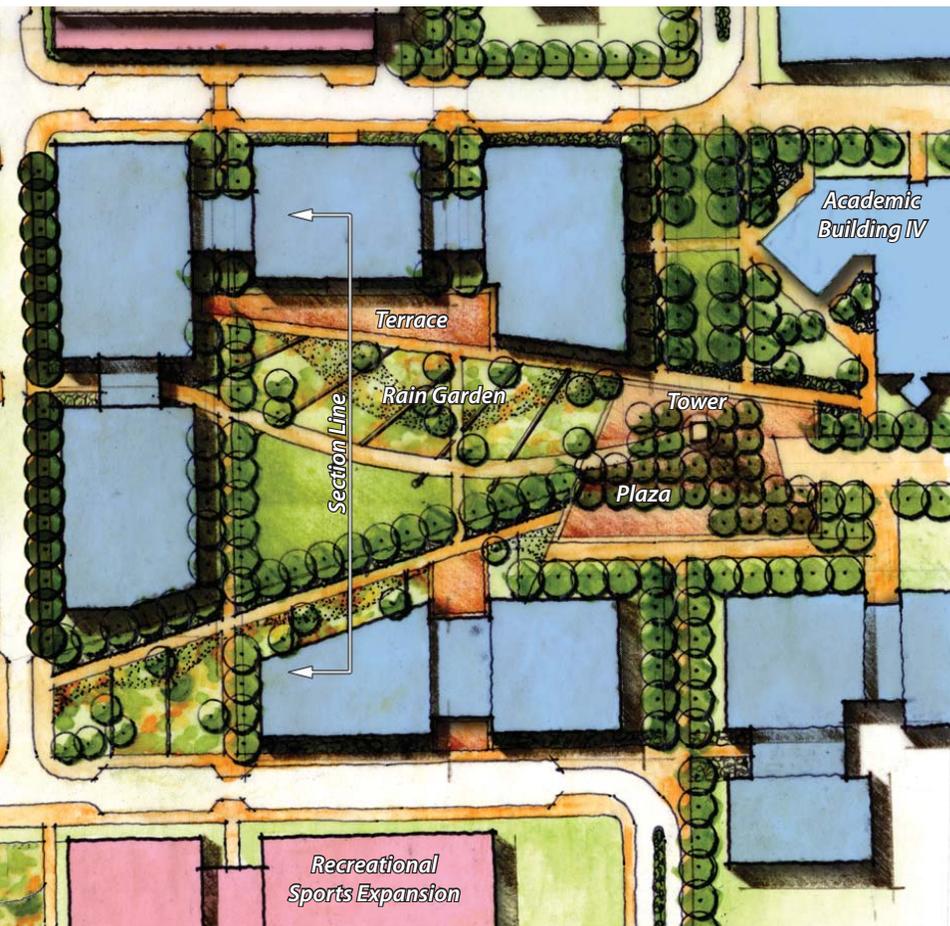
The south academic quad is the most significant growth area of the master plan. When finished, the district will be the third major academic quad on the campus along with Sam Houston Plaza and the historic quadrangle. Academic uses in the district are expected to focus on the sciences to create a science-oriented academic neighborhood.

Further to the south, the south academic quad will connect to the future south residential neighborhood, which will complement the existing Raven Village. The district will include open space for informal recreation and a new south dining commons. The commons will serve as the neighborhood center for the students who will call the district home.

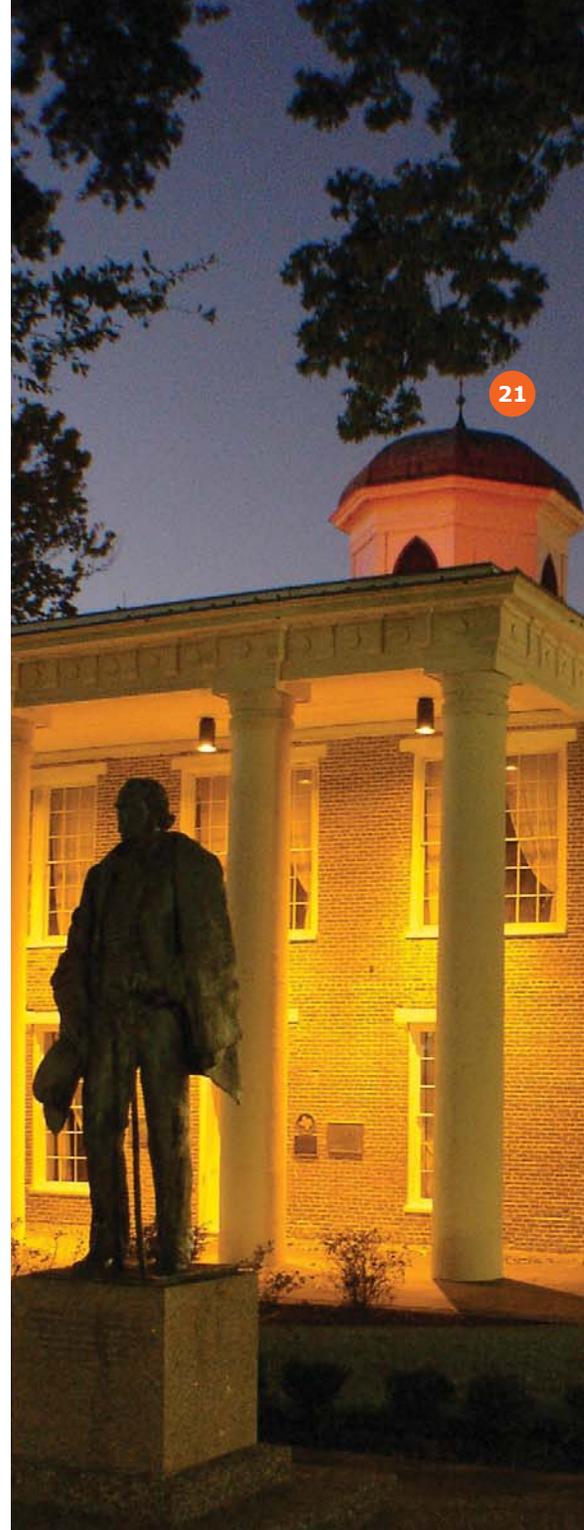




South Academic Quad Section



South Academic Quad Precinct Plan



key map



TECHNICAL REPORT

22

TECHNICAL REPORT



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6-YEAR PHASING PLAN

The Technical Report provides specific recommendations for each planning system including campus organization, buildings and facilities, infrastructure, vehicular circulation, bicycle circulation, pedestrian circulation, open space, stormwater, and community interface. The systems are discussed using the following categories:

- *Chapter Contents* – An overview of the chapter and a list of other chapters that support the system's recommendations
- *Related Master Plan Goals* – The goals that are described in more detail in the chapter (See the Executive Summary for the complete list.)
- *Planning Philosophy* – A broad planning philosophy that describes how the recommendations were approached
- *Programming* – The program elements that were defined as future needs for each system
- *Plan Elements* – The characteristics of each major element proposed in each system
- *Implementation Considerations* – A broad overview of some of the specific considerations that should be made when new projects are underway for particular elements
- *Plan Recommendations* – The specific recommendations of the system keyed to a plan graphic
- *2008 Conditions* – An overview of the conditions of the system when the plan was undertaken in 2008

The last chapter in the report, "6-Year Phasing Plan," describes the major building and infrastructure developments that the university would like to pursue in the short-term horizon of the master plan.



Chapter Contents

This chapter describes several important components of the master plan: first, the overarching planning philosophy; second, the overall framework/land use organization; third, an exploration of acquisition opportunities and attitude toward growth opportunities; fourth, a cursory review of alternative organizational concepts; and fifth, a brief discourse on the current campus organization.

Related Master Plan Goals

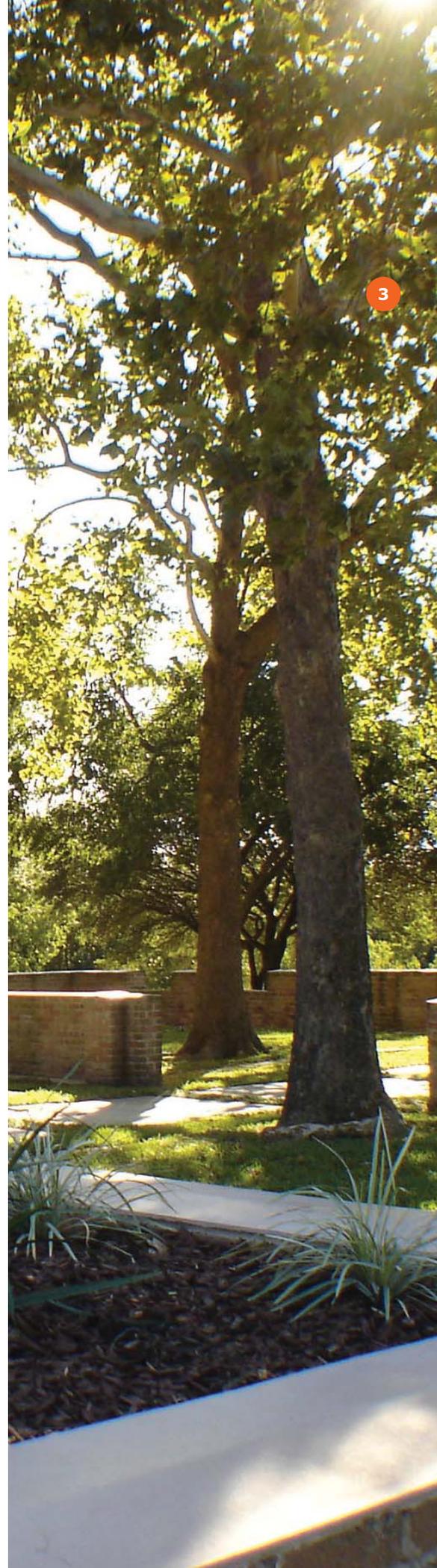
The following Master Plan Goals are expanded on in this chapter:

- 1. Plan for academic excellence.**
Allow for flexibility in all aspects of the plan.
Consolidate primary academic uses within a 5-minute walking radius of the campus center.
Group similar academic functions to create learning neighborhoods.
- 2. Strengthen and expand the academic core.**
Use strategic infill to densify the core and create a compact learning environment.
Link the academic core to a new south academic quad.
- 3. Create unique and diverse residential districts.**
Strengthen the north residential district and create a new south residential district.
- 9. Balance parking needs with land availability.**
Provide adequate quantity, distribution, and variation of parking.
Build new parking lots or structures only when necessary.
- 11. Increase and diversify recreational opportunities.**
Convert the property near I-45 to a recreation field complex.

Planning Philosophy

The campus exists as a place for people and inspired learning. The environment should facilitate the exchange of knowledge and provide places for interdisciplinary sharing. This includes those who attend as students, those who serve as education and research professionals, and those who live in the surrounding community. High quality campuses are carefully orchestrated environments that allow for and advance personal, physical, and spiritual growth. They are also laboratories for learning, research, interaction, and communication. The campus's quality is measured in how well the physical environment supports its diverse constituents and academic functions. In the end, the physical campus environs are, and will be, an important barometer of its overall institutional success.

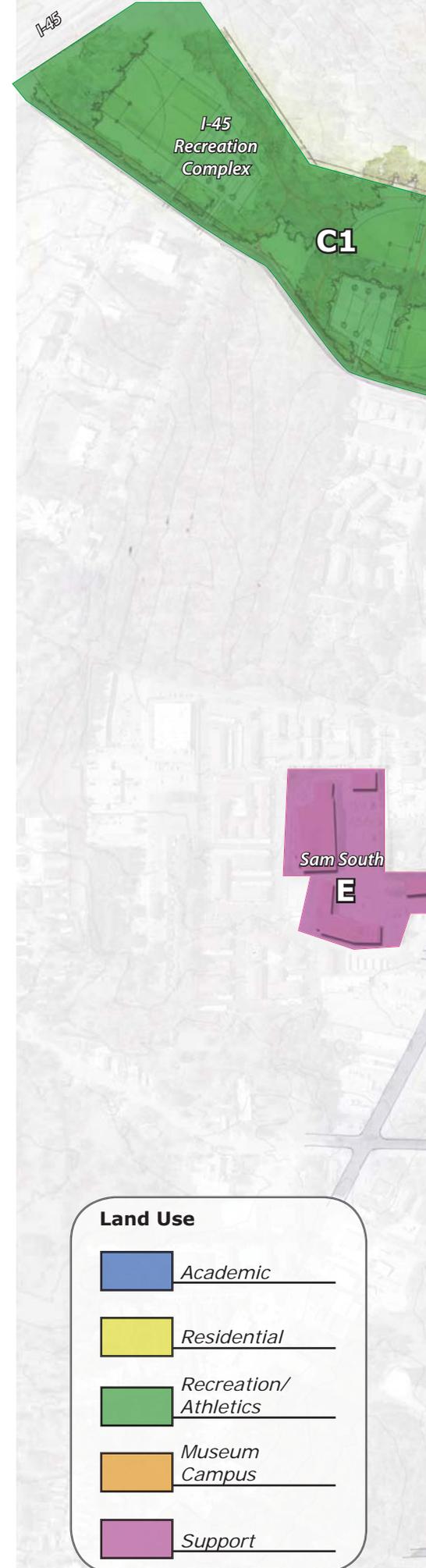
As a powerful enabling mechanism, the master plan is a collection of ideas that establish a flexible "opportunity framework" for coordinating physical change on the campus. This framework establishes patterns that will maintain the campus's unique spatial characteristics while identifying opportunities for consistent and harmonious expansion. The quality of the physical environment has a tremendous influence on the image of the institution, and as such, the master plan serves as a foundation for shaping the campus fabric in support of its academic mission and vision.

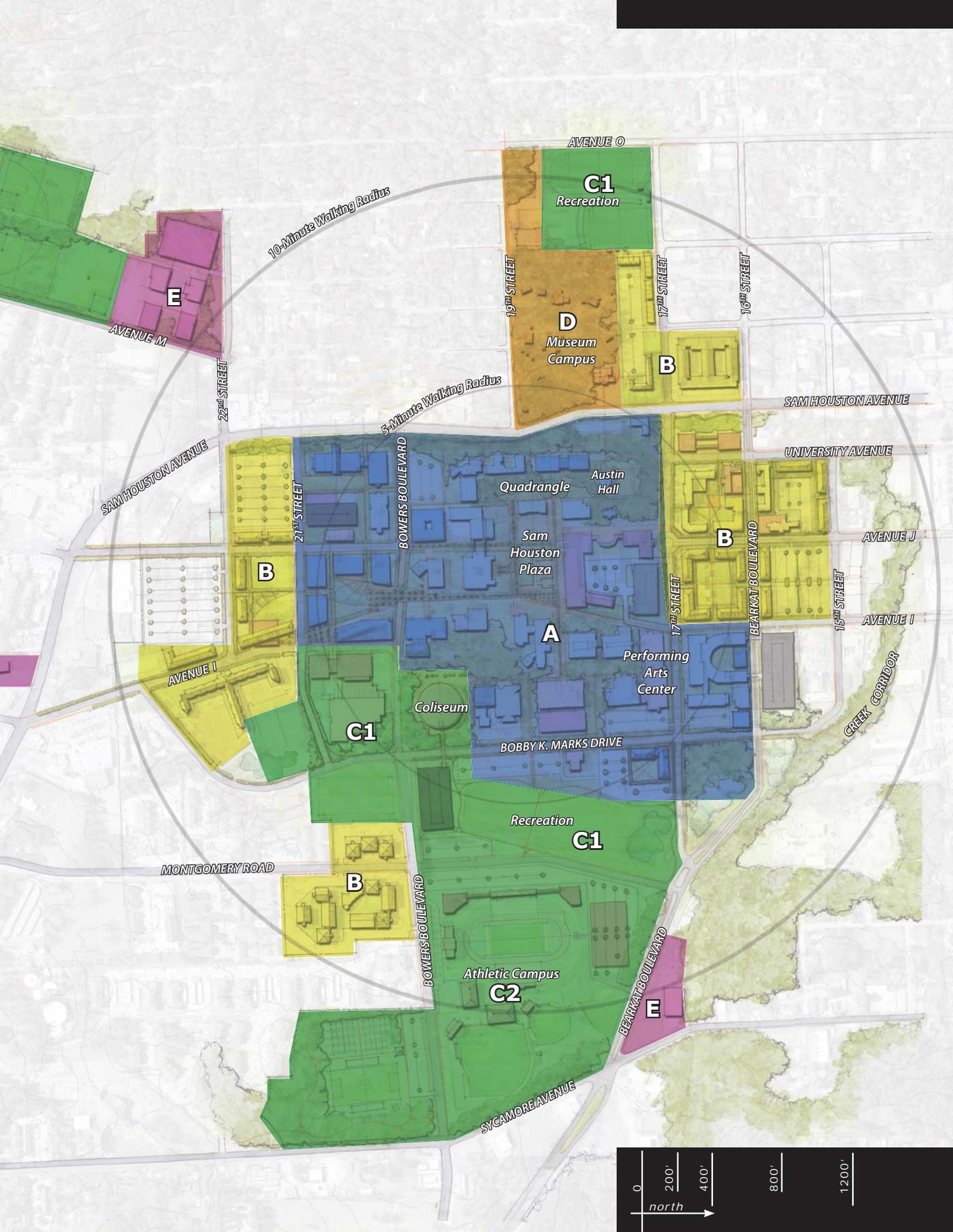


Land Use Organization

The 2008 Campus Master Plan provides overall organizational strategies to effectively manage existing and future land development. These “macro” objectives create a well-ordered, safe, educationally effective, and distinctive university environment. To achieve optimum land use organization, the master plan recommends strengthening existing physical connections, challenging inefficient campus patterns, and developing compelling new relationships.

- A:** Enhance the Campus Academic Core (Blue)
- Promote strategic building infill to strengthen the campus core.
 - Create distinctive academic precincts. Deliberately overlap “centers of excellence” to promote interdisciplinary learning.
 - Maintain a compact and pedestrian-centered learning environment. Utilize the 5-minute walking radius as a general parameter for locating primary academic functions.
- B:** Create Vibrant Housing Neighborhoods (Yellow)
- Enhance the existing northern and southern residential neighborhoods.
 - Create living-learning centers by placing new residential neighborhoods adjacent to academic precincts.
 - Employ a mix of market-driven housing typologies on campus: singles, suites, apartments, and traditional housing models.
 - Add student dining, retail, and recreational amenities to residential neighborhoods.
- C1:** Enhance Recreation Sports (Green)
- Create a new outdoor recreational complex adjacent to I-45.
 - Employ multi-season programming to maintain a vibrant student activity mix.
 - Enhance the existing recreational fields in the center of campus as a “bridge” between the academic core and the competitive athletics venues.
 - Return Pritchett Field to recreational sports and community use.
- C2:** Consolidate Competitive Athletics (Green)
- Develop a singular, consolidated “athletics” campus on the eastern edge of the university.
 - Acquire land south of Bowers Boulevard to accommodate tennis, soccer, and future competitive venue needs.
- D:** Engage the Museum Campus (Orange)
- Integrate the Museum Campus into the core campus by consistent landscape treatment along Sam Houston Avenue and well-defined visual/pedestrian corridors.
 - Develop the “Sam Houston Walk” to engage both the museum (civic) and academic (campus) elements.
 - Better integrate the Museum Campus to Pritchett Field and to the surrounding neighborhoods.
- E:** Enhance Support Functions (Purple)
- Develop a new campus-wide support function on the southwestern edge adjacent to the proposed I-45 recreational complex.
 - Enhance the size and role of the existing support complexes at Sam South and the facility adjacent to Bearkat Boulevard north of the Athletic Campus.





AVENUE O

C1
Recreation

16TH STREET

D
Museum
Campus

17TH STREET

B

16TH STREET

10-Minute Walking Radius

E

AVENUE M

22ND STREET

5-Minute Walking Radius

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

B

21ST STREET

BOWERS BOULEVARD

Quadrangle

Austin Hall

UNIVERSITY AVENUE

Sam Houston Plaza

B

AVENUE J

AVENUE I

C1

Coliseum

A

Performing Arts Center

17TH STREET

BEARKAT BOULEVARD

15TH STREET

AVENUE I

BOBBY K. MARKS DRIVE

CREEK CORRIDOR

Recreation

C1

MONTGOMERY ROAD

B

BOWERS BOULEVARD

Athletic Campus

C2

E

SYCAMORE AVENUE



3D View 1

This 3D view of the master plan is oriented with north (downtown Huntsville) to the top of the page and south to the bottom of the page.

This graphic can be used as a visual reference of how open space should be shaped and the intended scale of proposed buildings.





key map



3D View 2

This 3D view of the master plan is oriented with south to the top of the page and north (downtown Huntsville) to the bottom of the page.

This graphic can be used as a visual reference of how open space should be shaped and the intended scale of proposed buildings.





Sam
Houston
Plaza

Austin
Hall

SAM HOUSTON AVENUE

key map



Growth Opportunities

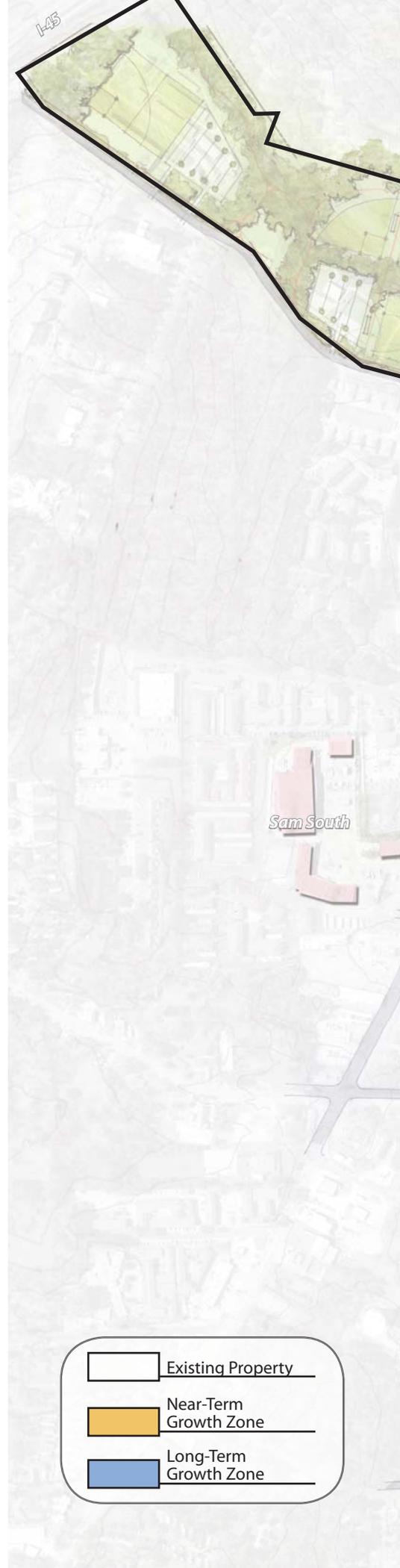
The master plan suggests a balanced and responsible development pattern within the university's existing land holdings. With a projected head count of 20,000 students on the Huntsville campus, however, the university will need additional land resources. To achieve this vision, the university should consider two strategies for both near- and long-term needs. These opportunities are outlined below:

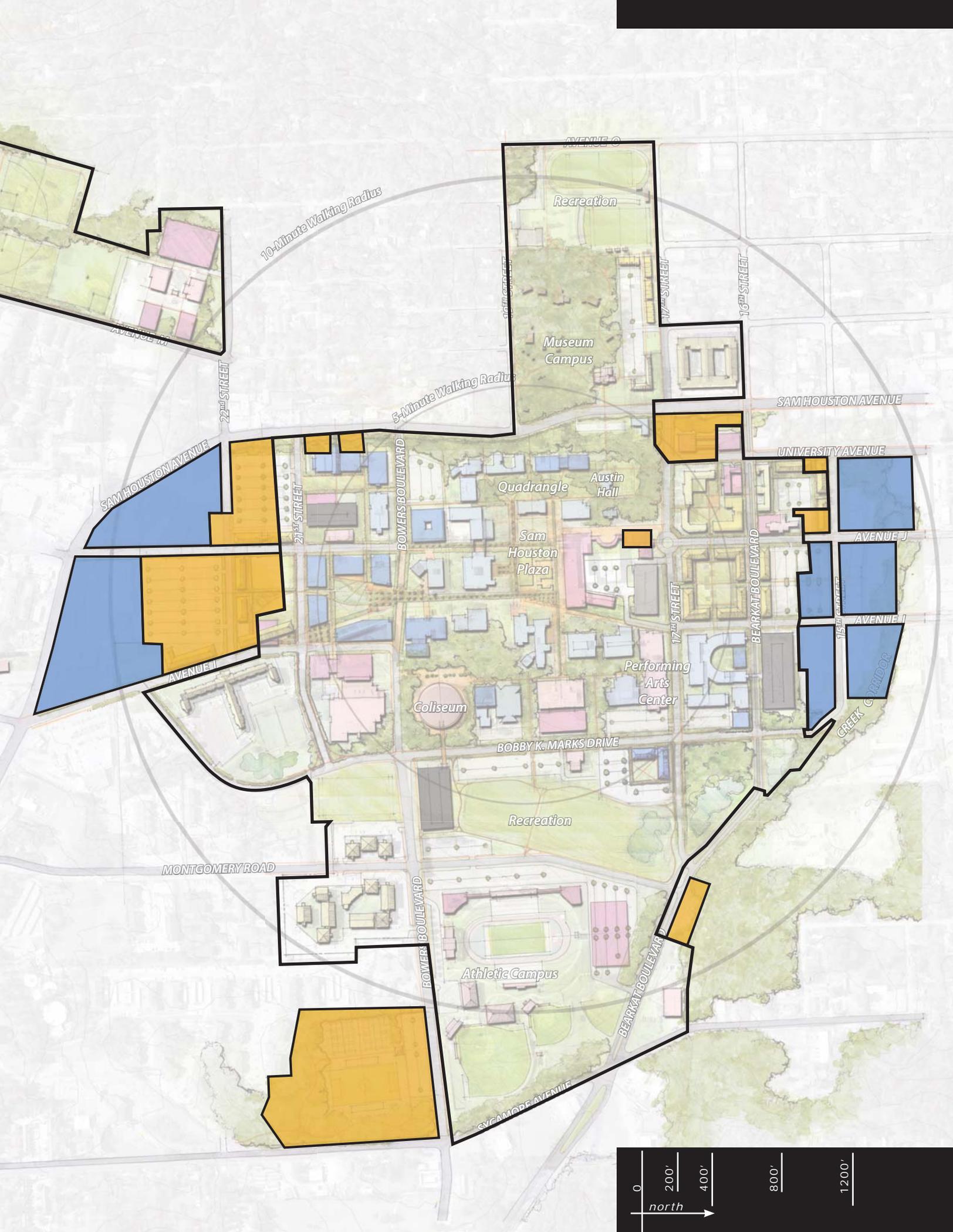
Level One Priority – Near-Term Growth Zones (Orange)

Level one expansion zones address the minimum acquisition areas necessary to accommodate the acreage needs of the master plan. These areas provide practical needs for an expanded academic core, residential neighborhoods, recreation/athletics, and parking. Secondly, these opportunities also secure a stronger presence along existing campus edges and allow the university to develop a more congruent boundary. This combined acreage, moreover, will allow the university to achieve a consistent higher quality image, improve visitor wayfinding, and develop a unified land use pattern synergistic with its academic/research mission.

Level Two Priority – Long-Term Growth Zones (Blue)

Level two expansion zones address a long-term peripheral redevelopment strategy. These areas provide opportunities for an expanded presence both north along the creek corridor and south along Sam Houston Avenue. These areas provide more direct connectivity to downtown and an identifiable "front door" presence along Sam Houston Avenue. Although these areas are highlighted as a second priority, they should be viewed opportunistically as future lands become available.





10-Minute Walking Radius

5-Minute Walking Radius

AVENUE O

Recreation

Museum Campus

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

Quadrangle

Austin Hall

Sam Houston Plaza

AVENUE J

Performing Arts Center

AVENUE I

Coliseum

BOBBY K. MARKS DRIVE

CREEK CORRIDOR

Recreation

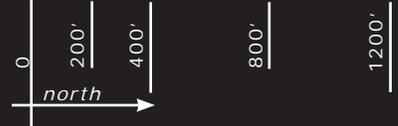
MONTGOMERY ROAD

Athletic Campus

BOWERS BOULEVARD

BEARKAT BOULEVARD

CYCAMORE AVENUE



Alternative Organization Concepts

As an important part of the iterative planning process, the master plan team explored divergent approaches to future campus development. Each of these alternatives suggested an overarching theme for functional redevelopment, expansion, and/or campus infill. These alternatives also identified scenarios for new spatial disposition, community connectivity, circulation, and overall character. Functionally, three big ideas were prepared to illustrate these alternative organizational strategies. The master plan committees participated in a series of facilitated workshops to weigh the merits of each idea. Ultimately, tactical elements within each scenario were identified as preferred items. These components were elevated and combined into a composite plan, which became the 2008 Campus Master Plan.

Alternative A

- *Expand campus to the north.* Alternative A illustrates how the existing campus could expand to the north to 15th Street, providing opportunities for additional student housing, perimeter parking, and an increased presence along University Avenue.
- *Consolidate the campus core.* This scenario explored the opportunities available to infill the academic core with additional academic buildings, expanded student services, and additional student housing.
- *Minimize the amount of parking and redundant vehicular circulation occurring within the campus core.* This scheme located two new parking structures on the edge of the campus core in order to achieve this goal.
- *Provide a location for remote parking.* This alternative demonstrates the potential for remote off-site parking on the acreage southwest of the main campus on the parcel adjacent to I-45.
- *Improve vehicular circulation patterns.* This alternative improves existing road alignments, creates a boulevarded Bowers Boulevard west toward Sam Houston Avenue, and provides additional access to Bearkat Boulevard from 17th Street.
- *Expand pedestrian malls throughout the campus core.* Alternative A depicts the opportunities to continue the system of pedestrian malls across campus, minimizing the amount of pedestrian/vehicular conflict and maximizing the quality of the pedestrian experience on campus.





10-Minute Walking Radius

5-Minute Walking Radius

AVENUE O

Recreation

Museum Campus

AVENUE M

22ND STREET

19TH STREET

17TH STREET

16TH STREET

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

BOWERS BOULEVARD

Quadrangle

Austin Hall

UNIVERSITY AVENUE

Sam Houston Plaza

AVENUE J

AVENUE I

17TH STREET

BEARKAT BOULEVARD

15TH STREET

AVENUE I

Coliseum

Performing Arts Center

CREEK CORRIDOR

BOBBY K. MARKS DRIVE

Recreation

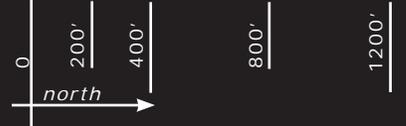
MONTGOMERY ROAD

BOWERS BOULEVARD

Athletic Campus

BEARKAT BOULEVARD

SYCAMORE AVENUE



Alternative B

- Expand the campus to both the north and south.* This scenario illustrates the potential to expand the campus to the north toward 15th Street and to the south toward 22nd Street. Expansion in these two directions provides the opportunity to do several things:

 - Expand student housing to the north and to the south creating two unique residential communities.
 - Create a new academic quad to the south of Bearkat Boulevard.
 - Introduce additional academic space to the south of the existing campus core.
- Infill the campus core with the expansion of Student Services.* Alternative B explored the idea of expanding Student Services at the location of the present Lowman Student Center (LSC) as well as developing a more visible architectural presence along Sam Houston Avenue.
- Minimize the amount of parking within the campus core.* This alternative explored the addition of two parking structures and additional parking at the campus perimeter. A smaller amount of remote parking is illustrated on the acreage southeast of the main campus.
- Develop a conference center/hotel complex.* Alternative B proposes the development of a hotel and conference center southwest of the main campus with a strong image along I-45.
- Develop the Athletic Campus.* This alternative illustrates the potential for additional development on the Athletic Campus that would include a stadium expansion and the introduction of a multipurpose indoor practice facility.
- Extend the pedestrian malls.* Alternative B recommends extending the existing pedestrian mall system in order to better connect the campus expansion illustrated to the north and south.
- Eliminate the west power plant.* Alternative B suggests consolidating this highly visible facility to a single central plant concept.





10-Minute Walking Radius

5-Minute Walking Radius

AVENUE O

Recreation

Museum Campus

AVENUE M

22ND STREET

19TH STREET

17TH STREET

16TH STREET

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

Quadrangle

Austin Hall

Sam Houston Plaza

AVENUE J

AVENUE I

Performing Arts Center

AVENUE I

Coliseum

BOBBY K. MARKS DRIVE

CREEK CORRIDOR

Recreation

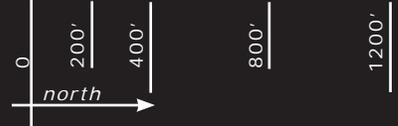
MONTGOMERY ROAD

BOWERS BOULEVARD

BEARKAT BOULEVARD

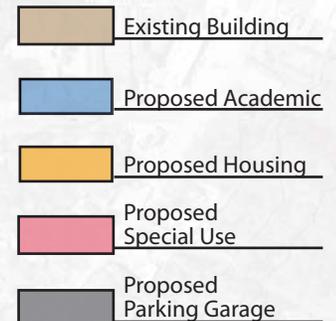
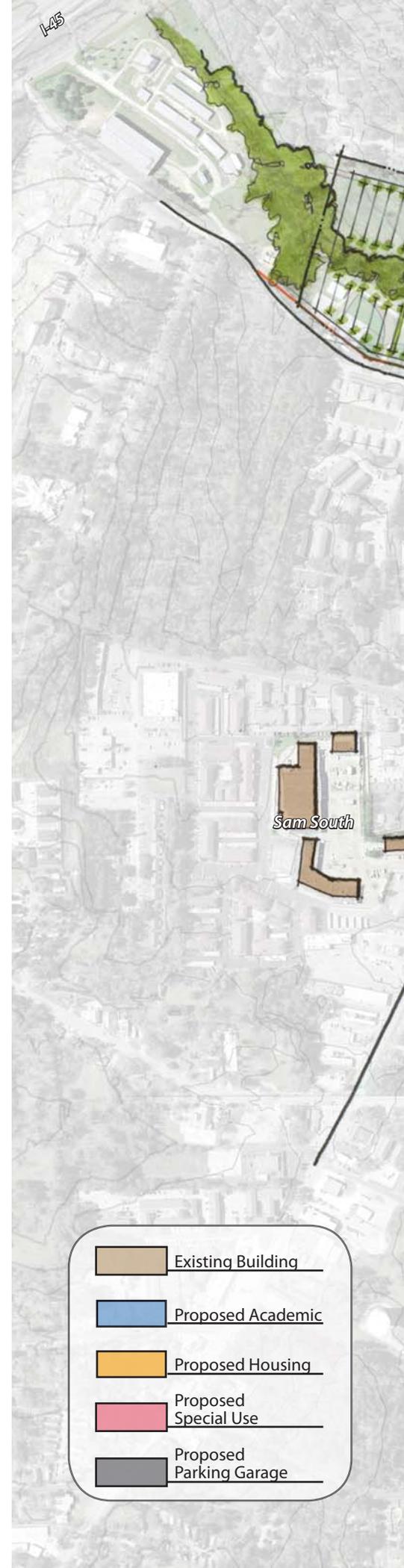
Athletic Campus

SYCAMORE AVENUE



Alternative C

- *Expand the campus to the north, south, and east.* This alternative illustrates aggressive campus growth in three different directions. Opportunities illustrated include the following:
 - Expand the Athletic Campus to the south of Bowers Boulevard in order to consolidate all NCAA athletic venues.
 - Develop a new residential neighborhood south of 21st Street.
 - Develop a new academic quad north of 21st Street.
 - Introduce a mix of residential, academic, and student services development south of 15th Street.
- *Relocate the existing arts complex along Sam Houston Avenue to Bobby K. Marks Drive at the east end of 17th Street.*
- *Infill within the campus core with academic/student services.* This alternative depicts the following opportunities for infill/expansion:
 - Expand the existing student recreation complex to the south and west.
 - Construct a new library along Bowers Boulevard, in the southeast corner of campus.
 - Construct a new LSC in the current location, with the addition of a new hotel.
- *Eliminate a portion of Bowers Boulevard in order to accommodate the academic and residential expansion to the south of the existing campus core.* This realignment allows for the expansion to be contiguous with the campus core, enhancing the pedestrian-friendly experience.
- *Develop off-campus acreage.* Alternative C illustrates the provision for a small amount of off-site parking on a portion of the site, but assumes that some of the existing agriculture functions will remain.





AVENUE O

Recreation

Museum Campus

10-Minute Walking Radius

19TH STREET

17TH STREET

16TH STREET

AVENUE M

22ND STREET

5-Minute Walking Radius

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

Quadrangle

Austin Hall

UNIVERSITY AVENUE

Sam Houston Plaza

AVENUE J

AVENUE I

Coliseum

Performing Arts Center

17TH STREET

BEARKAT BOULEVARD

AVENUE I

BOBBY K. MARKS DRIVE

CREEK CORRIDOR

Recreation

MONTGOMERY ROAD

Athletic Campus

BOBOWERS BOULEVARD

BEARKAT BOULEVARD

SYCAMORE AVENUE



2008 Campus Organization Conditions

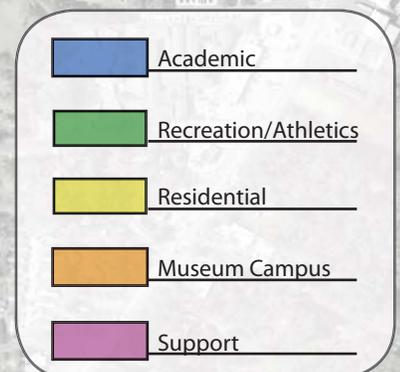
SHSU is approximately 60 miles north of Houston. This unique location has made Huntsville a desirable educational destination for greater Houston. Now 129 years old, the university has burgeoned in the last decade from 12,000 to more than 17,000 students. This growth has required the addition of facilities and acreage to manage institution population growth and to maintain facilities for education, student enrichment, research, and other university initiatives and activities.

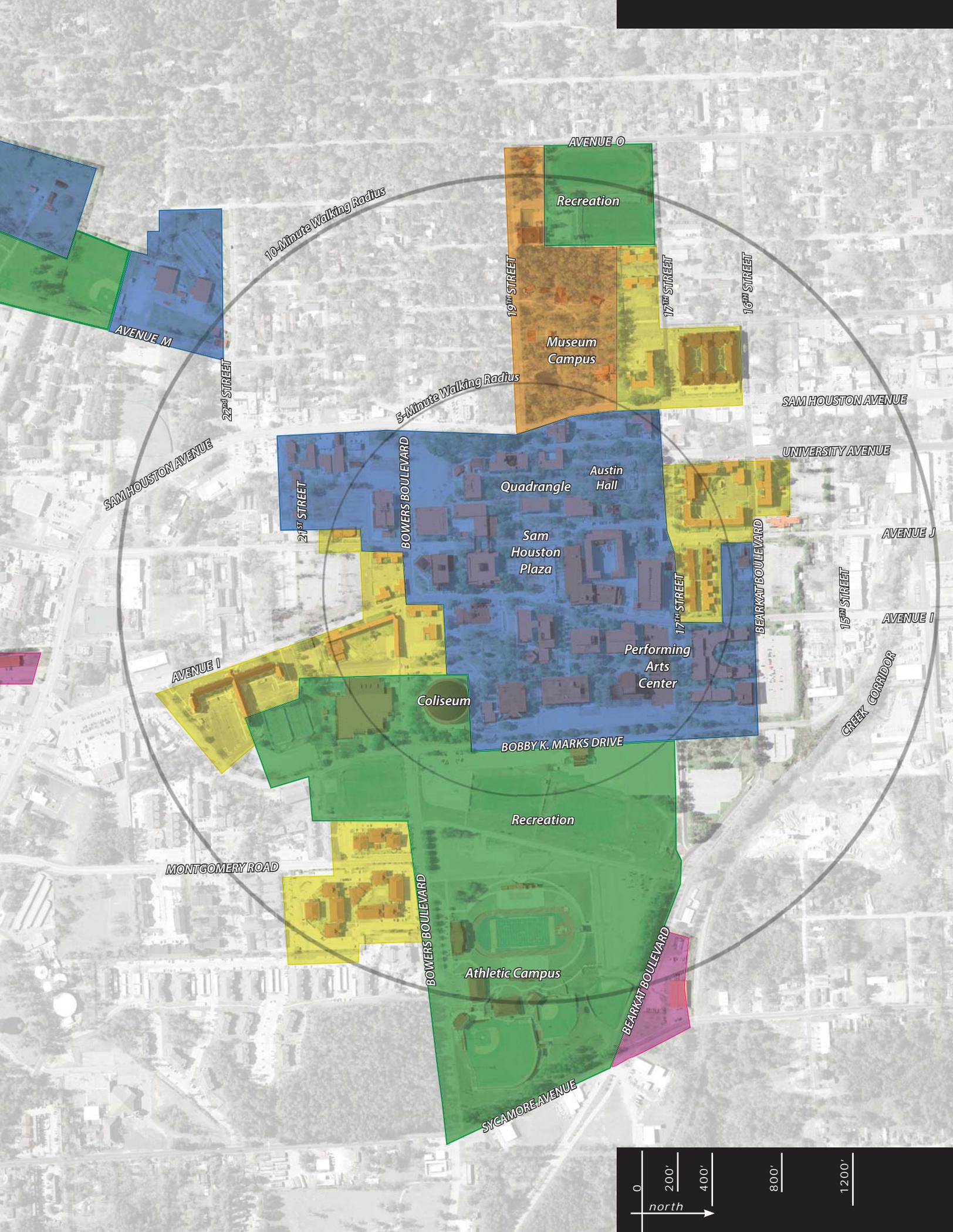
As the campus has grown, its physical organization has become more complex and disconnected. The campus has continued to develop while challenging the original academic core's unique quality and character. Limited budgets, schedules, and planning have reinforced the notion of the campus as a collection of unrelated buildings, parking, and open spaces with less emphasis placed on the careful composition of open spaces, architecture, circulation corridors, and infrastructure systems.

An important land use assumption for the plan is that the agricultural facilities will move from the I-45 parcel to Gibbs Ranch. This move allows other program elements to expand into the area.

The planning challenge was to uncover the best elements of the campus's existing organization and to use them to inspire future development. The following observations are recorded as a planning and philosophical baseline:

- Expand the existing academic core using elements of the historic quadrangle, Sam Houston Plaza, and east-west pedestrian malls as prototypical spatial examples.
- Expand the existing residential neighborhoods north and south of the campus.
- Expand the role of centrally-located recreational athletics.
- Better utilize the I-45 parcel and connect it to the main campus and to adjacent neighborhoods.
- Consolidate competitive athletics to the east.
- Challenge low-density facilities and inefficient surface parking areas.
- Better articulate the "front door" along Sam Houston Avenue.
- Define the campus boundaries through strategic acquisition.
- Provide direct connectivity to Huntsville via University Avenue, Sam Houston Avenue, and Avenue J.
- Tie the Museum Campus to the main campus, and relate the function of Pritchett Field to the campus and greater community.





AVENUE O

Recreation

Museum Campus

19th STREET

17th STREET

16th STREET

10-Minute Walking Radius

5-Minute Walking Radius

AVENUE M

22nd STREET

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

Quadrangle

Austin Hall

Sam Houston Plaza

21st STREET

BOWERS BOULEVARD

Performing Arts Center

BEARKAT BOULEVARD

AVENUE J

AVENUE I

15th STREET

CREEK CORRIDOR

Coliseum

BOBBY K. MARKS DRIVE

Recreation

MONTGOMERY ROAD

Athletic Campus

BOWERS BOULEVARD

BEARKAT BOULEVARD

SYCAMORE AVENUE



BUILDINGS AND FACILITIES

Chapter Contents

This chapter describes the planned academic, special, and residential buildings that are part of the master plan. Parking structures are described in the “Vehicular Circulation” chapter, and physical plants are described in the “Infrastructure” chapter.

Chapters that support the recommendations of this chapter include the following:

- Campus Organization
- Open Space
- Vehicular Circulation
- Infrastructure
- 6-Year Phasing Plan

Related Master Plan Goals

The following Master Plan Goals are expanded on in this chapter:

- 1. Plan for academic excellence.**
Allow for flexibility in all aspects of the plan.
Consolidate primary academic uses within a 5-minute walking radius of the student center.
Group similar academic functions to create learning neighborhoods.
- 2. Strengthen and expand the academic core.**
Use strategic infill to densify the core and create a compact learning environment.
Link the academic core to a new south academic quad.
- 3. Create unique and diverse residential districts.**
Strengthen the north residential district and create a new south residential district.
Provide dining commons and informal recreation in each district.
Develop smaller housing types in areas that transition into the community.
- 4. Strengthen the university image through signature buildings.**
Emphasize buildings that are shared by the university and by the community.
Allow the student center to be the centerpiece of the campus.
- 5. Develop buildings that meet the needs of tomorrow as well as today.**
Apply lessons of scale and character from the historic core of campus.
Design buildings to allow for departmental growth in the future.
Implement sustainable strategies based on life-cycle benefit.

Planning Philosophy

This section includes two very different philosophies. The first describes the approach to creating a flexible program for the future, and the second focuses on the approach to the physical characteristics of buildings including historical significance, density, relationships, arrangement, and character.

Programming

This master plan is designed to provide guidance for the next twelve years of growth. It is impossible to accurately predict enrollment, pedagogical shifts, and funding streams over this length of time; however, all of these elements will ultimately determine how much space the campus will actually need by 2020.

The master plan assessed historical trends, peer benchmarks, and state analyses to create an estimate of SHSU's 2020 needs. Intentionally, the program has been designed to be aggressive in its projections. This approach allows flexibility and ensures that the master plan will be a usable document until 2020, and perhaps beyond.

Historical Significance

Perhaps the campus's most significant physical asset is its inventory of historic buildings. In addition to Austin Hall, there are several historic academic buildings including the Peabody Memorial Library, Bobby K. Marks Administration, and the Estill Classroom Building. There are also several significant residential buildings including Elliott and Jackson-Shaver Halls. All of these buildings should be preserved and highlighted as part of the architectural heritage of the campus. Additionally, every building should be assessed for its historical significance before major renovation and/or demolition is considered.

Density

Land is not an unlimited commodity. With the university's current growth rate, 1- and 2-story buildings are a luxury that cannot be afforded any longer. The future density of the campus must balance this reality with the spatial character of the campus. The master plan recommends 3 or 4 stories for most new buildings. This will allow the overall density to be increased while maintaining the qualities of the current campus core.

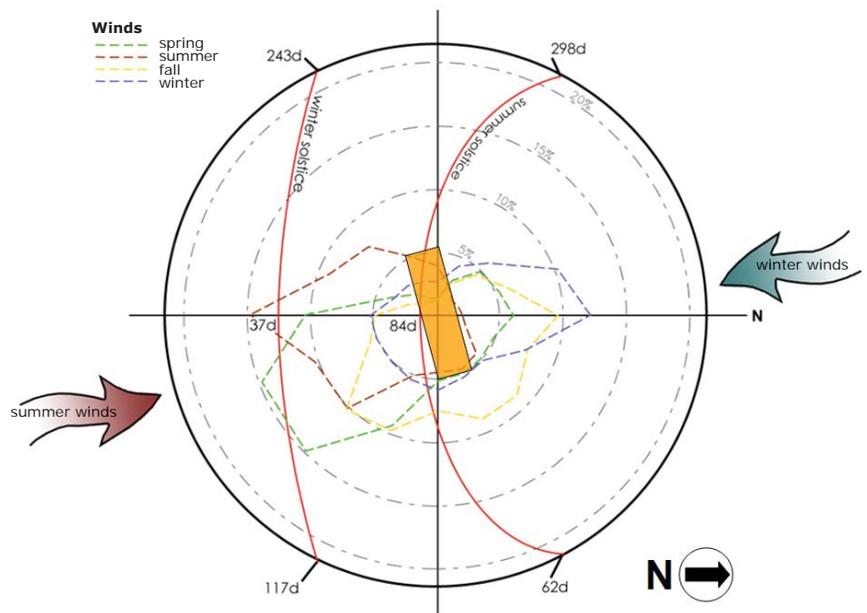
Relationships

The master plan has attempted to create precincts within the overall campus framework for academic, residential, recreational, and athletic uses. The intent is for each precinct to create a critical mass of uses to form an identifiable place within the campus. It also implies that academic programs should be clustered with other like academic programs to share resources and develop learning neighborhoods.



Arrangement

The orientation of a building is important from two aspects. First, it represents where the building's front door is and how it relates to surrounding buildings and spaces. Most campus buildings will need to have two front doors: one to the street and the other to an internal open space system. Second, building orientation is critical to shading and cooling. Whenever possible, the largest mass of the building should be oriented east/west along the long axis to allow for this to occur. A campus of all east/west-oriented buildings, however, will not be practical; therefore, architectural solutions will have to be used to offset solar gain.



Solar and Wind Analysis

Character

One of the unique aspects of the SHSU campus is that the architectural styles reflect a progression of time and influence. This should be preserved when designing new buildings, but the new buildings should also look like they belong to the campus. This is most important to the "structure of the ordinary" or everyday buildings that are immediately recognizable as academic, residential, etc. However, campus-wide amenities that are gems within the overall campus structure should be timeless and lasting architectural celebrations of the SHSU tradition. Future opportunities include a new student center, recreation center, and student commons.



Rendering of the Performing Arts Center

These two approaches to architecture can be best illustrated with the two buildings currently under construction: College of Humanities and Social Sciences (CHSS) and the Performing Arts Center. CHSS is consistent architecturally with many of the newer academic buildings. It looks like an academic building and will blend into the overall architectural framework of the campus. On the other hand, the Performing Arts Center will be a campus-wide destination shared by the entire campus and surrounding community. It will stand out as a unique architectural expression within the overall architectural framework.



Rendering of CHSS

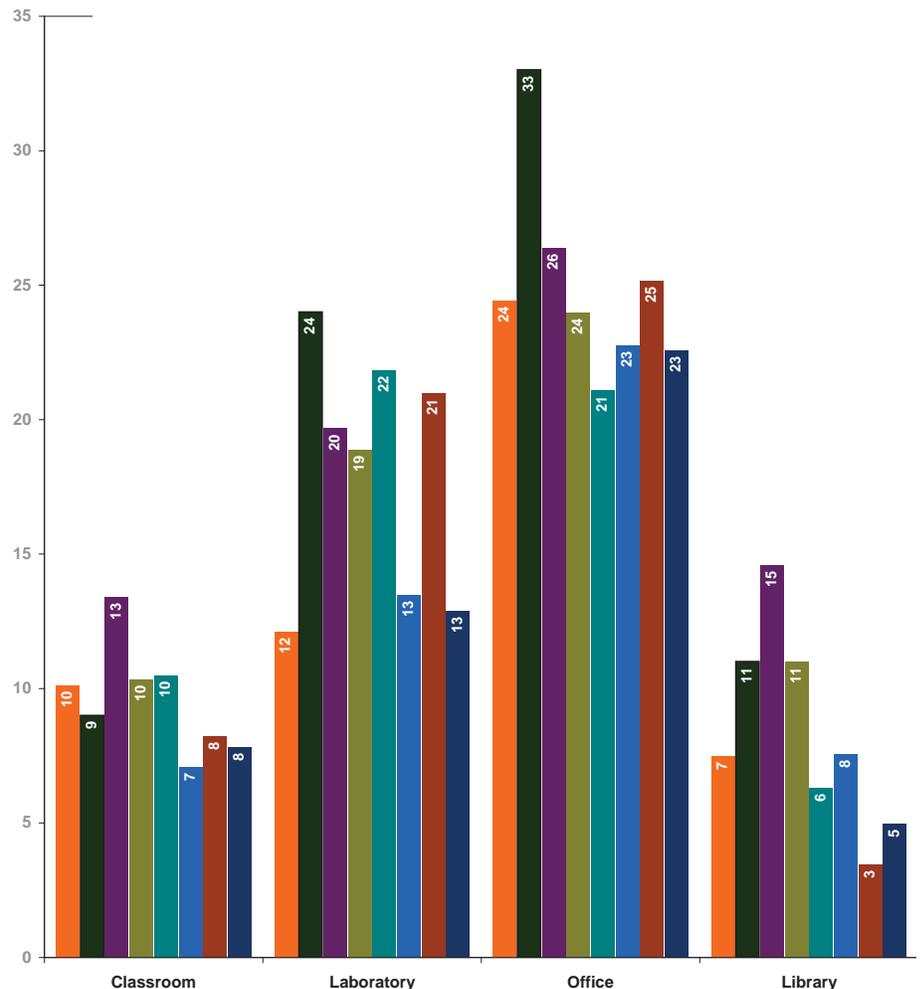


Space Categories

1. Classroom (general purpose classrooms, lecture halls, seminar rooms, help rooms)
2. Laboratory (teaching labs, graphic design labs, digital reproduction, research labs)
3. Office (faculty, staff, graduate student, and administrative offices)
4. Library (library facilities, study areas, help rooms)
5. Athletics (athletic venues, swimming pools, fitness rooms, basketball arenas)
6. Special (ROTC buildings, health clinics, agricultural facilities)
7. General (theaters, student centers, child care, museums, dining halls, bookstores)
8. Service (central storage, laundry facilities, central printing, repair, utilities)

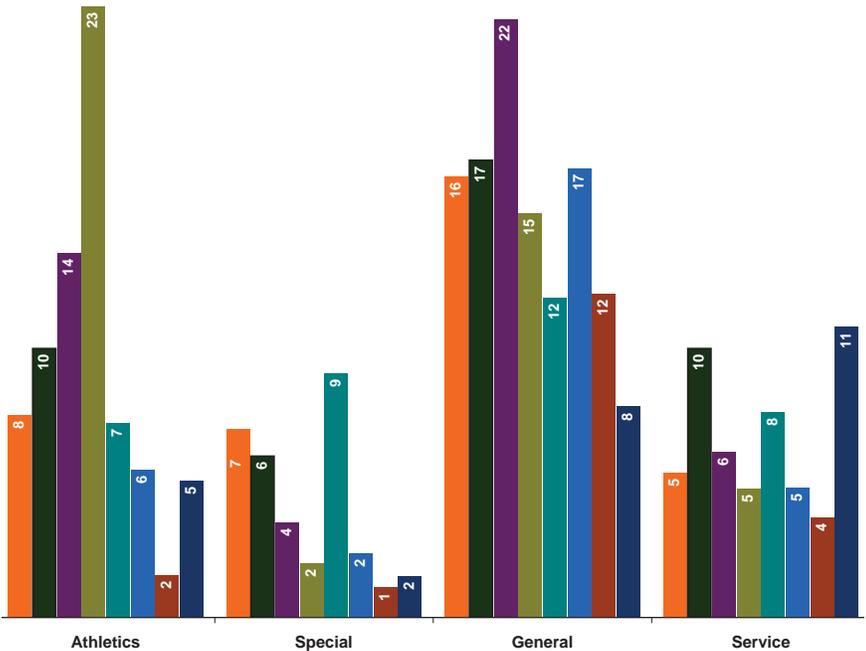
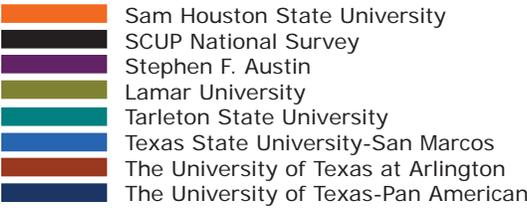
Buildings and Facilities Programming

The buildings and facilities program was divided into eight sub-categories including: classroom, laboratory, office, library, athletics, special, general, and service (see the sidebar for category descriptions). Each category was benchmarked against six state peer institutions and a national study of similar institutions performed by the Society for College and University Planning (SCUP) in order to assess how well the campus was performing in 2008. The bar chart below is the summary of this analysis broken down by each space type. The totals for each institution are in net assignable square feet (NASF) per student. This method allows a direct comparison across all institutions.



The outcome of the benchmarking analysis was compared to 2008 projections for E & G (educational and general) space prepared by the Texas Higher Education Coordinating Board, which confirmed and provided another level of clarity to the specific deficiencies. Finally, the planning team met with department representatives from each college to discuss specific space needs.

During the interviews, laboratory and office space were discussed as the greatest needs. These needs reflect a current deficiency; however, they also reflect the university's shift toward more research and graduate programs. Most of the other space types are performing fairly well, except for library, which is a campus-wide need to be addressed in the future.



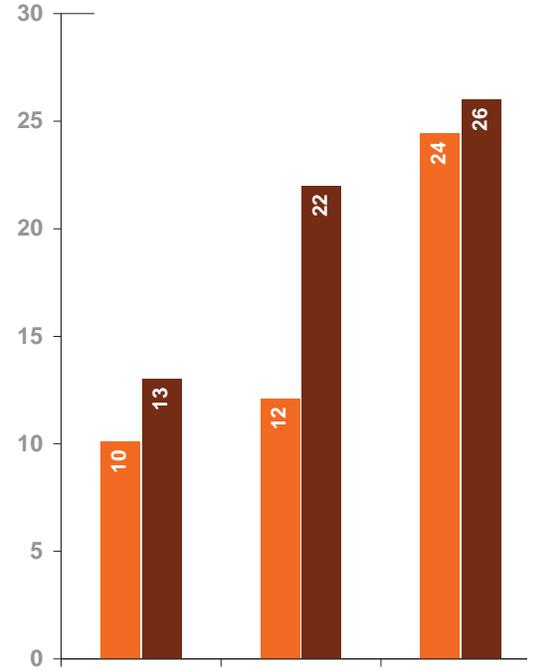
Academic Space Definitions

- *Gross Square Feet (gsf)* – The total area of all floors of a building, which includes circulation, elevators, etc.
- *Net Assignable Square Feet (NASF)* – The area of a building that can be assigned to a specific use and does not include circulation, elevators, etc.
- *Net Assignable Square Feet Per Student (NASF/student)* – Used to calculate the available assignable square feet per student on campus.
- *Facilities Inventory Classification Manual (FICM)* – The national standard for classifying institutional space types.
- *Society for College and University Planning (SCUP)* – A national association that creates a biannual survey of academic space on American universities.

After the assessment of current needs was completed, a target for NASF/student was assigned to each space type. This number was then multiplied by the current enrollment to determine the need in 2008 and by the projected 2020 Huntsville enrollment to determine the need by 2020.

In order to make the program specific to the Huntsville campus, the agricultural space that will be relocated to Gibbs Ranch and the two buildings currently under construction (CHSS and the Performing Arts Center) were removed from the future need. This left a total future need of 598,823 gsf of academic (classroom, laboratory, and office combined) and 545,019 gsf of auxiliary (library, athletics, special, general, and service combined) buildings.

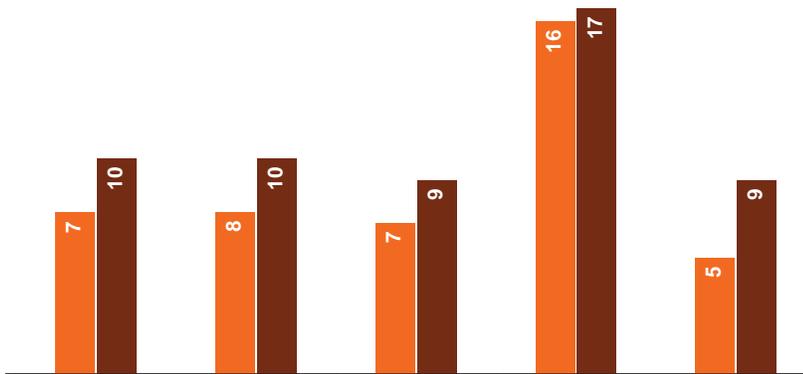
The final step in determining program projections was to add the buildings under consideration for demolition to the overall need. This yielded a total of 856,113 gsf of academic and 691,440 gsf of auxiliary buildings. The total of these two categories, 1.5 million gsf, is the projected need.



Space Type	Classroom	Laboratory	Office
Need in 2008	70,843	42,502	38,664
Need by 2020	168,146	407,168	233,269
Less Gibbs Ranch	168,146	407,168	233,269
Less PAC and CHSS	87,072	368,926	142,826
Additional Need	598,823		
Add Demolition Candidates	856,113		

ACADEMIC

2008 NASF/Student
 Planning Target



Library	Athletics	Special	General	Service	Total
61,499	60,858	49,259	15,035	88,576	627,237
136,347	135,706	116,622	142,277	155,939	1,495,474
136,347	135,706	10,000	142,277	155,939	1,388,851
136,347	135,706	10,000	107,027	155,939	1,143,842

545,019

691,440

AUXILIARY

1,143,842

1,547,553 gsf

CAMPUS

All Totals in Gross Square Feet (gsf)

Academic Building Programming

For the purpose of this master plan, academic buildings include primarily classrooms, laboratories, and offices. The program projected a need of 599,000 gsf of academic space. When future demolition candidates are added to this number, the total demand is just over 856,000 gsf. The master plan provides 859,000 gsf of new academic building opportunities.

Academic Building Plan Elements

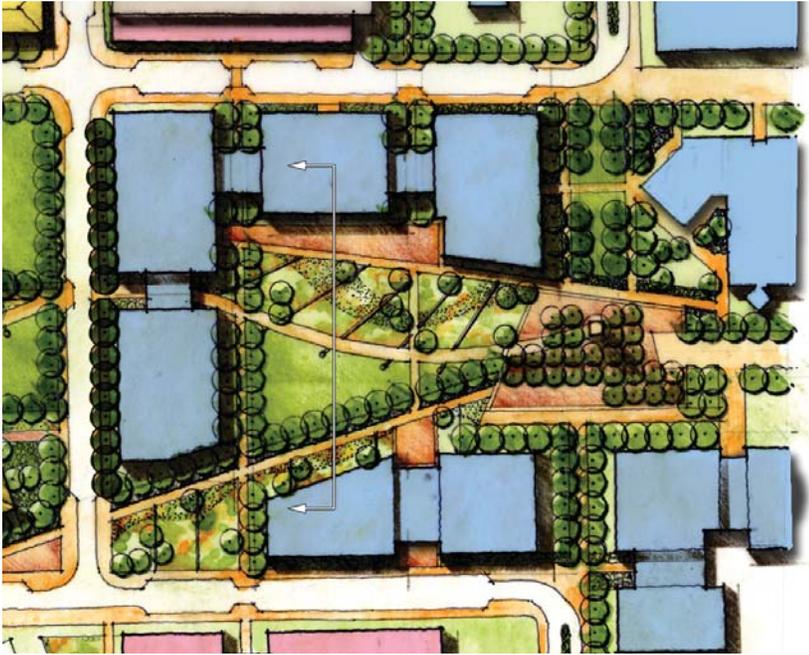
There are no major differences in academic building typologies proposed in the master plan. Each is a 4- to 5-story, double-loaded, linear building. All of the building envelopes are planned with a 110-foot-wide floor plate, which is typical of most campus buildings.

The building envelopes that are given specific names in the master plan have arisen as the most likely use that will occupy the site. For the purpose of the master plan, each of these envelopes are opportunities for future academic uses, since programmatic priorities may change before they are implemented. The “6-Year Phasing Plan” chapter provides more detail regarding the specific building uses that are proposed within the first 6 years of the master plan.

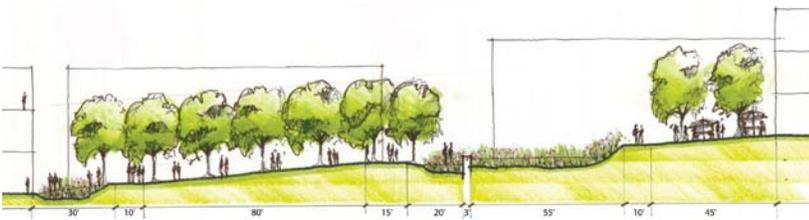
Academic Building Implementation Considerations

The graphics on the facing page illustrate the character of the south academic quad. Consider the following guidelines when planning future academic buildings:

- Determine the current and future program needs so that the building will be flexible for years to come.
- Consider the architectural context that the building will have to visually relate to.
- Consider how the building and associated landscape will integrate with the overall open space network.
- Allow for accessibility and service to all academic buildings.
- Develop building entrances to encourage students to use either mid-block or intersection crosswalks.
- Consider access and availability of appropriate infrastructure and utilities.
- Consider the density, scale, and architectural character to allow the building to work within the overall framework of the campus.



South Academic Quad Precinct Plan



South Academic Quad Section



Auxiliary Building Programming

Auxiliary buildings include all buildings that are not academic or residential such as the library, athletic venues, the recreation center, performance halls, and service facilities. The program projected a need of just over 545,000 gsf of auxiliary space. When future demolition candidates are added to this number, the total demand is just under 691,500 gsf. The master plan provides 790,000 gsf of new auxiliary building opportunities.

Auxiliary Building Plan Elements and Implementation Considerations

Specific building types included in the auxiliary building category include the following:

Dining Commons – A facility serving the dining needs of a residential neighborhood. Dining commons should be designed as neighborhood centers for the residential districts they serve. Facilities should be combined into residential halls when possible to increase density. Two facilities are planned to the north and south, with the third and largest located at the student center.

Central Plant – See the “Infrastructure” chapter.

Alumni Center – With the construction of a new alumni center, the Visitors Center will take over the current facility. The venue should be designed as an architectural amenity to the campus and relate to the athletic district in which it will be located.

Health Center – This facility will be an expansion to the current Student Health Center. The addition should be designed to engage Bearkat Boulevard and enhance the pedestrian environment.

Maintenance & Storage – A 1-story facility that provides university storage. All facilities should be designed to blend into their context, break down their scale, and hide their mass using architectural elements. These envelopes are space holders that should be developed as needed.

Library – This facility will be an expansion to the current library. It will have to accommodate light and air concerns through the use of an atrium or other element. A two-level parking deck is planned under the facility to bring the first floor to the same level as the rest of the building. Consider campus-wide amenities, such as a café.



Dining Hall Distribution Diagram

Recreation Center – This facility will be an expansion to the current recreation center. It will need to accommodate at least one level of grade change and is anticipated to meet a realigned Avenue I at the second floor. The building should create a presence on Avenue I and Bowers Boulevard.

Student Center – A new student center is the most important building opportunity in the master plan. It should be designed as a signature building that represents the heritage, pride, and vision of the university. The east and west ends of the building should be designed to terminate the Avenue I and J malls that will extend from the facility to the south.

Athletic Office Complex – This facility will house the athletic administrative functions. It should reflect the image of the athletic district.

Hotel and Conference Center – This facility is a new hotel and conference center that will replace the current hotel as the primary venue on campus. It should be designed programmatically to complement the student center and architecturally to terminate the Avenue J approach to the campus core.

Spiritual Center – This facility presents an opportunity the university would like to pursue. All spiritual groups would be combined into a common office/administrative building that would be connected to a shared reception hall.

Indoor Practice Facility – If the opportunity arises, the university would like pursue the planning and construction of an indoor practice facility. The area it is planned to occupy should be preserved as a parking lot until it can be realized.



Residential Building Programming

Residential programming was based on a university-defined goal of 20 percent on-campus housing. This allows freshmen and a percentage of upper classmen to live on campus. To calculate total gsf needed, each bed is assumed to be an average of 400 gsf, which is consistent with the most recently constructed residential buildings on campus.

The program projected a need of 292,400 gsf and 731 beds. When future demolition candidates are added to this number, the total demand is 723,600 gsf and 1,809 beds. The master plan provides 752,500 gsf of new residential building opportunities and 1,991 beds.

Residential Building Plan Elements

There are two housing typologies that have been considered for the master plan that are related to scale and density. Within each type, several different unit styles could be accommodated depending on current market demands.

Residence Halls – Three- to four-story double-loaded buildings. The majority of the new housing stock in the master plan will be created in this building type. This type allows for a relatively high building density.

Houses – Three-story buildings with individual units. These buildings are planned to be connected in a row house style to increase density. The units will allow the university to provide more intimate housing options as compared to the larger residential halls.

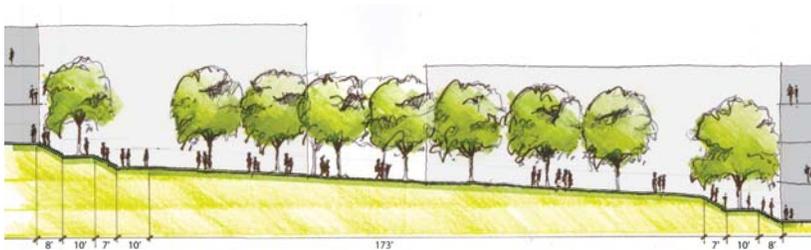
Residential Building Implementation Considerations

The graphics on the facing page illustrate the character of the north residential neighborhood. Consider the following guidelines when planning future residential buildings:

- Determine if there are opportunities to incorporate informal recreation space.
- Consider the availability of adequate dining facilities.
- Allow for proper drop-off and temporary parking near building entrances.
- Consider parking availability within a safe and appropriate walking distance.
- Consider the mix of housing types to reflect future housing demands.



North Residential Quad Precinct Plan



North Residential Quad Section

- Develop building entrances to encourage students to use either mid-block or intersection crosswalks.
- Consider access and availability of appropriate infrastructure and utilities.
- Consider the density, scale, and architectural character to allow the building to work within the overall framework of the campus.



Plan Recommendations

The recommendations illustrated on this page represent all of the building sites identified in the master plan. The list is reflective of the needs defined by the program except for the two facilities marked with an asterisk (*), which the university could pursue, but are not priorities. This graphic also identifies building zones that are likely next steps if alternative sites are needed before a new plan is developed.

	#	Building Description	Floors	GSF	Beds
academic	A1	Teacher Education Center Expansion	2.0	10,000	
	A2	New Art Complex	2.0	40,000	
	A3	Agriculture Building	3.0	50,000	
	A4	Biology, Nursing & Allied Health Building	3.0	125,000	
	A5	Forensic Science Building	3.0	50,000	
	A6	College of Business Building	3.0	150,000	
	A7	Integrated Engineering Building	4.0	100,000	
	A8	Criminal Justice Building Expansion	3.0	24,000	
	A9	CMIT/LEMIT Expansion	4.0	50,000	
	A10	South Quad Building	3.6	60,000	
	A11	South Quad Building	3.6	60,000	
	A12	South Quad Building	3.6	110,000	
	A13	Thomason Site Building	3.0	65,000	
auxiliary	X1	North Dining Commons	1.5	25,000	
	X2	South Central Plant	1.0	10,000	
	X3	Alumni Center	2.0	35,000	
	X4	Health Center Expansion	1.0	10,000	
	X5	Residence Life Maintenance & Storage	1.0	15,000	
	X6	Main Library Expansion	4.0	100,000	
	X7	Recreation Center Expansion	2.0	35,000	
	X8	New Student Center	3.3	200,000	
	X9	South Dining Commons	2.0	25,000	
	X10	Athletic Office Complex	2.0	50,000	
	X11	New Hotel and Conference Center	4.0	80,000	
	X12	Future Storage Building	1.0	15,000	
	X13	Future Storage Building	1.0	65,000	
	X14	Spiritual Center*	1.0	20,000	
	X15	Indoor Practice Facility*	1.0	70,000	
residential	R1	North of Bearkat Boulevard	4.0	80,000	213
	R2	Northeast of Sorority Hill	4.0	60,000	160
	R3	King Hall Replacement	4.0	75,000	200
	R4	Northwest of Sorority Hill	4.0	60,000	160
	R5	Sorority Hill Replacement	3.0	82,500	220
	R6	North of Estill Hall	2.0	20,000	50
	R7	North of Estill Hall on 15th	2.0	40,000	100
	R8	4-West Replacement	3.0	30,000	75
	R9	South of 21 st /West of Avenue J	4.0	70,000	187
	R10	South of 22 nd /West of Avenue I	4.0	80,000	213
	R11	North of 22 nd /Across from Raven Village	4.0	75,000	200
	R12	North of 22 nd Between Avenues I and J	4.0	80,000	213



- Academic Building Opportunity
- General Building Opportunity
- Residential Building Opportunity
- Likely Next Step Beyond the Plan



AVENUE O

Recreation

Museum Campus

10 Minute Walking Radius

5 Minute Walking Radius

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

AVENUE J

AVENUE I

CREEK CORRIDOR

BOBBY K. MARKS DRIVE

MONTGOMERY ROAD

Athletic Campus

SYCAMORE AVENUE



2008 Building Conditions

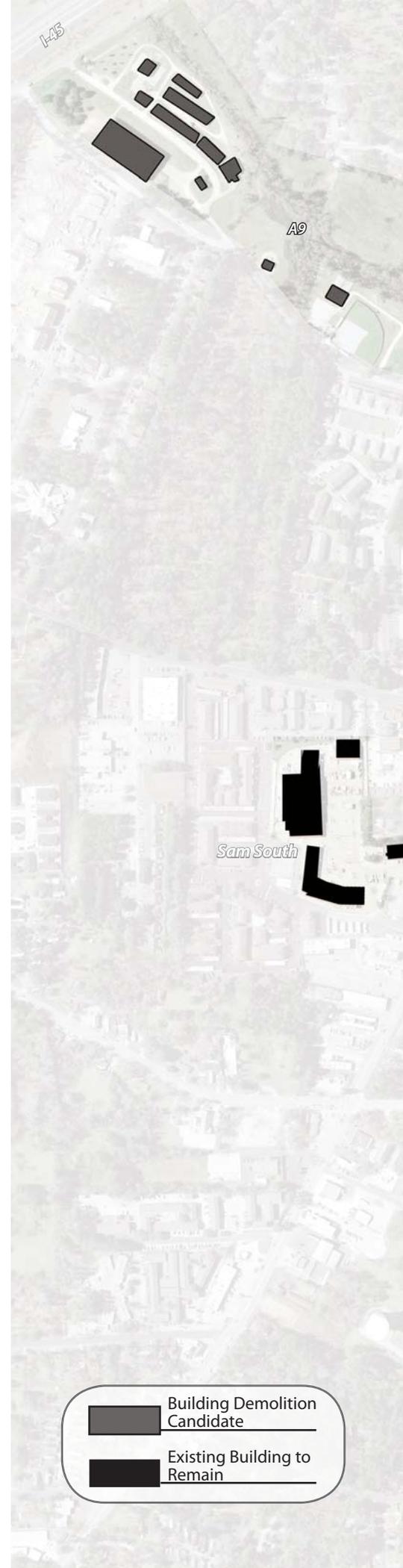
Including CHSS and the Performing Arts Center (both currently under construction), there are 3,577,644 gsf of buildings and facilities on the campus. Of that, 2,322,559 gsf are academic and auxiliary, and 266,275 gsf are parking structures. The remaining 988,810 gsf are residential, which yield 3,269 on-campus beds.

Architecturally, the most significant building on campus is Austin Hall. It is complemented on the historic quadrangle by Peabody Memorial Library, the Estill Classroom Building, and Bobby K. Marks Administration.

Using the following criteria, the list of buildings below was developed as infill opportunities for future facilities. These buildings are under consideration for demolition through the life of the plan. This is not a mandate for demolition. Each building should remain on campus until it is absolutely necessary to be removed.

1. *Highest and best use* applies to smaller footprint buildings near the campus core.
2. *Building condition and quality* applies to buildings that require architectural and/or mechanical improvements that outweigh the overall value of the building. Several of these buildings were examined in more detail through a building assessment that follows this page.
3. *Long-term university need* applies to specific buildings that may meet the first two criteria but do not meet the long-term needs of the university.

	#	Building Name	GSF	Beds
academic	A1	Smith-Kirkley Hall	112,619	
	A2	Academic Building III	54,876	
	A3	Art Complex	34,606	
	A4	Thomason Building	33,423	
	A5	Career Services	6,183	
	A6	Residence Life Offices	5,600	
	A7	Roy Adams House	8,161	
	A8	Forensic Psychology Building	1,822	
	A9	I-45 Agriculture Complex <i>*will be replaced at Gibbs Ranch</i>	74,937 *	
auxiliary	X1	Lowman Student Center	128,081	
	X2	Recital Hall	6,511	
	X3	West Plant	10,629	
residential	R1	White Hall	85,720	144
	R2	Four West Houses	32,080	144
	R3	Lawrence House	8,161	36
	R4	Mitchell House	8,161	36
	R5	Parkhill House	8,161	48
	R6	Barrett House	8,161	48
	R7	Allen House	8,161	36
	R8	Vick House	8,161	48
	R9	Spivey House	8,161	38
	R10	Randel House	8,161	42
	R11	King Hall	33,654	176
	R12	Sorority Hill	63,000	282





AVENUE O

Recreation

Museum Campus

19TH STREET

17TH STREET

16TH STREET

10-Minute Walking Radius

5-Minute Walking Radius

AVENUE M

22ND STREET

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

21ST STREET

BOWERS BOULEVARD

X3

A4

Austin Hall

R3

R4

AVENUE J

AVENUE J

A3

A2

X1

A1

A6

G2

R11

R12

R5 R6

R7 A7

R8 R9

R10

R1

AVENUE I

AVENUE I

Coliseum

Performing Arts Center

BOBBY K. MARKS DRIVE

Recreation

MONTGOMERY ROAD

BOWERS BOULEVARD

Athletic Campus

BEARKAT BOULEVARD

SYCAMORE AVENUE



2008 SHSU Building Assessment

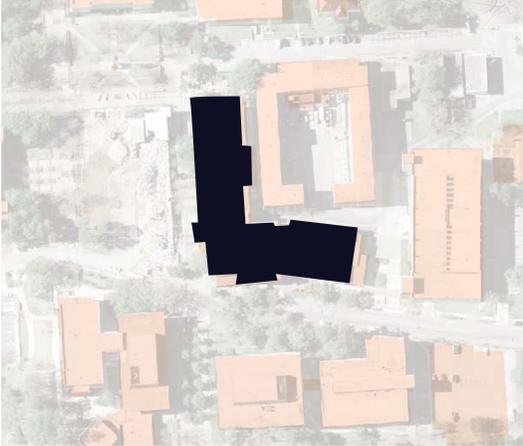
As part of the master plan process, there were seven buildings that were evaluated in more detail to help determine their long-term viability for the university. This assessment allowed the planning team to make the recommendation that these buildings should be considered for demolition over the life of the plan. Each of these buildings was assessed in terms of architecture, mechanical, plumbing, electrical, and communication systems.



■ Buildings Included in the Building Assessment

- Lowman Student Center
- Smith-Kirkley Hall
- Academic Building III
- Recital Hall
- Thomason Building
- Career Services
- King Hall

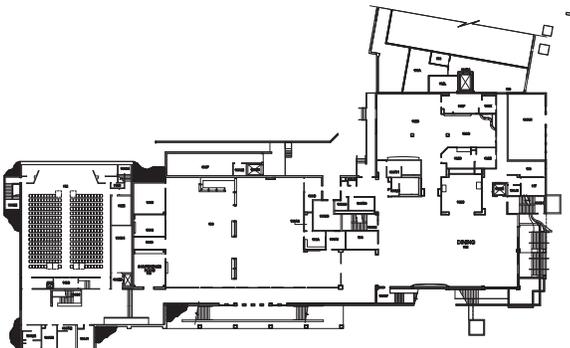
Lowman Student Center Building Assessment



Building Location on Campus



Building Photo



Building First Floor Plan

Description

The Lowman Student Center is a 128,000 gsf student service facility located at the center of the SHSU campus. The building was constructed in 1963 and renovated in 2001. It is fully occupied, housing the following:

- Meeting Facilities
- Food Court
- Bookstore
- Dean of Students' Office
- Student Activities, Program Council
- Student Government Association

Existing Conditions

The Lowman Student Center is a 3-story brick building with a low slope roof. The exterior brick appears to be in good condition. The main building entries are offset from the ground level and require stairs for access. There is a grade level entry on the south side, but it is remote from the main path of travel. Issues of concern include:

- Limited ADA access.
- Lack of direct access to the campus mall.
- Not enough interior gathering space for students.
- Odor problems from the sanitary sewer system.

Photographs: Existing Conditions



Back Entrance Not Accessible

Building Systems

Mechanical

Type: VAV AHU w/ Terminal Units (Mostly Fan-Powered) Munters Units for OA Pretreat
Age/Condition: Renovated Recently
Maintenance Needed: Some AHU Rooms Have No Return Air Path
Heating Source: Boilers (2)
Cooling Source: Campus Loop East Plant
Other Comments: HVAC Units in Fairly Good Condition

Plumbing

Type: Cast Iron Waste and Copper Supply
Water Heating Type: Natural Gas
Special Plumbing: Dining w/ Grease trap
Age/Condition: Renovated Recently – Fair
Maintenance Needed: None
Roof Drainage Type: Roof Drains
Sprinklered: Yes

Electrical

Type: 13,200V Service – Circuit #3 & 4
Age/Condition: Recent Upgrades
Maintenance Needed: None
Lighting: Mostly Fluorescents in Recent Upgrades
Lightning Protection: None
Other Comments: New Fire Alarm System

Communication

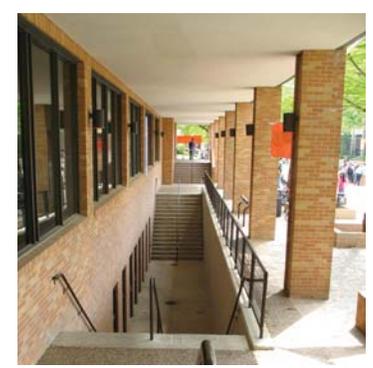
Wireless Capability: Yes



Accessible Entrance Remote from Mall

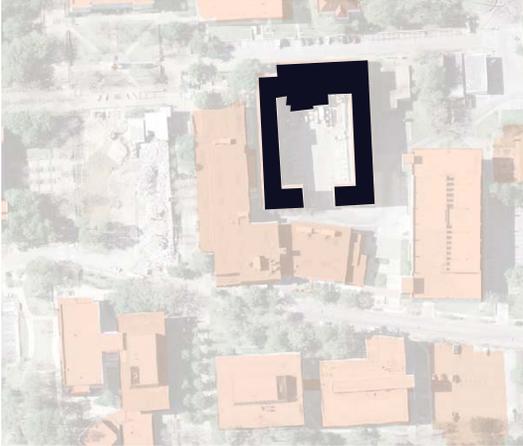


Air Pressure in Mechanical Room Not Functioning Properly



Mall Access Not Direct

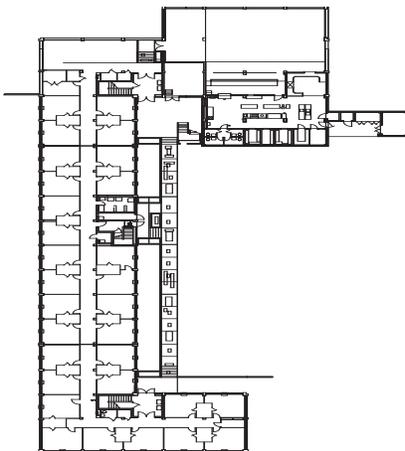
Smith-Kirkley Hall Building Assessment



Building Location on Campus



Building Photo



Building First Floor Plan

Description

Smith-Kirkley Hall is a 112,600 gsf residential facility located at the center of the SHSU campus. The building was constructed in 1961. It is only partially occupied, housing the following:

- College of Humanities and Social Sciences
Departmental Offices

Existing Conditions

Smith-Kirkley Hall is a 4-story brick building with a low slope roof. The exterior brick appears to be in relatively good condition, but the interior appears to be in poor condition. The exterior is very utilitarian in appearance and has no detail or discernible architectural character. Issues of concern include:

- Limited accessibility at entries.
- Poor indoor air quality.
- Handrails and guardrails are not ADA compliant.
- Interior finishes are in poor condition.
- No elevator in the building.

Photographs: Existing Conditions



Handrails/Guardrails Not ADA Compliant

Building Systems

Mechanical

Type: DX Windows and Single Zone AHUs in Basement for Renovated Area
Age/Condition: Poor
Maintenance Needed: Replacement
Heating Source: Electric
Cooling Source: DX
Other Comments: Basement AHU Casing Leaking Into Secondary Drain Pan

Plumbing

Type: Cast Iron Waste and Copper Supply
Water Heating Type: Gas Fired
Special Plumbing: Old Dorm Full Baths and Laundry Facilities
Age/Condition: Poor
Maintenance Needed: Replacement
Roof Drainage Type: Roof Drains
Sprinklered: No

Electrical

Type: 4160V Service from Behind Farrington – Circuit #5
Age/Condition: Old Gear
Maintenance Needed: Replacement as Needed
Lighting: Mostly Incandescent Except Small Renovated Areas
Lightning Protection: None

Communication

Wireless Capability: No



Most Entrances Not Accessible



Poor Indoor Air Quality and Mold Evident Throughout Unoccupied Portion of Building



Mechanical Room Tightly Packed and in a Basement

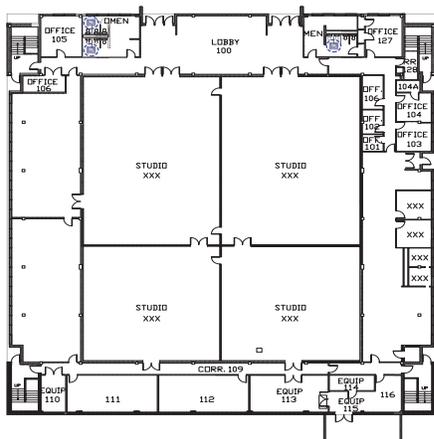
Academic Building III Assessment



Building Location on Campus



Building Photo



Building First Floor Plan

Description

Academic Building III is a 54,800 gsf academic facility located on the southwest side of the SHSU campus. The building was constructed in 1956. It is fully occupied, housing the following:

- Dance Department Offices, Studios and Theater
- Correspondence
- Military Science/ROTC

Existing Conditions

Academic Building III is a 3-story brick building. The brick exterior appears to be in relatively good condition. The exterior has a very utilitarian appearance, and the interior is confusing and not easy to navigate. Issues of concern include:

- Extremely low ceilings.
- Many door thresholds are not ADA compliant.
- Plumbing fixtures left over from dorms make space planning difficult.
- Interior finishes are in poor condition.
- No elevator in the building.
- No fire alarm system.
- HVAC system is outdated and in poor condition.

Photographs: Existing Conditions



Low Ceilings Throughout Building

Building Systems

Mechanical

Type: Chilled Water FCUs in Closets and DX Window Units Support Deficient Central Heating and Cooling Systems
Age/Condition: Poor
Maintenance Needed: Replace Chilled Water Units for Outside Air and Heat Loads Seen by the Building
Provide as Much Cooling as Possible by the West Plant Loop and Replace DX Units as Needed to Provide the Remainder of Cooling
Heating Source: On-Site Boilers and Electric Heat
Cooling Source: Campus Loop West Plant and DX
Other Comments: Floor-to-Floor Heights Limit HVAC Renovations
Window Units Low Efficiency Type

Plumbing

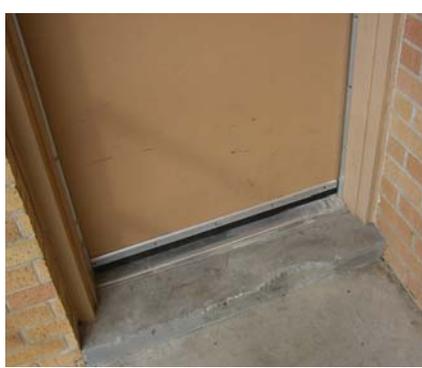
Type: Cast Iron Waste and Copper Supply
Water Heating Type: Electric
Special Plumbing: Old Dorm – Laundry and Large Utilities for Multiple Full Baths
Age/Condition: Poor
Maintenance Needed: Replacement and Renovation to Remove Unneeded Restrooms
Roof Drainage Type: Gutters
Sprinklered: No

Electrical

Type: 4160V Service from Behind Farrington – Circuit #6
Age/Condition: Old Everything
Maintenance Needed: Replacement of Gear if Building Reused
Lighting: Some Fluorescents, Some Incandescent
Lightning Protection: None
Other Comments: No Electrical Rooms
Panels in Halls and Closets

Communication

Wireless Capability: No



Transition at Threshold

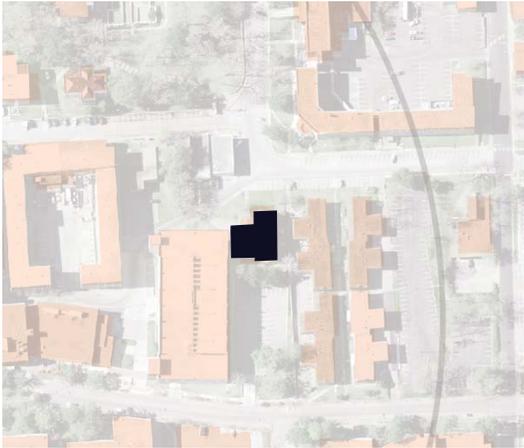


Stair Treads



Paint on Ceiling

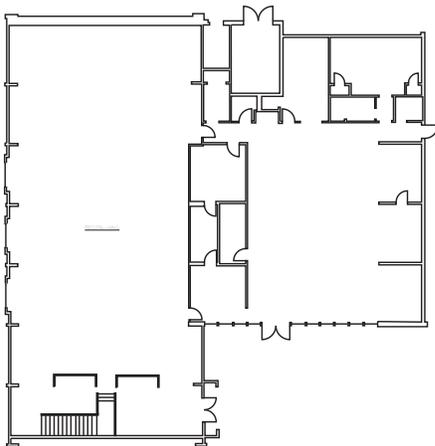
Recital Hall Building Assessment



Building Location on Campus



Building Photo



Building First Floor Plan

Description

The Recital Hall is a 6,500 gsf academic facility located near the center of the SHSU campus. The building was constructed in 1964. It is fully occupied, housing the following:

- Music Department Performance Space

Existing Conditions

The Recital Hall is a 1-story wood clad building with a steeply sloped roof. The exterior brick appears to be in poor condition. Issues of concern include:

- No ADA access at the main entry.
- Exterior siding has holes and has rotted in several places.
- The mezzanine is not accessible.
- Interior finishes are in poor condition.
- Building footprint is small and will only accommodate small programs.

Photographs: Existing Conditions



Mezzanine Not Accessible

Building Systems

Mechanical

Type: DX AHUs – One Outdoor Ducted In, Other Located in Mechanical Room in Rear of Building
Age/Condition: Poor
Maintenance Needed: Replace as Needed
Heating Source: Electric
Cooling Source: DX – Electric

Plumbing

Type: Cast Iron Waste and Copper Supply
Water Heating Type: Electric
Special Plumbing: None
Age/Condition: Poor
Maintenance Needed: Replacement
Roof Drainage Type: Sloped Roof and Scuppers on Flat Roof Portion
Sprinklered: No

Electrical

Type: 13,200V Service
Age/Condition: Old Gear in Building Mechanical Room
Maintenance Needed: Replacement as Needed
Lighting: Mainly Incandescent
Lightning Protection: None

Communication

Wireless Capability: No



Main Entrance Not Accessible



Exterior Wall Rotted and in Very Poor Condition



Deterioration at Wood Siding

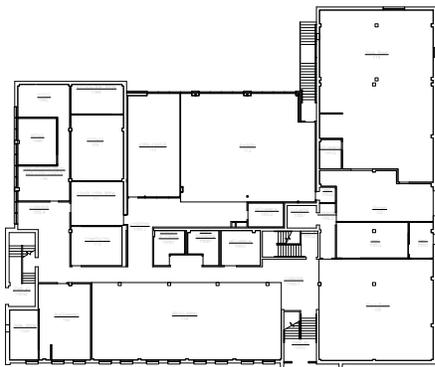
Thomason Building Assessment



Building Location on Campus



Building Photo



Building First Floor Plan

Description

The John W. Thomason Building is a 33,400 gsf facility located on the historic quadrangle of the SHSU campus. The building was constructed in 1952. It is fully occupied, housing the following:

- Agriculture Science
- Sam Houston Press

Existing Conditions

The Thomason Building is a brick 3-story building with a low sloped roof. The exterior brick appears to be in relatively good condition. The exterior is mid-century modern and does not fit the character of the historic buildings on this part of the campus. Issues of concern include:

- Stairs are not compliant with codes.
- West plant piping passes through the building.
- Handrails and guardrails are not ADA compliant.
- Interior finishes are in poor condition.
- HC entrance at loading dock.

Photographs: Existing Conditions



Handrails Not ADA Compliant

Building Systems

Mechanical

Type: Single Zone AHUs with Reheat
Age/Condition: Poor
Maintenance Needed: Exhaust in Print Areas and Add Outside Air
Heating Source: West Campus Loop
Cooling Source: West Campus Loop
Other Comments: Asbestos Insulation

Plumbing

Type: Cast Iron Waste and Copper Supply
Water Heating Type: Electric Located in Mechanical Room
Special Plumbing: None
Age/Condition: Adequate
Maintenance Needed: None
Roof Drainage Type: Gutters
Sprinklered: No

Electrical

Type: 4160V Service from Behind Farrington – Circuit #2
Age/Condition: Old Gear
Maintenance Needed: None
Lighting: Mostly Fluorescents in Upgrades
Lightning Protection: None
Other Comments: ITE Panelboards

Communication

Wireless Capability: No



Code Issues at Base of Stairs in Printing Area



Code Issues in Stairway



West Plant Piping Passes Through Thomason Building

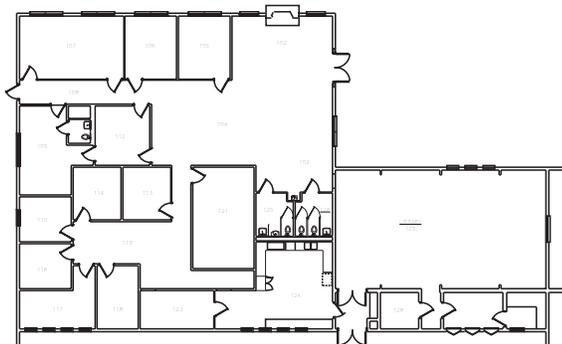
Career Services Building Assessment



Building Location on Campus



Building Photo



Building First Floor Plan

Description

Career Services is a 6,183 gsf building located on the north side of the SHSU campus. The building was constructed in 1959. It is fully occupied, housing the following:

- Department of Career Services Offices and Meeting Spaces

Existing Conditions

The Career Services building is a 1-story brick and wood clad building with a steeply sloped roof. The exterior cladding appears to be in relatively good condition. Issues of concern include:

- Main entry is not ADA accessible.
- Electrical runs throughout building are in surface-mounted conduits.
- Main electrical closet has several code violations—electrical is mixed with mechanical/plumbing and electric panels do not have proper clearance.
- Building footprint is small and will only accommodate smaller programs.

Photographs: Existing Conditions



No Code Required Clearance in Front of Electrical Panels

Building Systems

Mechanical

Type: Single Zone Constant Volume
Age/Condition: Renovated Recently; Good Condition
Maintenance Needed: One Duct Repair Required in Library Unit
Heating Source: Gas Fired Furnaces
Estimated Peak MBH
Historical: 200
Estimated Peak MBH
Future: 200
Cooling Source: DX
Estimated Peak Tonnage
Historical: 30
Estimated Peak Tonnage
Future: 30

Plumbing

Type: Cast Iron Waste and Copper Supply
Water Heating Type: Gas Fired
Special Plumbing: None
Age/Condition: Good
Maintenance Needed: None
Roof Drainage Type: Sloped Roof
Sprinklered: No

Electrical

Type: 120/240V Service
Age/Condition: Old Boards, New Conduit Surface Mounted
Maintenance Needed: None
Lighting: Mostly Incandescent Down-Lights
Lightning Protection: None
Other Comments: Served Residential-Type Service from Pole in Parking Lot to North

Communication

Wireless Capability: No



Electrical Run in Surface-Mounted Conduits



Main Entrance Not Accessible



Electrical Mixed in with Mechanical and Mop Sink

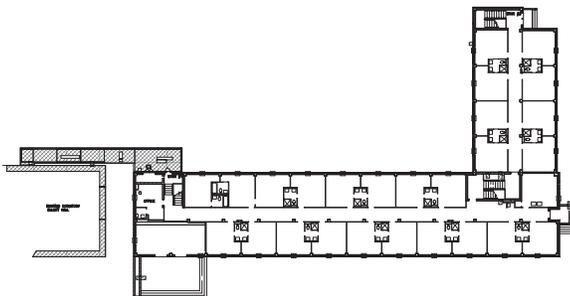
King Hall Building Assessment



Building Location on Campus



Building Photo



Building First Floor Plan

Description

King Hall is a 33,600 gsf residential facility located on the north side of the SHSU campus. The building was constructed in 1959.

Existing Conditions

King Hall is a 4-story brick building with a low slope roof. The exterior brick appears to be in reasonable condition. The exterior is very utilitarian in appearance and has no detail or discernible architectural character. Issues of concern include:

- Low ceiling heights.
- Electrical runs throughout building are in surface-mounted conduits.
- Handrails and guardrails are not ADA compliant.
- Interior finishes are in poor condition.
- No elevator in the building.

Photographs: Existing Conditions



Low Ceilings

Building Systems

Mechanical

Type: Window Units
Age/Condition: Mostly Original 1959
Maintenance Needed: Replacement of Any Non-Working Units
Heating Source: Window Unit Electrical
Cooling Source: DX Window Units
Other Comments: Window Units Low Efficiency Type

Plumbing

Type: Cast Iron Waste and Copper Supply
Water Heating Type: Natural Gas
Special Plumbing: Dorm, So Many Full Baths and Laundry Facilities
Age/Condition: Poor
Maintenance Needed: Renovations
Roof Drainage Type: Roof Drains
Sprinklered: No

Electrical

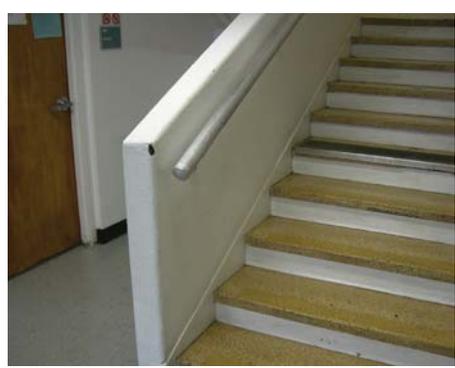
Type: 4160V Service Behind Farrington – Circuit #5
Age/Condition: Mostly Original 1959, New Circuits Routed in Surface-Mounted Raceway in the Hallways
Maintenance Needed: Replacement of Gear if Building Reused
Lighting: Mostly Incandescent
Lightning Protection: None

Communication

Wireless Capability: No
Other Comments: Tel/Data Routed in Surface-Mounted Conduit in Hallways



Electrical Run in Raceway



Stair Handrails and Guardrails are Not Compliant



Patch in Wall and Base in Disrepair

Chapter Contents

This chapter describes the conceptual thermal utility strategies developed as part of the master plan.

Chapters that support the recommendations of this chapter include the following:

- Campus Organization
- Buildings and Facilities

Related Master Plan Goals

The following Master Plan Goals are expanded on in this chapter:

5. Develop buildings that meet the needs of tomorrow as well as today.

Implement sustainable strategies based on life-cycle benefit.

6. Provide sustainable and efficient infrastructure.

Centralize utilities for efficiency.

Create a loop system for thermal utilities.

Allow for the system to expand beyond 2020.

Planning Philosophy

Thermal utilities shall be designed with the future in mind. The utilities to support a facility must be installed and commissioned before the building requiring them can be occupied. Temporary fixes or makeshift solutions can lead to an inconsistent campus distribution that is difficult to maintain and operate efficiently.

The thermal utility infrastructure master plan should be designed to optimize the utilization of the existing infrastructure while expanding and planning for future growth.

Existing piping, equipment, and plants that are consistent with the master plan and that are still within their useful life should be kept in place for the plan. Locations that are not consistent with the master plan but are within their useful life should be reused in new structures. Piping that is viable for usage through 2020 shall be reused and backfed wherever possible.

Infrastructure Programming

The buildings proposed in the master plan will grow above and beyond the capabilities of the existing central plants, beginning with the first new building. It is estimated that the campus will need 4,000 additional tons of cooling capacity by the year 2020 to meet the total proposed build-out.



The Pennsylvania State University, plant attached to a parking structure – This example is similar to what is proposed for the new south plant.

Plan Elements

The following elements are adopted campus standards for cooling and heating buildings:

Academic Buildings – Chilled water from the campus loop and heating water from either a campus loop or small packaged boilers located within the building.

Dormitories – DX split system units with electric heat.

Food Services – Chilled water from the campus loop and heating water from small packaged boilers or DX split system units with either electric or natural gas heating.

Miscellaneous Buildings – Depends on the service. Student centers would be operated off of the campus loop, while a new hotel or religious center may be served by DX split system units.

Implementation Considerations

There are three considerations regarding the thermal utility infrastructure planning: (1) the existing state of the west plant, (2) the existing condition of the east plant, and (3) the goal(s) the campus wants to attain with a third plant.

The existing west plant is underutilized. There are two chillers, a 1,200-ton and a 1,000-ton machine that are in good condition. Both units do not operate at the same time. This is partly because the buildings on the west loop collectively do not require more than 1,200 tons of capacity, and the loop piping is too small as it branches out to new building locations to supply more than that amount. In addition, the piping runs through the center of the historic quadrangle and difficult to upgrade without major disruption of the campus flow. While the piping through the historic quad are in good condition, the sizing of the existing piping is lacking. The west plant is also in a location that the master plan has determined to be green space.

The existing east plant is at peak operation. The plant has recently been expanded with new equipment and is almost at full capacity. The two newest buildings that are being designed on the east loop side of the campus would overextend the east plant. Therefore, a small satellite plant is being placed in CHSS that is sized large enough to serve both itself and the new Performing Arts Center. Any new buildings on the east side would, once again, push the east plant over the existing capacity. The piping from the plant is also not ideal. Much of the pipe was installed with less than optimal materials and is in a state of disrepair. Many sections of the piping are in need of replacement or enlargement. There are areas of the east side of campus that cannot receive the needed chilled water capacity, not because of plant capacity, but because the piping is too small to move sufficient cooling to the buildings.



A third plant should be located in the south area of campus, which is expected to see the largest area of growth and thermal utility demand. The new plant should utilize existing piping wherever adequate and take demand off of portions of the existing system that are having difficulties operating properly. The new plant should be designed for easy expansion with a looped piping system that is also sized for reasonable flow velocities.

Plan Recommendations

To achieve the goals of the future campus, the following major utility infrastructure upgrades will need to be accomplished:

West Plant – The west plant shall be demolished, and the piping shall be backfed from the new south plant. After the south plant is built with approximately 3,800 tons, the piping shall be extended up to route along the green space along Bearkat Boulevard and tie into the existing piping that is served from the west plant. Once the buildings currently on the west plant have been switched over to the south plant, the two chillers can be moved over to the new south plant and the west plant can be demolished with little down time of the existing buildings. Minor piping repairs and reconnections to the new south plant are estimated to cost \$750,000.00.

New South Plant – A new south plant shall be placed in the new south academic quad where the sciences and laboratory buildings will be planned. These academic and sciences buildings are typically higher in loading for both chilled water and heating. The plant will require 6,000 tons by 2020 and should be designed to easily expand to no less than 12,000 tons in the future. Of the 6,000 tons designed for the new south plant, 2,200 tons shall be from chillers relocated from the west plant (see below). The new plant is estimated to cost \$13 million.

The south plant shall be designed to provide a looped piping system that is large enough to support the future 12,000-ton plant and route to interconnect with the existing east loop and tie back into the west plant piping to backfeed buildings currently served by the west. New piping for the loop is estimated to cost \$4 million.

East Plant – The east plant shall remain at its current size, but the new south plant shall be tied into the piping and shall backfeed some of the larger utility demand buildings that are close to the south plant so that some capacity can be freed up for future buildings that the south plant cannot reach as easily.

Portions of the east plant piping that are undersized shall be replaced with proper sized pipe. In addition, the portions of the east plant loop that are constructed of sub par materials should be replaced with SHSU standard underground pre-insulated piping. It is estimated that over \$2.5 million will be needed to replace and upgrade the deteriorating and undersized piping from the east plant.



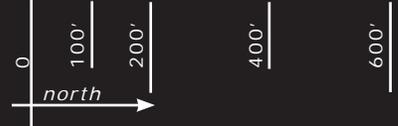
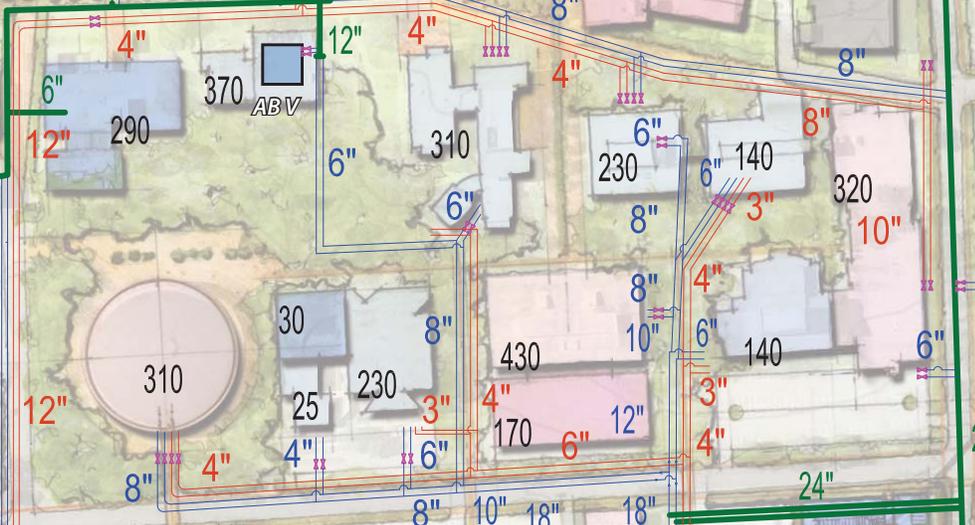
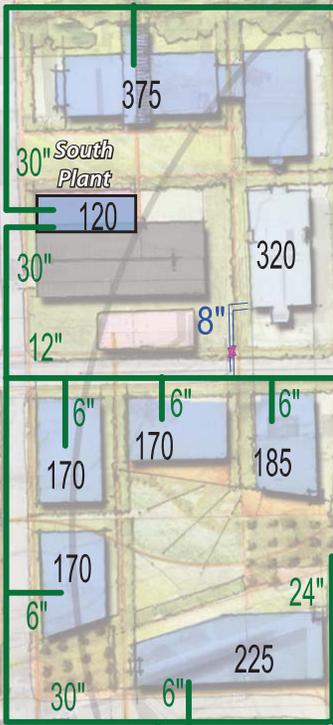
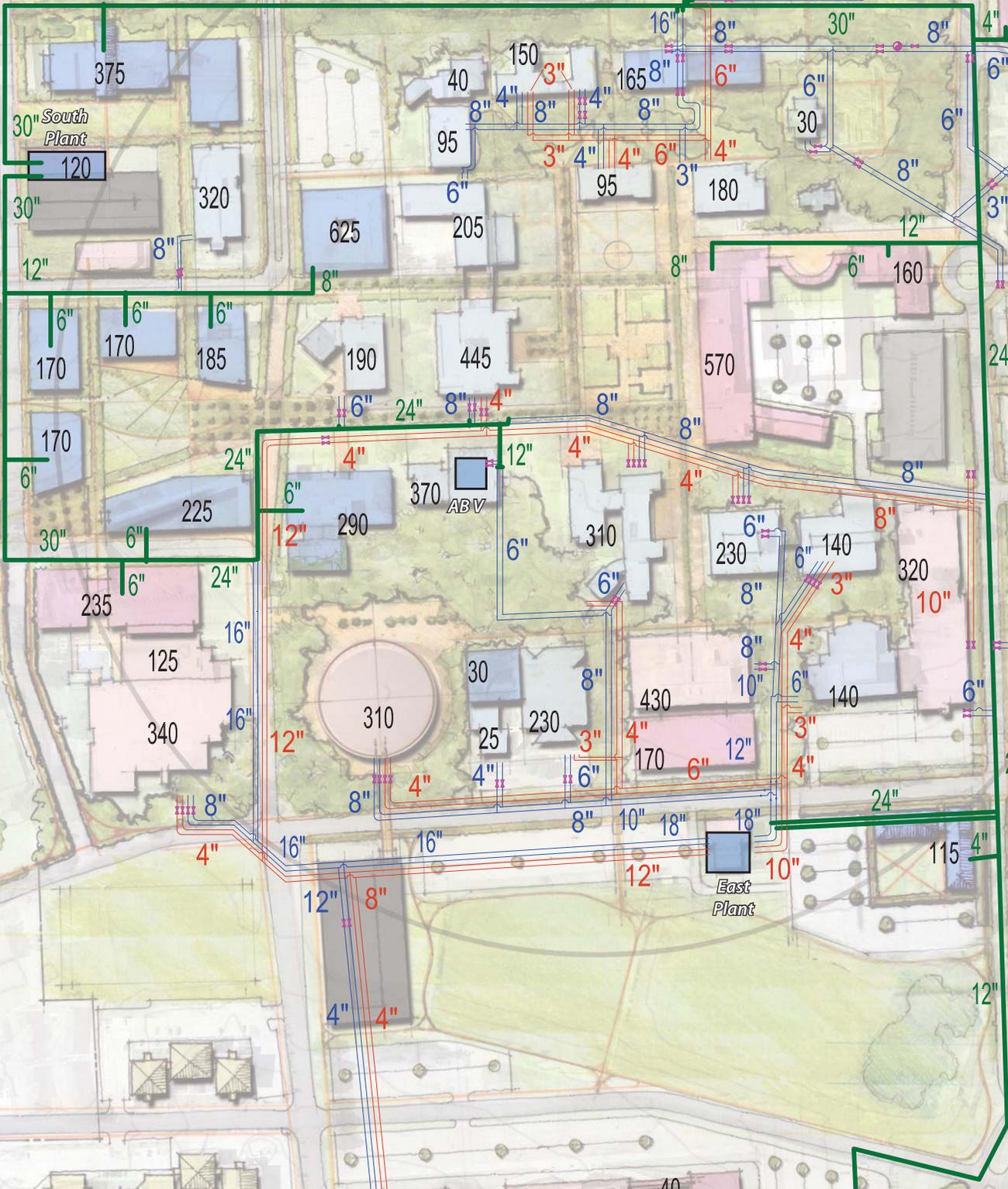
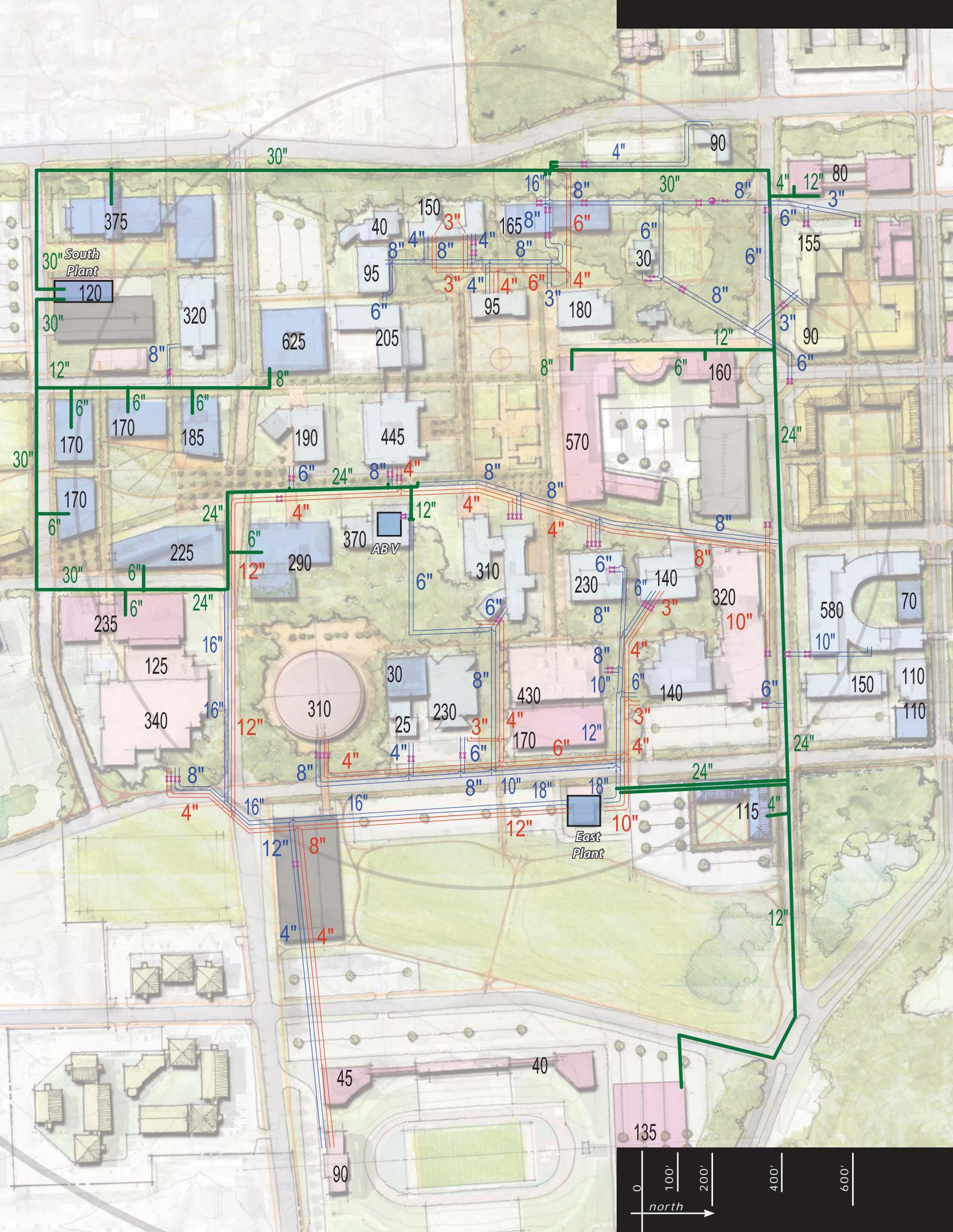
135 Tonnage Estimate

Proposed Heating and Chilled Water

Existing Heating Water

Existing Chilled Water

Plant



2008 Infrastructure Conditions

The existing thermal utilities for the SHSU campus are in dire need of upgrades and repair.

The east plant has hit maximum capacity and the west plant cannot get the capacity that it has to any more buildings because of the piping configuration.

The piping infrastructure throughout the campus is in need of replacement or upsizing in many areas.

Thermal utilities must be one of the major considerations as SHSU goes into the year 2020 and funds need to be dedicated to the improvements.

Capacity Summary:

	<i>capacity</i>	<i>spare</i>
West Plant	2,200 tons	1,000 tons
East Plant	3,200 tons	200 tons
CHSS	800 tons	100 tons

General Notes:

Tonnage estimates are based on square footages as noted in the master plan. The loads are based upon energy-efficient buildings. The utilization of energy saving items such as heat recovery units, VAV air flow, and materials of construction that reduce heat loads to a building must be used, or the tonnage will have been underestimated.

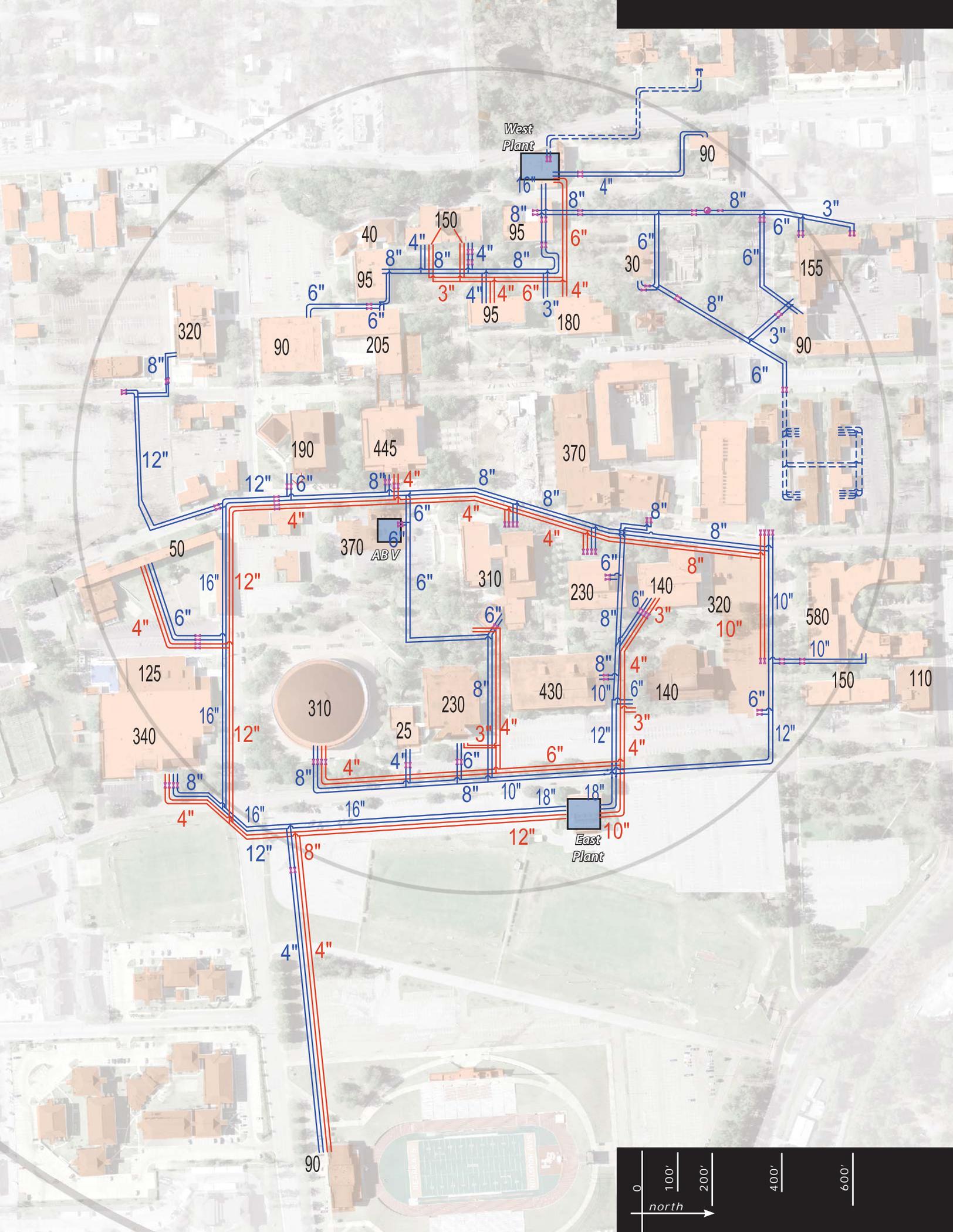


135 Tonnage Estimate

Existing Heating Water

Existing Chilled Water

Plant



West Plant

ABV

East Plant



VEHICULAR CIRCULATION

Chapter Contents

This chapter describes the overall vehicular circulation network including roadway modifications and parking facilities proposed by the master plan.

Chapters that support the recommendations of this chapter include the following:

- Campus Organization
- Pedestrian Circulation
- Bicycle Circulation

Related Master Plan Goals

The following Master Plan Goals are expanded on in this chapter:

7. Create a clear and integrated street network.

Develop Bowers Boulevard as the ceremonial entrance into the campus.

Create a connected street grid north and south of the campus.

Create streets that accommodate street trees, walks, bicycle lanes, and transit where appropriate.

Maintain service corridors through the campus core.

9. Balance parking needs with land availability.

Provide adequate quantity, distribution, and variation of parking.

Build new parking lots or structures only when necessary.

Create mixed-use parking structures to maximize land use.

Implement multimodal and incentive strategies to offset parking needs.



Planning Philosophy

Living in Texas, the expectations of students, faculty, and staff are arguably automobile-centric. In an attempt to create a walking culture rather than a driving and parking culture, our planning team has routinely asked the question, "How much time are you willing to walk from your car to your destination?" Surprisingly, a majority of the university family responded, "5-10 minutes."

Using this information advantageously, SHSU is in a unique position to influence the transportation attitude of thousands of people. By striking a healthy balance between the competing needs of both automobiles and people, and by adopting a responsible attitude toward safe and convenient access to roads and parking, the university can achieve a sustainable, compact, and walkable campus. The benefits of cultivating this culture and new stewardship toward mobility have profound implications beyond the institution, positively influencing the city of Huntsville, region, and the state of Texas.

One of the primary objectives of the master plan is to emphasize pedestrian circulation within the academic core and to shift vehicular circulation and parking (both surface and structured) to the campus perimeter. This deliberate shift is intended to minimize conflicts, maximize safety, and create a new mobility paradigm.



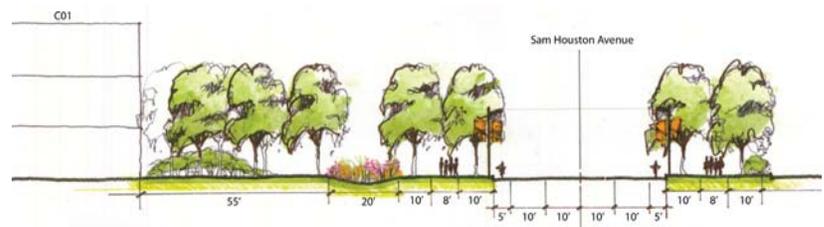
Road Network Programming

The road network is a key interface with the community and must work effectively with the existing city of Hunstville grid roadway system. This system needs to have direct access to campus parking facilities, major campus public destinations, and to the downtown and neighborhood environments. Additionally, this system must also provide service corridors, accessible routes, and emergency vehicle corridors.

Plan Elements

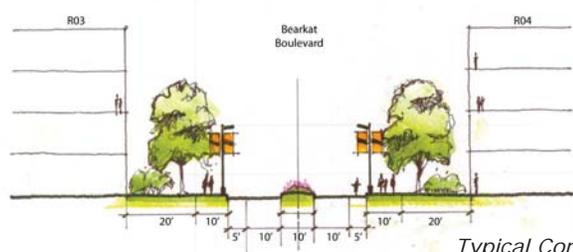
There are six typological elements for the vehicular circulation system. Each is represented as an integrated component of the master plan. As described, these elements work together as a well orchestrated system of movement.

Primary Vehicular Corridors (Sam Houston Avenue) – Sam Houston Avenue, as a primary vehicular corridor, should be developed to carry the highest volume of regional traffic. This corridor type is designed primarily for the automobile and for moving large traffic volumes. It is envisioned that Sam Houston Avenue would retain two 10-foot travel lanes in each direction and a dedicated 5-foot striped bicycle lane.

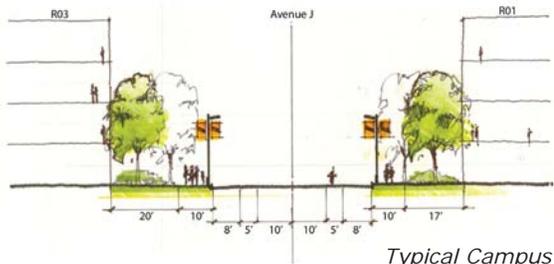


Typical Primary Vehicular Corridor

Connectors – Connector roads create the backbone of the transportation network. These vehicular corridors provide community cross-town traffic linkages and form the functional access to campus and primary parking areas. Connectors should be designed to accommodate 10-foot travel lanes and striped 5-foot bicycle lanes.



Typical Connector



Typical Campus Road

Campus Roads – Campus roads are special roads. These important “shared” corridors provide design clues that the automobile is not dominant. Many campus roads access specific campus precincts, special event destinations, and interior academic zones. Campus roads should be designed to accommodate 10-foot travel lanes in each direction and 8-foot on-street parking lanes. Bicycles share the travel lanes with vehicles.

Neighborhood Roads – As the most intimate of the public road corridors, neighborhood roads provide a pedestrian scale and intimate driving experience. This grid-system of roads is the primary linkage system to residential neighborhoods and to the downtown fabric. Neighborhood roads are designed with 10-foot travel lanes, 8-foot on-street parking, and bicycle traffic sharing the travel lane width.

Service Walks – The service walk concept suggests that automobiles, service vehicles, or emergency vehicles are special “invited guests.” These small-scale, limited-access corridors are not public thoroughfares and should be designed exclusively for pedestrians with the intent of handling occasional vehicular traffic.

Gateways – Campus gateways are the threshold to the university community. Establish strong gateways at the campus’s boundaries, edges, and corners. These elements delineate the community from the campus and also communicate institutional character.

Implementation Considerations

When planning future road corridors, repairing roadways, or realigning/removing these corridors, the following opportunities should be considered:

- Coordinate utility improvements in the road right-of-way during the design or redesign of a vehicular corridor.
- Utilize roadway and utility improvement projects to fund campus-wide site, landscape, and streetscape initiatives.
- Assign staff to explore grant opportunities and collaborative funding sources.
- Communicate with the City of Huntsville. Develop joint strategies to replace, repair, and improve shared road corridors.
- Develop a specific palette of landscape, hardscape, and amenities for each type of corridor.
- On-street parking and bicycle lanes should be part of the design, not an afterthought.
- Separate the primary pedestrian malls and service walks from vehicular circulation.



Plan Recommendations – Roads

Sam Houston Avenue is the symbolic “front door” to campus and should reflect the overall image of the university through consistent street elements, materials, and design expression. This corridor provides an important first impression of campus arrival. Ideally, extend a consistent design vocabulary from Avenue I to 15th Street.

Connectors

Bobby K. Marks Drive – Enhance this north-south roadway from Avenue I northward to Bearkat Boulevard. This roadway is anticipated to carry a significant volume of cross-campus traffic and provide access to eastern campus parking supplies. Consequently, develop a clear signage and wayfinding program, and implement a deliberate pedestrian crosswalk system.

Montgomery Road – Realign this north-south corridor to create a four-way 90-degree intersection at Bowers Boulevard just west of the stadium complex and Work with the City of Huntsville to extend it northward across Bearkat Boulevard toward downtown Huntsville.

Bowers Boulevard (East) – Redevelop this important east-west corridor from Sycamore Avenue to Bobby K. Marks Drive as a signature entrance sequence. Enhance the opportunity at the east end to articulate an athletics gateway.

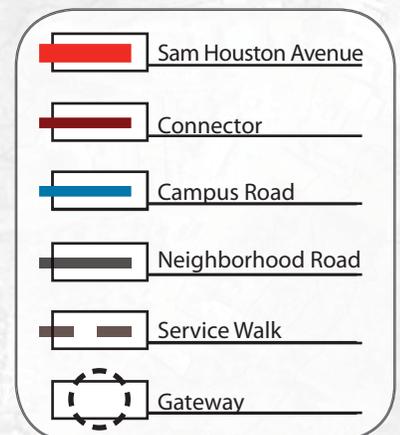
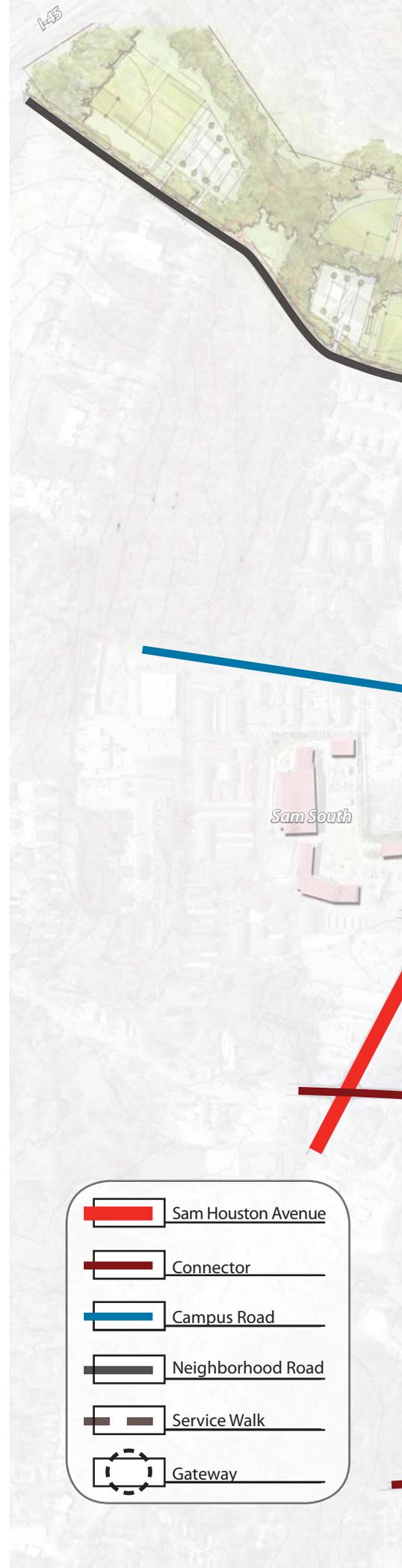
Bearkat Boulevard – Develop and extend Bearkat Boulevard as a true boulevard sequence from Bobby K. Marks Drive westward through campus to Sam Houston Avenue. Enhance this corridor with rich pedestrian amenities, campus lighting, banners, and other amenities.

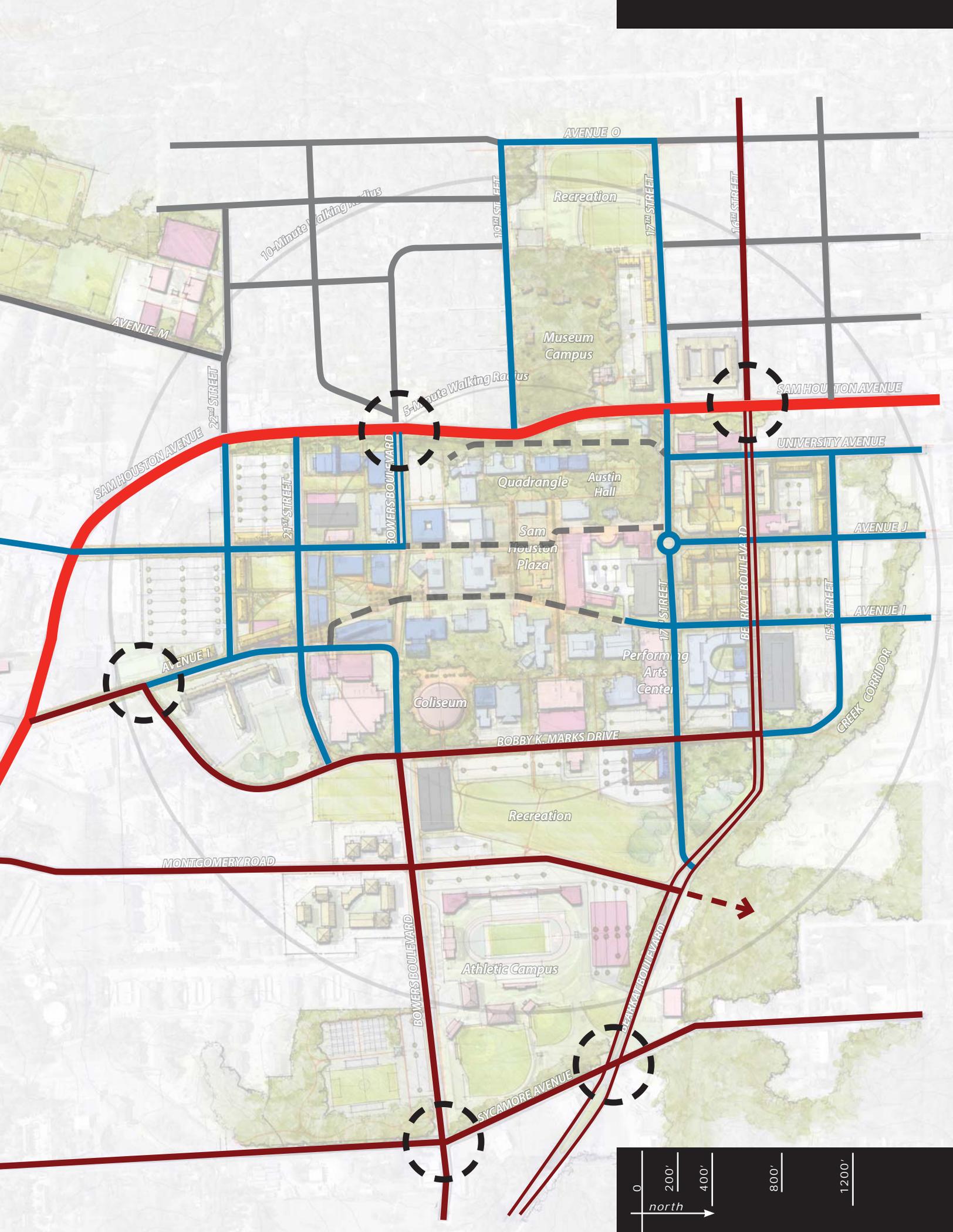
Campus Roads

17th Street – Reconnect 17th Street from Bearkat Boulevard westward to Sam Houston Avenue, providing an uninterrupted vehicular linkage. Redesign the 17th Street and Sam Houston Avenue intersection at 90 degrees. This important corridor provides access to many of the marquee venues (LSC, future hotel, Performing Arts Center, and Criminal Justice facilities). This roadway is envisioned to be a signature street with pedestrian amenities and a rich campus vernacular.

University Avenue – Discussed in the “Community Interface” chapter.

Bowers Boulevard – Break Bowers Boulevard between Avenues J and I. Allow the uninterrupted academic fabric of the south academic quad to migrate southward. This segment (between Avenues J and I) of Bowers Boulevard is envisioned to be a new pedestrian mall providing accessible parking, service, and emergency vehicle access.





AVENUE O

Recreation

Museum Campus

10th STREET

17th STREET

14th STREET

10-Minute Walking Radius

5-Minute Walking Radius

AVENUE M

22nd STREET

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

21st STREET

BOWERS BOULEVARD

Quadrangle

Austin Hall

Sam Houston Plaza

AVENUE J

AVENUE I

Performing Arts Center

Coliseum

BOBBY K. MARKS DRIVE

CREEK CORRIDOR

AVENUE I

Recreation

MONTGOMERY ROAD

BOWERS BOULEVARD

Athletic Campus

BEARKAN BOULEVARD

SYCAMORE AVENUE



Avenue J (South) – Realign Avenue J to merge with the westernmost section of Bowers Boulevard. This 90-degree elbow is envisioned as a drop-off.

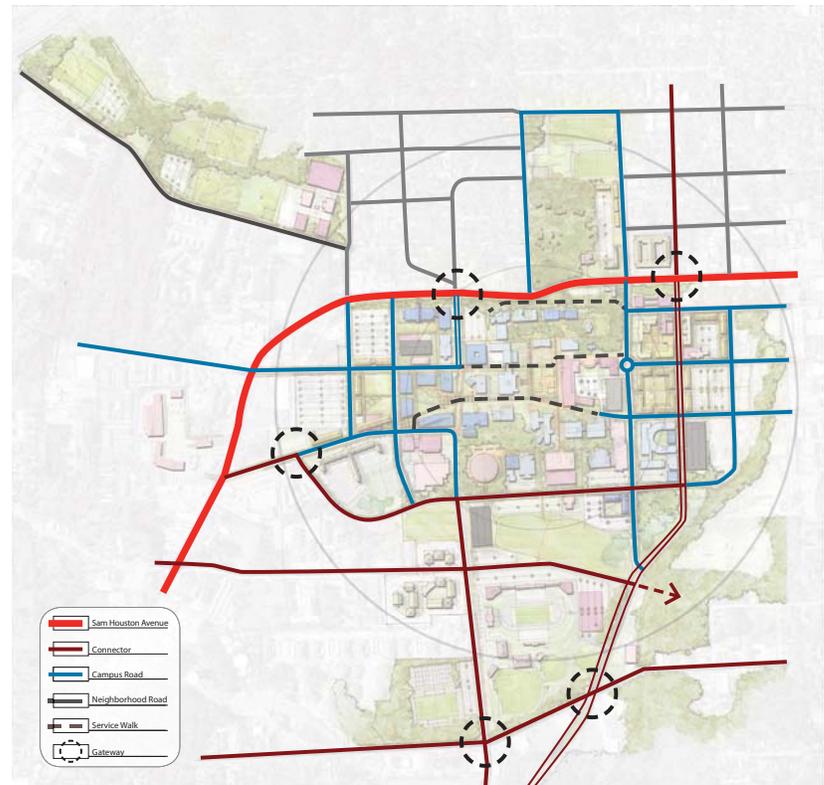
Avenue I (South) – Realign Avenue I to merge with Bowers Boulevard west of Bobby K. Marks Drive. This new 90-degree elbow is designed as a campus drop-off.

22nd Street – Add a new east-west segment of 22nd Street between Sam Houston Avenue and Avenue I. This connection will facilitate campus connectivity to the I-45 recreation parcel and surrounding neighborhoods.

21st Street – Reestablish the traditional neighborhood grid by extending a new east-west segment of 21st street from Sam Houston Avenue to Bobby K. Marks Drive. This important segment will facilitate campus ingress and egress and aid in maintaining a pedestrian-centric academic core.

Service Walks

Develop four primary limited access service walks. These pedestrian corridors, in scale and character, will allow the required movement of goods and services to interconnected building clusters. Establish



dedicated routes/corridors that emphasize various user needs and minimize conflicting circulation patterns. Interior campus locations include:

- Former University Avenue corridor between Bowers Boulevard and 17th Street.
- Former Avenue J corridor between Bowers Boulevard and 17th Street.
- Former Avenue I corridor between Bowers Boulevard and 17th Street.
- Former Bowers Boulevard segment between Avenue I (realigned) and Avenue J.

Gateways

Develop strong gateways at the campus's boundaries, edges, and corners. These elements delineate the community from the campus and also communicate institutional character. These elements should convey a traditional family of unified elements including signage, gates, walls, lighting, banners, and landscaping. As the university edges and boundaries change, gateway elements should respond accordingly. Proposed gateways include?

- Sam Houston Avenue at Bowers Boulevard.
- Sam Houston Avenue at Bearkat Boulevard.
- Avenue I at the Bobby K. Marks Drive.
- Sycamore Avenue at Bowers Boulevard.
- Sycamore Avenue at Bearkat Boulevard.

Road Removals

Specific road segments should be considered for removal from the campus interior. These segments, if removed, strengthen the objective of creating a pedestrian-friendly academic core. These opportunities also reinforce the planning principles of "campuses are for people, not cars" by creating rich, humanly-scaled academic environs. Additionally, strategic road removals will produce a safer, more efficient, and healthier vehicular circulation system.

- Remove and realign the east-west segment of 17th Street between Sam Houston Avenue and University Avenue. If it cannot be aligned to correct the current offset intersection, it should be permanently closed.
- Remove the University Avenue segment between 17th Street and Bowers Boulevard as an active and public thoroughfare. This should be converted to a limited access service walk.
- Remove the Bowers Boulevard segment between Avenues J and I. Avenue I is envisioned to be redesigned to meet Bowers Boulevard at 90 degrees.
- Remove Avenue I between 21st Street and Bowers Boulevard.





University of Houston,
Mixed-Use Parking Structure

Parking Programming

Today, the campus has 7,898 total parking spaces, 90 percent (7,116 spaces) of which are surface spaces, and 10 percent (782 spaces) are in the existing LSC and Sam Houston Village parking decks. Collectively, this translates to a campus-wide ratio of 2.14 to 1 (people per parking space). This includes all parking spaces used by the entire university community (faculty, staff, commuter and resident students, visitors, etc.). National standards for public institutions highlight an average ratio of approximately 2.85 to 1*.

The proposed campus-wide parking disposition depicted in the master plan is 9,982 spaces. The numeric total suggests an overall campus-wide increase of approximately 2,084 spaces with a deliberately higher percentage of structured parking (3,885 total spaces or 34 percent). With a target Huntsville student population of 20,000 and commensurate increase in employee population, a higher campus-wide ratio of 2.21 to 1 is recommended. This modest but positive movement in the parking ratio suggests a higher utilization, better distribution, and more efficient parking density. It also demonstrates an institutional commitment to lessening the parking demand by encouraging carpooling, incentive-reward programs, bicycle facilities, and walking. Transit opportunities are regrettably not yet available at the university or in the city of Huntsville. This should be considered a high priority item for both entities.

**Robert A. Weant and Herbert S. Levinson, Parking, Table 6-26 Ranges in Peak-Parking Demand at Colleges and Universities, ENO Foundation for Transportation, Inc., 1990*

Plan Elements

There are four elements of the campus parking system. Each interfaces with the other to balance supply and demand (quantity), location, and type.

Surface Parking – Surface parking is an important component of the SHSU parking fabric. It is a necessity for accommodating high demand areas, handicapped patrons, and visitors. For planning reference, one parking space is equivalent to approximately 300-350 square feet of land area. In land area terms, 1 acre can accommodate between 125 and 145 parking spaces. Surface parking also serves as a land bank for future development opportunities.

Existing Structured Parking – The university has two existing structured parking decks: the LSC parking deck (4 levels and 506 spaces) and the Sam Houston Village Residence Hall (276 spaces below the building). The LSC parking deck's utilization is expected to increase as interior surface lots are removed for academic and residential expansion.

Proposed Structured Parking – Mixed-use structured parking facilities are efficient and increasingly feasible for the university to implement. These parking tools are anticipated to serve concentrated areas of parking demand for events, special venues, and core campus populations. For planning reference, one structured parking space is equivalent to approximately 325 gsf of facility space. Plan for an optimum deck size of 800-1,200 spaces. Parking structures should be designed to allow for vertical expansion where appropriate.

On-Street Parking – As part of an urban environment, the university should reinvest in on-street parking. This vital component of the parking vocabulary creates great campus streets, enriches the pedestrian environment, and deliberately calms traffic. For planning reference, each parallel parking space should be designed with an 8-foot width and 22-foot length.

Implementation Considerations

- Build parking incrementally. Carefully balance supply with demand.
- Require 90 to 95 percent space utilization before considering additional parking.
- Remove surface parking lots within the campus core. Maintain a pedestrian “center.”
- Combine small, inefficient parking areas into larger, more efficient perimeter lots.
- Minimize large expanses of surface parking areas with adequate landscape treatment
- Enhance the transition from parking lot to pedestrian environment with site amenities.
- Introduce mixed-use parking structures on primary vehicular corridors accessible from major entrances.
- Create parking areas within 5 minutes from all major campus destinations
- Screen parking areas and carefully (re)locate service points and loading areas.
- Coordinate with the City of Hunstville to develop a reliable and convenient transit system.
- Develop underground stormwater facilities beneath surface parking areas.
- Upgrade lighting and utilities during resurfacing, relocation, and/or new parking lot construction.
- Consider a mix of uses that will be incorporated into parking structures such as bicycle facilities, cafe’s, transit stops, and offices.



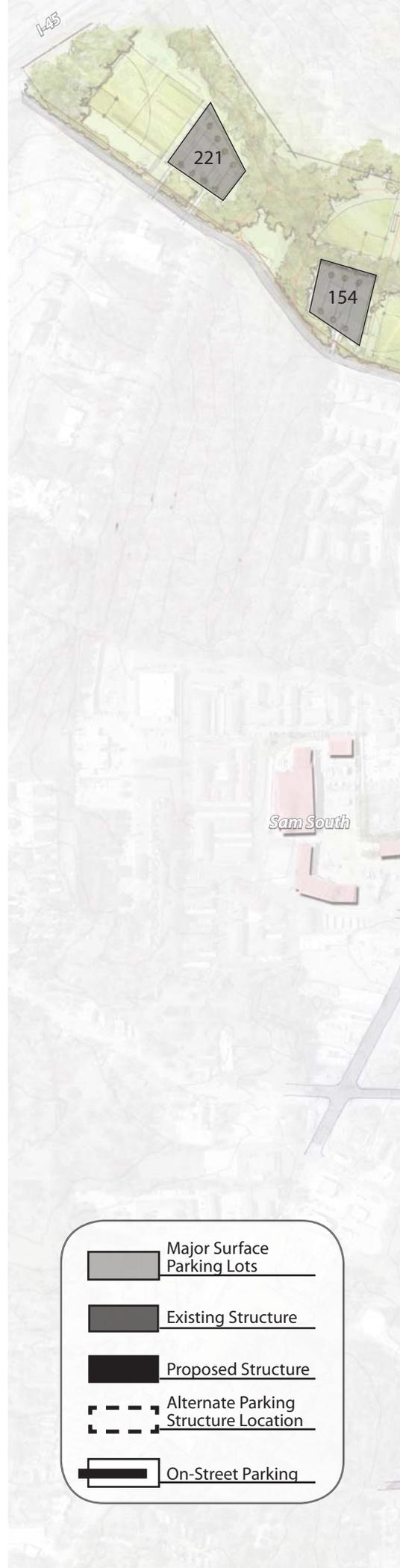
Plan Recommendations – Parking

Surface Parking

Develop an efficient and interconnected perimeter surface parking system that interfaces directly with the vehicular circulation system. These connected systems should form a simple system of approach, arrival, and parking. It is important to reiterate the importance of “beginning the pedestrian experience” from the parking areas. Correspondingly, the university should invest in appropriate landscape treatment, pedestrian amenities, and lighting for parking areas.

- Facilitate parking for all major public destinations. These uses attract visitors, patrons, school groups, donors, handicapped users, and university guests including the following:
 - Visitors Center
 - Lowman Student Center
 - Hotel
 - Performing Arts Center
 - Library
 - Criminal Justice Center/LEMIT
 - Coliseum
 - Bearkat Stadium
 - Administration Building
- The university should strive to balance campus parking distribution for student, faculty, and staff needs. The overarching goal is to provide uniform dispersion of surface parking to the academic core. The students (particularly commuters), faculty, and staff are the primary users. The planning team established a 5-minute walking radius (approximately 1,250 feet) to outline approximate boundaries for parking lot development.
- Develop a balanced parking environment for on-campus residents. At SHSU, the residence life elements are adjacent to the academic core. Enhance the parking opportunities for the northern and southern residence hall neighborhoods.
- Enhance parking opportunities for athletic venues (east), the Museum Campus (west), and the recreation parcel adjacent to I-45 (south).

Note: The plan illustrates major parking areas. Additional service, accessible, special, and generally small parking areas are assumed to be part of the plan.



- Major Surface Parking Lots
- Existing Structure
- Proposed Structure
- Alternate Parking Structure Location
- On-Street Parking

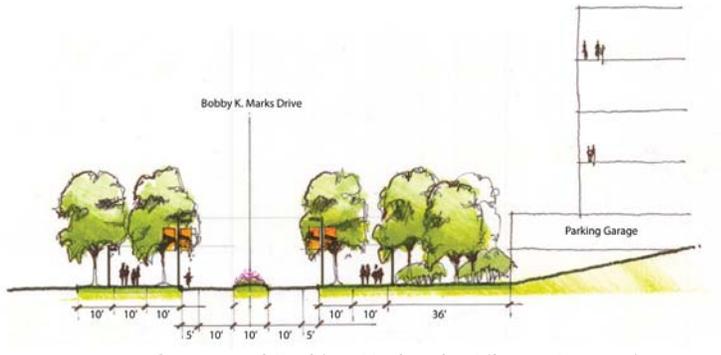
Proposed Structured Parking

Develop and preserve opportunities for structured parking. The university has surpassed a threshold where 90 percent surface parking is unreasonable. Simply, the land within the campus core is becoming too valuable: the demand for parking has exceeded the land's capacity to provide. Therefore, more structured parking has become a viable option. The university should consider the following four opportunities:

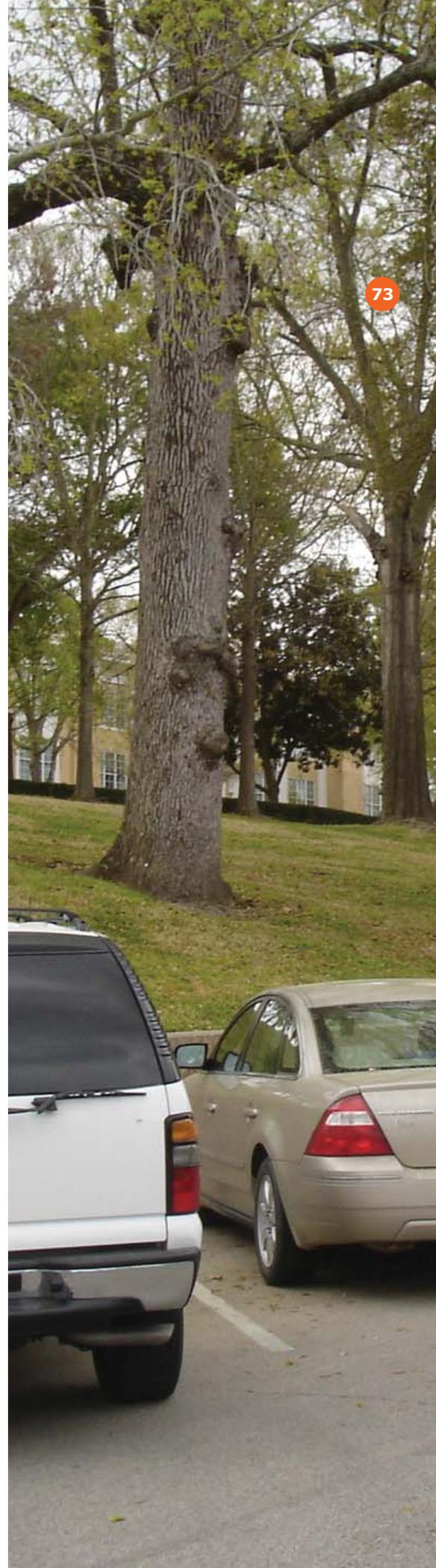
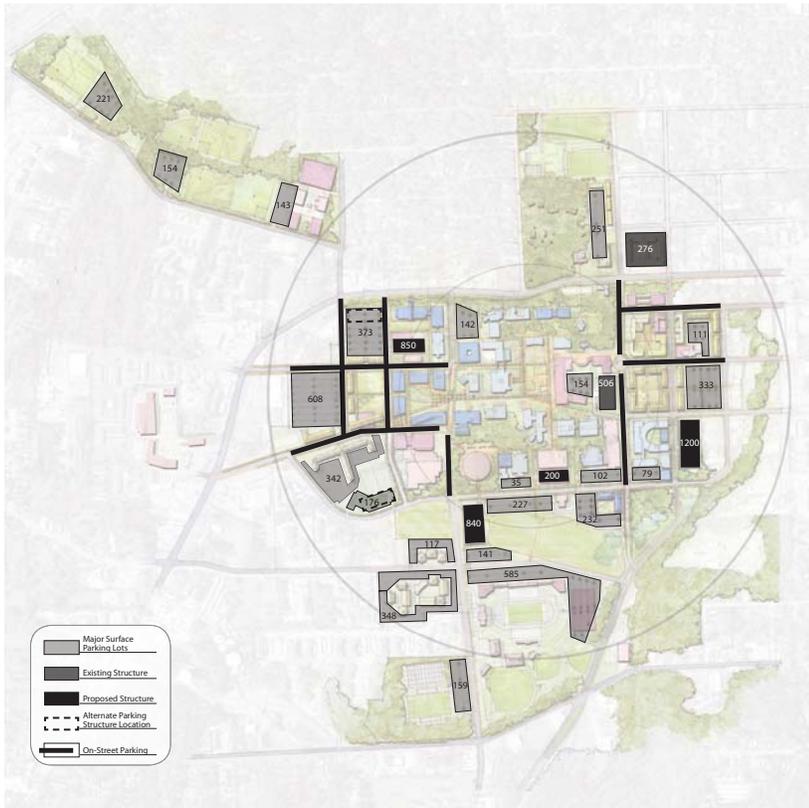
- Develop a mixed-use parking structure at the southwest corner of campus adjacent to Avenue J and Bowers Boulevard. This location provides parking for the south academic precinct and for visitors. Consider a mixed-use edge on the eastern façade containing retail and/or food service and an attached power plant on the west containing chillers and boilers. This location is near the campus topographic high point. Particular attention should be given to minimizing verticality to conceal the structure's height.
- Consider developing multi-level parking under the library expansion. This facility is conceived to be a visually relevant "built edge" to the Bobby K. Marks Drive corridor. Utilize the topography and architecture to camouflage the parking component of this facility. This important facility provides needed parking on the eastern edge of the academic core.
- Develop a multi-level parking facility north of the Criminal Justice Building. Design considerations include utilizing the gentle topography to both conceal the verticality and facilitate ingress and egress. Future considerations include ground floor mixed uses and overhead connectivity to LEMIT and to the Criminal Justice Building. This facility is envisioned to provide parking for events, academic core functions, and Residence Life functions.
- Introduce a mixed-use parking facility adjacent to the Coliseum. This highly visible parking deck is envisioned to accommodate event parking and academic core demand in addition to containing lower level retail and/or office space. Provide an overhead connection to the plinth level of the Bernard G. Johnson Coliseum to accommodate accessible entry and facilitate movement across Bobby K. Marks Drive. Utilize the topographic change advantageously to conceal the eastern edge of the deck into the hillside. Future study will be needed to determine the impacts of this facility on the hydrology of this site.

On-Street Parking

Develop on-street parking on the campus roads network. In addition to providing much needed capacity, this parking is anticipated to provide traffic calming. Consider the following road segments for on-street parking: Avenues I and J, 21st and 22nd Streets, Bowers Boulevard (eastern end), 17th Street, and University Avenue (north toward downtown).



Structured Parking Under the Library Expansion



2008 Vehicular Circulation Conditions

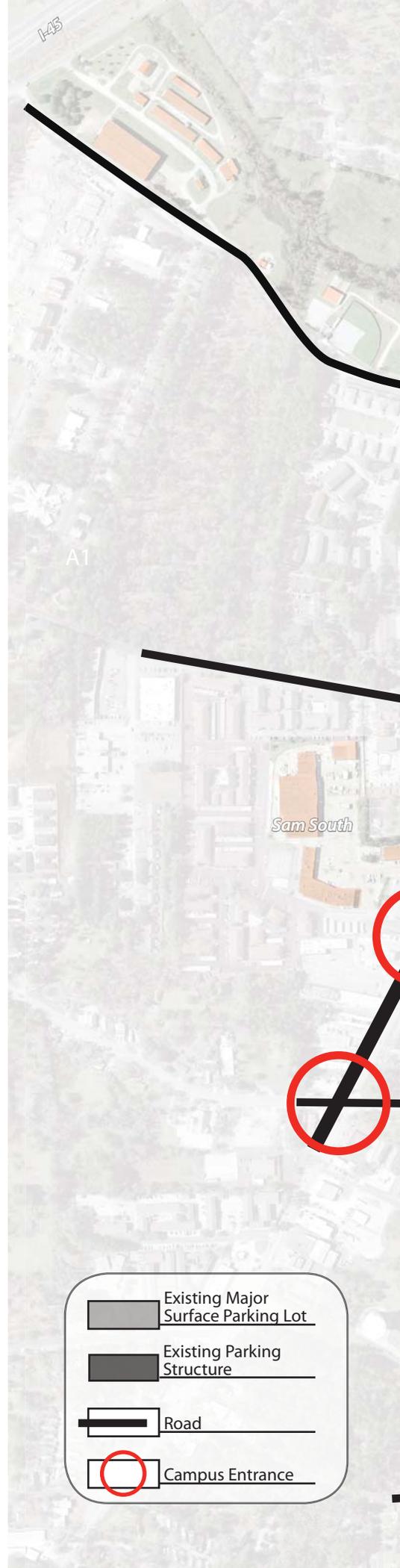
Hunstville, Texas, is a storied community with a rich history and long traditions. The SHSU campus is centrally located in the community approximately 1/2 mile south of downtown Hunstville adjacent to the Texas Department of Corrections. The campus has a strong community presence, but limited connectivity to the wonderful downtown urban fabric. The campus is also surrounded by a mix of commercial and residential land uses that are both owner-occupied residential neighborhoods and rental housing areas. Primary regional vehicular access to campus is from I-45, Highways 19/190, and Sam Houston Avenue (Highway 75). The city of Hunstville and university community have no transit routes. Recent discussions suggest that a long-range transportation planning effort is forthcoming.

Bowers Boulevard, Avenues I and J, and Montgomery Road provide primary vehicular circulation on the east and south. Vehicles are invited nearly into the heart of campus and collide awkwardly at the Bowers Boulevard and Avenue J offset intersection.

The northern campus edges of campus need additional vehicular clarification. One-way roads and limited access street patterns create motorist confusion. Particularly, areas near 17th Street and University Avenue and Avenue I send mixed signals to motorists. Clear north-south and simple east-west campus and regional roadway connections should be considered to facilitate ingress-egress and enhance the parking experience.

Today, the university relies almost exclusively on surface parking. The parking inventory completed in fall 2007 indicated a total of 7,898 spaces within the campus boundaries. With limited land resources and desire for building infill on existing parking lots, the reliance on 90 percent surface parking should not continue. The university will need to develop parking structures to accommodate future requirements, especially in light of limited alternative transportation options.

The university, however, does enjoy a reasonable supply of parking by peer comparisons and national averages. It has been suggested, however, that there is not a parking quantity problem, but a distribution and utilization issue. The parking facilities in greatest demand are those in closest proximity to the "middle," especially the lots within the academic core.



	Existing Major Surface Parking Lot
	Existing Parking Structure
	Road
	Campus Entrance



AVENUE O

10-Minute Walking Radius

Recreation

17TH STREET

16TH STREET

AVENUE M

22ND STREET

19TH STREET

Museum Campus

R2

SAM HOUSTON AVENUE

5-Minute Walking Radius

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

21ST STREET

BOWERS BOULEVARD

Austin Hall

AVENUE J

AVENUE J

AVENUE I

AVENUE I

Coliseum

Performing Arts Center

BEARCAT BOULEVARD

15TH STREET

ROBBITT MARKS DRIVE

Recreation

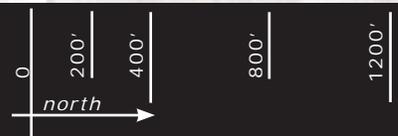
MONTGOMERY ROAD

BOWERS BOULEVARD

Athletic Campus

YEARKAT BOULEVARD

SYCAMORE AVENUE



BICYCLE CIRCULATION

Chapter Contents

This chapter describes the bicycle circulation recommendations of the master plan including on-campus bicycle facilities.

Chapters that support the recommendations of this chapter include the following:

- Campus Organization
- Vehicular Circulation
- Pedestrian Circulation

Related Master Plan Goals

The following Master Plan Goals are expanded on in this chapter:

7. Create a clear and integrated street network.

Create “complete streets” that provide street trees, walks, and bicycle lanes where appropriate.

8. Enrich the pedestrian environment.

Create a trail system to connect the campus to the University Golf Course.

9. Balance parking needs with land availability.

Implement multimodal and incentive strategies to offset parking needs.

Planning Philosophy

A large percentage of students who live within several blocks of the SHSU campus have been driving due to relatively cheap and easily accessible parking. As the campus grows, these students can dramatically improve the overall parking supply by choosing to bicycle the short distance to campus.

In order for this to occur, there has to be safe and well lit bicycle paths to the campus, and convenient bicycle parking. Beyond these two basic requirements, showers and bicycle maintenance facilities can expand the range that bicyclers are willing to commute to the campus.

In order for a bicycle plan to be successful, it must work well beyond the boundaries of the campus. The City of Huntsville must play an active role in promoting and implementing bicycle lanes and paths as a partner with the university.

Bicycle Programming

There are no benchmarks or standards for creating bicycle paths. The most important consideration is that bicycle paths connect major destinations. For a campus, this means ensuring that there are safe connections between major residential districts and major campus destinations.



Millennium Park, Chicago, IL
Bicycle Pavilion



Bay Harbor, MI
Bicycle Path

While this master plan does not make specific recommendations for bicycle parking, the guidelines below have been adopted by the US Green Building Council for sustainable building design and can be used as a starting point when implementing facilities. They have been modified somewhat to meet the needs of a campus context.

- Provide bicycle parking for 5 percent of the peak building population.
- Locate bicycle parking within 50 feet of frequently used entrances.
- Provide shower and changing facilities within 600 feet of building entrances.

Plan Elements

There are five typologies that are considered as part of the bicycle circulation system:

Striped Bicycle Lanes – Striped on-street lanes designated for bicycles. Bicycle lanes should be 5 feet wide, properly signed, and enforced to keep them clear of parked cars.

Shared Bicycle Lanes – Signed on-street lanes. Total travel lane width should be 14 feet minimum and properly signed.

Bicycle Paths – Off-street paths. They are usually shared with pedestrian trails. Bicycle only paths should be 8 feet minimum, and shared pedestrian and bicycle trails should be 12 feet minimum.

Bicycle Parking – Outdoor bicycle storage racks. Bicycle parking should be convenient and easily accessible. Consistency in design and placement will make it recognizable and usable.

Bicycle Centers – An indoor facility that could offer changing rooms, showers, bicycle storage, bicycle rentals, and bicycle maintenance. Bicycle centers work best when combined with another transit center such as a parking structure.

Implementation Considerations

When planning future bicycle facilities, consider the following:

- Determine how many students could use a building at any one time to determine how many bicycle racks are appropriate.
- Design bicycle parking areas to be near major building entrances to make them as convenient as possible.
- Design bicycle parking as part of the site design, not an afterthought.
- Locate bicycle parking areas to serve multiple destinations.



University of Michigan
Bicycle Parking Area

Plan Recommendations

To support this master plan, the university should work with the City of Huntsville to develop a comprehensive bicycle route and implementation plan to ensure continuity and effectiveness. Campus-wide bicycle circulation recommendations include the following:

Striped Bicycle Lanes – Create striped bicycle lanes on major routes into the campus. Some of these will be more difficult to implement, such as along Sam Houston Avenue. The university should, however, promote bicycle circulation as part of future road improvements.

Shared Bicycle Lanes – Create shared bicycle lanes on all minor routes into the campus.

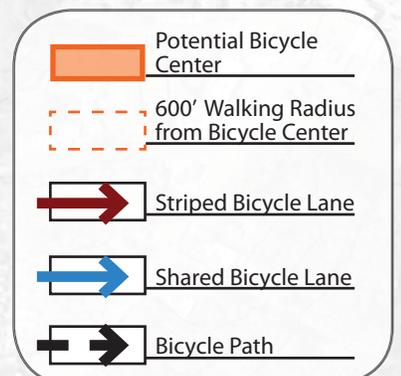
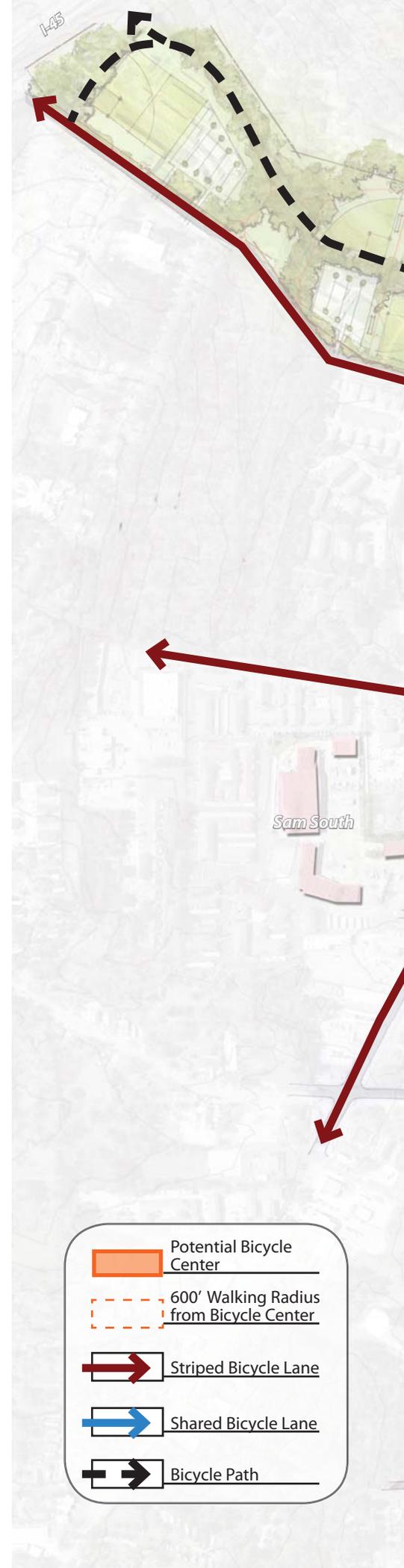
West Trail – Create a bicycle path that would connect the campus to the I-45 Recreation Complex and beyond to the University Golf Course.

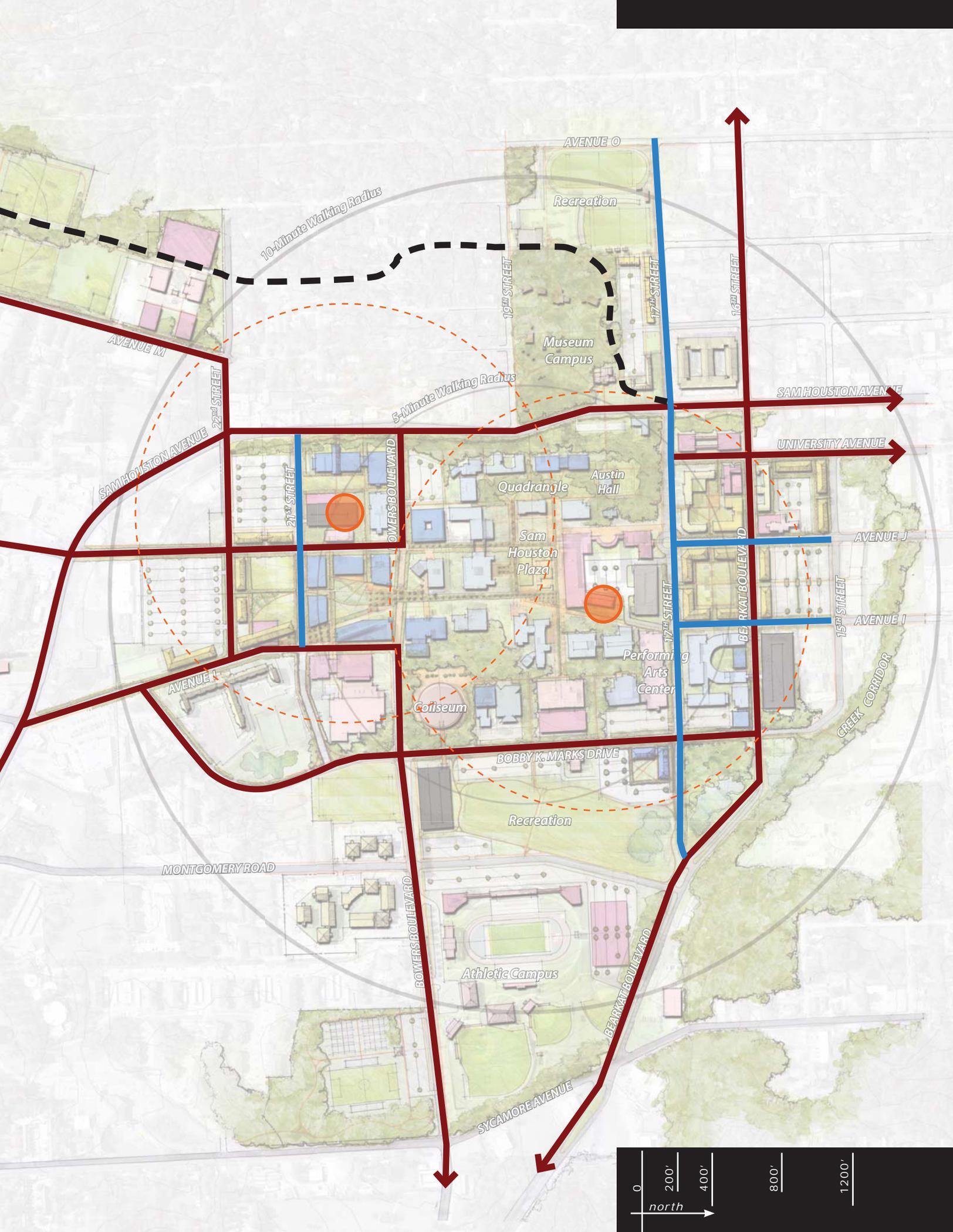
Bicycle Parking – Create adequate bicycle parking at all major campus destinations.

Bicycle Centers – Two bicycle centers on campus would adequately cover the campus within a 600-foot or 5-minute walking radius. One center is proposed in the future Avenue J parking structure. The other is proposed in the new student center. An alternative to the new student center location is to incorporate it into the future Bearkat Boulevard parking structure.

2008 Bicycle Circulation Conditions

The 2008 SHSU campus and the city of Huntsville has little or no infrastructure to accommodate bicycle. There are a few bicycle racks in the campus core; however, there are no striped or signed bicycle lanes on or around the campus.





PEDESTRIAN CIRCULATION

Chapter Contents

This chapter describes the overall pedestrian circulation network proposed by the master plan.

Chapters that support the recommendations of this chapter include the following:

- Campus Organization
- Open Space
- Vehicular Circulation
- Bicycle Circulation

Related Master Plan Goals

The following Master Plan Goals are expanded on in this chapter:

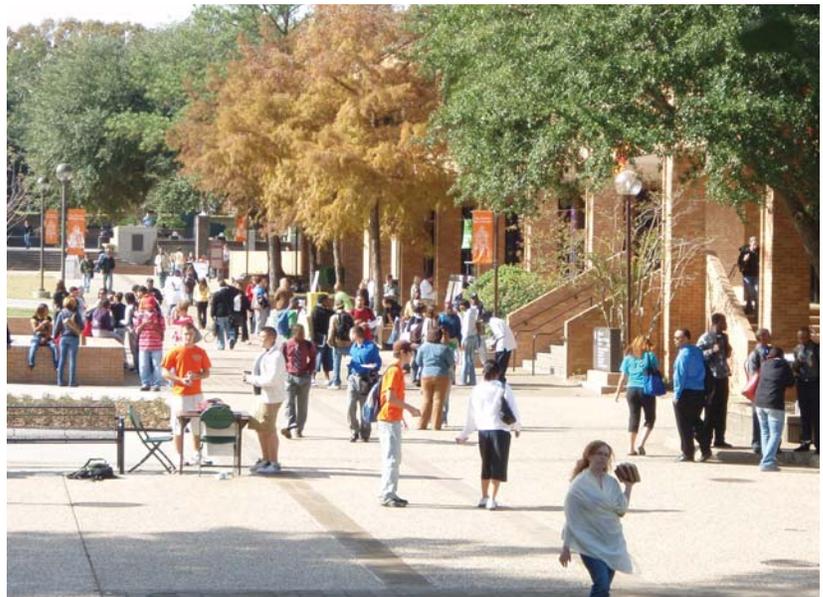
8. Enrich the pedestrian environment.

Consider accessibility in all aspects of the campus.

Connect major destinations with linear pedestrian malls.

Create safe sidewalks along all campus streets with safe mid-block crossings.

Create a trail system to connect the campus to the University Golf Course.



Planning Philosophy

Campuses are places for people. Walking is the primary mode of movement on a campus and should be treated as such. Within the campus boundaries, the transportation of automobiles is secondary to the safe and efficient movement of pedestrians.

The pedestrian circulation system is intrinsically tied to several other systems. Walks move through and are a part of open spaces. Walks need to link major buildings to one another. Recreation and athletic fields are connected to the campus through a series of walks. Drivers become pedestrians as they leave parking lots and garages to enter the campus via a clearly defined walk system.

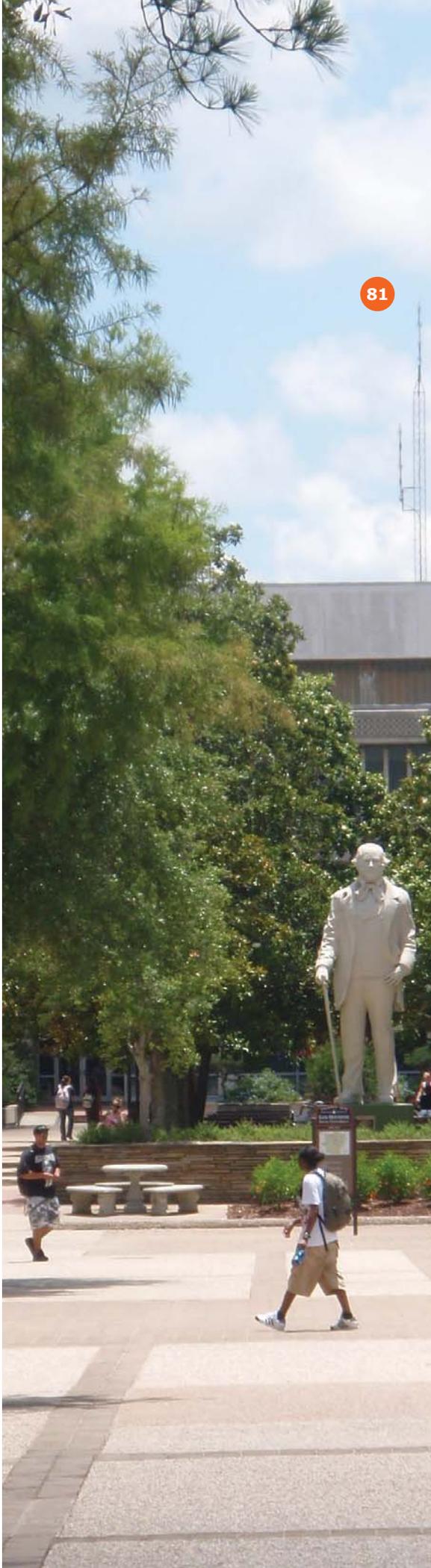
Pedestrian volumes are always highest at the heart of the campus and decrease as one moves to the edges. A hierarchy of walks should reflect this so that walks are designed to accommodate the peak volumes in each campus quadrant.

Limit crosswalks to intersections and safe mid-block crossings. direct pedestrians to crosswalks by designing building entrances to connect to major walks and align walks to lead to crosswalks.

As with bicycle paths, safe walking paths can extend the range that students commute to campus without an automobile. The pedestrian circulation network should extend into the surrounding neighborhoods to allow students to walk into the campus.

Pedestrian Circulation Programming

There are no benchmarks or standards for how many walks to create on a campus. The most important consideration is that walks connect major destinations. In the case of a campus, this means ensuring that there are safe connections and vehicular crossings throughout the campus and surrounding community.

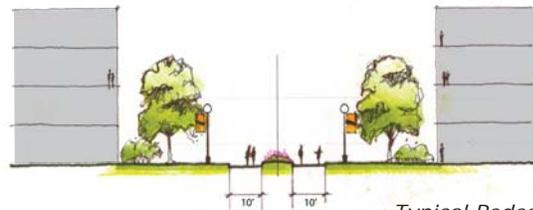


Plan Elements and Implementation Considerations

Each of the following elements have been considered as part of the pedestrian circulation system:

Off-Street Walks – Walks that move through open space. Off-street walks are usually the largest walks on campus, since they are typically in the campus core. Major walks can be 12 feet or more in width, and minor walks should be a minimum of 8 feet to allow for service vehicles to access all parts of the campus. Consider the following when planning off-street walks:

- Provide ADA accessibility.
- Link to major building entrances.
- Integrate pedestrian amenities such as benches.
- Direct walks to defined crosswalks.



Typical Pedestrian Mall

On-Street Walks – Walks that move along a road. Design on-street walks to allow for pedestrian volumes. Major walks can be 12 feet or more in width, and minor walks should be a minimum of 7 feet. Consider the following when planning on-street walks:

- Provide ADA accessibility.
- Link to major building entrances.
- Integrate pedestrian amenities such as benches.
- Direct walks to defined crosswalks.
- Buffer pedestrians from the street with landscape, parked automobiles, or simply a change in paving material for lower traffic volume streets.
- Extend walks into the surrounding neighborhood.

Trails – Walks primarily for recreational use. Design trails to provide safe movement of pedestrians. Consider the following when planning on-street walks:

- Provide ADA accessibility.
- Integrate bicycle paths with pedestrian trails.
- Light for nighttime use, especially when they link to nighttime uses such as recreation fields.
- Provide distance markers and other informational wayfinding.

Crosswalks – Marked crossings of a vehicular street. Crosswalks are a critical component of the pedestrian system. Limit crosswalks to major mid-block crossings and intersections and remove all other crosswalks to lessen confusion. Consider the following when planning crosswalks:

- Provide ADA accessibility.
- Implement appropriate traffic controls on mid-block crossings. Yield to pedestrian signs for typical streets and actuated signals for major vehicular corridors such as Sam Houston Avenue.
- Align walks to direct pedestrians to safe crossings.
- Design building entrances to direct pedestrians to crosswalks.



The Ohio State University, Mid-Block Crosswalk



Plan Recommendations

In addition to the specific recommendations below, a more detailed landscape master plan is recommended to establish specific guidelines for pedestrian walks and mid-block crossing design. Campus-wide pedestrian circulation recommendations include the following:

Primary Walks – Establish a system of major walks through the campus core that connects all major academic destinations.

Secondary Walks – Establish a system of secondary walks that connects all potential pedestrian destinations on and off the campus. Work with the City of Huntsville to develop the system into the surrounding neighborhoods.

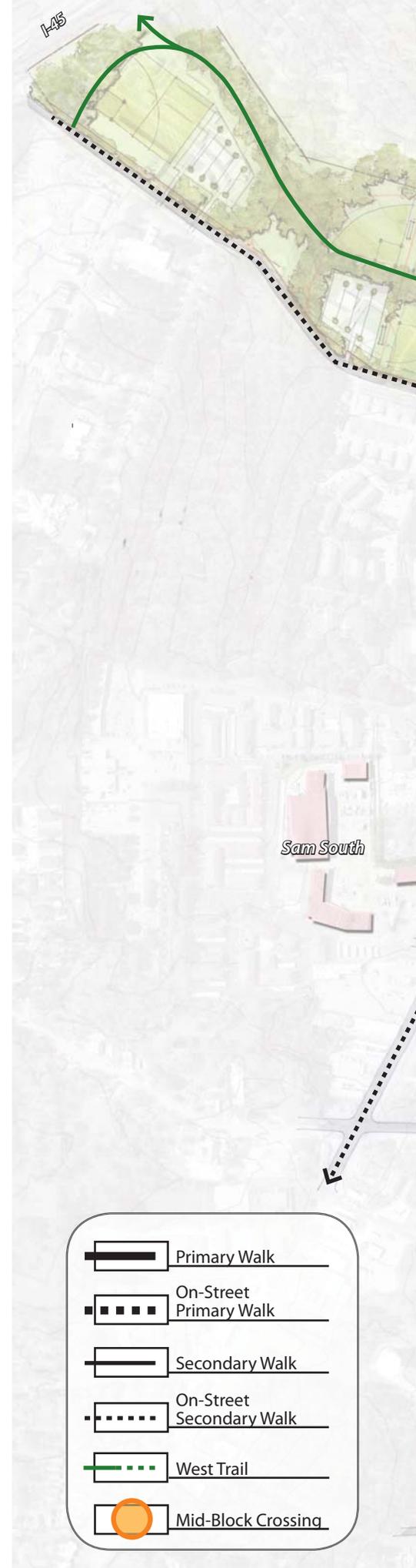
West Trail – Create a shared trail that connects the campus to the I-45 Recreation Campus and beyond to the University Golf Course.

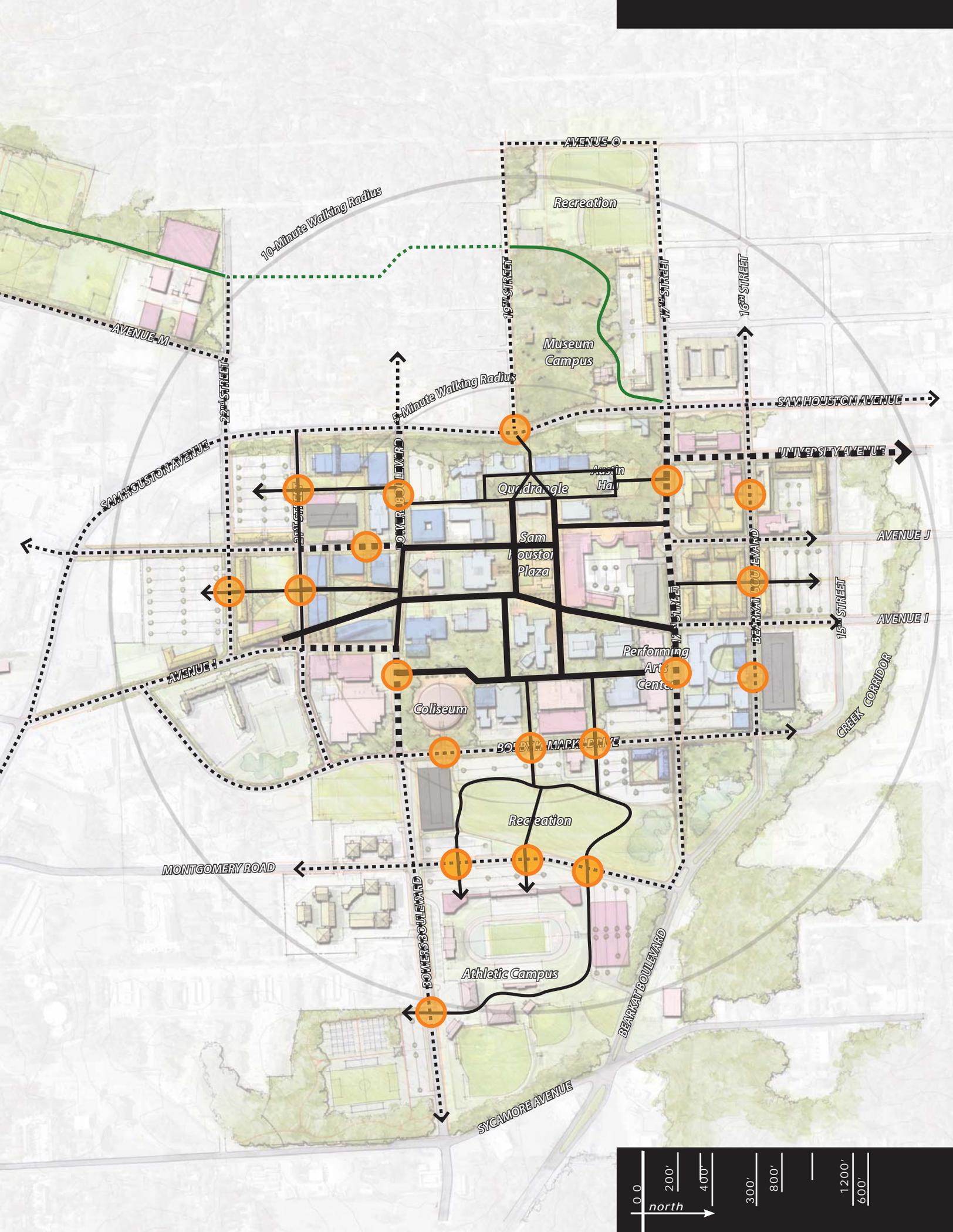
Mid-Block Crossings – Limit mid-block crossings to locations that are clearly defined as safe pedestrian crossing points. Crossings should have adequate safety measures commensurate to the scale and design speed of the street.

2008 Pedestrian Circulation Conditions

The pedestrian circulation system is well established in the campus. However, outside of the core there are major deficiencies. There are missing or poorly implemented walks leading to areas outside of the core such as parking lots and recreation areas. Beyond the campus proper, there are few walks leading to surrounding neighborhoods. This is most evident to the south along Avenues I and J where there are no walks from the campus to Sam Houston Avenue.

The most critical pedestrian/vehicular conflicts are along Sam Houston Avenue and along Bobby K. Marks Drive where traffic volumes are the highest. The intersection of 17th Street and Sam Houston Avenue has an offset intersection, which causes confusion and creates an unsafe crossing. Additionally, a safe mid-block crossing to the Museum Campus is needed.





10-Minute Walking Radius

5-Minute Walking Radius

AVENUE O

Recreation

Museum Campus

AVENUE M

22ND STREET

19TH STREET

17TH STREET

16TH STREET

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

SAM HOUSTON AVENUE

OVER BOULEVARD

Austin Hall

Quadrangle

Sam Houston Plaza

Austin Hall

AVENUE J

AVENUE H

14TH STREET

13TH STREET

12TH STREET

11TH STREET

10TH STREET

9TH STREET

8TH STREET

7TH STREET

6TH STREET

5TH STREET

4TH STREET

15TH STREET

AVENUE I

CREEK CORRIDOR

BOBBY MARK DRIVE

Coliseum

Performing Arts Center

Recreation

MONTGOMERY ROAD

6TH STREET

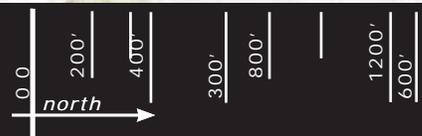
5TH STREET

4TH STREET

3RD STREET

BEARCAT BOULEVARD

SYCAMORE AVENUE



Chapter Contents

This chapter describes the overall open space network including specific recreation and athletic fields proposed by the master plan.

Chapters that support the recommendations of this chapter include the following:

- Campus Organization
- Buildings and Facilities
- Pedestrian Circulation

Related Master Plan Goals

The following Master Plan Goals are expanded on in this chapter:

2. Strengthen and expand the academic core.

Link the academic core to a new south academic quad.

10. Maintain and extend a unique campus landscape.

Create a hierarchy of quads, malls, and open spaces.

Develop a new south academic quad that will be as significant as the main academic quad.

Integrate learning environments into the campus landscape.

Create a green edge to the campus along Sam Houston Avenue.

11. Increase and diversify recreational opportunities.

Convert the property near I-45 to a recreation field complex.

Provide informal recreational opportunities near housing districts.



Planning Philosophy

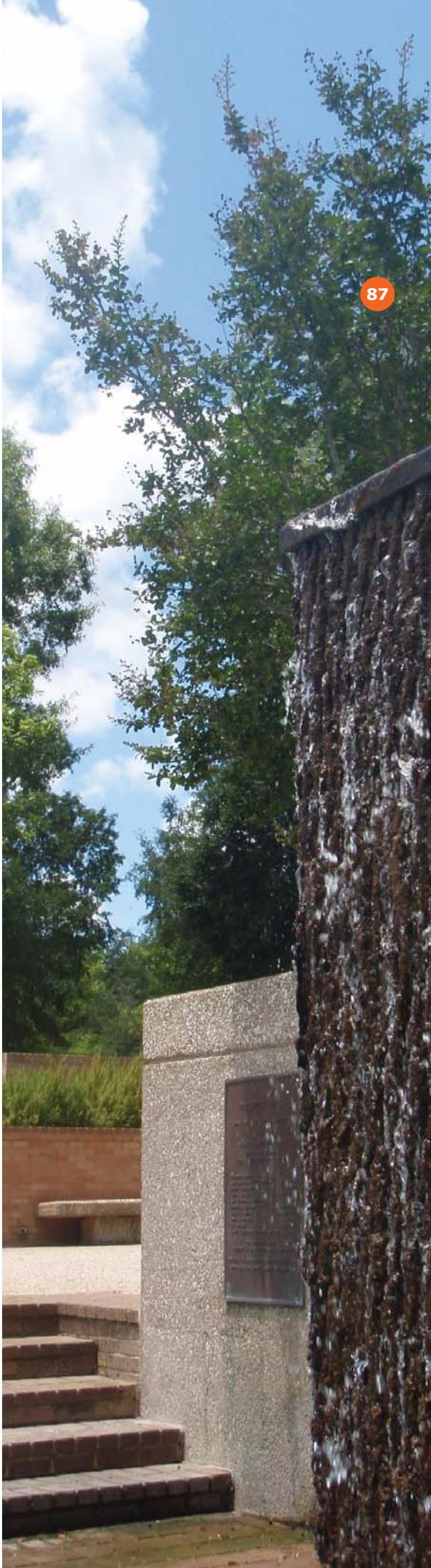
A campus cannot exist without a coherent open space network. It is the fabric that knits a collection of buildings and places into a cohesive whole. The open space network should strive for a level of consistency so that a visitor to any area of campus realizes that they are on the SHSU campus. Consistency can be achieved through standard plant materials, paving, light fixtures, bollards, benches, trash receptacles, and other amenities.

Within this overall framework, individual spaces can and should have an element of uniqueness so that they define a destination. This can be achieved through the implementation of plant materials, the use of special paving, and the overall design aesthetic.

The open space network should strive to achieve multiple objectives:

- It should be considered an extension of the classroom, offering opportunities for formal learning and informal interaction.
- It should help to create a more sustainable campus by managing stormwater, providing shade, and creating urban habitat.
- It should provide opportunities for formal and informal recreation.
- It should define the campus edge as a unique land use.
- It should define a vernacular that is unmistakably campus.

Recreation and athletic open space should be designed as unique districts within the overall campus framework. This can be achieved with consistent materials and landscape treatments. These districts should be linked to the major residential and academic destinations on the campus and easily accessible to the entire university population.



Open Space Programming

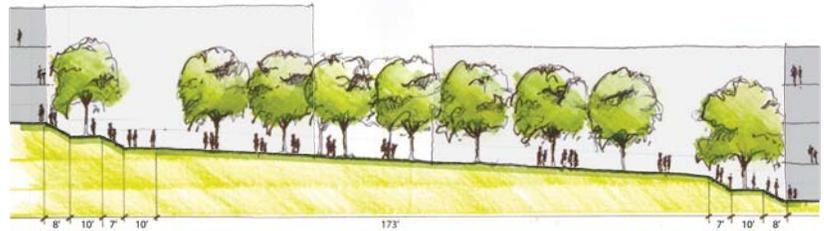
There are no formal spatial standards for creating open space on a campus. The following considerations went into the master plan's recommended open space network:

- The scale, density, and proportion of successful open spaces on the campus including the Sam Houston Plaza and quadrangle
- The organization and creation of new academic and residential districts
- The definition of campus edges

Plan Elements

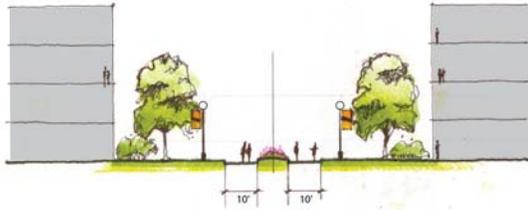
There are three primary typologies that are considered as part of the open space network. Each has unique qualities that should be consistent throughout the campus, yet modified for the specific context in which it is developed.

Quads, Plazas, and Courtyards – Spaces on campus bound by buildings on most, if not all, sides. These are formal open spaces that should reflect the collective interests of the student population they serve. For example, a quad within a residential block might have passive recreation opportunities, while a quad within an academic district might contain outdoor classrooms.



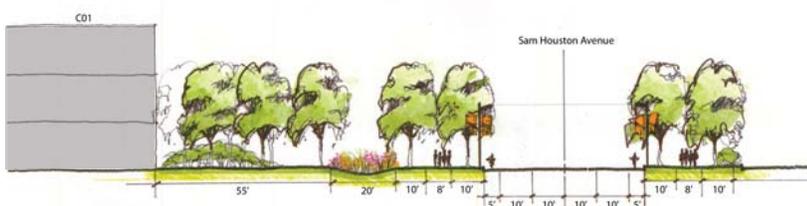
Typical Residential Quad

Malls – Linear open spaces that are usually defined by buildings and link two or more quads or plazas together. Malls should be treated as pedestrian streets with many of the same design considerations as vehicular streets. Emergency and service access will have to be considered in most mall designs.



Typical Pedestrian Mall

Edges – Open spaces that are lined on one side by university functions and the other by non-university functions. Edges are typically more informal than quads. They should signify the interface between the community and the campus.



Typical Sam Houston Avenue Edge

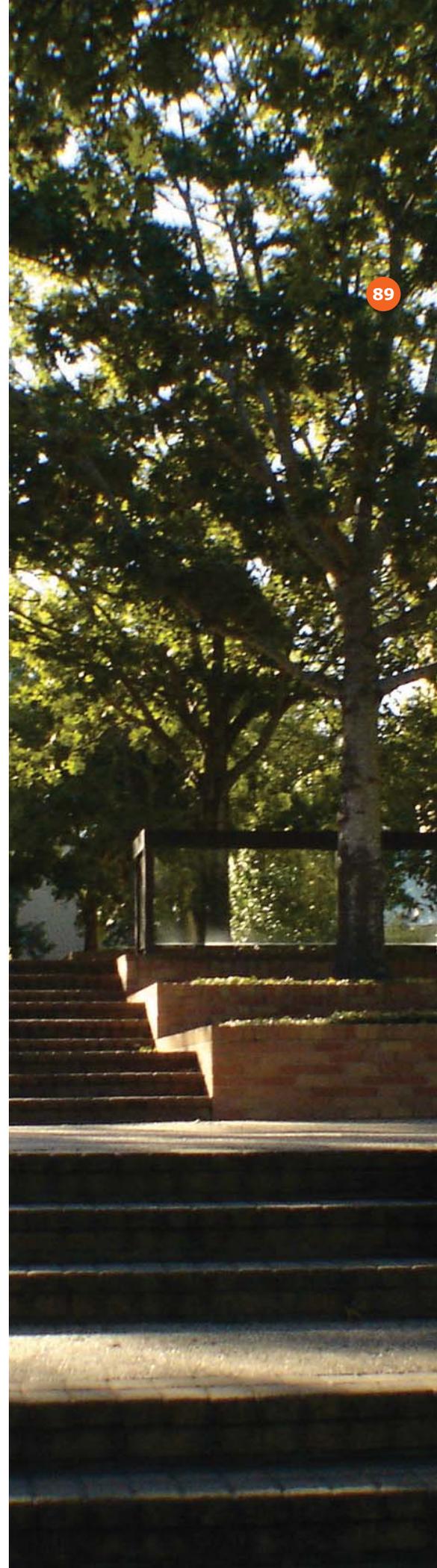
Implementation Considerations

There are two primary challenges related to the long-term success of the open space plan. First is the implementation of the plan over the next 10 or more years. Open space is usually the last consideration of any building project. When the campus embarks on the development of a new district, it will require careful planning to understand how the open space can be phased in over time.

Second, the plan has defined several major open spaces that currently do not exist. There will likely be pressure in the future to build in these areas before the plan is realized. If the plan is to be successful, the preservation of these open spaces will be critical to the long-term vision of the plan.

When designing future open spaces, the following list of programmatic elements should be considered:

- Landscape amenities including lighting, bollards, wayfinding, benches, and receptacles
- Stormwater management through the use of rain gardens and bio-swales
- Pedestrian paths and walks
- Safety and ADA accessibility
- Bicycle paths and parking
- Building entrances
- Art in the landscape
- Gathering and outdoor teaching spaces of various scales and types
- Active and passive recreation opportunities, especially near residence halls
- Ease of maintenance
- Emergency and service access to all buildings



Recreation and Athletics Programming

The planning team worked with the Recreational Sports and Intercollegiate Athletics departments to determine the programmatic needs of the campus. There were no major land needs for athletics except for a desire to consolidate soccer and tennis into the larger Intercollegiate Athletics Complex.

Recreational Sports, using National Recreation and Parks Association Standards, determined that the campus will need 10 acres of ball fields by 2020.

Plan Elements and Implementation Considerations

At a planning level, there are two major plan elements:

Intramural Recreation Complex – A collection of playing fields and facilities dedicated to recreation sports. There are three recreation complexes in the plan: The East Recreation Complex, the Pritchett Field Complex, and the I-45 Recreation Complex. The development of each complex should consider:

- Concessions and rest room facilities within close proximity.
- Proper field orientation and size.
- Limiting earthwork and grading.
- Appropriate bicycle and vehicle parking.

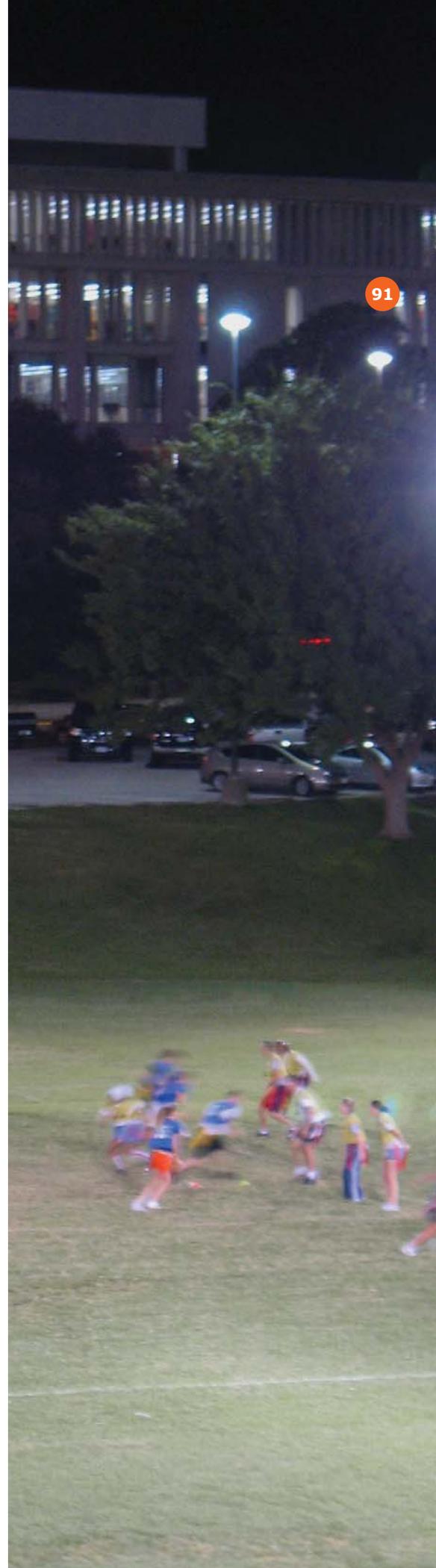
Intercollegiate Athletics Complex – The athletic district for the campus. The district should strive to continue to develop its own architectural and landscape image. This image is best illustrated with the new baseball and softball complex.



I-45 Recreation Complex



Intercollegiate Athletics Complex



Plan Recommendations

In addition to the specific recommendations below, a more detailed landscape master plan is recommended to establish landscape material palettes, create design standards, prioritize open space efforts, and define implementation strategies.

Open Space

Campus Quads – Protect existing major campus quads and create a new south academic quad.

Department Quads – Create small quads that represent the needs of the departments they serve.

Residential Quads – Create multipurpose open spaces that serve as “living rooms” for the residential neighborhoods they serve. Informal recreation should be developed into residential quads.

Plazas – Develop hardscape plazas within and along quads as formal and informal gathering spaces.

Pedestrian Malls – Enhance existing malls and create future malls to link major destinations within the campus core.

Sam Houston Ave. – A major objective of the master plan. The Sam Houston Avenue corridor will be developed into a park-like edge to differentiate it from the adjacent community edge. As the campus grows north and south along Sam Houston Avenue, this edge should be extended as well.

North Creek Edge – A natural geographic edge to the campus. This natural feature should be enhanced and preserved as the campus moves north.

Museum Campus – The transition between the campus and neighborhoods to the west. This open space should be preserved and protected to reflect the historic and park-like character of the district.

Recreation and Athletics

I-45 Recreation Complex – As agricultural elements move to Gibbs Ranch, develop the I-45 land into a new Intramural Recreation Complex.

East Recreation Complex – Preserve the current recreation complex.

Pritchett Field Complex – After Intercollegiate Soccer moves to the Intercollegiate Athletics Complex, open Pritchett Field to intramural recreation and neighborhood use when it is not programmed.

Intercollegiate Athletics Complex – Enhance the complex as a unique district within the campus. Expand the complex if possible south of Bowers Boulevard to allow tennis and soccer to be located in the district.





AVENUE O

Pritchett
Field
Complex

10-Minute Walking Radius

16th STREET

Museum
Campus

17th STREET

16th STREET

AVENUE M

22nd STREET

5-Minute Walking Radius

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

21st STREET

Quadrangle

Austin
Hall

BOWERS BOULEVARD

Sam
Houston
Plaza

South
Academic
Quad

Performing
Arts
Center

AVENUE I

Tennis

Rec
Sports

Coliseum

BOBBY K. MARKS DRIVE

East
Recreation
Fields

15th STREET

CREEK CORRIDOR

MONTGOMERY ROAD

BOWERS BOULEVARD

Intercollegiate
Athletics
Complex

BEARKAT BOULEVARD

Tennis and
Soccer
Complex

SYCAMORE AVENUE



2008 Open Space Conditions

The 2008 campus has a significant investment in open spaces that successfully define the academic core. Where the open space network is least successful is outside of the core, where little effort has been made to reflect the positive aspects of the middle. There are three major open spaces that should be looked at as models for the development of future spaces.

Historic Quadrangle and Old Main Pit – This is the original campus open space and reflects the historic heritage of the campus.

Sam Houston Plaza – Recently developed, the plaza is a large scale formal open space that has become the new “living room” for the campus.

Coliseum Greenbelt – One of the only patches of mature trees on the campus, it is developed as a park-like open space that contrasts the more formal Sam Houston Plaza.

Overall, the campus open space can be described in five major zones, which are highlighted on the map to the right:

1. *Campus Core* – Includes the historic quadrangle and Sam Houston Plaza. This zone is comprised of the highest quality open space on the campus. Large canopy trees and lush lawn are found throughout. It can be characterized as the most ceremonial landscape on the campus and can be used as a model for future open space improvements.
2. *Athletic and Recreation* – This area is comprised primarily of active sports fields and some passive open space. It is the lowest point on the campus and therefore also serves a stormwater management function. This zone includes three recreation fields along with the intercollegiate softball, baseball, track, and football fields.
3. *Museum Campus* – Includes the Sam Houston Memorial Museum, the historic Pritchett Field, and several small residential halls. The entire district is a transition between the campus and the westerly neighborhoods and therefore is the most public landscape on campus.
4. *North and South Edges* – This zone has the most room for improvement. Both the north and south sides of campus are comprised of a mix of disjointed buildings, parking lots, and poorly treated roads. As the campus expands, it will be a challenge to connect these areas back to the core.
5. *I-45 Agriculture Campus* – Separated from the main campus by several blocks, this zone has a mix of agricultural facilities, academic functions, and the former intercollegiate softball and baseball fields. Much of the landscape is mowed lawn, with the most dominant feature being a wooded corridor that parallels a stream bisecting the district.





3

4

1

4

2

AVENUE O

Pritchett Field Complex

19TH STREET

17TH STREET

16TH STREET

Museum Campus

A11

A6

Quadrangle

Austin Hall

Sam Houston Plaza

Coliseum

Performing Arts Center

East Recreation Fields

Recreation

Intercollegiate Athletics Complex

Holleman Baseball Field

AVENUE M

22ND STREET

SAM HOUSTON AVENUE

AVENUE J

21ST STREET

POWERS BOULEVARD

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

AVENUE J

AVENUE I

BEAUKAT BOULEVARD

15TH STREET

AVENUE I

ROBBY KIMWIKS DRIVE

MONTGOMERY ROAD

LOWERS BOULEVARD

BEARKAT BOULEVARD

SYCAMORE AVENUE



Chapter Contents

This chapter describes the conceptual stormwater management strategies developed as part of the master plan.

Chapters that support the recommendations of this chapter include the following:

- Campus Organization
- Open Space

Related Master Plan Goals

The following Master Plan Goals are expanded on in this chapter:

12. Manage stormwater as a campus asset.

Manage stormwater detention regionally where necessary.

Manage water quality as close to the source as possible.

Minimize impervious surfaces.

Integrate stormwater into the campus open space fabric.



Oregon Convention Center, Rain Garden

Planning Philosophy

Campuses across the country are creatively incorporating stormwater management techniques into traditional campus environments. This approach is a very visual representation of sustainability, making the campus look and feel more in touch with nature. Done well, stormwater management facilities can be an asset to the campus open space system.

Stormwater management techniques should attempt to mimic pre-development run-off conditions by:

- Managing small water quantity events as close to where the rain falls as possible.
- Minimizing impervious surfaces through the use of porous pavements and green roofs.
- Managing large water quantity events in low-lying areas near the floodplain.

When this philosophy is applied, the areas adjacent to the floodplain are ideal for additional regional storage. Developments on the rest of the campus should incorporate best management practices such as rain gardens and pervious materials.

Meeting water quality needs can be accomplished as new developments and open spaces come on line. The more difficult challenge is determining how to effectively manage water quantity events. This will have to be done through collaboration with the City of Huntsville, since the campus is part of a much larger watershed.

Stormwater Programming

Since the university's run-off is conveyed off the campus through the city of Huntsville's stormwater infrastructure, the university is responsible for meeting their stormwater management guidelines:

Stormwater Quantity – Manage the 10-year event for all new developments that are create a net increase in impervious surface.

Stormwater Quality – The City of Huntsville does not have water quality guidelines. However, the nationally mandated National Pollution Discharge Elimination System (NPDES) program will likely mandate that the City of Huntsville and the university comply with water quality standards in the future. In order to move in this direction and be good stewards to the watershed, the university should attempt to treat 90 percent of the average annual rainfall, which is approximately a 2-inch rain event for this climate.



Ann Arbor, MI, YMCA
Stormwater Detention Basin

Plan Elements

There are three general strategies that have been proposed to help the campus manage stormwater. Each of these strategies has advantages and disadvantages that should be weighed on a project by project basis.

Regional Detention Facilities – Large volume storage facilities. There are two basic techniques that can be used: stormwater basins and underground chambers. Chambers are effective under large impervious surfaces such as parking lots. While basins can be a visual amenity to the campus and are more appropriate where land has limited building potential.



Detention Basin



Chambers

Pervious Surfaces – Surfaces that allow the infiltration or absorption of rain. There are several techniques that can be used to minimize impervious surfaces including: porous pavement, green roofs, and simply not installing as many paved areas. This last technique is not always practical, since it is at odds with creating a dense and compact campus.

There are many successful examples of pervious pavement systems that can be applied to walks or parking lots. A cost benefit analysis will help determine if this approach will be effective on a project by project basis. In general, the price of pervious pavements is directly related to the experience of installers.



Pervious Pavements

Green roofs are relatively new to the United States and have proved effective at managing smaller rain events. Unfortunately, they are not cost-effective based on stormwater merits alone. Other benefits that make them attractive include increased roof life, creation of habitat, reduction of the urban heat island effect, creation of a visual amenity, and increased building insulation.



Green Roofs

Best Management Practices – Techniques that help to mitigate water quality and smaller rain events. These techniques can include structural solutions such as stormceptors if no other option is feasible. Landscape solutions are typically preferred, since they offer additional benefits including infiltration, volume reduction, flow rate reduction, and the creation of visual amenities. The most common term for these facilities is rain garden, which can be incorporated into the design of courtyards, plazas, and malls.



Rain Gardens



Typical Rain Garden

Implementation Considerations

When designing future stormwater management facilities, the following should be considered:

- Determine if the project increases the imperviousness of the development area. If yes, then stormwater quantity controls will need to be implemented.
- Define an approach for water quality and determine if the strategy can be integrated into an adjacent open space network or with another stormwater management facility.
- Perform soil and slope analysis to determine suitability of pervious pavement and infiltration based techniques.



Massachusetts Institute of Technology State Center Rain Garden

Plan Recommendations

To support this master plan, a more detailed stormwater master plan is recommended to establish specific guidelines and standards for the implementation of stormwater strategies and to develop a comprehensive stormwater management plan. Campus-wide stormwater recommendations include the following:

Surface Conveyance – Look for opportunities to mimic natural flows by implementing bio-swales.

Green Courtyards – Develop new courtyards and open space to incorporate best management practices as part of the overall design.

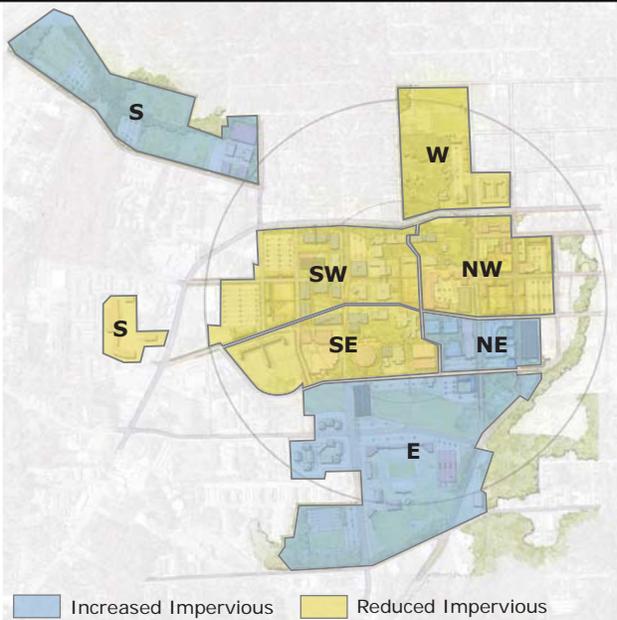
Regional Detention – Based on need, determine areas of the campus to develop regional detention in chambers under parking lots or in new detention basins.

Minimize Impervious Area – The diagram below is an analysis of the total pervious area in 2008 versus the master plan. The areas that have a lower pervious percentage in the future will need additional water quantity controls. If pervious pavement and green roofs were implemented, these areas could be planned to be greater than the existing pervious percentage, thereby eliminating the need for additional regional detention for water quantity events.

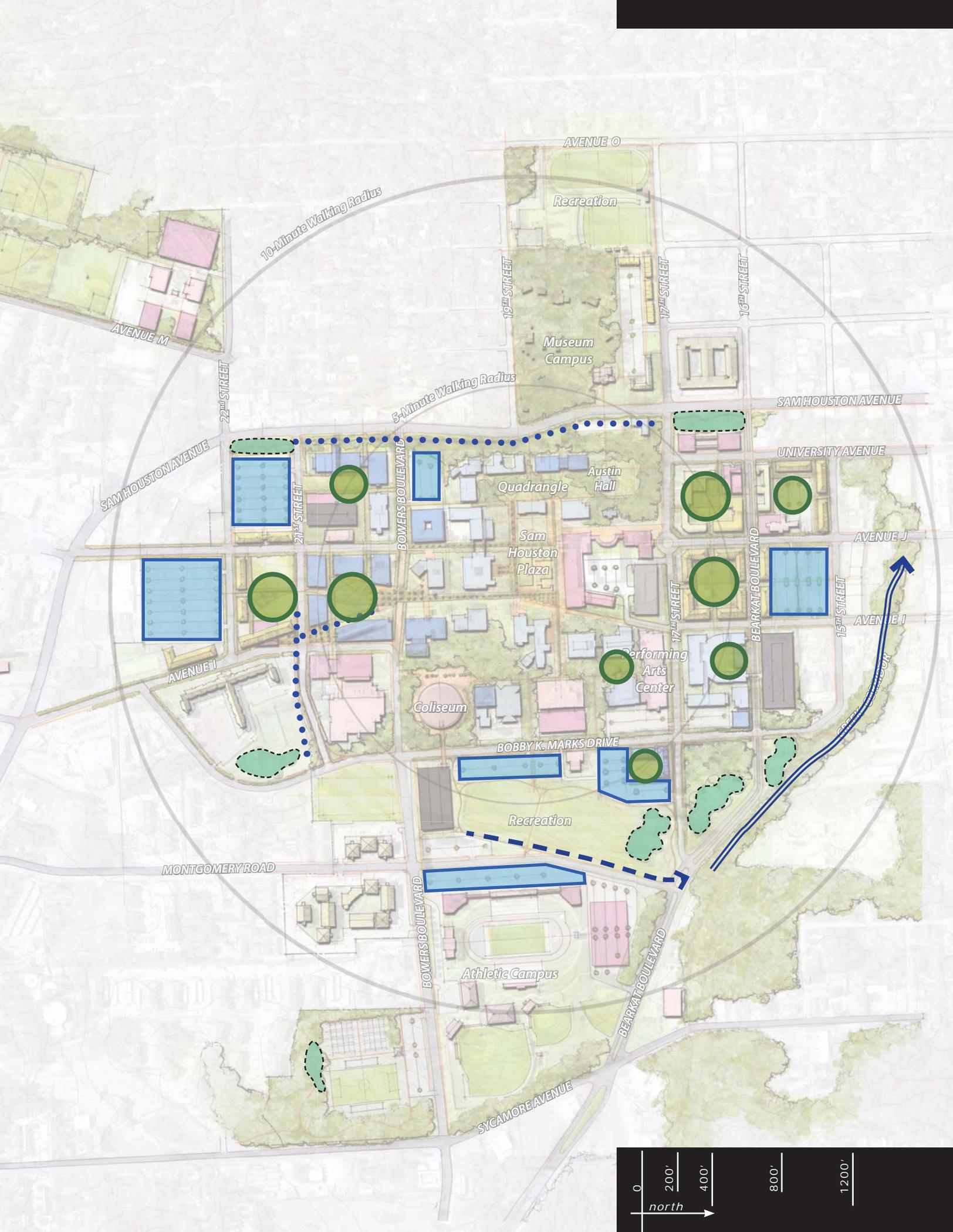
Stream Corridors – Protect and enhance stream corridors as campus amenities. The buried corridor parallel to the east recreation fields will need to be addressed as part of a comprehensive stormwater plan to determine how it will be maintained and enhanced in the future.

% Pervious Analysis

Area	2008	Planned
Overall	51%	51%
W	59%	59%
NW	48%	49%
NE	40%	39%
E	56%	53%
SE	41%	47%
SW	47%	50%
S	69%	63%



-  Surface Conveyance Opportunity
-  Potential Green Courtyard
-  Detention Opportunity - Chamber
-  Detention Opportunity - Basin
-  Stream Corridor
-  Buried Stream Corridor



10-Minute Walking Radius

5-Minute Walking Radius

AVENUE M

AVENUE O

Recreation

Museum Campus

19TH STREET

17TH STREET

16TH STREET

SAM HOUSTON AVENUE

22ND STREET

21ST STREET

BOWERS BOULEVARD

SAM HOUSTON AVENUE

Quadrangle

Austin Hall

UNIVERSITY AVENUE

Sam Houston Plaza

AVENUE J

AVENUE I

Coliseum

Performing Arts Center

BEARKAT BOULEVARD

15TH STREET

AVENUE I

BOBBY K. MARKS DRIVE

Recreation

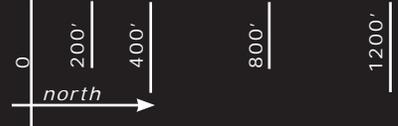
MONTGOMERY ROAD

BOWERS BOULEVARD

Athletic Campus

BEARKAT BOULEVARD

SYCAMORE AVENUE



2008 Stormwater Conditions

The SHSU campus has nearly 50 feet of grade change from its highest point (near Austin Hall) to its lowest. This allows stormwater to move fairly rapidly away from the campus toward the two stream corridors that define the low-lying areas. Both of these corridors are within the FEMA defined 100-year floodplain. A major section of the stream that is east of campus is buried in what has been described by city officials as a series of rail cars that are coming to the end of their life expectancy. Occupied buildings will likely not be allowed in the floodplain, and any grading will require special permitting and careful cut and fill balancing.

The map on the adjacent page also defines five sub-watersheds and their associated low points. These are based on the existing surface topography. The largest area of the campus drains to the northeast near the intersection of 17th Street and Bearkat Boulevard.

Currently, the university has several sub-surface detention facilities under new parking lots to offset the creation of impervious surfaces. The campus primarily relies on the lowest recreation field (just south of the intersection of 17th Street and Bearkat Boulevard) as its primary flood control detention facility. The field is designed to fill up in large rain events and release the water at a controlled rate to the stream corridor to the north. Historically, all of the fields in this area were wetlands.

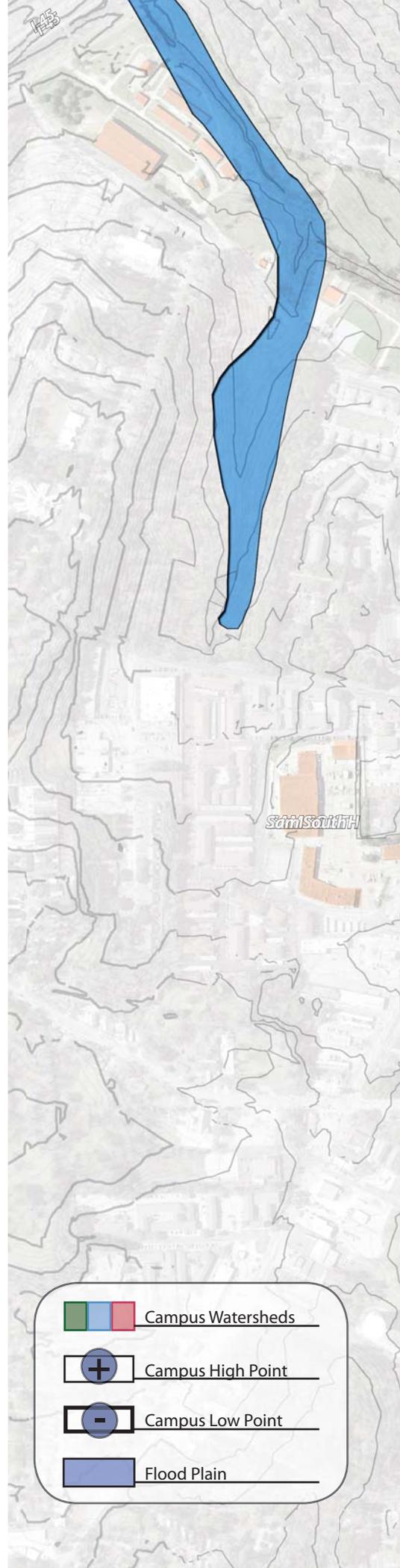
The historical rainfall analysis below highlights that the 10-year storm event required by the city for quantity control is about an 8-inch event. Additionally, facilities designed to treat the 2-inch event would manage approximately 90 percent of the average annual rainfall, which is typically required for water quality control.

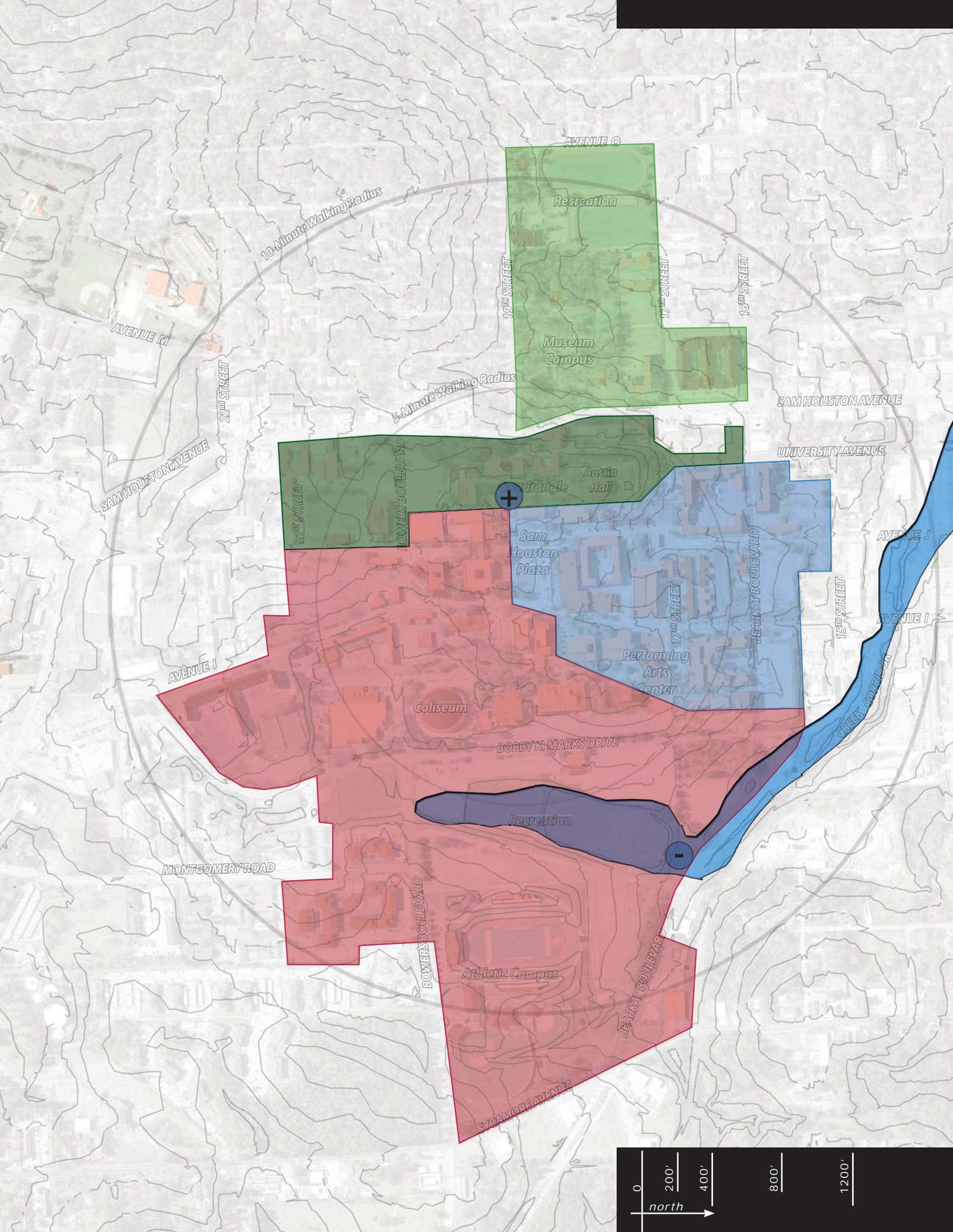
Historical Rainfall Analysis

This analysis determines the approximate size of different events that occur on the campus. Actual events should be confirmed with the local stormwater administrator.

The data set is based on 60 years of rainfall at the George Bush International Airport in Huntsville.

Event	Size (in.)	% of Avg. Annual Rainfall Managed
first flush	0.5	49.96%
	1	71.87%
	2	89.48%
	3	95.05%
	4	97.37%
	5	98.52%
2-year	6	99.06%
5-year	7	99.38%
10-year	8	99.62%
15-year	9	99.75%
25-year	10	99.87%
50-year	11	99.93%
100-year	12	99.97%
>100-year	>12	100.00%





AVENUE O

Recreation

Museum
Campus

10-Minute Walking Radius

5-Minute Walking Radius

AVENUE M

22ND STREET

19TH STREET

17TH STREET

16TH STREET

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

UNIVERSITY AVENUE

21ST STREET

LOWERS BOULEVARD

+

Triangle

Austin Hall

Sam
Houston
Plaza

Performing
Arts
Center

17TH STREET

BEARKAT BOULEVARD

AVENUE J

AVENUE I

AVENUE I

Coliseum

BOBBY K. MARKS DRIVE

15TH STREET

CREEK CANYON

MONTGOMERY ROAD

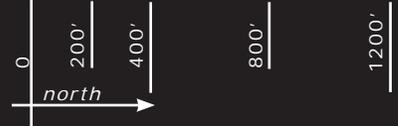
Recreation

LOWERS BOULEVARD

Athletic Campus

BEARKAT BOULEVARD

SYCAMORE AVENUE





Chapter Contents

This chapter describes an approach for redeveloping the University Avenue corridor as well as other private and public development opportunities along Sam Houston Avenue.

Chapters that support the recommendations of this chapter include the following:

- Campus Organization
- Vehicular Circulation
- Open Space

Related Master Plan Goals

The following Master Plan Goals are expanded on in this chapter:

13. Embrace the surrounding community.

Enhance University Avenue as the pedestrian link to downtown.
Promote positive private development along University and Sam Houston Avenues.

Planning Philosophy

The image and identity of SHSU is directly tied to that of the city of Huntsville. Improving the image of the downtown and the surrounding community is not the responsibility of the university, but a positive change can improve the image of SHSU to students considering moving to Huntsville to attend college.

Downtown Huntsville is an untapped resource for urban housing, dining, and retail offerings for the SHSU community. However, there are very few stores that cater to students, and there are limited or no housing options. Additionally, the downtown Huntsville is not very inviting even though it's only a short walk away.

In order to promote change, the university will have to work collaboratively with the City of Huntsville and private development.

Plan Elements and Implementation Considerations

Streetscape Improvements – There are several opportunities to improve streetscapes surrounding the campus. The master plan has defined Sam Houston Avenue and University Avenue as the top two priorities for improvements. Streetscape improvements on roads near the campus should reflect the identity of the city as well as the university. They present an important first impression of SHSU.

Improvements to these corridors should consider all aspects of transportation (automobile, bicycle, pedestrian) as well as amenities that create the character and image of the street (lights, benches, banners, trees, etc.).

Development Opportunities – Some of the most memorable places on a campus are on its edges where the institution meets private development. These areas are often seen as part of the campus, and therefore should be actively influenced by the university. This can be accomplished through a range of measures including working with the City of Huntsville to develop an overlay zone or design guidelines that reinforce a pedestrian-oriented district. Another approach is creating a private/public partnership to develop parcels near the campus. The South Campus Gateway at The Ohio State University is an example of this approach.





2008 University Avenue Conditions



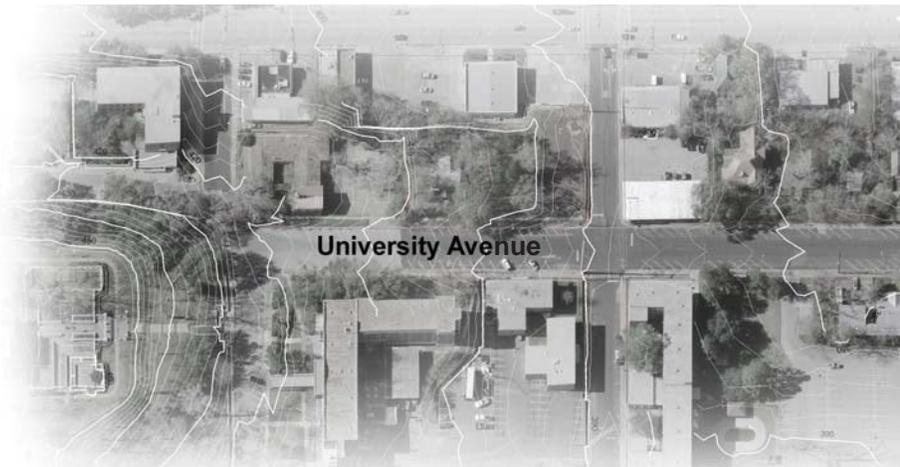
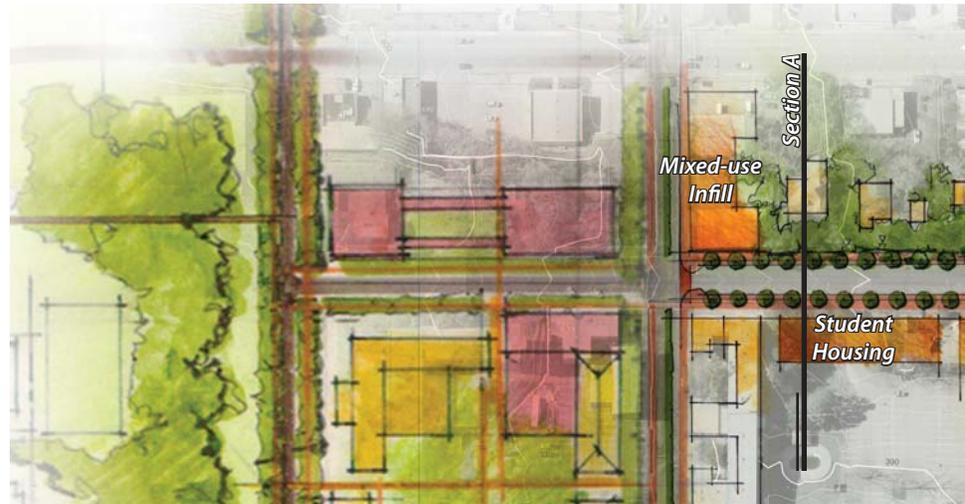
University Avenue Circa 1915

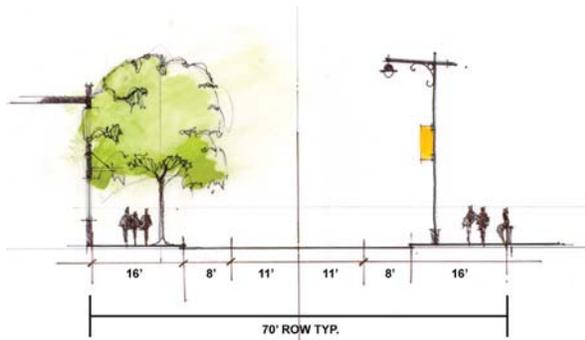
Plan Recommendations

University Avenue

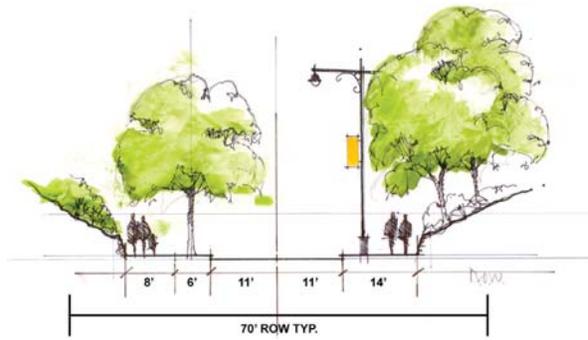
Road Improvements – Work with the City of Huntsville to narrow lane widths, expand the pedestrian zone, plant street trees, implement pedestrian amenities, provide parallel on-street parking where appropriate, and install safe, pedestrian-scaled street lights.

Development – Promote the development of university and private mixed-use and residential infill to create a consistent building edge to University Avenue. This would make pedestrians feel safer due to more “eyes on the street” all hours of the day and night.





Section A - Typical University Avenue Section



Section B - Section at Steep Slope



Proposed University Avenue Improvements



2008 University Avenue Plan

Sam Houston Avenue

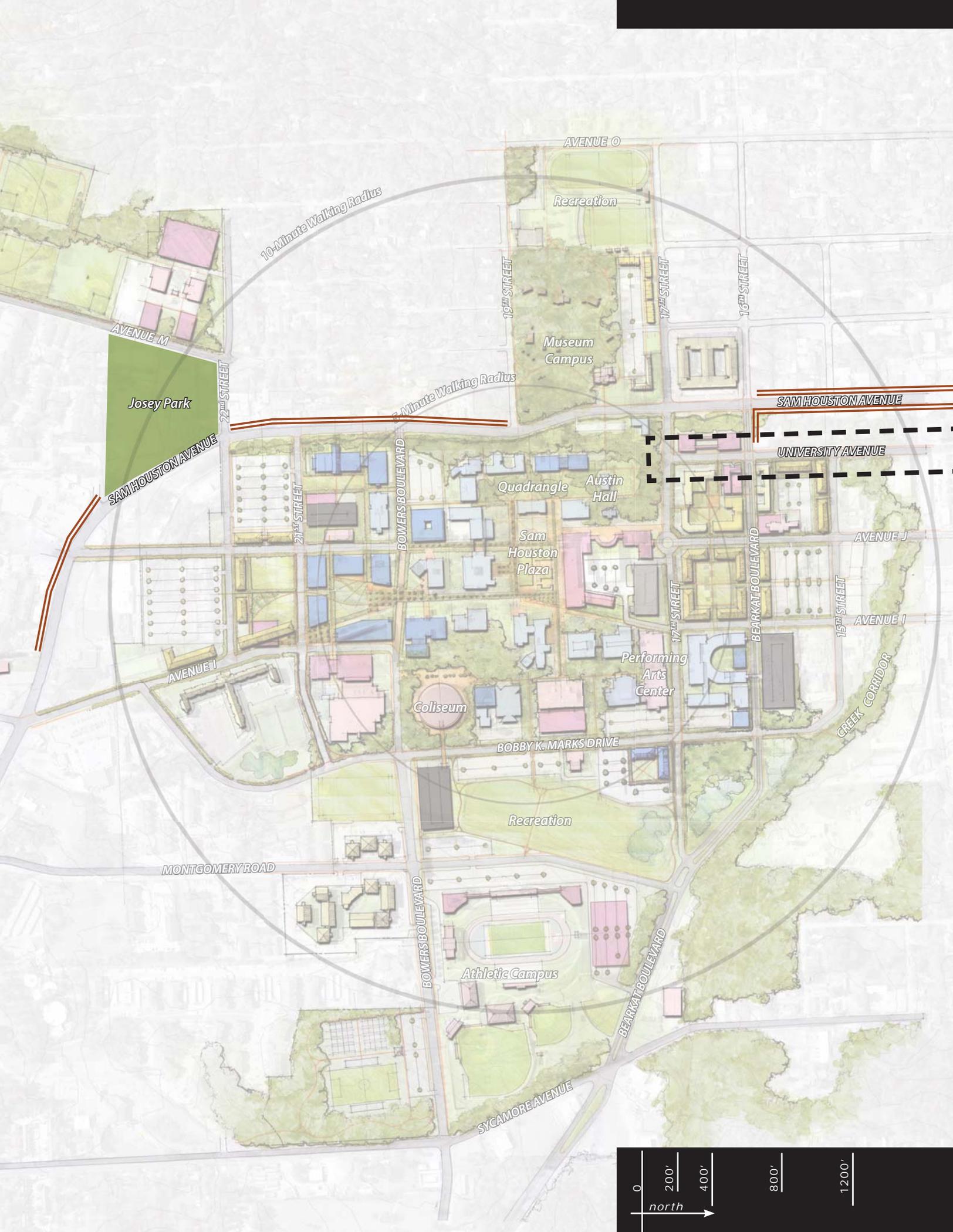
Road Improvements – Work with the City of Huntsville and State of Texas to develop the character and identity of Sam Houston Avenue. Improvements could include bicycle lanes, consistent street trees, low walls to screen parking, consistent lighting with banners, and improved pedestrian safety measures.

Development – Work with the City of Huntsville and private developers to create an active mixed-use edge to Sam Houston Avenue. This should be promoted through the implementation of an overlay district or other design control that promotes consistent architectural treatment and mix of uses along the corridor.

Josey Park

Preservation – Josey park, while not controlled by the university, is an important land use link to the I-45 property. The university should actively promote the preservation of this park. If the opportunity arises, the university should consider acquiring the park to expand recreational offerings in the proposed I-45 Recreation Complex.





2008 Community Interface Conditions

Land Use Context

North – The existing development to the north of the university is varied and sparse. There are a few commercial and several residential uses that are lacking any real sense of community. While the downtown is fairly successful, the area in between downtown and the campus needs to be improved a great deal if the campus is to capitalize on the assets of the downtown. Zoning supports mixed-use developments that transition to downtown.

South – The southern edge of the campus is the most varied of any campus edge. Strip development and low quality student housing dominates the landscape. Zoning supports the automobile-oriented commercial development that exists today; however, it may not be the best mix of uses for the campus in the long term.

East – The eastern edge of the campus is the least developed edge. There are a few isolated commercial uses, but the dominant land use is forest and undeveloped land. However, this will likely change in the future. The university should promote commercial or market rate housing that respects the campus edge.

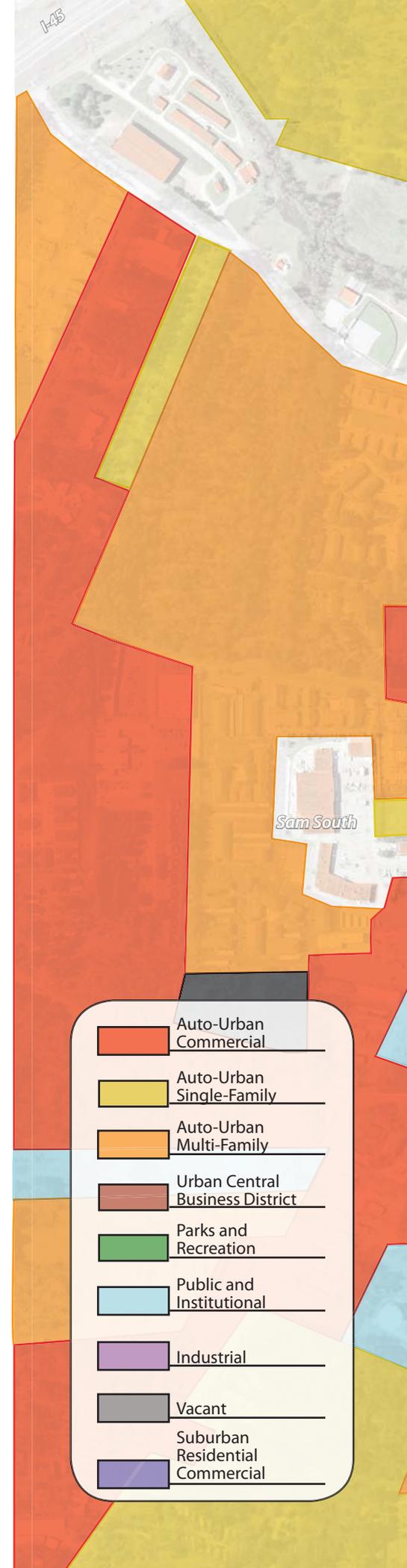
West – Perhaps the most successful neighborhood, this area is a tremendous asset to the university and should be encouraged to identify with the campus district.

Sam Houston Avenue

Sam Houston Avenue is a mix of strip commercial uses that are automobile-oriented by design. Most of the uses are student-oriented and serve the campus community. However, the design and character of the street leaves much to be desired. More pedestrian-oriented, mixed-use developments would help to improve the character of the corridor and provide safety all hours of the day.

University Ave

University Avenue is the most important and underutilized connection to downtown from the campus. Issues include poor or no sidewalks, steep slopes, poor or no lighting, excessive pavement width, vacant and poorly maintained properties, and poor edges such as parking lots. If these issues are addressed, the campus community will have an extremely important asset and connection to downtown amenities.



	Auto-Urban Commercial
	Auto-Urban Single-Family
	Auto-Urban Multi-Family
	Urban Central Business District
	Parks and Recreation
	Public and Institutional
	Industrial
	Vacant
	Suburban Residential Commercial

6-YEAR

PHASING PLAN

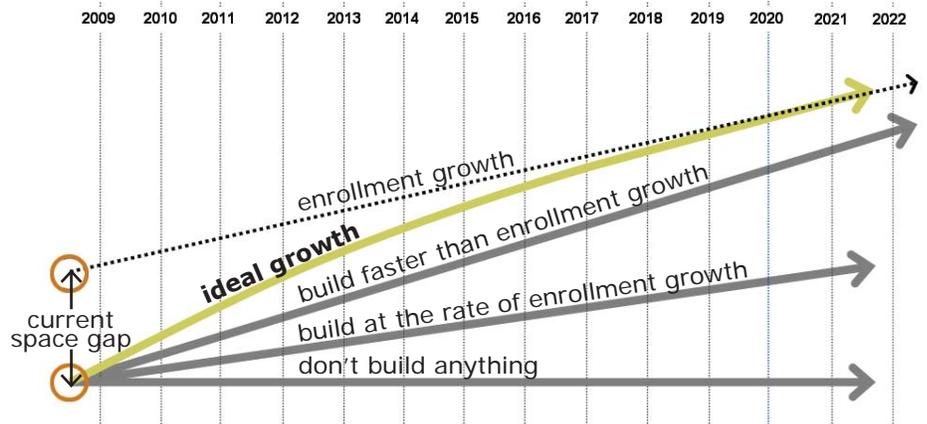
Chapter Contents

While the overall Master Plan is a road map for the future, the 6-Year Phasing Plan highlights the most pressing priorities for the short term. The 6-Year Phasing Plan also coincides with SHSU's Capital Improvement Plan horizon of 6 years.

Planning Philosophy

The university enrollment has been rapidly growing over the past 10 years, and the current program projections show an existing deficiency in space. If the campus grows this gap will only get larger if the campus does not add more buildings to its inventory.

There are a few approaches the university could take to address the current and future space gap, which are illustrated in the diagram below:



Don't build anything. If the university doesn't build any new space over the next 12 years, the current gap in space will become a severe deficiency. This is not a sustainable option.

Build at the rate of enrollment growth. If the university were to build at the same rate as enrollment growth, it would function about as well as it does today. This is not the worst option. However, based on departmental interviews, there is a desperate need for certain space types, particularly labs.

Build faster than enrollment growth. This option would allow the university to add space to meet additional enrollment and slowly reduce the current space gap.

Ideal growth. The ideal growth trajectory would aggressively cut into the current space gap to meet the enrollment growth by 2020. This path requires the first 6 years of the master plan to be more aggressive than the second.

The 6-Year Phasing Plan was designed to follow this last approach. It is an aggressive strategy that will allow SHSU to achieve several important goals:

1. Begin to make up for current deficiencies in laboratory, classroom, and office space and accommodate the increased student population expected by 2014.
2. Continue to house 20 percent of students on campus, which accommodates the required on-campus freshmen and a small percentage of upper classmen.
3. Build a new south plant that will be necessary before any additional academic buildings are constructed in the south quadrant of campus.
4. Balance parking needs that will increase due to rising enrollment and loss of surface parking lots to new building construction.

The major building and infrastructure projects included in the 6-Year Phasing Plan are listed on the following page in the year the design process is expected to begin. Therefore, a building listed in 2009 would likely not open until 2011. The estimated cost of construction is calculated in the year they are planned to be built. This approach will finish or begin the construction of six academic buildings, three residential halls, a new alumni center, a new parking structure, a new south plant, and the I-45 Recreation Complex.



6-Year Building Projects

	Project	Cost
2009	<i>New Integrated Engineering Building</i>	\$37,000,000
	<i>New Residence Hall North of Bearkat Boulevard</i>	\$18,000,000
	<i>Expansion of CMIT/LEMIT</i>	\$15,000,000
	<i>Demolition of Lawrence and Mitchell Houses</i>	\$200,000
2010	<i>New Art Complex</i>	\$8,000,000
	<i>New South Plant</i>	\$18,000,000
	<i>Expansion of Teacher Education Center</i>	\$3,000,000
	<i>Demolition of Academic Building III</i>	\$675,000
2011	<i>New Agriculture Building</i>	\$14,000,000
	<i>New Bearkat Parking Structure</i>	\$20,000,000
	<i>Improvements to 21st Street</i>	\$2,600,000
	<i>Demolition of Forensic Psychology Building</i>	\$22,500
	<i>Demolition of Recital Hall</i>	\$80,000
2012	<i>Demolition of Smith-Kirkley Hall</i>	\$1,500,000
	<i>New Biology, Nursing and Allied Health Building</i>	\$42,000,000
	<i>New Forensic Science Building</i>	\$24,000,000
	<i>New Residence Hall Northeast of Sorority Hill</i>	\$17,000,000
	<i>Improvements to Bearkat Boulevard</i>	\$3,000,000
	<i>Demolition of the Art Complex</i>	\$475,000
2013	<i>Demolition of Randel, Vick, and Spivey Houses</i>	\$300,000
	<i>New College of Business Building</i>	\$45,000,000
	<i>New Residence Life Maintenance Building</i>	\$2,000,000
	<i>Expansion of the Health Center</i>	\$3,000,000
	2014	<i>New Alumni Center</i>
<i>New Residence Hall at the King Hall Site</i>		\$23,500,000
<i>Expansion of the Criminal Justice Center</i>		\$16,000,000
<i>Demolition of King Hall</i>		\$400,000
<i>Demolition of the Agriculture Complex</i>		\$500,000
<i>Development of the I-45 Recreation Complex</i>		\$10,000,000

Notes	GSF	Beds	Spaces
developed for a the new engineering program	100,000		
planned for construction in a current parking lot adjacent to current facility	80,000	213	
makes room for north dining hall	50,000		
allows planning of future College Business Building	40,000		
required for any new buildings to the south	10,000		
expansion to southwest corner of current building	10,000		
makes room for integrated engineering building			
planned for construction in a current parking lot north of Criminal Justice	50,000		1,200
allows access to new Agriculture Building			
makes room for future parking structure			
building in poor condition			
building in poor condition			
south of CHSS	125,000		
allows Chemistry to grow into current facility	50,000		
planned for construction in a current parking lot concurrent with construction of residence halls	60,000	160	
makes room for College Business Building			
makes room for Biology, Nursing and Allied Health Building			
south of Bowers Boulevard and facing Sam Houston Avenue	150,000		
planned in vacant parcel south of 22 nd on Avenue M	15,000		
expansion to the south of the current facility	10,000		
opens visitor's center for other functions	35,000		
planned on current King Hall site	75,000	200	
planned to infill the horseshoe	24,000		
makes room for new residence hall and is in poor condition			
will require facilities to be open at Gibbs Ranch			
new recreation complex on current agriculture complex			

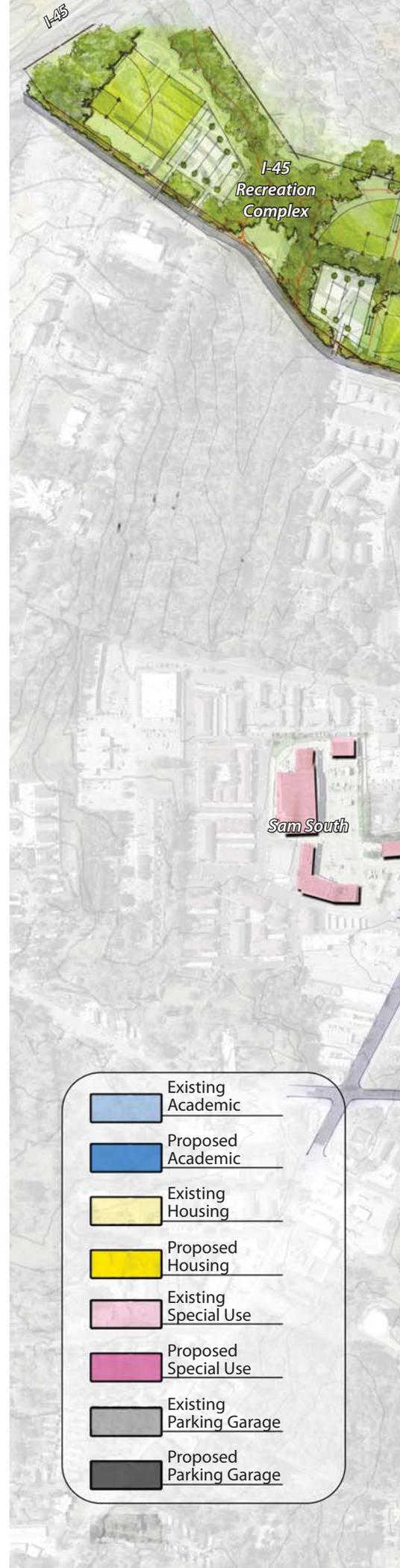
6-Year Building Projects

Specific building opportunities expected to be realized within the 6-year horizon include:

#	Building Description
academic	
A1	Teacher Education Center Expansion
A2	New Art Complex
A3	Agriculture Building
A4	Biology, Nursing and Allied Health Building
A5	Forensic Science Building
A6	College of Business Building
A7	Integrated Engineering Building
A8	Criminal Justice Center Expansion
A9	CMIT/LEMIT Expansion
auxiliary	
X1	North Dining Commons
X2	South Central Plant
X3	Alumni Center
X4	Health Center Expansion
X5	Residence Life Maintenance & Storage
residential	
R1	North of Bearkat Boulevard
R2	Northeast of Sorority Hill
R3	King Hall Replacement
parking	
P1	Bearkat Parking Structure

Additional projects expected to be realized within the 6-year horizon include:

- Development of 21st Street from Sam Houston Avenue to Bobby K. Marks Drive.
- Development of Bearkat Boulevard into a true boulevard.
- Development of the I-45 Recreation Complex.



	Existing Academic
	Proposed Academic
	Existing Housing
	Proposed Housing
	Existing Special Use
	Proposed Special Use
	Existing Parking Garage
	Proposed Parking Garage



10-Minute Walking Radius

5-Minute Walking Radius

AVENUE O

Recreation

Museum Campus

X5

AVENUE M

22nd STREET

19th STREET

17th STREET

16th STREET

SAM HOUSTON AVENUE

SAM HOUSTON AVENUE

AVENUE J

21st STREET

BOWERS BOULEVARD

Quadrangle

Austin Hall

X1

UNIVERSITY AVENUE

A6

A7

Sam Houston Plaza

R3

X4

AVENUE I

A3

A5

A4

Performing Arts Center

R2

R1

15th STREET

Coliseum

A1

A8

P1

CREEK CORRIDOR

BOBBY K. MARKS DRIVE

A2

Recreation

MONTGOMERY ROAD

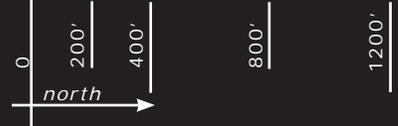
BOWERS BOULEVARD

X3

Athletic Campus

BEARKAT BOULEVARD

SYCAMORE AVENUE



In addition to the committee members listed on this page, the planning team would like to express their gratitude to the hundreds of faculty, students, and staff who participated in focus groups, attended open houses, or sent feedback via the web site. This plan is a testament to the pride and ownership that everyone at SHSU has in their campus.

Master Plan Executive Committee

Dr. James F. Gaertner	<i>University President</i>
Dr. Heather Crowson	<i>Vice President for Enrollment Management</i>
Mr. John E. Dudley	<i>Regent, Texas State University System</i>
Mr. Frank R. Holmes	<i>Vice President for University Advancement</i>
Mr. Frank E. Parker	<i>Vice President for Student Affairs</i>
Mr. Jack C. Parker	<i>Vice President for Finance and Operations</i>
Dr. David E. Payne	<i>Vice President for Academic Affairs</i>
Ms. Trisha S. Pollard	<i>Regent, Texas State University System</i>

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Dr. John M. De Castro	<i>Dean, College of Humanities and Social Sciences</i>
Mr. Dennis A. Culak	<i>Director, Public Safety Services</i>
Mr. Douglas J. Greening	<i>Director, Physical Plant</i>
Dr. Jaimie L. Hebert	<i>Dean, College of Arts and Sciences</i>
Ms. Ann H. Holder	<i>Director, Newton Gresham Library</i>
Dr. Keith Jenkins	<i>Associate Vice President for Student Affairs</i>
Ms. Kristi S. Kreier	<i>Staff Council Chair</i>
Mr. Frank Krystyniak	<i>Director, Public Relations</i>
Dr. Dean Lewis	<i>Dean, College of Business Administration</i>
Dr. Debra P. Price	<i>Faculty Senate Chair</i>
Ms. JoEllen Tipton	<i>Director, Residence Life</i>
Dr. Vincent J. Webb	<i>Dean, College of Criminal Justice</i>
Mr. Christopher Whitaker	<i>President, Student Government Association</i>
Mr. Bobby Williams	<i>Director, Athletics</i>

Community Advisory Committee

Mr. Kevin Evans	<i>Huntsville City Manager</i>
Ms. Dee Everett	<i>President & CEO, Huntsville Chamber of Commerce</i>
Dr. Richard Montgomery	<i>Superintendent, Huntsville Independent School District</i>
Judge Danny Pierce	<i>Walker County Judge</i>
Mr. Steve Stacy	<i>Director, City of Huntsville Public Works</i>
Honorable J. Turner	<i>Mayor, City of Huntsville</i>

Planning Team

SHSU

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Mr. Steve Buck	<i>Project Support</i>
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E&C Engineering

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