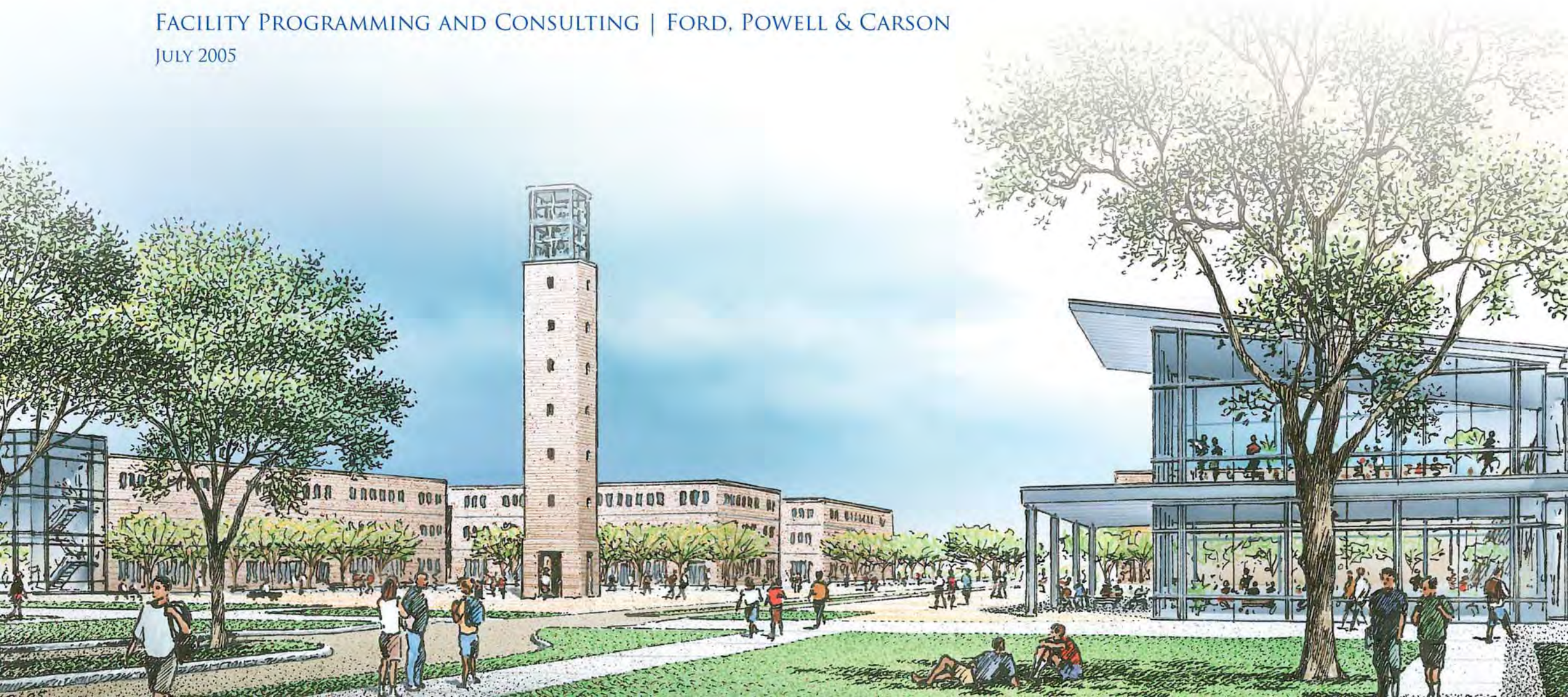
Angelo State University

A Member of The Texas State University System

Centennial Master Plan 2028

Facility Programming and Consulting | Ford, Powell & Carson

July 2005



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President's Statement

Planning for the future is challenging under the best circumstances. Rapid technological innovations, dramatic demographic shifts, rising energy costs, economic uncertainty and international events complicate the planning process. Nonetheless, planning must occur in order to utilize resources responsibly and effectively as opportunities arise.

Therefore, Angelo State University's **Centennial Master Plan, 1928 - 2028** has been completed, after twelve months of intense work. It is the University's first comprehensive master plan. The master plan's main goals are to accommodate the building program, to create a strong, active campus core, to focus and to generate campus activities, to improve wayfinding and signage and to incorporate public art and craft thereby creating a campus setting, culture and environment that will attract and retain students and maximize the educational experience of the campus community.

The Centennial Master Plan is a dynamic document that maximizes implementation flexibility and modification possibilities because of the challenges associated with long-range planning. It contains multiple components including design guidelines, space analysis, and an infrastructure plan. The **Centennial Master Plan** is a valuable tool for the University to use as it builds upon its rich past and moves forward.

Numerous members of the Angelo State University and San Angelo communities contributed to the completion of the **Centennial Master Plan**. The final document was strengthened by the diverse group of individuals who produced it. Many thanks and great appreciation are extended to everyone who worked on this important project.

Sincerely,

James Hindman

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Acknowledgements

Angelo State University

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Introductory Information

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Introductory Information

Introduction

The Centennial Master Plan consists of three main components: Facility Master Plan, Design Guidelines and Space Analysis as organized by chapter. This introductory chapter provides an overview of the master plan containing an executive summary, a background and a process of the Centennial Master Plan. Two appendices are included to provide technical reports and the Phase I Report, a collection of the institution's facts.

Executive Summary

Angelo State University (ASU), a member of The Texas State University System, initiated a comprehensive campus master plan project in the summer of 2004. The Centennial Master Plan 2028 serves as a vision and a blueprint for the university's physical development over the next 23 years. The targeted year of this plan is 2028, the 100th anniversary of the original San Angelo College, which was established in 1928.

The university engaged Facility Programming and Consulting and Ford, Powell & Carson, Architects and Planners, Inc., to oversee and develop a comprehensive campus master plan. The planning team also includes the URS Corporation to address the mechanical, electrical and plumbing (MEP) systems and the existing facility conditions, J. M. Waller Associates for civil and environmental issues, fd2s, inc., for wayfinding and signage, DataCom Design Group for technology and Project Cost Resources for cost estimates.

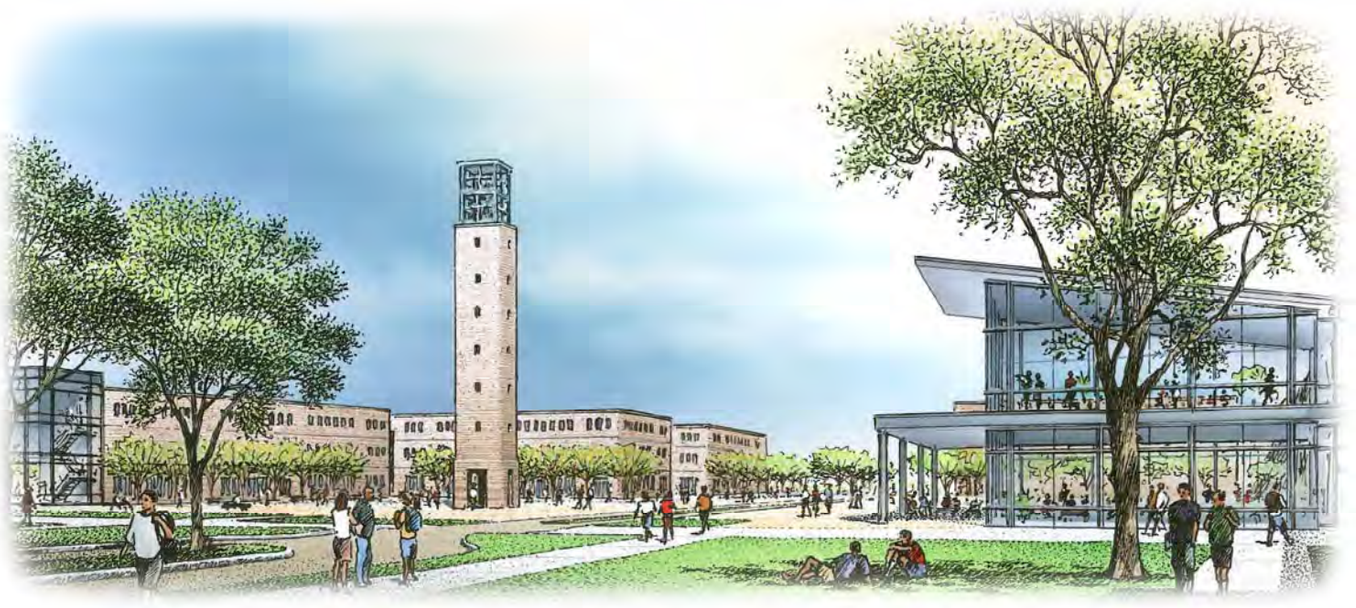
The university campus is an environment of living, learning, research, social life and recreation. This environment is necessarily dynamic as it strives to respond to the ever-changing world of which it is a part. The master plan is a roadmap for the development and refinement of the campus for the present and future needs of the university, and will establish a vision for physical assets of the university.

The university has experienced steady growth of student enrollment, and envisions continuous growth in the future. This Centennial Master Plan sets a goal of 10,000 student enrollments by 2028, with an approximately 60% increase over the period. Growth pressure comes from all over the State beyond Tom Green County and surrounding regions. More than 40% of the current study body is from outside of this region. Increasing demand in higher education in the State as well as various expected changes in university environments, such as tuition increase and growth management, will have great impact on ASU's future enrollment.

This Centennial Master Plan presents various progresses in physical form of the future campus, which help create a sense of place and better fulfill the mission of the university. The important part of the master plan is not only to achieve the master plan, but also to involve the community actively. It will encourage harmonious developments of surrounding areas while the university grows.

This Centennial Master Plan addresses facility needs to accommodate the future growth and improve the campus environment. The goals set for this master plan are:

- Accommodate the building program for 10,000 students
- Create a strong, active campus core
- Focus and generate activity on campus
- Improve wayfinding and signage
- Incorporate public art and architectural craft



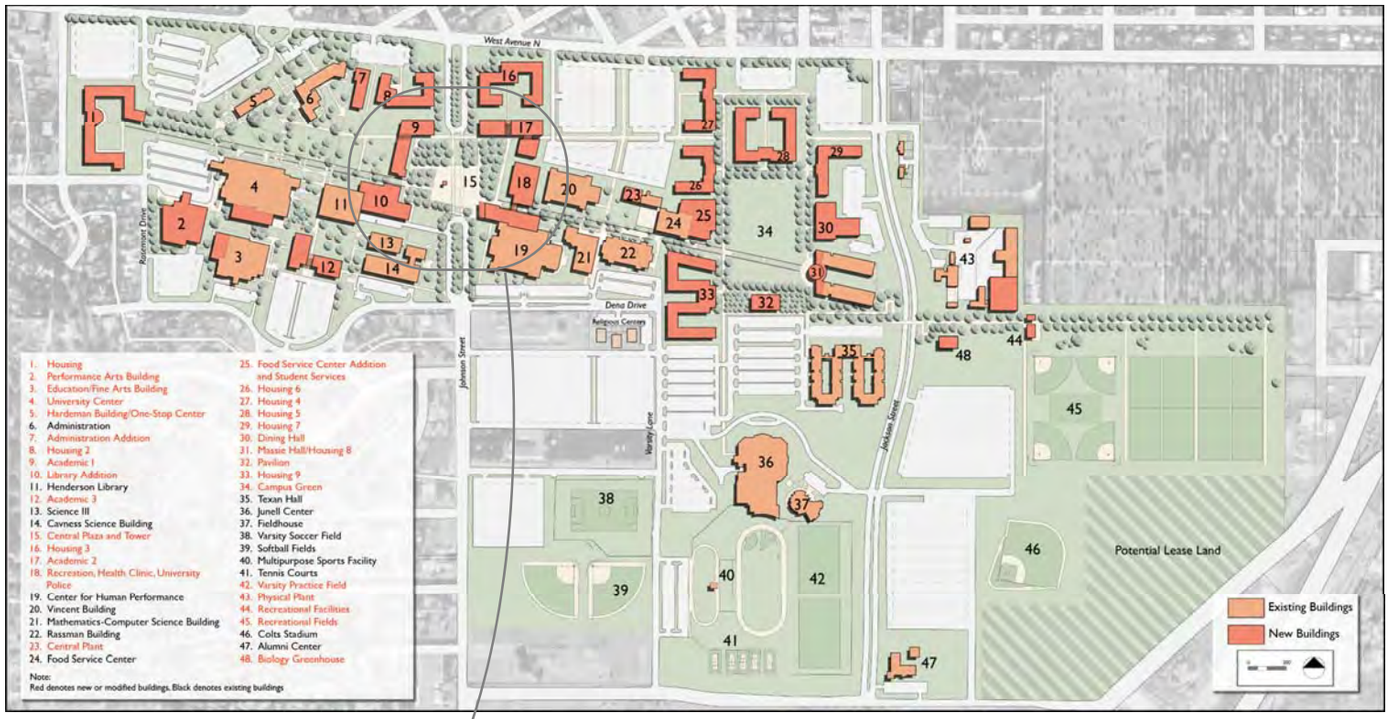
Central Plaza

One of the focuses of the master plan is a central plaza located in the area centered on the intersection of Johnson Street and the mall. The central plaza will be a large outdoor space bordered by new academic and recreational buildings, creating a future heart of the campus. It will be crossed by both the mall and by Johnson Street, and its pedestrian-centered design will serve to lessen Johnson's visual and circulatory prominence.

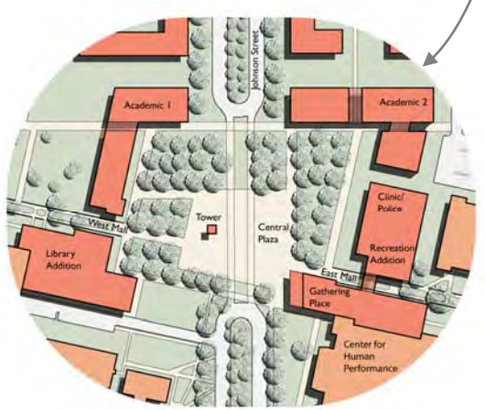
The largest component in the upcoming projects will be student housing. The housing market study projects a total of approximately 3,500 beds needed on campus by 2028. About half of the housing will be sited around a large campus green located to the east of the Food Service Center, creating a prime location for students' recreational activities.

The master plan also emphasizes campus directional and building signage to improve navigation on and around the campus. Those signs should direct the first-time visitors to the formal main entrance which will be located at the intersection of West Avenue N and Campus Boulevard. The area near the main entrance will be a Student Services and Administration cluster surrounded by the Administration Building, Hardeman Building and University Center.

A new Performing Arts Center will be a cornerstone of the campus. It will draw both the ASU community as well as the San Angelo population to a variety of cultural and academic events.



Centennial Master Plan 2028



Central Plaza

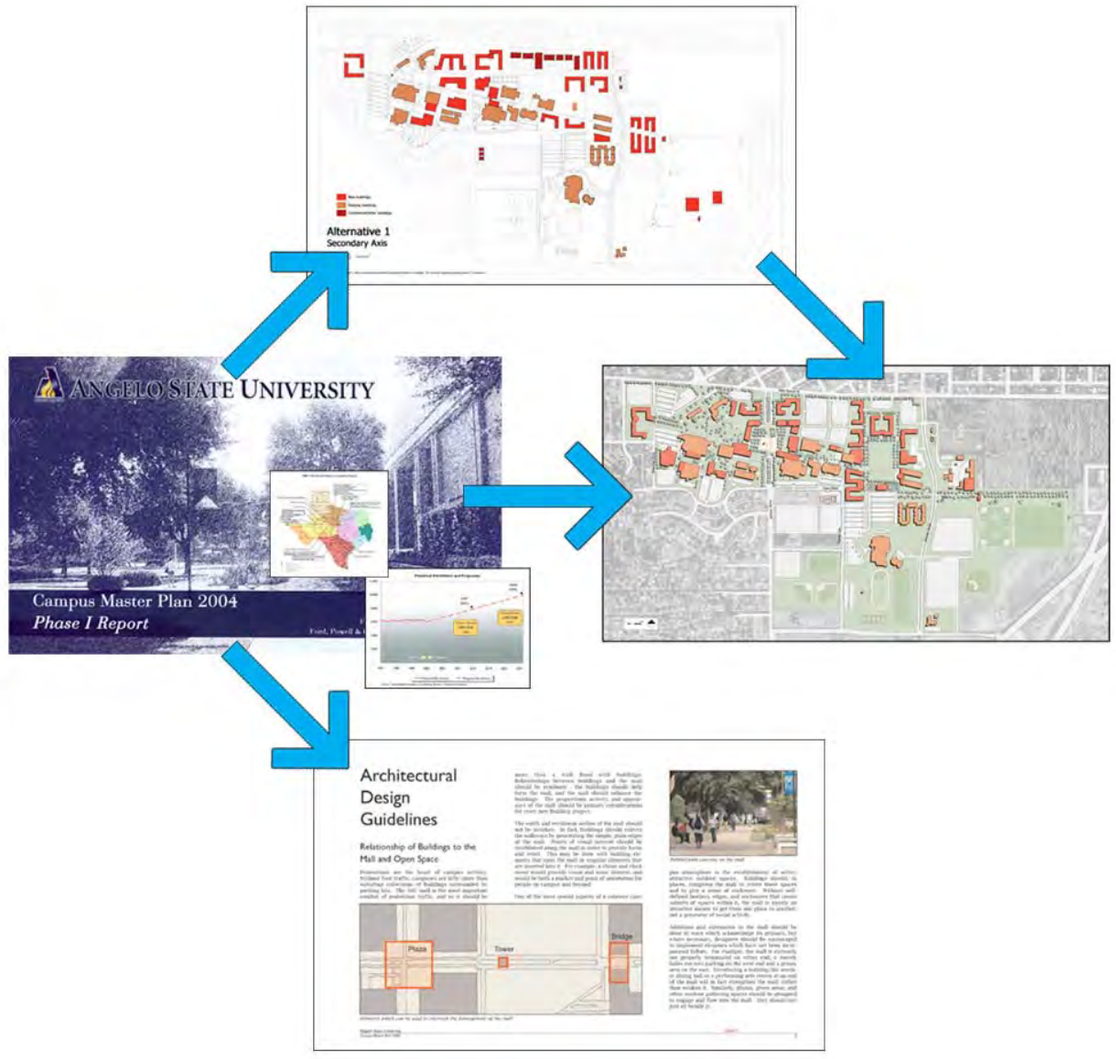
Campus Green

Planning Process

Designing a master plan is not a simple matter of putting pen to paper. The master planning team engaged in a three-month long process of discovery to determine what issues and opportunities a new master plan for the ASU campus must address. The master planning committee, made up of faculty and staff members from across the university, set a target for growth for the centennial anniversary of the university. With that target, the master planning team generated square footage and other facility requirements to accommodate the projected student enrollment.

Parallel to this effort, the team completed an analysis of ASU's existing campus. Engineers studied several vacated buildings to determine whether they were fit for re-use or should be demolished, and programmers investigated ASU's usage of campus space and presented studies of space surpluses and deficits. The architectural team analyzed the surroundings, physical spaces and alignments, and the general design of the campus to ensure that the master plan would amplify, rather than diminish, the best qualities of the campus.

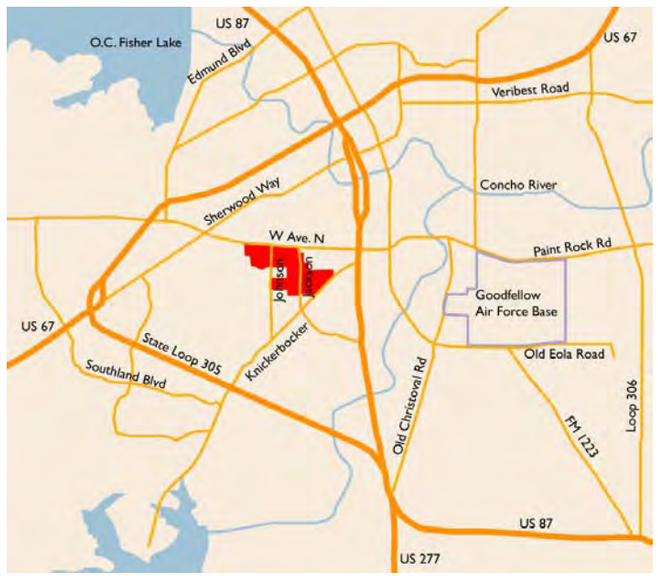
The Angelo State University Centennial Master Plan, together with the design guidelines, is the culmination of the design portion of the master plan. In order to produce the master plan, the design team and the master planning committee undertook a multiple-step process which led from a number of different alternatives to a single, completely developed plan.



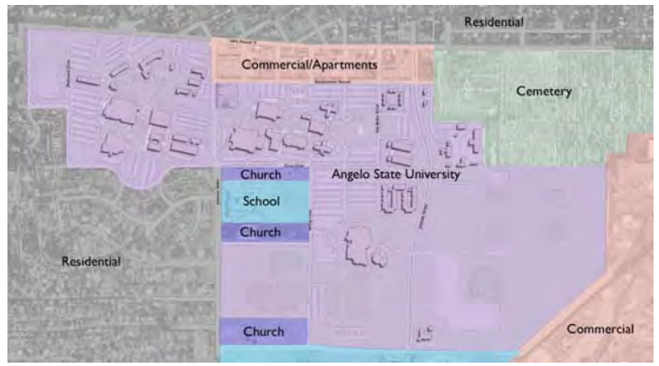
Summary of the First Planning Phase

Physical Planning Issues

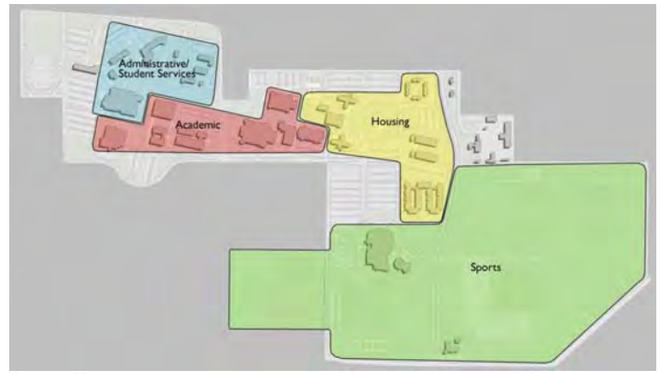
The ASU campus is located on a 268-acre tract of land southwest of downtown San Angelo. The campus is bordered on the west and the western half of its north and south edges by single-family residential developments. The rest of the southern border is mostly lined with churches and San Angelo Independent School District land; Crockett Elementary School, John Glenn Junior High School, and the SAISD Administration Building are all south of campus. Part of the north edge is bordered by a mixture of apartments and retail, and the eastern edges are bounded by a cemetery and by Knickerbocker Road.



Map of ASU location within San Angelo



Surrounding land use



Campus Zones

Parking locations

With the exception of a few localized conditions such as the depressed grade at Jackson Street and a low area to the east of the Porter Henderson Library, the ASU campus is generally flat and grades down from southwest to northeast. Little to no natural foliage remains on the site, as unbuilt areas have been either landscaped or cleared. There are, however, a large number of carefully tended mature trees which were planted early in the history of the campus.

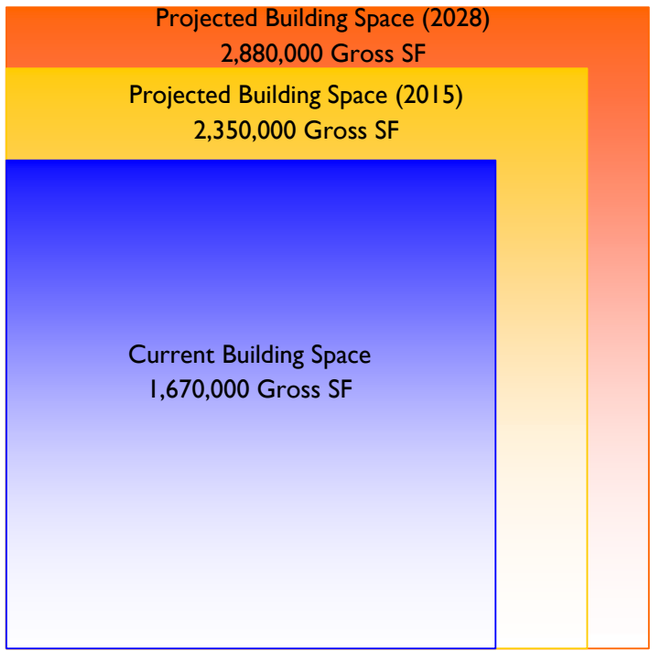
The buildings on the ASU campus are organized into four zones: Administrative and student services, academics, housing, and sports. There is some intermixing between zones, such as the location of the Center for Human Performance in the academic area, but by and large, the facilities are grouped according to use.

Parking is primarily located in a ring outside the campus buildings. The largest lot is on the eastern end of campus, but the current parking surplus means that this lot is not filled on a regular basis. It does, however, serve as parking for special events at the Junell Center/Stephens Arena.

Demographics

For the last 10 years, the university has had a steady enrollment of 6,000 students or slightly higher during a period when population growth of the region started slowing down. According to the population projection provided by the Texas State Data Center, the population of the State of Texas is projected to grow between 25% and 150% depending on the different projection assumptions for the next 40 years.

Total Building Space Diagram



This Centennial Master Plan sets a goal of 10,000 student enrollments by 2028 which is a 60% increase over the 23 years. With an emphasis on graduate programs, 10% of the total students will be graduate students. Most of the enrollment growth comes from areas beyond the Tom Green County region. Increasing demand in higher education all over the State, tuition increases and growth management in competing institutions and other changes in university environments will impact the ASU's future enrollment.

Space Planning Issues

Based on the Texas Higher Education Coordinating Board (THECB) Space Projection Model, for 8,000 students in 2015, an addition of approximately 600,000 gross square feet (GSF) is required. For 10,000 students in 2028, the campus is projected to have a total of approximately 2.9 million GSF. This is an additional 1.2 million GSF to the current campus. This projection yields a 60% growth in Education and General (E&G) space and a 70% growth in non-E&G space, which mostly consists of university housing.

The total space needs are translated into functional space. For 8,000 students, an additional 12 functional spaces or possible building blocks may be added to the campus facilities inventory. For 10,000 students, 9 functional spaces or building blocks are needed in addition to 12 spaces added in 2015. These functional spaces can be combined or separated into multiple segments. The space also includes renovations or additions.

Facility Conditions Assessment

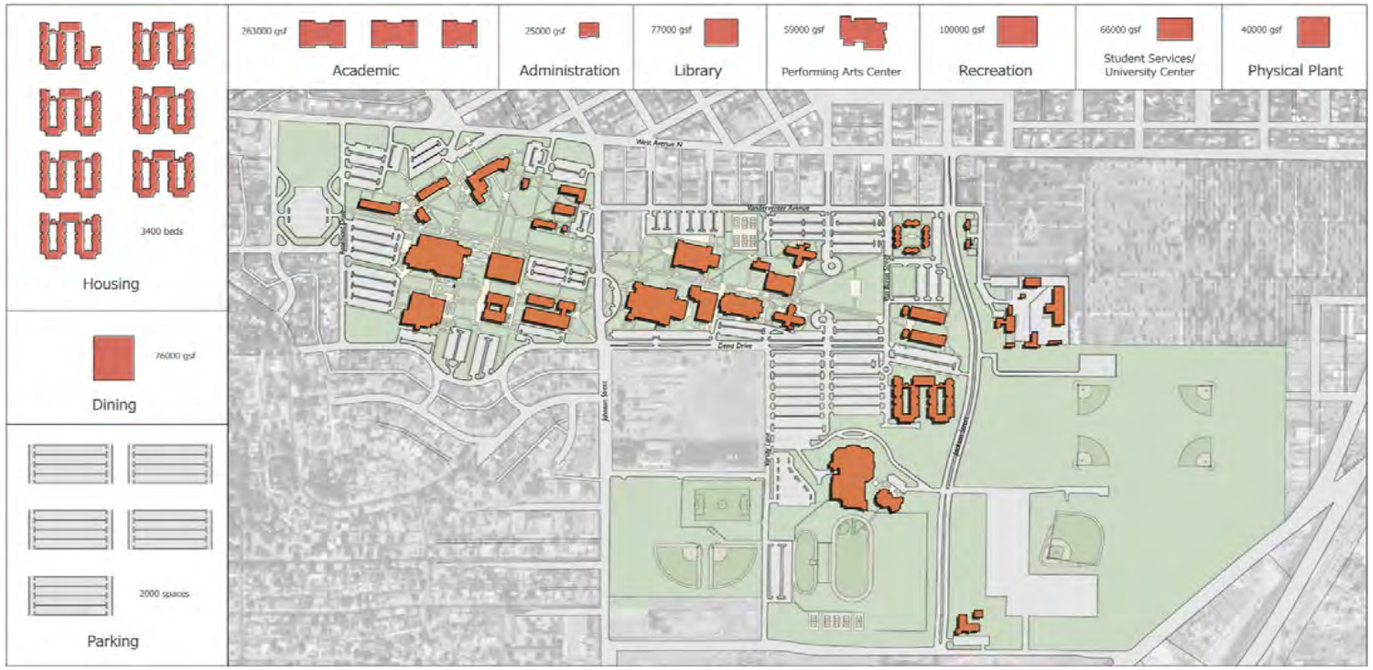
Four residence halls were assessed to determine whether they should be re-used or demolished: Mayer, Runnels, University and Concho Halls. As a result of the assessment, all four buildings are recommended to be demolished. Mayer and Runnels Halls are already closed and require significant renovation based on the current physical conditions. University and Concho Halls seem to have a re-usable structure, however, they also require a significant and unfeasible upgrade in order to retrofit them for a quality living environment in their existing condition.

Challenges for the Master Plan

This master plan is intended to address physical, financial, and social situations which the university faces both now and in the future. Master plans are only rarely designed to solve purely aesthetic problems; this master plan, as most others, is a response to changes in the university's environment as well as to the changing needs of the institution. The solutions to existing situations create issues of their own which must be addressed in turn.

As funding for Texas universities remains flat or declines despite a rapidly growing state population, institutions must position themselves to maintain their portion of an already limited funding pool. ASU's static enrollment and the population decline of surrounding counties mean that ASU faces funding challenges in the years ahead. The university is well positioned, however, to leverage its academic strengths, low tuition rates, and scholarship funds to increase its state-wide recruitment. In conjunction with an increase in student retention, these points can fuel campus growth and thereby minimize the impact of funding declines.

One of the weaknesses of campus life at ASU is that students often spend their free time away from campus rather than participating in campus activities. This is due in part to the relatively high percentage of students who work, but the self-reinforcing effect of the lack of activity in the afternoons, evenings, and weekends is an important factor. Increasing student enrollment as well as the number and percentage of students who live in campus housing will help.



New Facilities which will be required for the future growth of the University

The master plan must also encourage student life by creating welcoming, activity-oriented spaces.

The master planning committee has set a goal of housing about 35 percent of students on campus. Achieving this goal will have a dramatic positive impact on the activity and quality of campus life. ASU's policy of requiring most students to live on campus during the completion of their first 60 credit hours ensures that many of these beds will be filled. Another advantage upon which the university must capitalize are those of location and environment – because campus housing will be located on campus, it will offer students shorter travel times and easier connections to campus facilities than any other housing alternatives. Also, the campus environment possesses amenities superior to those that can be found in offsite housing. Facilities like recreational fields, the University Center, and an expanded Center for Human Performance can far surpass those available in local apartments. As enrollment grows and the features of this master plan are implemented, campus life will become more active and more enticing, which will offer additional incentive for students to stay on campus.

The mall is the dominant feature of the ASU campus. Buildings are oriented toward the mall on both sides. Because the mall is skewed relative to the grid of surrounding streets, the grid on which most campus buildings are set is likewise rotated with regard to the surrounding buildings and streets. While this disconnection has been a minor issue in the past, as the campus grows, it will become a challenge that designers of future buildings must successfully deal with in order for the campus to respond appropriately both to the existing campus and the fabric of the community around it. The master plan has been designed to address this issue at a large scale and to provide a framework in which future designers can make more detailed responses

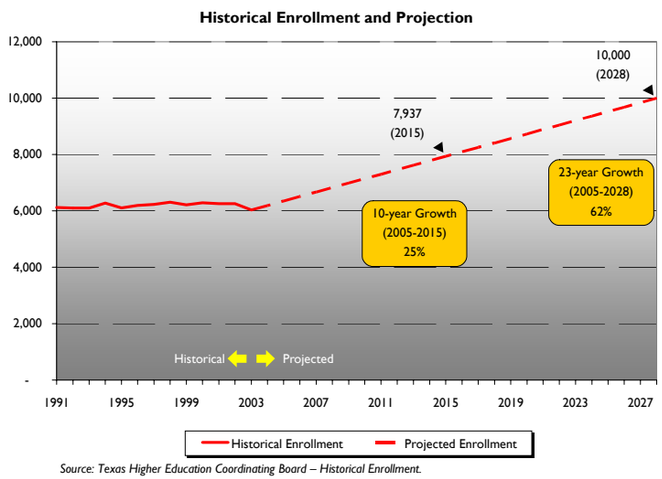
Finally, Johnson Street cuts through the heart of campus and has long formed a barrier to pedestrian traffic on the mall. As the campus community grows, not only will this situation become worse, but similar conflicts will be created or worsened at Jackson Street, Dena Drive, and other roadways located next to the campus. Solutions, or at least mitigating principles, should be sought for these situations.

Master Plan Goals

Accommodate the Building Program

Plan facilities for 10,000 students

The master planning committee has set a target of 10,000 students for ASU's 100-year anniversary in 2028. This is an ambitious goal, but achieving it will have positive effects on campus life, academic priorities, and university funding. The facilities and infrastructure needed to accommodate a larger student body will be the primary force behind most facets of the master plan.



Source: Texas Higher Education Coordinating Board – Historical Enrollment.

Accommodate 35 percent of students in campus housing

Enhancing campus life is a crucial aspect of this master plan. By housing more students as well as a larger percentage of the student body on campus, the campus will become a livelier, more fulfilling place. The increased number of students on campus will also positively impact recreational facilities, food service, and other student services disproportionately greater than the increase in the total student population.

Texan Hall

Incorporate additional land into the campus

ASU's existing land may be sufficient in overall area to accommodate 10,000 students, but some of the land is located too far away from the center of campus to be useful. There is, however, a significant amount of privately-owned land near the campus center. The master plan should show ways to incorporate this land into the campus should it become available. It may also be necessary to use additional land for remote parking, and this should be coordinated with the rest of campus.

Develop a cohesive infrastructure expansion scheme

Buildings are only a part of a successful master plan. Roadways, walks, utilities, signage, and other parts of the campus infrastructure are equally important. The master plan should address the infrastructure-related implications of the goal for growth.

Use unneeded property in ways which benefit and enhance the university

Some of ASU's land near Knickerbocker Road is located quite far away from the center of the university. It may work acceptably as remote parking, housing, or for other uses, but it is likely that the university can obtain a more beneficial return from this land by leasing it for development. The master plan should be designed with this in mind, and useful leasable land should be maximized. Care should be taken so that the university can reclaim these lands in the future should growth or other changes make that desirable.

Potential Excess Land

Campus Core

Create a Strong, Active Campus Core

Focus the campus core on academics

Academics are of primary importance to ASU, and the master plan should strengthen the existing academic area. Student services, housing, and other facilities should support the academic core. This has implications for where buildings should be sited in the master plan.

Move vehicular traffic toward the edges of campus

Presently, traffic moves right through the heart of campus along Johnson Street. The street severs the otherwise strong pedestrian connection between the two halves of the campus. This is detrimental not only to safe pedestrian passage, but also to the cohesiveness of the academic core and campus activity in general. The master plan should reduce the impact of vehicular traffic on the campus, and moving traffic to the edges of campus is the most effective way to do this.

Focus and Generate Activity on Campus

Create a series of strong, well-used activity centers along the mall

The mall should not be just a corridor leading from one end of the campus to the other; it should be the connection between a number of activity-oriented spaces and facilities. The level of campus activity is one of the best measures of the success of a university in attracting and retaining students.

Activity at Super Slab

Improve the pedestrian-friendly qualities of campus

Creating a pedestrian-friendly campus requires more than just paving; it also entails attractive spaces, good, useful furniture, a high level of activity, and a comfortable scale. Walkways, outdoor and indoor spaces, and other pedestrian-related amenities in the master plan should be designed with this in mind.

Provide facilities which will increase the number of students who actively participate in campus activities

Campus life can be enhanced by carefully siting facilities like recreation centers, student services buildings, and food service centers in order to create strong areas of activity. This, in turn, will encourage more students to spend time on campus outside of classes. These centers of activity should be located in conjunction with the academic core and should support the academic goals of the institution.

Create places where students feel comfortable congregating outside

Actively managed outdoor and indoor spaces are only part of healthy campus life. Students, faculty members, and staff should also have access to outdoor seating and recreation areas around campus where they can gather, study, and play. There should be a variety of different spaces, both formal and informal, so that groups and individuals with a multitude of preferences can be accommodated.

Improve Wayfinding and Signage

Create welcoming and attractive places of entry

The campus currently has no well-defined entrances, and many of the campus borders are unclear. Creating places which signify the entrance to the campus will clarify campus edges and create a more welcoming environment for visitors as well as those who work and study at the university. Additionally, some visitors and new students may have trouble finding their way around campus. Campus directional and building signage should be implemented to improve navigation.

Reinforce the identity of the campus within the city

Well-defined places of entry will help to distinguish the university within the city, but only on a localized basis. The master plan should investigate ways to increase the visual prominence of the university, including towers and other vertical elements or other means.

Incorporate Public Art and Architectural Craft

Incorporating art and architectural craft into buildings, outdoor spaces, and other areas will enhance the beauty of the campus. This directly supports the goal of creating good places for activity and student life. Possibilities for art and architectural craft include murals, free-standing sculpture, decorative sconces, fountains, and light sculpture. ASU should consider establishing a committee which will encourage and guide the incorporation of public art in campus buildings.

Improve campus signage

Alternatives

The first step in the process of designing the physical master plan was to generate several plan alternatives for discussion. The design team created five different plans, from which the master planning committee selected three main ideas. These three sets of ideas were then developed into distinct alternatives.

Alternative 1: Secondary Axis

1: Secondary Axis

As ASU acquires land north of Vanderventer, access to those areas must be established. The current organization of the campus, with one mall running east to west, does not allow for good access to areas removed from the immediate vicinity of the mall. This alternative created a second mall-like axis which connected to the main mall at its western end and ran straight east along Vanderventer. Housing was spread throughout campus, and the Performing Arts Center was placed at the western end of the mall.

Alternative 2: Secondary Axis

2: Perpendicular Axes

Another solution to the problem of access to the land north of Vanderventer was shown in this alternative, which created pedestrian spines perpendicular to the mall in the area east of Johnson Street. These spines ran north past Vanderventer and so established both a means of accessing that area as well as a way to strengthen connections from the mall to the area between the mall and Vanderventer. Much of the housing was located in this area of land acquisition. The Performing Arts Center was located in the heart of campus on a central plaza that spanned Johnson Street.

Alternative 3:East Campus Green

3: East Campus Green

This alternative focused on creating a strong housing precinct around an extended campus green located where the pavilion is now. A secondary pedestrian axis was shown along Vanderventer, but this axis was not emphasized as strongly as in the first alternative. The Performing Arts Center was located near the University Center and the Education and Fine Arts Building.

Following the presentation and discussion of these alternatives, the master planning committee selected the second alternative as the basis for the final plan, but elements of all three plans were included. The central plaza from the second alternative was chosen, as was the campus green from the third alternative. Organizational schemes from the first and second alternatives were combined. Additionally, the Hardeman Building was selected as the primary destination for visitors. The master plan incorporates elements which indicate the significance of this building.

Facilities Master Plan

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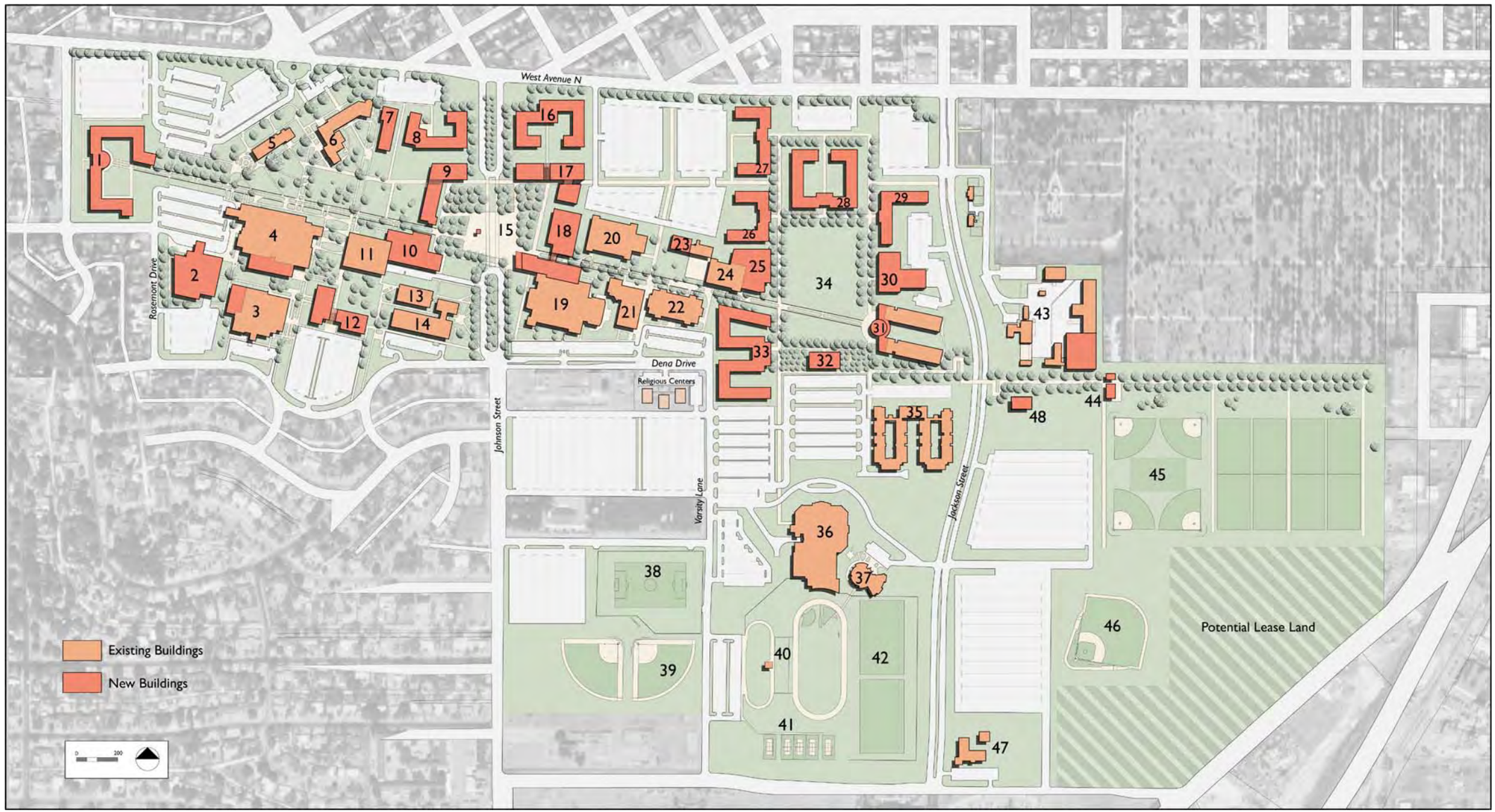
Facilities Master Plan

Introduction

The main component of this report is the Facilities Master Plan. The plan modifies and adds to existing campus facilities in order to create a sense of place and to better fulfill the mission of the university. The plan proposes physical developments such as new buildings and renovations to and demolitions of existing buildings as well as new parking and site development. The plan is divided into four development phases based on project priorities.

Centennial Master Plan



Centennial Master Plan List of Buildings

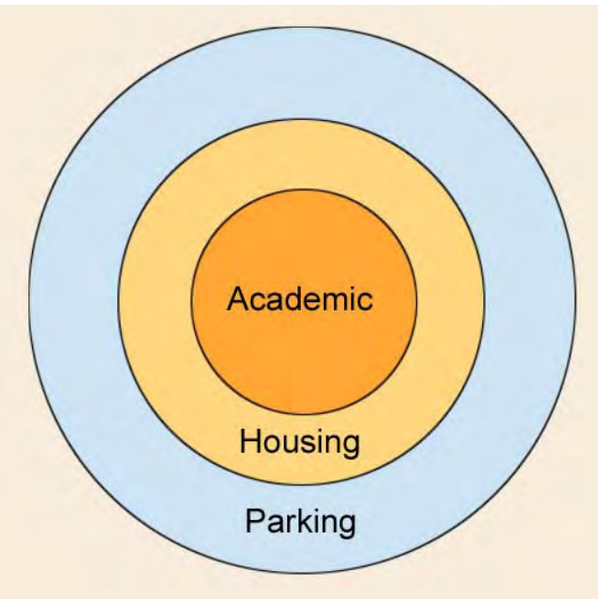
1. Housing
2. Performance Arts Building
3. Education/Fine Arts Building
4. University Center
5. Hardeman Building/One-Stop Center
6. Administration
7. Administration Addition
8. Housing 2
9. Academic I
10. Library Addition
11. Henderson Library
12. Academic 3
13. Science III
14. Cavness Science Building
15. Central Plaza and Tower
16. Housing 3
17. Academic 2
18. Recreation, Health Clinic, University Police
19. Center for Human Performance
20. Vincent Building
21. Mathematics-Computer Science Building
22. Rassman Building
23. Central Plant
24. Food Service Center
25. Food Service Center Addition and Student Services
26. Housing 6
27. Housing 4
28. Housing 5
29. Housing 7
30. Dining Hall
31. Massie Hall/Housing 8
32. Pavilion
33. Housing 9
34. Campus Green
35. Texan Hall
36. Junell Center/Stephens Arena
37. Fieldhouse
38. Varsity Soccer Field
39. Softball Fields
40. Multipurpose Sports Facility
41. Tennis Courts
42. Varsity Practice Field
43. Physical Plant
44. Recreational Facilities
45. Recreational Fields
46. Colts Stadium
47. Alumni Center
48. Biology Greenhouse

Note:
Black denotes new or modified buildings
Grey denotes existing buildings

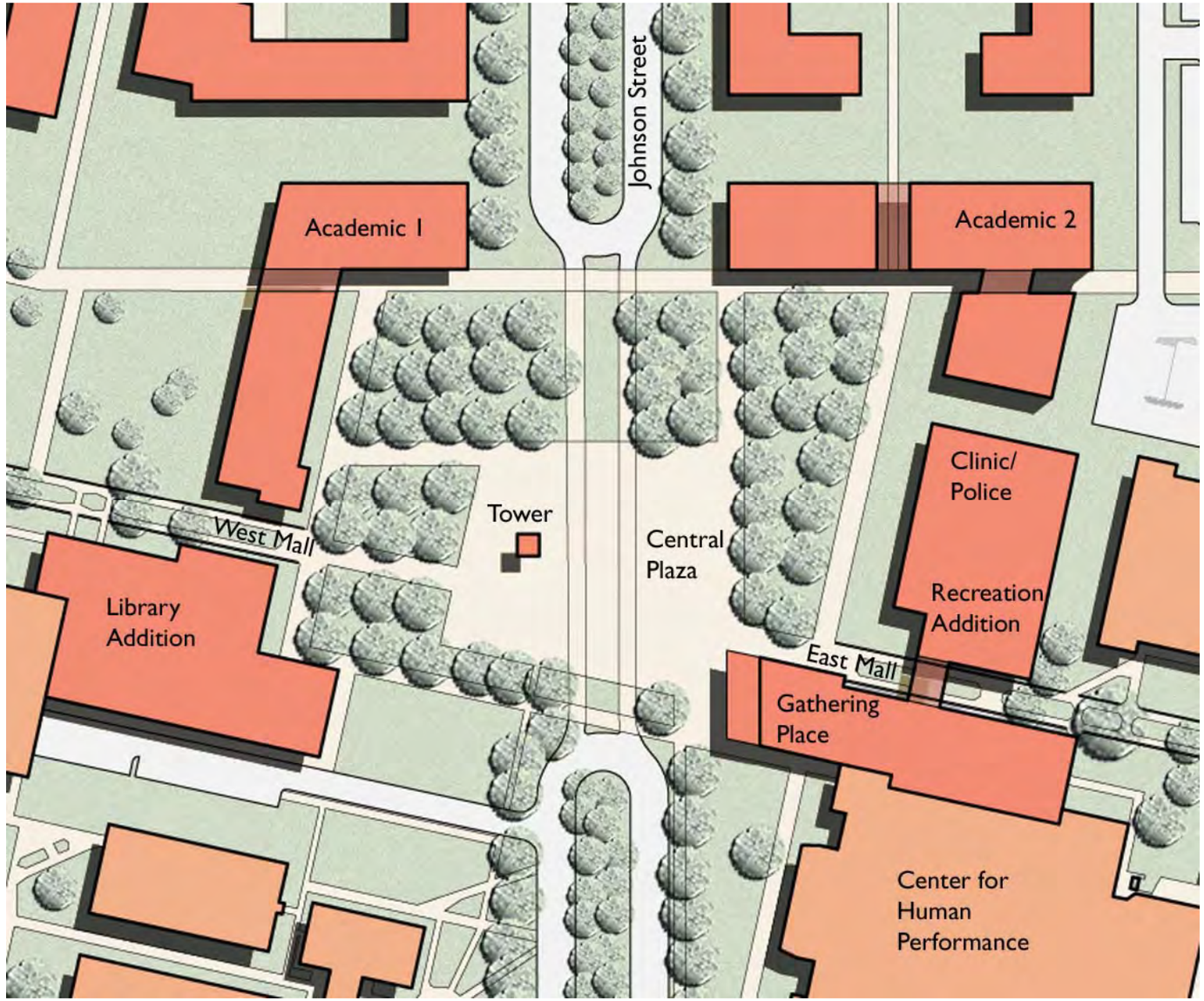
Master Plan Overview

Academic Core and Central Plaza

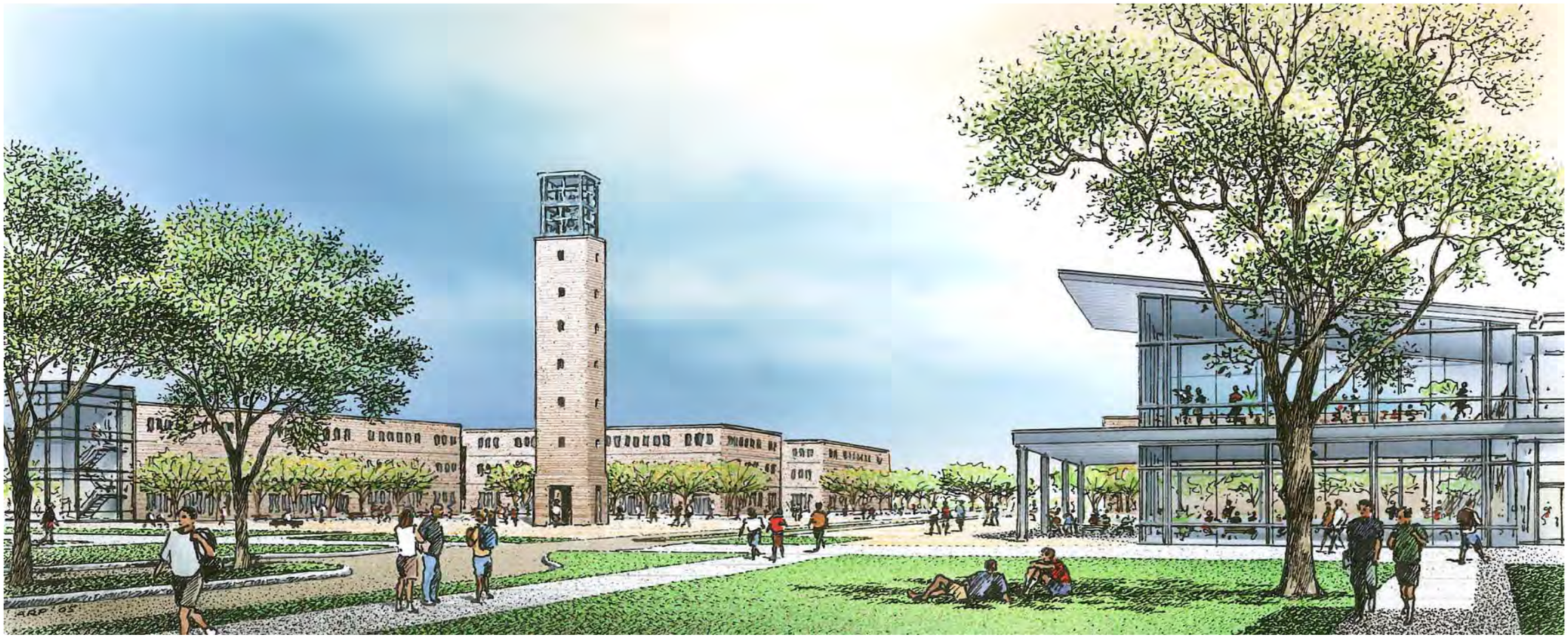
The conceptual organization of the master plan is simple. There are three rings of different types of facilities. The outer ring is parking, which is pushed to the perimeter in order to minimize conflict with pedestrians and to leave core space for academic and other uses. Inside that ring is housing. Housing is located in the middle ring because it must be close to parking, and it should also be located near the academic and student service facilities which form the core of the campus and the center of the diagram. The core of the plan is academic facilities.



Conceptual Diagram



Central Plaza

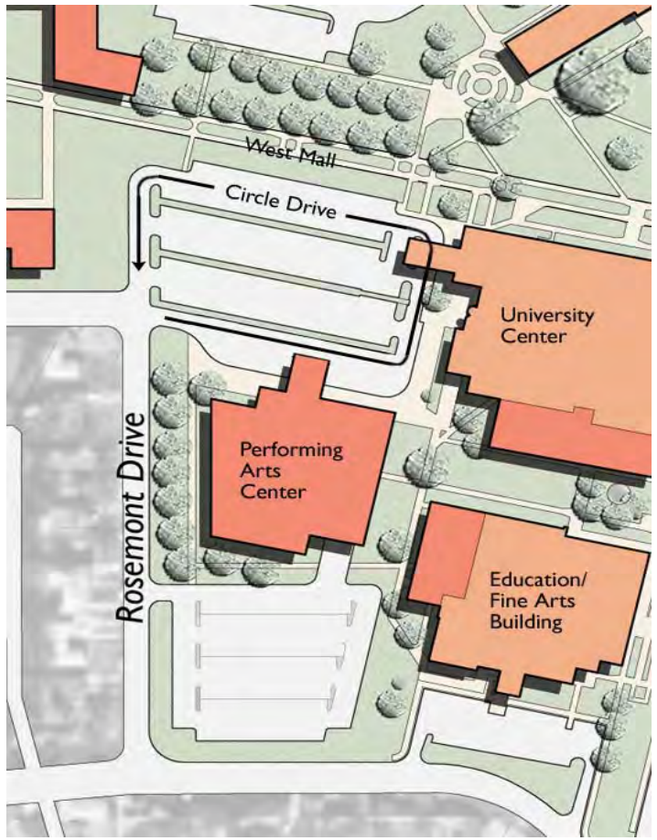


Rendering of the Central Plaza

The master plan focuses academic development in the area centered on the intersection of Johnson Street and the mall, primarily east of the University Center and west of University and Concho halls. This future heart is currently occupied by academic buildings, but at present, they lack any organization which expressly indicates the academic focus of the university - the linearity of the mall de-emphasizes the importance of any particular group of buildings. This will be resolved by a central plaza which will create a focus for the academic areas and the campus as a whole. The central plaza will be a large outdoor space in the center of campus bordered by academic buildings and other important campus facilities. It will be crossed by both the mall and by Johnson Street, and its pedestrian-centered design will serve to lessen Johnson's visual and circulatory prominence. This, in conjunction with the redesigned alignment of Johnson, will slow traffic and will encourage drivers to find more appropriate routes around campus, rather than through campus. In this report, the mall has been designated as West Mall and East Mall according to position. This change in terminology should be explored in conjunction with the development of the central plaza.

A tall, thin tower and a lower gathering place will be the primary visual features of the central plaza. The tower will replace the two existing high-rise dormitories as ASU's presence on the San Angelo skyline. The chimes currently located on the Administration Building or a new carillon should be placed in the tower so that it will have an auditory presence as well as a visual presence. The gathering place will be linked to the Center for Human Performance addition and will provide shelter and places to sit. Because this space is located close to the academic core, the mall, and the plaza, it will be an active destination for individuals, groups, and even classes.

The center of the plaza is a paved area surrounded by landscaped beds and trees. The tower and gathering place are located on opposite sides of both the mall and Johnson Street, which will balance the space. Various campus buildings, including two new academic buildings, a library expansion, and an expansion of the Center for Human Performance, will be located around the plaza outside the landscape beds and walkways.



Performing Arts Center

Performing Arts Center

The new Performing Arts Center will be a cornerstone of the campus. It will draw both the ASU community as well as the San Angelo population in general to a variety of events including musical and theatrical performances, lectures, and other presentations. An art gallery connected to the lobby of the theater will present exhibitions year-round. The main auditorium will seat 500 to 700 patrons, as determined during the programming phase for the building.

The Performing Arts Center will be located to the west of the Education and Fine Arts Building, where it will be near both the existing fine arts facilities and the University Center. The main auditorium and other facilities in the Performing Arts Center will be used in conjunction with the conference facilities in the University Center to accommodate larger and more specialized events than can currently be held at the University Center alone. The kitchen at the University Center can also be used to support events at the Performing Arts Center.

The lobby of the Performing Arts Center will be on the north side of the building. The lobby will be connected to a covered drop-off location that will front on a circular drive which will also connect to the covered entranceway of the University Center. Unlike the academic buildings, the Performing Arts Center has parking needs which cannot be easily supplied by distant lots. Instead, parking will be located near the facility, to both the north and the south, and will be well connected to the lobby by walkways and plazas.

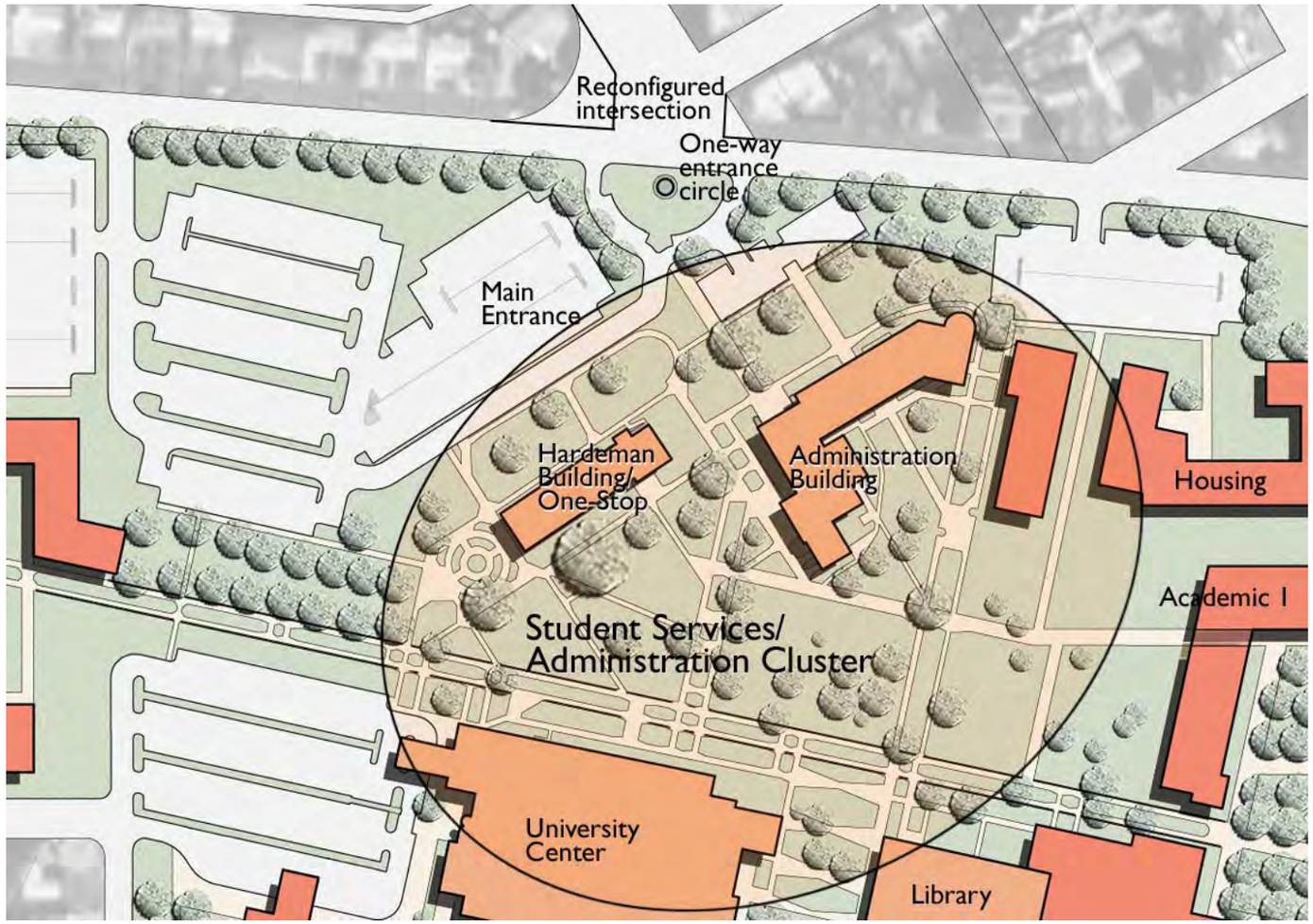
Service for the Performing Arts Center will be located at the rear of the building, facing Dena Street. The theater workshop will be connected to the loading dock here. The service docks will also be oriented so that equipment, scenery, and other materials can be easily transferred from the Education and Fine Arts Building to the dock and shop of the Performing Arts Center.

One-Stop Center, Welcome Center, and Student Services

The Hardeman Building will be renovated to become the new campus center for student services – a one-stop center. Its location near the University Center and the Administration Building, just outside the new academic core, is ideal for serving as the primary location for services like the bursar's office, student financial aid, and registration and admissions.

In addition to these uses, the Hardeman Building will also be the primary destination for visitors and new students. Road signage, campus directional signage, and literature distributed by the university will direct visitors to the building. A reconfigured parking area and a new entrance with a fountain or other monumental landscape element will serve as a ceremonial point of arrival to the campus.

The University Center will continue in its current role and will be expanded as necessary towards the end of the master planning period. Also, the Food Service Center expansion is sized to accommodate student services as necessary on the east side of campus, near the highest concentration of student housing. Should this prove to be unnecessary, the expansion should be reduced in size appropriately.



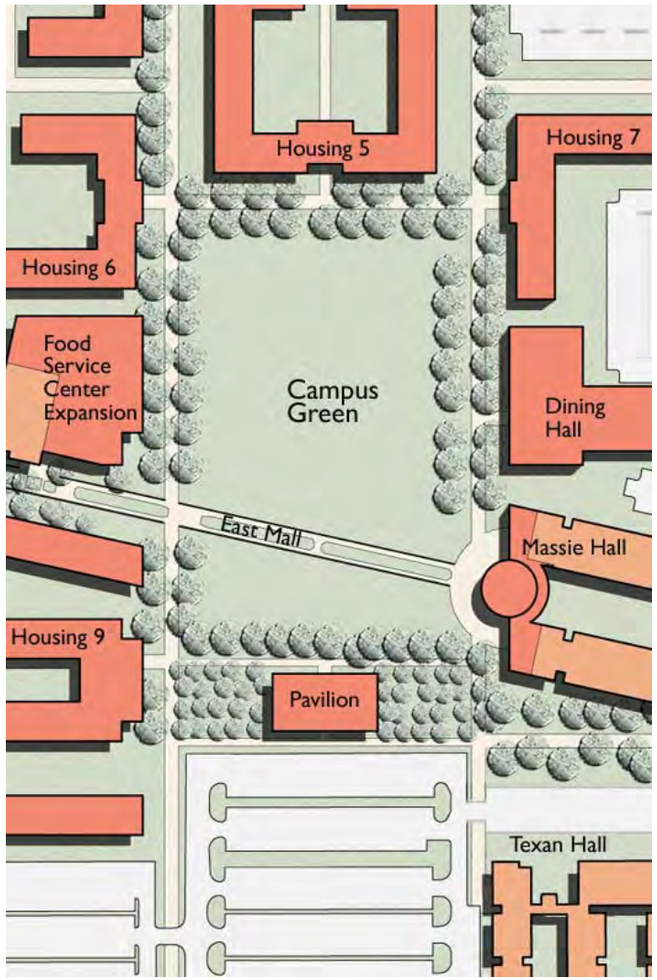
One-Stop Center and student services/administration cluster

Housing

Housing is the largest single component of the projected building program. The amount of area required for housing means that it must spread into areas of the campus that have not held housing before, and it will be the most significant use of the new land to be added north of Vanderventer. ASU's goals for the types and quality of campus housing should be reflective of its goals for student recruitment - better housing can be a recruiting tool which will help to attract better students. Additionally, spreading the housing through campus will help enliven the campus by drawing students to areas that currently do not have much activity.

About half of the housing on campus will be sited around a large campus green located to the east of the Food Service Center. This green will be larger than the current open space in this area, and as it is now, it will be a prime location for all sorts of informal and organized recreational activities. The pavilion will be relocated to the south end of the green. This new location will keep it next to the green but will make the green itself the focus, rather than the pavilion.

The Massie Halls are relatively popular and can be suitably renovated in the future as needed, so they are retained in the master plan. The plan shows an addition to the halls, however, which will join them into one complex. Common spaces and some additional rooms will be housed in this addition. While the role of this addition as a means to unite the two halls and reduce personnel-related operating expenses is important, it is no less important that the addition be designed as a termination point for the mall. This node will be a focal point for the campus green; it will be, visually and to some extent functionally, the center for activity here.

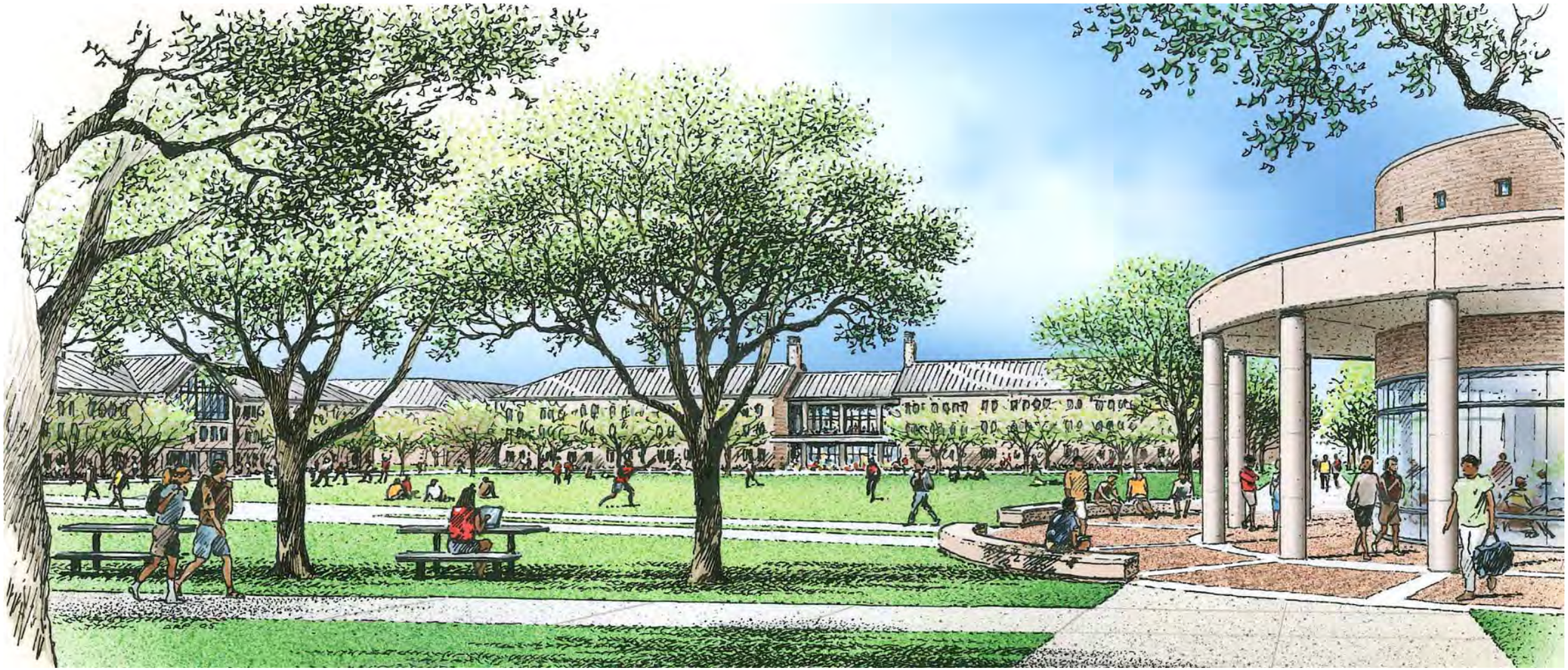


Campus Green

In the plan, housing has been laid out in block units of varying sizes, but most of the units will hold about 250 students. This size has been identified as optimal for fostering a cohesive atmosphere in the individual halls. A large number of halls is not optimal from the perspectives of operations or construction, however, so where possible, these halls have been grouped into pairs. The housing developments to the north and southwest of the campus green, to the north of the central plaza, and on the far west side of the site have all been sited to take advantage of this type of pairing.

While 250 beds is the target for most of the housing units, diversity should be a goal for campus housing because not all students want the same thing from their housing. Therefore, both smaller and larger halls will offer choices to students with different preferences. The smaller size of some of the halls, like the hall near the administrative buildings, would work well as housing for specialized programs like the Honors Program.

Not all students desire the same type of housing, and the types of accommodations which students prefer may change over time. A variety of different housing types, including single suites of various sizes, as well as doubles and apartments, should be constructed as student preferences dictate. In fact, it is possible that individual residence halls may contain more than one housing type, though apartment-type housing may be separated from other types. Diverse housing choices will encourage students to remain in campus housing past their sophomore years. Currently, many students leave because off-campus housing offers alternatives which are not available on campus. If this situation is rectified by construction of sufficient



Rendering of Campus Green

amounts of high-quality apartment-like housing with amenities that older students desire, then in addition to privacy and flexibility, campus housing will offer advantages of proximity and community which non-university housing cannot.

The existing Food Service Center will not be sufficient to serve as the sole dining hall as the number of students in on-campus housing grows, and it has some operational and aesthetic deficiencies even now. In the future, large-scale food services will be located in three places: in an expanded Food Service Center, in an expanded and re-programmed University Center food court, and in a new dining facility east of the campus green and north of the Massie Halls. In addition to these three main locations, there will be smaller facilities distributed across campus. Much like the current Roscoe's Den, they will serve different types of food and may serve at different times from the main facilities.

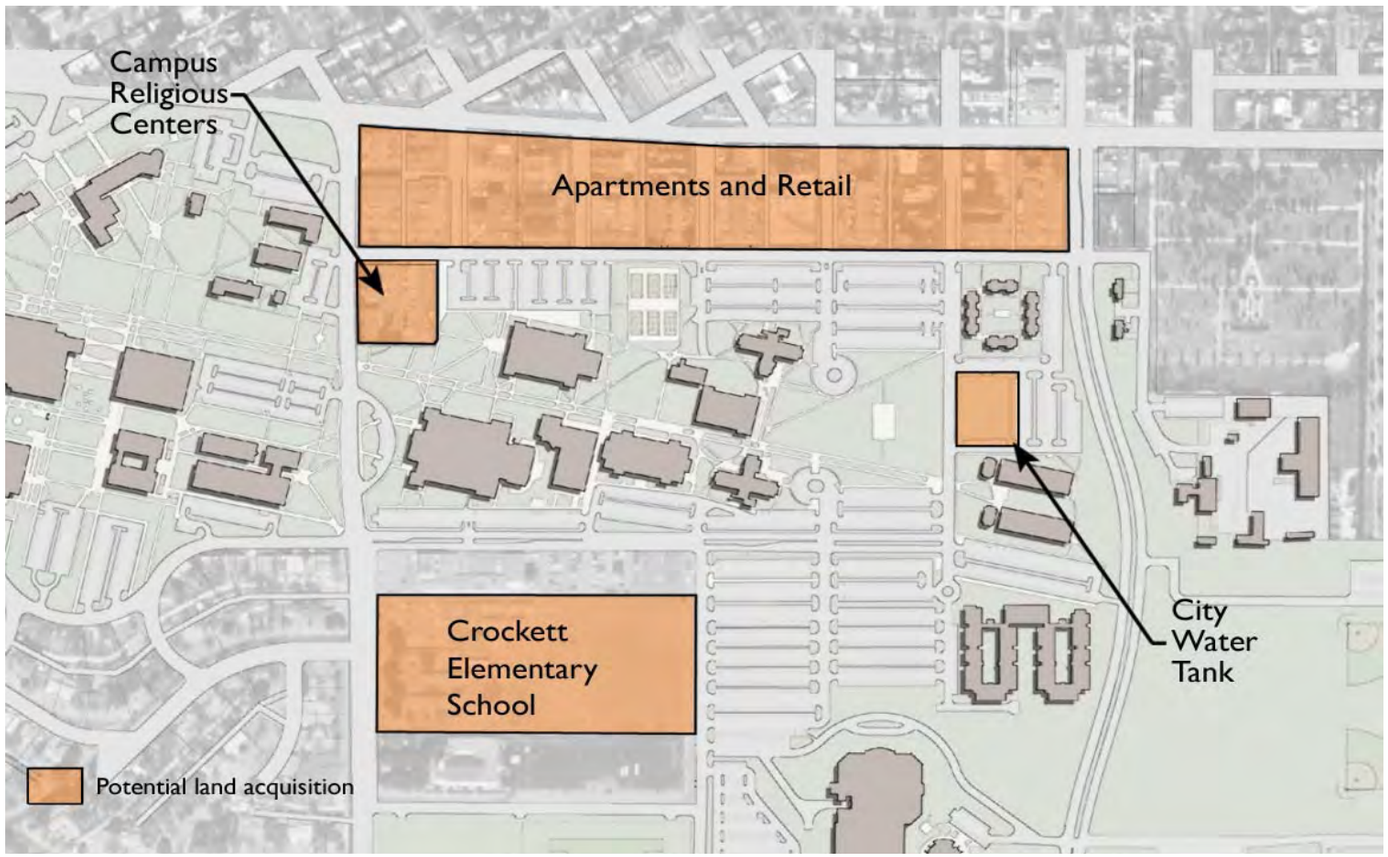
The expansion to the Food Service Center has been sized to allow selected student services uses to be included in the building. These uses could range from student organization offices to a satellite Campus Housing office to uses yet to be determined. Should space not be needed for these uses, the expansion should be reduced in size appropriately. Additionally, if growth does not match the projections assumed for this master plan, the expansion should be re-sized.

In keeping with the role of the campus green as a center for housing on campus, a new dining hall will be located across the green from the existing dining hall. Because housing is primarily concentrated around the green, this location will serve as another option for students. The new facility is closer to students in the Texan Hall, the Massie Halls, and any new developments on the east side of the green and any possible developments across Jackson Street.

Should housing beyond that shown on this plan be required, the best additional site for new housing is across Jackson Street on either side of the main walkway. While it is possible to build housing east of Jackson without moving the physical plant facilities, a single housing development should not be placed here. A critical mass of housing - in the range of 1,000 beds -should be built in coincident or closely scheduled phases in order to ensure student safety and a sense of community. This would require moving the physical plant facilities, which is addressed in Appendix I: Supporting Infrastructure Plan, later in this document.

Land Acquisition and Other Uses

The growth targets for the university will require the purchase of additional land. There are several plots along ASU's edges which are prime opportunities for campus expansion because of their locations. The master plan shows construction on these plots. In all cases, land can be acquired in individual pieces rather than in one large chunk; construction sequencing can then be adapted to the varying availability of land. Also, portions of Rosemont, Vanderventer, Dena, and Van Buren will be closed in order to limit vehicular activity in the campus and to assemble several small plots of land into larger, more useful building sites. This must be coordinated with the city, but will result in significant additional land available to ASU.



Land Acquisition

ASU owns land southeast of the main campus which, because of its distance from the center of campus, is more useful for commercial and other uses than for directly university-related purposes. About 19 acres of this land are unused in this master plan. The unused land that is facing Knickerbocker Road has the benefits of frontage on a heavily-traveled thoroughfare. Because the land is not used in the master plan, it is available for lease to a private developer or can be developed commercially by the university. ASU should retain ownership of this land in the event that it is required for future campus development, but any such need is beyond the horizon of this master plan. Long-term campus development of the land could include parking, housing, athletics, or recreational uses.

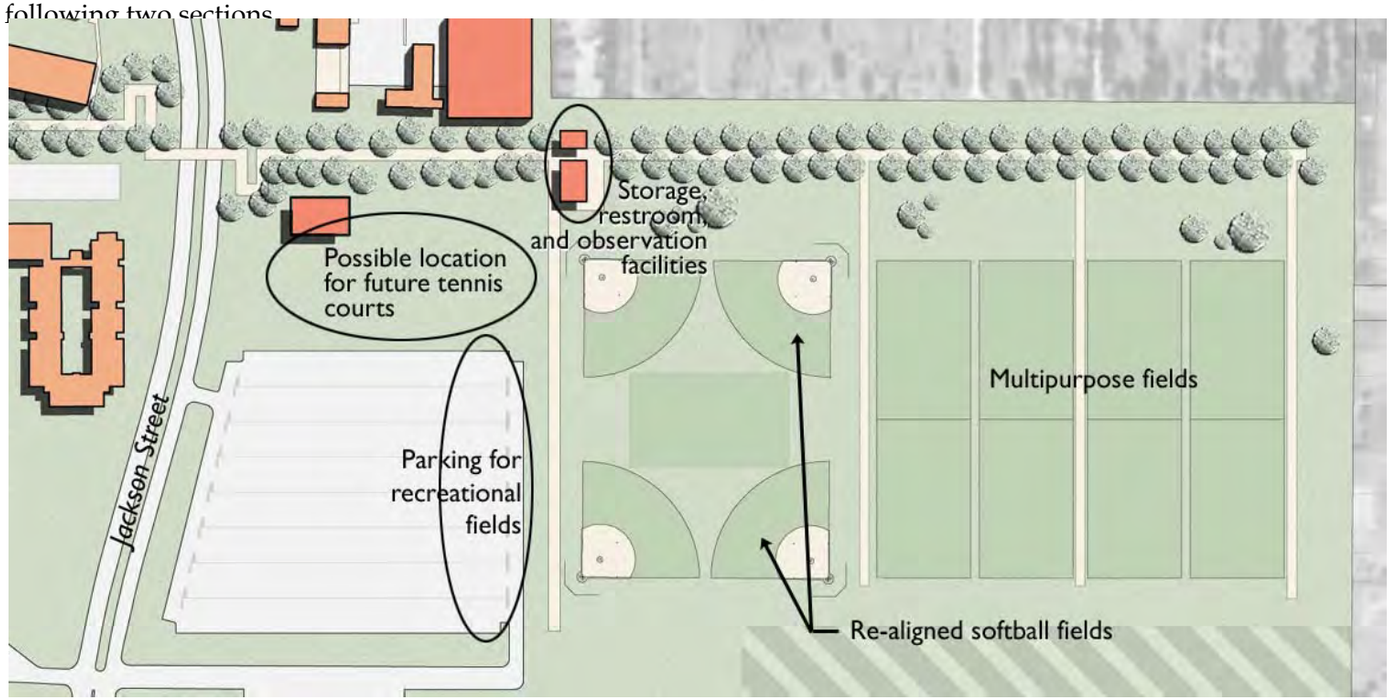
Land available for other uses

Sports Facilities

Sports facilities encompass both recreational facilities and athletics facilities. There is some overlap between these two departments at ASU because of shared use of the Junell Center/Stephens Arena, but the two entities are largely separate. In general, the athletics facilities on campus are quite good and mostly sufficient not just for the number of students now, but for the ultimate number projected as well. Recreational facilities will require some additional development, however, as they will be more strongly impacted by the projected addition of nearly four thousand students. Sports facilities are detailed in the following two sections.

Recreation

Campus recreational facilities play an important role in campus life, and as the enhancement of campus life is one of the primary goals in this master plan, the recreational facilities have been carefully sited and sized to maximize their positive impact on campus activity. The current location of the Center for Human Performance (CHP) is favorable; it is near the center of campus, and access to it is acceptable. However, the facilities housed in the CHP are not adequate to accommodate growth to 10,000 students, nor is the design of the facility optimal to play a significant role in promoting campus activity.



Recreational field areas

In order to remedy this shortcoming, the master plan shows an addition to the existing CHP. This addition will span across the mall. In addition to helping enclose the central plaza to its west, the bridging element will also break up the long, monotonous length of the mall. With its expanses of glass, the addition will bring the activity of dance studios and workout spaces closer to the center of campus.

The outdoor recreation fields cannot be located in the heart of campus. There is no land available for them, and areas in the center of campus are better used for academic buildings, gathering spaces, and other uses. In the master plan, the fields are located across Jackson Street as they are currently. While this location is a good match for the space needs and utilization of the fields, it is not connected well to the rest of campus. A bridge will be built across Jackson Street in order to enhance this connection for the fields as well as for possible future developments located across Jackson. A walkway runs east from the bridge, between several housing developments, and then to the recreational area. Walks branch out from the main walk, between the recreational fields, to allow better access to the fields.

As the number of students participating in recreational sports increases, the programs will benefit from storage space and restrooms located near the outdoor fields. The master plan shows a small facility placed immediately northwest of the fields which will serve these needs. This building will also have a small plaza located adjacent to it which will serve as a gathering place for students using the recreational fields.

The space shown for the fields is sufficient for the needs of the campus at 10,000 students if lights are provided to allow the fields to be used at night. The plan shown for the fields differs from the current arrangement of fields, but the overall space used is identical. The plan shown groups the softball fields together rather than separating them. There are currently plans to light the western-most fields; this can be done without compromising the ability to group the fields later. When it becomes necessary to light the rest of the fields, the two unlit softball fields should be moved next to the lit fields. This grouping will reduce the need for personnel to supervise widely separated facilities.

The tennis courts near Vanderventer will be removed so that higher-density uses can be built in their place, but the courts south of the Multipurpose Sports Complex will remain. If these courts are converted to athletic use in the future, new recreational courts should be constructed near the recreational fields east of Jackson.

The pavilion presently located east of the Food Service Center must be moved in order to create a larger, more cohesive campus green as a center for several large housing developments. The pavilion will be relocated to the south edge of the green. The character of the green surrounding the pavilion will be different from the open grassy expanse of the main portion of the green; trees will be planted around the pavilion to provide shade and more inviting places to sit on hot days.

Athletics

The athletics facilities at ASU are adequate both for current needs and for the needs of a student population of 10,000 with only a few minor additions. For example, the baseball team does not have separate locker room facilities at the Colts Stadium. If and when separate locker rooms become necessary, this should be rectified by constructing additional locker rooms at the stadium. Also, the area which currently houses the varsity practice field can actually hold two fields placed end-to-end; should more fields be required in the future, they can be accommodated here.

Football

Additional sports programs may be initiated as ASU's enrollment increases. The most likely candidates for this are golf and tennis. A golf program would not impose many requirements; practice and competition both occur off-site, which leaves only limited locker

room, office, storage, and meeting facilities to be provided on campus. The addition of more space-intensive programs or large expansions of existing programs are not likely.

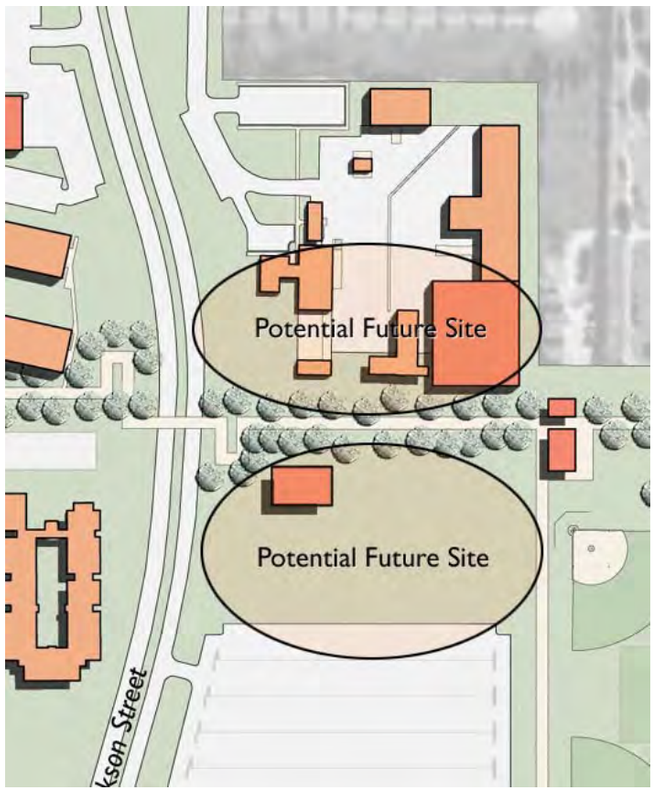
Adding a tennis program would require more additions and modifications to existing facilities than would golf. While the courts south of the Multipurpose Sports Complex are likely adequate for practice and some competition, they would require access to dressing rooms and seating for spectators. Additionally, use of these courts for athletics would displace recreational users. Recreational courts in this case could be provided near the recreational fields east of Jackson Street. If competition courts with large-capacity seating areas are required, they should be built near these existing courts where they can make use of existing parking and locker room facilities.

Beyond tennis and golf, the only athletic changes likely are modifications and renovations to existing facilities. Football will remain at the San Angelo Independent School District stadium as there is insufficient land on the ASU campus to build a stadium and the duplication of such expensive facilities and their attendant parking would be wasteful. Basketball and other indoor sports are accommodated well in the Stephens Arena. Major expenditures on athletics facilities should in most cases be limited to maintenance and renovation.

Physical Plant

The physical plant will remain in its current location with few changes except for the construction of additional space. The current location is good in that it is close to the campus, yet it does not occupy space which is needed for other facilities.

As the campus is built out to match the master plan, land west of Jackson Street will become scarce. If new programs, additional growth, more housing, or other changing needs require more space than shown, then the site of the physical plant and the land south of it will be the best opportunities for expansion of facilities close to the campus core. This land, therefore, should be maintained as a land bank to provide for future needs. Parking and sports fields are good uses for the land until it is needed.



Physical plant and nearby land

If future uses require more land than can be provided in the area south of the physical plant and north of the parking, then the physical plant should be relocated from its current site to a new location south of the recreational fields. While the physical plant should be located near the rest of campus, it does not require direct pedestrian access or any particular adjacencies. The new site would suit the requirements of the physical plant well, and the current site would be opened up for uses which can benefit from a closer relationship to the campus.

In this scenario, because the future site of the physical plant is empty, the plant may be moved in stages or all at once, as determined by the university. When the plant is relocated, departments which are located in different buildings now should be housed collectively in order to minimize construction costs.

Pedestrian Walkways

The mall is the dominant pedestrian feature on campus, and it will remain so. The master plan adds interest and activity to the mall, however, by inserting

plazas, greens, and bridging elements which break up the long, featureless stretches of the mall.

Land to the north of the current campus limits will be acquired as sites for future buildings and parking. The alignment of the mall does not provide access to these areas, so a new walkway will be built which runs along the current location of Vanderventer Avenue. This walk will connect the administration complex to the new areas of the campus. Perpendicular walkways will also connect the two main walks on the eastern end of the campus. The campus green will be framed by two of these perpendiculars on the sides, by the new main walk on the north, and by a relocated pavilion on the south. The mall will run through the south side of the green.

The grounds along and around the pedestrian walkways will be landscaped in accordance with the design guidelines. Some sections of the mall and other walks will be lined with rows of trees, and other portions will run through grassy areas. All pedestrian walks will have site furniture such as benches and trash cans.

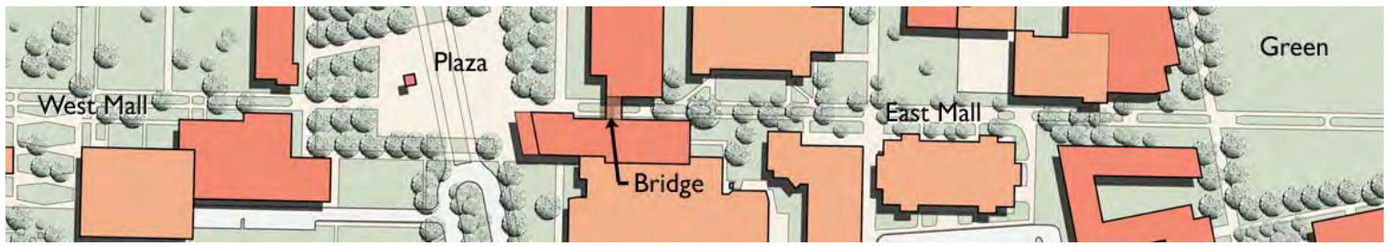
Transportation Systems

Campus Roadways

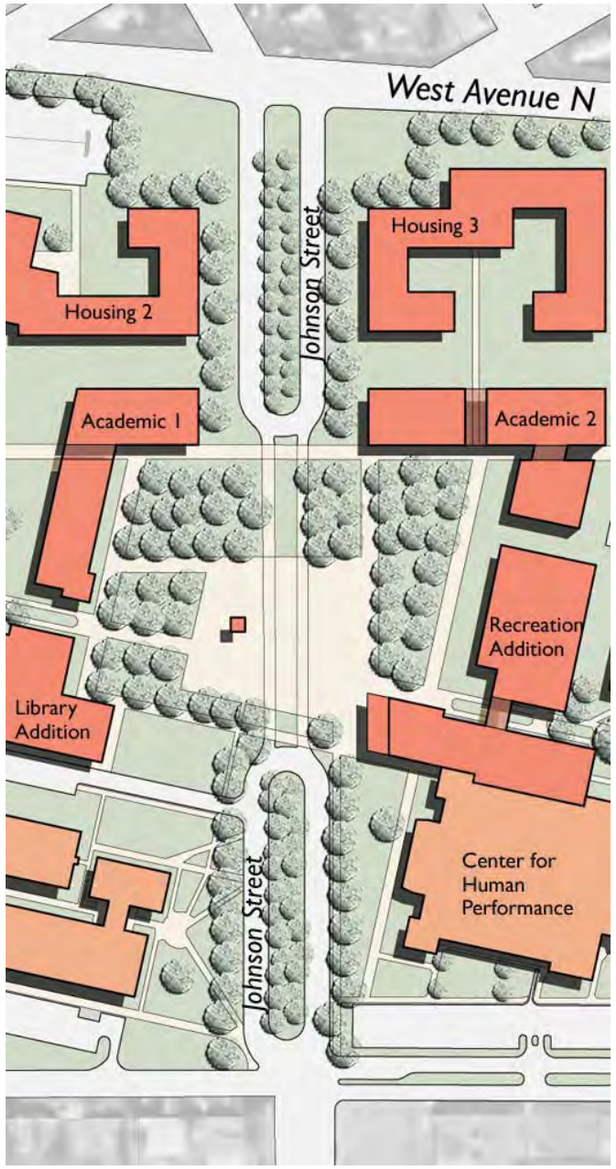
Johnson Street has long been a problem for the campus. While it is a major north-south vehicular link through campus, it also severs all of the east-west pedestrian linkages. As the vitality of the ASU campus depends upon encouraging pedestrian traffic and activity along the mall, the primacy of the pedestrian connection over the vehicular roadway should be firmly established.

The master plan does this by creating a plaza in the very center of campus, where Johnson Street crosses the mall. The layout of the lanes, the curbs, and the paving of the street should be done so that it is clear to drivers that they are intruding upon a pedestrian environment. Johnson Street will be narrowed to one lane each way, and the two lanes will be separated.

It is not currently possible to close Johnson Street because students, ASU employees, and the community in general presently rely upon that route.



Events along the mall

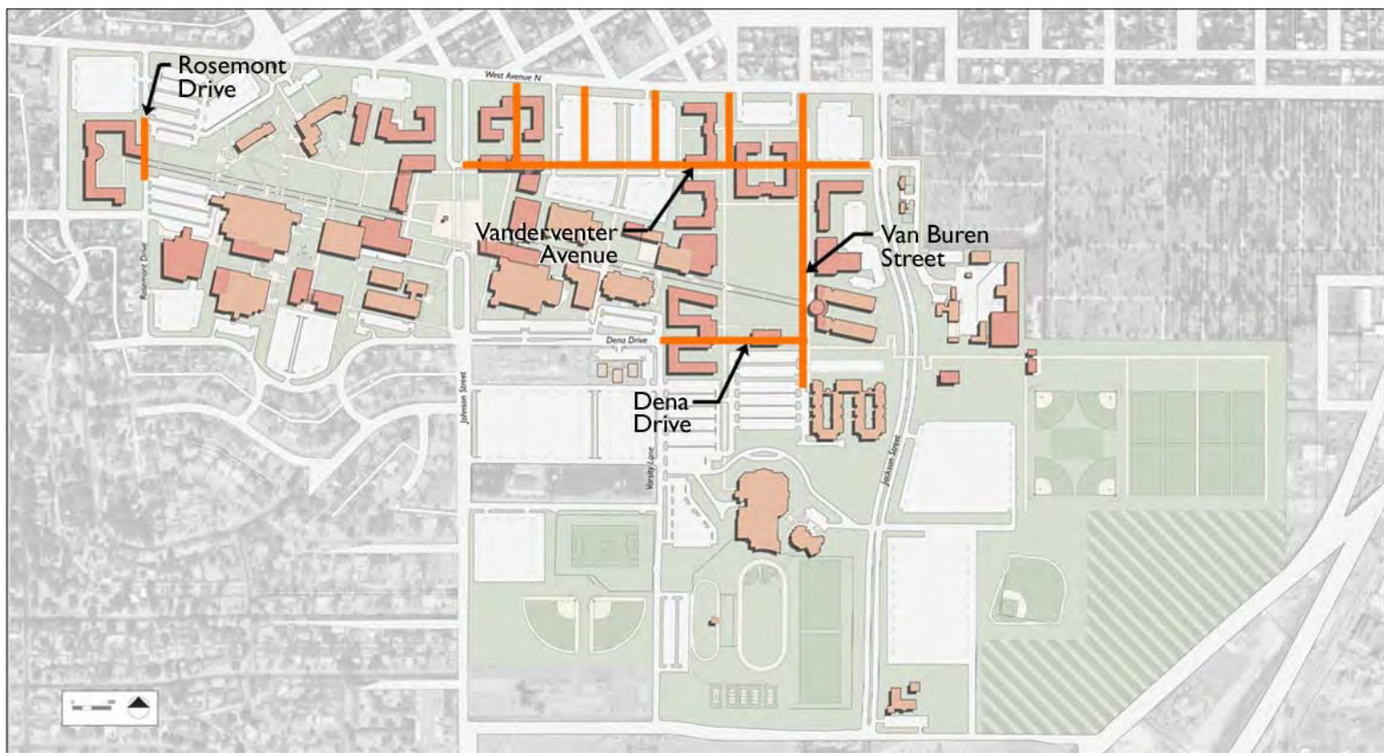


Detail of Johnson Street

When the changes shown in this master plan are implemented, however, traffic patterns will change. As more traffic is deflected to Jackson Street and to other routes, the issue of closing Johnson either permanently or during certain times of day should be revisited. Turnarounds on both sides of the plaza will allow the section of Johnson intersecting the plaza to be closed should that become a possibility.

Jackson Street similarly breaks the east-west circulation pattern on campus, but because it is depressed below the grade of surrounding land, a bridge will be built across it to convey pedestrian traffic. The recreational fields and parking lots across Jackson will become important destinations as the student population grows.

As the pedestrian-centered area of the campus expands, some portions of city streets located completely within university boundaries should be closed and rededicated to university use. Sections of both Vanderventer and Rosemont are closed in the master plan, which has several benefits. First, it will eliminate unnecessary campus vehicular traffic. Parking lots which are retained or built within campus limits can be accessed directly, rather than by a roadway which cuts across pedestrian routes. Second, it will increase the amount of buildable area for the university, which will help achieve the density necessary to fit the building program on the site. Most importantly, eliminating unnecessary roadways will separate pedestrian traffic from vehicular traffic and will open up new area for pedestrian circulation.



Rededicated Streets

Bike Paths

As the campus grows, the greater distances involved will cause an increase in travel times. ASU will remain a small place relative to many large state institutions, but alternatives to walking will still be needed. Enhancing campus amenities for bicyclists and encouraging the use of bicycles, rather than automobiles, can reduce the infrastructure required for automobiles. Given the significantly higher costs of developing roadways and parking for automobiles versus developing paths and walks for bicycles and pedestrians, non-vehicular and mass transportation should be encouraged wherever feasible.

Proper accommodations for bicycles should be provided at all buildings just as parking is provided for vehicles. Bicycle racks should be placed at all buildings, and walks will connect bicycle lanes and paths to buildings as necessary. These amenities are particularly important at residence halls and at places where students will gather, such as the University Center or the Center for Human Performance.

External Transportation System

San Angelo currently has limited public transportation options. The university would benefit from better transit connections to different parts of the city and surrounding communities. As ASU's enrollment grows, the need for the university to provide parking and roadway infrastructure will be mitigated by encouraging students to utilize mass transportation.

An ideal location for a future transit stop is near the heart of the campus, yet along a street which will allow for easy maneuvering and will have minimal delay due to traffic. The north turnaround at Johnson Street, once constructed, will satisfy these requirements. Johnson Street connects to West Avenue N, which in turn has good connections to the rest of the city. This location will remain viable even if the portion of Johnson Street which runs through campus is closed in the future.

Future parking requirements may necessitate a shuttle system to convey students from remote parking locations to the campus. The south turnaround at Johnson Street is a good location for shuttles, as it is near the center of campus and has good connections to the likely locations of remote parking south of campus.

Parking

ASU currently has a parking surplus. As with most university campuses, however, ASU has a deficit of parking spaces in the areas where students and faculty prefer to park. This is, to some extent, both an unavoidable and an irremediable situation. If parking lots of sufficient size were to be intermixed with the academic core of campus, then the quality and continuity of the campus would suffer tremendously. Large garages could improve the situation from a functional perspective, but they can be unsightly and are not a financially viable option. Parking is therefore mainly located in a ring outside the main facilities.

Pedestrian connections from parking to the mall and other walkways should receive even more emphasis than they do now. Parking will be pooled into somewhat larger lots rather than a series of small ones, and it is easy to neglect basic necessities such as shade, walkways, and street furniture in such a setting. Future large lots should be seen not as vast warehouses for vehicles, but as the starting points for the numerous walkways which serve as tributaries to the mall and other main walks. Pedestrian amenities should receive precedence over matters of efficiency and maximum capacity, though good parking lot design will ignore neither consideration.

The projected growth of the student population at ASU will obviously require commensurate growth in parking. As a larger percentage of the student body lives in on-campus housing, the number of spaces provided for those students must grow as well. Because of the increasing demands on parking availability as the student population grows, ASU's current policy of allowing on-campus students to park only in spaces designated for their use should continue. At the build-out of the master plan, parking will be limited, and if on-campus students are allowed to park in general parking, then inefficiencies and parking shortages will result. Encouraging bicycling is another way to reduce this problem.

In the master plan, parking has generally been located near housing in quantities sufficient to allow on-campus residents to park near their residence halls with one exception. The residence hall located immediately west of Johnson Street on the north edge of campus has parking located next to it, but this

parking is not sufficient for all residents of the hall. The overage can be accommodated by parking lots further east or west.

ASU currently has a parking surplus; there are 4,675 parking spaces for about 6,100 students. Using comparisons with other universities and observations of conditions at ASU, the planning team has determined that this number of parking spaces is sufficient for nearly 7,000 students. The ratio of students per space at those numbers is about 1.5 to one. With a future enrollment of 10,000 students, about 6,700 parking spaces will be required. The master plan as shown provides sufficient parking, but just as now, not all parking is exactly where all students, faculty, and staff would like for it to be. As the campus gets larger, the disconnection between desire and reality may widen to some extent. Limited shuttle service and revised permitting practices may be necessary.

Should the student population grow beyond the targets of this master plan, additional parking can be located at the San Angelo Independent School District football stadium, in the lots by Colts Field, or on land south of the future location of the physical plant. Shuttle service will be required for all of these options.

Although large-scale structured parking is not a feasible option for the university, strategically placed small garages can mitigate parking problems at specific locations. Good placements for parking garages include sites near buildings which are heavily used, such as the Performing Arts Center and the University Center. Parking in garages may be separated from general student parking, which would enable the university to charge for parking on an hourly or daily basis.

Parking lot location

Project Priorities and Phasing

The limitations of site availability, funding, and the varying necessities of different projects will drive the project phasing sequence. Land must be acquired to build several facilities, including two of the academic buildings, three residence halls, and a large portion of the future required parking. The following schedule of projects is one possible sequence of construction which allows for these factors.

It is not necessary for the actual construction sequence to follow this schedule precisely in order for the master plan to be valid. Buildings may, in fact, be built in an entirely different order, but so long as projects follow the design guidelines and are sited as described in this master plan, the master plan will remain valid. Two plans – a plan of the first phase and a plan of the second phase – are included after the phasing chart. These two plans show initial phases of the master plan. The first phase includes projects which fulfill immediate needs and begin the initial phases of the physical master plan, and the second phase further develops the main concepts of the master plan and brings these concepts to the point where they are significantly functioning as intended and are critical elements of the campus, yet still partially complete.

The development of the university in the third phase is dependent to a large extent upon factors such as funding availability and funding priorities. A plan of this phase has not been included because of the uncertainties which are unavoidable with these factors. The final plan is identical to that shown earlier in the document. The final plan represents the maturity of the master planning concepts contained in this document.

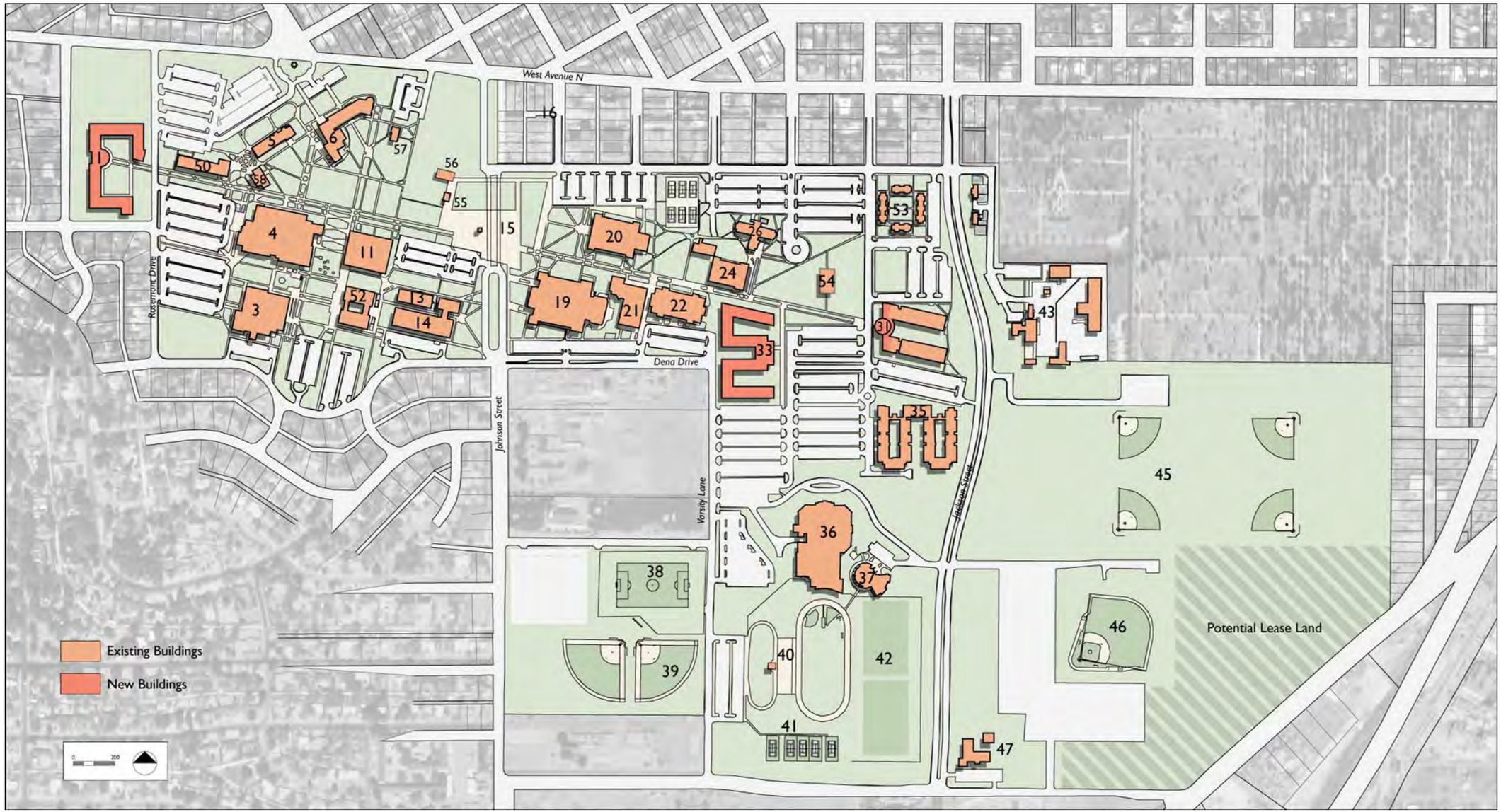
While projects need not be constructed exactly when shown, there are dependencies between some of the projects which dictate portions of the construction sequence – University Hall must be demolished before Housing 9 can be built, for example, and the construction of many of the residence halls necessitates construction of parking as well. The chart below shows a suggested sequence of construction. If growth is either faster or slower than estimated in this plan, the schedule should be adjusted accordingly.

This master plan has a 23-year planning horizon. This is not to say, however, that 23 years should pass before these issues are revisited. In fact, master plans should be updated on a five- to ten-year schedule. If growth at ASU does not follow the patterns estimated for this master plan, or if changes in other conditions begin to affect the growth or physical plan of the university, then this master plan should be updated accordingly.

Centennial Master Plan Development Phasing

Phase I 6,000 students to 7,000 students	Phase II 7,000 students to 8,000 students	Phase III 8,000 students to 9,000 students	Phase IV 9,000 students to 10,000 students
University Hall Demolition	Housing 8	Housing 2	Performing Arts Center
Short-term Signage Projects	Long-term Signage Project	Library Addition	Jackson Street Bridge
Housing 9	Housing 7	Parking 21	EFA Expansion
One-Stop Center - Hardeman	Parking 22	Academic Building Demolition	General Services Building Demolition
Parking 2	Warehouse	Rassman Building Renovation	Parking 8
Parking 3	Administration Building Expansion	Academic 1	UC Additions
Parking 15	Parking 4	Parking 10	Academic 3
Runnels Hall Demolition	University Clinic Demolition	Housing 5	Parking 1
Mayer Hall Demolition	University Police Demolition	Housing 4	
Central Plaza/Tower and Johnson Realignment	CHP Access Drive Demolition	Parking 24	
Main Entrance	Parking 12	Dining Hall	
Housing 1	Recreation Fields Facilities	Carr Hall Demolition	
	Parking 20	Parking 5	
	Campus Green	Parking 6	
	Concho Hall Demolition	Biology Greenhouse	
	Housing 6	Academic 2	
	Parking 16	Parking 23	
	Pavilion	Parking 14	
	Recreation Addition		
	Police/Health/Student Services		
	Central Plant Addition		
	Math-Computer Science Building Renovation		
	Parking 11		
	Housing 3		
	Campus Religious Centers Relocation		
	Food Service Center Expansion		
	Continuing Studies Center Demolition		

Centennial Master Plan: Phase I Plan



Centennial Master Plan: Phase I Plan List of Buildings

1 Housing I
3 Education/Fine Arts Building
4 University Center
5 Hardeman Building/One-Stop Center
6 Administration Building
11 Henderson Library
13 Science III
14 Cavness Science Building
15 Central Plaza and Tower
19 Center for Human Performance
20 Vincent Building
21 Mathematics-Computer Science Building
22 Rassman Building
24 Food Service Center
26 Concho Hall
31 Massie Hall/Housing 8
33 Housing 9
35 Texan Hall
36 Junell Center/Stephens Arena
37 Fieldhouse
38 Varsity Soccer Field
39 Softball Fields
40 Multipurpose Sports Facility
41 Tennis Courts
42 Varsity Practice Fields
43 Physical Plant
45 Recreational Fields
46 Colts Stadium
47 Alumni Center
50 Carr Hall
51 General Services Building
52 Academic Building
53 Vanderventer Apartments
54 Pavilion
55 University Police Building
56 University Clinic
57 Continuing Studies Center
58 General Services Building

Note:
Black denotes new or modified buildings
Grey denotes existing buildings

Centennial Master Plan: Phase II Plan

Centennial Master Plan: Phase II Plan List of Buildings

3. Education/Fine Arts Building
4. University Center
5. Hardeman Building/One-Stop Center
6. Administration
7. Administration Addition
11. Henderson Library
13. Science III
14. Cavness Science Building
15. Central Plaza and Tower
16. Housing 3
18. Recreation, Health Clinic, University Police
19. Center for Human Performance
20. Vincent Building
21. Mathematics-Computer Science Building
22. Rassman Building
23. Central Plant
24. Food Service Center
25. Food Service Center Addition and Student Services
26. Housing 6
31. Massie Hall/Housing 8
32. Pavilion
33. Housing 9
34. Campus Green
35. Texan Hall
36. Junell Center/Stephens Arena
37. Fieldhouse
38. Varsity Soccer Field
39. Softball Fields
40. Multipurpose Sports Facility
41. Tennis Courts
42. Varsity Practice Field
43. Physical Plant
44. Recreational Facilities
45. Recreational Fields
46. Colts Stadium
47. Alumni Center
50. Carr Hall
51. General Service Building
52. Academic Building
53. Vanderventer Apartments

Note:
Black denotes new or modified buildings
Grey denotes existing buildings

Centennial Master Plan: Phase III and IV Plans

The Phase III Master Plan is not included in this report due to uncertainties in funding availability and priorities.

The Phase IV Master Plan is identical to the Centennial Master Plan 2028. The Phase IV Master Plan represents the maturity of the master planning concepts contained in this document.

Design Guidelines

Table of Contents of This Chapter

Design Guidelines

Introduction

The Design Guidelines provides an additional layer to the master plan in order to create an aesthetically coherent campus. These guidelines set a framework of architectural and other developmental elements.

Purpose

Useful architectural guidelines are not a prescriptive list of requirements and limitations. Rather, guidelines are the result of an analysis of existing practices intersected by recommendations for strengthening and clarifying the elements already present on campus. While portions of these guidelines do set out fairly strict codes for certain aspects of campus development, most of the guidelines should be viewed as principles which can be incorporated into projects in many different ways. For example, while the recommendations for brick types and colors should be followed to the letter for most, if not all, projects, the more abstract principles for siting a building with regard to the mall should be interpreted appropriately for each individual building.

As ASU grows toward the goals outlined in this master plan, the pressures of available land, limited funds, and increasing needs will influence the design and construction of new facilities. Expedient solutions to these demands and the scattered aesthetic responses of many different designers must not be allowed to dominate new development as they have many college campuses. It is the responsibility of each designer who works on the ASU campus to build upon the strengths of the campus. These design guidelines provide an aesthetic structure for future projects, and adherence to these guidelines will produce a unified, cohesive campus.

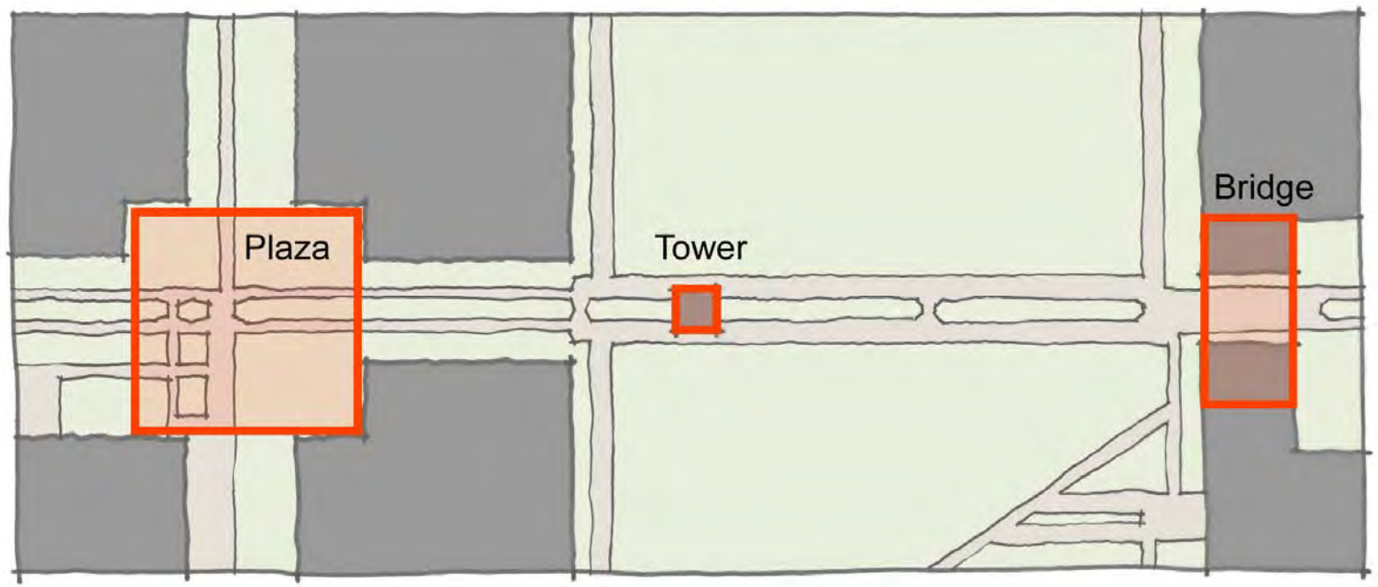
ASU's campus is rare in that it has been developed in a consistent manner even without a formal set of guidelines. That consistency enables these guidelines to a limited extent to act as a codification of existing campus practices such as paving types and overall building forms. This is a relatively minor part of these guidelines, however; more importantly, these guidelines and the master plan together describe the spatial and organizational principles of a future campus which will retain ASU's unique qualities yet will create a richer, more active place.

Administration Building

The mall

Relationship of Buildings to the Mall and Open Space

Pedestrians are the heart of campus activity. Without foot traffic, campuses are little more than suburban collections of buildings surrounded by parking lots. The ASU mall is the most important conduit of pedestrian traffic, and so it should be more than a walk lined with buildings. Relationships between buildings and the mall should be symbiotic - the buildings should help form the mall, and the mall should enhance the buildings. The proportions, activity, and appearance of the mall should be primary considerations for every new building project. The width and rectilinear outline of the mall should not be inviolate. In fact, buildings should enliven the walkways by penetrating the simple, plain edges of the mall. Points of visual interest should be established along the mall in order to provide focus and relief. This may be done with building elements that span the mall or singular elements that are inserted into it. For example, a chime and clock tower would provide visual and sonic interest, and would be both a marker and a point of orientation for people on campus and beyond.



Elements which can be used to interrupt the homogeneity of the mall

The mall

One of the most crucial aspects of a cohesive campus atmosphere is the establishment of active, attractive outdoor spaces. Buildings should, in places, compress the mall to create these spaces and to give a sense of enclosure. Without well-defined borders, edges, and enclosures that create subsets of spaces within it, the mall is merely an attractive means to get from one place to another, not a generator of social activity.

Additions and extensions to the mall should be done in ways which acknowledge its primacy, but where necessary, designers should be encouraged to implement elements which have not been incorporated before. For example, the mall is currently not properly terminated on either end; it merely fades out into parking on the west end and a grassy area on the east. Introducing a building like another dining hall or a performing arts center at an end of the mall will in fact strengthen the mall, rather than weaken it. Similarly, plazas, green areas, and

other outdoor gathering spaces should be designed to engage and flow into the mall - they should not just sit beside it.

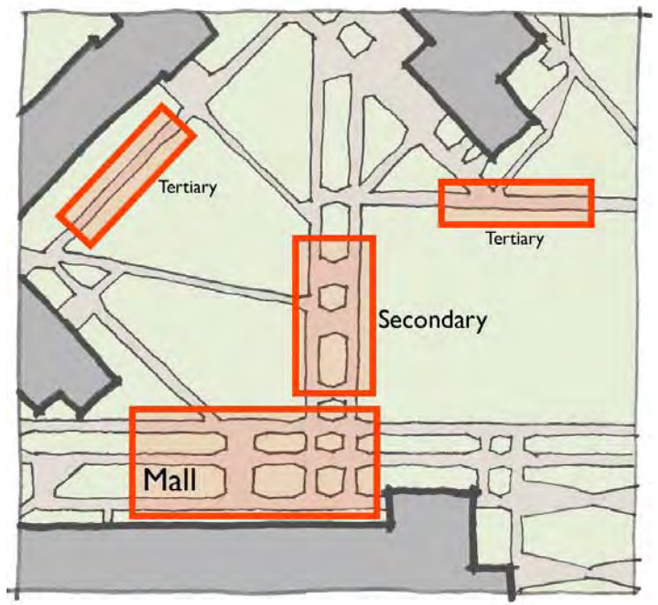
Most of the length of the mall consists of a doubled walkway separated by a strip of grass. For reasons of continuity, this pattern should be continued in future extensions to the mall. The total width of the mall, including grassed areas between the walkways, ranges from 30 to 60 feet wide. Should new major connecting walkways similar to the mall be established, consideration should be given to designing them to correspond in size and layout with the existing mall.

Other Walks

Other walkways on campus bear relation to the mall, but they differ in their size, their layout, and how they relate to the buildings and spaces around them. Existing walks are almost exclusively concrete with a pebble finish. New walks should be broom-finish concrete except for locations where special circumstances dictate other paving methods. Other walks can be classified into two types as follows:

Secondary Walks: Walk systems which generally run at right angles to the mall. These walks connect major points and consist of doubled walkways along most of their length. They are 25 to 40 feet in total width, including grassed areas between separate walkway portions. Secondary walks are not nearly as long as the mall itself, but are longer than the tertiary walks hich serve to connect buildings to parking lots and to one another.

Tertiary Walks: Short, single walks which connect between buildings or to parking lots. They are five to ten feet wide, depending on how heavily they are intended to be used.



Different walkway types

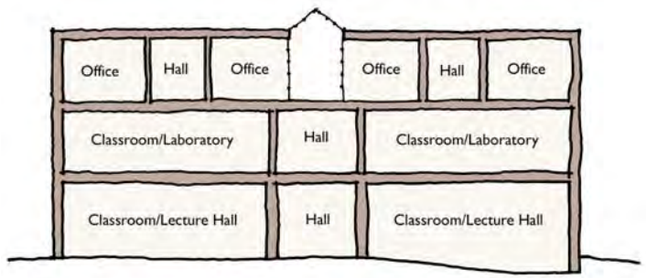
Vertical Building Organization

Academic buildings, housing, and administrative buildings should not exceed three levels in height. Overall building heights should be 50 feet or less. The floor heights of new buildings should also correspond with those of existing buildings so that the overall scale of new buildings is compatible with that of existing buildings. Different types of uses are best accommodated on particular levels as follows:

First Level: Pedestrian circulation, large classrooms, lecture halls, and building services

Second Level: Classrooms, laboratories, some offices

Third Level: Faculty and administration offices



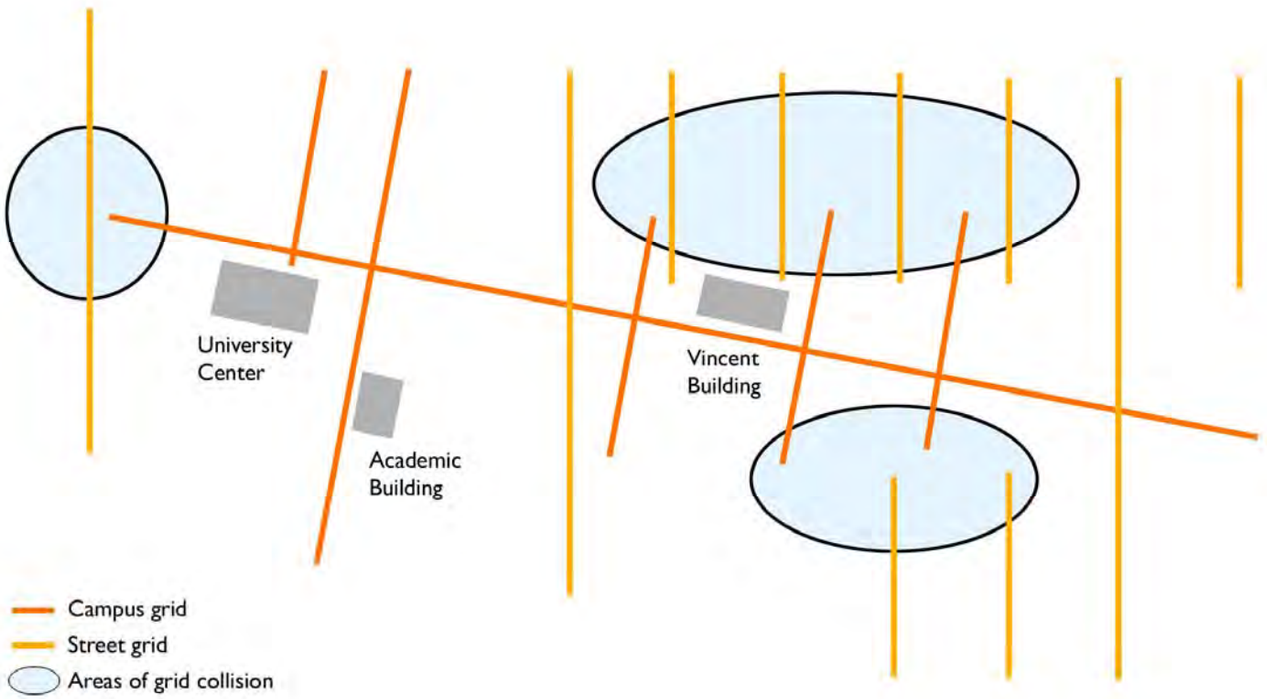
Uses at different levels

This breakdown of uses obviously cannot apply directly to non-academic buildings, but the logic behind this organization can be used. Heavily-used areas like auditoriums, gymnasia, and other gathering spaces should be located on the ground floor. Smaller gathering rooms like dance studios, conference rooms, and laboratories should be located on second levels. Third levels should be reserved for offices and low-use spaces. This organization will reduce travel times between classes and will minimize the number of elevators and other costly vertical circulation elements.

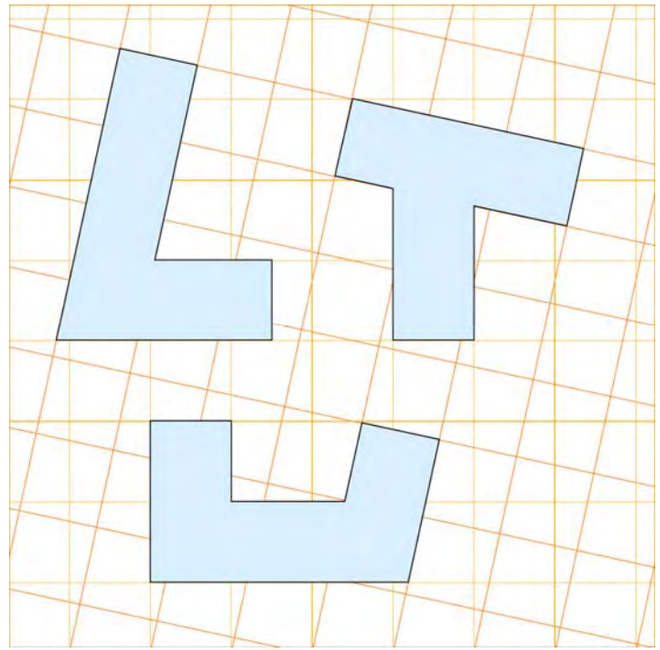
Building Shapes

The mall, and therefore most of the ASU campus, is rotated relative to the street grid which surrounds the campus. Because most ASU buildings front the mall and do not have frontage on the surrounding streets, building shapes have responded to the mall only. As the campus expands into new areas around the edges of campus, the design of buildings will be affected by both grids. In order to respond appropriately both to the existing ASU campus and the buildings around the university, shapes of buildings near the intersection of the campus grid and the street grid should reflect both grids. This will also maximize the area useable for buildings.

Building shapes should not be overly complex. In most cases, building shapes should be modified versions of simple shapes like "L," "U," and "T". The conjunction of grids and the built response to that juxtaposition will create more interesting spaces and will engender more appropriate architectural responses to both the existing campus and its surroundings.



Campus Axes



Building shapes at grid collisions

This dual response will become more critical as new areas north of Vanderventer are added to the campus; buildings in this area should be designed to correspond with both grids, especially where this technique will allow buildings to be sited more densely. Though the shapes of new buildings may be different and somewhat more complex than those of existing buildings, care should be taken not to abandon the precedents set by existing campus buildings.

Façade Organization

Some expression of building structure should be apparent from the façade. Buildings should delineate structural columns through the presence of masonry piers, by the modulation of the wall plane, or through a series of openings that relate to the building's structure. Window openings in masonry walls should be organized by the structural system into combinations of smaller openings within bays. Horizontal elements which are inserted into the façade, such as windows and grilles, must not extend for lengths which exceed those of the building's structural bays without some expression of the supporting structure.

Buildings should be visually organized into separate base and body portions, as shown in the top element of the illustration to the right. This will give new buildings a sense of scale which is not apparent in all existing campus buildings. Multi-story arcades and vertically undifferentiated façades can have an alienating affect upon pedestrians - without a visual reference to lend scale to wall surfaces, buildings can seem cold and unaccommodating.

Arcades

Arcades along the edges of buildings provide shelter from sun, wind, and rain. They are not merely functional spaces, however; they can also help animate the edges between buildings and the mall. Arcades form intermediate zones between interior and exterior spaces that can extend the usage of the building outside in good weather, and can temper the extremes of temperature in poor weather. Where possible, the sides of buildings inside arcades should be glazed. Opaque interior arcade walls should be washed with light. Arcades are also prime locations for artwork or architectural crafts.

Arcades should be no taller than the first level of the building to which they are attached. The warmth and animation that an arcade gives a building's exterior can be lost if the arcade is scaled to relate to the height of the building rather than to the height of a person. Any shelter that the arcade provides will also be compromised by inappropriate scale.

Examples of façade organizations

Arcade at the Vincent building

Glazing

New campus buildings should have more glazing than most of the existing campus buildings - 20 to 33 percent of the exterior wall surface should be glazed. This is particularly important in buildings which serve social functions. Transparency should be emphasized around active areas like cafes, student recreation facilities, and performing arts spaces. During the day, glazing will blur the separation between buildings and the mall, increasing the perception of activity in both. At night, the glow of light from buildings will draw students to night-time activities.

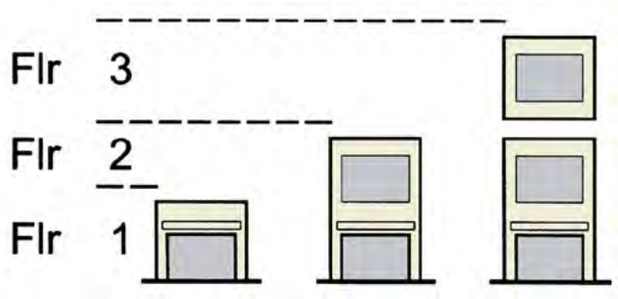
Example façade with glazing on 30 percent of face

Increased use of glazing will also help to reduce the need for artificial lighting. Higher levels of natural light in classrooms and offices create more inviting spaces for students, staff, and faculty in addition to reducing energy requirements. Care should be taken, however, to ensure that large glazed areas have a minimal detrimental impact on energy efficiency. Glazing should be low-e or insulated as determined by the project designers, and glazing should be shaded and shielded to reduce direct exposure to sun and wind as necessary.

Heavily tinted, colored, or reflective glass should not be used. The transparency of glass is just as important as is the color rendering performance of lighting. Where additional protection from sun is needed, options such as overhangs, arcades, and solar shades should be investigated.

Entries

The shape and location of building entries should give strong visual clues about their functions. Main building entrances should be immediately obvious to pedestrians from the form of the entrance itself. Building signage should support that appearance, but signage should not be necessary in order for visitors to locate a main building entrance. Main entrances should be oriented toward the mall, not toward parking lots at the rear or sides of buildings. Limited secondary entrances near lots are acceptable, but the architecture and disposition of buildings should emphasize the relationships of buildings to the mall, not to parking.



One-, two-, and three-story entries

Entrance to the Hardeman Building

The scale of entrances is also important. While the need to assign architectural significance to an entrance may be satisfied by using large-scaled building elements, it is important to also maintain a relationship between the scale of the entry and the scale of the people who use it. This can be accomplished, for example, by inserting a single-story entry within a multi-story element. The design and scale of entries should also reinforce the body-base organization described in the "Façade Organization" section.

Roof Articulation

Sather Campanile at Berkeley

Most buildings at ASU have low-slope built-up roofs, and new large academic buildings should as well. One- to two-story academic buildings may have hipped roofs. A 6:12 pitch should be used. Residential buildings should have hipped roofs with pitches of 6:12.

Buildings with unique functions are exceptions to these rules, particularly when the function of those buildings dictates certain roof types. A central tower or other campus icon, a future performing arts center, and even certain types of student services buildings should be visually prominent in ways which general academic buildings should not, and this may be accomplished in part through roof articulation. Hipped roofs with steeper pitches than 6:12 or gabled roofs should be considered.

Materials and Colors

There are many types of brick used on campus, but most fall into a narrow range of color and size. Future buildings should be constructed with bricks of similar color and size, and designers of new buildings should pay particular attention to the types used in nearby buildings. In the absence of a prevailing brick example, the brick on the Administration Building should be used as an exemplar.

White stucco is used on many campus buildings either as an accent or as a primary façade element. This use should not be continued. Designers should refer to the examples set by the Hardeman Building and the Administration Building rather than to buildings such as the Henderson Library or the Academic Building. Brick should be the dominant building material, and stone or cast stone should be used as an accent material to set off the brick. The overuse and misuse of stucco on campus buildings detracts from the warmth and visual strength of brick.

Brick with cast stone accents on the Hardeman Building

There are relatively few other materials used on campus buildings. As noted in the "Specialized Buildings" section, however, the use of other materials on special buildings may serve to emphasize the distinctive role of those buildings. Any contrast with typical campus materials should be done deliberately, not simply for the sake of

Cast stone accents on Administration Building

difference, and should enhance existing buildings through its dissimilarity. Paving and other hardscape materials are addressed in the "Site Furniture and Hardscape" section. ASU's existing color palette is dominated by the brick used on most buildings. While there are multiple types of brick used on various campus buildings, brick on new buildings, and therefore the color palette of new buildings, should center on the color of the brick on the Administration Building.

As with materials and roof types, special buildings may depart from this color palette, but any departure should be done carefully and with full recognition of the intent and consequences of such a decision.

Public Art and Architectural Craft

Public art should be incorporated into building projects at ASU. Each project's art program should be initiated as early as possible in the process of building design to ensure that appropriate measures are taken for the installation of art pieces. Certain building types (a performing arts center, for example) are particularly suitable for the inclusion of public art. A campus committee should be established to direct and encourage the inclusion of public art in projects at ASU, and the integration of this committee with the building process should start at the very beginning of each building project.

Public art as a component of courtyards, plazas, and even walkways will make spaces more lively and interesting. A variety of types of art including sculpture, decorative sconces, fountains, and site-specific installations are all possibilities. More prominent art should be placed in prominent spaces, but where buildings or plazas themselves are the focus, art installations should enhance, rather than detract from, the overall composition.

Fountain with bronze handiwork

Decorative wall sconces

Residence Halls

One of the primary determinants of the level of activity of campus life is on-campus housing. Well executed housing will attract and retain students, while substandard housing will have an adverse impact both on recruitment efforts and on the retention of students who live in campus housing.

Campus housing should not just provide places for students to live, but should create an environment for learning which students cannot obtain anywhere else.

Residence halls should have outdoor space for student use

The housing types built on campus should reflect this. For example, common areas should be located close to and under the same roof as student rooms and suites so that students are encouraged to gather and socialize. The building should have a common entry point which will serve as the primary point of information dissemination. Housing should have landscaped exterior areas - courtyards, plazas, green areas, or informal playing fields - for use by student residents.

A variety of different room and suite types should be built over time as students' preferences change so that all students are well accommodated. Provision should be made for handicapped access to all parts of the building, even if accessible units are located in specific areas. Larger housing sites should have dining located near or perhaps even attached to the housing. Expensive construction types are not required; rather, the suitability of the design to the creation of a collegiate atmosphere is of paramount importance. Materials should bear correspondence to those used for academic buildings, though the forms and to some extent the materials of the residence halls should be distinct from the academic buildings. For example, exterior insulation and finish systems may be used in place of some brick.

As there will be a high level of activity around campus housing both day and night, security is a primary concern. There should be a high level of transparency in housing common areas to promote visibility. Access to the facilities should be well controlled. Walkways to and around the housing should be well illuminated and free of brush, which might obscure vision. Shrubs and other low plants should be a maximum of approximately 24 inches high, and trees should be trimmed clear to a minimum height of seven or eight feet, as appropriate to the type of tree.

Specialized Buildings

Certain types of campus buildings require special materials or dimensions, or should otherwise stand out from the rest of the campus. Facilities like galleries, theaters, and towers have a civic and campus-wide aspect to their use that suggests a special approach to the design, sitting, and materials of the building. The use of materials not otherwise common on the ASU campus like limestone or sandstone is appropriate for unique structures. Seamed or panelized metal cladding is another possibility, and seamed metal roofs may be used as well.

Gathering space outside a small theater

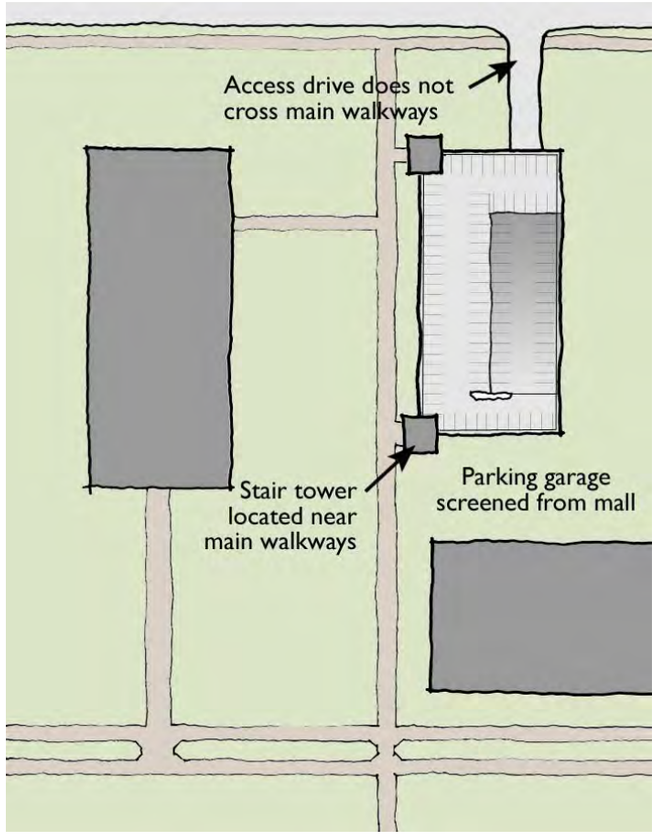
The location of a specialized building can be as important as is the form of the building. Certain buildings, particularly those which serve large groups such as theaters and concert halls, should open onto courtyards, plazas, and other outdoor spaces which can be used for gathering and to extend the functionality of lobbies. Sites for special buildings should reflect the symbolic importance of those buildings. Depending on the usage of specialized buildings, they may be sited near the heart of the

campus or near other buildings, which support the use of that building.

The flexibility with materials, forms, and methods which are applicable to specialized buildings does not mean that the designers of those buildings are free to ignore the standards laid out in these guidelines or to approach building siting in a manner which disregards surrounding buildings. Quite the opposite is true, in fact. The understanding required to meaningfully and appropriately go beyond established principles is much more profound than that which is necessary to simply follow them. Because of their divergence from the norm, specialized buildings will attract attention. The design of these buildings should use this prominence to acknowledge the existing fabric of the campus while incorporating new elements which will help to emphasize the buildings' symbolic importance.

Parking Structures

ASU currently does not have any structured parking. As the campus grows, however, structured parking may be useful to accommodate parking needs in certain parts of the campus, such as next to a performing arts center or near the administration complex. Parking structures must be designed and located carefully so that they do not detract from the rest of campus. Useful non-parking functions such as retail spaces or offices for special campus organizations should be provided at the first level of garages.



Parking structure placement

Parking structures typically are structurally organized into bays, the length of which may measure over 60 feet on the ends. The scale of bays this long is inappropriate for a university campus, particularly where they are visible to pedestrian walks. The façades of parking structures should break these large bays down to a more appropriate scale by the insertion of additional columns or wall segments, whether or not they are structurally required. The materials used and the articulation of other façade elements should be the same as those outlined for in these guidelines for buildings.

Vehicular traffic should be separated from pedestrian traffic. Access drives should be located to minimize their impact on walkways. Public access to the parking structures should be through elevator and stair towers that have an increased level of visual access for reasons of security and comfort. These towers should be located near major pedestrian ways, but if possible, parking structures should be screened from the mall. Public stairs, elevators, and lobbies should match the architectural style and quality of the rest of campus. Building materials may include poured-in-place concrete or precast concrete, but should also include brick in order to relate to the campus buildings.

Other Guidelines

Exterior Lighting

Lighting is an important part of the campus environment both for reasons of safety and of appearance. Good lighting will create a welcoming atmosphere, which is an important part of generating nighttime campus life. Handcrafted sconces and other building-mounted fixtures are more appropriately scaled for pedestrians than tall light poles and should be used where possible. Lighting should be enhanced in areas which are relatively heavily used at night, such as at the Super Slab and around the library, and well-lit connections should extend from these areas to housing and food service facilities.

Lamps should be selected for color-rendering performance and for efficiency. Those which render colors poorly, such as sodium vapor lamps, should not be used despite their better efficiency on paper. In many cases, the superior color rendering performance of lamp types like metal halide allows the installation of less wattage to achieve the same visual performance, so efficiency should be understood in this context. Lamps should have a color rendering index value of 78 or above. This includes incandescent, metal halide, and daylight and warm fluorescent lamps. Mercury, low and high pressure sodium, and cool fluorescent lamps should not be used for general outdoor lighting. Lamp types should be standardized as much as possible to provide even lighting and to minimize the costs associated with maintaining many different types of lamps. Lamp replacement should be done on a schedule, rather than on an as-needed basis, to ensure that replacements are all of the same type.

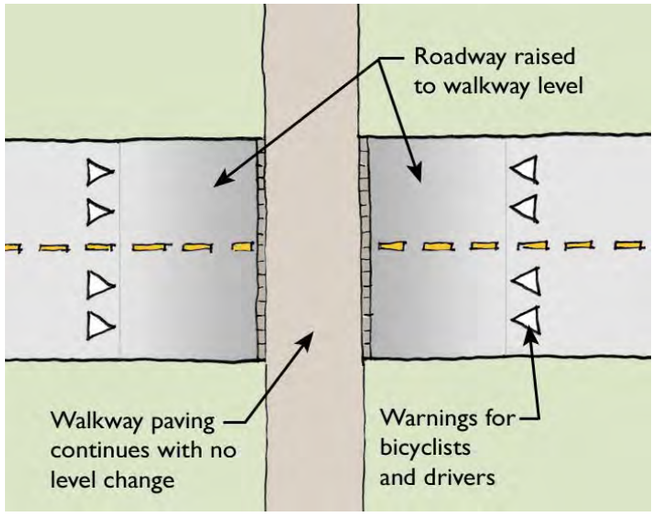
Pole-mounted lighting fixtures should be standardized both for new projects and for replacement of existing fixtures. The campus currently has at least six types of light standards. This number should be reduced to perhaps two or three which can be used appropriately in different situations. Taller light standards with unobtrusive fixtures can be used to provide overall low fill light levels in large spaces, but pedestrian walks and plazas should be lit by fixtures on standards of twelve feet or less. Poles along walkways and in plazas should be spaced to achieve light levels which range from one to five footcandles. Light levels should at no point vary more than 4:1 within a 100 square foot area. Lamps should be 70 to 120 watts, depending upon conditions. Wall-mounted sconces cannot provide large amounts of general-purpose light, but by highlighting architectural elements, sconces can help to define spaces. Exposed lamps are not allowed, and glare should be eliminated.

Wall sconce

Good lighting heightens the interest of spaces at night, but it also makes people feel safe. Encouraging this feeling of safety is not simply a matter of increasing the amount of light in a space. Far from it, actually, as high nighttime light levels often create glare and shadows, which contribute to a feeling of insecurity. Safe lighting consists of applying low, but very even levels of light to areas like parking lots and walkways, and slightly higher levels of light to plazas and areas immediately outside buildings. Measured light levels should at no point exceed a 4:1 ratio within an area of 100 square feet, and light levels should be between one and five footcandles. Higher light levels can and should be cast on building exteriors, as this provides the impression of brightness without negatively affecting night-adapted vision.

Vehicular Circulation

As indicated in the master plan, vehicular circulation through campus will be reduced. The campus should be a primarily pedestrian place. The placement of loading docks and service drives should be carefully considered to reduce their impact on the pedestrian character of the campus. Similarly, vehicular drop-offs internal to campus should be implemented only where necessary, and even then, should be designed to minimize intersections with pedestrian walks.



Raised pedestrian crossing

Drop-offs should be located at the ends of pedestrian walks at the perimeter of campus.

As befits a pedestrian-centric campus, roadways on campus should be sized to provide only the necessary space for vehicles to circulate, not to encourage traffic flow. Travel lanes should be no more than 11 feet wide. Where low to moderate levels of traffic are expected, lanes may be as narrow as ten feet wide.

Parking lanes should be used in moderation. They provide extra parking capacity and slow traffic in adjacent travel lanes, but they take up valuable right-of-way which might be better utilized as pedestrian walks and green space. Parking lanes can also create traffic problems at class change times as students obstruct traffic by waiting for spaces. Where used, parking lanes should be eight feet wide (on moderately trafficked streets) or seven feet wide (on lightly trafficked streets).

Pedestrian crossings should be prominently marked and designed to make drivers aware that they are crossing a pedestrian thoroughfare. Raised intersections and distinctive surfacing, as illustrated, may be used at heavily-used crossings. Care should be taken to avoid obstructing bicycle traffic, however, and all crossings must comply with the Texas Accessibility Standards.

Mechanical Equipment

Mechanical and other building-mounted equipment should not be directly evident to those in close proximity to buildings. Where possible, it should be screened from the view of those at greater distances as well. Auditory screening is no less important than visual screening; mechanical equipment should be located and shielded to minimize sonic intrusion for pedestrians around buildings as well as for those inside the buildings. Heavy materials such as brick and stone perform significantly better than foliage or wood enclosures at reducing sonic intrusion, so those types of materials are preferred. Enclosures for mechanical equipment should be composed as part of the architectural design of the building.

Site-mounted equipment such as fuel tanks, emergency generators, and trash containers should be screened by masonry enclosures. Year-round plantings may also be used to help visually screen site-mounted equipment, but they do not perform as well as masonry and other heavy materials at reducing sound pollution and so should not be used as primary screening elements.

Site screening behind the Vincent Building

Wall-mounted air supply and exhaust grilles must be located and sized in order to fit the design of the building. Continuous horizontal grilles must not extend uninterrupted for lengths which exceed the length of the structural bays of the building without an expression of supporting structure. Fresh air intakes should not be placed near trash containers, loading docks, service drives, or emergency generator exhausts. Building air exhaust and laboratory exhausts should be located away from fresh air intake locations so that exhaust air is not pulled back into the building. Laboratory exhaust stacks should be clustered together when possible, should be kept away from building edges, and should be painted a muted gray color in order to blend with the sky.

Landscape

There are many notable trees on the ASU campus. While the new buildings which will be required to accommodate future ASU students will unfortunately eliminate some trees, specimen trees, where "specimen" is loosely defined as a large, old, particularly well-formed, visually significant, or rare tree, should be preserved wherever possible. As construction projects do remove specimen trees, they should be replaced by native saplings of three caliper inches or larger. Replacement of large trees should continue as older stock dies or becomes unhealthy, and new trees should be added as ASU's property expands. Non-native trees such as palms should be avoided.

ASU has well developed and maintained planting beds. New projects should generally include the same types of plant materials and planting beds as previous projects. Future plant choices should be made with water conservation in mind, though plantings in special locations may require more water-intensive plants. Choosing drought-tolerant plant materials will benefit the university by reducing the amount of water required for irrigation.

Plantings should not be limited to areas along the mall and near buildings; they are just as important in parking lots and along the edges of campus. Landscaped areas should be used to define campus borders, particularly where those edges and corners are not otherwise held by buildings. Landscaping should be incorporated into the design of parking lots along with walkways and other pedestrian-centric features.

The university should also explore possibilities for water retention and gray water reuse in conjunction with new projects. As regulations regarding storm water retention and detention become more stringent, options for using this water for irrigation will continue to become more feasible.

Oaks at the ASU campus

Site Furniture and Hardscape

Site furniture should be standardized on several types. As existing furniture deteriorates, it should be replaced with a designated style, and new construction should specify this style as well. High quality painted metal or teak furniture should be selected; these types will minimize maintenance and will be more comfortable than concrete furniture. Furniture should, as now, be located along the mall

Steel and/or teak furniture should be selected

and other major pedestrian paths. Trash containers should be placed throughout the campus, including near and in parking lots. Paving materials for new pedestrian walkways should match existing walks, as outlined in the section on the mall. This need not be universally applied to plazas, courtyards, and other outdoor spaces, however. For example, large paved plazas may be paved with a material which contrasts or coordinates with the pebble-finish concrete in order to prevent those spaces from becoming dull. Split-face Dryden limestone, for example, will harmonize with the pebble-finish concrete and is more appropriate for large plazas where vast expanses of concrete would be monotonous. Sandstone is also a possibility for low landscape walls and other vertical features. Courtyards, particularly any courtyards interior to buildings, may be paved with materials such as limestone which coordinate with the materials used on the building.

Accessibility

All new site improvements and buildings must comply with the Texas Accessibility Standards. Accessible paths should not be mere adjuncts to main walks; accessibility should be designed into projects from the beginning of the process. As the ASU campus does not have significant grade changes, site walks should incorporate stairs only as secondary elements.

Space Analysis

Table of Contents of This Chapter

Space Analysis

Introduction

The Space Analysis provides a planning parameter in the interior space to this Centennial Master Plan. The Facilities Master Plan deals with mostly exterior space and building organizations. This analysis helps us to understand the utilization of academic space in the existing building and feeds back to the future of campus development.

The analysis consists of four elements: Utilization, Occupancy, Ownership and Space Projection. Interior spaces analyzed in this section are limited to instructional spaces such as classrooms and class lab where scheduled classes are held.

Utilization

Classroom Utilization

The university has 87 general classrooms according to the reported facilities inventory and fall 2004 class schedule. This number only includes general classrooms, but excludes special class laboratories such as chemistry labs and computer labs.

According to the fall 2004 classroom utilization report published by Texas Higher Education Coordinating Board (THECB), the average weekly hours of use is 23.7 and ranked 31st out of 34 public institutions. This means that an average classroom is used for about 24 hours a week, which could be scheduled 40 hours between 8 A.M. and 5 P.M. THECB's guideline for the classroom utilization is 38 hours.

The peak of utilization is between 9 and 11 in the morning. More than 80% of classrooms are in session at the peak period. The utilization in the afternoon declines dramatically. The all day average of utilization between 8 a.m. and 5 p.m. is 43%. The morning average between 8 a.m. and 12 p.m. is 68% while the afternoon average between 1 p.m. and 5 p.m. is 19%.

According to THECB, the classroom utilization is calculated by the following formula:

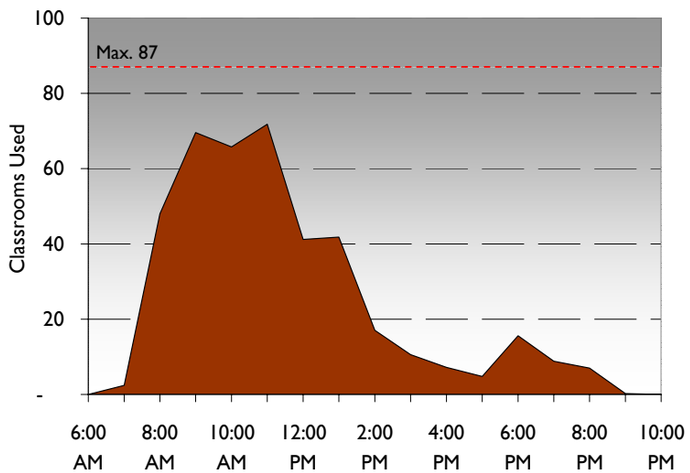
> [Total Class Duration in minutes] ÷ [50 minute hour] ÷ [number of classrooms]

Classroom utilization by room indicates certain classrooms that are not effectively utilized. By considering geographical location and use of the building, which may cause inefficient utilization, classrooms in the following buildings are underutilized:

- Cavness Science Building
- Academic Building
- Math-Computer Science Building
- Rassman Building

Several classrooms exceed the THECB's standard of 38 average weekly hours of use (AWHU). Approximately 80% of classrooms have less utilization than the average of 34 public institutions in Texas, which is 30.9 AWHU for fall of 2004. Approximately 12% of classrooms are used less than 20 hours per week.

Daily Classroom Utilization



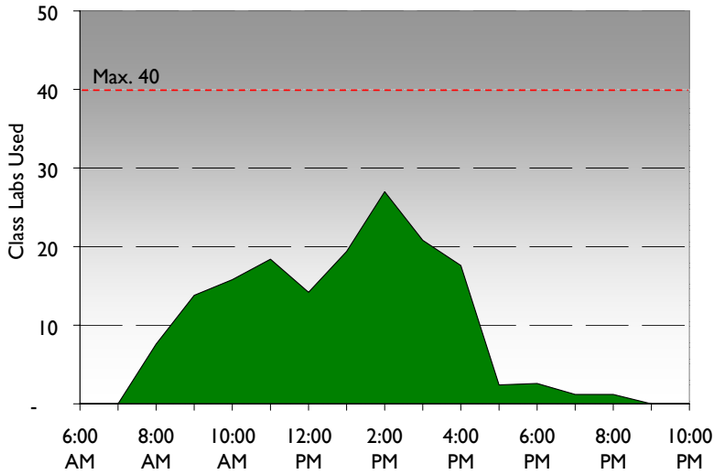
Source: Fall 2004 class schedule
Note: Weekly average of the classroom utilization. When a classroom is in session for more than 30 minutes in the hour, the classroom is marked as utilized. Sections that were not assigned to classrooms at the beginning of the semester are not included.

Class Lab Utilization

The university has 40 class labs according to the reported facilities inventory and fall 2004 class schedule. This number includes any laboratories used for instructions such as science labs and computer labs.

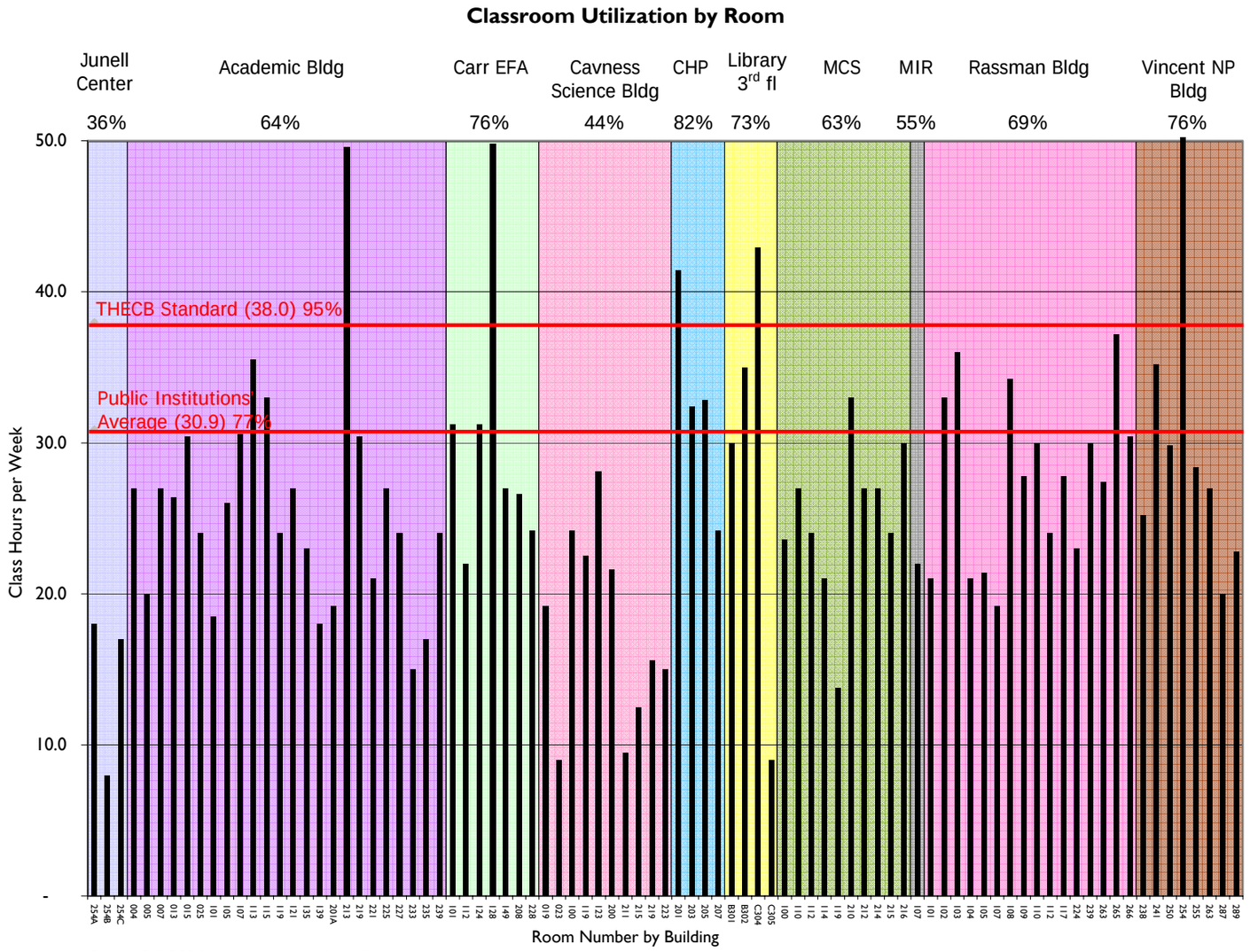
According to the fall 2004 class lab utilization report, the average weekly hours of use is 20.5 and ranked 23rd out of 34 public institutions. THECB's guideline for the class lab utilization is 25 hours.

Daily Class Lab Utilization



Source: Fall 2004 class schedule
Note: Weekly average of the class lab utilization. When a class lab is in session for more than 30 minutes in the hour, the class lab is marked as utilized. Sections that were not assigned to class labs at the beginning of the semester are not included.

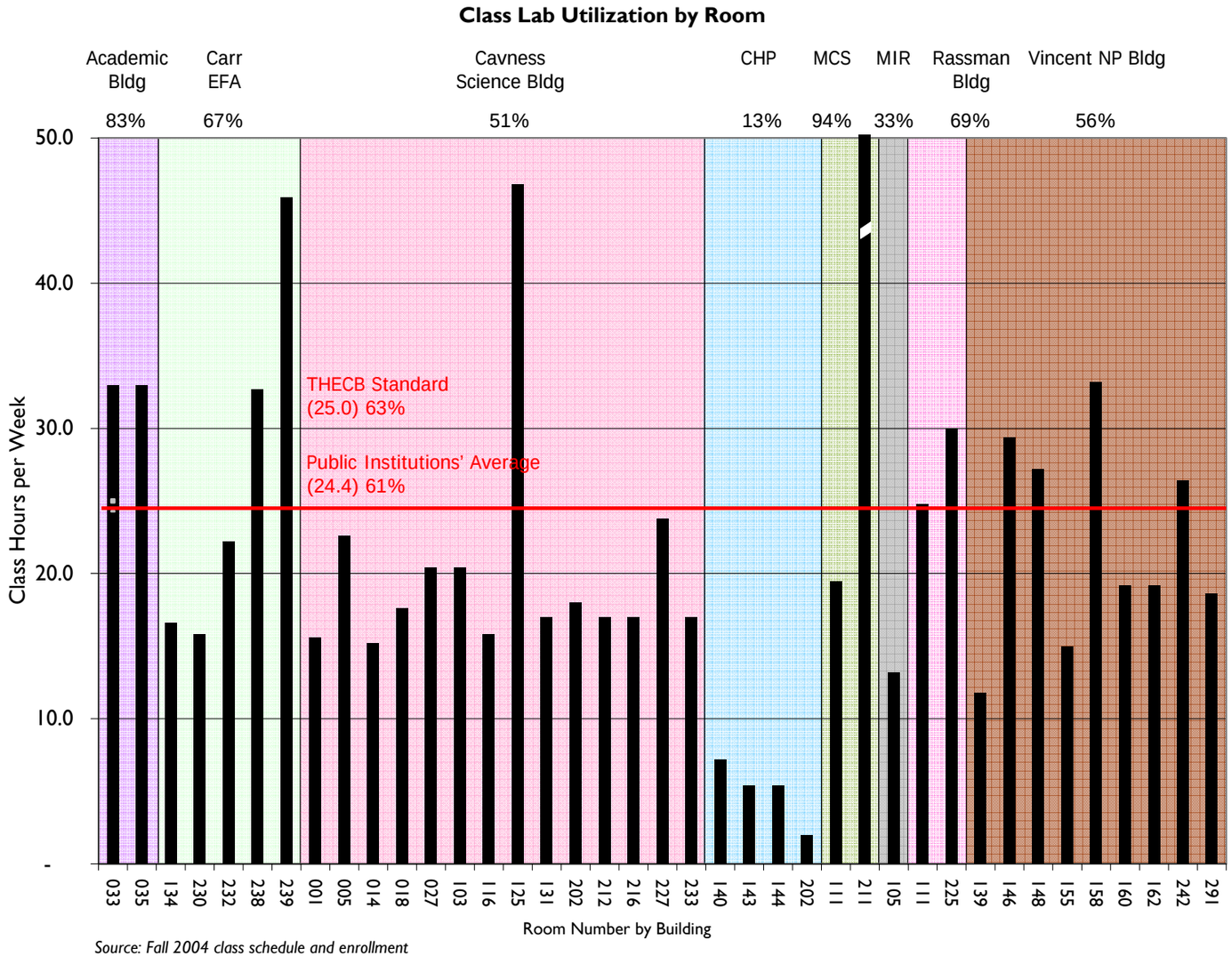
The peak of utilization is between 1 p.m. and 4 p.m. Approximately 70% of class labs are in session at the peak period. The all day average of utilization between 8 a.m. and 5 p.m. is 39%. The morning average between 8 a.m. and 12 p.m. is 35% while the afternoon average between 1 p.m. and 5 p.m. is 44%.



Source: Fall 2004 class schedule and enrollment
Note: Weekly average of the classroom utilization. When a classroom is in session for more than 30 minutes in the hour, the classroom is marked as utilized. Sections that were not assigned to classrooms at the beginning of the semester are not included.

Classroom & Class Lab Utilization Map

The following maps show utilization for the individual classrooms and class labs, which are colored and divided into three categories: intensely utilized, fairly utilized and underutilized. Class labs, noted on the map, include science labs, computer labs, art studios, music studios, dance studios, a gymnasium and other non-classrooms used for scheduled instructions. The three categories are defined as follows:



Source: Fall 2004 class schedule and enrollment
Note: Weekly average of the class lab utilization. When a class lab is in session for more than 30 minutes in the hour, the class lab is marked as utilized. Sections that were not assigned to class labs at the beginning of the semester are not included.

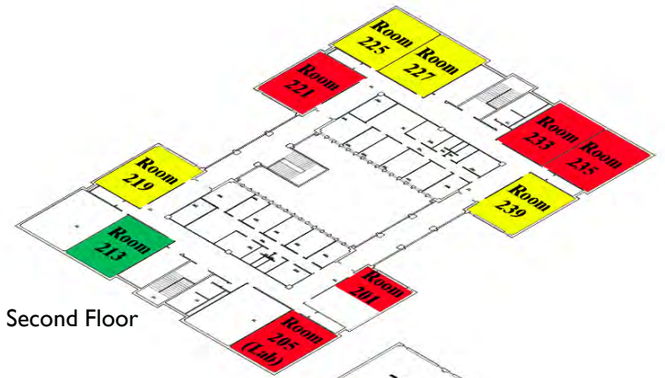
Classroom & Class Lab Utilization Legend

Intensely Utilized
Classrooms used for more than 36 hours per week
Class labs used for more than 25 hours per week

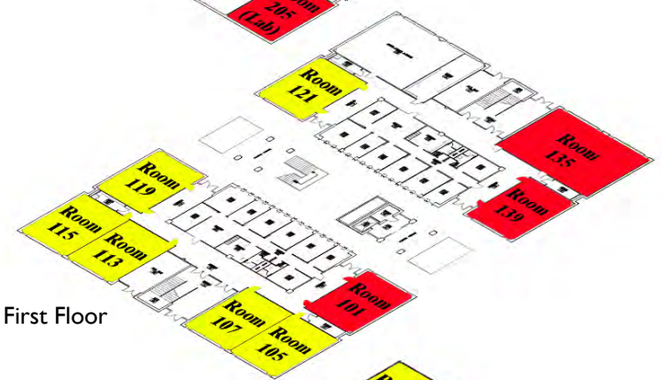
Fairly Utilized
Classrooms used between 24 and 36 hours per week
Class labs used between 16 and 25 hours per week

Underutilized
Classrooms used less than 24 hours per week
Class labs used less than 16 hours per week

Academic Building



Second Floor

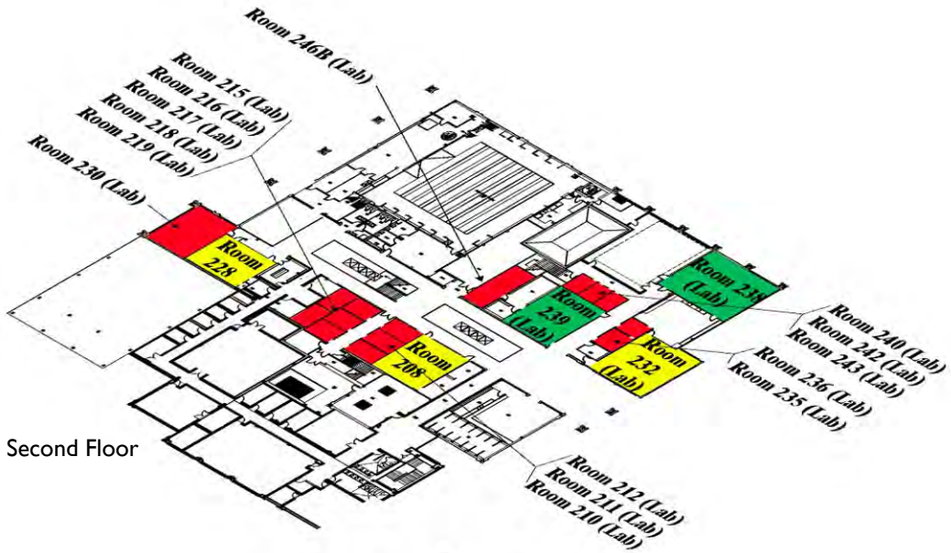


First Floor

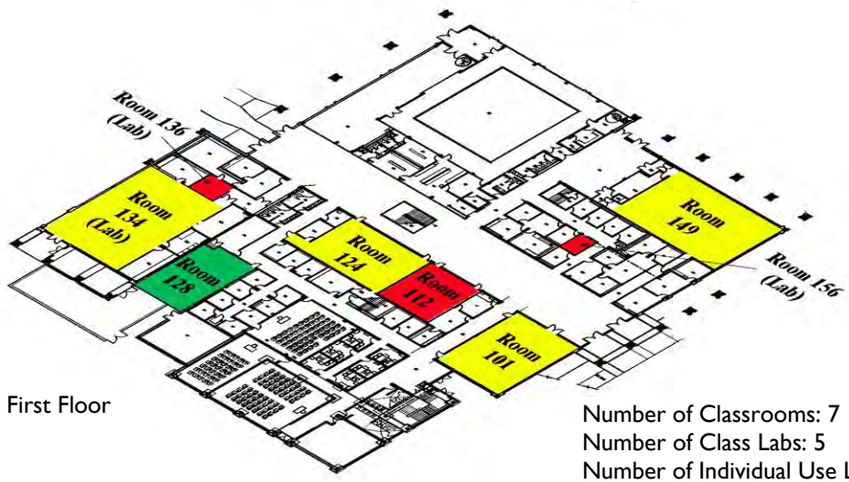
Ground Level

Number of Classrooms: 24
Number of Class Labs: 4
Average Classroom Utilization: 26 hours (64%)
Average Class Lab Utilization: 28 hours (69%)

Carr Education-Fine Arts Building



Second Floor



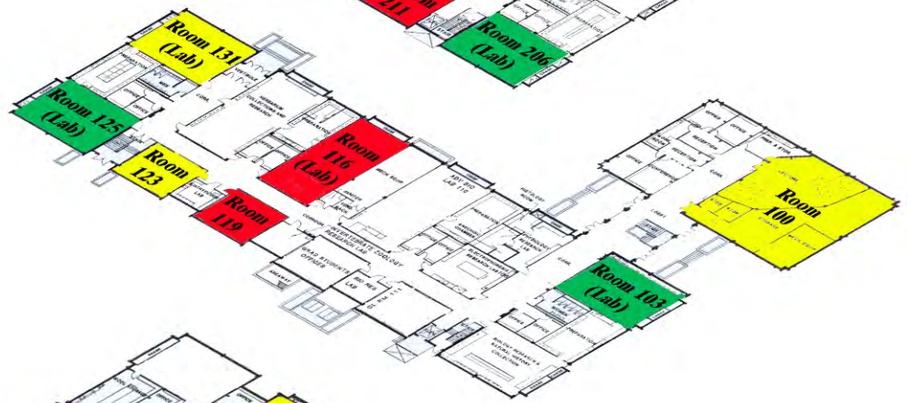
First Floor

Number of Classrooms: 7
Number of Class Labs: 5
Number of Individual Use Lab: 17
Average Classroom Utilization: 30 hours (76%)
Average Class Lab Utilization: 27 hours (67%)
Average Individual Use Lab: 0 hours (0%)

Cavness Science Building

Second Floor

First Floor

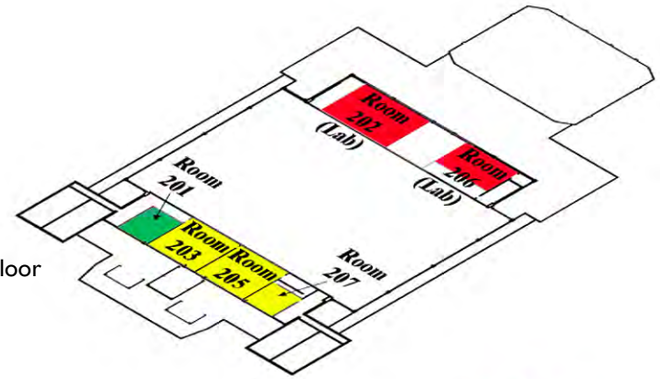


Ground Level

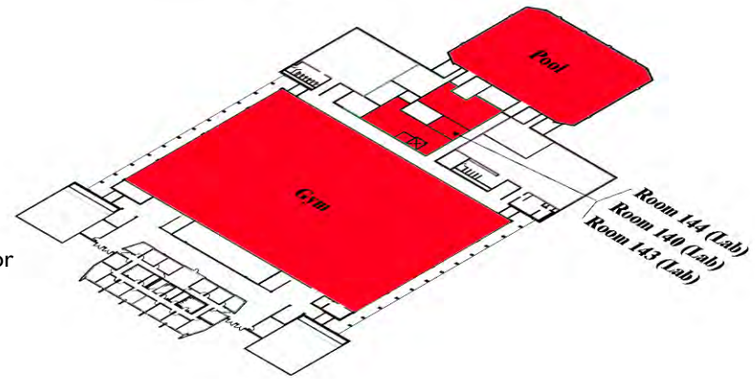
Number of Classrooms: 10
Number of Class Labs: 16
Average Classroom Utilization: 18 hours (44%)
Average Class Lab Utilization: 20 hours (50%)

Center for Human Performance

Second Floor



First Floor



Number of Classrooms: 4
Number of Class Labs: 7
Average Classroom Utilization: 33 hours (82%)
Average Class Lab Utilization: 7 hours (17%)

Porter Henderson Library

Third Floor

Second Floor

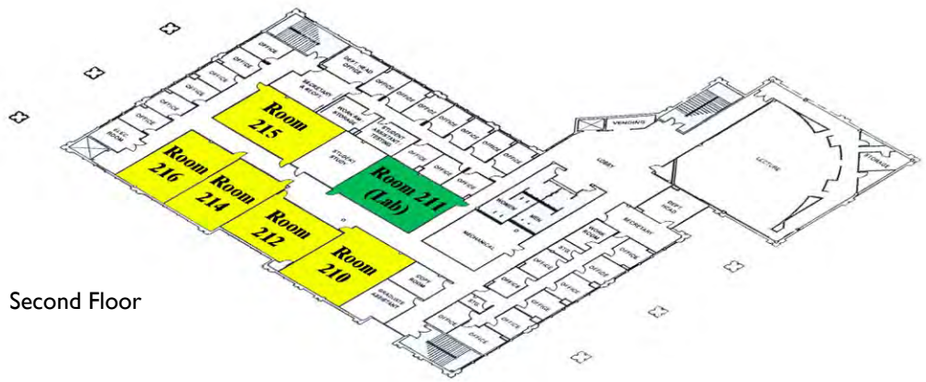
Not included in Classroom & Class Lab Utilization Study

First Floor

Not included in Classroom & Class Lab Utilization Study

Number of Classrooms: 4
Number of Class Labs: 2
Average Classroom Utilization: 29 hours (73%)
Average Class Lab Utilization: 6 hours (14%)

Mathematics – Computer Science Building

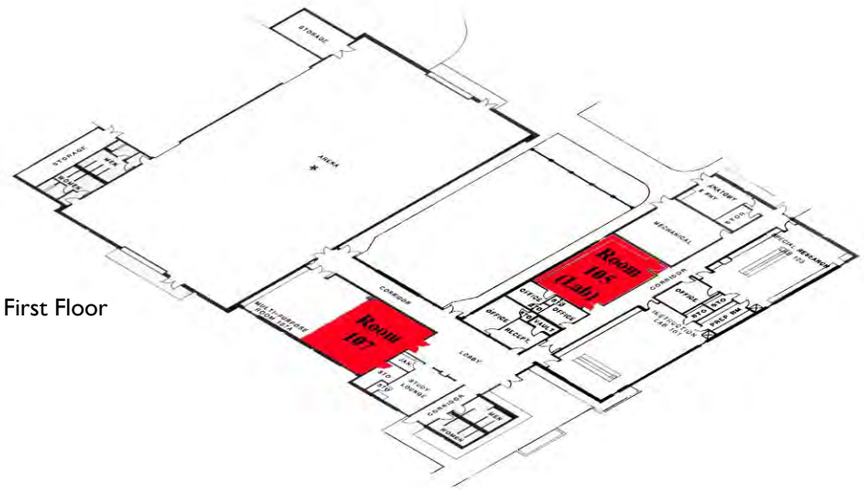


Second Floor

First Floor

Number of Classrooms: 10
Number of Class Labs: 2
Average Classroom Utilization: 25 hours (63%)
Average Class Lab Utilization: 38 hours (94%)

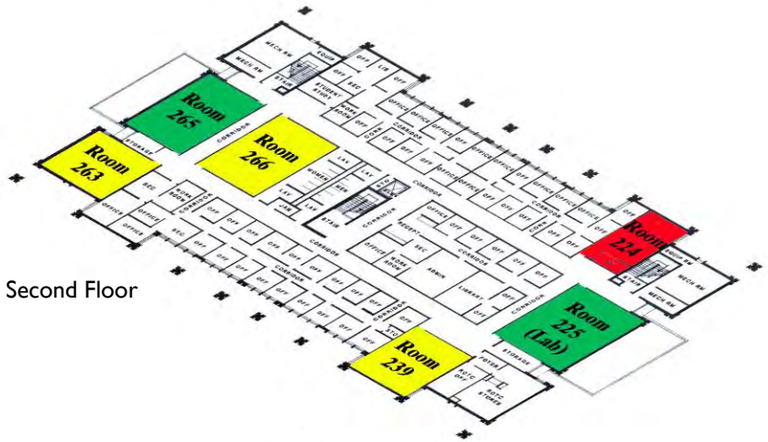
Management, Instruction and Research Center



First Floor

Number of Classrooms: 1
Number of Class Labs: 1
Average Classroom Utilization: 22 hours (55%)
Average Class Lab Utilization: 13 hours (33%)

Rassman Building

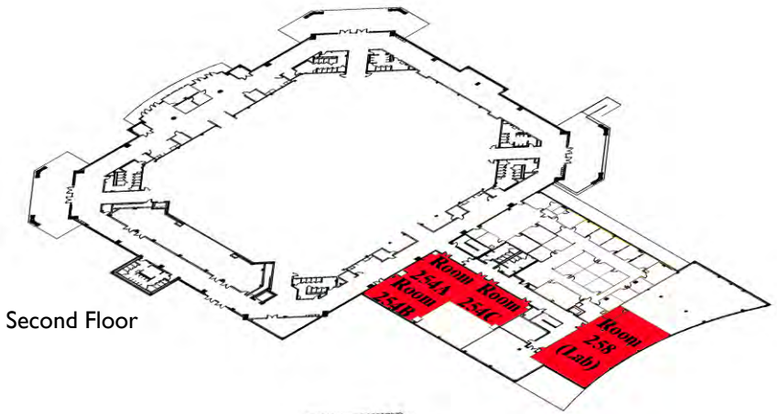


Second Floor

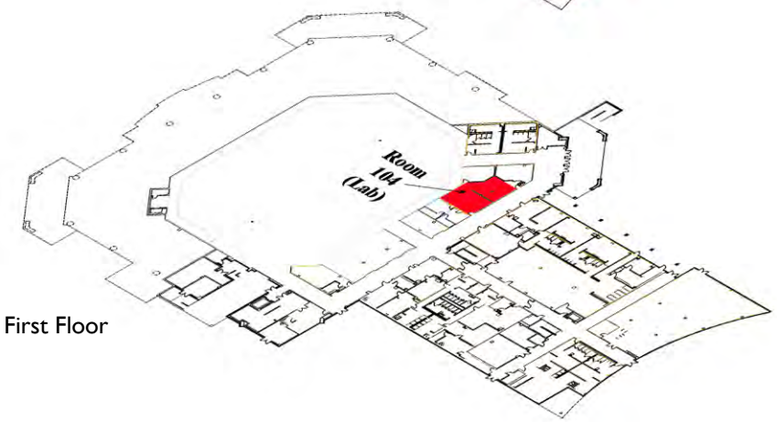
First Floor

Number of Classrooms: 16
Number of Class Labs: 2
Average Classroom Utilization: 28 hours (69%)
Average Class Lab Utilization: 28 hours (69%)

Junell Center/Stephens Arena



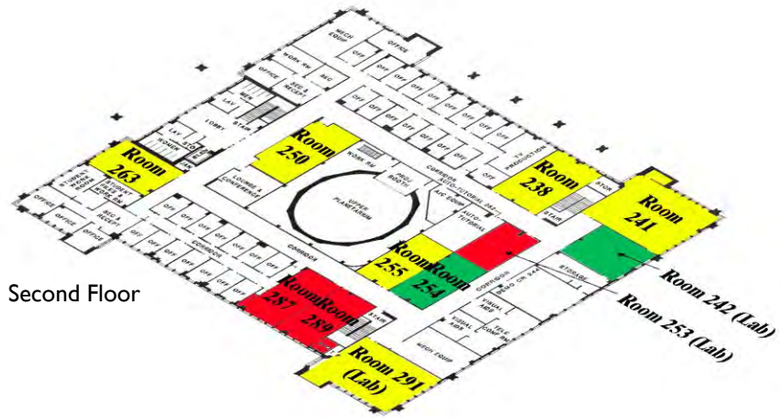
Second Floor



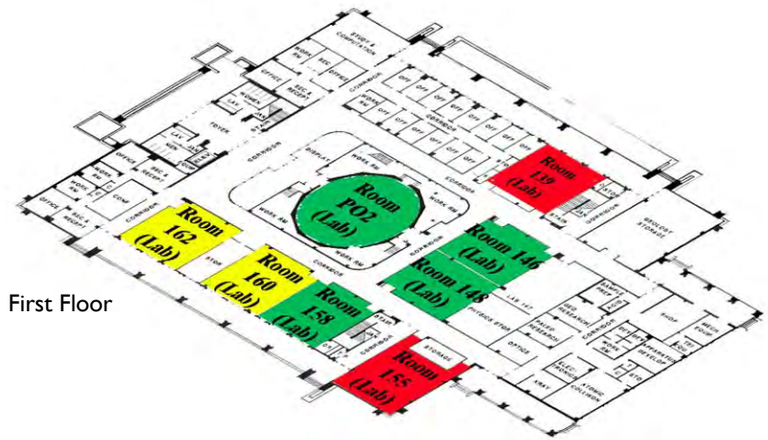
First Floor

Number of Classrooms: 3
Number of Class Labs: 2
Average Classroom Utilization: 14 hours (36%)
Average Class Lab Utilization: 6 hours (14%)

Vincent Nursing-Physical Science Building



Second Floor



First Floor

Number of Classrooms: 8
Number of Class Labs: 11
Average Classroom Utilization: 30 hours (76%)
Average Class Lab Utilization: 23 hours (57%)

Occupancy

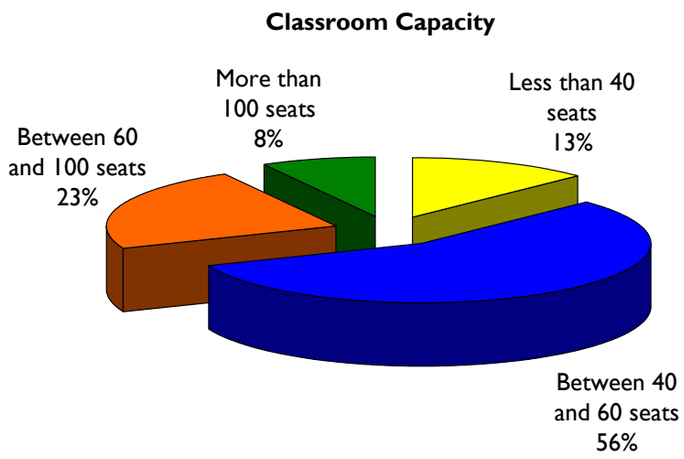
Classroom Occupancy

Classroom occupancy indicates whether a classroom is congested or not for the size of sections held in the classroom. Different from classroom utilization, occupancy cannot be fully controlled by the university to improve the percentage since it depends on the number of students enrolled in the section.

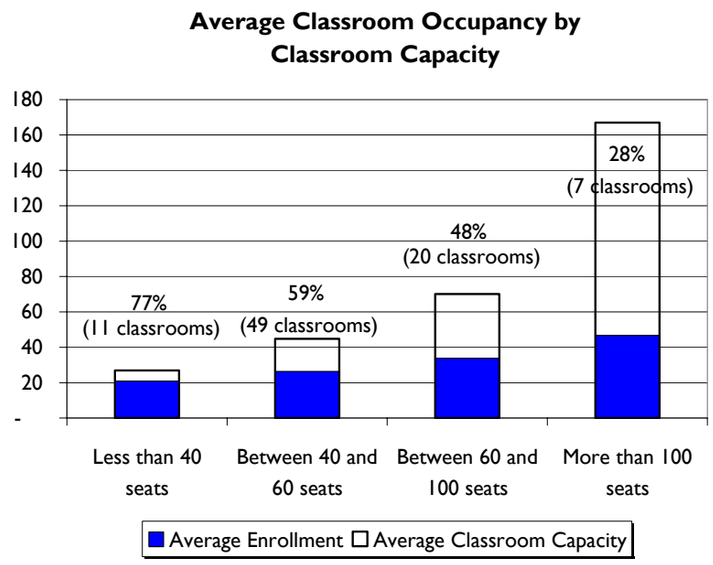
Average classroom capacity is 58. More than 50% of classrooms have capacity ranging 40 to 60 seats. One out of four classrooms seats more than 60 and 8% of classrooms even seat more than 100. The largest classroom is MCS 100, which has a capacity of 300.

Average occupancy is 77% for the class capacity less than 40 seats, 59% for the class capacity between 40 and 60 seats, 48% for between 60 and 100 seats and 28% for more than 100 seats. These average occupancies indicate that classrooms with smaller seating capacity are constantly congested while the larger classroom are, the less congested.

The university has three classrooms which have average occupancies exceeding 100%. Eighteen percent of classrooms are used for sections that have more enrollment than the capacity. The classroom occupancy graph on the following page presents average occupancy by room. It shows 16 classrooms that have an average occupancy of higher than 75%, while 33 classrooms have less than 50%.



Source: Fall 2004 class schedule and enrollment



Source: Fall 2004 class schedule and enrollment

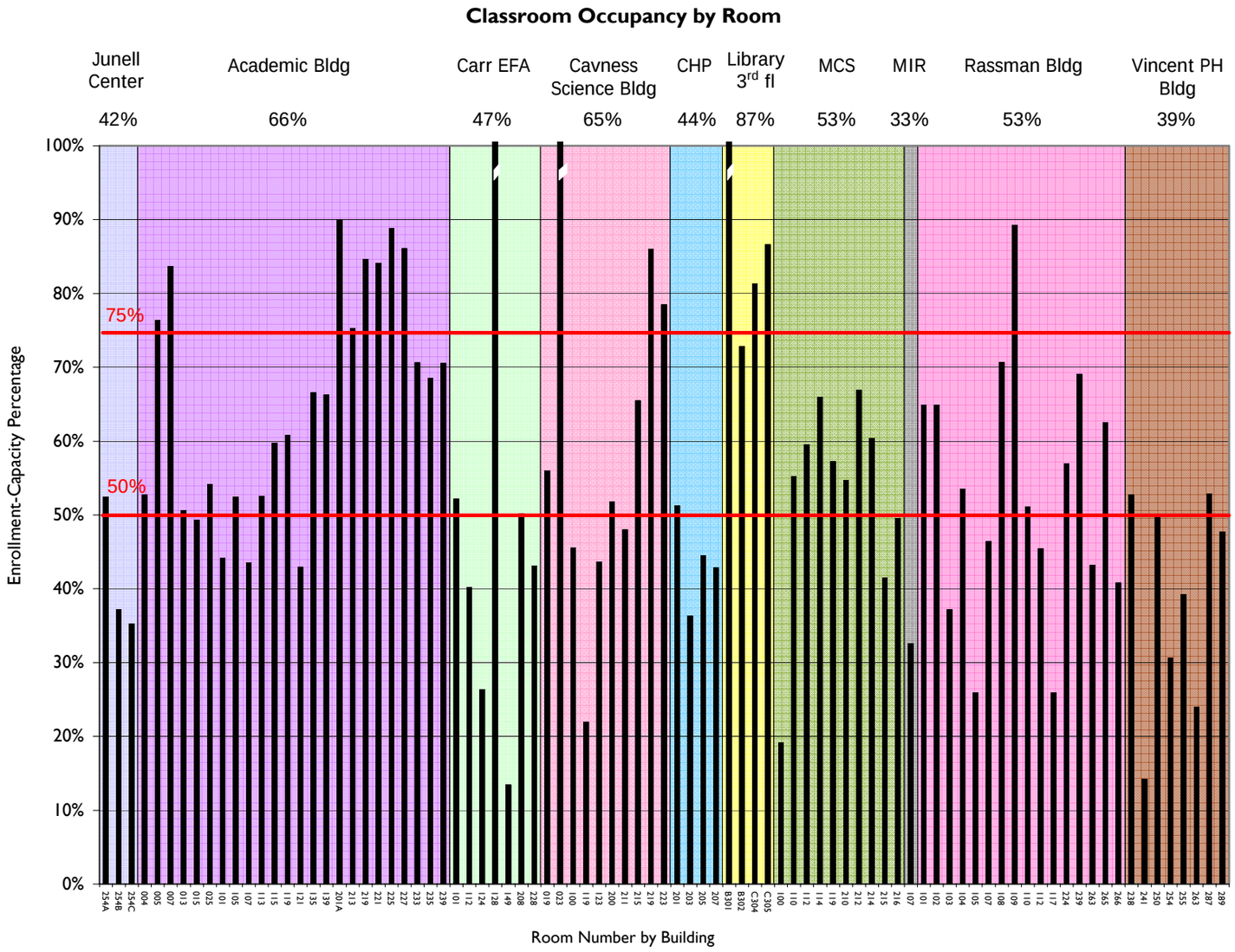
Based on the 2004 fall enrollment, the following buildings have under-sized classrooms:

- Academic Building – Second Floor
- Cavness Science Building – Second Floor
- Library – Third Floor

On the other hand, most buildings have over-sized classrooms.

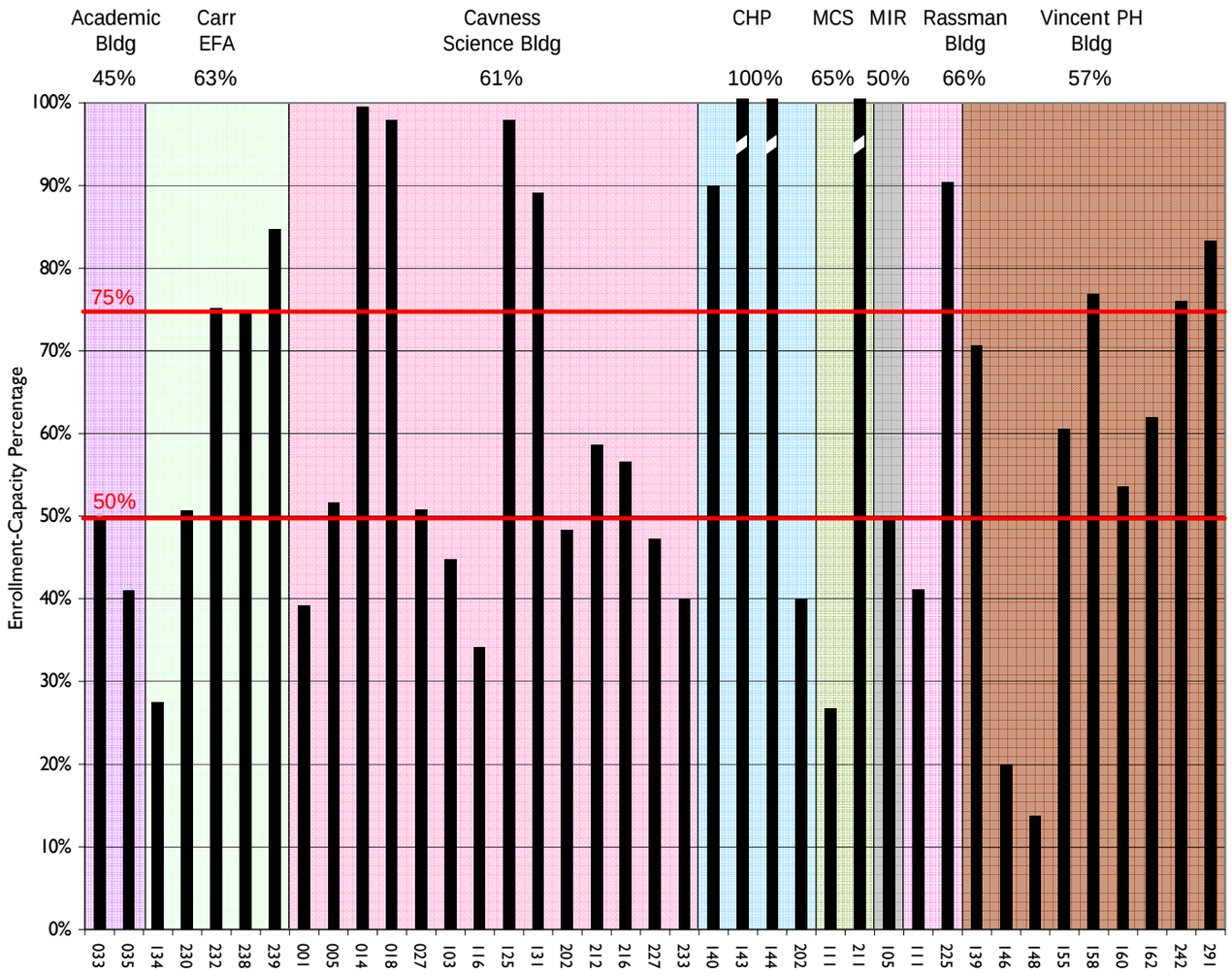
Class Lab Occupancy

Average class lab capacity is 32. Average occupancy is 64%. Fourteen class labs out of 40 have 75% or higher occupancy while 14 labs have 50% or less occupancy. Center for Human Performance has two labs with more than 100%. Caveness Science Building has an uneven distribution of occupancy among labs as it has four labs with 90% of occupancy while 6 have less than 50%. Two labs in the Academic Building have 50% or less occupancy.



Source: Fall 2004 class schedule and enrollment
Note: The occupancy is calculated by dividing the number of enrollment in a section over the classroom seating capacity. The classroom occupancy is the average of all sections held in the classroom. Sections that were not assigned to classrooms at the beginning of the semester are not included.

Class Lab Occupancy by Room



Source: Fall 2004 class schedule and enrollment
Note: The occupancy is calculated by dividing the number of enrollment in a section over the class lab seating capacity. The class lab occupancy is the average of all sections held in the lab. Sections that were not assigned to labs at the beginning of the semester are not included.

Classroom & Class Lab Occupancy Map

The following maps show occupancy for individual classrooms and class labs, which are colored and divided into three categories: high, fair and low occupancy. Class labs, noted on the map, include science labs, computer labs, art studios, music studios, dance studios, a gymnasium and other non-classrooms used for scheduled instructions. The three categories are defined as follows. The occupancy is calculated by dividing the average number of enrollments per section over the seating capacity of the room.

Classroom & Class Lab Occupancy Legend

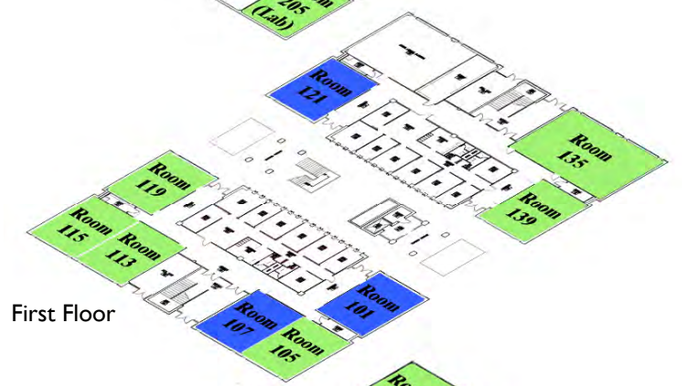
High Occupancy
More than 75% of room capacity

Fair Occupancy
50% to 75% of room capacity

Low Occupancy
Less than 50% of room capacity

Academic Building

Second Floor

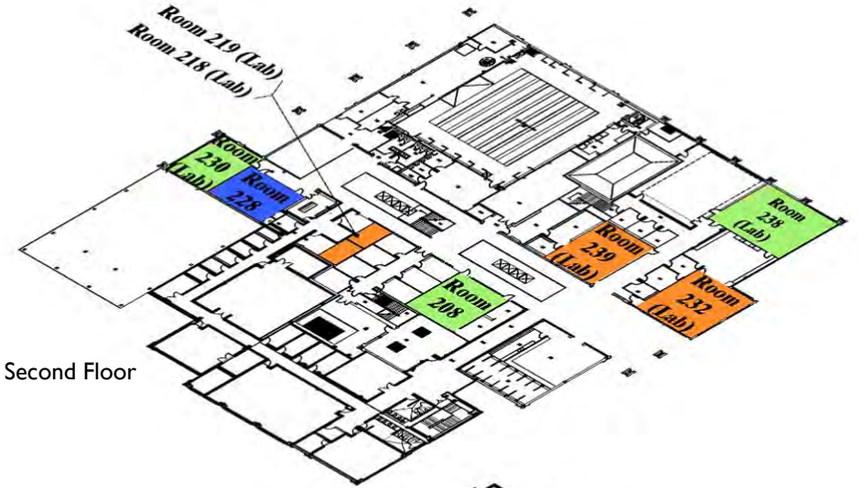


First Floor

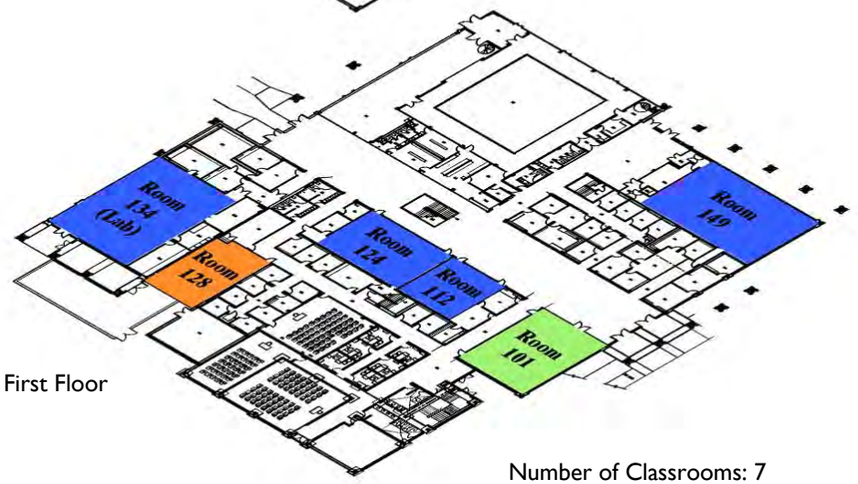
Ground Level

Number of Classrooms: 23
Number of Class Labs: 4
Average Classroom Occupancy: 66%
(Average Enrollment/Capacity: 31/47)
Average Class Lab Occupancy: 53%
(Average Enrollment/Capacity: 23/43)

Carr Education-Fine Arts Building



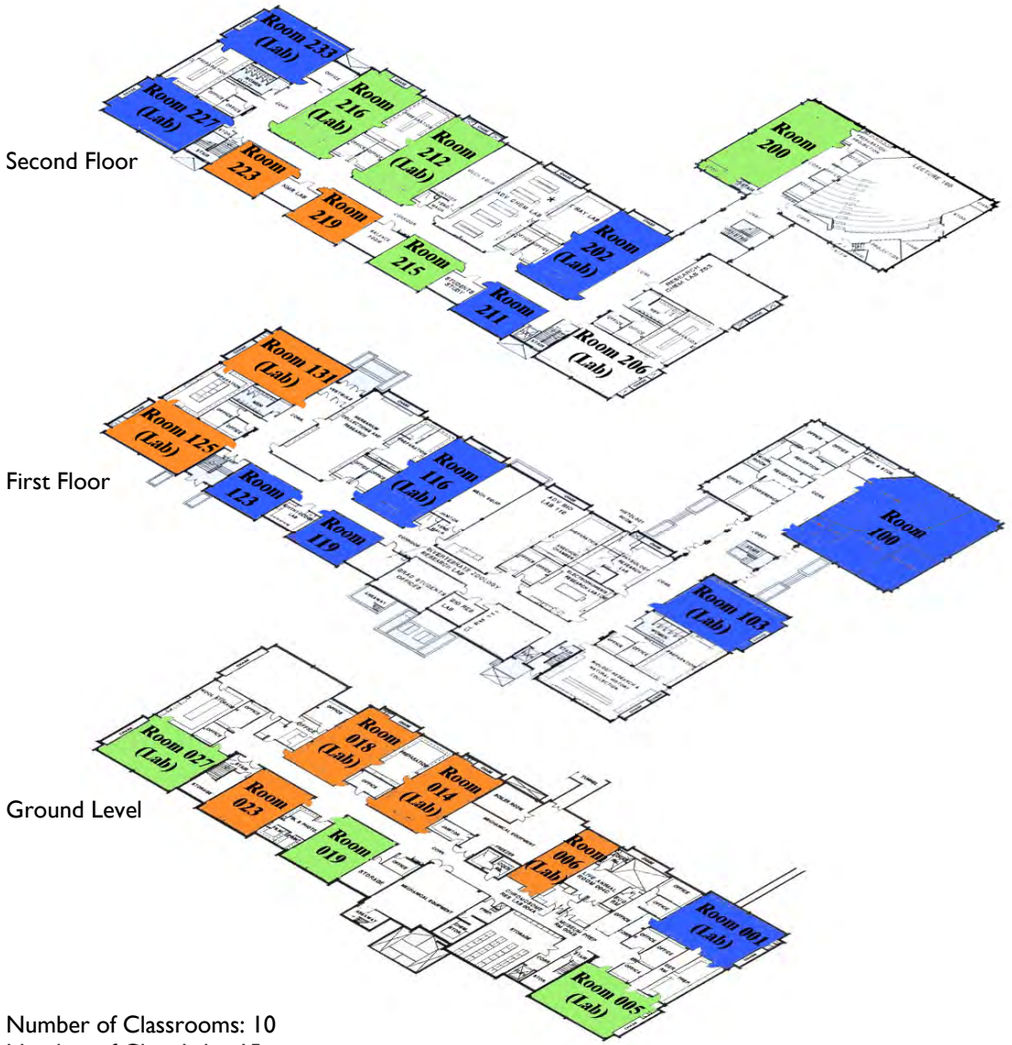
Second Floor



First Floor

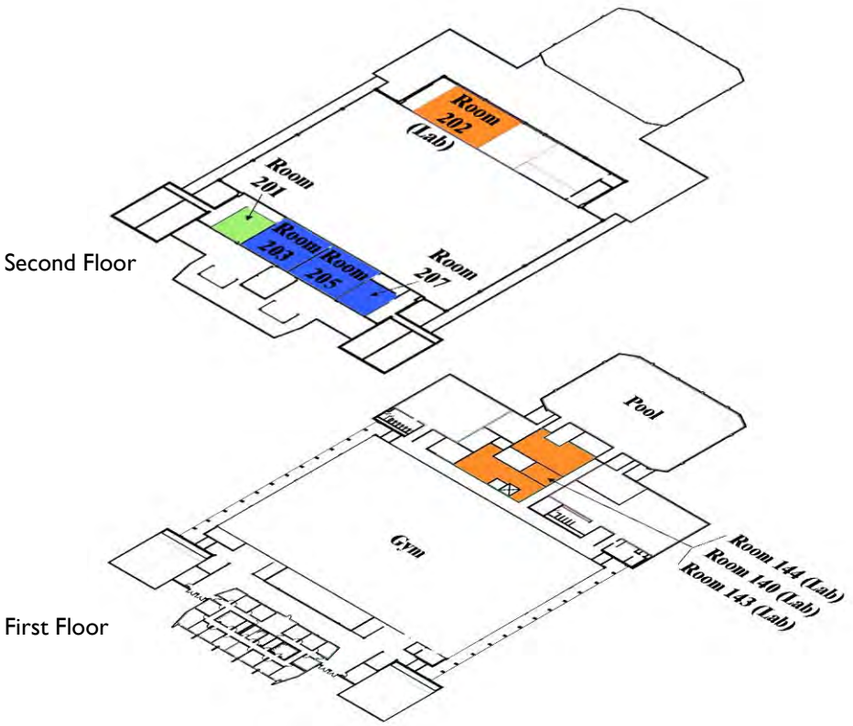
Number of Classrooms: 7
Number of Class Labs: 5
Average Classroom Occupancy: 47%
(Average Enrollment/Capacity: 41/87)
Average Class Lab Occupancy: 63%
(Average Enrollment/Capacity: 30/47)

Cavness Science Building



Number of Classrooms: 10
Number of Class Labs: 15
Average Classroom Occupancy: 65% (Average Enrollment/Capacity: 42/65)
Average Class Lab Occupancy: 63% (Average Enrollment/Capacity: 17/27)

Center for Human Performance

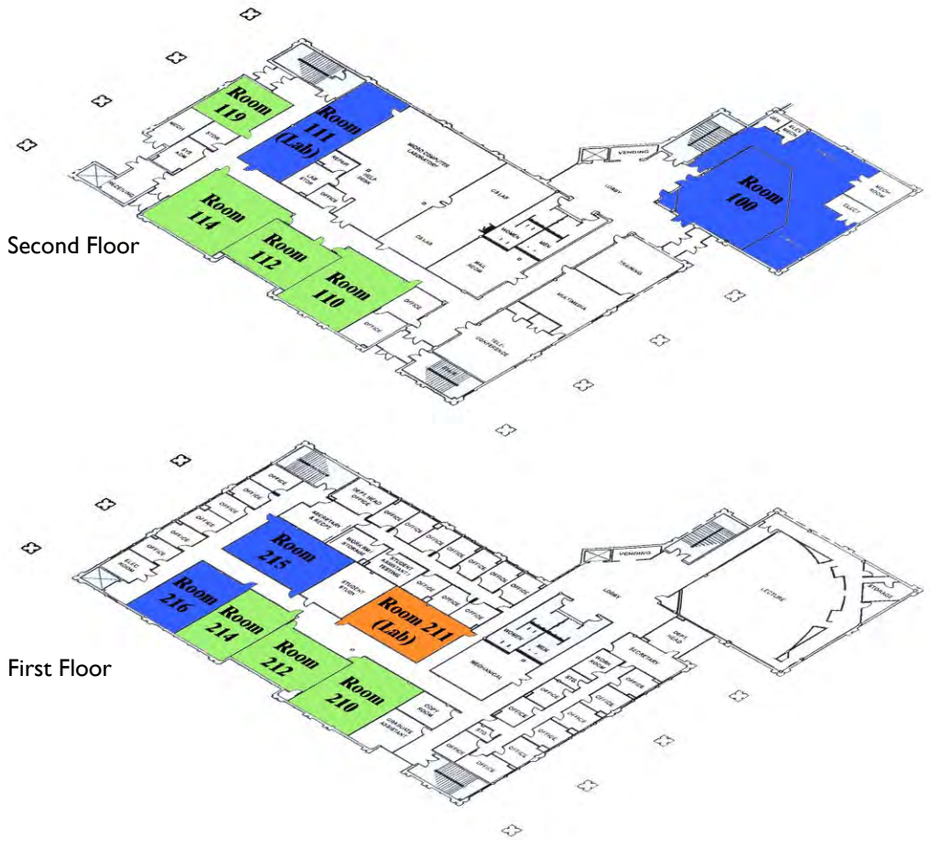


Number of Classrooms: 4
Number of Class Labs: 4
Average Classroom Occupancy: 44% (Average Enrollment/Capacity: 29/66)
Average Class Lab Occupancy: 100% (Average Enrollment/Capacity: 18/18)

Porter Henderson Library

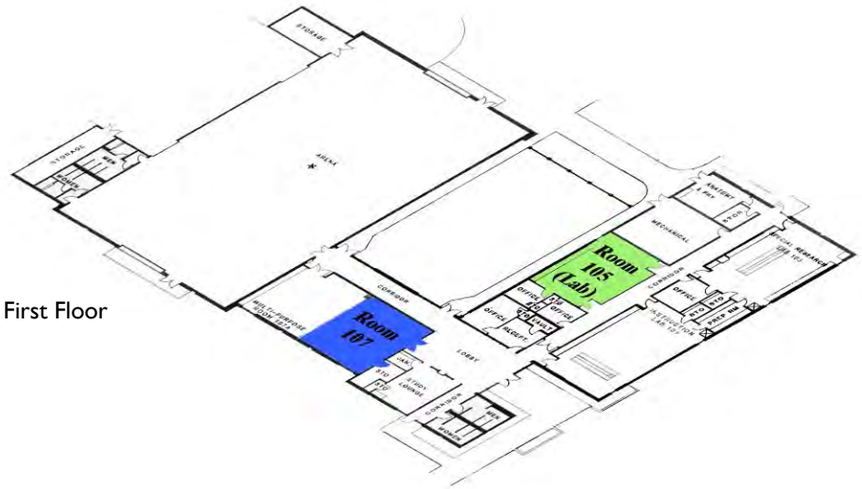
Number of Classrooms: 4
Number of Class Labs: 2
Average Classroom Occupancy: 87% (Average Enrollment/Capacity: 23/27)
Average Class Lab Occupancy: 58% (Average Enrollment/Capacity: 13/23)

Mathematics – Computer Science Building



Number of Classrooms: 10
Number of Class Labs: 2
Average Classroom Occupancy: 53% (Average Enrollment/Capacity: 40/75)
Average Class Lab Occupancy: 65% (Average Enrollment/Capacity: 25/38)

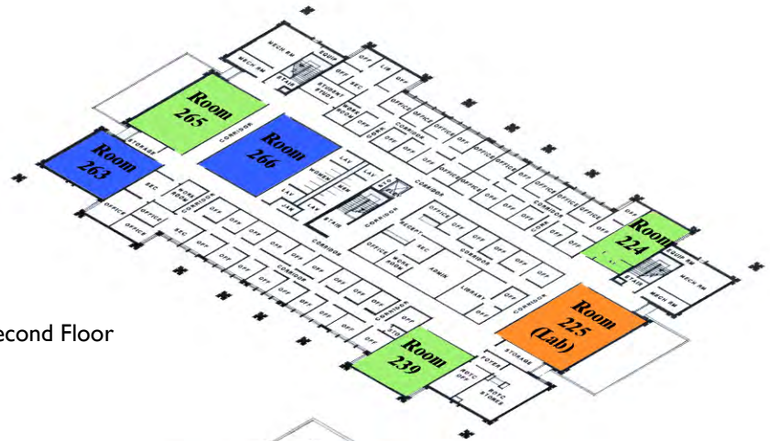
Management, Instruction and Research Center



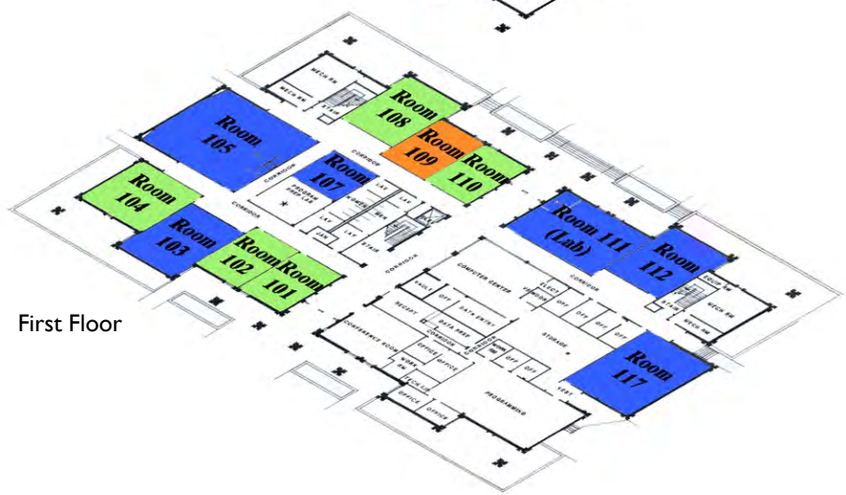
First Floor

Number of Classrooms: 1
Number of Class Labs: 1
Average Classroom Occupancy: 33% (Average Enrollment/Capacity: 17/50)
Average Class Lab Occupancy: 50% (Average Enrollment/Capacity: 12/24)

Rassman Building



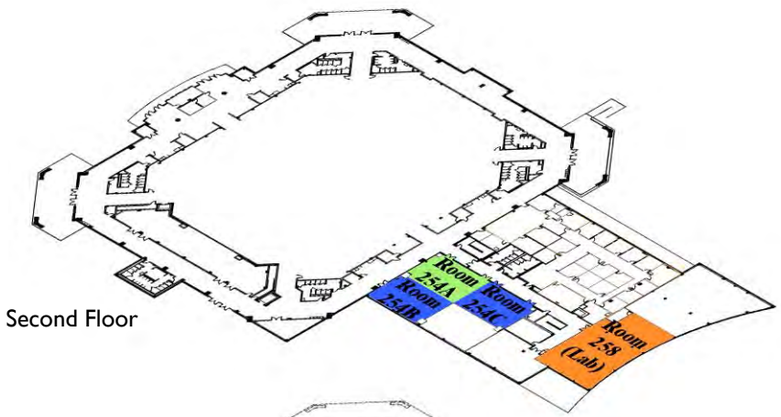
Second Floor



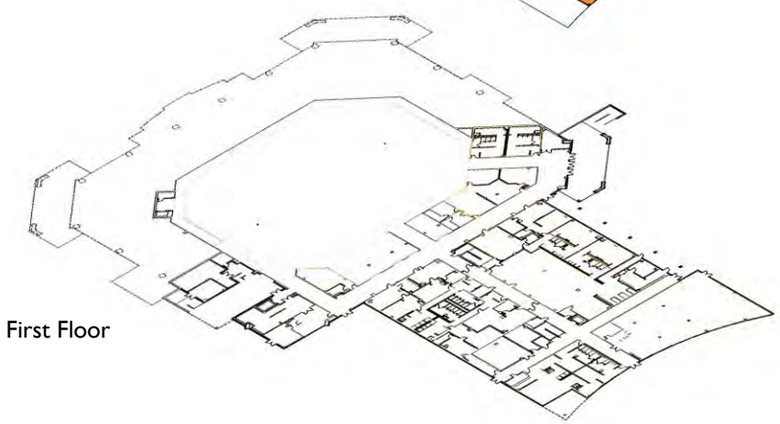
First Floor

Number of Classrooms: 16
Number of Class Labs: 2
Average Classroom Occupancy: 53% (Average Enrollment/Capacity: 30/57)
Average Class Lab Occupancy: 66% (Average Enrollment/Capacity: 30/45)

Junell Center/Stephens Arena



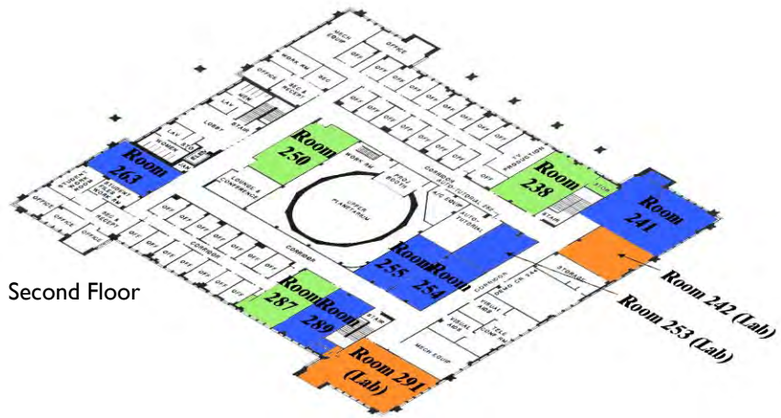
Second Floor



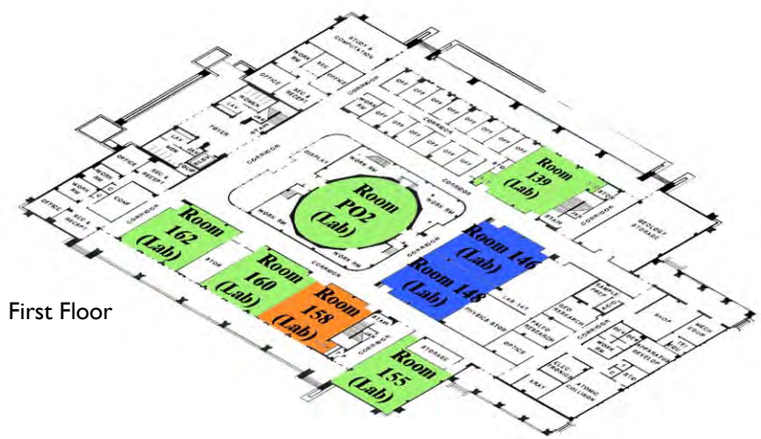
First Floor

Number of Classrooms: 3
Number of Class Labs: 1
Average Classroom Occupancy: 42% (Average Enrollment/Capacity: 25/60)
Average Class Lab Occupancy: 79% (Average Enrollment/Capacity: 28/35)

Vincent Nursing-Physical Science Building



Second Floor



First Floor

Number of Classrooms: 8
Number of Class Labs: 11
Average Classroom Occupancy: 39% (Average Enrollment/Capacity: 20/52)
Average Class Lab Occupancy: 55% (Average Enrollment/Capacity: 20/37)

Department Mix in Classroom Use

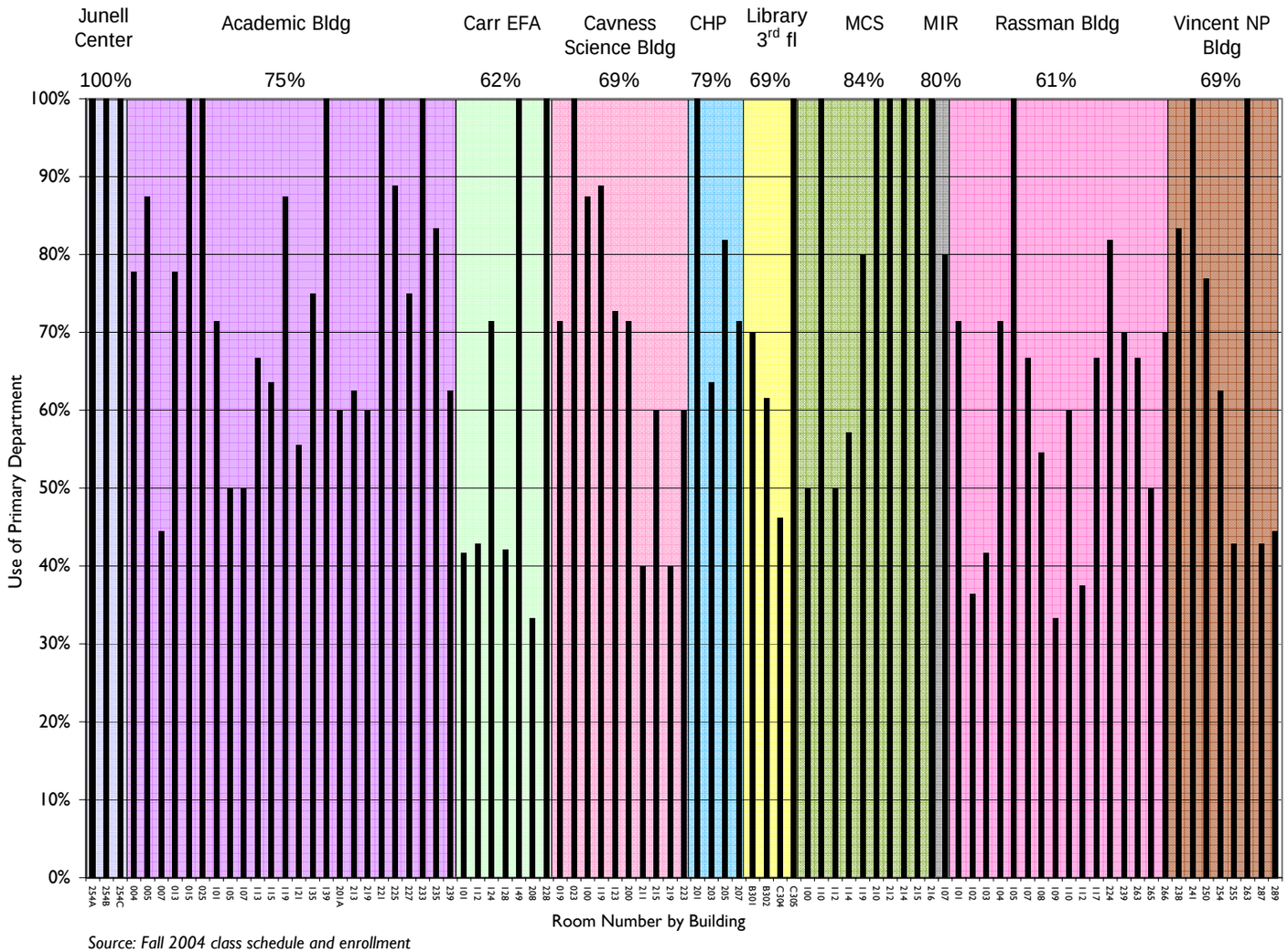
Department mix in classroom use indicates how flexibly classrooms are used among different departments. When classrooms are mix used, the use of classrooms are typically more efficient. When a classroom is used by a certain department only, it indicates that the department has a "sense of ownership" to the classroom. The sense of ownership helps create a department identity. In terms of classroom utilization, however, it prevents from flexible and efficient use of classrooms.

The university currently has a "first call" system for classroom assignment. This allows an assigned department to reserve the classroom first and, then, the remaining open hours of the classroom becomes available to other departments.

Based on the 2004 fall enrollment, 25% of classrooms are used by a single department. More than 50% of classrooms are primarily used by a single department. The primary user is defined as a department that offers more than 50% of sections taught in the classroom.

The university historically uses the same classrooms for the same course and section. This issue was discussed several times during the planning meeting. A different mechanism to assign classrooms could help more flexible classroom use.

Percentage of Classroom Use of Primary Department by Room



Source: Fall 2004 class schedule and enrollment
Note: Primary users are the departments with the most classroom hours. Sections that were not assigned to classrooms at the beginning of the semester are not included.

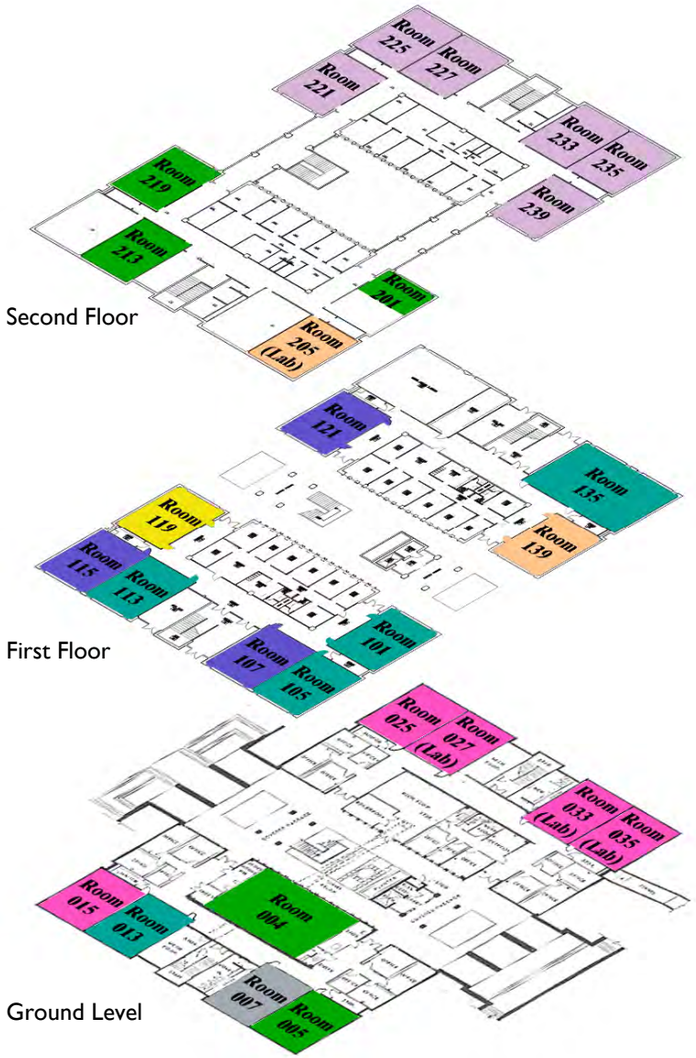
Classroom & Class Lab Primary User Map

The following maps show primary users of individual classrooms and class labs. Maps are colored by primary user. If no departments use a classroom more than 50%, the space is colored as a general classroom. Class labs, noted on the map, include science labs, computer labs, art studios, music studios, dance studios, a gymnasium and other non-classrooms used for scheduled instructions.

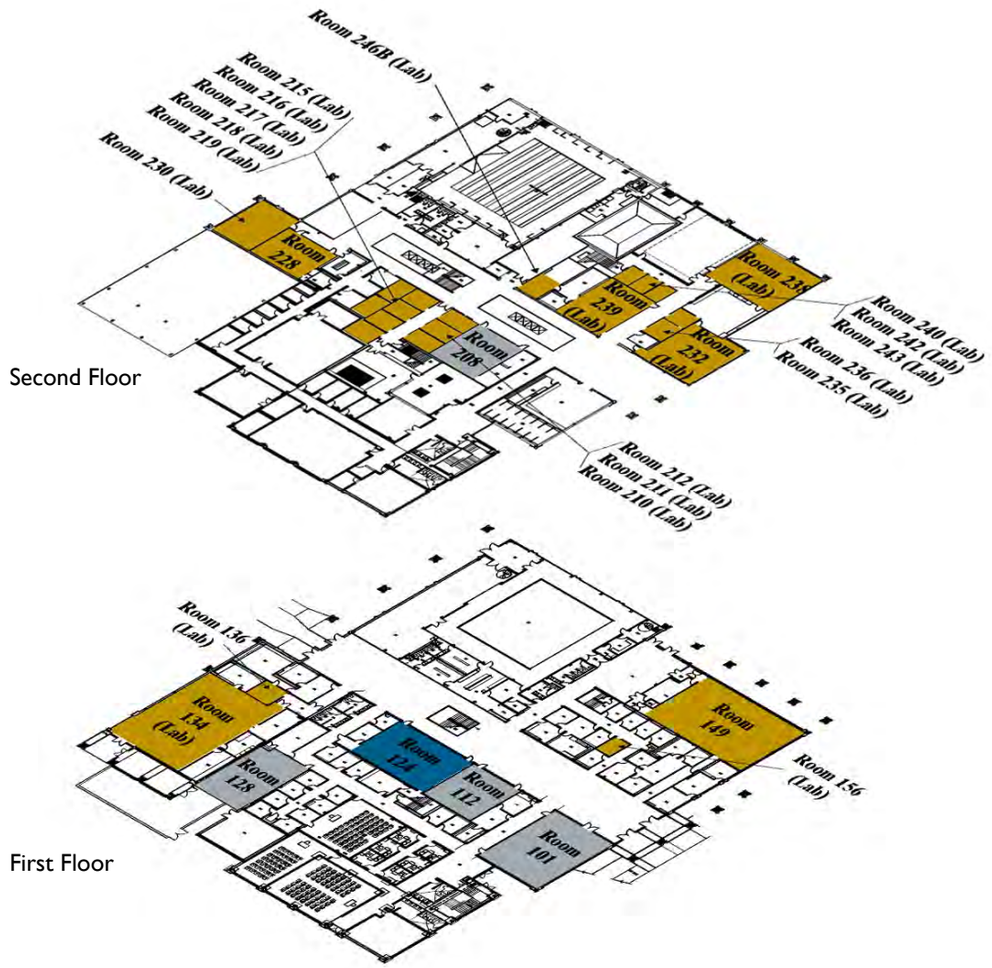
The most important information conveyed in these maps is that the majority of the classrooms are color-coded as academic department, not as general classroom. This shows that departments have a sense of ownership to many classrooms, preventing flexible use of classrooms.

Classroom Primary User Color Legend

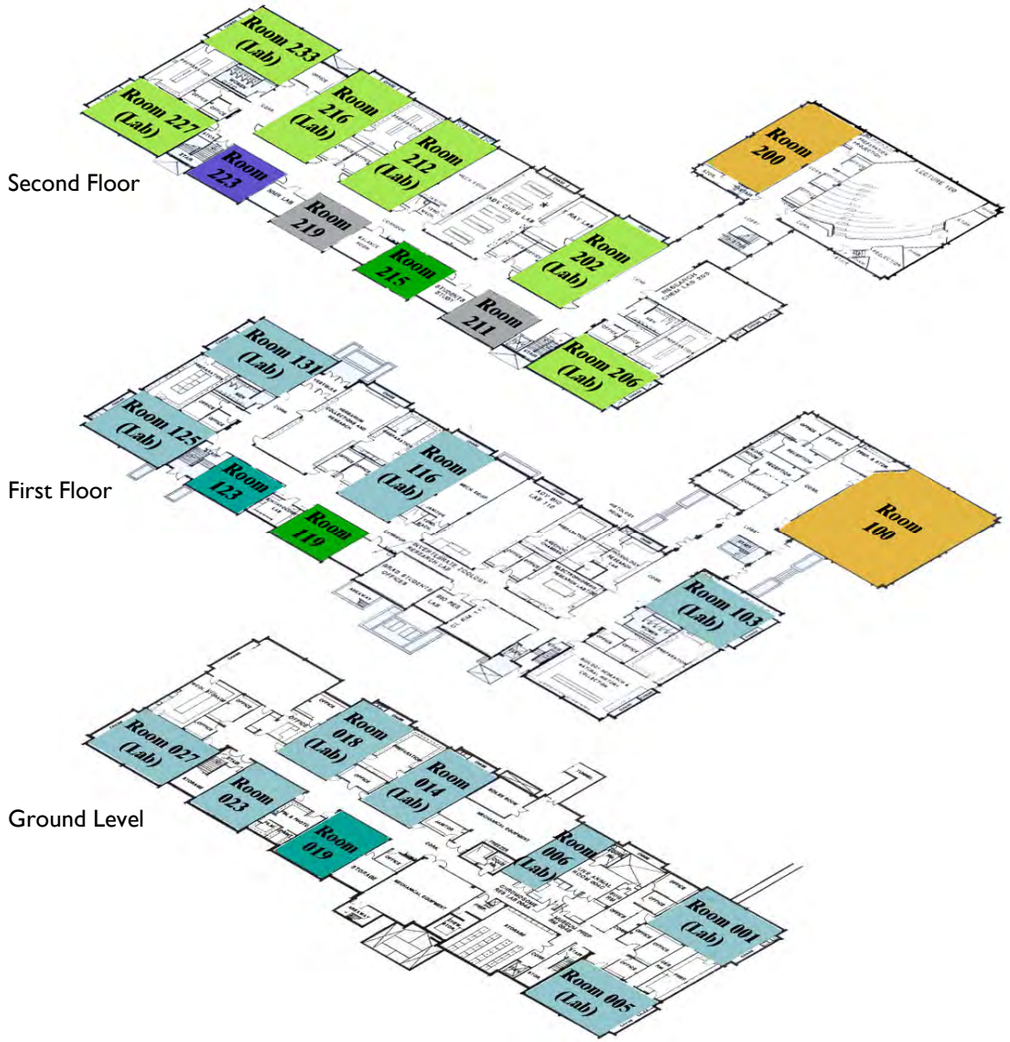
Academic Building



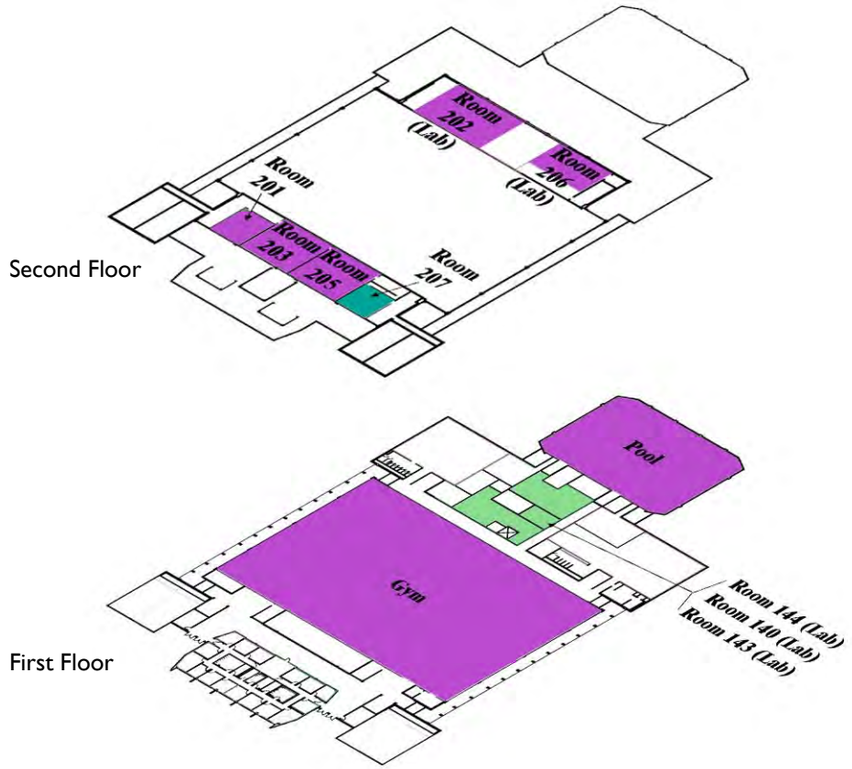
Carr Education-Fine Arts Building



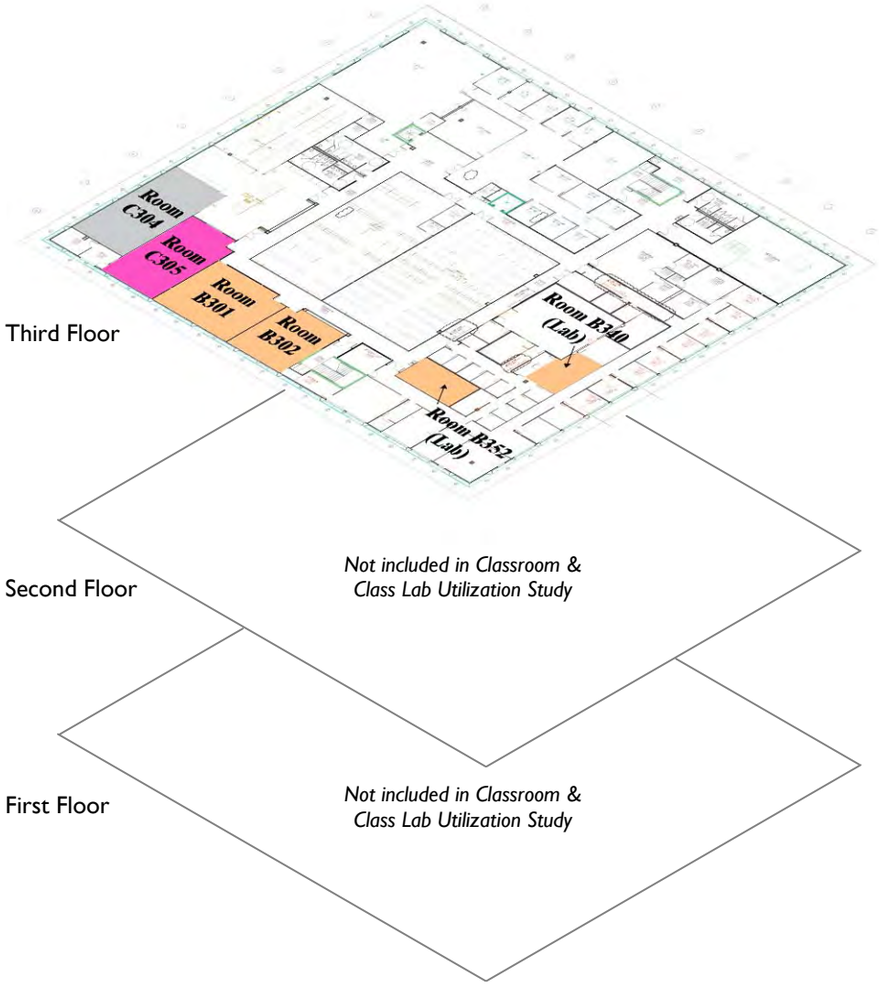
Cavness Science Building



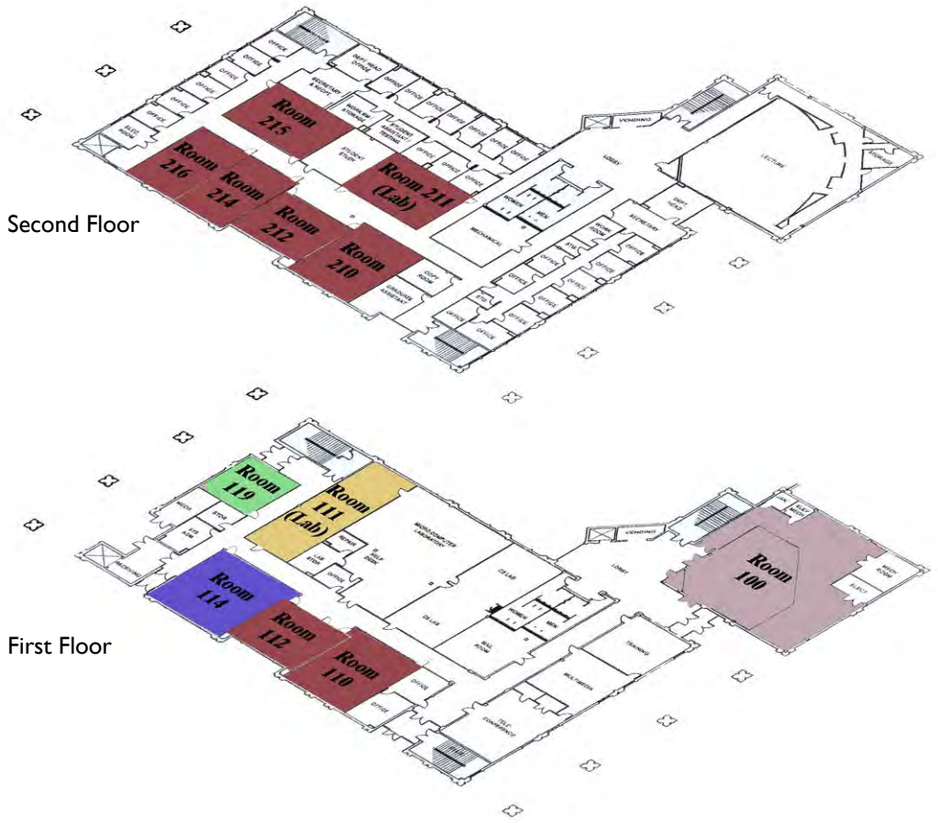
Center for Human Performance



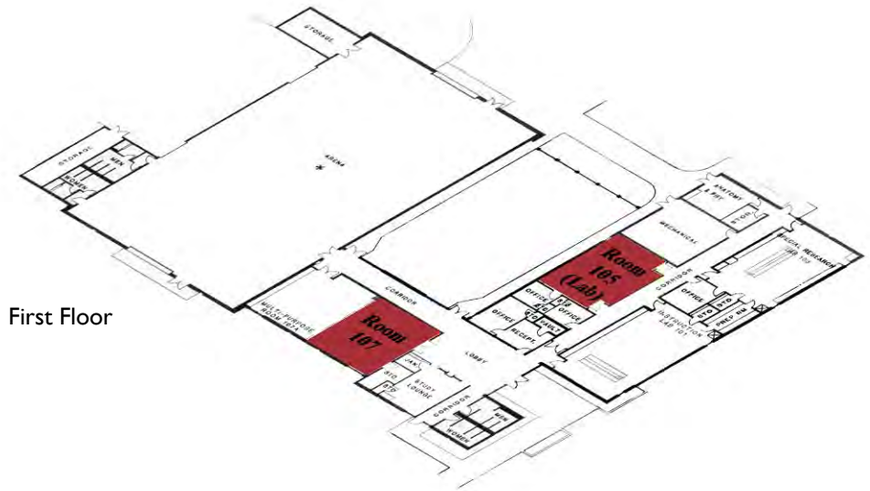
Porter Henderson Library



Mathematics – Computer Science Building

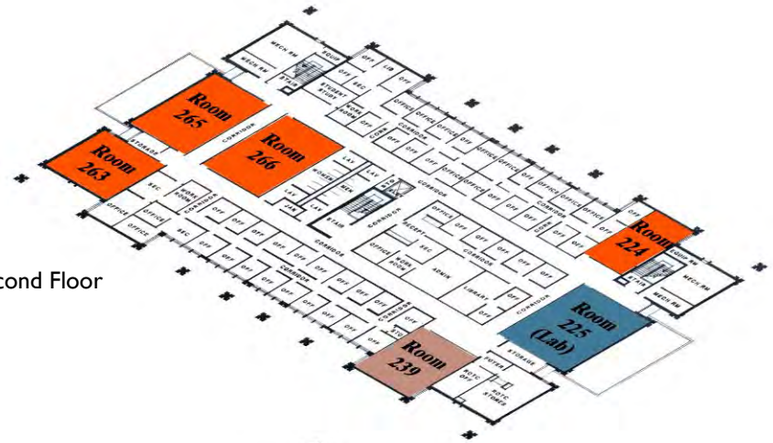


Management, Instruction and Research Center

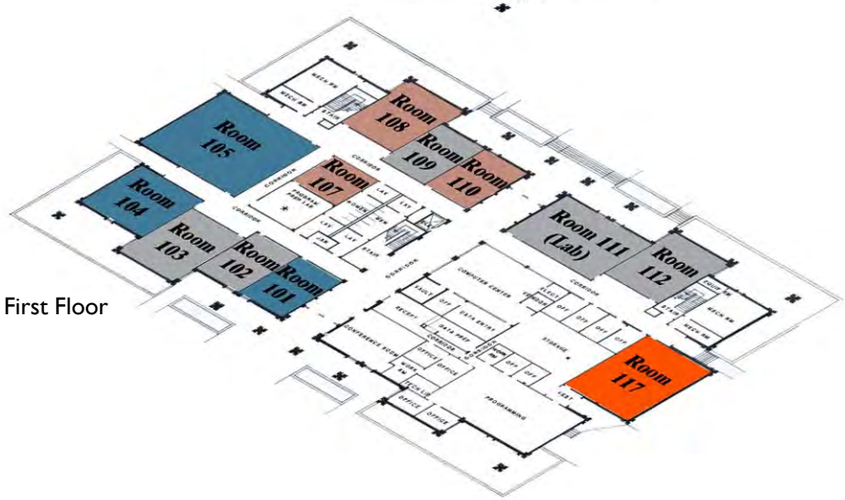


First Floor

Rassman Building

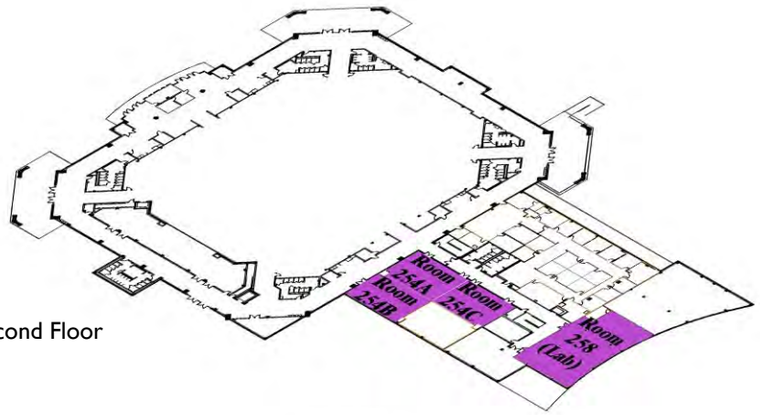


Second Floor



First Floor

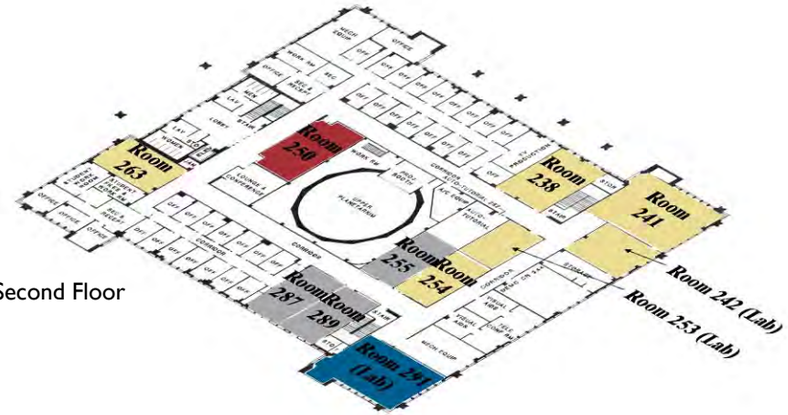
Junell Center/Stephens Arena



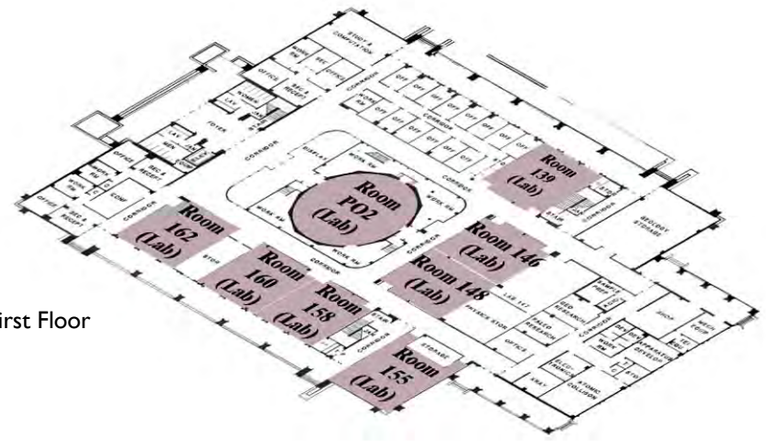
Second Floor

First Floor

Vincent Nursing-Physical Science Building



Second Floor



First Floor

Space Projection

The Texas Higher Education Coordinating Board (THECB) developed a space planning tool for higher educational institutions. The space planning model is designed to predict necessary campus wide space based on the number of full-time student equivalent (FTSE) and other parameters. The space projection is calculated by five factors: teaching, library, research, office and support spaces. The space planning model used in this study is documented in a THECB publication, "Space Projection Model for Public Universities, Technical Colleges, and Lamar State Colleges and Health Related Institutions – Fall 2002."

According to the most current THECB projection based on fall 2004 information, the university has approximately 17,000 assignable square feet (ASF) in surplus as a total, which includes approximately 16,000 ASF surplus in Teaching Space. This space projection indicates the university has an adequate amount of space to meet their academic missions.

For the purpose of discussion, the surplus Teaching Space, 16,000 ASF, can be reverse calculated to 350 FTSE based on typical undergraduate academic teaching space of 45 ASF per FTSE (Program Area 4) or 300 FTSE based on the university average unit area of 53 ASF per FTSE. This can be converted to be approximately 440 or 380 student headcount respectively. It means that current teaching facilities can accommodate an additional 380 to 440 students without any changes in schedules and facilities.

Space Projection

	Existing Space (ASF)	Projected Space (ASF)
Teaching Space	288,000	272,000
Library Space	85,000	81,000
Research Space	13,000	15,000
Office Space	124,000	134,000
Support Space	50,000	45,000
Sub-Total	**560,000**	**549,000**
Approved but Not On Line	6,000	N/A
Total	**566,000**	**549,000**
Adjusted Surplus/Deficit		**17,000**

Source: Texas Higher Education Coordinating Board Fall 2004 Space Projection

Conclusion

The university overall has a relatively appropriate amount of space allocated for academic instruction such as classrooms, class labs, etc. According to the Texas Higher Education Coordinating Board (THECB) space projection model, current teaching spaces are slightly more than model projection. It indicates that the issues in the teaching space are not in the space deficiency, but in the lack of appropriate size and distribution of individual classrooms. Beyond physical issues, human factors and perceptions are also important elements to determine space utilization. Many classrooms seem to have sense of ownership to certain departments. This perception prevents flexible use of classrooms among different departments and classroom needs. With all these issues, consequently, the classroom utilization becomes low.

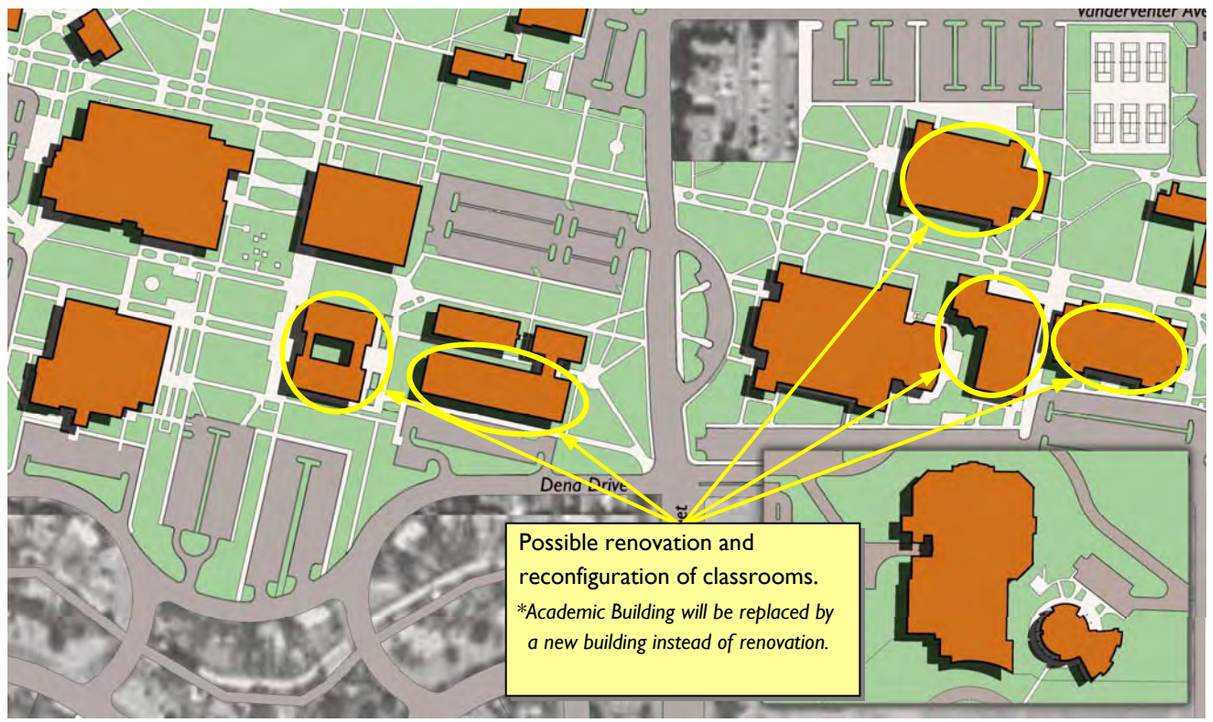
A recommendation to improve the classroom utilization is to renovate classrooms to appropriate numbers and sizes. Classrooms in the Cavness Science Building have higher occupancy indicating the need for larger classrooms. On the other hand, Math-Computer Science Building, Rassman Business-Computer Science Building and Vincent Nursing-Physical Science Building have lower occupancies and have opportunities for smaller classrooms. Classroom utilizations are generally low in these buildings indicating they have too many classrooms.

If the enrollment remains as current, the total amount of teaching space should be reduced by 5% based on THECB space model. By keeping this amount of surplus space, the university has approximately an additional 300 to 400 student capacity for future growth.

Currently Cavness Science, Math-Computer Science, Rassman Business-Computer Science and Vincent Nursing-Physical Science Building have a total of 45 classrooms. The Academic Building has 24 classrooms. If classrooms in these four buildings are reduced by 14 and the Academic Building is replaced by a new academic building with 10 classrooms less, the total number of classrooms on campus will be 24 less than existing. This will yield better classroom utilization.

Based on the THECB classroom utilization for fall 2004, the university has 94 classrooms and a 23.7 average weekly hours of use (AWHU), and is ranked at 31st out of 34 public institutions. If four existing buildings are renovated and the Academic Building is replaced with lesser classrooms as described above, the classroom utilization becomes 31.8 AWHU and ranks 20th.

Candidates for Renovation



Space Analysis Data

Room Info				Room Utilization					Room Ownership		Room Occupancy						
Building	Room No.	Room Area (ASF)	Room Capacity	No. of Sections	Weekly Hours	Classroom Utilization (40 hrs/week)	Class Lab Utilization (40 hrs/week)	Other Utilization (40 hrs/week)	Primary Dept**	Primary Dept Usage	Total Enrollment	Max. Enrollment Per Section	Average Enrollment Per Section	Max. Classroom Occupancy	Average Classroom Occupancy	Max. Class Lab Occupancy	Average Class Lab Occupancy
Academic Building	004	1,941	121	9	27.0	68%			Psychology & Sociology	78%	574	79	64	65%	53%		
	005	750	45	8	20.0	50%			Psychology & Sociology	88%	275	50	34	111%	76%		
	007	750	45	9	27.0	68%			Classroom	44%	339	50	38	111%	84%		
	013	750	45	9	26.4	66%			University Studies	78%	205	37	23	82%	51%		
	015	750	45	10	30.4	76%			English	100%	222	27	22	60%	49%		
	025	734	45	8	24.0	60%			English	100%	195	25	24	56%	54%		
	027	722	45	9	27.8		70%		English	100%	257	39	29			87%	63%
	033	739	45	11	33.0		83%		English	91%	246	25	22			56%	50%
	035	715	45	11	33.0		83%		English	100%	203	24	18			53%	41%
	100	-	-	1	1.5			4%	English	100%	83	83	83				
	101	745	45	7	18.5	46%			University Studies	71%	139	25	20	56%	44%		
	105	750	45	10	26.0	65%			University Studies	50%	236	39	24	87%	52%		
	107	750	45	10	30.6	77%			Modern Languages	50%	196	39	20	87%	44%		
	113	750	45	12	35.5	89%			University Studies	67%	284	51	24	113%	53%		
	115	750	45	11	33.0	83%			Modern Languages	64%	296	39	27	87%	60%		
	119	750	45	8	24.0	60%			Honors Program	88%	219	38	27	84%	61%		
	121	750	45	9	27.0	68%			Modern Languages	56%	174	36	19	80%	43%		
	135	1,500	40	8	23.0	58%			University Studies	75%	213	29	27	73%	67%		
	139	750	45	6	18.0	45%			Communications, Drama & Journalism	100%	179	31	30	69%	66%		
	201A	375	12	5	19.2	48%			Psychology & Sociology	60%	54	16	11	133%	90%		
	205	2,600	36	1	3.0		8%		Communications, Drama & Journalism	100%	21	21	21			58%	58%
	213	750	45	16	49.6	124%			Psychology & Sociology	63%	542	51	34	113%	75%		
	219	750	45	10	30.4	76%			Psychology & Sociology	60%	381	57	38	127%	85%		
	221	750	45	7	21.0	53%			History	100%	265	45	38	100%	84%		
	225	750	45	9	27.0	68%			History	89%	360	45	40	100%	89%		
	227	750	45	8	24.0	60%			History	75%	310	48	39	107%	86%		
	233	750	45	5	15.0	38%			History	100%	159	42	32	93%	71%		
	235	750	45	6	17.0	43%			History	83%	185	47	31	104%	69%		
	239	750	45	8	24.0	60%			History	63%	254	44	32	98%	71%		
Carr Education - Fine Arts Building	101	1,808	96	12	31.2	78%			Classroom	42%	601	95	50	99%	52%		
	112	954	54	7	22.0	55%			Classroom	43%	152	30	22	56%	40%		
	124	1,557	121	14	31.2	78%			Education	71%	447	53	32	44%	26%		
	128	1,057	30	19	49.8	125%			Classroom	42%	605	56	32	187%	106%		
	134	2,866	150	6	16.6		42%		Art & Music	100%	248	88	41			59%	28%
	136	185	-	1	-			0%	Art & Music	100%	2	2	2				
	149	1,977	190	11	27.0	68%			Art & Music	100%	281	60	26	32%	13%		
	156	-	-	1	-			0%	Art & Music	100%	4	4	4				
	208	1,059	66	9	26.6	67%			Classroom	33%	298	49	33	74%	50%		
	210	178	-	2	-			0%	Art & Music	100%	9	5	5				
	211	160	-	3	-			0%	Art & Music	100%	12	7	4				
	212	157	-	2	-			0%	Art & Music	100%	18	14	9				
	214	168	-	4	-			0%	Art & Music	100%	26	10	7				
	215	162	-	2	-			0%	Art & Music	100%	2	1	1				
	216	155	-	3	-			0%	Art & Music	100%	20	8	7				
	217	162	-	2	-			0%	Art & Music	100%	14	11	7				
	218	155	1	3	-			0%	Art & Music	100%	26	22	9				
	219	155	1	4	-			0%	Art & Music	100%	18	8	5				
	228	820	50	9	24.2	61%			Art & Music	100%	194	44	22	88%	43%		
	230	771	24	6	15.8		40%		Art & Music	67%	73	29	12			121%	51%
	232	1,213	25	5	22.2		56%		Art & Music	100%	94	22	19			88%	75%
	235	169	-	1	-			0%	Art & Music	100%	3	3	3				
	236	129	-	1	-			0%	Art & Music	100%	2	2	2				

Room Info				Room Utilization					Room Ownership		Room Occupancy						
Building	Room No.	Room Area (ASF)	Room Capacity	No. of Sections	Weekly Hours	Classroom Utilization (40 hrs/week)	Class Lab Utilization (40 hrs/week)	Other Utilization (40 hrs/week)	Primary Dept**	Primary Dept Usage	Total Enrollment	Max. Enrollment Per Section	Average Enrollment Per Section	Max. Classroom Occupancy	Average Classroom Occupancy	Max. Class Lab Occupancy	Average Class Lab Occupancy
Carr Education - Fine Arts Building	238	1,289	20	6	32.7		82%		Art & Music	100%	90	20	15			100%	75%
	239	976	15	7	45.9		115%		Art & Music	100%	89	21	13			140%	85%
	240	114	-	1	-			0%	Art & Music	100%	5	5	5				
	242	114	-	1	-			0%	Art & Music	100%	1	1	1				
	243	114	-	6	-			0%	Art & Music	100%	29	14	5				
	246B	136	-	1	-			0%	Art & Music	100%	2	2	2				
Cavness Science Building	001	1,052	24	5	15.6		39%		Biology	100%	47	25	9			104%	39%
	005	1,043	24	5	22.6		57%		Biology	100%	62	30	12			125%	52%
	006	670	25	3	4.2		11%		Agriculture	100%	69	23	23			92%	92%
	014	1,087	24	8	15.2		38%		Biology	100%	191	25	24			104%	99%
	018	1,015	24	8	17.6		44%		Biology	100%	188	24	24			100%	98%
	019	830	50	7	19.2	48%			University Studies	71%	196	44	28	88%	56%		
	023	726	45	3	9.0	23%			Biology	100%	200	70	67	156%	148%		
	027	1,060	32	4	20.4		51%		Biology	100%	65	24	16			75%	51%
	100	2,778	233	8	24.2	61%			Nursing	88%	849	141	106	61%	46%		
	103	1,128	35	6	20.4		51%		Biology	100%	94	24	16			69%	45%
	116	1,337	24	5	15.8		40%		Biology	100%	41	24	8			100%	34%
	119	637	40	9	22.5	56%			Psychology & Sociology	89%	79	21	9	53%	22%		
	123	629	40	11	28.1	70%			University Studies	73%	192	30	17	75%	44%		
	125	1,093	24	14	46.8		117%		Biology	100%	329	25	24			104%	98%
	131	1,103	24	5	17.0		43%		Biology	100%	107	29	21			121%	89%
	200	1,333	80	7	21.6	54%			Nursing	71%	290	64	41	80%	52%		
	202	1,374	30	6	18.0		45%		Chemistry & Biochemistry	100%	87	21	15			70%	48%
	206	1,331	-	6	28.6			72%	Chemistry & Biochemistry	100%	67	23	11				
	211	628	40	5	9.5	24%			Classroom	40%	96	39	19	98%	48%		
	212	1,390	30	5	17.0		43%		Chemistry & Biochemistry	100%	88	22	18			73%	59%
	215	632	40	5	12.5	31%			Psychology & Sociology	60%	131	45	26	113%	66%		
	216	1,399	30	5	17.0		43%		Chemistry & Biochemistry	100%	85	22	17			73%	57%
	219	633	40	5	15.6	39%			Classroom	40%	172	40	34	100%	86%		
	223	610	40	5	15.0	38%			Modern Languages	60%	157	39	31	98%	79%		
	227	1,124	30	6	23.8		60%		Chemistry & Biochemistry	100%	85	23	14			77%	47%
	233	1,134	30	5	17.0		43%		Chemistry & Biochemistry	100%	60	16	12			53%	40%
Center for Human Performance	140	300	10	2	7.2		18%		Physical Therapy	100%	18	9	9			90%	90%
	143	1,092	10	2	5.4		14%		Physical Therapy	100%	26	13	13			130%	130%
	144	721	10	2	5.4		14%		Physical Therapy	100%	28	14	14			140%	140%
	201	740	45	13	41.4	104%			Kinesiology	100%	300	34	23	76%	51%		
	202	2,229	40	1	2.0		5%		Kinesiology	100%	16	16	16			40%	40%
	203	1,598	90	11	32.4	81%			Kinesiology	64%	360	60	33	67%	36%		
	205	1,594	90	11	32.8	82%			Kinesiology	82%	441	57	40	63%	45%		
	206	-	-	7	14.0			35%	Kinesiology	100%	217	34	31				
	207	636	40	7	24.2	61%			University Studies	71%	120	26	17	65%	43%		
	GYM	26,548	-	4	8.0			20%	Kinesiology	100%	125	33	31				
	HB1*	-	-	3	6.0			15%	Kinesiology	100%	46	16	15				
	POOL	8,433	-	3	6.0			15%	Kinesiology	100%	75	25	25				
Porter Henderson Library	B301	1,188	30	10	30.0	75%			Communications, Drama & Journalism	70%	320	36	32	120%	107%		
	B302	851	30	13	35.0	88%			Communications, Drama & Journalism	62%	284	30	22	100%	73%		
	B340	385	30	4	8.0		20%		Communications, Drama & Journalism	50%	68	17	17			57%	57%
	B352	420	15	1	3.0		8%		Communications, Drama & Journalism	100%	9	9	9			60%	60%
	C304	1,305	28	13	42.9	107%			Classroom	46%	296	28	23	100%	81%		
	C305	1,152	20	3	9.0	23%			English	100%	52	19	17	95%	87%		
Junnel Center/Stephens Arena	104	912	-	1	3.4			9%	Kinesiology	100%	9	9	9				
	254A	1,325	60	6	18.0	45%			Kinesiology	100%	189	39	32	65%	53%		
	254B	1,299	60	3	8.0	20%			Kinesiology	100%	67	35	22	58%	37%		
	254C	1,256	60	6	17.0	43%			Kinesiology	100%	127	31	21	52%	35%		
	258	3,000	35	4	8.0		20%		Kinesiology	100%	111	31	28			89%	79%

Room Info				Room Utilization					Room Ownership		Room Occupancy						
Building	Room No.	Room Area (ASF)	Room Capacity	No. of Sections	Weekly Hours	Classroom Utilization (40 hrs/week)	Class Lab Utilization (40 hrs/week)	Other Utilization (40 hrs/week)	Primary Dept**	Primary Dept Usage	Total Enrollment	Max. Enrollment Per Section	Average Enrollment Per Section	Max. Classroom Occupancy	Average Classroom Occupancy	Max. Class Lab Occupancy	Average Class Lab Occupancy
Mathematics-Computer Science Building	100	3,528	296	10	23.6	59%			Physics	50%	568	126	57	43%	19%		
	110	1,017	63	9	27.0	68%			Mathmatics	100%	313	40	35	63%	55%		
	111	2,268	51	3	19.5		49%		Art & Music	100%	41	20	14			39%	27%
	112	801	42	8	24.0	60%			Mathmatics	50%	200	38	25	90%	60%		
	114	1,148	68	7	21.0	53%			Modern Languages	57%	314	60	45	88%	66%		
	119	534	29	5	13.8	35%			Physical Therapy	80%	83	22	17	76%	57%		
	210	984	60	11	33.0	83%			Mathmatics	100%	361	41	33	68%	55%		
	211	902	25	31	55.4		139%		Mathmatics	100%	794	42	26			168%	102%
	212	803	42	9	27.0	68%			Mathmatics	100%	253	35	28	83%	67%		
	214	767	50	9	27.0	68%			Mathmatics	100%	272	35	30	70%	60%		
	215	900	53	8	24.0	60%			Mathmatics	100%	176	33	22	62%	42%		
	216	767	46	10	30.0	75%			Mathmatics	100%	228	33	23	72%	50%		
MIR Center	105	791	24	6	13.2		33%		Agriculture	67%	72	26	12			108%	50%
	107	1,102	50	10	22.0	55%			Agriculture	80%	163	26	16	52%	33%		
Rassman Business-Computer Science Building	101	682	42	7	21.0	53%			Accounting, Economic, & Finance	71%	191	42	27	100%	65%		
	102	700	42	11	33.0	83%			Classroom	36%	300	42	27	100%	65%		
	103	922	63	12	36.0	90%			Classroom	42%	281	38	23	60%	37%		
	104	962	63	7	21.0	53%			Accounting, Economic, & Finance	71%	236	52	34	83%	54%		
	105	2,088	108	7	21.4	54%			Accounting, Economic, & Finance	100%	196	47	28	44%	26%		
	107	398	28	6	19.2	48%			Government	67%	78	23	13	82%	46%		
	108	922	63	11	34.2	86%			Government	55%	490	57	45	90%	71%		
	109	700	30	9	27.8	70%			Classroom	33%	241	36	27	120%	89%		
	110	679	63	10	30.0	75%			Government	60%	322	48	32	76%	51%		
	111	1,293	47	9	24.8		62%		Classroom	33%	174	40	19			85%	41%
	112	889	63	8	24.0	60%			Classroom	38%	229	49	29	78%	45%		
	117	1,340	84	9	27.8	70%			Management & Marketing	67%	196	31	22	37%	26%		
	224	542	30	11	23.0	58%			Management & Marketing	82%	188	32	17	107%	57%		
	225	1,032	42	10	30.0		75%		Accounting, Economic, & Finance	90%	380	42	38			100%	90%
	239	920	63	10	30.0	75%			Government	70%	435	52	44	83%	69%		
	263	972	63	9	27.4	69%			Management & Marketing	67%	245	36	27	57%	43%		
	265	1,200	30	12	37.2	93%			Management & Marketing	50%	225	34	19	113%	63%		
	266	1,265	84	10	30.4	76%			Management & Marketing	70%	343	47	34	56%	41%		
Vincent Nursing-Physical Science Building	139	1,221	32	5	11.8		30%		Physics	100%	113	34	23			106%	71%
	146	1,195	30	7	29.4		74%		Physics	100%	42	19	6			63%	20%
	148	1,173	34	6	27.2		68%		Physics	100%	28	13	5			38%	14%
	155	1,230	32	5	15.0		38%		Physics	100%	97	21	19			66%	61%
	158	1,169	32	10	33.2		83%		Physics	80%	246	32	25			100%	77%
	160	1,177	32	6	19.2		48%		Physics	100%	103	37	17			116%	54%
	162	1,182	32	6	19.2		48%		Physics	100%	119	29	20			91%	62%
	238	916	55	6	25.2	63%			Nursing	83%	174	48	29	87%	53%		
	241	1,453	100	14	35.2	88%			Nursing	100%	199	44	14	44%	14%		
	242	738	16	12	26.4		66%		Nursing	100%	146	14	12			88%	76%
	250	929	50	13	29.8	75%			Agriculture	77%	325	50	25	100%	50%		
	253	543	25	1	14.2		36%		Nursing	100%	10	10	10			40%	40%
	254	675	40	8	53.4	134%			Nursing	63%	98	38	12	95%	31%		
	255	672	40	7	28.4	71%			Classroom	43%	110	38	16	95%	39%		
	263	693	50	6	27.0	68%			Nursing	100%	72	17	12	34%	24%		
	287	674	40	7	20.0	50%			Classroom	43%	148	33	21	83%	53%		
	289	696	40	9	22.8	57%			Classroom	44%	172	48	19	120%	48%		
	291	1,400	30	6	18.6		47%		Education	83%	150	30	25			100%	83%
	P02	1,963	114	13	36.2		91%		Physics	69%	795	99	61			87%	54%
	R04*	-	-	2	21.6			54%	Physical Therapy	100%	18	10	9				

Room Info				Room Utilization					Room Ownership		Room Occupancy						
Building	Room No.	Room Area (ASF)	Room Capacity	No. of Sections	Weekly Hours	Classroom Utilization (40 hrs/week)	Class Lab Utilization (40 hrs/week)	Other Utilization (40 hrs/week)	Primary Dept**	Primary Dept Usage	Total Enrollment	Max. Enrollment Per Section	Average Enrollment Per Section	Max. Classroom Occupancy	Average Classroom Occupancy	Max. Class Lab Occupancy	Average Class Lab Occupancy
Tennis Court	A	-	-	2	4.0			10%	Kinesiology	100%	41	21	21				
Goodfellow AFB	GAFB	-	-	5	26.8			67%	Classroom	40%	112	42	22				
Sports Field	FIELD	-	-	2	4.0			10%	Kinesiology	100%	30	17	15				
River	SIDE	-	-	4	8.0			20%	Kinesiology	100%	76	20	19				
SA Museum of Fine Arts	CER	-	-	1	6.6			17%	Art & Music	100%	20	20	20				
Stad	L	-	-	5	10.0			25%	Kinesiology	100%	226	46	45				
Not Assigned	TBA	-	-	8	-			0%	Classroom	25%	42	13	5				
Other	-	-	-	160	77.8			195%	-	23%	1,384	72	9				
Grand Total	**134**	**181,349**	**6,624**	**1,321**	**2,860.1**	**65%**	**51%**	**17%**		**83%**	**31,446**	**141**	**24**	**84%**	**57%**	**87%**	**64%**

Source
Fall 2004 Class Schedule and Enrollment
Room Inventory

Note:
** Rooms not identified.*
*** The primary department uses the room more than 50% of time.*

Supporting Infrastructure Plan

Table of Contents of This Chapter

Appendix I: Supporting Infrastructure Plan

Introduction

This section describes a supporting infrastructure development plan that is to support this master plan. This section consists of series of recommendations in each specific subject made by specialized sub-consultants. The recommendations are conceptual and subject to verification in detail in the actual building projects.

Mechanical, Electrical and Plumbing Report

This report was developed by URS Corporation and their subconsultants who specialize in mechanical, electrical and plumbing (MEP) issues.

AGUIRRE Corporation was retained by URS Corporation to review pertinent information, previous reports, interview campus Facilities Management personnel and physically tour the described facilities reporting on the condition of the mechanical, plumbing, fire protection and electrical systems. This report is intended as a planning tool and not an in-depth analysis of the building systems described.

Kenneth E. Gill, P.E., Vice-President of AGUIRRE Corporation visited the Angelo State University on October 26th and 27th, 2004 to review the existing building conditions, interview campus facilities personnel, and report findings. Mr. Paul Pillsbury mechanical maintenance supervisor, was the main source of information reported.

Existing Central Energy Plant

The central energy plant serves the majority of buildings on campus by means of chilled water (cooling), hot water, and heated domestic water.

Cooling capacity consists of 3-1,000 ton chillers and 2-500 ton chillers added over the years. During the heat of summer, 3,000 tons of cooling capacity are needed to meet the campus requirements. Building management reported that delivery of additional capacity is limited by the campus distribution piping and pumping arrangement. Expansion plans should include the cost of increasing this piping , pumping, and chiller capacity to serve planned building additions.

The chillers in place are dated and utilize R-123 refrigerant. R-123 refrigerant is scheduled for phase out in the future, and is considered a bridge refrigerant until implementation of zero ozone impact refrigerants are deployed in new and replacement equipment. Although R-123 will be available through the expected life of the existing chillers, most chiller replacements occur due to the economics of operation versus wearing out.

The cooling towers are masonry fill, site built concrete structures with 8 cells and fans. Additional capacity should be available from these towers by adding fill and increasing cooling fan capacity. The cooling towers are limited in performance and flexible operation due to their dedicated piping arrangement. Modification of the piping arrangement and flexibility in operation should be considered in a cooling capacity increase.

The steam boilers in the central plant consist of two 1,000 horsepower steam boilers and one 200 horsepower steam boiler. It was reported that the 200 hp steam boiler was too small to serve the kitchen and domestic water heating needs in the summer while the 1,000 hp boiler was too large, thus causing inefficient operation of the system.

The steam system currently operates with one deaerator tank. An additional tank and system should be provided for redundancy as one component failure such as this could disable the entire campus heating system.

The space available to add chillers and boilers in the existing central plant is limited to smaller equipment in the cafeteria basement or replacing the existing 1,000 ton chillers with larger capacity chillers in the occupied equipment bays. Means to increase capacity should be possible within the existing space limitation without requiring a central plant expansion.

The campus distribution piping, heating and chilled water, has experienced failures due to wear at elbows, this is due to high velocity water flow direction change causing erosion. A second chilled water plant would relieve this along with additional piping monitoring such as water loss metering.

To summarize, the existing central energy plant is well designed and operated. Future expansion capacity is limited by piping distribution on the campus and the need to have redundant stand-by equipment to serve the load if a major piece of equipment fails. Therefore, with the addition in the future of substantial buildings on campus, a second central energy plant should be included in the planning.

Proposed Second Energy Plant

Planned new construction through the year 2028 will yield an additional 1.6 million square feet of academic and residential building facilities. New academic space will total approximately 700,000 square feet, while residential additions will yield approximately 1,000,000 square feet. These additions will require additional utility infrastructure and services for water, sewer, electrical power, telephone and natural gas. Chilled water for building space cooling, and steam for space and water heating, will also require additional facilities and expansion of some existing systems. Additions and upgrades to required utilities and services must be coordinated with planned growth and construction schedules.

It is recommended that all facilities be served from a single, or at most, two centralized thermal energy plants. In order to serve future growth, a new central plant of approximately 15,000 square feet would be required to house the additional mechanical and electrical equipment. Based on an assumption that campus housing facilities are served by a dedicated heating and chilling facilities located at each housing complex, a small addition to the existing central energy plant would be sufficient.

Mechanical Requirements

Centralized energy plant thermal loads are expected to increase by approximately 2,000 tons of additional cooling to be furnished and 25,000 pounds per hour of steam boiler capacity to be furnished by additions to the existing, or a new, central energy plant facility. The physical plant will require additional chilled water and steam distribution facilities, in the form of tunnels and/or building to building facilities. Peak thermal steam production will require an additional natural gas capacity of approximately 24 MMBTU.

Plumbing Requirements

The domestic water demand for the future addition requirements will be approximately 54,000 Gallons Per Day.

The additional Sanitary Sewer load will be approximately 46,000 Gallons Per Day.

Electrical Requirements

Electrical requirements for future additional buildings and increased central energy plant requirements will increase by approximately 21 megawatts.

Planned Utility Load Additions for the New Academic and Support Buildings or Expansions

New Buildings/Additions	Gross SF	Cooling (Ton)	Heating (BTUH)	Steam (PPH)	Total (KW)	Domestic Water (GPD)	Sanitary Sewer (GPD)	Notes
One-Stop Center								1
Administration Building								
Administrative Expansion	21,000	60	735,000	750	265	1,050	893	
Academic 1	100,000	286	3,500,000	3,571	1,260	5,000	4,250	
Library Addition	77,000	220	2,695,000	2,750	970	3,850	3,273	
Library								
Science Addition								
Cavness Science Building								
Performing Arts Center	60,000	171	2,100,000	2,143	756	3,000	2,550	
Education-Fine Arts Building								
University Center								
UC Additions	28,000	80	980,000	1,000	353	1,400	1,190	
Academic 2	30,000	86	1,050,000	1,071	378	1,500	1,275	
Academic 3	92,000	263	3,220,000	3,286	1,159	4,600	3,910	
Recreational Addition	100,000	286	3,500,000	3,571	1,260	5,000	4,250	
Police/Health/Student Serv.	20,000	57	700,000	714	252	1,000	850	
Center for Human Performance								
Vincent Building								
Mathematics-Computer Science								
Rassman Building								
Central Plant								
Food Service Center								
Food Service Center Expansion	30,800	88	1,078,000	1,100	388	1,540	1,309	
Dining Hall	23,000	66	805,000	821	290	1,150	978	
Massie Hall for Men								
Massie Hall for Women								
Texan Hall								
Junell Center								
Storage								
Pavilion								2
Rec. Fields Facilities	3,150	9	110,250	113	40	158	134	2
Physical Plant	90,000	257	3,150,000	3,214	1,134	4,500	3,825	
Alumni Center								
EFA Expansion	20,000	57	700,000	714	252	1,000	850	
Total	**694,950**	**1,986**	**24,323,250**	**24,820**	**8,756**	**34,748**	**29,535**	

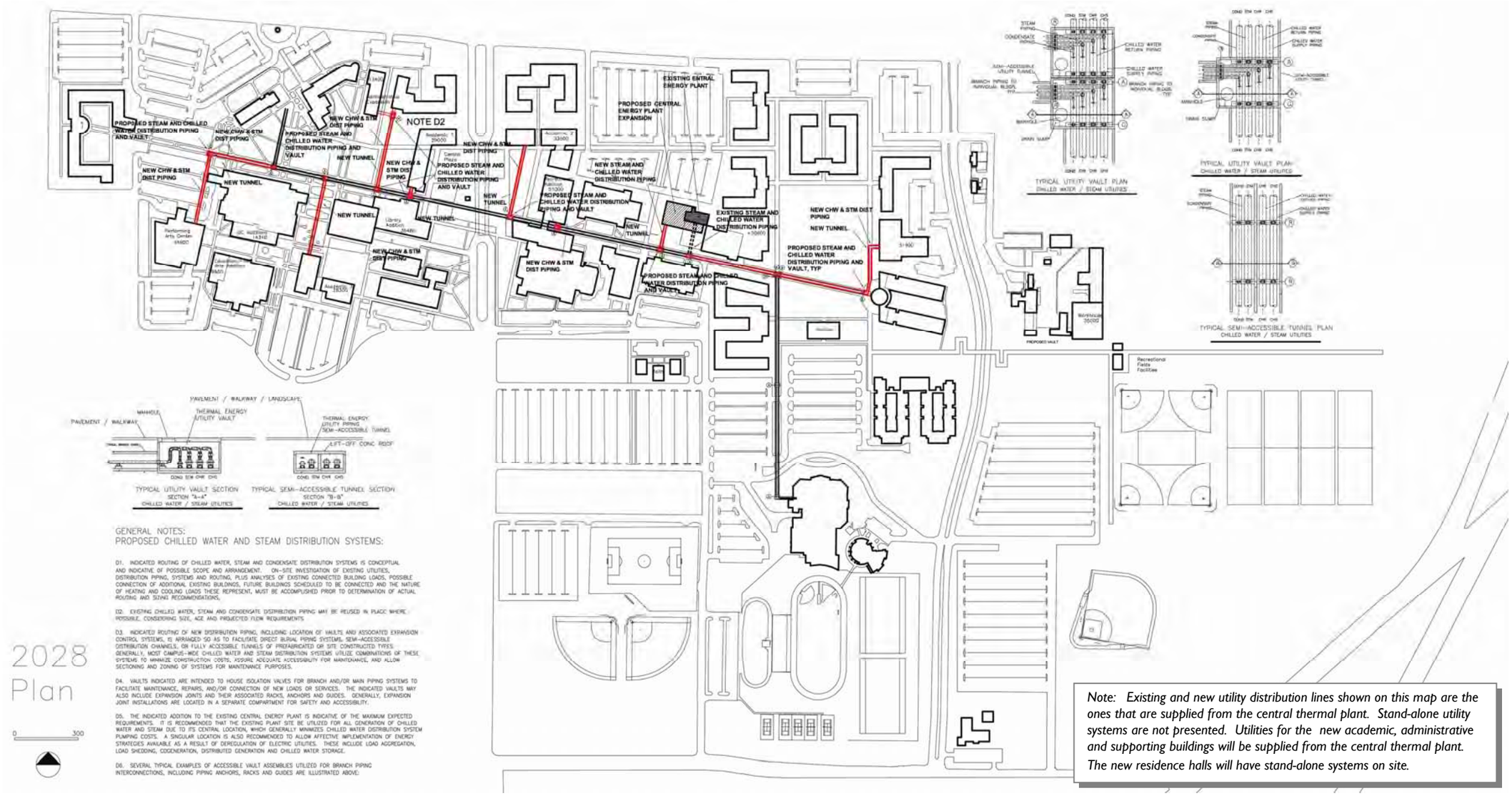
Note: Shaded items are existing buildings.
Gross square feet of new buildings are utility load planning purpose only, not meant to be building concepts.
1. Hardeman Building Renovation
2. Unconditioned building, but lit

Planned Utility Load Additions for New Housing

New Buildings/Additions	Gross SF	Beds	Cooling (Ton)	Heating (BTUH)	Steam (PPH)	Total (KW)	Domestic Water (GPD)	Sanitary Sewer (GPD)	Notes
Housing 1	140,000	400	400	4,900,000	5,000	1,764	7,000	5,950	
Housing 2	70,000	200	200	2,450,000	2,500	882	3,500	2,975	
Housing 3	140,000	400	400	4,900,000	5,000	1,764	7,000	5,950	
Housing 4	87,500	250	250	3,062,500	3,125	1,103	250	213	
Housing 5	140,000	400	400	4,900,000	5,000	1,764	400	340	
Housing 6	87,500	250	250	3,062,500	3,125	1,103	250	213	
Housing 7	80,500	230	230	2,817,500	2,875	1,014	230	196	
Massie Hall for Men		178							
Housing 8	24,300	50	69	850,500	868	306	69	59	1
Massie Hall for Women		178							
Texan Hall		500							
Housing 9	182,000	520	520	6,370,000	6,500	2,293	520	442	
Total	**951,800**	**3,556**	**2,719**	**33,313,000**	**33,993**	**11,993**	**19,219**	**16,337**	

Note: Shaded items are existing buildings.
Gross square feet of new buildings are utility load planning purpose only, not meant to be building concepts.
1. Expansion of Massie Hall for Men and Women

Proposed Chilled Water and Steam Distribution Systems



Note: Existing and new utility distribution lines shown on this map are the ones that are supplied from the central thermal plant. Stand-alone utility systems are not presented. Utilities for the new academic, administrative and supporting buildings will be supplied from the central thermal plant. The new residence halls will have stand-alone systems on site.

Traffic Report

This section of the report was prepared by URS Corporation.

Summary

Angelo State University (ASU) requested an overall Master Plan to be developed for proposed university growth in San Angelo on the main campus. Portions of this study will be discussed in other reports. The Traffic Assessment Report is being prepared for proposed recommendations to Angelo State University and the City of San Angelo for the purpose of reducing traffic/pedestrian interaction through and around the ASU campus, particularly along Johnson Street, which bisects the campus.

The study investigated the feasibility of closing Johnson Street from West Avenue N on the north to Dena Drive on the south; re-designing Johnson Street between West Avenue N and Dena Drive; and, reducing the number of lanes along Johnson Street between West Avenue N and Dena Drive. These three alternatives are discussed below:

Alternative No. 1 re-designs the existing Johnson Street to a depressed/elevated section between West Avenue N and Dena Street to eliminate conflicts with pedestrians/students.

Alternative No. 2 re-designs Johnson Street from a two-way, four-lane roadway to a two-way, two-lane roadway in an effort to reduce the pedestrian/vehicle conflict and provide traffic calming measures in the vicinity of the pedestrian/student at-grade crossing.

Alternative No. 3 closes Johnson Street between Vanderventer Street and Dena Drive, re-routs the through traffic to Rosemont Drive west of the campus, south to Dena drive, then east to Johnson Street; or to Jackson Street east of the campus, south to University Avenue, then west to Johnson Street.

Purpose and Need

Study Purpose

The purpose of the study is to provide a solution to the traffic congestion/pedestrian conflicts taking into consideration the capacity of Johnson Street and other surrounding city streets that encompass ASU in conjunction with the Master Plan currently being developed.

Need for Improvements

Johnson Street serves the ASU Campus, one elementary school, three churches, Verizon, and several residences and College Hills neighborhood. ASU's current total enrollment exceeds 6,100 students. Of this amount, approximately 25 percent live on campus and the remaining (over 4,500) are commuting students. ASU campus is bisected by Johnson Street, with the majority of the student residence halls located east of Johnson Street and the main educational building located west of Johnson Street. Due to the design of the campus, a severe vehicle/pedestrian conflict has arisen at the main pedestrian crosswalk and Johnson Street, approximately midway between West Avenue N and Dena Drive. The growth of ASU is estimated to be 2.5 percent yearly. This Master Plan is developing the needs of ASU 23 years from now to 2028. With the proposed 2.5 percent annual growth of student population (from 6,100 enrollment to 10,000 enrollment) and additional vehicles due the growth of the campus and the City of San Angelo, this area of conflict will increase proportionately. If the on-campus housing grows with the projected growth, approximately 3,500 students will live on campus and 6,500 students will commute to the University.

Analysis Criteria

Operational analysis of arterial and urban street Level of Service (LOS) was performed according to procedures specified in the 2000 publication, Highway Capacity Manual (HCM), published by the Transportation Research Board. Signalized and all-way stop intersections, either existing or proposed, were analyzed utilizing Chapters 16 and 17 (Signalized and Unsignalized Intersections) of the HCM. Due to the low-posted speeds of the local street system, these sections were analyzed utilizing Chapter 15 (Urban Streets) of the HCM. Highway Capacity Software ver. 4.1d (HCS2000) was used to perform the analysis.

Existing Conditions

Johnson Street, between West Avenue N and Dena Drive, is a four-lane curbed roadway and the current traffic is 12,800 vehicles per day (VPD). With the proposed 2.5 percent annual growth of vehicles due the growth of Angelo State University, the traffic on Johnson Street is estimated to increase to 22,600 VPD. West Avenue N, between Johnson Street and Jackson Street, is a four-lane curbed roadway with a two-way left turn lane and the current traffic is 15,000 VPD. With the proposed 2.5 percent annual growth of vehicles due the growth of Angelo State University, the traffic on West Avenue N is estimated to increase to 26,500 VPD. Jackson Street, between West Avenue N and University Avenue, is a four-lane curbed roadway with a raised median and the current traffic is 6,300 VPD. With the proposed 2.5 percent annual growth of vehicles due the growth of Angelo State University, the traffic on Jackson Street is estimated to increase to 11,100 VPD. Dena Drive, between Rosemont Drive and Johnson Street, is a two-lane curbed roadway with some residential parking and the current traffic is 4,400 VPD. With the proposed 2.5 percent annual growth of vehicles due the growth of Angelo State University the traffic on Dena Drive is estimated to increase to 7,700 VPD.

Selection of Alternatives

Prior to the selection of alternatives, Level of Service analysis of existing traffic was performed for all roadways through and around the ASU campus. Level of Service (LOS) is a quality measure describing operational characteristics within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six LOS are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver's perception of those conditions. The existing LOS (Year 2004) for the select road segments varied between LOS A to LOS C, where LOS A describes free-flow operations and vehicles are unimpeded to travel maneuvering, while LOS C describes near free-flow operations and the traffic is more restricted in its direction of travel. Level of Service D is an acceptable range for traffic within highway capacity planning.

Year 2005 traffic for Johnson Street is LOS B, West Avenue N is LOS A, Jackson Street is LOS A, and Dena Drive is LOS B. Design year 2028, Traffic for Johnson Street is LOS C, West Avenue N is LOS A, Jackson Street is LOS A, and Dena Drive is LOS B.

Alternative No. 1

Alternative No. 1 re-designs the existing Johnson Street to a depressed/elevated section between West Avenue N and Dena Street to eliminate conflicts with pedestrians/students. A wide pedestrian underpass could be constructed, but access to various parking lots along Johnson Street between West Avenue N and Dena Drive would need to be re-aligned. Also, the intersection of Vanderventer Drive and Johnson Street would be eliminated.

Alternative No. 2

Alternative No. 2 re-designs Johnson Street from a two-way, four-lane roadway to a two-way, two-lane roadway in an effort to reduce the pedestrian/vehicle conflict and provide traffic calming measures in the vicinity of the pedestrian/student at-grade crossing. This seems to be the most viable alternative of the three. The LOS of Johnson Street would be reduced to LOS C. While the LOS was reduced, it is still acceptable to the movement of traffic. A conflict between pedestrians and traffic would still exist, but students would only have to cross two active lanes of traffic, with an island refuge constructed between the two lanes of traffic. This is the most expedient alternative.

Alternative No. 3

Alternative No. 3 closes Johnson Street between Vanderventer Street and Dena Drive, re-routs the through traffic to Rosemont Drive east of the campus to Dena drive then east to Johnson Street, or to Jackson Street west of the campus to University Avenue then west to Johnson Street. In order to complete this alternative analysis, all traffic projected for Johnson Street from West Avenue N to Dena Drive would be re-routed to Jackson Street on the east or to Rosemount Street on the west. Any final determination closing Johnson Street would need to be further discussed with the City of San Angelo as Johnson Street is considered to be an important north-south arterial and closure may not be feasible.

Civil Engineering and Environmental Report

This section of the report was prepared by J. M. Waller Associates.

General Civil Engineering Concerns and Related Discussion

Circulation

Most campuses, as they develop into larger more urban type campuses, attempt to encourage pedestrian and/or bicycle traffic in preference to motorized vehicles. This creates a campus environment that is safer and more conducive to a learning and collegial atmosphere that would enhance recruiting and retention within the institution. The master plan should consider developing dedicated bicycle routes. Efforts should be made to reduce vehicle circulation internal to and across the campus and move towards keeping parking facilities on the perimeter of the campus to the greatest extent possible.

Drainage Issues

Most small municipalities regulate storm drainage. Generally the regulation requires development to limit the drainage from a site to the amount existing prior to development. Generally development with its additional hard surfaces increases the amount of storm water runoff because less water is absorbed into the surface. Although the city of San Angelo does not currently regulate storm drainage, it is likely that they will have to do so eventually. In addition to the likelihood that the storm drainage will become regulated, the university should consider the liability of additional development increasing the amounts of runoff and impacting areas off campus to the east.

The campus is very flat west of Jackson Street. The developed campus between Dena Street and West Avenue N gently slopes from south to north. This same area from Rosemont Drive to Jackson Street slopes gently from west to east at slightly less than 0.5%. East of Jackson Street, the terrain falls off and eventually drains into a campus building cluster area in the community east of the recreation fields near the east boundary of the campus. There is an existing 30-inch storm drain carrying storm water from Jackson Street to within about 500 feet of the east campus border. This underground storm water drainage pipe goes under the recreation fields and would be a consideration for any future building site plans for this area. The community area just off the campus boundary to the east now floods frequently during periods of intense rainfall according to campus facilities officials. Additional development of the campus will exacerbate this problem.

For the most part, the campus and the city are served primarily by surface drainage systems. Other than one project, which was specifically designed to address a problem that resulted when the work on the Student Center was completed, and a system to take drainage across their new dormitory site and on to the east, there is no underground system for the campus. There is no storm water detention system that would reduce and delay the intensity of the water leaving the campus to the east. The current system appears to be acceptable to the administration although we suspect that both vehicular and pedestrian traffic are at least somewhat restricted at times of heavy rainfall. There is high volume storm runoff exiting the campus to the east into the local community as there is a low point just east of the recreation fields.

As a minimal option to address the issue of storm drainage, the master plan policy should include a statement that any future development should include detaining on the local site any additional drainage developed by installation of new buildings or hardscape and releasing that drainage from the site at a rate at or less than existed prior to the new development. This can be done locally project by project in an aesthetically acceptable and inexpensive manner so as to not exacerbate the current situation at the east end of the campus.

The east end of the property is lower just prior to where drainage exits to the city streets. This may offer an opportunity to install a retention or detention pond. If the university would like to use the runoff water to irrigate areas on the campus, particularly the athletic fields immediately adjacent to the low area, the pond could be designed to retain water to use for that purpose. If that is not the case, then the pond should be designed as a detention pond that is normally dry, but detains water temporarily during rainfall events to reduce impact on downstream areas. This storm drainage improvement could be used to control the additional runoff caused by development

as an alternative to local detention. It could also reduce the impact of the current runoff that now exists.

The university should consider obtaining a storm drainage study that would provide the following:

1. Storm water flows onto the campus from off-campus areas.
2. Magnitude of storm water flows on the campus and options for solving any existing local problems.
3. Allow coordination with any storm water planning that has been done, is being done, or will be done by the City.
4. Recommendations on how to handle additional development in terms of preventing drainage problems or mitigating any drainage caused by the additional development.
5. Recommendations on how to specifically prevent existing and future campus storm water flow from generating problems in the community downstream from the campus.

Irrigation System

If the campus administration considers it a priority, it would be possible to investigate the feasibility of a golf course type irrigation system installed on a pond designed to retain storm drainage water on the east end of the property. A pumping system would distribute the retained storm water to the campus areas for irrigation. Information obtained from the Facilities Management Department (FMD) indicates that the university expended nearly $25,000 for irrigation water so far this year (2004) on the campus. The average cost of the water used to irrigate was $2.26 per thousand gallons. In addition, the FMD indicated that San Angelo had an abnormal amount of rain this year, which has caused them to turn off some systems for a while. Also the campus was subject to water rationing where irrigation could occur only once every two weeks. This indicates that the costs of irrigating the campus in a normal year would be substantially higher than in this current year.

Further study would require better contour information than is currently available to determine how much water could be retained on the east side of the campus. Using this information, and matching potential water savings in areas that could most economically be irrigated with raw water, further study could estimate whether there would be enough water retained to provide significant irrigation and whether the avoided costs and conservation of treated city water is something that the university believes would justify the capital expenditure of any proposed irrigation system. It may be most practical for the athletic fields that are on the south and east of the campus.

Environmental Related Discussion

Facility Issues

All Angelo State University facilities have current asbestos surveys. Since many of the facilities are pre-1978, numerous facilities have asbestos containing material present. Facilities Management is well aware of the asbestos presence and its locations. Work plans are carefully reviewed for all construction, modification, and refurbishment activities to insure asbestos issues are properly addressed and all work will follow state regulatory guidelines for any disturbance or removal prior to any work. Lead is also present in many of the older facilities and work plans are reviewed to insure proper handling and disposal, if necessary. The presence of both lead and asbestos are important considerations for any future facility demolition. Facilities Management is aware of facility demolition regulatory requirements and proper landfill disposal considerations. Future demolition of university facilities should also consider the historical nature of the facility, since a few of the facilities were constructed in the 1940's.

Air Quality

The city of San Angelo is in attainment status related to air quality. The university campus is in the southwest portion of the city and therefore is a related subset to the city air quality status. The university is nonindustrial in nature and generates a very low level of air pollutants. The campus central plant runs three boilers with natural gas provided by a local commercial gas utility. The boilers are backed up by fuel from a large underground storage tank of diesel fuel (18,000 gal) for emergency operations or intermittent use. The diesel fuel is periodically burned off in order to recycle and maintain the fuel integrity. There is an emergency back up generator at the San Angelo Museum of Fine Arts, the University Center and the Math-Computer Science Building. These four power generation sources are the only

current sources of University infrastructure related to potential air pollution generation. Electrical service to the university and its off campus locations is provided by a local commercial utility company and electrical power generation capability is not required by the university.

Water Quality

The City of San Angelo provides water to the university. The university does have some limited water generation capability with low flow wells, but this water is presently limited to use for campus irrigation.

Waste/Hazardous Material

The university's solid waste requirements are handled through the use of a local solid waste management company. The university does not generate levels of hazardous materials/waste that would require regulatory management. Laboratory wastes are handled with full consideration and knowledge of regulation requirements. There is not a landfill on campus.

Storm Water Runoff

The Federal Clean Water Act of 1972 and its' 1987 amendments require each state to implement a National Pollutant Elimination System (NPDES) program, which regulates the pollutants being discharged into storm water drain systems and eventually to rivers, bays and oceans. In Texas, each city must have a Texas Pollutant Discharge Elimination System (TPDES) permit approved by the Texas Commission on Environmental Quality (TCEQ). To maintain compliance with the permit requirements the City of San Angelo must develop a comprehensive, citywide Storm Water Management Plan (SWMP). The recent emphasis (2004) on storm water management for smaller cities, such as San Angelo, is a result of a phased approach by the U.S. Environmental Protection Agency (EPA Region 6 for Texas). The larger cities have been the focus the past few years for storm water management (Phase I) and now with Phase II, smaller cities are being asked to manage their storm water discharge.

It is recommended that Angelo State University actively coordinate with the City of San Angelo storm water manager in order to effectively develop storm water management plans and procedures. Since Angelo State is an urban campus with a sizeable city real estate foot print, the interface with city storm water management planning could be significant.

Miscellaneous items

Pest management on the main campus is handled by contract with state licensed companies. There are no known issues associated with past pesticide or herbicide use. There are numerous mature trees on the main campus and consideration should be given to their preservation. A general university policy to evaluate trees in relation to future building sites and clearing should be developed as part of a site evaluation process for all proposed construction activity. General tree planting and replanting for trees that require removal (due to age or construction) should also addressed in university policy. Overall, the university should consider development of a central university landscape plan. Such a plan could address the issues stated above, identify specific planting requirements tied to regional attributes, such as low water use plants, and could standardize and address campus replanting, plant types and landscape needs.

Technology Infrastructure Report

This section of the report was prepared by DataCom Design Group, Inc.

Overview

Angelo State University has a strategic mission of providing undergraduate and graduate education and research. The campus incorporates the latest technology to advance this educational mission and serves as a leading educational institution to the Central and West Texas area. The Information Resources Strategic Plan provides the vision for technology at Angelo State University. With technology playing such a critical role in the university's mission, this campus master plan includes the communications infrastructure in its scope.

Campus Technology Overview

Bandwidth Requirements

The data communications network has become an integral part of education and as such, it's infrastructure gives students, faculty and Staff access to the wealth of information located on ASU internal systems as well as the internet. As students, faculty and staff utilize the Internet more intensively, demand for access continues to grow. Online applications such as course management systems that allow students to communicate more effectively with faculty and submit course materials will also place greater demands on the data network and the internet.

The bandwidth requirements of users have been doubling every 3 to 4 years. This is due to the fact that user requirements as well as applications continue and change over and evolve over time. Depending on the application, a user may be accessing a web page containing dozens of images, streaming audio/video, embedded files in other formats (PDF, Flash, java applets) and so on. These applications may increase overall network use.

Web applications are more diverse in nature and therefore create a corresponding diversity of traffic patterns. In contrast to other applications that may have steady production use, web applications may have sharp spikes in traffic. For example, a web-based self-service application that allows students to view financial aid information or pay tuition, may have usage spikes during the semester. A file sharing application that allows end users to utilize online sharing or streaming might result in a flood of new users when a new offering becomes available. Depending on the application, organizational goals may require the network infrastructure to add what traditional network managers might consider to be "excess capacity".

The convergence of other systems such as security, building automation systems and audio visual systems across the Ethernet network are also increasing bandwidth demands.

One recommendation is that continual monitoring of the different departments inter and extra campus connections be expanded so that the changes in demands for bandwidth in the backbone and ISP connectivity can be foreseen and mitigated early. This will allow for the sizing of connecting media, circuits and bandwidth that can be allocated to the areas with the greatest demand. Instructional departments at ASU use internet technology for communication and research purposes. Many departments are using the internet to provide online classes. This is a growing trend among universities across the country. As more ASU departments add online courses, the demand for bandwidth and server space will increase. This increase will in turn produce a greater demand for support staff to create and maintain the web-based content. Increased content demands will in turn lead to increased space demands and further demands on staff to support them.

The telecommunications infrastructure is far reaching and serves many uses in today's complex communications world. In addition to the traditional use for voice and data communications, the technology infrastructure provides broadband video, security services, and wireless networking. Every member of the faculty, staff and student body depend on those systems functioning reliably and correctly.

Network Topology- Data

The main Ethernet core distribution switches for data services are in the main communications room located in the Rassman building in the center of the campus. These services are distributed via multi-fiber

backbone cables, using a combination of single mode and multimode fiber optic cable.

Voice Telecommunications

ASU currently has no centralized voice communications system. Each building is served with separate key system telephone switches that are provided and maintained by Verizon. The copper cabling for these systems is also owned, installed and maintained by Verizon in a separate duct bank that runs parallel to the duct bank and tunnel system owned by ASU. This configuration makes it difficult for ASU to have ownership of their voice communications, and creates timing delays for moves adds and changes.

Today, the cost, complexity and age of these systems are forcing a re-evaluation of this technology. The rapid acceptance of voice over IP telephony (VoIP) is causing a migration away from the legacy switched circuit technologies. ASU currently has plans to migrate to a voice over IP system which will run over the existing network. Convergence of voice and data communications will change the model of existing refresh of data and telecommunications equipment to one that should be included in the overall budgeting process of the university, for maintenance and operations.

Audio Visual

All classroom and conference room AV systems are stand alone systems. Future plans would indicate a need to monitor the existing systems from a centralized location. ASU has no plans for centralized distribution of these systems. There are however, plans for centralized distribution of digital signage or narrowcasting utilizing the existing campus infrastructure over IP.

ASU has a radio station that uses streaming technology to distribute radio broadcasts to computers attached to the ASU network. Based on current campus bandwidth analysis conducted by ASU staff, it has no current or foreseeable impact on the integrity of the campus network.

Community Antenna Television (CATV)

ASU does not distribute CATV signals from a main campus head-end. All building CATV connections are owned, installed and maintained by Cox Cable. These cables are run in conduit pathways shared with Verizon and ASU. CATV service is an area that will continue to need evaluation from a technology and vendor perspective as this area changes. Particular attention should be given to user requirements as new technologies arise to deliver CATV programming. Vendor analysis should also be conducted to assess best value of services that can be provided to the ASU community.

ASU has a local Television station that produces a raw feed which is transmitted to Cox Cable. Cox Cable modulates the feed onto its network for broadcast to the San Angelo community. ASU has no plans to discontinue this service, as it currently exists. There is some discussion of adding this service in the future onto the campus fiber backbone.

Physical Security

There are roughly ninety IP based cameras deployed on the campus. These cameras are not continuously monitored. Cameras are recorded onto servers housed in the IT department in the Rassman Building. Recordings are retrieved when needed as part of any investigation. Future expansion of this system will include complete campus coverage with cameras and centralized monitoring by campus police.

ASU uses a Diebold system for card access to critical secure areas such as laboratories and residence halls. Use of this system is limited. The system uses IP based control points and is maintained by the IT department. Future plans call for a more wide usage of this system and monitoring by the ASU police department.

Communications Infrastructure

Angelo State University utilizes a high-speed switched network infrastructure to provide electronic access to information and to enhance the learning environment for the ASU Community. The network consists of approximately 3000 nodes with 2000 in academic and administrative buildings and 1000 being utilized in on-campus residence halls. As part of the university's commitment to incorporating technology into the classroom, there are over 600 computers available for student use. The university has adopted a refreshment cycle of three to four years for all student use computers, peripherals and projection devices located in student computer labs and specialized classrooms. Among these 600 computers, 300 are located in general use computer labs with access to over 175 applications, e-mail,

Internet, personalized electronic storage area and 24 hour access. For those students requiring access to online resources outside of the computer labs and classrooms, the university provides a free 96-line dialup service. All residence halls have direct access to the campus network and resources through connections provided in the resident's room. As part of our partnership with the Texas State Data Center, Angelo State University has access to state-of-the-art mainframe hardware, software and administrative information services. All Angelo State University administrative applications, including student records, fiscal and accounting, payroll and personnel, library services, financial aid management and alumni development, are processed at the Texas State Data Center. There is currently no refreshment cycle for voice equipment, cabling infrastructure, or data electronics. In a similar sense to regulated power equipment, the cost for these items is generally high, and as they are usually in competition for limited resources, there is a tendency to limit their implementation. It is therefore recommended that they be considered in a strategic sense and included in budget planning as part of overall university maintenance and operations.

The infrastructure to support the voice and data networks at ASU consists of a variety of signal pathways including: Copper campus (inter building) backbone cable and singlemode/multimode fiber optic backbone cables that run throughout the campus in an underground distribution system that includes utility tunnels, cable trays, conduit, and manholes. This network originates in the main communications (MC) room in the Rassman building where these media provide the signal pathways for various platforms to deliver campus-wide services needed to serve administrative operations, building service, and the student and faculty's needs.

The services this infrastructure supports includes an Ethernet data network, voice services, distance learning, building maintenance systems, and security networks. When extending this network into the areas planned for expansion on campus, many factors need to be considered. Some of the issues that must be considered are capacity for current and future operations, the routing of the systems along right of way, locations of the maintenance points, survivability, conduit identification, redundancy or route diversity, and written protocols for site utility upgrades, including the requirement for as-built records.

Attempting to predict what current campus infrastructure will be available years to come is difficult at best. Because of this the best way to prepare for future requirements is to design a system of pathways that can be re-used many times over, and to establish a process for keeping record drawings up to date. The expense of setting up a system of pathways that can be evacuated and repopulated with the current technology will be easily recovered in future savings by not having to incur the expense of disrupting hardened surfaces and established landscaping to place new conduits. It is recommended that an operation's budget for updating the permanent records for existing conduit be added to the main campus budget as a requirement as well as the completed as-built drawings for all expansion areas.

Campus Backbone

The type of backbone media placed in the conduit network to provide the services discussed above will affect the number of conduits required to support the campus. It is recommended that capacity be planned for Single Mode (SM) fiber, 62.5 um Multi-Mode (MM) fiber, and 50 um Multi-Mode fiber cables. To achieve this, it is recommended that four, four inch conduits be extended from the utility tunnel to each new building to be added to the campus. Space in these conduits would be allocated in the following manner: two of the four conduits would be filled with two 1 ½" and one 1" flexible inner-duct for fiber cabling. Consideration should be given to a flexible fabric inner duct being substituted for the standard rigid inner duct. This product makes it possible to place 6 to 9 fabric inner ducts into one four inch conduit thereby maximizing the available area. The remaining two conduits would be allocated for copper based services such as analog fax and emergency voice lines, building maintenance, the police department, with the remaining conduit kept as a spare.

A primary recommendation is to converge IT, Voice, A/V and eventually security and fire systems onto existing high capacity fiber based networks. This will reduce the requirements for large conduit duct bank infrastructure to support independent copper based systems having to be constructed. The campus IT department will need to make a commitment to expanding systems and services across fiber multiplexing platforms. The electronic provisioning nature of these new platforms will require training and operational changes. It is also recommended that

a protocol/requirement be created for the population of the spare conduit: Once the 'spare' conduit is full, the cabling in the conduit that the newly installed cables replace, be removed. In this way, there will always be a spare conduit in which to add services as required.

Additionally, the design of the conduit pathways for expansion would be achieved by using current best practices of not having more than 180° of bends between pulling points, and not having any outside runs longer than 400 feet without a pulling point. Careful planning and record keeping of how the conduit space is used will assure that the system of conduits may be re-used for future media types. Plugging any unused conduits and filling the voids in the other conduits using devices specifically designed for this purpose is an important maintenance practice. A system of labels based on ANSI/TIA/EIA 606-A identifying what each conduit is allocated for along with the "to" and "from" information is extremely beneficial for disaster recovery operation; and facilitates ongoing maintenance.

Network Redundancy

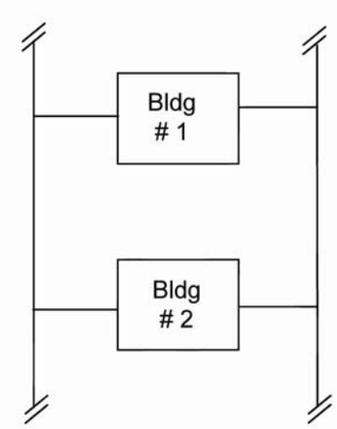
Information technology requires careful attention to redundancy in all areas to avoid costly outages and information loss. Security requirements are also now calling for redundant physical pathways and cables.

Areas requiring redundancy include physical pathways, the network equipment itself, and information backup.

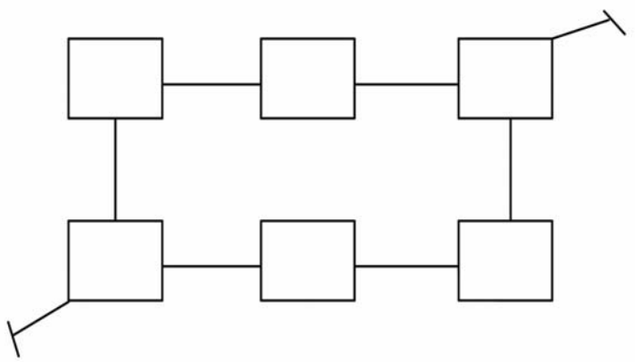
The ASU campus has some physical network redundancy today. The ideal redundant system is a ring of fiber optic and copper cable so that a failure in one segment would not cause a network outage. This approach will provide network redundancy and must be included in all campus plans. It is also costly. One estimate per linear foot for a four 4-inch conduit duct bank is $110, with the cost of manholes/vaults priced from $2,500 to $8,000 each.

At the present there are areas of conduit congestion where no conduit pathways are available. This would mean allocating funds for strategic upgrades and maintenance of the pathway system. A discussion of this subject is in the section titled Planned Pathway Growth.

Examples of physical redundancy in buildings is illustrated in the following diagrams

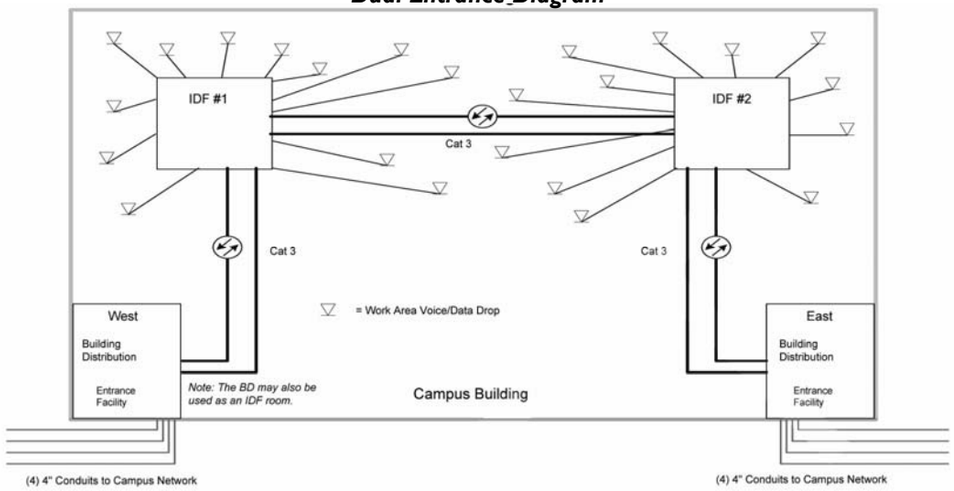


Redundant Entrance Campus Conduit Schematic

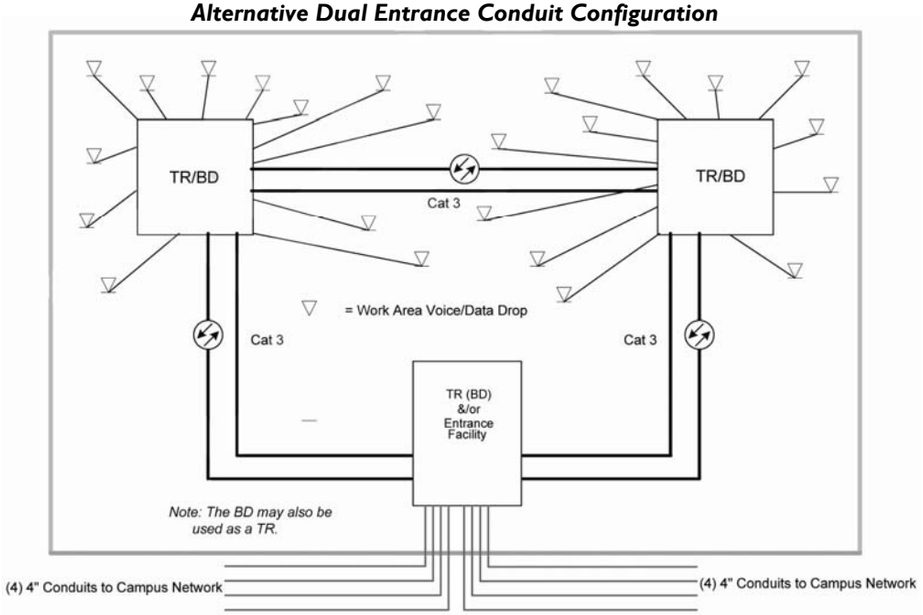


Group of Residential Buildings with Connecting Conduits and Redundant Duct Banks from Opposite Ends

Campus Building Distribution –
Dual Entrance Diagram



Campus Building Distribution –
Alternative Dual Entrance Conduit Configuration



Planned Pathway Growth

In conjunction with the plan for campus building growth, corridors for utility services must be mapped out. Included in this system would be the pathways for voice and data communications. The conduit duct banks that will need to be provided for whole areas of campus expansion must include duct banks of sufficient size to accommodate planned for and unforeseen growth.

Distribution

The existing communications vault and conduit system on campus is a number of years old and as such has a significant number of the conduits full. An inventory of this system should occur to assess its capacity to adding cabling for future building on campus.

ASU is using an eight inch ladder rack for a pathway in the utility tunnel. This ladder rack is for the most part filled to its capacity. It is recommended that this ladder rack be replaced with a rust and corrosion resistant full cable tray with a minimum size of twenty four inches. This will allow for all the growth needed for this pathway. Conduits from the Rassman building to the utility tunnel are available and will be sufficient if fill is properly managed. Currently there is no use of innerduct in these conduits. This makes it difficult to add cables to existing conduits. Any expansion to the east or west ends of the campus will require expansion of existing duct bank systems.

The method for providing communications connectivity to buildings on campus has been with fiber for data services, and copper for voice services.

For voice services the copper cabling is currently owned by Verizon communications. As the campus migrates to a Voice Over IP (VOIP) system, consideration needs to be given to maintaining current copper cable and adding copper cable to new buildings for the purpose of providing any analog phone lines (EG. fire/security system alarming), that may be required.

Backup of Information

Any robust system for insuring network integrity will also include some type of information backup. Storage Area Network (SAN) to protect and backup important data or other means of information backup must be part of the budgeting for campus growth.

Disaster Recovery

It is recommended that ASU create a disaster recovery plan, with an overall administrator, and section chiefs that are in charge of their areas. With the dependence of teaching and research on technology infrastructure, it is paramount that the campus maintain these plans. It is recommended that they be reviewed every year, and updated as needed. The design approach for the pathway system would be to create a system of redundant routes and an infrastructure that is flexible and resilient. One benefit of this structured design approach is that the system can be rapidly and easily reconfigured should the loss of a pathway or BD occur. By placing spare capacity and having redundant paths to serve the campus buildings, recovering from a disaster of this type is made much easier. From an information recovery standpoint, the plans should include procedures for on and off site storage of critical data, and the regular updating of the files. A plan is only as good as the design and the implementation. Therefore it would be prudent to allocate funds for the implementation and maintenance of the plans in the normal campus budget cycle.

Regulated Power

Computer-based systems need clean power. Computers, point of sale equipment, telecommunications and building management systems all rely on semiconductors to operate. Semiconductors perform by processing electric signals of less than a few volts each. Transient voltage disturbances confuse that process. Data may be lost or corrupted. Instructions garbled. Processes stopped. Systems need to be reset. Worse case, electrical overstress can destroy or degrade semiconductor material. The results are increasingly unreliable operation or seemingly random, sudden failures.

Until recently, clean power requirements have not been a part of overall planning. New construction requirements should specify reliable power that is free from voltage drops over a certain percentage, be free from disturbing harmonics, and be consistent. To insure power delivery within acceptable limits for IT infrastructure, the consideration of UPS, PDU, and generators would be necessary. As the cost for these items is generally high, and as they are usually in competition for limited resources, there is a tendency to limit their implementation. It is therefore recommended that they be considered in a strategic sense (included in budget planning) and installed in main communication and server rooms, with individual circuits for critical electronics in floor serving telecom rooms.

In conclusion, a commitment to the importance of correctly designing and maintaining a system of campus backbone pathways and communicating to decision makers how much this kind of technology infrastructure adds to the value of a viable infrastructure must be made.

Horizontal Distribution

Horizontal distribution is the extension of the campus wide services to the individual work areas and maintenance points. This is accomplished from a location in the building established for such purposes. These locations may be referred to as an IT room, Telecommunications Room (TR), Building Distributor (BD), Main Communications Room (MC), as well as many others. The current TIA/EIA standards are moving towards the international designation of 'Building Distributor' or as it shall be referred to from here forward, a BD. This naming convention alludes to the fact that multiple services that require horizontal distribution may be able to be collocated within this one room. With this understanding, the BD should be sized accordingly. That is, enlarged to accommodate systems that would likely be placed in the room. Additionally the migration to fiber-based electronic systems requires that when designing these spaces special attention be given to environmental conditions such as ambient temperature, humidity, and air quality. Robust grounding systems and dedicated electrical power circuits that are reliable and of good quality, are also important factors that should be considered when designing these spaces.

The TIA/EIA standards include guidelines for sizing these communications equipment rooms based on the number of square feet in the serving area and the work area density. These guidelines may be customized to fit the specific educational buildings needs. For example, a building with a high density of horizontal infrastructure will require a larger room than one with a low density infrastructure (EG. open office cubicles and library space, respectively). Furthermore, technical limitations require that these rooms must be located on the floor plan such that no one cable run to any work area will exceed an electrical cable distance of 295 feet.

Increased electronic equipment in the workplace raises the likelihood of interactions with the electric distribution system and requires a more sophisticated approach to preventing these interactions. Common power quality concerns, including voltage sags, swells, and surges, have led to the use of additional equipment, such as uninterruptible sources and battery-supported systems, to increase electrical reliability. Additionally, signal interactions in sensitive equipment can be difficult to trace. Energy managers can engage in a number of practices that will improve overall power quality in a facility and reduce the interactions due to harmonic currents in the load devices.

Due to this extreme sensitivity of electronic devices, and the newer high-speed copper UTP cables (Category 6), and the real life limitations of installing the cabling at a "safe" distance from power cabling and conduits, it is recommended that the total linear cable distance be kept to 270 feet rather than the TIA/EIA standard of 295 feet.

This practice will help to mitigate signal coupling and third and ninth harmonic disturbances on cables. Practically speaking, this means that a BD should be located no further than about 210 feet from the farthest information outlet as measured along corridors (for cable trays) and other likely cable pathways (for J-hooks). In a multi-story building it is recommended that there be a minimum of one room per floor, and that the rooms from the other floors in the building be stacked one on top of the other with at least three of the stacked walls in vertical alignment.

Once the BD's are sized and located, a system of pathways leading from the BD to the individual work areas should be carefully designed. As with the campus backbone conduit network, a system of pathways should be designed that has been sized for future capacities, is accessible, and is resilient. A resilient system would be one that can be added to, or reconfigured to meet current needs. If multiple services are to be distributed using a single pathway, it is recommended that a means of segregating the services be employed (separate cables). Each pathway would be labeled with the name of the BD room of origin. In order to be compliant with the NEC 2002 & 2005, and to facilitate the re-use of the horizontal pathways, all unused cables must be removed.

Wireless LAN Infrastructure

Wireless LAN connectivity is a technology that continues to evolve. The demand for wireless connectivity will constantly increase as more faculty, staff, and students acquire notebook computers with the expectation and desire to have them function "anywhere-anytime". The implementation of a ubiquitous wireless LAN infrastructure, possibly based on the newly ratified 802.16 WIMAX standards, will allow the students and faculty to work with greater flexibility and freedom. Currently, the university has a wireless overlay to its cabling infrastructure based on the 802.11 standard, and plans that call for the implementation of wireless connectivity in all future buildings. As with the wired network, wireless security is very important. It is recommended that several layers of authentication and verification be implemented to protect against unauthorized access to the campus network.

Telecommunications Infrastructure Planning Goals:

- Provide a reliable, scalable, resilient, and flexible technology infrastructure.
- Be a next-generation solution and have the ability to be expandable and handle new types of services and features.
- Accommodate new users in an easy, affordable manner.
- Be a centrally distributed solution.
- Documentation should be maintained for day to day maintenance issues as well as the moves adds and changes required for the operations personnel.
- The technology will be problem free and transparent for the end users.
- Incorporate redundant routing, back-up systems and preventative methodologies in the design of the campus infrastructure.
- Minimize the effects of integration of the new facilities.

- Evaluate and understand the impact of the construction on existing facilities.

Technology Infrastructure Construction Guidelines and Standards

It is recommended that campus-wide technology infrastructure construction guidelines and standards be adopted for the Technology Infrastructure for the campus. These standards should be based on TIA/EIA standards and will provide for a consistent application of technology infrastructure as new buildings are designed. These standards should be comprehensive and should be regarded as a living document that must be periodically reviewed and updated. This document will be used as a blueprint and protocol for vendors, contractors, consultants, planners, etc. This document will include all aspects of the ASU communications infrastructure (voice, video, data, broadband television, security and BMS (Building Management Systems). The document should be submitted for approval and acceptance by administration. Following the document's acceptance, it should be included as part of the campus's general construction guidelines as a required part of any future construction project.

Conclusion

ASU has all the resources needed to meet the demands of the systems as presently constituted. ASU's plan for IT services is to migrate to IP based systems using the existing campus fiber backbone. This plan includes the growth of voice, data, AV, CATV, and security services. As plans to support this migration begin to emerge; care should be taken to monitor the campus backbone bandwidth allocations and usage. This will insure that there will be no degradation in the level of service already provided to these systems.

Recommendations for the use of this Master Plan Document

This Master Plan document contains information that can be valuable to the creation of new Technology Infrastructure. It is recommended that it be used in its entirety and not have sections used without reference to the whole document. It should be considered a living document that must maintain its relevancy to the campus's changing environment. It is also recommended that procedures be established for periodic review and updating as conditions within the university change and as standards evolve. Once agreement on this document is obtained from relevant parties, it is recommended that it be used in the process of creating a set of construction guidelines for Technology Infrastructure and be used in the overall master planning process.

Codes – Comply with most recent editions of the following:

- Uniform Building Code (UBC)
- International Building Code (IBC), 2000 Edition
- NFPA, including 101, Life Safety Code, 2000 Edition
- National Electrical Code (NEC/NFPA 70,), 2002 Edition
- National Electrical Safety Code (NES IEEE C2-1997)
- IEEE Std. 1100-1999 Recommended Practice for Powering and Grounding Sensitive Electronic Equipment
- Uniform Fire Code
- Local Codes, amendments, and ordinances
- Americans with Disabilities Act Guidelines

Standards – Comply with most recent editions of the following:

- ANSI/TIA/EIA-455-A-1991: Standard Test Procedures for Fiber
- Optic Cables
- TIA/EIA-526-7 Measurement of Optical Power Loss of Installed
- Single-Mode Fiber Cable Plant - OFSTP-7 (August 1998)
- TIA/EIA-526-14-A Optical Power Loss Measurements of Installed
- Multimode Fiber Cable Plant - OFSTP-14 (August 1998)
- TIA/EIA-568-B1.1 Commercial Building Telecommunications Cabling

- Standard Part 1: General Requirements (August 2001)
- TIA/EIA-568-B.2-4 Commercial Building Telecommunications Cabling
- Standard Part 2: Balanced Twisted-Pair Cabling Components (June 2002)
- TIA/EIA-568-B.3-1 Optical Fiber Cabling Components Standard (April 2002)
- TIA/EIA-569-A-7 Commercial Building Standard for Telecommunications Pathways and Spaces (December 2001)
- TIA/EIA-570-A-3 Residential Telecommunications Cabling Standard (July 2002)
- ANSI/CEA S83-596-1994p Fiber Optic Premises Distribution Cable
- ANSI/TIA/EIA-526-7-1998: Optical Power Loss Measurements of Installed Single Mode Fiber Cable Plant-OFSTP-7
- ANSI/TIA/EIA-526-14-A-1998: Optical Power Loss Measurements of Installed Multi Mode Fiber Cable Plant-OFSTP-14A
- ANSI/TIA/EIA-569-A-1998: Commercial Building Standards for Telecommunications Pathways and Spaces
- TIA/EIA-598-B Optical Fiber Cable Color Coding (December 2001)
- TIA-604-5-C Intermateability Standard (FOCIS), Type MPO, FOCIS-5
- TIA/EIA-606-A Administration Standard for Commercial Telecommunications Infrastructure (May 2002)
- J-STD-607 Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications (October 2002)
- TIA/EIA 758-April 1999: Customer-Outside Plant ANSI/TIA/EIA-862-2002 Building Automation Systems Cabling
- BICSI TDMM 2003
- BICSI Cabling Installation Manual
- BICSI NTS (LAN) Design Manual 2003
- BICSI Customer Owned Outside Plant 2004

Signage and Wayfinding Report

This section of the report was prepared by fd2s inc.

Executive Summary and Scope

The paramount goal of this wayfinding master plan is to define a plan that is rooted in the specific needs, culture and conditions of Angelo State University. This is a unique place that deserves a tailored solution. The two concepts that provide a foundation for our Wayfinding Strategy are:

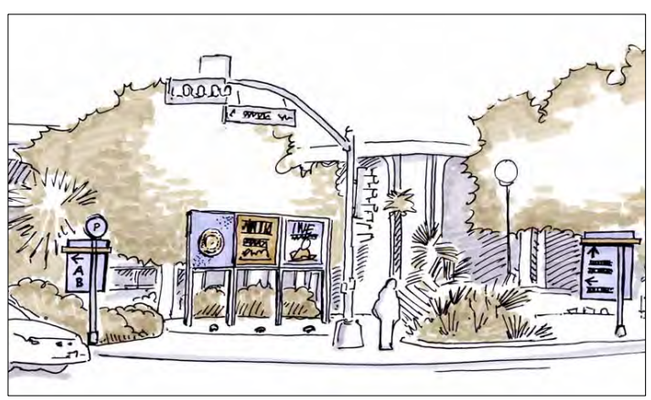
- Make information easy to access and easy to remember
- Put visitors and students in control by making the wayfinding system easy to understand.

The major wayfinding problems can be addressed by a relatively short list of directives:

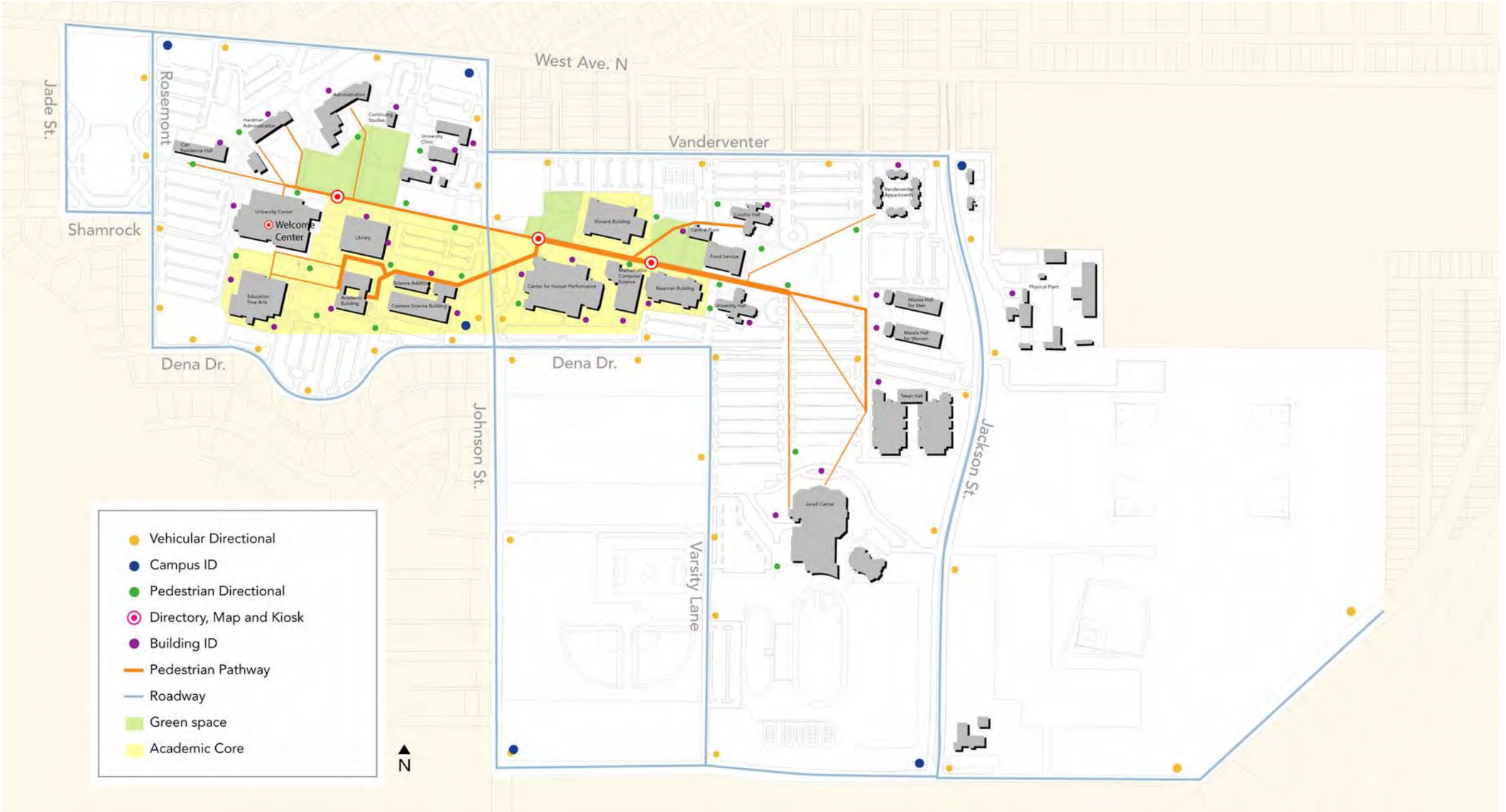
1. Provide students and visitors directions in advance of their departure.
2. Make navigating to the campus easy and intuitive.
3. Define the boundary of the campus with identification.
4. Implement a well-designed, comprehensive signage system that addresses users when they are within the campus.
5. Make it easy to find the right parking lot and building.
6. Create a good map and distribute it liberally.
7. Create a sense of place with pageantry.

Utilizing this initial research and analysis, fd2s has developed of a broad strategy for improving the wayfinding program at the campus. The strategy includes:

- An introduction to our philosophies and project methodology
- An overview of our findings regarding the challenges and opportunities uncovered during our initial research exercise.
- A summary of our recommendations in the areas of facilities, operations, and communications.
- Sketch-level documentation of recommended solutions for a representative selection of real-world wayfinding challenges in the campus environment.
- An action plan that recommends projects for short- and long-term implementation, and provides estimated fd2s fees related to these implementation activities.



Existing Site Plan – Proposed Sign Locations



Master Plan – Proposed Sign Locations

Highway Signage

Off-site Directional Signage

Make use of the TxDOT system to help new and potential students and other visitors find the "front door" of the university. Focus on traffic-sorting signage that will direct visitors to the appropriate campus entry.

Large, clear visible TxDOT signs should guide visitors to the entrance that best defines the campus and reinforces it's identity.

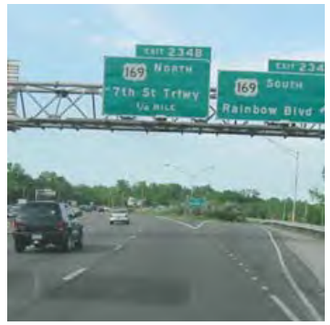
Primary

1. Houston Harte Expressway & Bryant
2. West Avenue N & Bryant
3. Knickerbocker & 360 Highway
4. Jackson & Bryant

Secondary

5. 67 Highway & West Avenue N
6. West Avenue N & Chadbourne (1223)

Examples



Motorist Orientation

Observations

- There is no directional information to help visitors and students navigate the campus.
- "What parking lot is this and is it close to my building?"
- Parking lots do not have names or designations.

Recommendations

1. Design an integrated and intuitive family of related signage or environmental graphic components that will include vehicular directionals that define the perimeter of the campus.
2. Label parking lots and the specific buildings they serve.

Vehicular Directionals
Parking Lot Identification
Parking permits

Examples

Campus Identification

Observations

- There is no sense of arrival as you enter the campus.
- Where is the "front door" to the University.
- The campus perimeter is ambiguous; it's hard to tell when you leave the campus.
- The LED on Johnson Street is inward focused and complicates the viewing of the pedestrian crossing.

Recommendations

1. The campus identification must create a sense of arrival.
2. Identify the main entrances and create a boundary using secondary signs and pageantry.
3. Pull the LED on Johnson Street out to a corner of the campus so it may address motorists on the perimeter of the campus.

Primary Campus Identification

This is the primary identification for the university.

Secondary Campus Identification

Smaller pylons or freestanding signs that are strategically placed at the perimeter of the campus or at the specific, high traffic locations.

LED Location

Examples

Pedestrian Directionals

Observations

- Pedestrians have no directional cues either on the campus mall or at the perimeter of the campus.
- "Where do I find the Science Building?"
- "Where can I eat lunch or buy a T-shirt before the basketball game?"

Recommendations

1. Place pedestrian directionals on the campus mall for easy navigation to buildings and other destinations.
2. Label parking lots and the specific buildings they serve.
3. These signs should also be used to direct students to meeting places and revenue-generating areas such as the book store and cafeteria/dining facilities.

Examples

Directory, Map and Kiosk

Observations

- Few locations exist where a visitor or student can gain information about the overall campus layout.
- "Where can I go to learn about upcoming events?"
- "Where do I find a map of the campus?"
- "I want to meet my friend at the Rassman Building. How do I get there from my location?"

Recommendations

1. Directories placed in strategic locations can help create meeting places and destinations for students and visitors.
2. Place directories along the mall that show building locations, and use them as displays for promoting upcoming events on campus.
3. Add a place for take-away flyers and maps at the beginning of each semester.
4. Interactive kiosks placed inside high-traffic buildings can alleviate staffing needs. These kiosks can be linked to the school data system, enabling students to print out their class schedules and maps showing promotions to generate interest in school activities or promote local businesses.
5. Group amenities to create destinations and meeting points at specific locations. Coffee carts, shade structures and benches can help create these meeting destinations or landmarks.

Directories
Maps
Posters
Pin-up space
Interactive
Shade and benches
Coffee carts
Merchandise
Meeting places / destinations

Examples

Building Identification

Observations

- The existing building signs are temporary on the mall side and don't reflect the brand of the university.
- Building names are not visible unless you are directly in front of the door.
- Not all of the buildings have the large brick building identification signs. These signs are oversized yet hard to see, placed only on the outer edge facing away from the mall.

Recommendations

1. Building signage should be placed perpendicular to the traffic on the mall. Signs should be appropriately sized and reinforced with the name of the building above or close to the door.
2. Each building has multiple entrances, so the signs must be developed to work in a number of locations. A directory could be built in the building ID.
3. Develop a system to identify buildings from the street. For example, building name abbreviations placed high on building exteriors would help both vehicles and pedestrians navigate the campus. Entrances that face away from the mall should be clearly identified.

Building Identification – Freestanding
Building Identification – Mounted three-letter abbreviation of building name
Identification from the street
Directories included on ID
Identification above or near the entrance

Examples

Pageantry

Observations

- The existing site has a series of banners along the mall, but nothing on the exterior of the campus.
- There are little or no opportunities inside or on the exterior of the campus for the ASU identity.
- There are no opportunities for posters or banners to promote up-coming events on campus.

Recommendations

1. Create a sense of place with informational graphics, pageantry and directional signage with consistent look and feel.
2. Use pageantry and other displays to reinforce university goals and mission.
3. Create opportunities for the ASU mark and brand.
4. Create a consistent structure for posting flyers and banners to promote campus and local activities.

Poster display
Banners
Promote the campus name /brand

Examples

Project Matrix

		Qty.	Implementation Fabrication*	Project Definition Design*
Short-term projects	Vehicular directionals	44	$ 130,000	
	Campus identification	8	$ 40,000	
	Pedestrian directionals	23	$ 69,000	
	Building directory / maps	8	$ 40,000	
	Building identification	48	$ 90,000	
	Comprehensive electronic signage standards	•	TBD	$ 15,000
	Total Design fee for short-term projects - phase 1			**$ 96,000**
Long-term projects	Branded campus identity system	•	TBD	$ 10,000-20,000
	Off-site directional signage - TxDOT	4	$ 20,000	TBD
	Entry experience upgrades	•	TBD	$ 20,000
	Parking lot identification and permits	21	$ 95,000	TBD
	Exterior campus kiosks	6	$ 25,000	TBD
	Touch-screen map / interior / element structure only	2	$ 20,000	TBD
	Amenity centers / Retail hubs	•	TBD	$ 15,000-25,000
	Total Design fee for long-term projects - phase 2			**TBD**
Additional enhancements	New student information packet	•	TBD	$ 8,000
	Public art	•	TBD	TBD
	Student, visitor campaign	•	TBD	$ 20,000
	Branded web site	•	TBD	$ 25,000-50,000

Note:
** Estimates based on only the existing site plan analysis. Further analysis may be required for future implementation.*

Student Housing Report

This section of the report was prepared by Anderson Strickler, LLC. This section contains only the executive summary from the original report. The full report is available as a separate document upon request to university officials.

Introduction

Facility Programming and Consulting (FPC) retained Anderson Strickler, LLC (ASL) in the fall of 2004 to conduct a student housing study for Angelo State University (ASU). ASL met with representatives of the University and FPC; conducted focus groups with current students; studied the rental housing market in San Angelo; spoke with local property managers, realtors, public officials, employers, and organization leaders; prepared and analyzed a survey of current students, and analyzed the demand for housing on the ASU campus. ASL also developed a pro forma model of a new housing project based on the results of the market study.

ASL would like to thank ASU's Sharon Meyer, Vice President for Finance and Administration; Connie Frazier, Director, Residence Life; and John Russell, Assistant Facilities Management Director and FPC's Hiro Mishima for their help and support throughout this assignment.

Focus Groups

ASL's three focus groups at ASU represented freshman and sophomore students who are required to live on campus, juniors and seniors who live on campus by choice, and students who live off campus. Students who live on campus appreciate being near campus facilities and the ability to meet other students and interact socially. Participants believe that living on campus helps students adjust to college.

Students living on campus dislike the poor sound insulation and having a roommate; those who plan to move off campus gave the frequent fire alarms, the noise transmission through the thin walls, and the lower cost of living off campus as justifications. Some participants noted that they might have considered living on campus junior year had apartments been available with kitchens and if there were no RAs.

Students who remained on campus past the 60-credit-hour requirement tended to do so because they could select a hall meeting their personal criteria. Some students remaining at their home with their parents felt no need to move, as they already lived close enough to campus. Living off campus provides the advantages of being able to park at the door, having a washer/dryer, and having responsibility and independence, but at the cost of the regular social interaction on campus.

Roommate experiences vary widely. Some participants came to ASU with a pre-selected roommate and have had a positive experience; others see the need for a more extensive questionnaire in the matching process. Parents tend to play a consultative role in housing decision-making. Some participants discussed the situation with their parents and together reached a decision; others discussed it with their parents but made the final decision independently. RAs play a constructive role but could be more proactive in resolving roommate conflict or enforcing quiet hours. The programs offered on campus help students meet other people. Some would prefer more security; some indicate that the enforcement of the alcohol policy is a determining factor in students' decisions to move off campus.

The food served is of poor quality according to some residents; others would like fast food franchises included in the meal plans. Longer hours would attract more students, but some view the meal plans as expensive and resent the loss of unused balances at years end.

Game rooms, computer labs, weight rooms, and community kitchens would all be attractive to some participants. Outdoor areas—green space for Frisbee, a basketball court, a swimming pool, or a picnic area with a barbeque grill—should not be forgotten. Compared to housing at other Texas universities—specifically A&M or Texas Tech, the private bedrooms and lack of community bathrooms make ASU's housing more attractive.

The moderator shared several unit floor plans with participants to gather feedback and encourage discussion.

A two-double-bedroom suite's living area is attractive, but prompted some participants to desire a kitchen or kitchenette. The shared bedroom reminds one participant of being at camp; it is acceptable for a

week, but no longer. In a four-single-bedroom suite, participants like the two bathrooms for four students and the individual bedrooms; some noted that this unit retains a community feel but still allows a student in search of privacy to go into the bedroom and close the door. Participants would generally allocate space to the living area instead of the bedrooms. A two-single-bedroom suite was quite popular, but participants feared a high cost. Two-doublebedroom apartments seem to many participants to be a more attractive option than any current offerings. For some, this unit is not as attractive as the four- or two-single-bedroom suites: they "would choose privacy over a kitchen any day."

Although some prefer the four-single-bedroom apartment to Texan Hall, some would not be willing to pay more to live in it. Others prefer this to all other options but despite difficulty in determining its worth, express concern that it is too costly. Participants like a two-single-bedroom apartment, but some express concern that it would not make sense to choose it instead of living off campus. "Really nice," according to one participant, this unit raised concern about cost with most participants.

Participants typically believe that the ideal number of residents per bathroom is two, although four might be acceptable should there be some sort of compartmentalization; the ideal number of residents per unit is four; most prefer private bedrooms, academic-year leases, and furnished units.

Single-occupancy bedrooms, apartment-style living, no rules or RAs, a recreation room with a snack bar, a swimming pool and hot tub, fitness facilities, kitchens in the unit, and better laundry facilities were some attractive features participants proposed. Community bathrooms, curfew rules or strict visitation policies, quad-occupancy bedrooms, bunk beds, juniors and seniors being required to live with lower-division students, no air conditioning, and incessant fire alarms would deter participants from choosing to live on campus.

Rental Market Housing

ASL gathered information on San Angelo's housing market through direct observation, conversations with property managers and real estate market experts, and used a list of student addresses to map student residences and attempt to determine "popular" housing areas. The rental housing market provides little housing specifically targeted to students, generally has many affordable housing units, and has no new housing developments on the horizon.

The ASU-provided list of student addresses revealed a wide dispersion of students throughout San Angelo, although more are concentrated in 76904 than in other ZIP Codes. Although there may be a somewhat higher concentration to the south and west of San Angelo, there are no large residential areas without some students.

ASL researched 37 local rental apartment properties with 3,562 units. Rents in this sample, generally not including utilities, range from $285 for a one-bedroom apartment to $795 for a two- or threebedroom unit. Median rents increase by $95 from one-bedroom units to two-bedroom units and by $130 from two-bedroom units to three-bedroom units. Unit sizes vary considerably, but are considerably larger than the on-campus housing students have experienced. In no cases are the maximum rents per square foot for a given unit type more than double the minimum. As a representation of the quality of units available, this data suggests that the range of quality is similarly narrow.

Since students move off campus to get their own bedroom, but typically do not share a bedroom, the rent per bedroom serves as a proxy for the rent per student. Individuals' rents would therefore vary from $158 in an economical three-bedroom unit to $595 in the most expensive one-bedroom unit in ASL's sample.

All apartments in San Angelo offer air-conditioned units. None include washers and dryers in the unit, although about a quarter do offer washer/dryer connections. A third of properties can provide furnished units, and most have dishwashers. More than half allow pets, typically with a one-time fee, a deposit, and/or a monthly "pet rent." Only about a third of properties cover the cost of electricity in some or all of their units, and less than half cover heat. Several properties offer the option of an all-inclusive package at a higher cost that does include electricity in the rent. Three-quarters include the cost of water, sewer, and trash, while seven-eighths include basic or extended cable TV.

Virtually all complexes have a laundry facility, and most have pools; only a third offer covered parking.

Less than a quarter have a clubhouse, and only a sixth have fitness centers. About one out of eight have tennis or volleyball, and only half that many provide playgrounds. Most offer 12-month leases and six month or nine-month leases, sometimes at additional cost.

A published report that surveyed a larger sample of 60 complexes observed a 2004 average rent of $469 and an average rent per square foot of $0.58, an overall increase in rents of 2.9% from 2003 to 2004. From an interview with an official with the San Angelo Apartment Association (SAAA), ASL learned that one factor explaining the stagnant growth in the apartment market is the affordability of purchasing a home in San Angelo. The median price of homes sold in San Angelo is under $90,000; the low interest rates in recent years have made it especially attractive for many to purchase a home rather than rent.

Neither the SAAA official, nor officials at the San Angelo City Building Permit office, nor officials at the Planning Office are aware of any planned development of multi-family housing. No one has developed new multi-family housing in San Angelo since 1999 and officials are skeptical about the likelihood of a developer constructing new student-oriented housing without the support of the University.

Peer Institution Analysis

ASL performed a peer institution analysis, contacting representatives from institutions and analyzing occupancy, housing trends, cost, policies, amenities, and total cost of attendance and obtained information from published sources. The following institutions comprised the peer group: SUNY College at Buffalo (Buffalo), Eastern Washington University (EWU), Sam Houston State University (SHSU), Tarleton State University (TSU), Texas A&M – Commerce (TAMUC), Texas A&M – Kingsville (TAMUK), University of Texas – Arlington (UTA), University of Texas – San Antonio (UTSA), Valdesto State University (VSU), and West Texas A&M University (WTAMU).

ASU offers 1,553 bed spaces to its students, just below the median of 1,967. SHSU offers the most (3,638) and TAMUK offers the fewest (1,340). ASU houses 26% of enrollment, one of the top three peers. TAMUC offers the highest percentage (28%) and UTA the lowest percentage (7%). The median percent of beds to enrollment is 21%. ASU and VSU reported fall 2004 occupancy over 100%. Typically, occupancy rates drop for spring semester, as is the case with ASU, which dropped to 96%. TAMUC reports unusually low occupancy, 71%, which has not been confirmed.

ASU's predominant unit type is a traditional room with semi-private bathrooms and shared community spaces. Nine peers offer similar housing to their students. Rates range from $1,100 to $2,138 per person, per semester. ASU's rate for a double bedroom in Concho Hall is the median rent—$1,362 per person. Carr Hall is slightly lower ($1,333) and Massie Hall is higher than the median ($1,499).

ASU also offers single-occupancy bedrooms in traditional halls. Seven of ASU's peers offer similar housing. Rates range from $1,188 at EWU to $3,501 at UTSA. ASU charges $1,771 for a single room in Carr and Concho Halls, just above the median of $1,673. Massie Hall's rate is $1,948. Other campuses offer suite-style housing (multiple bedrooms with shared bathroom and living area). Rates for single rooms range from $1,281 (EWU) to $2,453 (UTSA). Double room rates range from $898 (EWU) to $3,290 (UTSA).

Most peer campuses require freshmen to live on campus and some require sophomores to live on campus. Those that do require students to reside on campus have different requirements. For example, at TSU, WTAMU, and TAMUK, all single students under 21 years of age are required to live on campus. Some base the requirement on the number of credit hours completed. There are exceptions for those who live near campus or those who live with parents or guardians.

Generally, residence hall and apartment room rates include all utilities, basic cable TV, and an Internet connection. EWU rates include all utilities except electricity and apartment rates do not including Internet connection. Housing contracts are for the academic year, with some institutions offering semester, quarter, or 12-month contracts. The most common amenities found in housing are on-site laundry facilities, study lounges, volleyball courts, and furnished units. Other popular amenities include basketball courts, community kitchens, computer labs, and TV or game rooms. Few campuses offer on-site dining, convenience stores, or recreational facilities like a swimming pool or fitness center.

ASL reviewed tuition, fees, and room rates[1] for this peer group. The median is $6,288. When comparing these costs, ASU is just below the median at $6,218. WTAMU is the lowest at $4,838, and UTSA is the highest at $7,965.

Note:

1 Room rates are for traditional double rooms.

Student Survey

ASL prepared questions for a Web-based survey for ASU to distribute to all students as part of a larger Campus Master Planning survey; the resulting response of 246, was comprised of 144 students who live off-campus and 102 who live in ASU housing. Respondents' class levels and other demographics were generally in line, but ASL calculates demand by class level and enrollment status to eliminate any distortion in the results.

Housing survey respondents were 37% male, compared to 44% of ASU's total enrollment. Four-fifths of respondents were 21 years old or younger. Before attending ASU, about a quarter of respondents lived in San Angelo, with another two-thirds coming from elsewhere in Texas, 4% from another state, and 2% from another country. About 59% of respondents live off campus and more than half of these live in apartments or other rental housing; 14% of those who own their homes or live with their parents or other guardians would consider living on campus. Residence on or off campus varied depending on where respondents lived prior to attending ASU; 56% of those from elsewhere in Texas lived on campus.

Satisfaction with the current housing situation varied among different groups.Those in the on-campus unit types affording the most privacy tended to be the most satisfied, with satisfaction levels surpassing those who live in apartments off campus and those owners or living with their parents who would have considered living on campus.

Several questions on the survey addressed the particulars of the arrangements of those who rent their housing. Renters live in apartments—44% in apartment complexes or buildings and 7% in houses or converted houses—and houses rented as a whole (49%). Students are widely dispersed: of the 41 who named residences, only one—Arroyo Square—had four residents and only one—Stadium Oaks—had three; the rest had only one or two.

Only 10% of renters share a bedroom with a roommate, while 75% have a room to themselves and 15% share with their spouse, partner, and/or children. The distribution of the number of people per unit closely resembles the distribution of the number of bedrooms.

Half (49%) of renters live with roommates or apartment mates, 25% with parents or guardians, 18% alone, 15% with a spouse or partner, and 7% with their children. Half (48%) have their own bathroom, while another 39% share with at most one other person. A third (35%) have six-month leases, a quarter (24%) have 12-month leases, few have month-to-month (6%) or academic-year (3%) or semester (2%) leases, and 30% have unspecified lease terms of "other." Most (70%) have furnished units, while 16% are partially furnished and 14% are not furnished.

Renters identified themselves as belonging to one of three groups: 60% live on their own or with roommates/apartment-mates, 25% live with their parents/guardians but contribute towards their living expenses, and 15% live with their spouse/partner and/or children. For those single students living on their own or with roommates or apartment-mates, median monthly expenses per student—rent plus utilities—were $488 for a one-bedroom unit, $371 for a two-bedroom unit, and $386 for a three bedroom unit.

Given the on-campus living requirement for those with less than 60 credit hours, many students who live off campus previously lived on campus. The top reasons given for moving off campus were the desires for a more independent lifestyle, having a kitchen, and more space. In their selection of ASU over other higher education institutions, the availability of quality student housing was more important for those who live on campus than for those who live off campus. As for which groups housing should serve, most students believe that it is most important to serve freshmen, followed by international students, transfer students, and sophomores. Comparatively few believe it important to house graduate students, seniors, or those with a spouse, partner, and/or children.

The survey asked respondents to give the top five selection factors they used in the selection of their housing for the 2004-2005 academic year; affordable cost received the highest score, for both on- and off-

campus respondents, but off-campus respondents valued adequate living space and personal privacy the next in importance while on-campus respondents valued more the proximity to campus and the ability to meet other students.

Respondents ranked the importance of various improvements to campus housing, bearing in mind that improvements come at additional cost. For facilities improvements, on- and off-campus residents' top desire was larger rooms with an on-campus residents also valuing highly storage space and sound insulation, while off-campus residents also desired private bedrooms.

In terms of the amenity improvements, on-campus residents' top desire was laundry rooms with an adequate number and size of machines, while off-campus residents' top desire was for computer labs.

ASL tested unit plans for student preference. Rental rates were estimated based per person by academic year. The survey asked students to rank each unit plan as 'preferred,' 'acceptable,' or 'would not live there.' Rents assume that all units are furnished and that prices include the cost of utilities, local telephone, Internet, and cable TV. Rents do not include meal plans and assume an academic-year contract. Looking only at "preferred" unit choice, survey respondents prefer the two-single-bedroom apartment and the two-single-bedroom suite to other options. For most options, only about a third or respondents found them so unattractive that they chose "would not live there."

For lease terms, 58% of off-campus respondents and 48% of on-campus respondents preferred a 12-month option with the additional three months at the price of two months, despite the relatively low prevalence of 12-month lease options in the rental market.

If the student housing options presented in the survey had been available to the respondents for fall 2004 when they were choosing their housing for the academic year, 27% of the overall respondent population would have definitely lived there; 10% of off-campus respondents and 51% of the full-time group shared this highest level of interest. About 21% of respondents overall indicated unequivocally that they would not have chosen to live in the new housing when deciding where to live.

Those who would consider, but turned out to not be interested in, the proposed housing cited the housing being too expensive as the main reason, followed by living at home and the concern about the level of rules and regulations. The level of interest in living on campus varied with the respondents' prior living location. International students and those coming from elsewhere in Texas than San Angelo expressed the most interest.

Demand Analysis

Based on the results of the survey, ASL analyzed demand to estimate the number and type of units desired by students. ASL estimated the demand from full-time single students for the proposed housing in fall 2004 to be 554 beds (statistically, between 293 and 837 beds). The following table summarizes the results of this approach to calculating potential demand for the proposed housing for fall 2004.

Potential Demand, Fall 2004

FALL 2004 Class	Full-time Off-Campus Enrollment	Definitely Interested Capture Rate	Definitely Interested 75% Closure	Might Be Interested Capture Rate	Might Be Interested 25% Closure	**Potential Projected Demand**
Freshmen	799	7%	44	41%	81	**126**
Sophomores	688	7%	37	57%	98	**135**
Juniors	736	13%	69	25%	46	**115**
Seniors	944	8%	53	40%	94	**148**
Graduates	148	17%	19	33%	12	**31**
	3,315		222		332	**554**

Using the demand calculation and participants' preferred unit types results in the distribution of demand shown in the table on the following page. Again, the most preferred unit type is the two-single-bedroom apartment, followed by the two-double-bedroom apartment and the two-single-bedroom suite.

The 554 beds of demand discussed above are based on fall 2004 enrollment. The University has expressed the goal of reaching overall enrollment of 10,000 in 2028. Using the same methodology above would result in demand for 771 beds in 2015 and 1,028 beds in 2028.

Another goal that the University wanted to test was the feasibility of reaching a point by 2028 where half of those enrolled lived on campus; however, virtually all the growth in full-time enrollment would have to live on campus to reach the 5,000-bed goal. Since the West Texas region may experience marginal population growth over the next several decades, the University expects the source of much of the new enrollment to be from within the state of Texas but outside of the San Angelo area; in this case the interest in living on campus could be as high as the percentage of those from elsewhere in Texas who now live on campus. Since each of the class levels have a different current rate of living on campus, ASL calculated the demand at the 2015 milestone and the 2028 years in the table below. Since ASU projects a full-time enrollment of 7,802 and a total enrollment of 10,000 in 2028, the 3,557 beds would represent 46% of full-time enrollment and 35% of total enrollment, a more realistic achievement than the 5,000-bed goal.

Pro Forma

ASL produced a simple development budget and pro forma operating statement using some assumptions that ASU and FPC have approved and others based on ASL's knowledge and experience modeling housing developments and assuming that the project will be developed and owned by a non-profit foundation but managed in coordination with the University. The assumptions used are summarized in the following table.

Construction hard costs are in line with national data providers' local estimates and the actual costs of Texan Hall. There may be pressure to increase quality; therefore, it is unlikely that ASU can achieve

Demand by Unit Preference

Unit Type	2004 AY Survey Rent Per Student	Off-Campus Preference	Fall 2004 Demand
Double-Bedroom Semi-Suite	$3,569	2%	11
Single-Bedroom Semi-Suite	$4,748	8%	44
Three-Single-Bedroom Suite	$5,229	9%	48
Two-Double-Bedroom Suite	$4,829	9%	52
Four-Single-Bedroom Suite	$6,029	13%	70
Two-Single-Bedroom Suite	$6,389	14%	78
Two-Double-Bedroom Apartment	$5,379	14%	78
Four-Single-Bedroom Apartment	$6,519	11%	59
Two-Single-Bedroom Apartment	$7,639	21%	115
		100%	554

Demand Projections for Enrollment Growth to 10,000 Target

	2004	**2015**	**2028**
Demand from Growth-Freshmen at 75%	*0*	*244*	*533*
Demand from Growth-Sophomores at 76.47%	*0*	*129*	*280*
Demand from Growth-Juniors at 42.11%	*0*	*146*	*319*
Demand from Growth-Seniors at 34.15%	*0*	*128*	*280*
Demand from Growth-Graduate at 20%	*0*	*19*	*42*
Total Demand from Growth	0	667	1,454
On-Campus Total	1,548	1,548	1,548
Fall 2004 Off-Campus Demand - Total	554	554	554
Overall Demand	**2,102**	**2,769**	**3,557**

substantially lower rents without changing the terms of the financing or operating costs. The assumed terms of financing would be typical for a project funded with tax-exempt financing arranged by a 501 (c)(3) foundation working with the University.

Financial Plan: Student Housing

Assumption			Notes
Construction Hard Cost	$92/GSF	$29,050/Bed	Consistent with market estimates and national average
Total Development Cost	$149/GSF	$47,119/Bed	
Project Size	162,602 GSF	512 Beds	Average of 317 GSF/Bed
	Annual Rent:	Per month:	Unit types:
Unit Options	$4,829	$540	16 Two-Double-Bedroom Suites
	$6,029	$670	32 Four-Single-Bedroom Suites
	$6,389	$710	32 Two-Single-Bedroom Suites
	$5,379	$600	16 Two-Double-Bedroom Apartments
	$6,519	$720	32 Four-Single-Bedroom Apartments
	$7,639	$850	32 Two-Single-Bedroom Apartments
Occupancy		95%/100%	Academic year/summer
Revenue Escalation		3.0%	Annually
Other Revenues		7.8%	of Net Revenues
Operating Expenses	$9.15/GSF	$2,900/Bed	Annually, per GSF or per Bed
Management Fee		5.0%	of Net Revenues
Expense Escalation		3.0%	Annually
Financing		6.05%	Interest, Tax-Exempt Debt
		30 years	Loan Term
		100%	Loan-to-Value Ratio
		1.20	Debt Service Coverage Minimum
		6 months	Debt Service Reserves
		6 months	Capitalized Interest

Phase I Report

Table of Contents of This Chapter

Appendix II: Phase I Report

Introduction

The Phase I Report was originally published earlier in the project to support Phase II, Plan Development. The report has been changed to incorporate review comments received in November 2004. However, during the Phase II, some of the planning parameters were modified as the final plan was developed. Where discrepancies occur, the final master plan supersedes this Phase I Report.

Introduction

Purpose of This Report

Angelo State University initiated a comprehensive campus master plan project in the summer of 2004. The university engaged Facility Programming and Consulting and Ford, Powell & Carson, Architects and Planners, Inc., to oversee and develop a comprehensive campus master plan. The planning team also includes URS Corporation to address the mechanical, electrical and plumbing (MEP) systems and existing facility conditions, J. M. Waller Associates for civil and environmental issues, fd2s, inc., for wayfinding and signage, DataCom Design Group for technology and Project Cost Resources for cost estimate.

The purpose of this report, the Phase I Report, is to summarize the initial fact-finding effort. This report covers a broad range of existing university conditions including demographic, physical, interior space, facility condition, MEP and technology issues. This document will serve as a factbook among project members as the process moves forward.

Planning Process

The campus master planning process consists of two phases: fact-finding and development of the campus master plan.

Phase I: Fact-Finding

The planning team initiates information gathering efforts in order to understand demographic, physical, engineering and technical issues. This process also involves determining an overall framework of future university growth. The future growth scenario will set a course of project direction and guide the later Plan Development phase.

Phase II: Plan Development

This phase will deal with the physical form of the university and develop a plan for future growth. This process involves active participation of the Angelo State university working committee. Two planning charettes will be used to generate and examine ideas and concepts. The developed concept will be refined and finalized into the campus master plan.

The final document will include the campus master plan, architectural design guidelines, MEP, technology, residence life and wayfinding plans to guide the future development of the university.

General University Information

History

The institution that would become Angelo State University was founded in 1928 as a two-year junior college known as San Angelo College. This college, originally part of the San Angelo Independent School District, became a part of the Tom Green County Junior College District when the junior college district was established in 1945. The first building on ASU's present campus was built in 1947.

The college became an accredited institution of higher learning after authority over the college was transferred to the Board of Regents, State Senior Colleges, on September 1, 1965. The first baccalaureate degrees were awarded in May 1967, and the name of the institution was subsequently changed to Angelo State University (ASU) in May 1969. Dr. Lloyd Drexell Vincent became the second president of San Angelo College in 1967, succeeding Dr. Raymond M. Cavness. The Texas Higher Education Coordinating Board approved the creation of a graduate school at ASU in 1970, and the first graduate students were admitted in 1971.

Angelo State University became a member of The Texas State University System in 1975 when the Texas Legislature changed the name of the governing board to Board of Regents, Texas State University System. Following the death of President Vincent in 1994 and service by Interim President Michael P. Ryan, Dr. E. James Hindman became the third, and current, president of the university.

Mission Statement

Angelo State University is a regional comprehensive coeducational institution of higher learning offering programs in the liberal and fine arts, sciences, education for the health professions, teacher education, and business administration, as well as courses of study designed to meet entrance requirements for various professional schools.

In the baccalaureate programs the primary responsibility of Angelo State University is to provide opportunities in higher education for the citizens of the State of Texas. The University, through its programs, seeks:

to provide students with a basis for making sound decisions and mature judgments which depend upon an understanding of the social, scientific, literary, artistic, political, and philosophic traditions of many cultures;

to help each student reach maximum capability with respect to communications, effective reasoning, and analytical thinking, and to provide standards of physical and intellectual discipline which lead to optimal personal development and useful, responsible citizenship;

to educate students for living and working in a competitive global society;

to prepare interested, qualified students for graduate study and for scholarly occupations;

to provide selected professional programs which supplement students' general education and enable them to become competent in fields requiring specialized training;

to conduct research with the intention of engaging the student in independent study.

The purpose of the Graduate School is to provide advanced, specialized training which will strengthen the academic and professional competence of the students. The graduate programs are designed to develop students' capacities for independent study, to train students in the techniques of research, and to acquaint them with research in their fields of study.

In order to promote strong educational opportunities, the University encourages programs of faculty research which add to the total body of knowledge, develop new and improved techniques of instruction, and maintain the competence of faculty members in their respective fields. Teaching is the foremost area of faculty contribution, however, followed by creative or scholarly activity and service. Faculty, staff, and administration participate in a campus culture in which students receive personal attention in academic advisement and student support. Recruitment and retention of instructional and administrative personnel reflect the University's commitment to diversity.

Angelo State University is committed to the equal consideration of all qualified applicants for admission. Articulation with community colleges enables students to transfer credit. Students are offered encouragement in their university lives through a variety of support services, such as

financial aid, residence life, social and career development, and counseling. Cultural and athletic programs supplement academic programs to increase students' awareness of healthy and complete lifestyles. Access to the university's physical and intellectual resources is provided to students of varying capabilities. Alumni are encouraged to maintain contact.

Partnerships with local, regional, and state agencies increase the university's role in public education, business, health, and information retrieval. Special research in agriculture is supported by the Management, Instruction, and Research Center, where applied research is conducted primarily in domestic livestock production and range management. Both traditional and technological learning resources are utilized in instruction and research and to provide special services and programs of continuing education and distance education which contribute to the cultural and economic welfare of the region served by the University. The University strives to broaden the experience of its students and faculty through programs of international education and exchange.

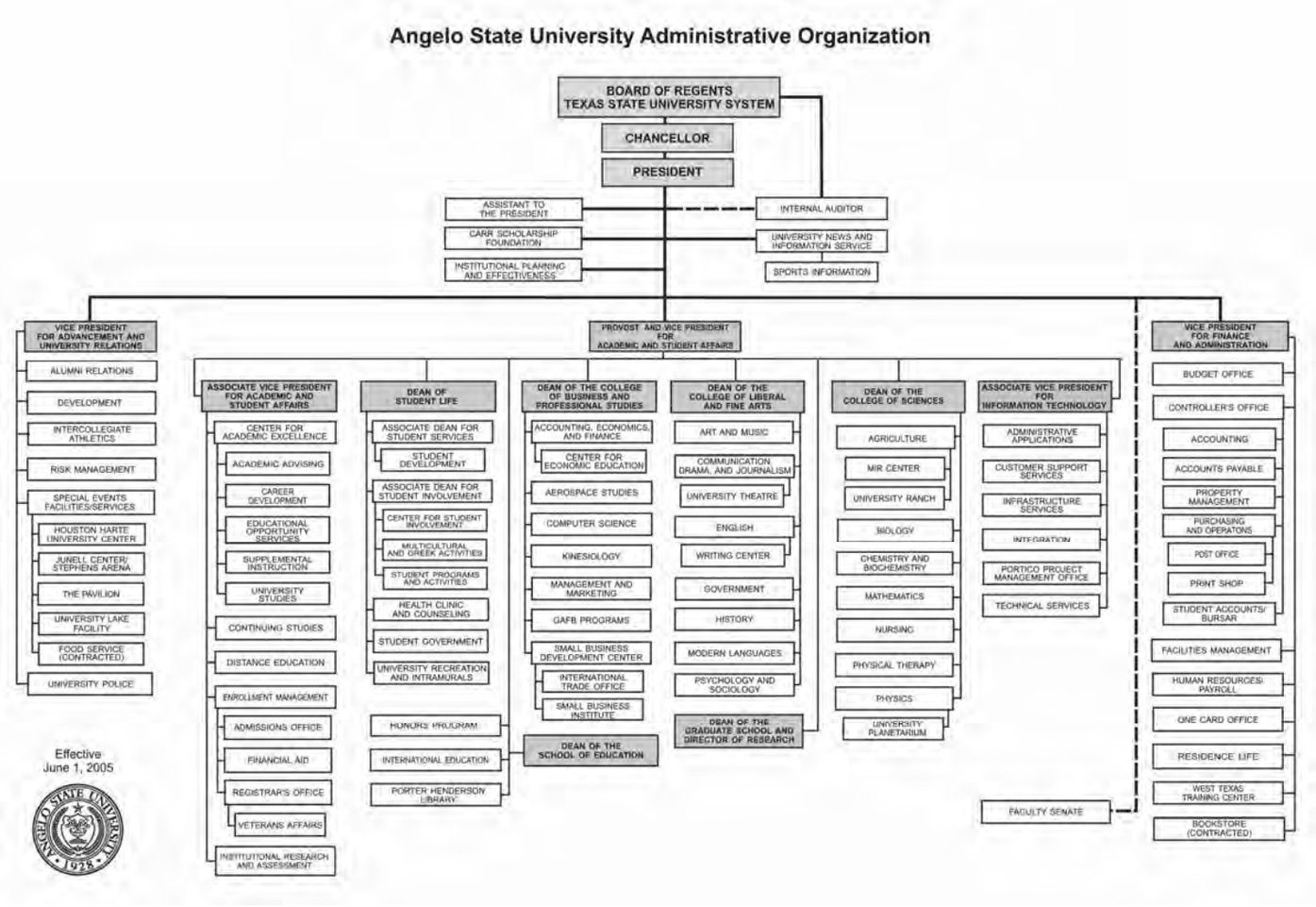
Long-range planning, evaluation, and program assessment are part of the decision-making process at all levels. The University's commitment to improving quality extends to its administrative services and provides support to maintain the infrastructure, expand information resources, develop technological equipment and programs for academic and administrative improvement, ensure fiscal responsibility, and promote public safety and institutional advancement. Recognizing its responsibility to the community, the University offers many cultural opportunities and business, health, educational and volunteer services to the region.

Angelo State University is committed to providing a wide range of high quality academic programs and strives to develop in its students those qualities which will enable them to enrich their personal lives, improve their abilities to serve and contribute to society, and become leaders in their professions and in their communities.

Approved by the Board of Regents,
The Texas State University System,
August 9, 1997.

Reapproved by
the Texas Higher Education Coordinating Board
January 25, 2001

Organizational Structure



Admission Requirements

An applicant from an accredited or unaccredited high school must meet one of the following requirements to be eligible for regular admission:

- Satisfactorily complete the Texas Scholars Program or the Recommended High School Program
- Rank in the top half of the senior class at the time of application or graduate in the top half of the graduating class
- Present a composite score on the Enhanced American College Test (ACT) or a combined verbal and math score on the Scholastic Assessment Test (SAT I), for the high school class rank shown below:

High School Class Rank	Test Scores ACT or SAT
Top Half	No minimum
3rd Quarter	23 ACT 1,030 SAT
4th Quarter	30 ACT 1,270 SAT

- Have a 50% or greater probability of earning an overall C average (2.00 GPA) during the freshman year at Angelo State University as computed from the student's high school grades and ACT or SAT I scores

Estimated Costs

The total estimated cost per fall semester is approximately $5,073 based on 15 semester credit hours. The following is the breakdown of the estimate based on fall 2004:

Estimated Costs Per Fall Semester

Item	Estimated Cost	Unit
Tuition and Fees (15 semester credit hours)	$1,890	per fall semester
Room and Board with 7-Day Meal Plan*	$2,633	per fall semester
Damage Deposit for Residence Hall	$100	one-time fee
Books (varies with major)	$400	per fall semester
Parking	$32	per year
P.O. Box	$18	per year
Total	**$5,073**	per fall semester

*Note: * Based on Massie Hall Double Room Rate*
Source: Angelo State University

Carr Academic Scholarship

Mr. and Mrs. Robert G. Carr bequeathed to the Board of Regents, The Texas State University Systems, as Trustees for the use and benefit of Angelo State University, their very significant joint interests in oil, gas and other minerals with the provision that these properties be held in trust for the purpose of providing academic scholarships for the needy and worthy students who are enrolled at Angelo State University.

Carr Scholarship Endowment principal value is approximately $60 million. As of April 2005, 921 students (unduplicated count) received scholarship awards totaling approximately $2.8 million.

Federal Pell Grant is another financial aid. As of April 2005, 2,049 students (unduplicated count) received awards totaling approximately $2.9 million.

Total of 4,592 students (unduplicated count) received financial aid totaling approximately $15 million for the academic year 2004 to 2005.

Athletics Program

The university is affiliated with the National Collegiate Athletic Association (NCAA) and participates on the Division II level. The university currently has five men's and six women's intercollegiate programs. These teams compete in the Lone Star Conference, an athletic alliance of seventeen state-supported and private institutions in Texas, Oklahoma, and New Mexico. The university has the following intercollegiate teams:

Men	Women
Football	Volleyball
Basketball	Basketball
Baseball	Soccer
Track and Field	Softball
Cross Country	Track and Field
	Cross Country

Student Organizations

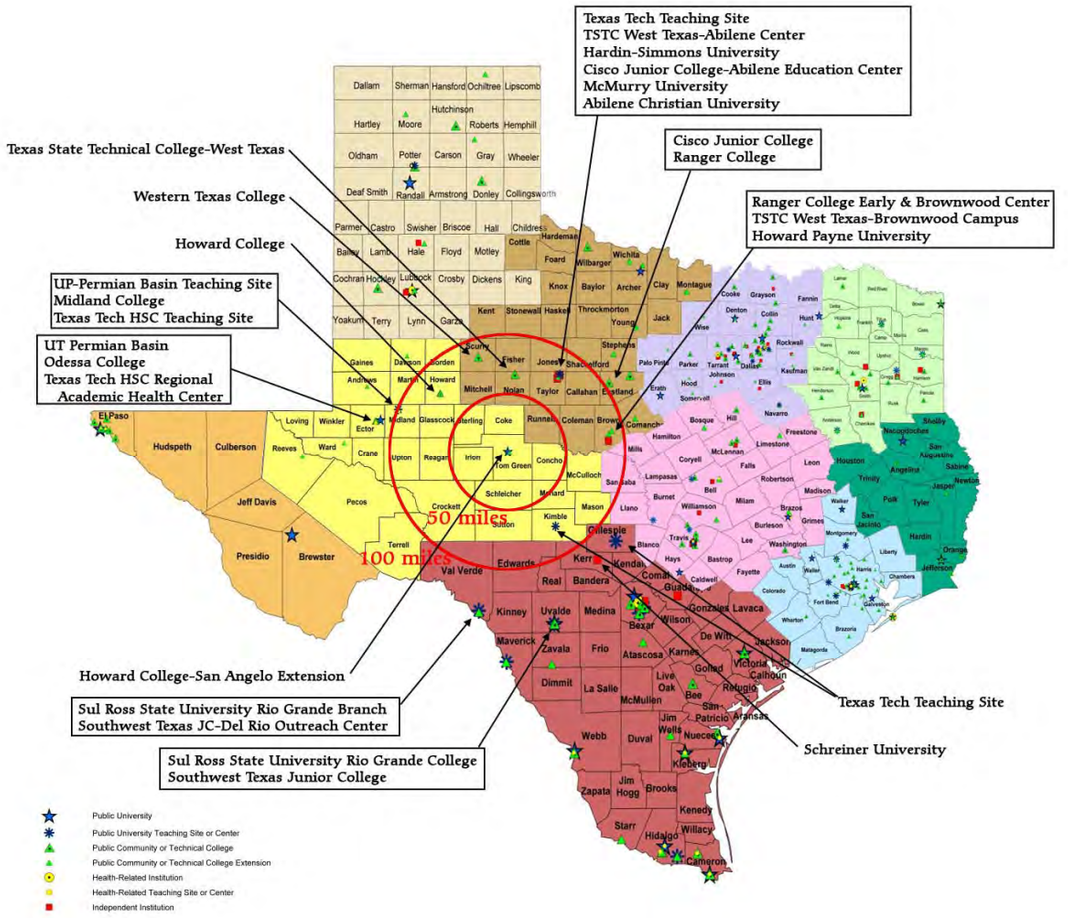
The university has the following registered student organizations:

- Five Boards and Councils
- Thirty-three Academic/Professional and Honor/Recognition Organizations
- Five Greek Social Organizations
- Forty-one Special Interest, Religious and Performing Organizations

Other Institutions in the Region

There are only two higher educational institutions within a 50-mile radius of San Angelo: Angelo State University and Howard College – San Angelo Extension. Sixteen institutions, including satellite campuses, are located within a 100-mile radius area such as Abilene Christian University and Hardin-Simmons University. The University of Texas of the Permian Basin is located in the west Texas region outside of the 100-mile radius.

Higher Educational Institutes around San Angelo



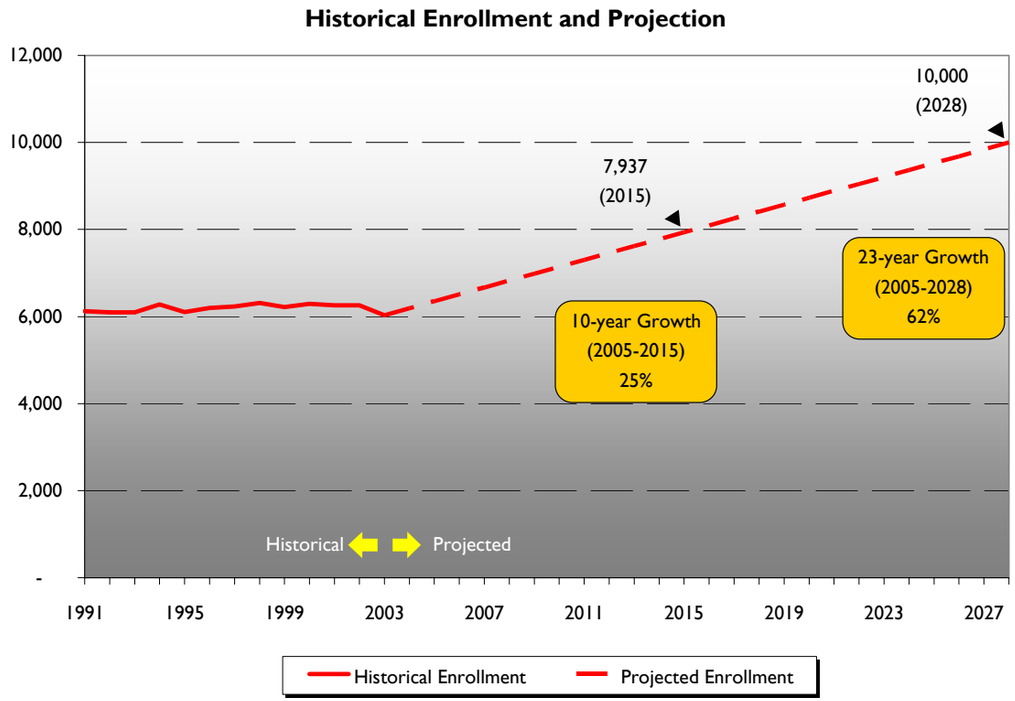
Source: Texas Higher Education Coordinating Board

Historical Enrollment and Growth Projection

The university has had a very steady enrollment history for the last 10 years. Student enrollment is around 6,000 or slightly above and the fluctuation has been within 5% of the total.

The university anticipates gradual growth for the future. The projected average growth is 2.5% per year over the next 20 years. Cumulated growth for the next 10 years will be 25% and 62% by 2028.

This growth scenario is the highest growth scenario discussed during the planning process and agreed upon among the working committee members. Other scenarios were 8,000 student enrollment by 2028 and no growth maintaining 6,000.



Source: Texas Higher Education Coordinating Board – Historical Enrollment.

Peer and Competing Institution Historical Enrollments and Projections

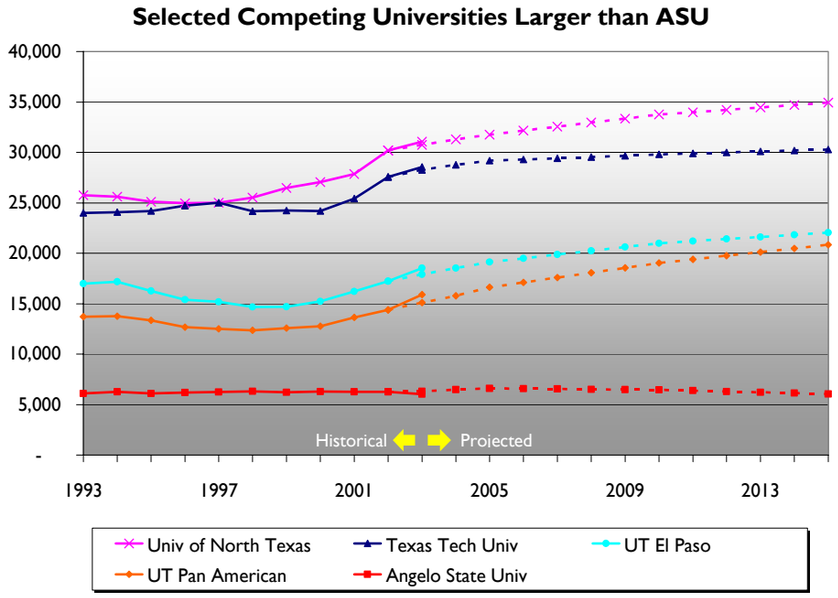
Peer and competing institutions' projections presented in this section are based on Texas Higher Education Coordinating Board (THECB) Participation and Success Forecast 2003-2015. This report was published in January 2003. The enrollment projection is based on regional demographic projections and does not consider individual institutional strategic and recruiting policy change.

Selected Competing Universities Larger than ASU

Most larger public institutions than Angelo State University (ASU) have experienced 10% or higher cumulative growth over the last 10 years. They also experienced a slight decrease in the late 90's to some extent. This was a common trend among higher education in Texas during this period. Most of these universities anticipate 10% or higher growth over the next 10 years.

Institution	10 Year Growth (1993-2003)	Projected 10 Year Growth (2005-2015)
Univ of North Texas	21%	10%
Texas Tech Univ	19%	4%
UT El Paso	9%	15%
UT Pan American	16%	25%
Angelo State	-1%	-8%

Source: Texas Higher Education Coordinating Board, Participation and Success Forecast 2003-2015

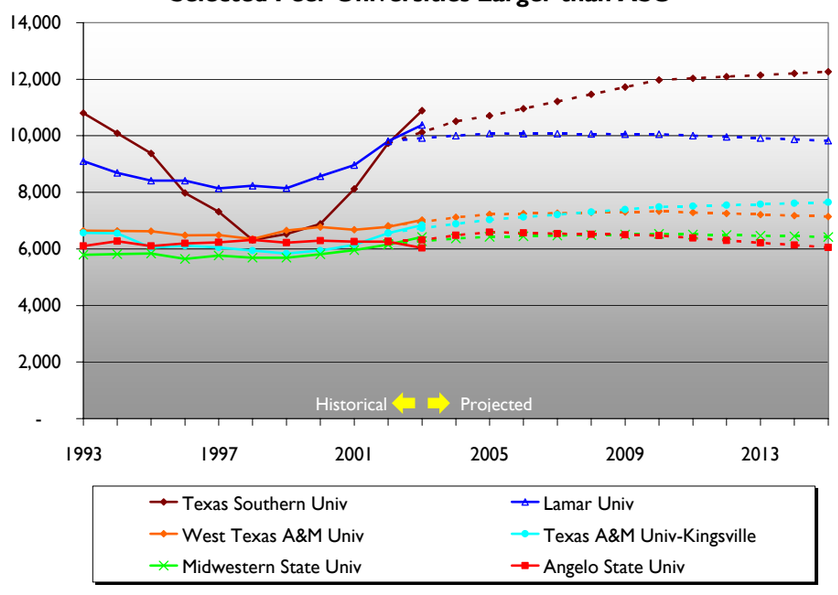


Selected Peer Universities Larger than ASU

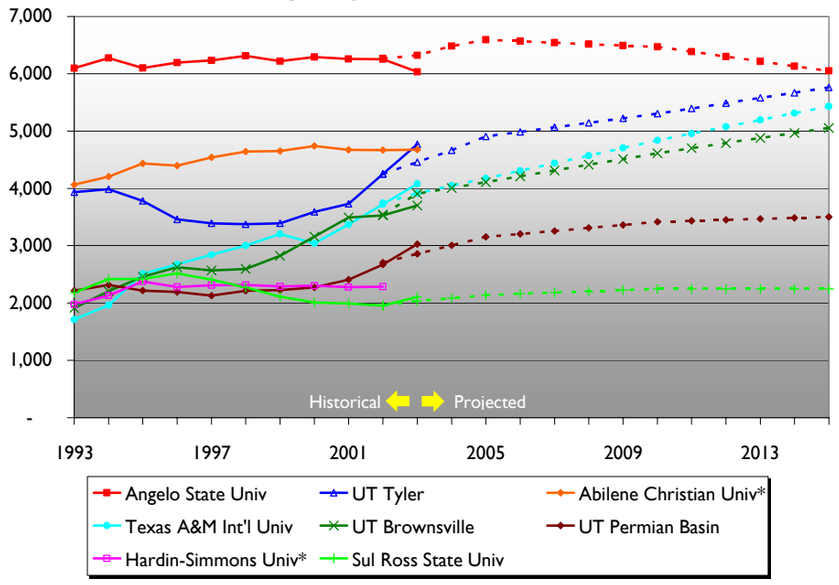
Similar-sized universities to ASU experienced steady enrollment in the past and anticipated slow growth or decrease.

Institution	10 Year Growth (1993-2003)	Projected 10 Year Growth (2005-2015)
Texas Southern Univ	1%	15%
Lamar Univ	14%	-3%
West Texas A&M	6%	-1%
TAMU Kingsville	4%	9%
Midwestern State	11%	0%

Source: Texas Higher Education Coordinating Board, Participation and Success Forecast 2003-2015



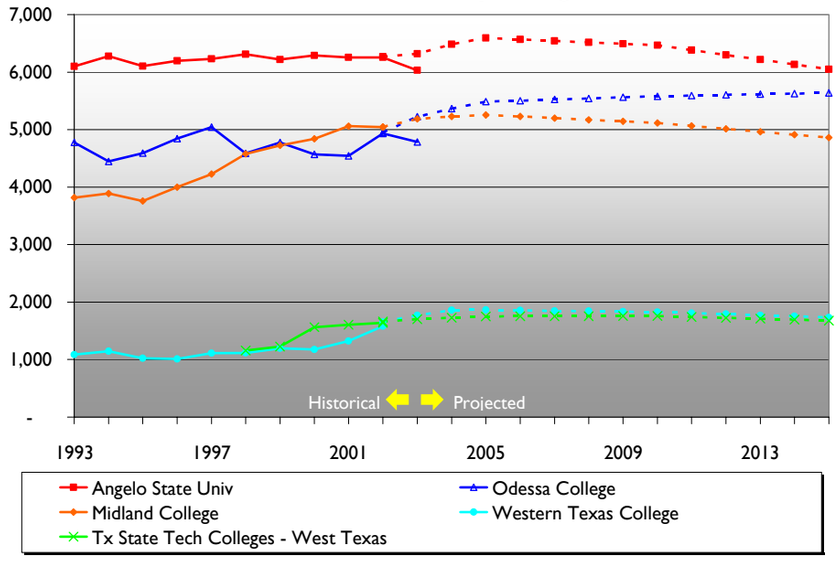
Selected Competing Universities Smaller than ASU



Institution	10 Year Growth (1993-2003)	Projected 10 Year Growth (2005-2015)
UT Tyler	21%	17%
Abilene Christian*	15%	-
UT Brownsville	94%	23%
UT Permian Basin	36%	11%
Hardin-Simmons*	16%	-

* Future projection data are not available.
Source: Texas Higher Education Coordinating Board, Participation and Success Forecast 2003-2015

Selected Community Colleges



Institution	10 Year Growth (1993-2003)	Projected 10 Year Growth (2005-2015)
Odessa	32%	3%
Midland	0%	-7%
Western Texas	45%	-4%
Tx State Tech Colleges – West Tx	42%	-7%

Source: Texas Higher Education Coordinating Board, Participation and Success Forecast 2003-2015

Selected Peer Universities Smaller than ASU

This group of universities has experienced a significant increase over the last 10 years. Most universities are projected for continuous growth.

Selected Community Colleges

These selected community colleges are located in west Texas and show very similar demographic trends. These community colleges anticipate slow growth or a slight decrease over the next 10 years.

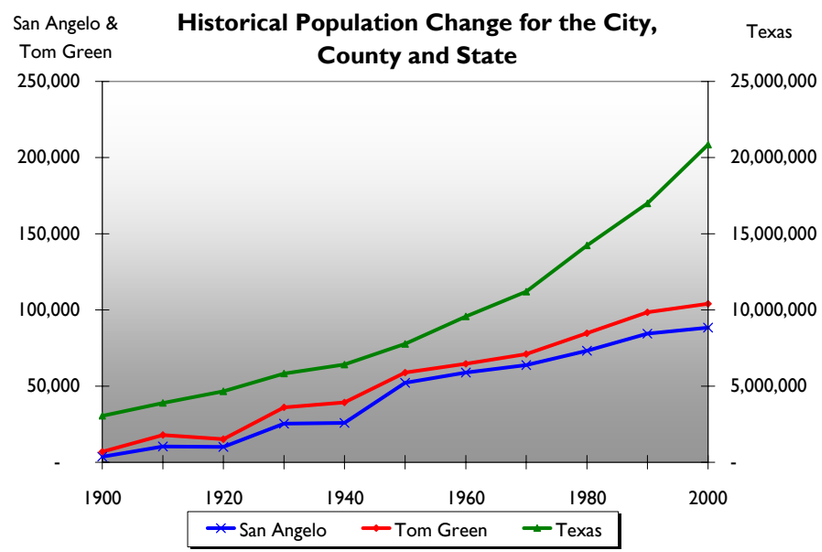
Historical Population Change for the City, County and State

Population in the City of San Angelo, Tom Green County and the State of Texas has grown in the last century. Compared to the State, the City and County after the 1970's growth had started slowing down. The growth rate of the City and County between 1970 and 2000 is around 40% while that of the State of Texas is nearly 90%.

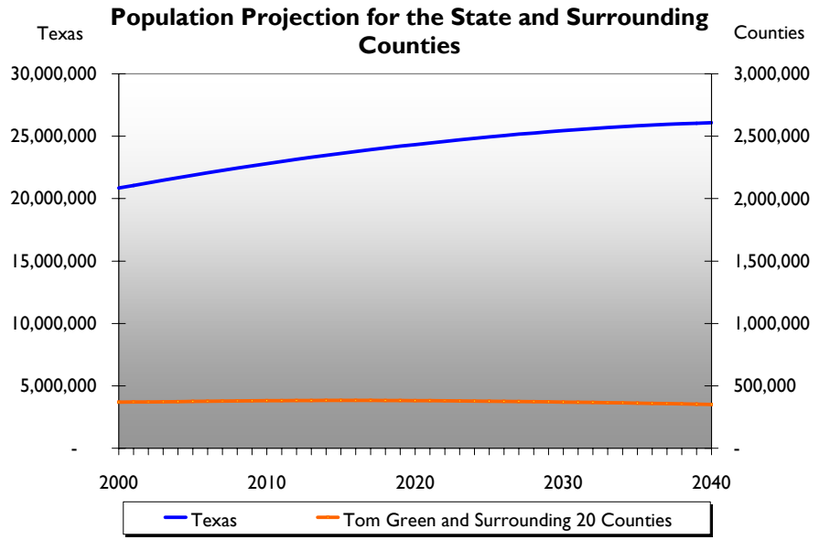
Population Projection for the State and Surrounding Counties

Population for the State of Texas is projected to grow to 26,000,000 by the year of 2040 – a 25% growth rate in 40 years. Tom Green County and the surrounding 20 counties are projected to be steady in future population at round 350,000. This is a 5% decrease for the period. Beyond the West Texas region, population throughout the Great Plains area is not anticipated to grow significantly or is expected to slightly decrease in the future.

Regional demographics will impact the university's student enrollment to some extent. 60% of its students are from Tom Green County and the surrounding 20 counties. The rest of the students are from other Texas cities, US and foreign counties. The regional population projection clearly implies that the university growth needs to attract more students from outside of the region.



Source: Census Bureau

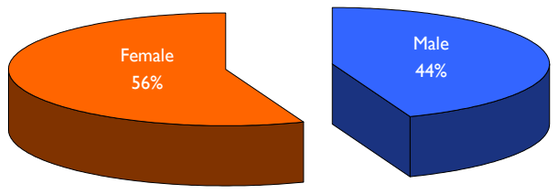


Source: Texas State Data Center 2004 Population Projection

Enrollment by Gender

The university has 56% female students and 44% male students. In Texas public universities, the total female student population is 55% while the male student population is 45%.

Fall 2004 Enrollment by Gender



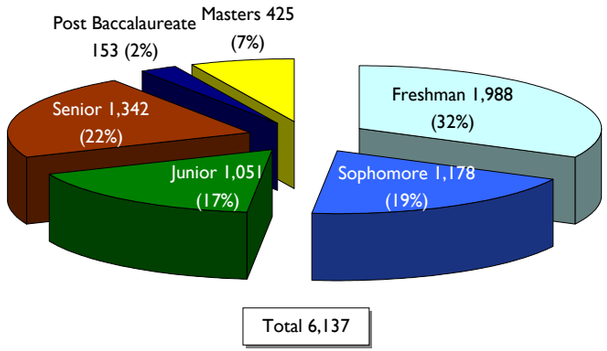
Source: Angelo State University

Enrollment by Level

The university has a high freshman population. It is 32% of total students. Sophomores, juniors and seniors are equally distributed. Total undergraduate students are about 90% while post baccalaureate and masters are 10%.

This level composition has been fairly consistent in the past. Nearly half of the freshman population never makes it to their sophomore year.

Fall 2004 Enrollment by Level



Source: Angelo State University

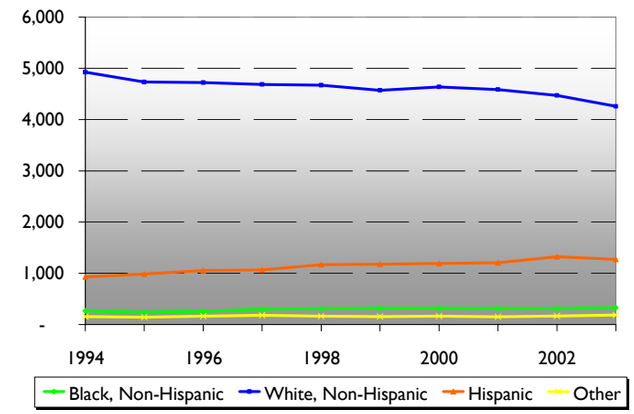
Historical Enrollment by Ethnicity

Seventy percent of students were White (non-Hispanic) in the fall of 2003. The White (non-Hispanic) population has decreased by 14% over the last 10 years. Hispanic students have increased 37% in the same period sharing 21% of total students. Black (non-Hispanic) and other ethnicity groups share less than 10% of the student population. Black (non-Hispanic) students have increased by 24% over the last 10 years.

Texas public universities have a similar ethnic composition. The largest student population is white (non-Hispanic) and shares 60% of total student population followed by 19% Hispanic and 9% black (non-Hispanic).

Ethnic groups with high growth rates in Texas public universities are black (non-Hispanic), Hispanic, Asian or Pacific Islander and non-resident alien. White (non-Hispanic) population has had a slow increase for the past several years. Angelo State University shows similar ethnic growth.

Historical Enrollment by Ethnicity



Source: Angelo State University

Average Admission Test Scores Entering Freshmen

The average score of Scholastic Assessment Test (SAT) among entering freshmen is slightly lower than the State average. The average score of Enhanced American College Test (ACT) is about the same as the State average.

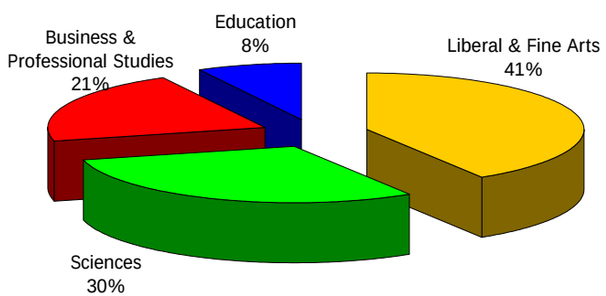
Admissions Test	ASU Average	State Average
SAT (Math + Verbal)	971	993
ACT (Composite)	20.4	20.1

Source: Angelo State University

Student Full-Time Equivalent by College and Department

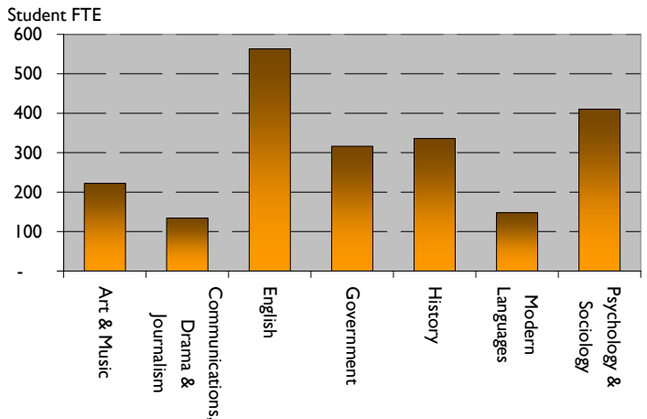
The College of Liberal and Fine Arts has the largest number of student full-time equivalent (FTE) or 41% of the total student FTE. The College of Sciences and Business and Professional Studies follows. The School of Education has the smallest percentage among the four colleges. This hypothetical number of full-time students is calculated by using semester credit hours taught in each college. Liberal and Fine Arts offers lower level core curriculum and has the highest percentage because of more service courses.

Fall 2004 Student FTE by College

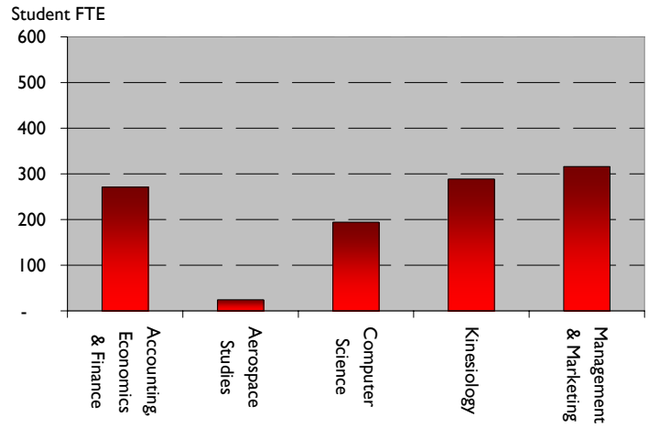


Source: Texas Higher Education Coordinating Board

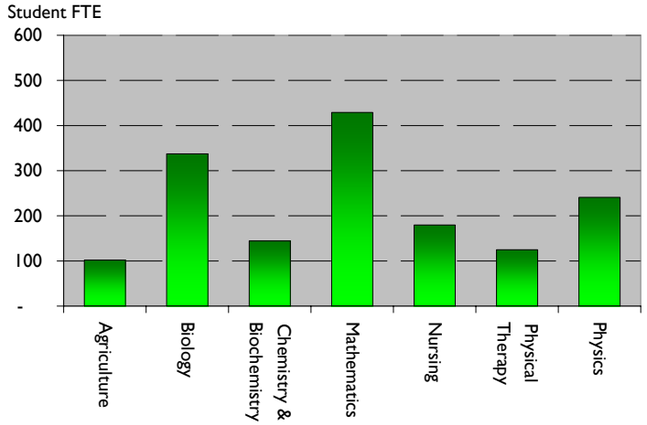
Liberal and Fine Arts



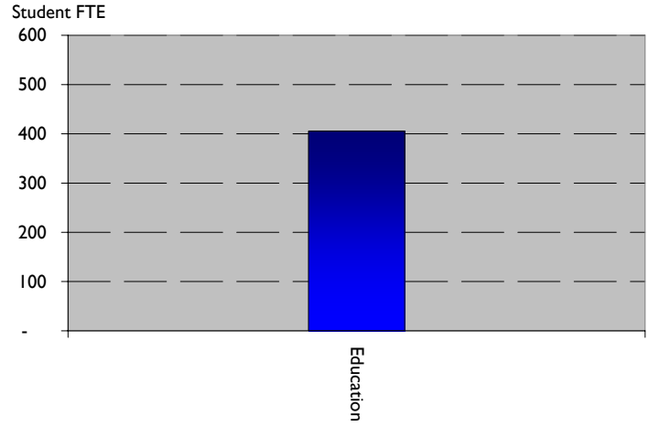
Business and Professional Studies



Sciences



Education



Source: Texas Higher Education Coordinating Board

Geographic Origins of Students

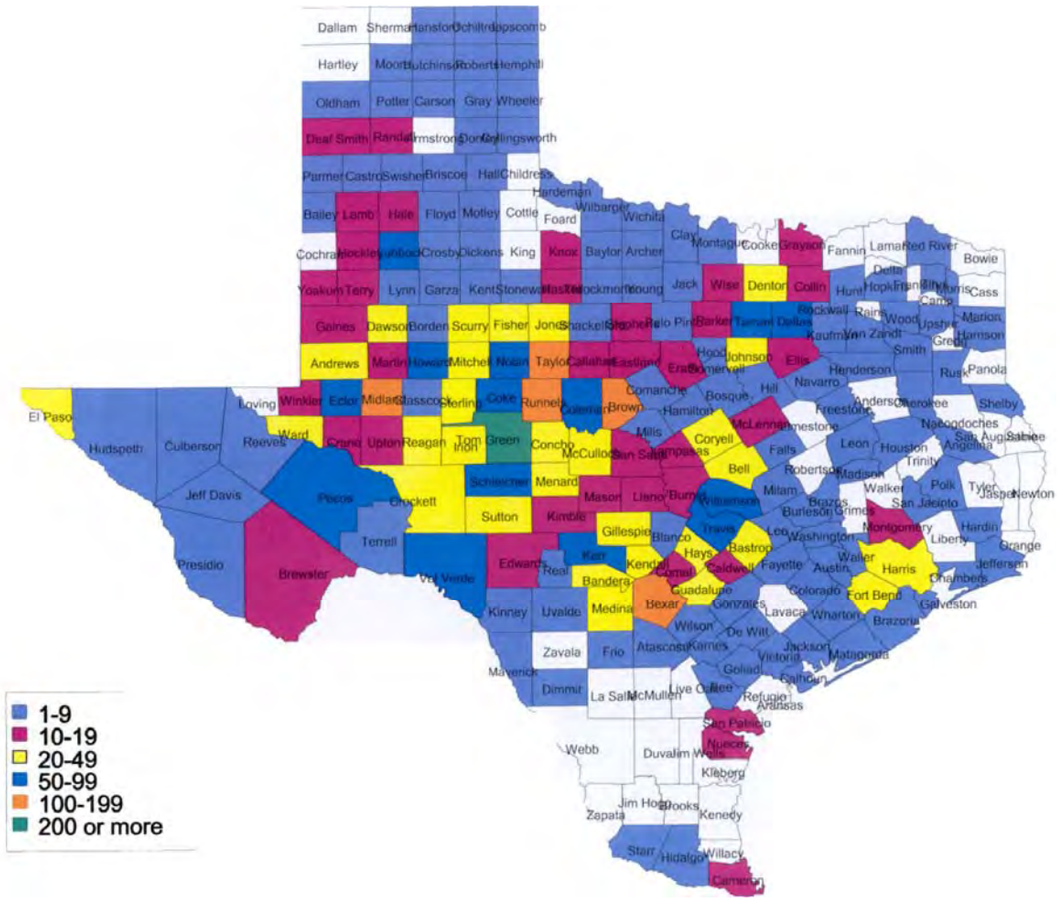
Students come from various locations throughout Texas. Major origins of students are medium-size cities in the West Texas region, metropolitan areas and Tom Green County. Forty percent of students are from various parts of Texas and outside of the State. Sixty percent of students are from Tom Green County and the surrounding 20 counties.

2004 Fall Geographic Origins of Students

Geographic Origin	Enrollment	Percentage
Tom Green County	2,378	39%
Surrounding 20 Counties	1,097	18%
Other Counties in Texas	2,350	39%
Other States and Counties	218	4%
Total	6,043	100%

Source: Angelo State University

2004 Fall Geographic Origins of Students



Source: Angelo State University

Student, Faculty and Non-Faculty Staff Full-Time Equivalent Projections by Department

Department	Undergraduate Student FTE				Graduate Student FTE				Total Student FTE				Faculty FTE				Staff FTE				Program Area
	Actual	2003	2015	2028	Actual	2003	2015	2028	Actual	2003	2015	2028	Actual	2003	2015	2028	Actual	2003	2015	2028	
Business & Professional Studies																					
Accounting, Economics & Finance	286.2	286.2	369.3	459.3	12.3	12.3	20.2	28.8	298.5	298.5	389.5	488.1	14.8	14.8	19.3	24.1					4
Aerospace Studies	26.5	26.5	34.2	42.5	-	-	-	-	26.5	26.5	34.2	42.5	-	-	-	-					4
Computer Science	210.0	210.0	271.0	337.0	-	-	-	-	210.0	210.0	271.0	337.0	4.0	4.0	5.2	6.5	40.0	32.7	42.6	53.5	3
Kinesiology	284.0	284.0	366.5	455.8	7.0	7.0	11.5	16.5	291.0	291.0	378.0	472.2	18.0	18.0	23.5	29.5					3(10%) 4(90%)
Management & Marketing	296.4	296.4	382.5	475.7	26.0	26.0	42.9	61.2	322.4	322.4	425.3	536.9	14.7	14.7	19.2	24.1					4
Liberal & Fine Arts																					
Art & Music	203.6	203.6	262.7	326.7	-	-	-	-	203.6	203.6	262.7	326.7	17.4	17.4	22.7	28.5					1
Communication, Drama & Journalism	134.8	134.8	173.9	216.3	10.3	10.3	16.9	24.1	145.1	145.1	190.8	240.5	15.0	15.0	19.5	24.5					1(50%) 3(50%)
English	528.9	528.9	682.4	848.8	10.0	10.0	16.5	23.5	538.9	538.9	698.9	872.3	24.0	24.0	31.3	39.3					3(10%) 4(90%)
Government	293.2	293.2	378.3	470.5	7.5	7.5	12.4	17.6	300.7	300.7	390.7	488.2	9.8	9.8	12.7	16.0	50.0	40.8	53.3	66.8	4
History	309.4	309.4	399.2	496.5	3.5	3.5	5.8	8.2	312.9	312.9	405.0	504.8	10.5	10.5	13.7	17.2					4
Modern Languages	153.2	153.2	197.7	245.9	-	-	-	-	153.2	153.2	197.7	245.9	8.5	8.5	11.1	13.9					4
Psychology & Sociology	428.6	428.6	553.0	687.8	26.8	26.8	44.1	62.9	455.4	455.4	597.2	750.8	14.9	14.9	19.5	24.4					3(80%) 4(20%)
Sciences																					
Agriculture	86.2	86.2	111.2	138.3	11.8	11.8	19.5	27.8	98.0	98.0	130.7	166.2	7.0	7.0	9.1	11.5					1
Biology	315.9	315.9	407.6	506.9	8.0	8.0	13.2	18.8	323.9	323.9	420.8	525.7	15.0	15.0	19.6	24.6					3
Chemistry & Biochemistry	155.0	155.0	200.0	248.8	-	-	-	-	155.0	155.0	200.0	248.8	8.0	8.0	10.4	13.1					3
Mathematics	418.8	418.8	540.4	672.1	-	-	-	-	418.8	418.8	540.4	672.1	19.0	19.0	24.7	31.0	60.0	49.0	64.0	80.2	3(30%) 4(70%)
Nursing	121.9	121.9	157.3	195.7	10.5	10.5	17.3	24.7	132.4	132.4	174.7	220.4	20.5	20.5	26.8	33.6					3
Physical Therapy	48.6	48.6	62.7	78.0	33.2	33.2	54.7	78.0	81.8	81.8	117.4	156.0	5.0	5.0	6.5	8.2					3
Physics	219.3	219.3	283.0	352.0	-	-	-	-	219.3	219.3	283.0	352.0	9.5	9.5	12.4	15.6					3
Education																					
Education	319.3	319.3	412.0	512.4	53.0	53.0	87.4	124.7	372.3	372.3	499.4	637.1	18.5	18.5	24.2	30.4	15.0	12.2	16.0	20.1	3(10%) 4(90%)
Academic & Student Affairs																					
Admissions Office	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Career Development	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Continuing Studies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Graduate School	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Health Clinic & Counseling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Information Technology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Library	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	175.0	142.9	186.6	233.9	
Provost & VP for Academic & Student Affairs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Registrar's Office	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Residence Life	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Residence Halls	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Student Services, Student Development & Program Office	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Univ Recreation & Intramurals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Advancement & University Relations																					
Alumni Relations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Development	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Food Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Intercollegiate Athletics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60.0	49.0	64.0	80.2	
Risk Management	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Student Government, Special Events Facilities & Services	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
University Police	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Finance & Administration																					
Bookstore, Post Office & Print Shop	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Finance & Administration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Financial Aid & Carr Scholarship	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150.0	122.5	159.9	200.5	
Human Resources	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Physical Plant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Purchasing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Other																					
President's Office/University News & Info Services/Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0	8.2	10.7	13.4	
Texas State Data Center	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	**4,839.7**	**4,839.7**	**6,244.8**	**7,767.0**	**219.8**	**219.8**	**362.5**	**517.1**	**5,059.5**	**5,059.5**	**6,607.3**	**8,284.1**	**254.0**	**254.0**	**331.7**	**415.9**	**560.0**	**457.2**	**597.1**	**748.6**	

Physical Planning Issues

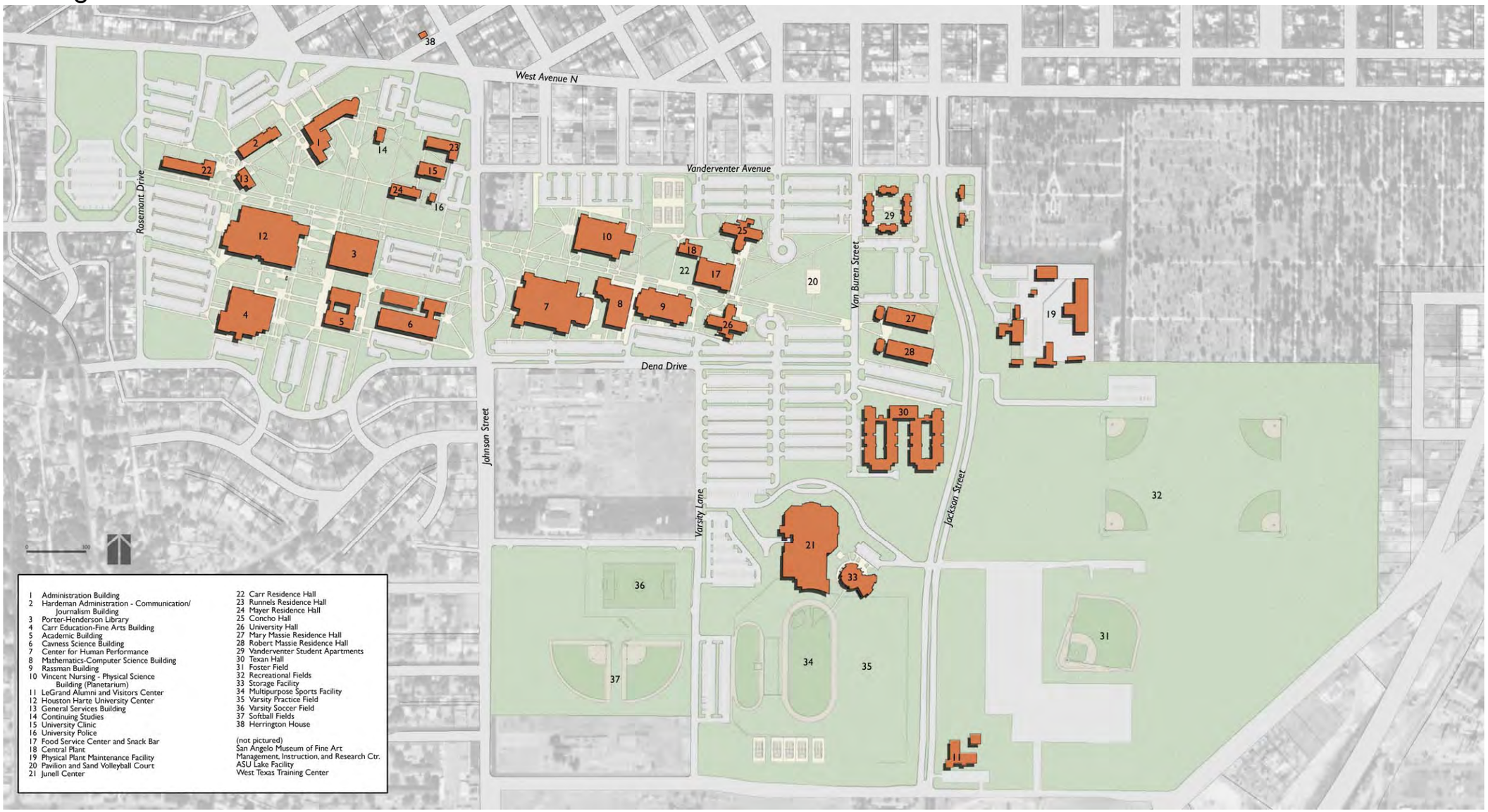
Location

San Angelo is the county seat of Tom Green County and is located near the geographical center of the state. The town was founded in the late 1860s across the North Concho River from Fort Concho, which was established in 1867. The early economy of the town was based on ranching, farming, and mercantile concerns which supplied Fort Concho. As the region grew, San Angelo became a trading center due to its location at the confluence of the North, South, and Middle Concho rivers. Cattle and sheep ranching became more significant as well.

With the arrival of the Santa Fe Railroad in 1888, San Angelo became a shipping center. The city was the largest sheep market and one of the leading inland wool and mohair markets in the United States. Later, growth in the oil and gas industry helped to diversify San Angelo's economy. San Angelo's status as a regional center is also reflected in its numerous medical and healthcare facilities. After Goodfellow Air Field was established in 1940, the city's population boomed to over 50,000 residents. The city has continued to grow since then, and was home to 88,439 people in 2000.

Map of Texas

Existing Site Plan



Building List

The following building numbers are indicated on the plan on the preceding page.

1

The Administration Building was constructed in 1947 and houses administrative offices including those of the president and the vice presidents. The university's largest auditorium is also located here.

2

The Hardeman Administration-Communication/Journalism Building was constructed in 1954. The Communication, Drama, and Journalism Department recently moved out of this building, and space formerly used by that department will instead be used for the Financial Aid Office and other student services.

3

The Porter-Henderson Library was constructed in 1967, and a third floor was completed in 2004. The library uses the basement and first two levels of the building, while the third floor houses computer labs, the Center for Academic Excellence, the Communication, Drama, and Journalism Department, and storage for the West Texas Collection archive.

4

The Carr Education-Fine Arts Building houses the education and fine arts programs. A recital hall, the band rehearsal room, a theater, drawing and ceramics studios, and other classroom and office spaces are located in the building, which was constructed in 1976. A 2004 addition and renovation added more practice rooms and a computer lab.

5

The Academic Building is the campus's main liberal arts facility. The building was constructed in 1968, and holds classrooms, computer labs, and offices.

6

Completed in 1968, the Cavness Science Building houses ASU's biology, agriculture, and chemistry programs. The building also has a lecture hall and several offices. A new Science Building is currently under construction adjacent to this building.

7

The Center for Human Performance is home to ASU's kinesiology program and is also the university's main recreational sports facility. The building was completed in 1972 and includes a gymnasium, four handball courts, a swimming pool, dressing rooms, a weight room, and gymnastics space.

8

The Mathematics-Computer Science Building was built in 1996 to house classrooms, lecture spaces, computer labs, and offices for the university's mathematics and computer science departments. It also houses Texas State Data Center on the third floor.

9

The Rassman Building houses the business school, the university's main computer center, the Information Technology department, and faculty offices. It was built in 1983.

10

The Vincent Nursing-Physical Science Building, built in 1985, is home to the planetarium as well as to the physical sciences and nursing programs. Offices, classrooms, laboratories, and lecture rooms are also located in the building.

11

The Legrand Alumni and Visitors Center was completed in 2003 . In addition to offices and the visitors' center, it also contains a ballroom, vestibule, and a lounge, and conference areas which can be rented.

12

The Houston Harte University Center was completed in 1971 and includes an addition completed in 2001. The facility holds the ASU Bookstore, a branch of the Concho Educators Federal Credit Union, an information desk, a food court, a 180-seat theater, a 1,000 seat conference facility, a post office, and meeting rooms. Student organizations are housed on the garden level, and the West Texas Collection is located on the second floor.

13

The General Services Building houses the university's print shop and photo studio. It was completed in 1947 and last renovated in 1976.

14

The Continuing Studies Building was one of the university's first buildings, completed in 1947. It houses the Continuing Studies program.

15

The University Clinic, built in 1950, holds Student Health Services. The building holds examination rooms, offices, a waiting area, and a pharmacy.

16

The University Police Department is housed in the University Police Building. The building was completed in 1970 and holds two offices, clerical space, and storage in approximately 1,800 square feet.

17

The Food Service Center and Snack Bar were constructed at the same time as Concho Hall and University Hall, in 1968. The Food Service Center serves meals seven days a week except for dinner on Sunday, and the Snack Bar is open seven days a week at various times.

18

The Central Plant generates domestic hot water as well as steam and chilled water used to heat and cool most university buildings. It was originally constructed in 1968 and was expanded in 1984. The plant houses five chillers and three boilers.

19

The Physical Plant Maintenance Facility complex was built in 1970. The physical plant offices and various shops and maintenance facilities are all contained in the complex.

20

The pavilion and sand volleyball court are popular places for students to gather for both university-sponsored and impromptu events. The pavilion holds several basketball courts, and there are also grills and picnic tables nearby.

21

The Junell Center and Stephens Arena were completed in 2002. The arena holds 5,500 people for athletic events and up to 6,400 for other programs, and an auxiliary court is used for practice and for supporting events. The center also includes weight rooms, athletics offices, and classrooms.

22

Carr Residence Hall is ASU's oldest dormitory still in use. It was built in 1959 and houses up to 98 sophomores and upperclassmen. Carr is used for summer school housing and features a community kitchen, two community lounges, and study areas.

23

Runnels Residence Hall, constructed in 1950, is now closed.

24

Mayer Residence Hall, constructed in 1950, is now closed.

25

Concho Hall was completed in 1968 and has a capacity of 465 students. The dormitory offers bathrooms shared by two rooms of two students each, exterior hallways, built-in furniture, a study room on each floor, and two lounges on the first floor.

26

University Hall is essentially identical to Concho Hall. It has been closed since 2003.

27, 28

Mary Massie Residence Hall, completed in 1982, is a female-only dormitory with a capacity of 178 students. Amenities include moveable furniture, a private bathroom on each floor, and a lounge on the ground floor. Robert Massie Residence Hall, completed in 1984, is identical to the Mary Massie Residence Hall, except that it houses men.

29

The Vanderventer Student Apartments were built in 1979. The apartments hold up to 148 sophomores and upperclassmen in two-bedroom double occupancy apartments. The complex features a central courtyard and grill area.

30

Texan Hall is ASU's newest housing facility. It opened in 2003 and houses 508 students at full capacity in two-person suites. Other amenities include movable furniture, study and social areas on each floor, a conference room, a large multi-purpose room, and an 80-seat theater.

31

Foster Field is shared by the ASU baseball team and the San Angelo Colts, an unaffiliated minor league baseball team in the Central League. The stadium was completed in 2000 and holds over 4,000 spectators.

32

The San Angelo Museum of Fine Arts was completed in 1999. In addition to exhibit space and other support spaces, the museum includes a ceramics studio and kilns, which are used by ASU students.

33

The Management, Instruction, and Research Center consists of 6,003 acres of agricultural land on the north shore of the O.C. Fisher Lake in northwest San Angelo. 1,564 acres are subleased to the Texas A&M University Agricultural Research and Extension Center at San Angelo. The Management, Instruction, and Research Center houses an indoor livestock area, classrooms and laboratory spaces for courses in Agronomy, Range & Wildlife Mangement, Animal Production, Animal Nutrition, Animal Reproduction, Animal Physiology, and Food and Meat Science. Agricultural department maintains a greenhouse on the university's property for agronomy research and is awaiting the completion of the Food Safety and Product Development Laboratory on the university's property for Meat and Food Science Research.

34

The ASU Lake Facility is located on the northeast shore of Lake Nasworthy. The recreation center, boat dock, and four acres of land are used for recreation, biological programs, and special events.

35

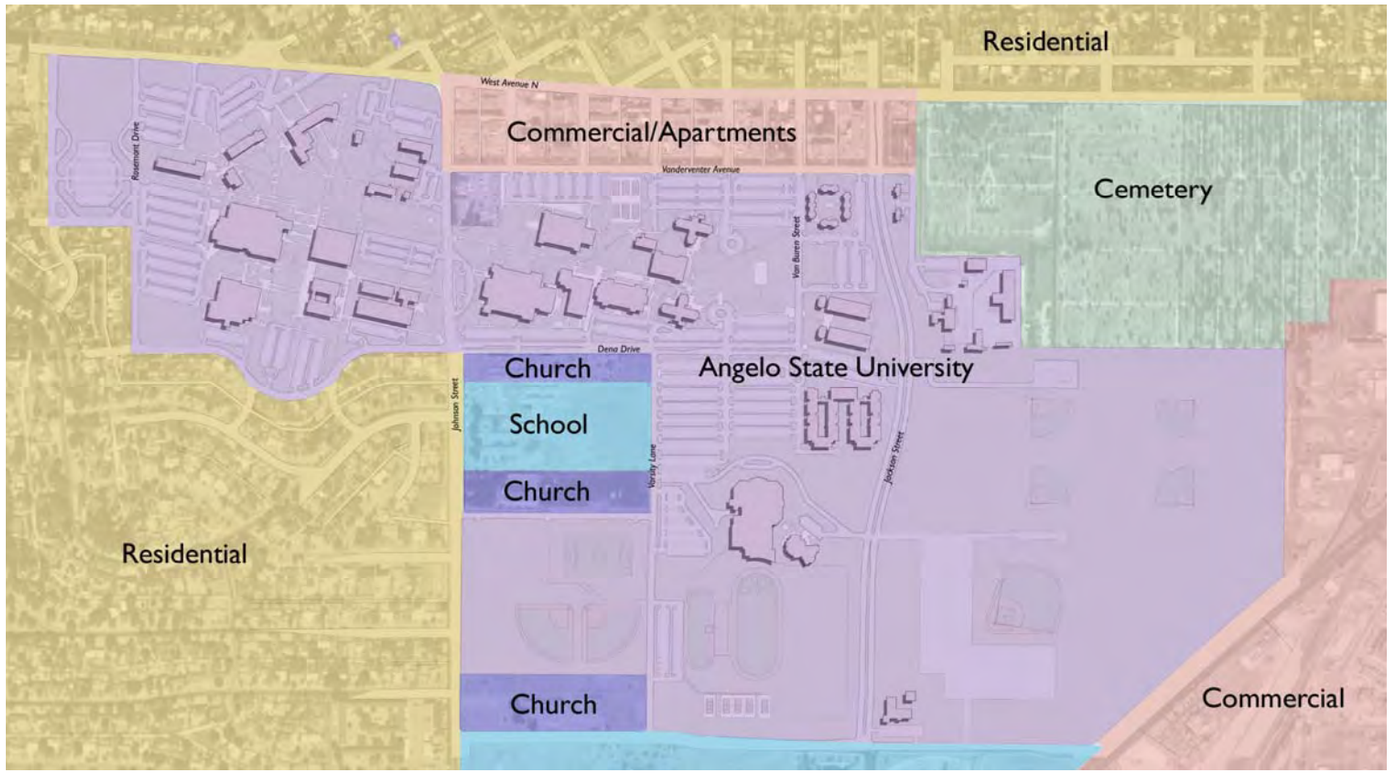
The West Texas Training Center is a workforce training facility that provides occupational training for the Concho Valley and West Texas. The center is located in northeast San Angelo.

36

The Herrington House houses administrative offices for Continuing Studies. The house is located at the corner of West Avenue N and South Campus Boulverd.

Neighboring Development

The campus is a 268-acre L-shaped plot. The campus is bordered on the west and the western half of its north and south edges by single family residential developments. Most of the rest of the southern border is lined with churches and San Angelo Independent School District land; Crockett Elementary School, John Glenn Junior High School, and the SAISD Administration Building are all south of campus. Part of the north edge is bordered by a mixture of apartments and retail, and the eastern edges are bounded by a cemetery and by Knickerbocker Road.



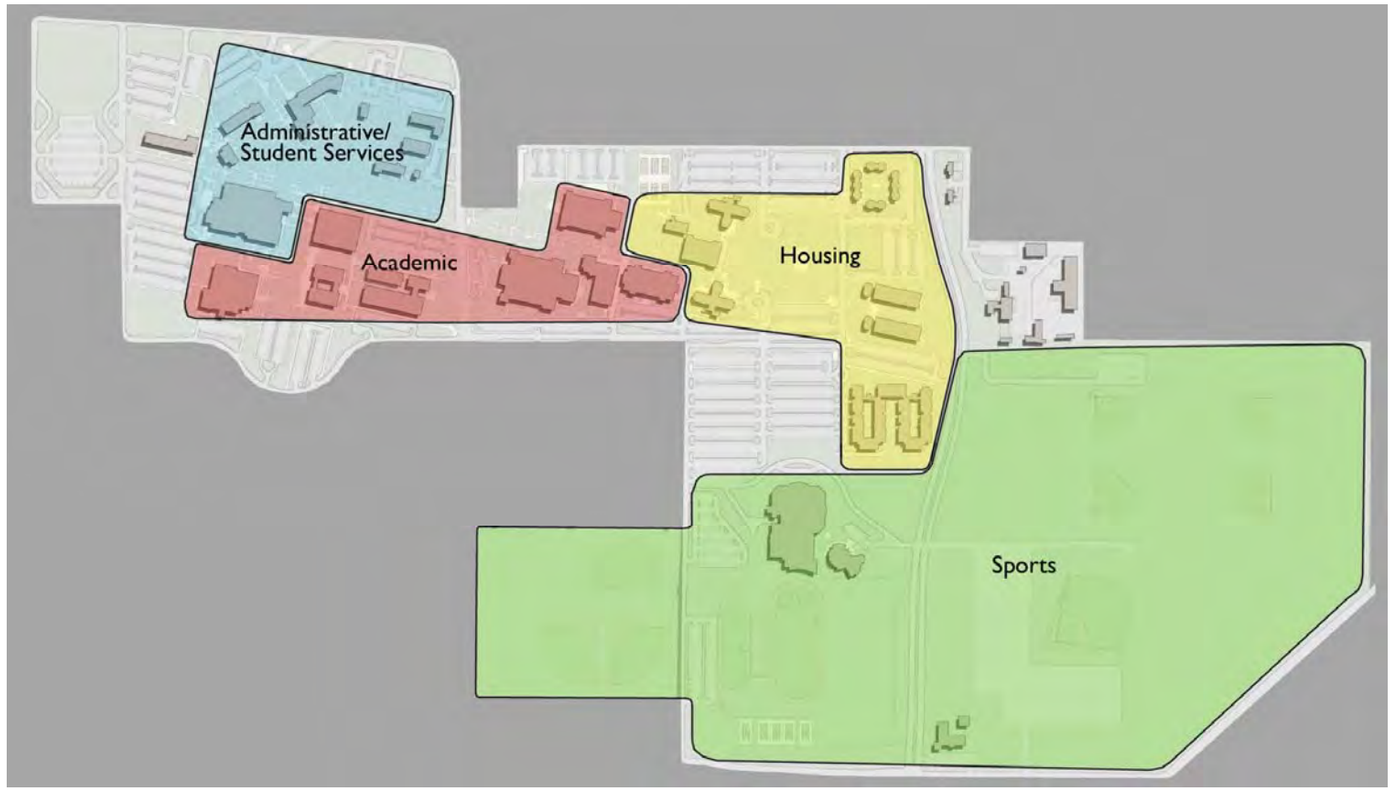
Neighboring Development

Campus Zones

Campus buildings are roughly organized into four zones. The northwest corner of campus is largely administrative and student services buildings, though one dormitory remains here. Academic buildings are located primarily to the south and east of the administrative zone. Housing is located to the east of the academic zone, and sports facilities are to the south and east of the housing.

One peculiarity of this arrangement is that it places student services and traditionally student-oriented facilities like the university center at remote from campus housing. Students on the east side of campus who want to grab a quick sandwich for lunch, for example, may be able to do so more easily by driving off campus than by walking to the other end of campus to the University Center.

Leaving out nearby parking, the administrative/ student services, academic, and housing zones are all more or less equal in size. The sports zone is nearly as large as the other three zones put together. This is to be expected, as sports fields require more space than buildings.



Campus Zone

Composite Visual Analysis

Composite Visual Analysis

Visualizing something as complex as a university campus requires significant abstraction. By reducing an undifferentiated set of qualities into structured, simplified diagrams, the properties inherent to campus can be more easily seen. This process makes the opportunities and problems of a campus more apparent.

This visual analysis diagram combines some of the properties illustrated in earlier diagrams and adds several more. The primary points to notice are that the layout of the campus is axial, with a secondary axis at the western end; the main areas of pedestrian circulation do not completely coincide with the main campus axis; there are two barriers caused by roads going through campus; the academic core is in the middle of the campus; and main activity centers are more or less equally scattered throughout campus.

The significance of some of these properties is obvious, and needs little commentary. The barriers created by Johnson and Jackson streets, for example, are readily evident and addressed previously. Less evident is the discrepancy between the main campus axis and the main spine of pedestrian circulation. This is a product of the types, usage, and location of different buildings along and behind the main axis. Buildings such as the Administration Building, while symbolically important, do not generate as much pedestrian traffic as does the Academic Building, for example. Because of this, there is as much or more pedestrian traffic behind the library than in front of it – students traveling from the eastern half of campus, divert south along a diagonal toward the Cavness Science Building, and continue west toward other academic facilities. Comparatively few pedestrians continue along the mall in front of the library and to points further west. This relative paucity of traffic in the area west of Johnson Street contributes to the perception of campus as sparsely populated. This situation could be addressed in the master plan by placing an appropriate building to the west of Johnson Street and north of the mall in order to generate more pedestrian traffic in the area.

Parking

Parking is spread throughout campus, though a large percentage of the general student parking is located to the north and northwest of the Junell Center/Stephens Arena. Each of the academic buildings also has parking for commuting students located nearby. On the whole, ASU's parking supply seems to be more than sufficient for its current number of students. The ratio of parking permits to parking spaces is about 1.3 to 1, which is a significantly lower ratio than at many other institutions, though this is mitigated by the number of commuting students at ASU. Also, numerous empty parking spaces were observed during site visits. This indicates that as the university grows, campus capacity for additional students will not be constrained, at least initially, by the amount of parking available.

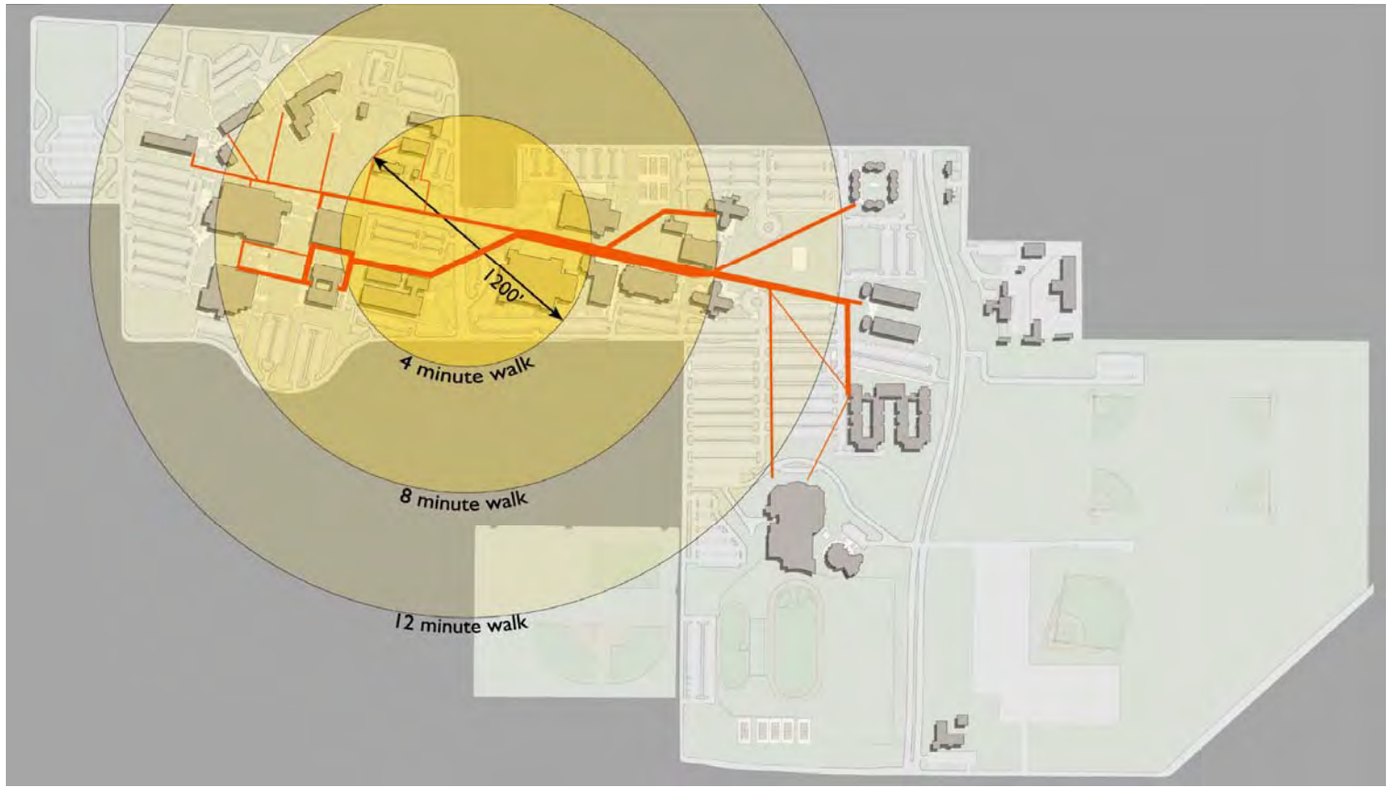
ASU's permit system has three tiers: "A" permits, for faculty and staff; "B" permits, for commuting students only; and "C" permits, for resident students. This system permits flexibility in designating parking locations for the different classes of permits. One particular benefit of this system is that resident students, faculty, and staff are prevented from taking parking spaces otherwise utilized by commuting students. While this does force resident students to walk to classes in poor weather rather than attempting to park closer to the academic buildings, the parking process is made more efficient by maximizing spaces for all students. Should resident students be allowed to park in general student parking, the ratio of the number of desirable spaces to the number of parkers would decrease considerably. This would also have a significant negative impact on campus life, as students would not be as likely to participate in activities on the mall due to lack of exposure - students would drive rather than walk from housing to academic buildings.

Parking

Pedestrian Circulation

ASU's campus is, in the most generalized sense, a series of buildings laid out along a central mall. However, this simple description does not encompass the complexities of pedestrian and vehicular traffic on and around the campus. It is perhaps more useful to conceptualize the campus as a series of building nodes which are surrounded by a pool of parking and connected by the mall.

While a significant portion of students live on campus, the majority of campus users commute to campus and park in the lots around the perimeter of campus. This creates a dichotomy between the symbolic and actual alignments of the buildings. Buildings face the mall, but a substantial amount of pedestrian traffic – often the majority – accesses buildings through entrances which face nearby parking lots. Pedestrian traffic on the mall is generated by three factors: students traveling from campus housing to other campus buildings, users forced to park at a remove from their destinations, and users traveling between campus buildings after parking. Campus users who park next to their destinations generate little pedestrian traffic on the mall.



Pedestrian Circulation

This is not necessarily a failure of campus design or realization. Rather, it is a signifier of the dominant role of automobiles in transportation. While this situation indicates that the campus is operating efficiently from the perspective of parking, this very efficiency reduces pedestrian traffic on campus. Part of the charge of the master plan is to determine ways to invigorate and increase campus activity; the patterns of pedestrian circulation are a crucial part of that analysis.

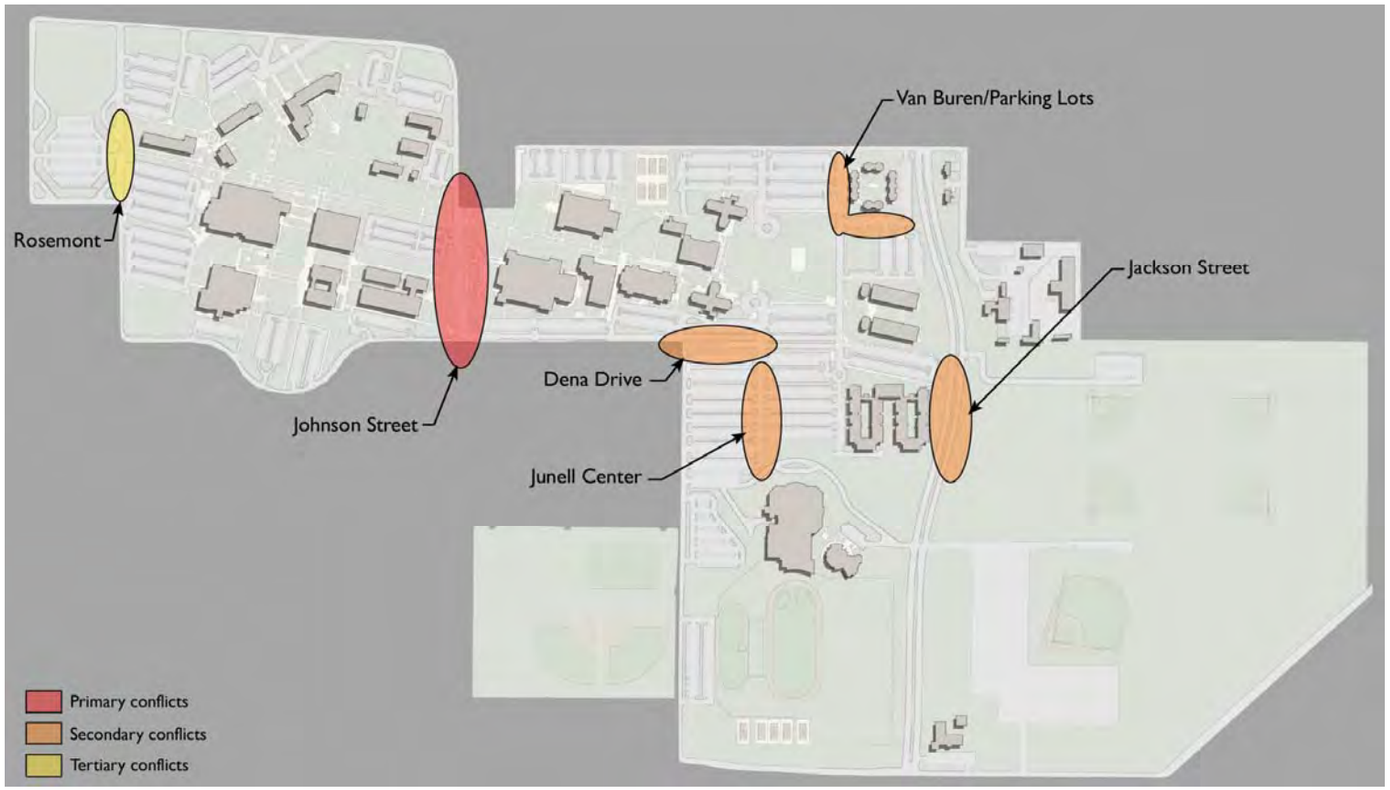
Although the regularity of the mall might lead one to believe that the circulation patterns on the mall are equally regular, this is not in fact true. Again, the mall is merely a means of connection; it is not a generator or defining element of pedestrian traffic. The most heavily traveled parts of campus are those pathways between the most heavily-used destinations. Generally, these areas are the eastern end of the mall from the housing zone to the eastern academic buildings, then diagonally west and south toward the Academic Building and the facilities

around it. There is comparatively little traffic on the mall west of the library simply because the destinations in that area are less used. The pathways are illustrated on the included diagram.

Walking times on campus are generally eight minutes or less between all administration and academic buildings. The eight-minute period is an important one, as it is the maximum time acceptable for transit between buildings in a ten-minute period, allowing one minute for travel inside buildings at each end. This is also illustrated on the diagram – the yellow circles indicate approximate areas where all points can be reached from all other points within a certain timeframe. Non-university land contained within the eight-minute circle is, for reasons of proximity alone, ideal for future acquisition. Campus housing is located outside the eight-minute circle, but this travel time is not critical so long as housing remains within walking distance of the campus core.

There are some problem areas on campus where vehicles and pedestrians conflict or where there are not adequate pathways for pedestrians. Johnson Street is the major point of conflict between pedestrians and vehicles; it severs the main pedestrian spine and interrupts the core of the campus. The situation at Johnson Street is discussed further in the "Vehicular Circulation" section.

There are more minor vehicular/pedestrian conflicts at Rosemont Drive where pedestrians must cross from the parking lots west of Rosemont to the campus; in the area around the Vanderventer Apartments, where students must cross Van Buren Street; at Dena Drive, where students who park in the lots south of Dena walk north to the mall; at Rosemont, where people cross from the Rosemont lot to the campus; and at Jackson Street, where people walking to the recreational fields east of Jackson cross. The Junell Center/Stephens Arena is also not optimally connected to the rest of campus - the amount of both vehicular and pedestrian traffic here during special events may create a need for more gracious pedestrian walks through the parking areas.



Vehicular/pedestrian conflicts

Vehicular Circulation

The long, thin layout of the main body of ASU's academic and administrative core is well suited to access by vehicles. The core campus is bordered by Dena Drive on the south and West Avenue N and Vanderventer Avenue to the north. These streets provide access to the parking lots and drives that service the campus.

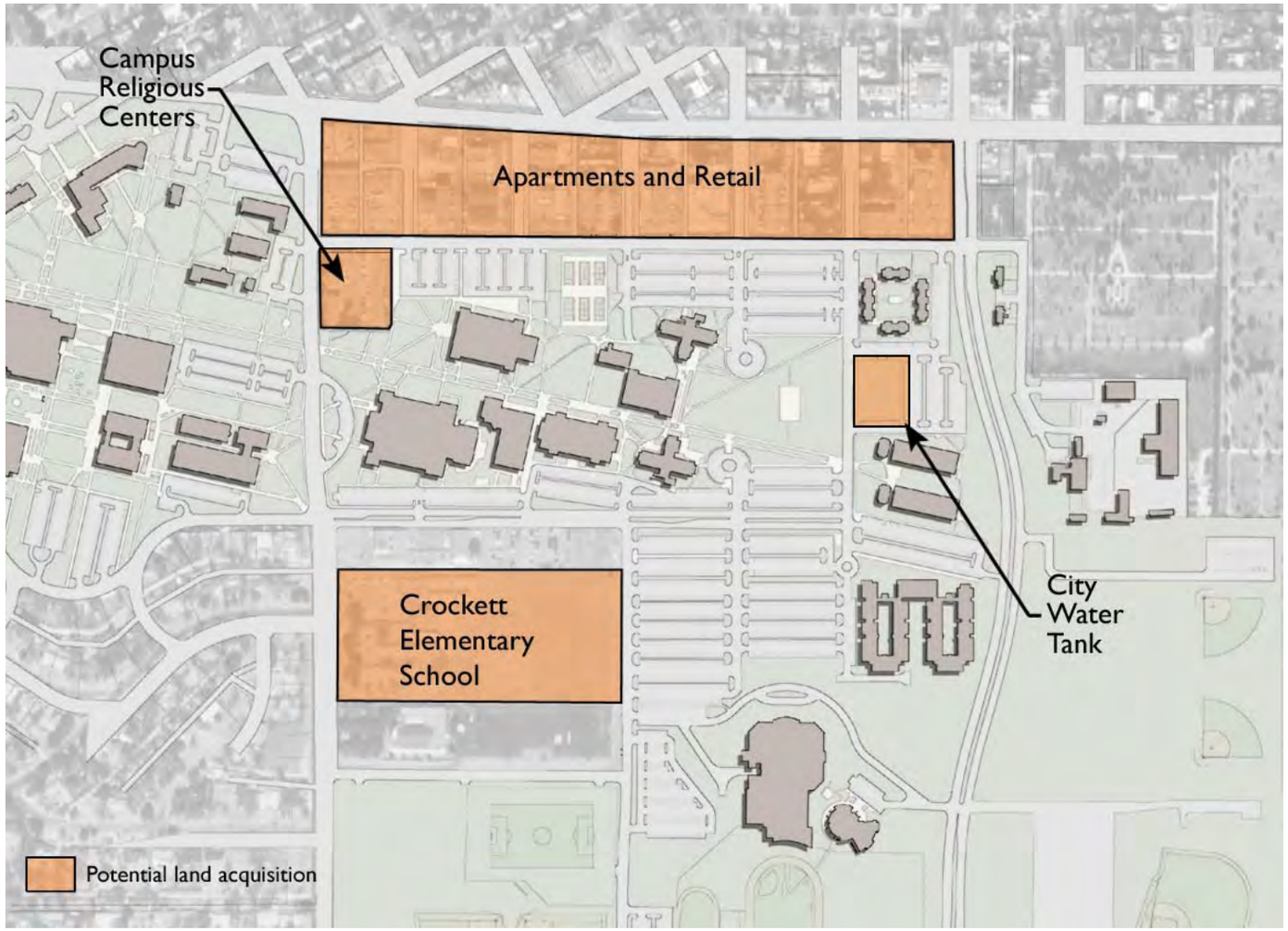
The problems that ASU faces with regard to streets are primarily related not to access, but rather to the impingement of city streets upon campus. Johnson Street cuts directly through the heart of campus, and as discussed earlier, it interferes with pedestrian traffic along the mall. Jackson Street impedes the flow of pedestrians from the housing area to the recreational fields, though this is not nearly as significant a problem as is Johnson Street.

The master plan must propose a means of eliminating or reducing the conflict at Johnson Street, as this is the single most evident functional problem currently facing the campus. It is not likely that the stretch of Johnson Street which goes through campus can be closed, so alternative solutions must be sought. Possibilities range from depressing Johnson Street beneath the level of the mall to using retractable bollards to limit or eliminate traffic at certain times of day.

Land Acquisition Potential

Several plots of land around campus have been identified as possibilities for future acquisition. Whether these plots should be acquired depends upon their usefulness to the university, and this will be determined in part by land needs generated by this analysis. Preferences will be incorporated into the physical master plan.

The land in question is in four main areas. First, apartment complexes located to the north of campus have, in the past, been offered for sale to the



Land acquisition possibilities

university. This land is well located with regard to the rest of the campus; it is near both the academic and housing zones. There are numerous uses which would be applicable for this land, including housing, parking, or university-related commercial developments. Land acquisition in this area would have the added advantage of bringing some of the less desirable elements of the surrounding area under university control.

Second, there is land in the heart of campus occupied by religious student centers. In the event that this land becomes available, the university should purchase it either through simple purchase or through a land/facility swap. Unlike other plots of land bordering the campus, though, this land is being used for purposes which directly support the university and its students. Consideration should be given to the positive role of these institutions in campus life when planning for the future.

The third area is land currently occupied by Crockett Elementary School. There is some speculation that the school may be closed in the future if San Angelo Independent School District enrollments continue to decline. If this should happen, the land may become available for purchase by the university. This land is not as favorably located as the land north of the university, but it might be a good place to relocate the campus religious centers, allowing the incorporation of land north of the campus, should such a trade become possible. Appropriate uses for this land include functions which can be operated at some remote from the campus core, including housing, athletic facilities, or recreational sports fields.

Finally, a city water tank is located north of the Massie dormitories. This tank is currently unused. Should the tank and the land on which it sits be deemed surplus by the city, the plot's location is ideally located for housing, parking, and other uses. Any opportunities to gain control of this land should be pursued.

Some of the residential areas around campus are well located with respect to the campus core, but the acquisition of these areas would present many problems - it would be difficult to deal with multiple individual landowners, and the university's public image might suffer if the residents perceive that the university intends to expand significantly into the neighborhood. Land acquisition efforts should focus on other areas first.

Massing, Scale, Facades, and Materials

Most of the academic and administrative facilities are brick- and stucco-sheathed rectilinear blocks with flat roofs, parapets, and dark gray solar glass. White concrete and stucco accents are common, and many buildings have arcades. Brick colors range from golden yellow to a pinkish rose color.

Many buildings on the campus do not have well-articulated entrances. The Hardeman Administration Building is one exception; it has a prominent two-story feature which clearly indicates the entrance. More commonly, buildings have simple doorways which match the style, size, and spacing of the building's windows closely. This similarity between doors and windows can make it difficult to locate the entrance.

Different brick types

In spite of the apparent uniformity of brick colors on campus, there are actually nearly ten different colors used. Two of the oldest buildings, the Hardeman Building and the Administration Building, are clad with a golden yellow-colored brick. Mayer and Runnels halls, built soon after the administration buildings, have a combination of a similar golden brick with a red/orange brick. Other buildings range from a rose color (University and Concho halls) to a tan color (Houston Harte University Center).

Entrance to the Hardeman Building

The most common accent used is white concrete or stucco. This is frequently used either at the top floor of buildings, as at the Mathematics-Computer Science Building and the library, or on arcades, as at the Food Service Center. White stucco or concrete is also used as a façade element at University and Concho halls and the Massie residence halls.

Housing

ASU has six student housing facilities, including one apartment complex. The total capacity of these facilities is about 1,500 students, which is about 25% of the average student population of 6,100 students. This percentage is slightly above the public university state average of 18%, but the percentage of beds occupied is also slightly above the state average for public universities, indicating that demand for housing is strong. Part of this strength is the requirement that students with fewer than 60 credit hours live in on-campus housing. Exceptions are made for students whose primary residence is within the distance limits defined by the university.

While the overall number of beds is above average, the quality of the housing varies from excellent to poor. Texan Hall, the newest residence hall, offers over 500 beds in two-bedroom suite arrangements. Texan Hall is extremely popular among students; the waiting list for the fall 2005 semester numbered over 400. On the other hand, Concho Hall holds about the same number of students but features double-occupancy dorm rooms which have no external windows. It is generally not preferred by students.

There is a fairly diverse mix of room types available on campus. The largest percentage is double occupancy (919 beds), though some of these rooms share bathrooms with another room (Concho) and some have private bathrooms (Massie). There are also 37 apartments housing 148 students, and Texan Hall (508 beds) is entirely two-person suites with private bathrooms and living areas. High rates of preference for some of the older, double-occupancy facilities like the Massie residence halls as well as for the suites in Texan Hall indicate that there is significant demand for more than one type of housing. This should be considered in future projects, particularly those which replace older housing stock.

Students

Housing is primarily located in a zone to the east of the academic buildings. Carr Hall is the only residence hall left west of Johnson Street. The main food service facility is in the housing zone as well. The food court at the Houston Harte University Center is also available to students, but it is located on the western end of campus.

From one perspective, housing is fairly optimally located between the academic buildings on one side and sports fields on the other; academics and recreation are two of the main student activities on campus, so this minimizes the distances that students must travel. These are not the only key alignments, however. On-campus housing and the pedestrian paths which students typically travel are the two most active areas on a university campus after classes end for the day. Alignments which can generate more pedestrian traffic and induce students to spend more time on campus are crucial to developing active campus life beyond just the hours during which classes are in session.

To this end, popular student-oriented facilities should be placed carefully in relation to campus housing. A recreation center and cafés located near housing will become a center of student activity and will do far more to generate a lively nighttime atmosphere than a nearby empty classroom building, for example. Facilities like recreation centers, cafes, performing arts centers, libraries, and even computer labs which students, faculty members, and members of the community use in the evenings and on weekends should be located to take advantage of the opportunities which on-campus housing presents.

Closed Housing Facilities

ASU has three dormitories which are currently closed: University Hall, Runnels Residence Hall, and Meyer Residence Hall. Concho Hall is identical to University Hall, so while it remains open, conclusions about University apply to Concho as well.

A comprehensive report analyzing Concho Hall was prepared by a team led by Alderson & Associates, Inc. The report concluded that work totaling $10 million, in addition to $3.5 million in abatement costs, would be necessary to renovate the building and to bring it into compliance with ADA and fire code requirements. Presented with this information, ASU in 2002 constructed a new residence hall, Texan Hall, instead of renovating either Concho or University.

University Hall

There are functional problems with University and Concho in addition to the costs of renovation. First, the buildings are not suitable for any university uses other than housing. The floor-to-floor heights are too low to allow the conversion of the buildings for classroom or laboratory space, and the structural system will not allow for the high floor loadings necessary for library or storage space. While the buildings could be renovated as office space, they are not appropriate for that use because the campus need for offices is minimal in comparison to the large size of the buildings.

Given these usage restrictions, the only viable alternative is to renovate the buildings for use as housing. This option has some positive features - retaining this housing would place large numbers of students near the center of campus, the structural system of the buildings is in acceptable shape and will likely last longer than the wood-framed construction likely to be used in new residence halls, and the buildings are a well-regarded part of the ASU and San Angelo skyline. But the insurmountable problems inherent in the layout of the buildings, such as the fact that no rooms have outside windows, the travel time inefficiencies caused by the height of the buildings, the inflexibility of the buildings' plans, and the lack of amenities desired in modern university housing, mean that the best way for the university to achieve its housing objectives is through new construction, not through renovation of the towers.

Runnels and Meyer are a slightly different case. These dorms also require comprehensive renovations, but they do not have quite the same floor plan deficiencies. Rooms have outside windows, and the

floor plans are appropriate, though perhaps not ideal, for campus housing. Again, the floor-to-floor heights will only allow them to be used as offices or housing, but in this case, the size of the buildings is well matched to ASU's office needs.

While they may be acceptably renovated, the reuse or demolition of Meyer and Runnels should depend on the requirements of the master plan rather than the suitability of the buildings themselves. These two dormitories, together with the University Clinic and the University Police Building, occupy prime land in the campus core. It may be more appropriate to use this land for a landmark building such as a performing arts center rather than to occupy it with smaller buildings which in some cases, such as the University Police Building, are insufficient for their use. The space needs detailed by this report and the campus plan generated by the physical master planning process will address the remaining questions regarding these two dormitories.

Campus open space

Open Space and Landscape

Although much of the ASU campus is built out, the campus still has several moderately-sized areas of open space. The largest is to the northeast of the Houston Harte University Center, where administration and student services buildings, the university center, and the library form the edges of an area nearly seven acres in size – 900 feet long and 400 feet wide. Another large area east of the residential towers is about four acres. Smaller areas are located between the Academic Building and the Carr Education-Fine Arts Building, to the west of the Vincent Nursing-Physical Science Building, and next to the Super Slab. These areas range from less than an acre to 1.25 acres.

The landscape is carefully manicured and largely free of the types of vegetation native to the region except in well-maintained, intentionally planted areas. The malls are shaded primarily by several types of oaks, many of which have reached 50 feet or more in height, and assorted evergreen, pecan, mesquite, elm, sycamore, and other trees are also present. Grass is the dominant groundcover, and the buildings are surrounded by planting beds with various types of shrubs, flowers, and other groundcovers.

Athletics Fields and Facilities

With the new Junell Center/Stephens Arena and Stephens Arena, ASU's athletic facilities compare favorably to those at similar institutions. Men's sports include baseball, basketball, cross country, football, and track and field. Women's sports include basketball, cross country, soccer, softball, track and field, and volleyball. The teams compete in the Lone Star Conference. The members of the conference are schools in New Mexico, Texas, and Oklahoma which are generally similar in size to ASU.

The Lone Star Conference sponsors championships in all sports in which ASU competes as well as a few more. ASU has no current plans to institute programs in other sports, but should sports be added, the most likely candidates include tennis, golf, and men's soccer. The university's facilities are generally adequate for these sports – the university has previously had tennis teams, golf teams would use one of San Angelo's golf courses to practice, and there are fields available for soccer. Minor facilities like locker rooms and offices for coaches may be required.

Volleyball team


Multipurpose Sports Complex

Athletics facilities are located in the south end of campus. The Junell Center/Stephens Arena is the centerpiece of the athletics cluster and is home to athletics offices, dressing rooms, training facilities, and gymnasia for the basketball and volleyball programs.

The Multipurpose Sports Complex is immediately south of the Junell Center/Stephens Arena, and is home to a football practice field as well as a running track and installations for field events. The varsity practice field is immediately east of the Multipurpose Sports Complex. Varsity soccer and softball fields are west of the Multipurpose Sports Complex, across Varsity Lane.

The football program plays its games at the San Angelo Independent School District field just south of campus. There has been some consideration given to

upgrading the football field at the Multipurpose Sports Complex so that games may be played there, but no firm plans for this are likely in the foreseeable future.

The San Angelo Colts, an unaffiliated Central League baseball team, recently constructed a new stadium on land leased to them by the university. The ASU baseball team plays at this field. While the stadium itself is more than adequate for the needs of the university, the team does not have a separate dressing room.

Recreation Fields and Facilities

The recreational programs at ASU are strong and are growing rapidly – 35 to 40 percent of students participate in one or more recreational activities. This has occurred despite the lack of a dedicated recreation center, as the Center for Human Performance (CHP), the main indoor space available for recreational use, is used by kinesiology programs during certain parts of the day. The CHP has a large gymnasium with multiple basketball, volleyball, or other courts, depending upon configuration. It also houses a weight/cardio room, a dance studio, a 25-meter pool, and locker rooms. The weight room in the Junell Center/Stephens Arena is also available for use by the general student body at specified times during the day.

The weight/cardio room in the CHP is too small for the number of students who wish to use those facilities as well as for the amount and types of equipment necessary in modern training facilities. While the availability of the weight room in the Junell Center/Stephens Arena helps with this situation, it is not located ideally, and many students prefer the perceived less competitive atmosphere of the CHP. Also, the dance studio is constantly booked, and additional dance/guided workout facilities would be well utilized.

Most lacking in the university's recreational space is a place for students to gather near the CHP. At many universities, the recreation center is a main center for student life. It is often the liveliest place on campus, and has to some extent taken over the traditional roles of the university center on modern campuses. Nighttime and weekend activity and campus life in general could be reinvigorated with the addition of lounge, gathering, food service, and similar spaces either directly to or near the CHP. Additional weight/cardio and dance/workout studio space could be part of this same addition. Ideally, such a project would also create a single point of control for entrance into the combined recreational facilities.

The outdoor recreational fields are located to the east of Jackson Street, south of the physical plant. There are four backstops and space for multipurpose fields. The fields are generally adequate for ASU's needs, though lighting the fields would greatly extend their usefulness and would enable outdoor recreational programs to be extended into the evening hours, which students prefer. There are also 12 lit tennis courts in two locations; six south of the Multipurpose Sports Complex and six northeast of the Vincent Nursing-Physical Science Building.

Outdoor space dedicated to scheduled recreational uses at ASU is adequate for current enrollment levels as well as for a significant amount of growth if, as previously mentioned, provision is made for lighting. Typical university allotments for recreational fields range from about one to two acres per 1,000 students, depending upon the size of the institution. The fields to the east of Jackson occupy about 13 acres, which equates to about two acres per 1,000 students.

Accessibility

Most of the university's facilities are accessible by handicapped persons. New constructions as well as renovations should meet necessary accessibility requirements. Improvements should be made where it is not accessible in the existing buildings.

Space Planning Issues

Existing Space Summary

The university has a total of 63 buildings and structures including on-campus and off-campus buildings, farming structures and closed buildings. The total area is approximately 1,801,000 gross square feet (GSF). The university currently has 3 buildings closed: University Hall, Mayer Hall and Runnels Hall. These buildings represent 133,000 GSF of space including a 10-story high-rise building. Number of buildings utilized is 60 totaling approximately 1,668,000 GSF.

Average building efficiency is 64%. It means that this percentage of floor area can be used as functional space for classrooms, offices and storage, but not circulations, restrooms and mechanical rooms.

Approximately half of the assignable area is Education and General (E&G) space. E&G space serves the mission of teaching, research and public services including academic departments, library, university administrations and support services. It does not include auxiliary spaces such as residence halls, bookstores, intercollegiate athletics and other auxiliary enterprises.

Total Area

Total Gross Area	1,801,277 Gross Square Feet
Total Assignable Area	1,145,722 Assignable Square Feet
Total Education & General Area	586,439 Assignable Square Feet
Total Number of Building	63
Average Building Efficiency	64%

Occupied Buildings

Number of Buildings Utilized	60
Gross Area Utilized	1,667,804 Gross Square Feet
Assignable Area Utilized	1,065,639 Assignable Square Feet

Closed Buildings

Number of Closed Buildings	3
Closed Building Gross Area	133,473 Gross Square Feet
Closed Building Assignable Area	80,084 Assignable Square Feet

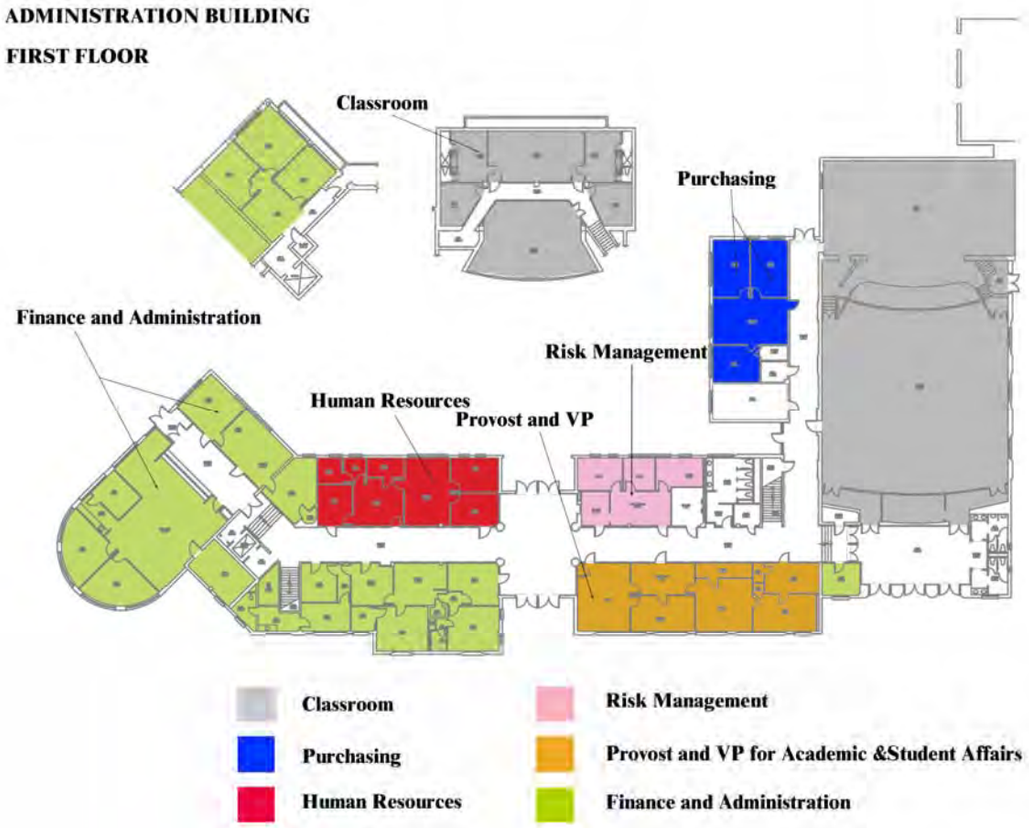
Department Space by Building

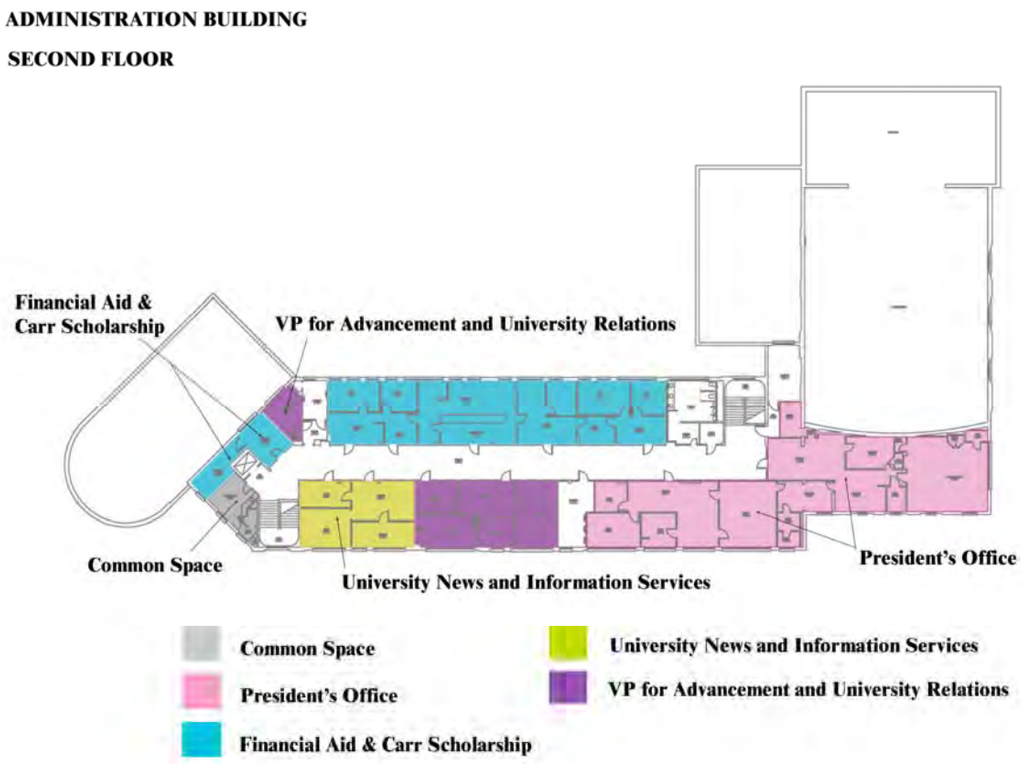
Department	Total	Academic	Admin	Campus Stor	Carr	Carr Edu Fine Arts	Cavness Sci	Concho Hall	Cont Stud	Ctr for Human Perform	Farm Maint	Flammable Stor	Food Srvc	Food Srvc Chem	Food Srvc Stor	General Srvc	Hardeman	Hazardous Chem	Houston Harte	Junell Ctr	Lake House	Lake Residence	Massie Hall for Men	Massie Hall for Women	Math Comp	Mayer	MIR Ctr	MIR Greenhouse	Museum	Physical Plant	Physical Plant Annex	Physical Plant Ware A	Physical Plant Ware B
Total	**1,101,007**	**38,308**	**24,784**	**12,685**	**10,808**	**56,836**	**55,109**	**62,330**	**1,960**	**64,572**	**3,540**	**191**	**16,456**	**359**	**579**	**3,830**	**15,449**	**56**	**66,207**	**96,673**	**2,294**	**997**	**28,306**	**28,306**	**51,296**	**8,155**	**17,043**	**2,970**	**16,386**	**17,537**	**1,468**	**5,853**	**15,387**
Business & Professional Studies																																	
Accounting, Economics & Finance	**2,560**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aerospace Studies	**3,108**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Computer Science	**3,719**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,478	-	-	-	-	-	-	-	-
Kinesiology	**52,231**	-	-	-	-	-	-	-	-	48,873	-	-	-	-	-	-	-	-	-	3,358	-	-	-	-	-	-	-	-	-	-	-	-	-
Management & Marketing	**5,647**	-	-	307	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Liberal & Fine Arts																																	
Art & Music	**34,682**	-	-	-	-	19,101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15,581	-	-	-	-	-
Communications, Drama & Journalism	**19,485**	-	-	300	-	13,754	-	-	-	-	-	-	-	-	-	1,554	3,878	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
English	**6,007**	5,512	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government	**1,652**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
History	**1,914**	1,914	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modern Languages	**3,113**	3,113	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Psychology & Sociology	**3,516**	3,516	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sciences																																	
Agriculture	**25,057**	-	-	-	-	-	670	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15,550	2,970	-	-	-	-	-	-
Biology	**27,749**	-	-	-	-	-	27,749	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry & Biochemistry	**15,064**	-	-	-	-	-	15,064	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mathematics	**4,760**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,760	-	-	-	-	-	-	-	-
Nursing	**9,471**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Therapy	**6,105**	-	-	-	-	-	-	-	-	5,933	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physics	**20,723**	-	-	1,489	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Education																																	
Education	**7,726**	715	-	152	-	6,212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Classroom																																	
Classroom	**142,322**	23,539	8,106	-	-	17,653	11,627	-	-	4,567	-	-	-	-	-	-	741	-	13,215	12,947	-	-	-	-	13,334	-	1,210	-	-	-	-	-	-
Academic & Student Affairs																																	
Admissions Office	**6,062**	-	-	231	-	-	-	-	-	-	-	-	-	-	-	-	5,831	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Career Development	**1,819**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,819	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Continuing Studies	**1,960**	-	-	-	-	-	-	-	1,960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Graduate School	**2,011**	-	-	289	-	-	-	-	-	-	-	-	-	-	-	-	1,723	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Health Clinic & Counseling	**4,155**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Information Technology	**16,364**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,615	-	-	-	-	-	-	-	-
Library	**68,395**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10,007	-	-	-	-	-	-	-	-	-	805	-	-	-	-
Provost & VP for Academic & Student Affairs	**3,791**	-	2,471	690	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Registrar's Office	**405**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Residence Life	**32,666**	-	-	-	1,537	-	-	13,926	-	-	-	-	-	-	-	-	1,644	-	-	-	-	-	-	-	-	613	-	-	-	-	-	-	-
Residence Halls	**315,959**	-	-	-	9,271	-	-	48,404	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28,306	28,306	-	7,543	-	-	-	-	-	-	-
Student Services, Student Development & Program Office	**1,539**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,539	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Univ Recreation & Intramurals	**9,648**	-	-	-	-	-	-	-	-	5,199	-	-	-	-	-	-	-	-	2,083	-	2,054	-	-	-	-	-	-	-	-	-	-	-	-
Advancement & University Relations																																	
Alumni Relations	**147**	-	147	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Development	**9,193**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,193	-	-	-	-	-	-	-	-	-	-	-	-	-
Food Service	**32,223**	-	-	-	-	-	-	-	-	-	-	-	16,456	359	579	-	-	-	13,773	816	240	-	-	-	-	-	-	-	-	-	-	-	-
Intercollegiate Athletics	**72,876**	-	215	3,126	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68,905	-	-	-	-	-	-	-	-	-	-	-	-	-
Risk Management	**248**	-	248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Student Government, Special Events Facilities & Services	**16,047**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,228	-	14,818	-	-	-	-	-	-	-	-	-	-	-	-	-	-
University Police	**728**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finance & Administration																																	
Bookstore, Post Office & Print Shop	**8,025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,348	677	-	-	-	-	-	-	-	-	-	-	-	-	-
Finance & Administration	**7,529**	-	4,887	366	-	-	-	-	-	-	-	-	-	-	-	2,276	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Financial Aid & Carr Scholarship	**2,337**	-	2,337	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Human Resources	**1,036**	-	1,036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Plant	**50,539**	-	-	5,735	-	116	-	-	-	-	3,540	191	-	-	-	-	-	56	-	777	-	-	-	-	-	-	283	-	-	16,693	1,468	5,853	15,387
Purchasing	**1,782**	-	938	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	844	-	-	-	-
Other																																	
Executive Management/Board	**776**	-	259	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
President's Office	**3,291**	-	3,291	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
University News & Information Services	**2,452**	-	848	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,604	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Residence	**9,289**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	997	-	-	-	-	-	-	-	-	-	-	-
Texas State Data Center	**21,109**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21,109	-	-	-	-	-	-	-	-

Department Space by Building (continued)

Department	Total	Physical Plant Waste	Porter Lib	Press Box	Residence - President	Residence - Plant Dir	Residence - Carpenter Foreman	Residence - Farm Manager	Residence - Farm Hand	Rassman	Rec Stor	Runnels	Sheep Barn	Silo 1	Silo 2	Silo 3	Texan Hall*	Univ Clinic	Univ Hall	Univ Police	Vanderventer Apts	Vincent
Total	**1,101,007**	**440**	**64,392**	**631**	**4,500**	**1,186**	**972**	**902**	**732**	**36,269**	**311**	**9,718**	**950**	**631**	**631**	**1,285**	**114,839**	**4,155**	**62,330**	**728**	**22,309**	**46,370**
Business & Professional Studies																						
Accounting, Economics & Finance	**2,560**	-	-	-	-	-	-	-	-	2,560	-	-	-	-	-	-	-	-	-	-	-	-
Aerospace Studies	**3,108**	-	-	-	-	-	-	-	-	3,108	-	-	-	-	-	-	-	-	-	-	-	-
Computer Science	**3,719**	-	-	-	-	-	-	-	-	241	-	-	-	-	-	-	-	-	-	-	-	-
Kinesiology	**52,231**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Management & Marketing	**5,647**	-	-	-	-	-	-	-	-	5,339	-	-	-	-	-	-	-	-	-	-	-	-
Liberal & Fine Arts																						
Art & Music	**34,682**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Communications, Drama & Journalism	**19,485**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
English	**6,007**	-	495	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government	**1,652**	-	-	-	-	-	-	-	-	1,652	-	-	-	-	-	-	-	-	-	-	-	-
History	**1,914**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Modern Languages	**3,113**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Psychology & Sociology	**3,516**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sciences																						
Agriculture	**25,057**	-	-	-	-	-	-	-	-	-	-	-	950	631	631	1,285	-	-	-	-	-	2,372
Biology	**27,749**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemistry & Biochemistry	**15,064**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mathematics	**4,760**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nursing	**9,471**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,471
Physical Therapy	**6,105**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	172
Physics	**20,723**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19,233
Education																						
Education	**7,726**	-	-	-	-	-	-	-	-	646	-	-	-	-	-	-	-	-	-	-	-	-
Classroom																						
Classroom	**142,322**	-	6,261	-	-	-	-	-	-	16,030	-	-	-	-	-	-	-	-	-	-	-	13,091
Academic & Student Affairs																						
Admissions Office	**6,062**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Career Development	**1,819**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Continuing Studies	**1,960**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Graduate School	**2,011**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Health Clinic & Counseling	**4,155**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,155	-	-	-	-
Information Technology	**16,364**	-	-	-	-	-	-	-	-	6,348	-	-	-	-	-	-	-	-	-	-	-	1,400
Library	**68,395**	-	57,119	-	-	-	-	-	-	344	-	119	-	-	-	-	-	-	-	-	-	-
Provost & VP for Academic & Student Affairs	**3,791**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	630
Registrar's Office	**405**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Residence Life	**32,666**	-	-	-	-	-	-	-	-	-	-	1,022	-	-	-	-	-	-	13,926	-	-	-
Residence Halls	**315,959**	-	-	-	-	-	-	-	-	-	-	8,577	-	-	-	-	114,839	-	48,404	-	22,309	-
Student Services, Student Development & Program Office	**1,539**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Univ Recreation & Intramurals	**9,648**	-	-	-	-	-	-	-	-	-	311	-	-	-	-	-	-	-	-	-	-	-
Advancement & University Relations																						
Alumni Relations	**147**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Development	**9,193**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food Service	**32,223**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Intercollegiate Athletics	**72,876**	-	-	631	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Risk Management	**248**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Student Government, Special Events Facilities & Services	**16,047**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
University Police	**728**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	728	-	-
Finance & Administration																						
Bookstore, Post Office & Print Shop	**8,025**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finance & Administration	**7,529**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Financial Aid & Carr Scholarship	**2,337**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Human Resources	**1,036**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical Plant	**50,539**	440	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Purchasing	**1,782**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other																						
Executive Management/Board	**776**	-	517	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
President's Office	**3,291**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
University News & Information Services	**2,452**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Residence	**9,289**	-	-	-	4,500	1,186	972	902	732	-	-	-	-	-	-	-	-	-	-	-	-	-
Texas State Data Center	**21,109**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Department Locations





PORTER HENDERSON LIBRARY

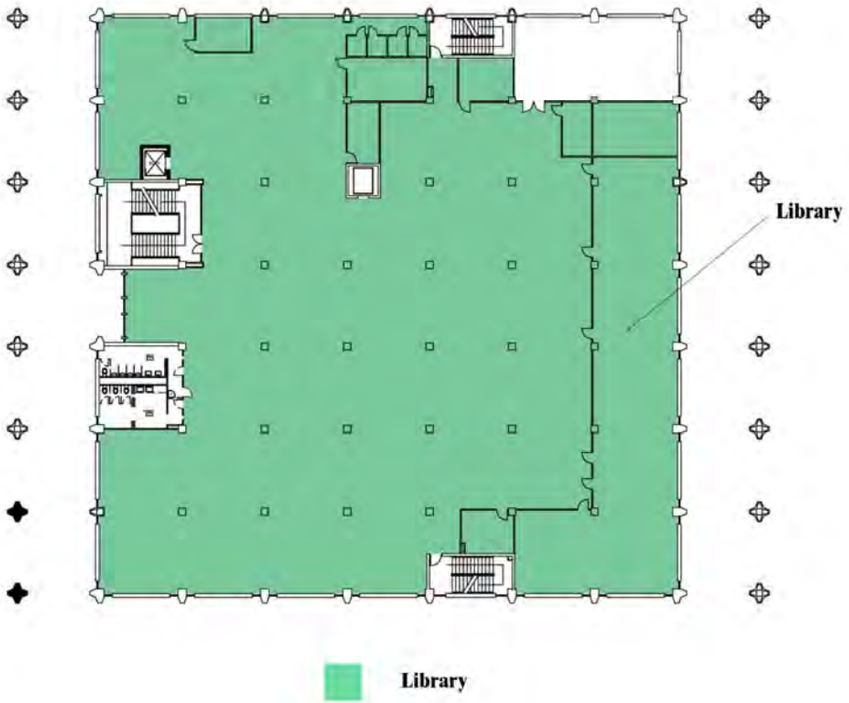
GROUND FLOOR

PORTER HENDERSON LIBRARY

FIRST FLOOR

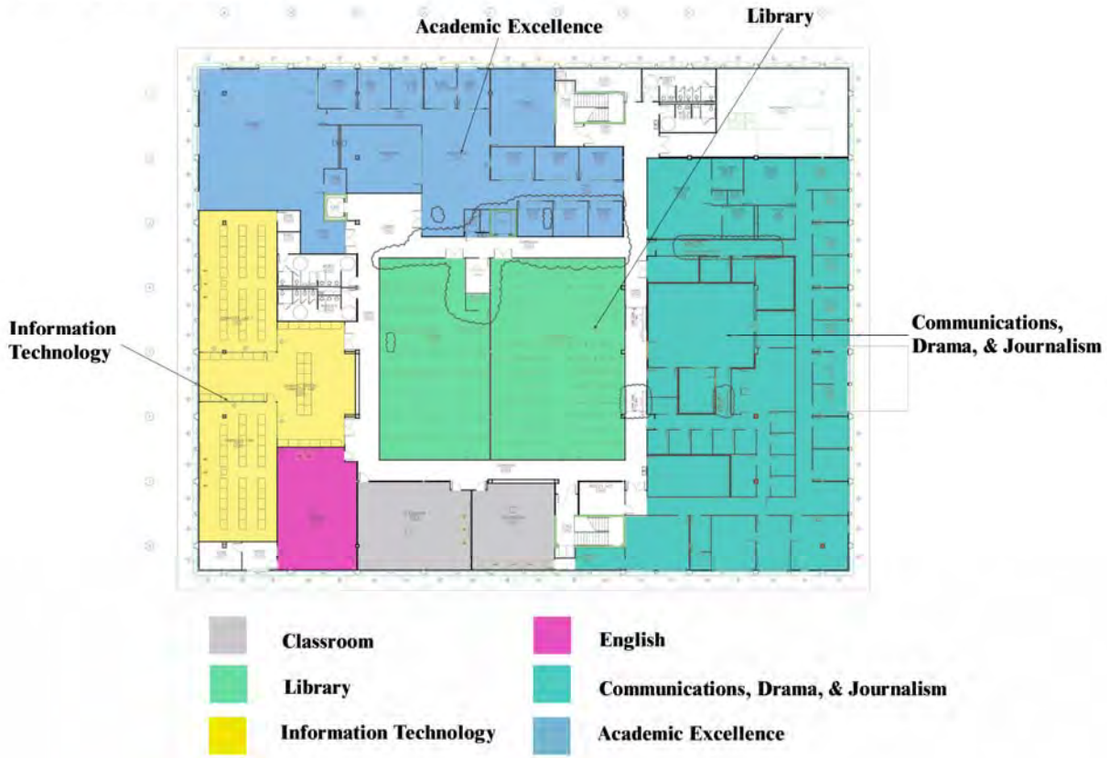
PORTER HENDERSON LIBRARY

SECOND FLOOR



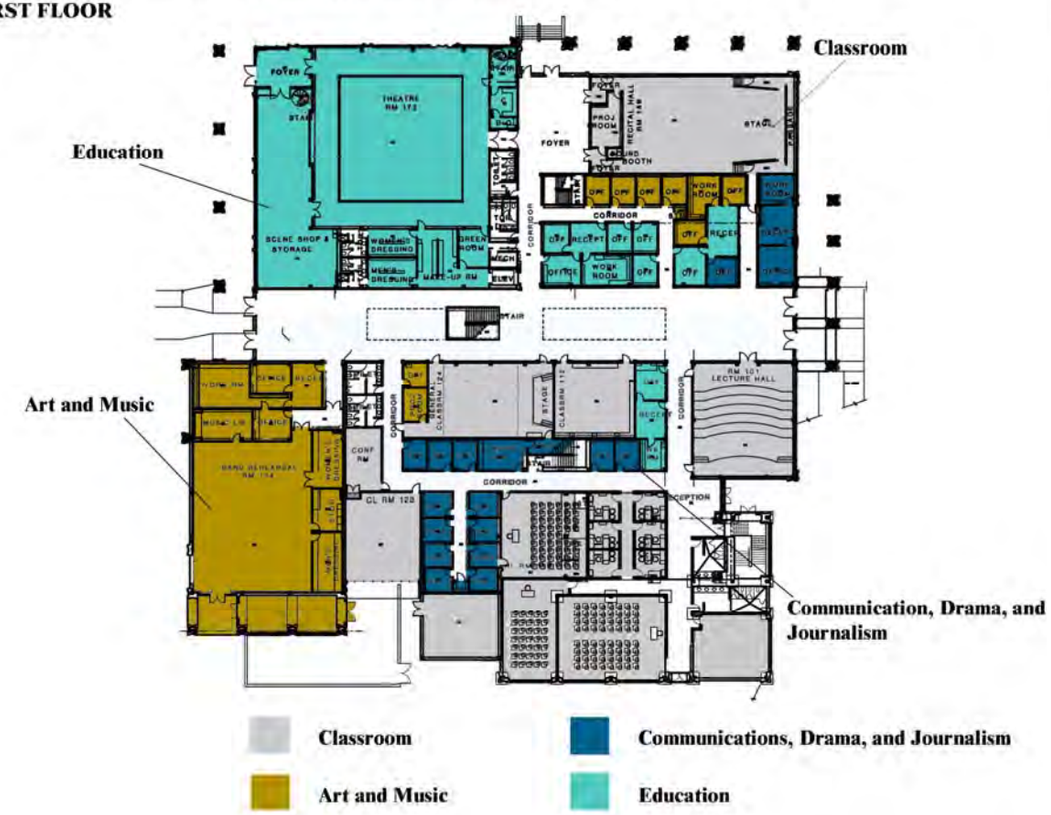
PORTER HENDERSON LIBRARY

THIRD FLOOR ADDITION



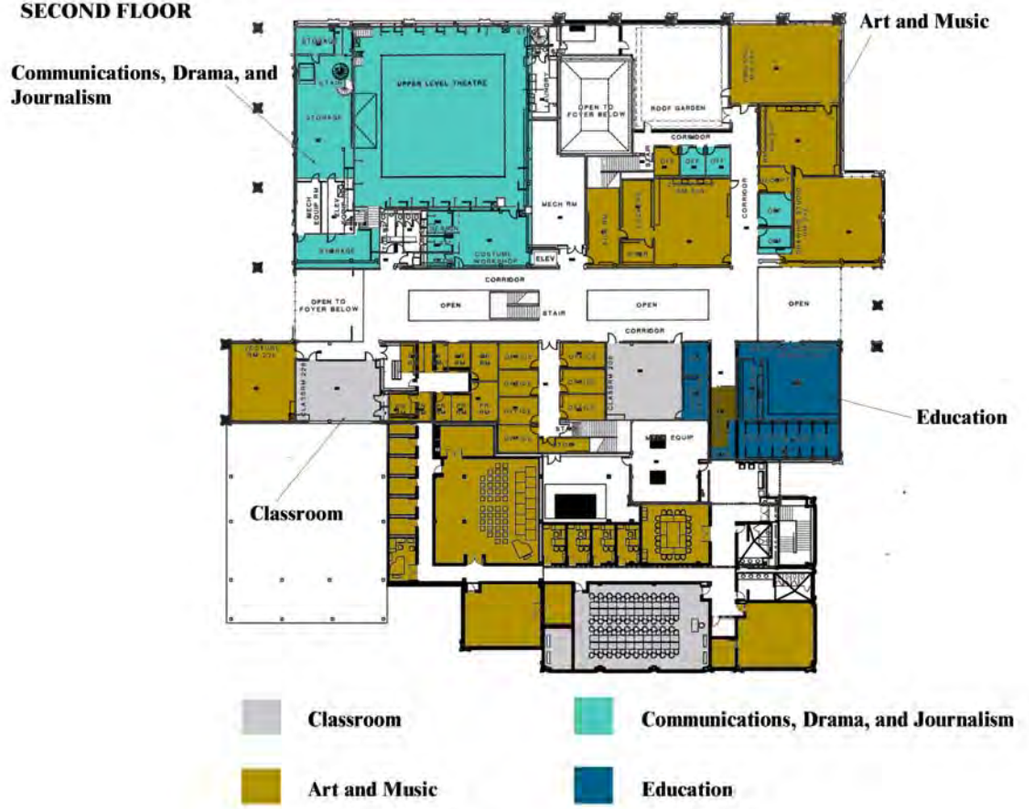
ROBERT AND NONA CARR EDUCATION-FINE ARTS BUILDING

FIRST FLOOR



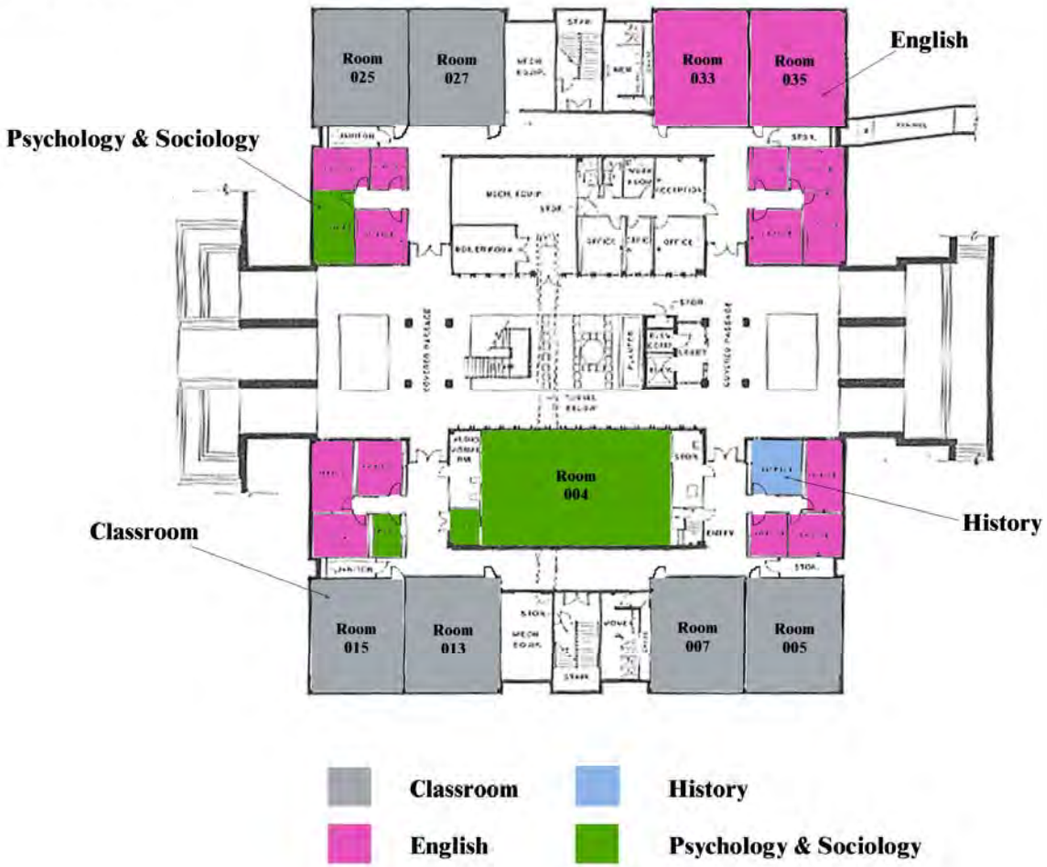
ROBERT AND NONA CARR EDUCATION-FINE ARTS BUILDING

SECOND FLOOR



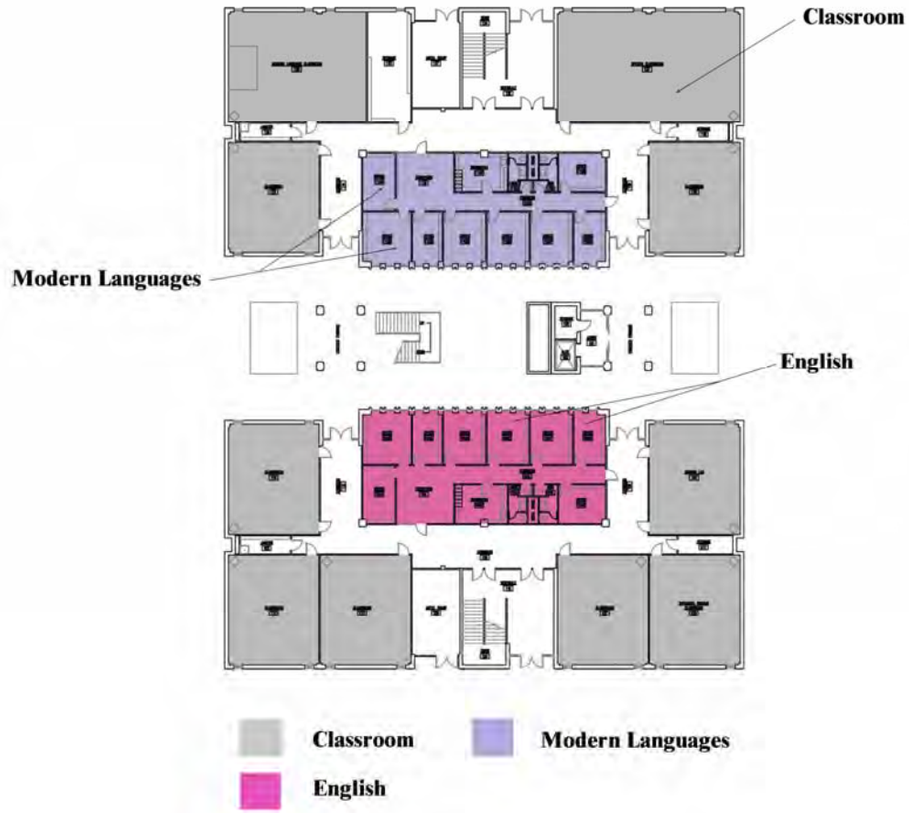
ACADEMIC BUILDING

GROUND FLOOR



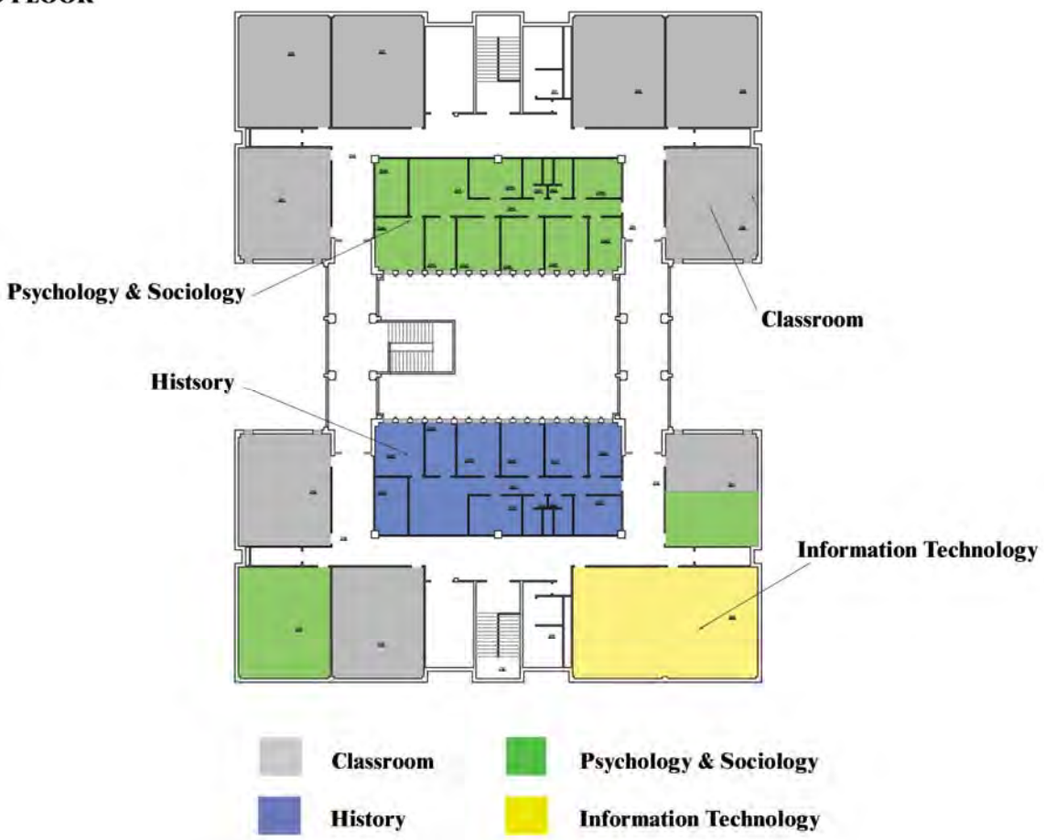
ACADEMIC BUILDING

FIRST FLOOR

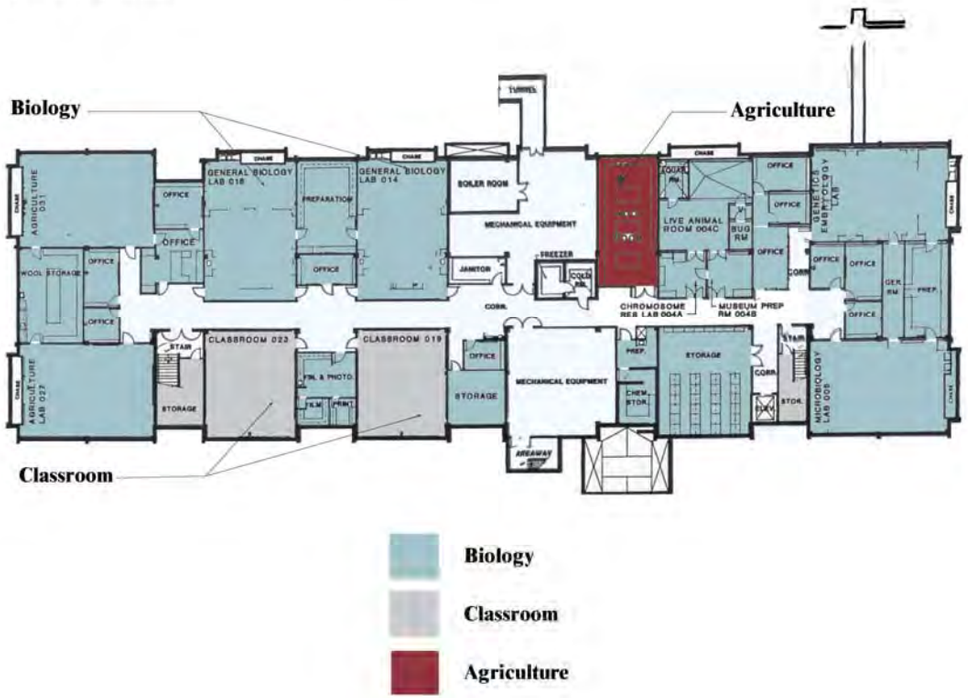


ACADEMIC BUILDING

SECOND FLOOR



RAYMOND M. CAVNESS SCIENCE BUILDING
GROUND LEVEL

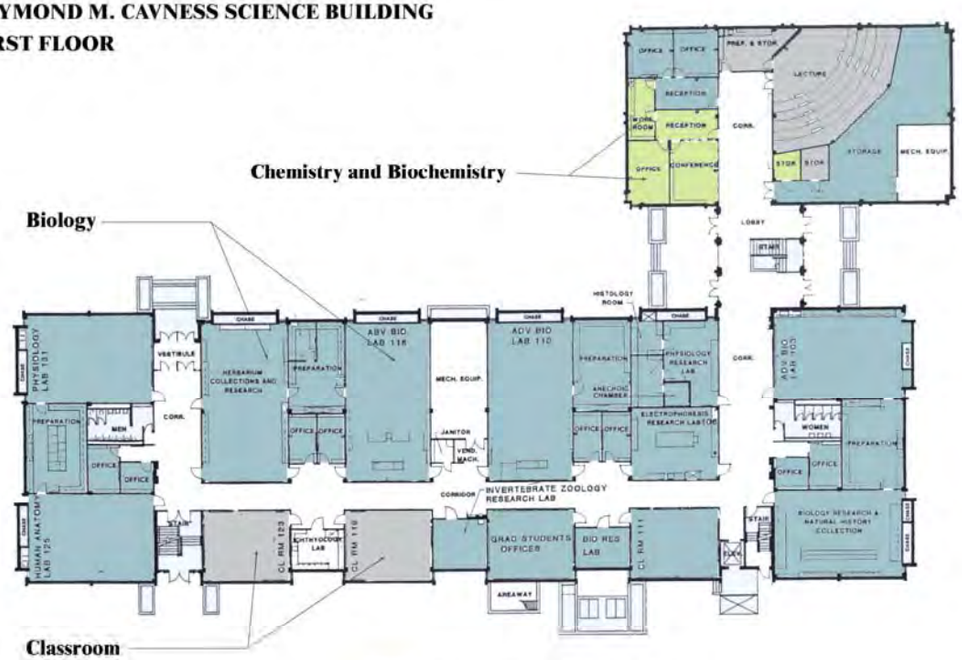


Biology

Classroom

Agriculture

RAYMOND M. CAVNESS SCIENCE BUILDING
FIRST FLOOR

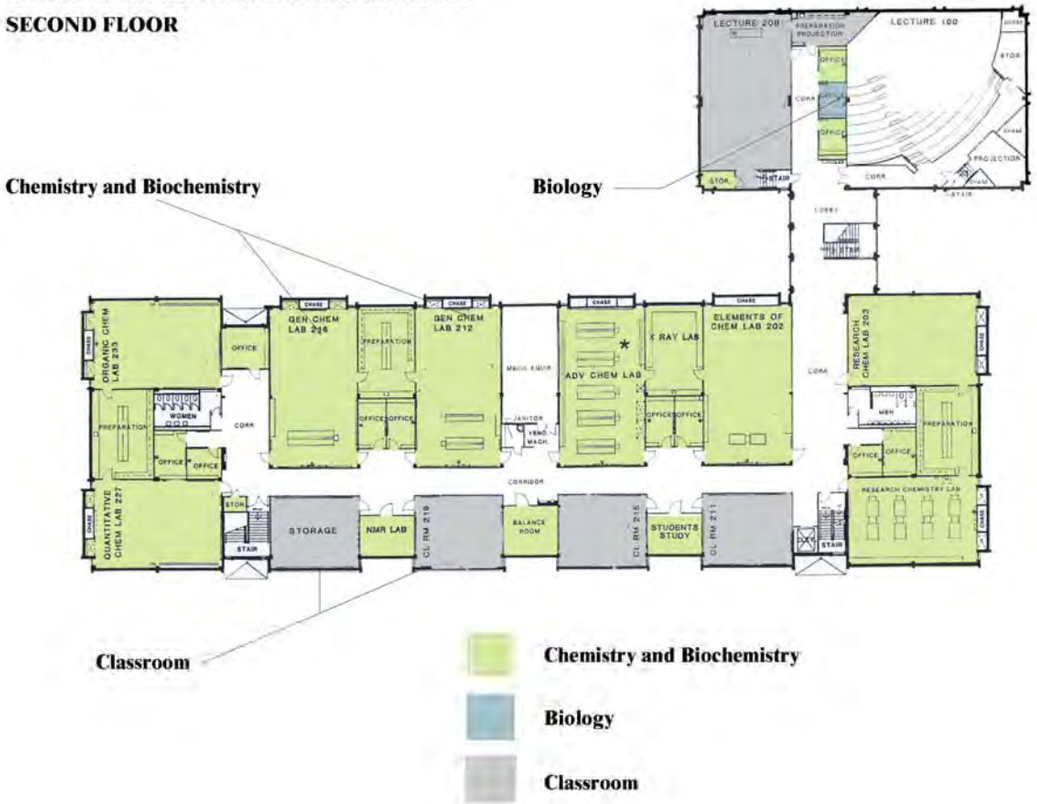


Chemistry and Biochemistry

Biology

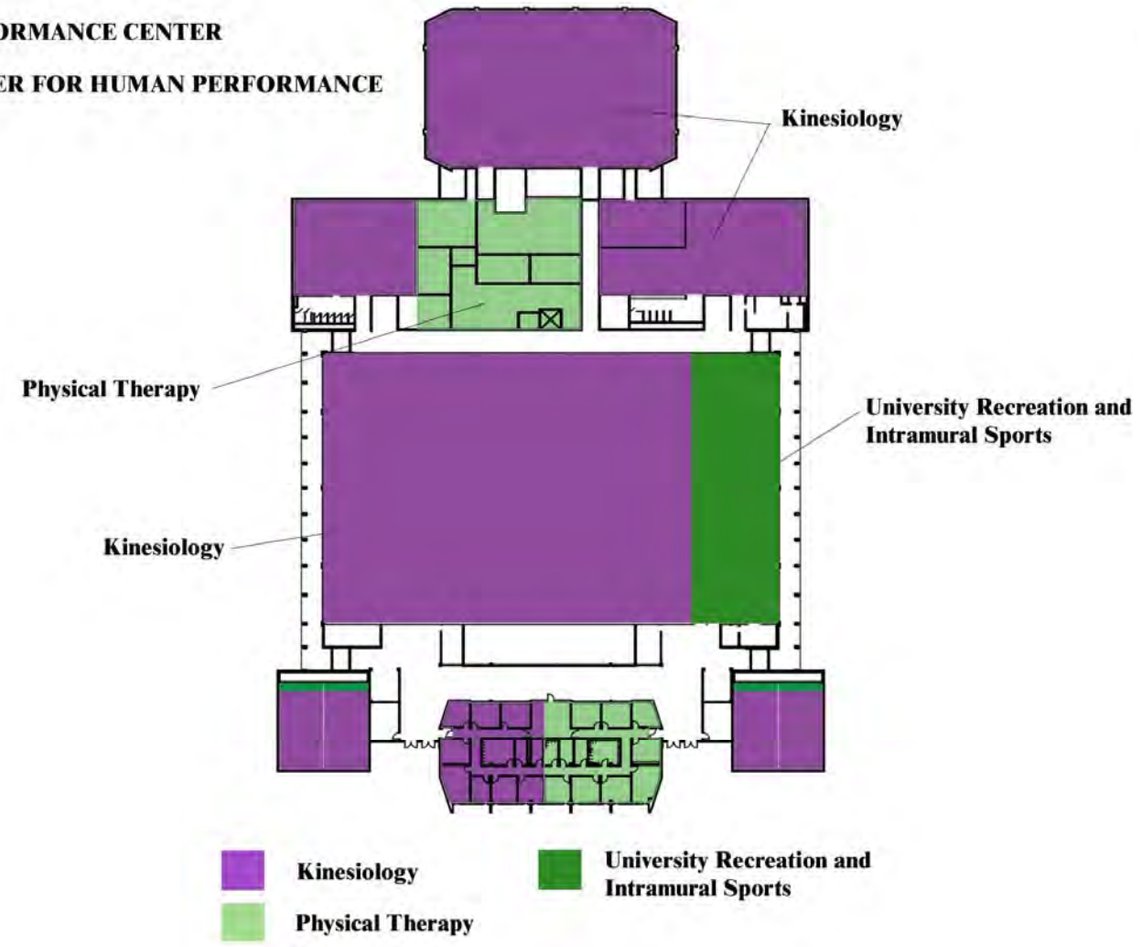
Classroom

RAYMOND M. CAVNESS SCIENCE BUILDING
SECOND FLOOR



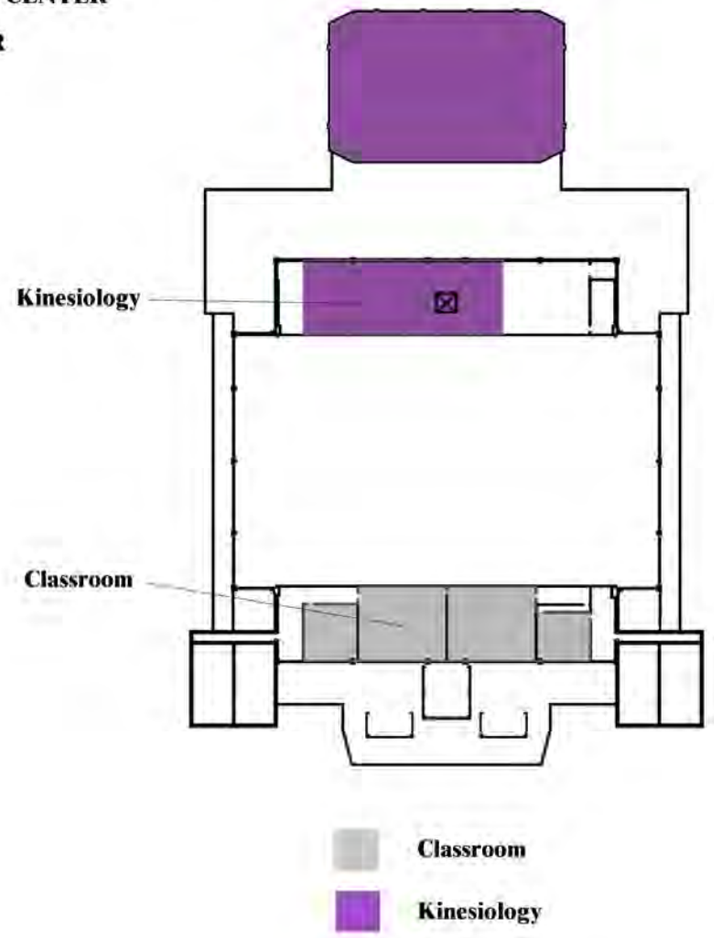
PERFORMANCE CENTER

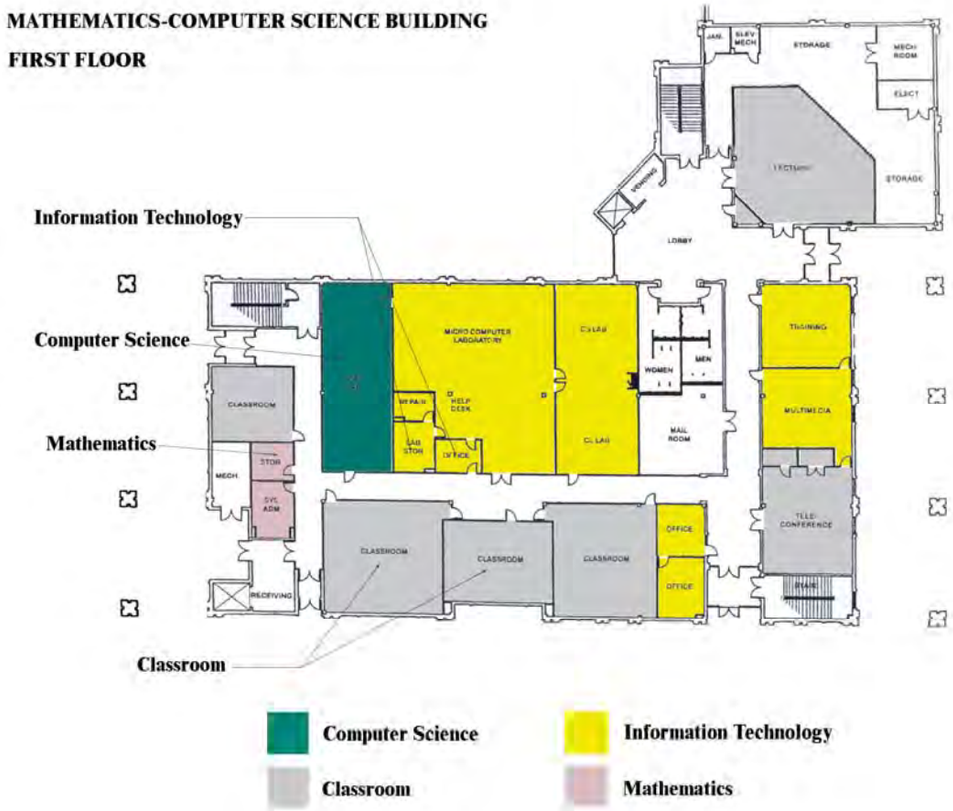
CENTER FOR HUMAN PERFORMANCE

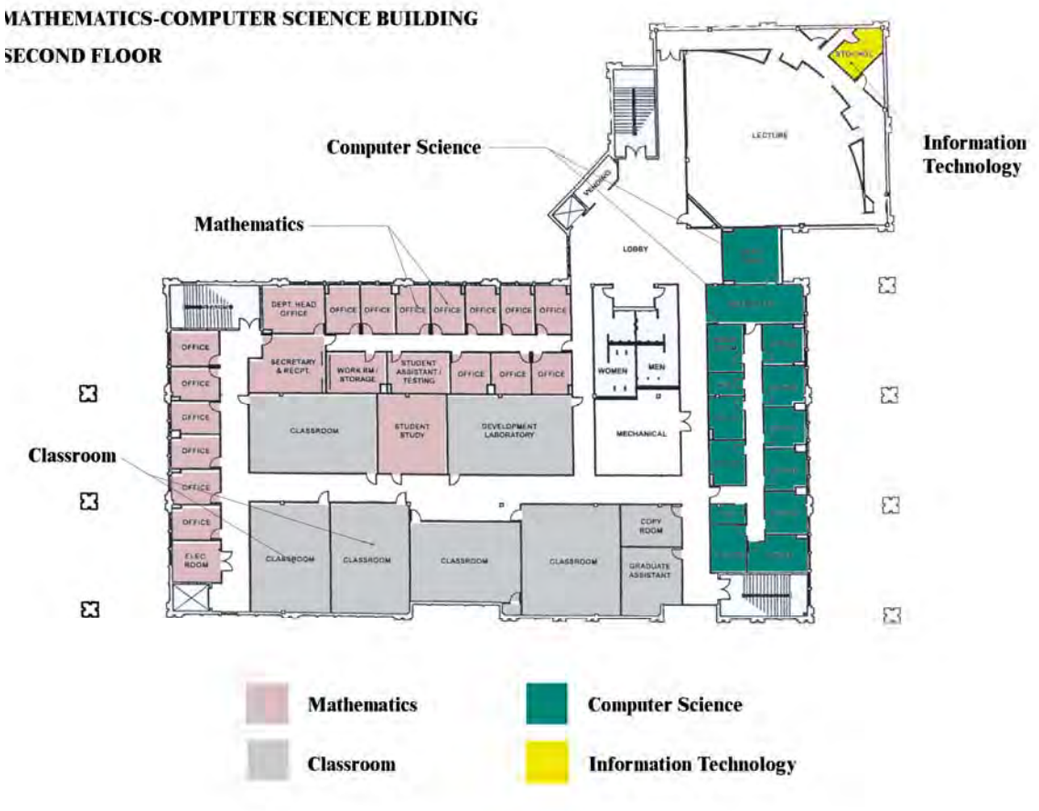


PERFORMANCE CENTER

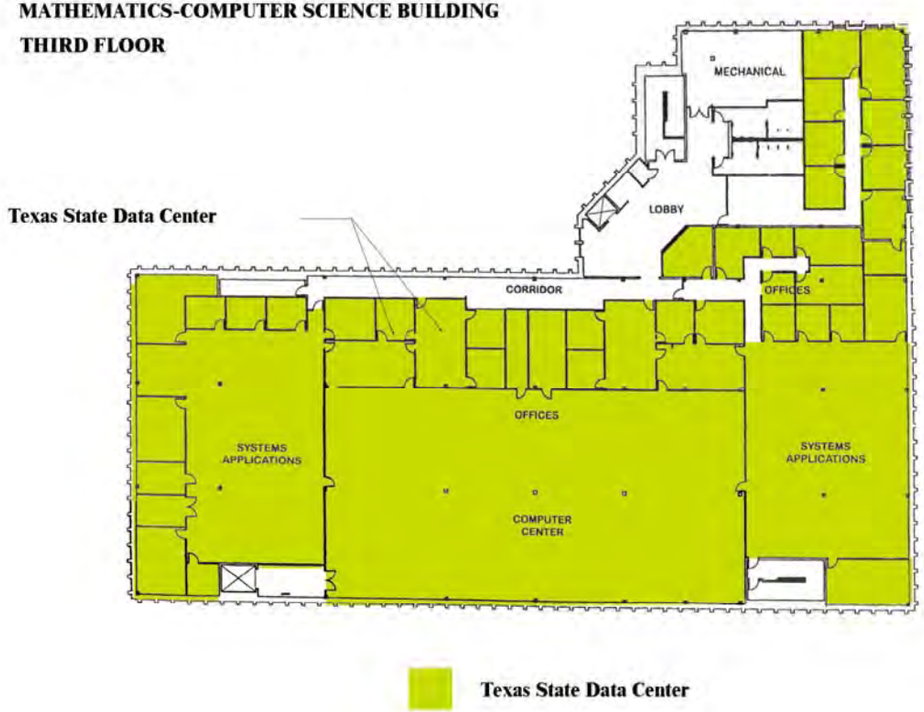
SECOND FLOOR




MATHEMATICS-COMPUTER SCIENCE BUILDING
FIRST FLOOR
Information Technology
Computer Science
Mathematics
Classroom
Computer Science
Information Technology
Classroom
Mathematics


MATHEMATICS-COMPUTER SCIENCE BUILDING
SECOND FLOOR
Computer Science
Information Technology
Mathematics
Classroom
Mathematics
Computer Science
Classroom
Information Technology

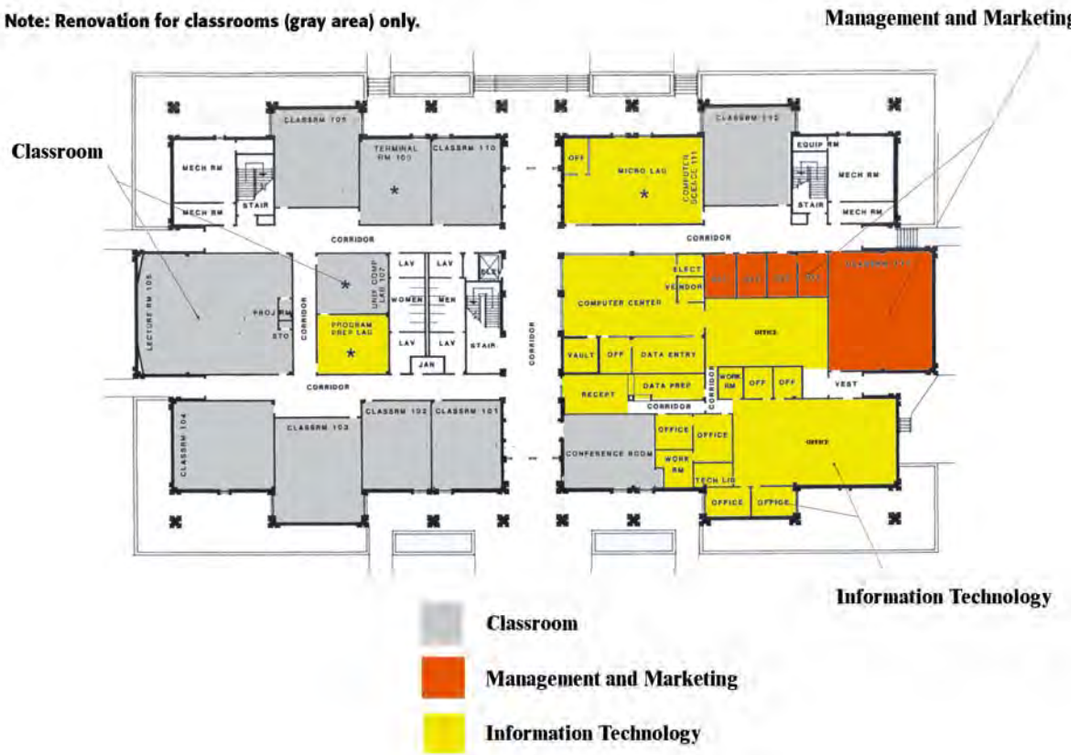
MATHEMATICS-COMPUTER SCIENCE BUILDING
THIRD FLOOR



EMIL C. RASSMAN BUSINESS-COMPUTER SCIENCE BUILDING

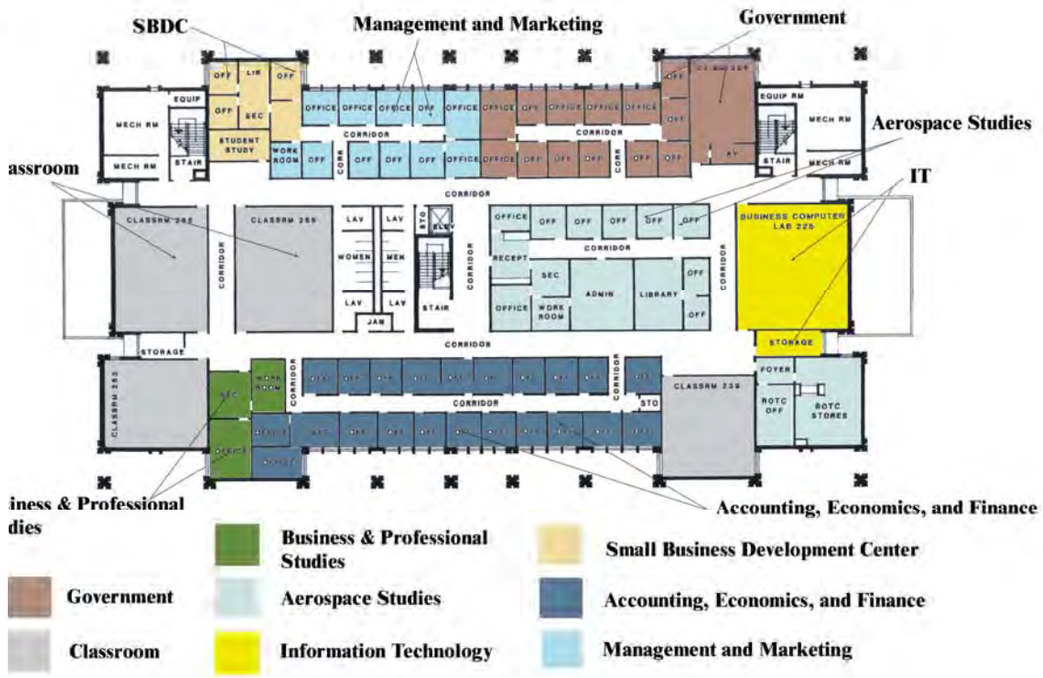
FIRST FLOOR

Note: Renovation for classrooms (gray area) only.



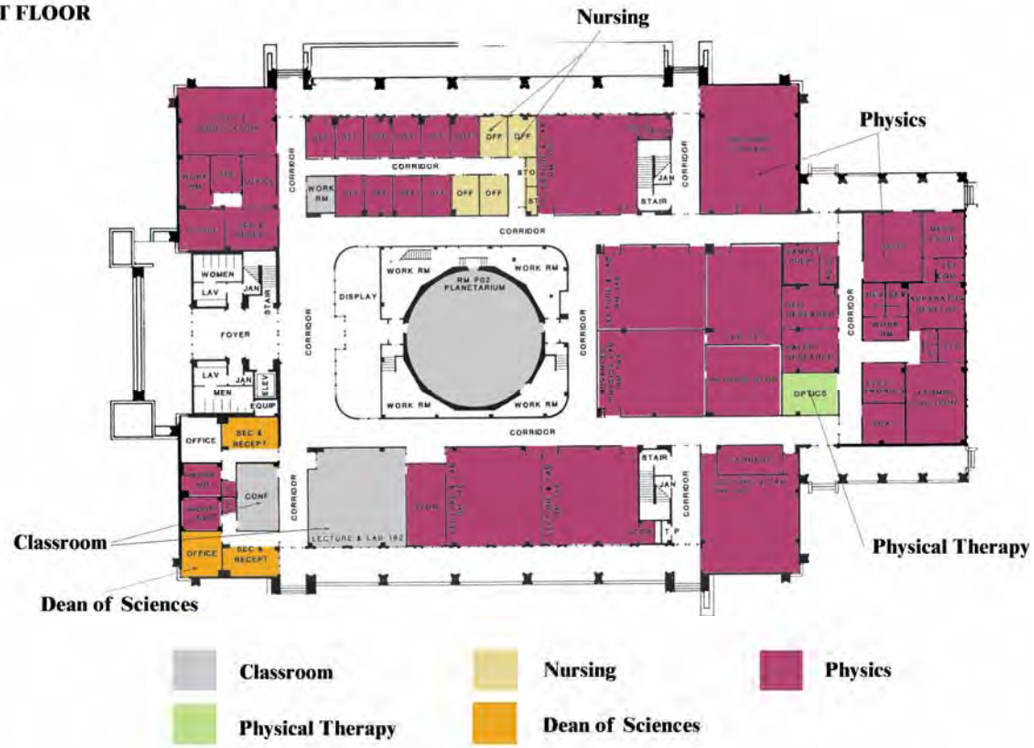
. C. RASSMAN BUSINESS-COMPUTER SCIENCE BUILDING

)ND FLOOR



VINCENT NURSING-PHYSICAL SCIENCE BUILDING

FIRST FLOOR



Classroom | Nursing | Physics
Physical Therapy | Dean of Sciences

VINCENT NURSING-PHYSICAL SCIENCE BUILDING

SECOND FLOOR

Classroom | Nursing
Agriculture | Information Technology

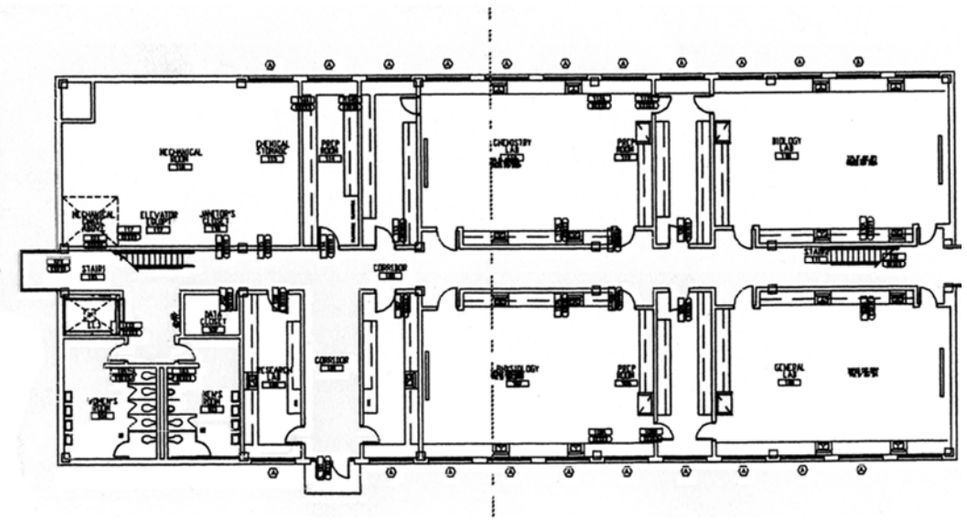
MANAGEMENT, INSTRUCTION, AND RESEARCH CENTER

MANAGEMENT, INSTRUCTION, AND RESEARCH CENTER

FOOD SAFETY AND PRODUCT DEVELOPMENT LAB ADDITION

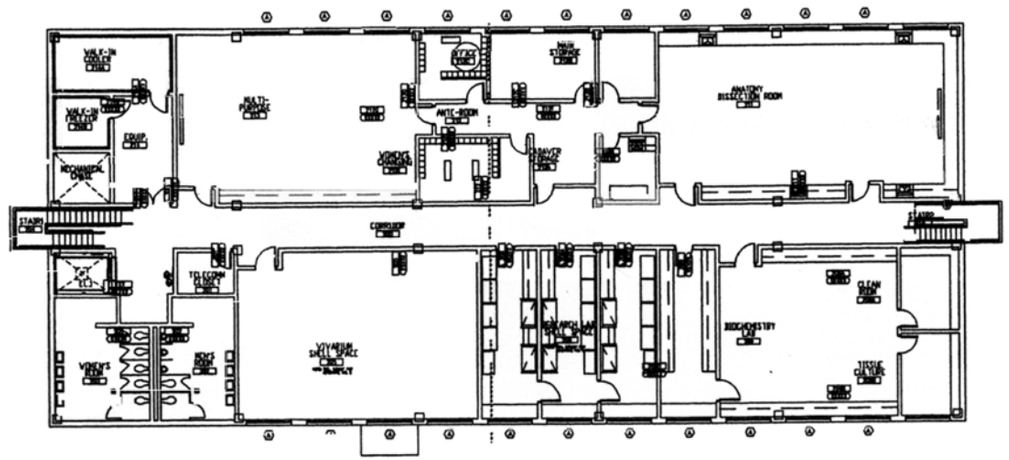
NEW SCIENCE BUILDING

FIRST FLOOR

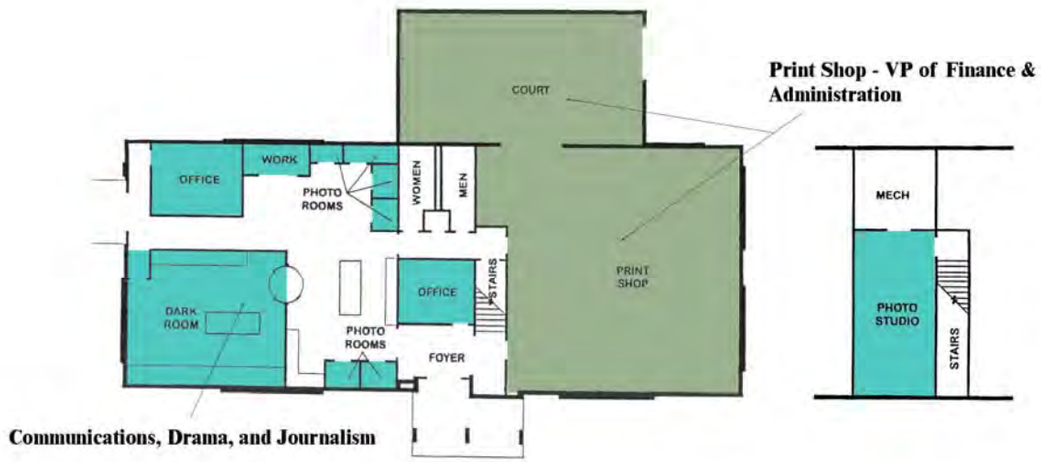


NEW SCIENCE BUILDING

SECOND FLOOR



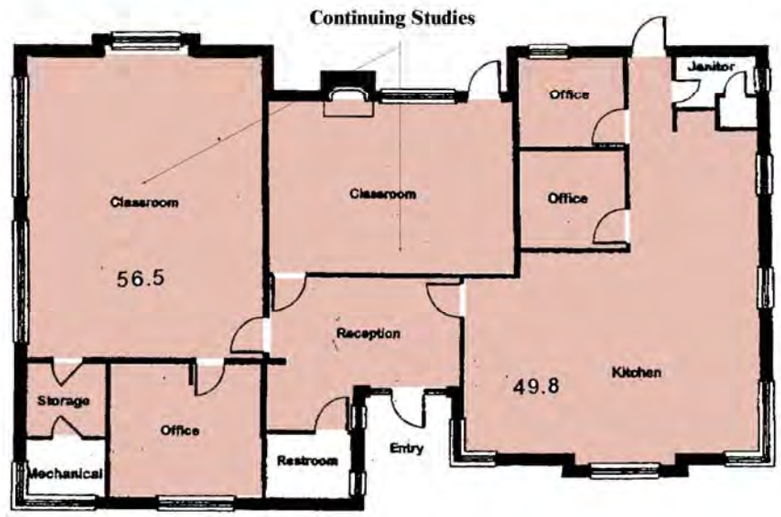
GENERAL SERVICES BUILDING



Communications, Drama, and Journalism

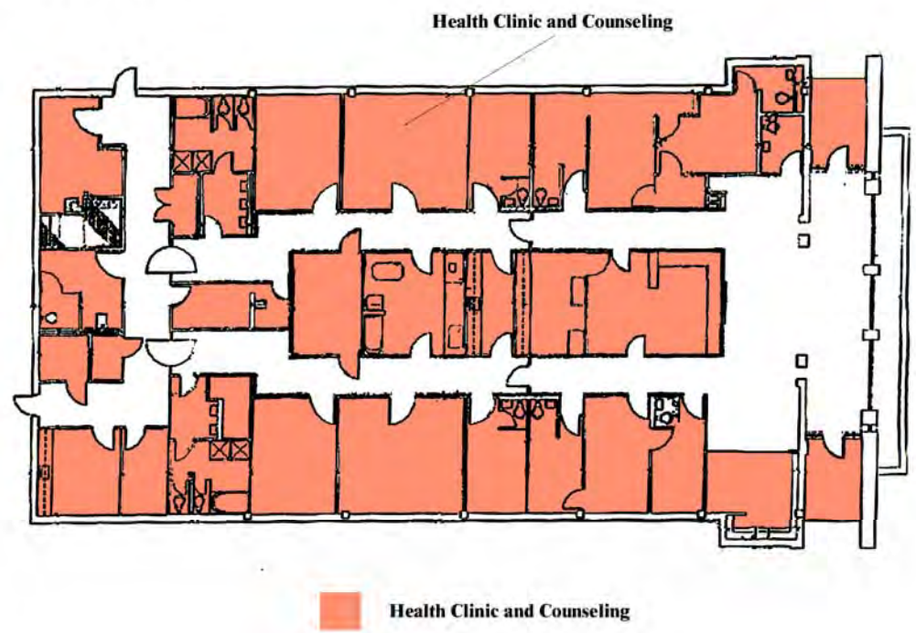
Print Shop - VP of Finance & Administration

CONTINUING STUDIES CENTER

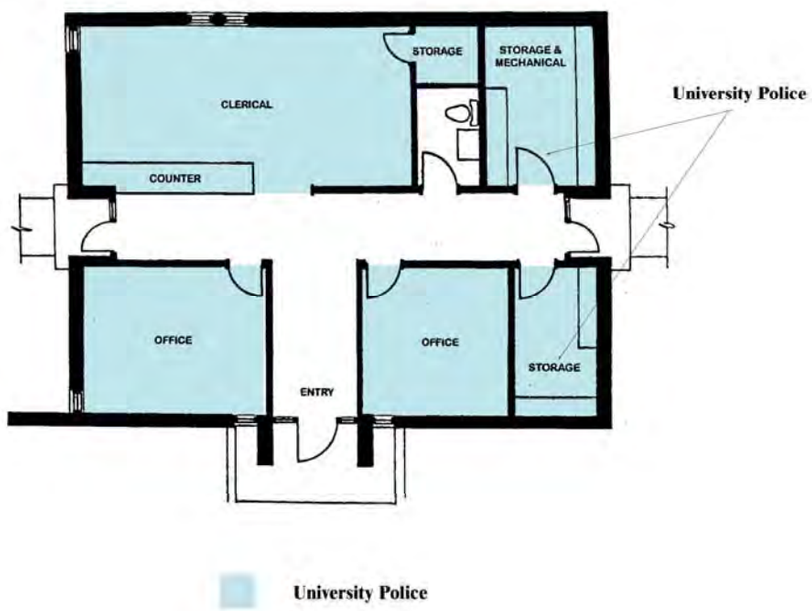


Continuing Studies

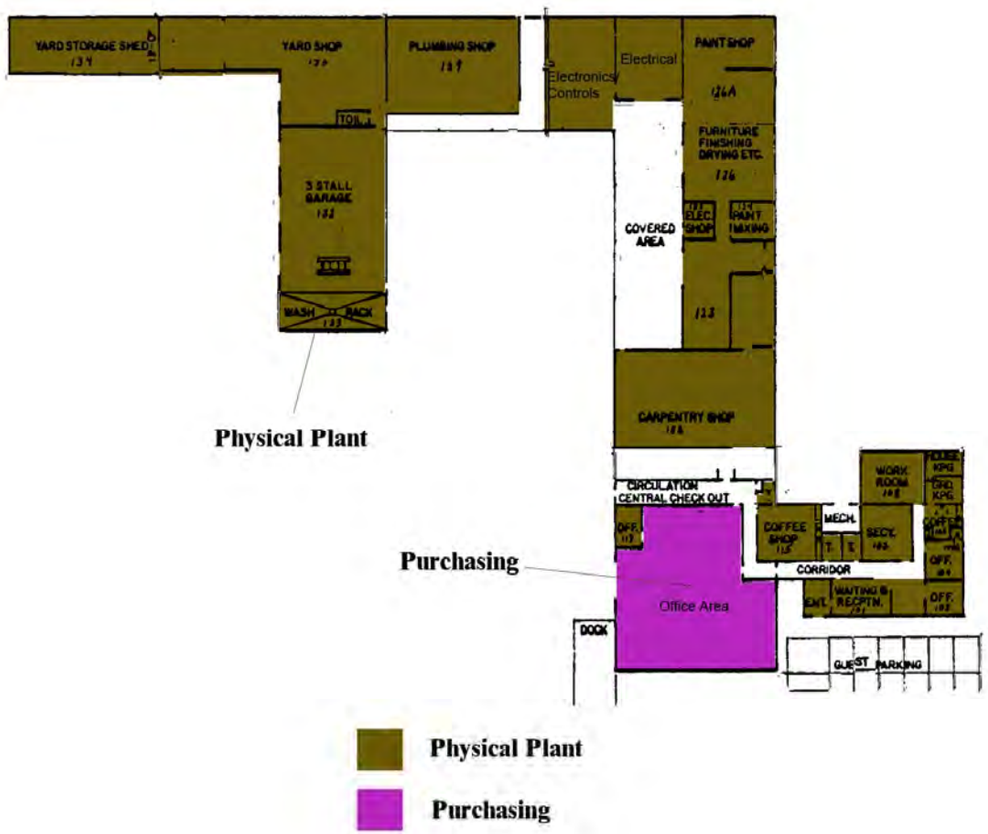
UNIVERSITY CLINIC



UNIVERSITY POLICE

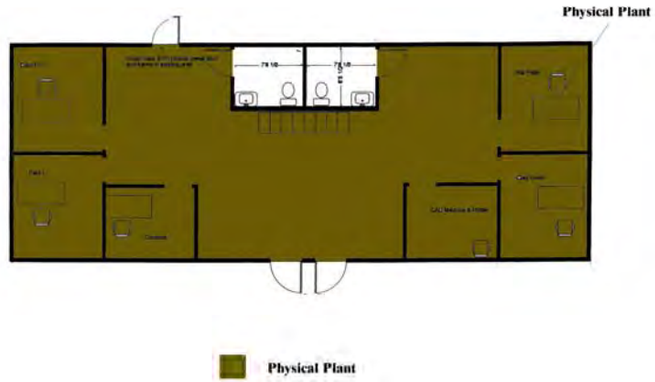


PHYSICAL PLANT BUILDING



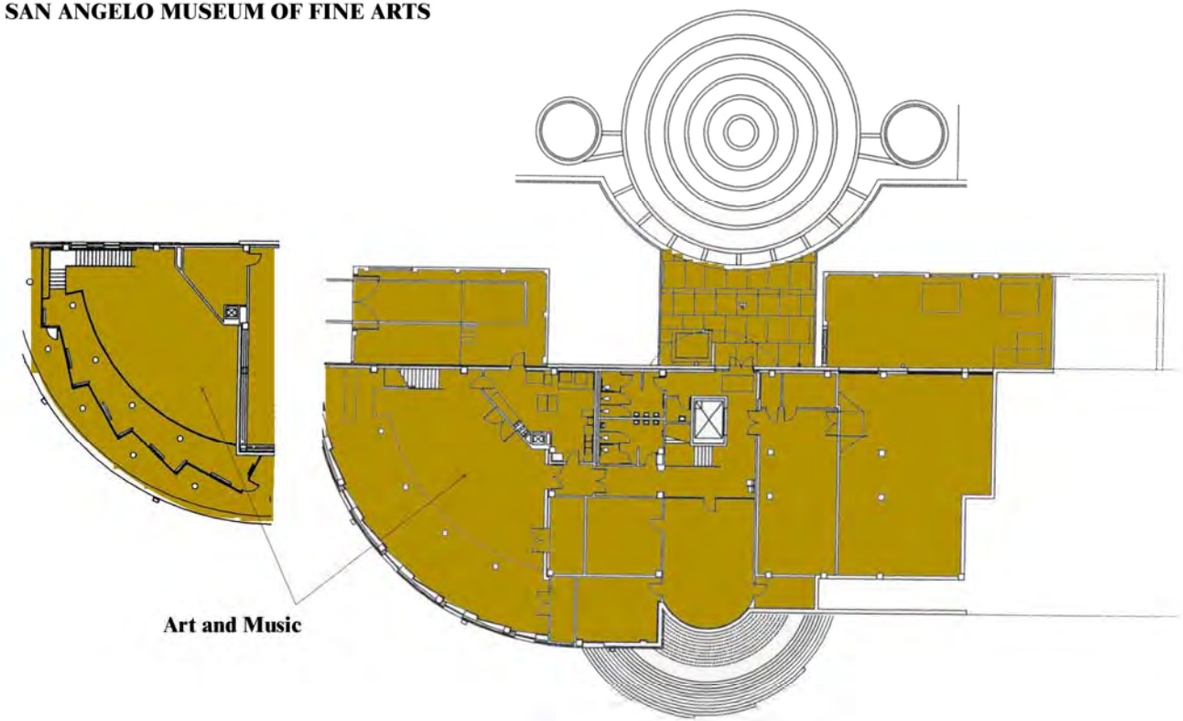
PHYSICAL PLANT BUILDING

SUPERVISOR BUILDING



Note:
Floor plans for warehouses are not included due to unavailability.

SAN ANGELO MUSEUM OF FINE ARTS

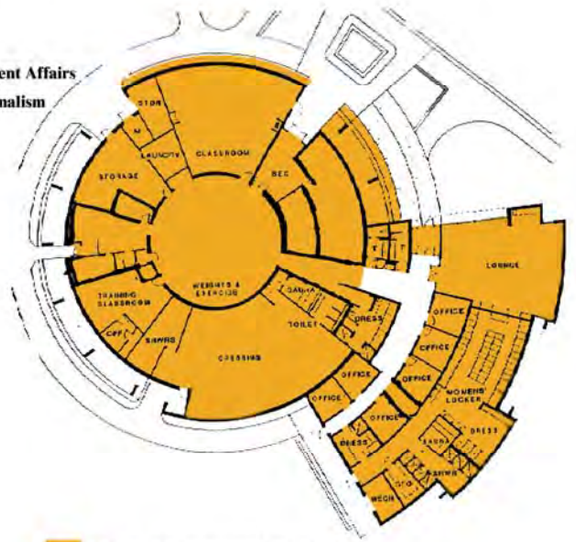


Art and Music

CAMPUS STORAGE

DEPARTMENTS

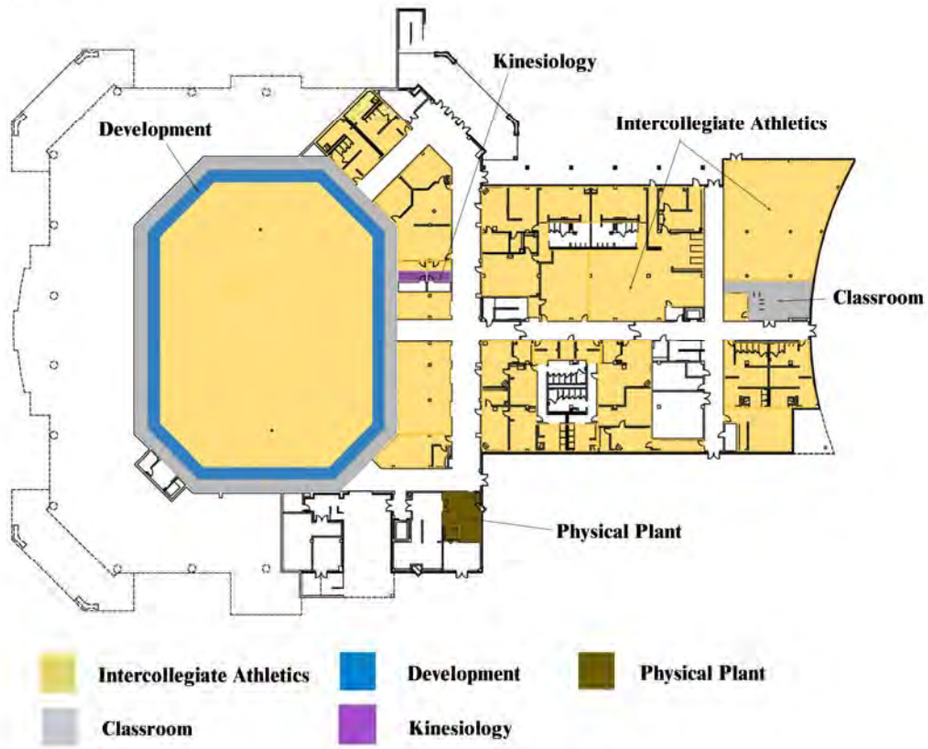
- Provost & VP for Academic & Student Affairs
- Communications, Drama, and Journalism
- Education
- Intercollegiate Athletics
- Management and Marketing
- Physics
- Graduate School
- Admissions Office
- Finance and Administration



VP of Academics and Student Affairs

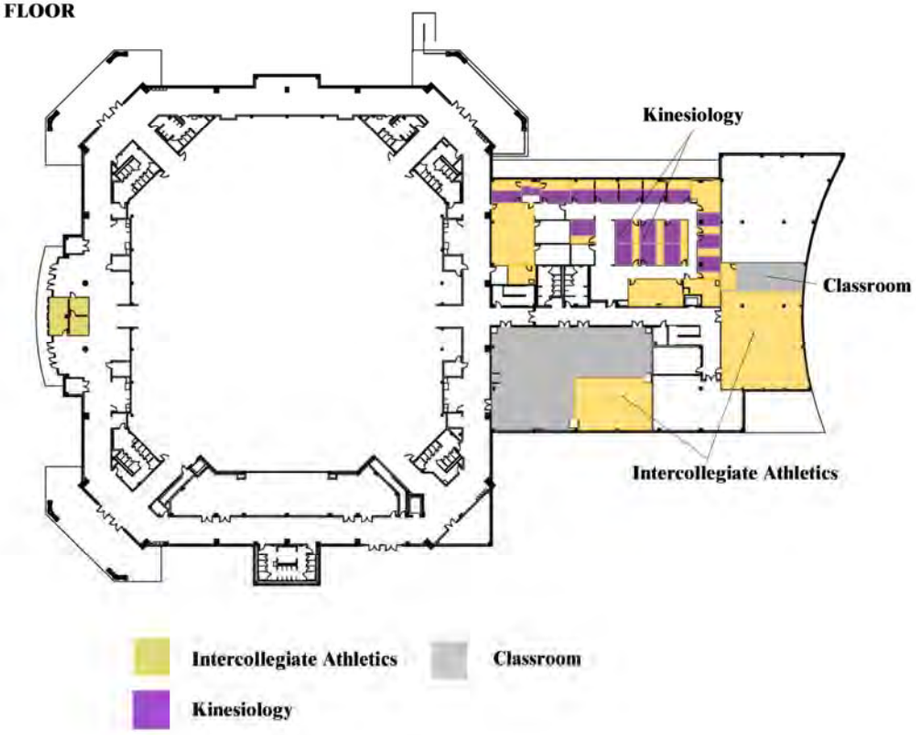
STEPHENS JUNELL ARENA

FIRST FLOOR



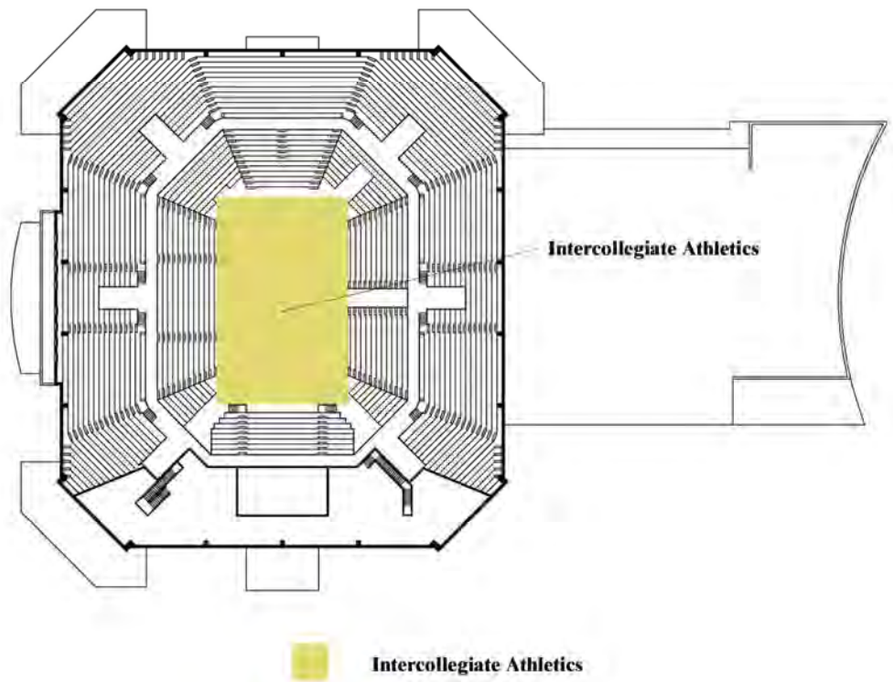
STEPHENS JUNELL ARENA

SECOND FLOOR

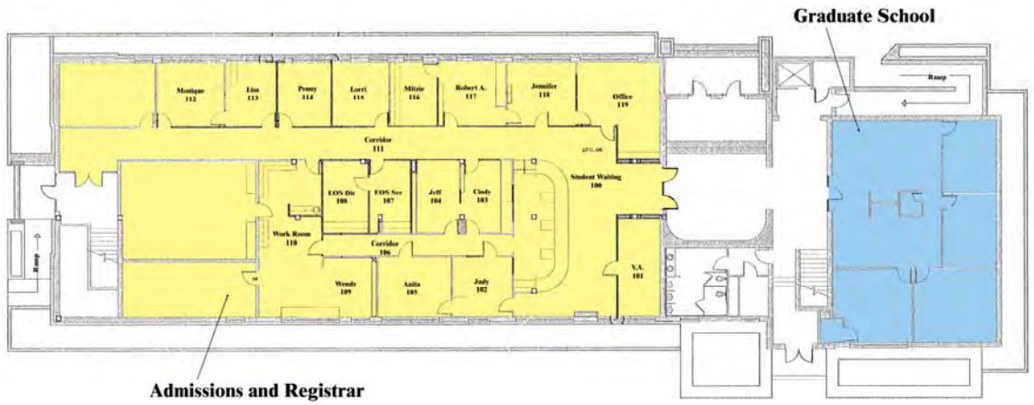


STEPHENS JUNELL ARENA

THIRD FLOOR



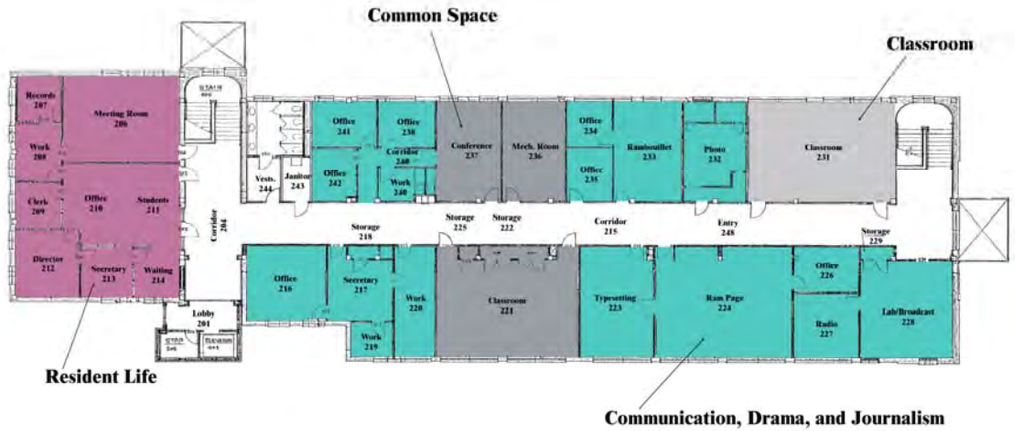
Hardeman Building
Second Floor



Admissions and Registrar

Graduate School

Hardeman Building
Second Floor



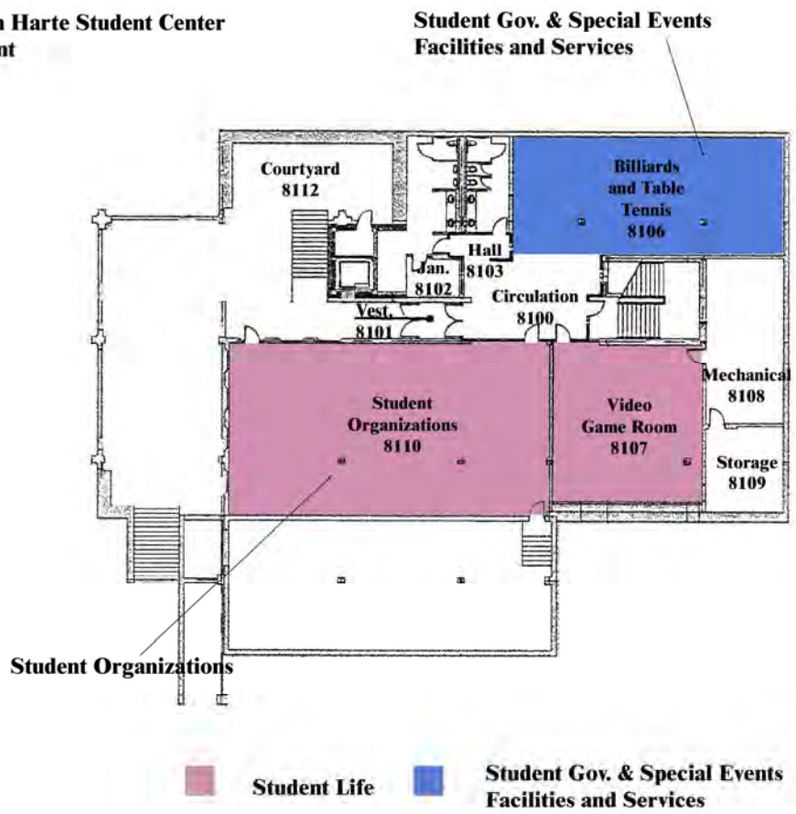
Classroom

Communication, Drama, and Journalism

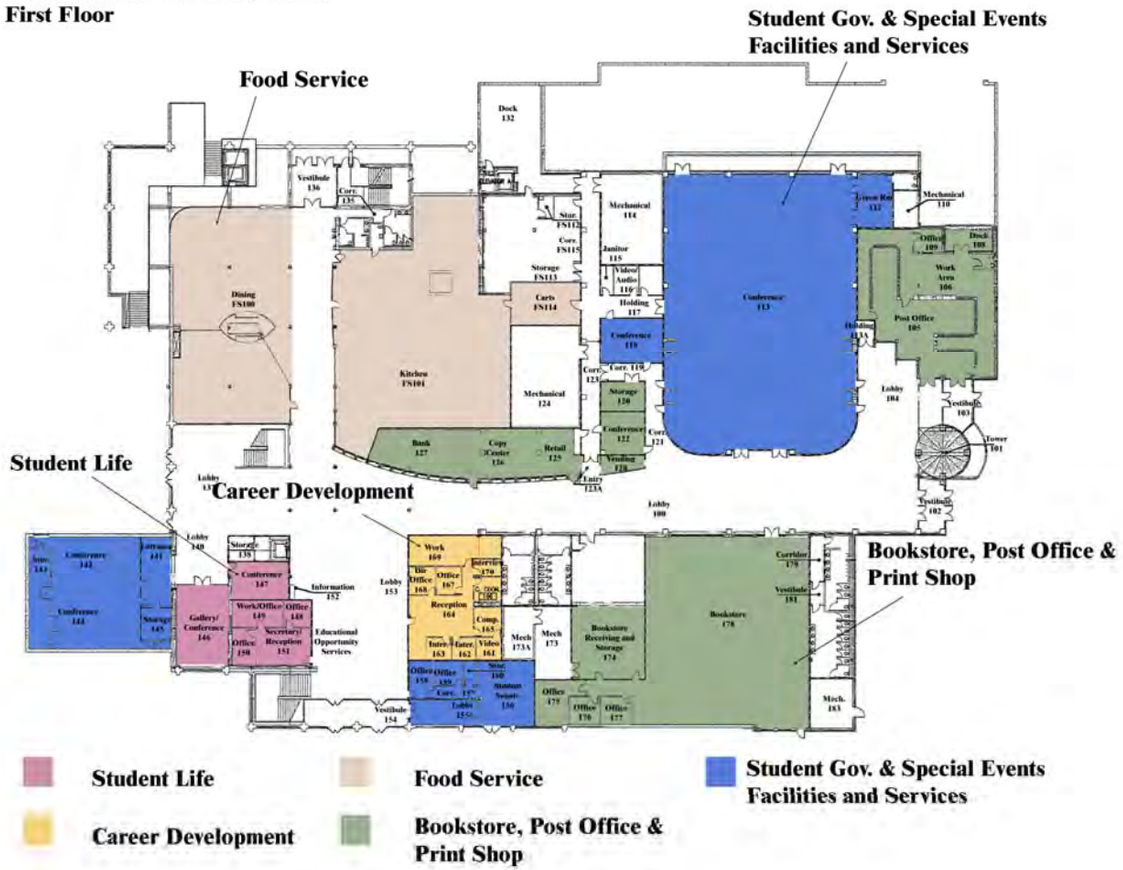
Resident Life

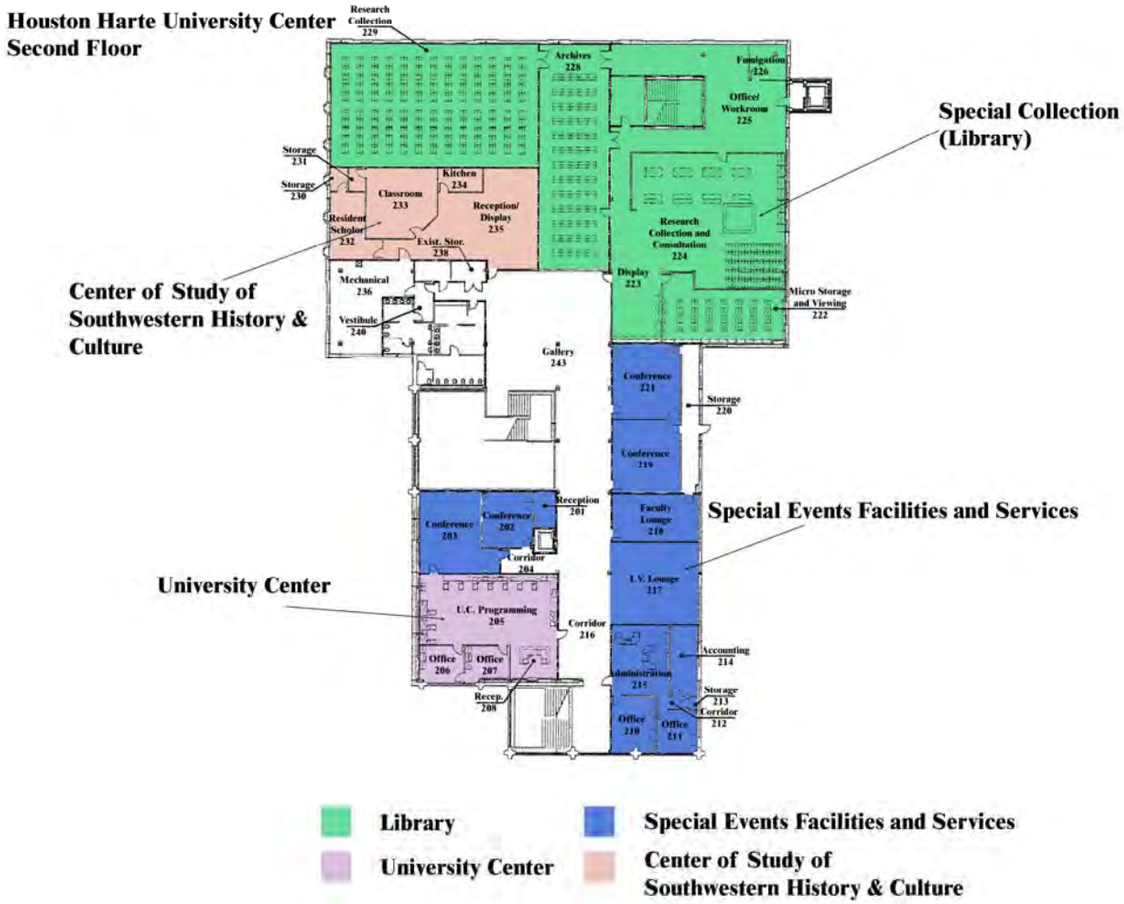
Common Space

Houston Harte Student Center
Basement

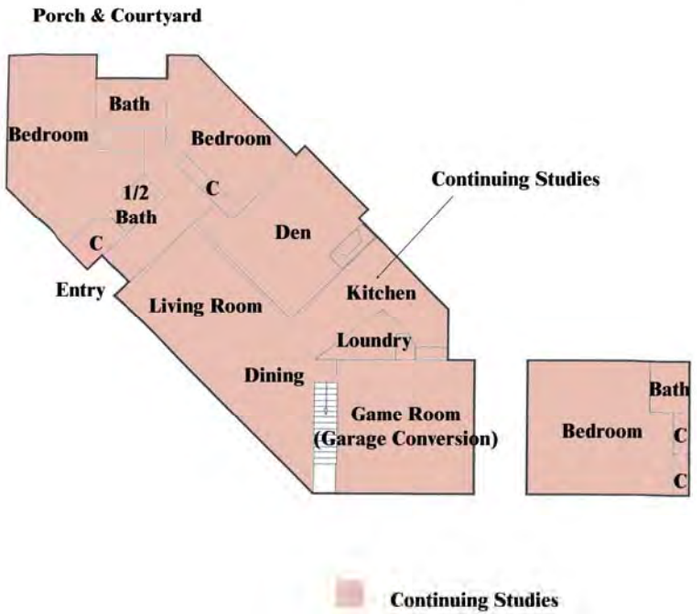


Houston Harte University Center
First Floor

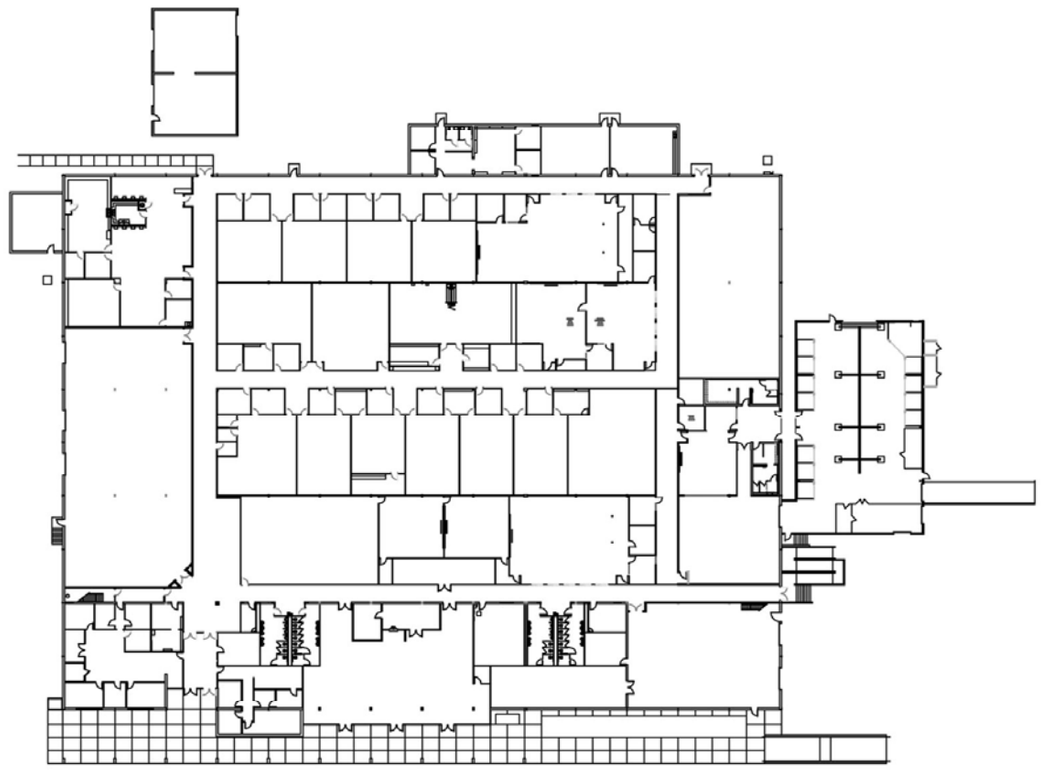



Houston Harte University Center
Second Floor
Research Collection 229
Archives 228
Fumigation 226
Office/ Workroom 225
Special Collection (Library)
Storage 231
Storage 230
Kitchen 234
Classroom 233
Reception/ Display 235
Resident Scholar 232
Exist. Stor. 238
Research Collection and Consultation 224
Display 223
Micro Storage and Viewing 222
Center of Study of Southwestern History & Culture
Mechanical 236
Vestibule 240
Gallery 243
Conference 221
Storage 220
Conference 219
Reception 201
Conference 203
Conference 202
Faculty Lounge 218
Special Events Facilities and Services
Corridor 204
University Center
L.V. Lounge 217
U.C. Programming 205
Corridor 216
Accounting 214
Office 206
Office 207
Administration 215
Storage 213
Corridor 212
Recep. 208
Office 210
Office 211
Library
Special Events Facilities and Services
University Center
Center of Study of Southwestern History & Culture

Herrington House
First Floor



WEST TEXAS TRAINING CENTER



Space Projection Summary

The future campus building space is projected for the master planning purpose based on the Texas Higher Education Coordinating Board Space Projection Model. Details of the model are described later in this chapter.

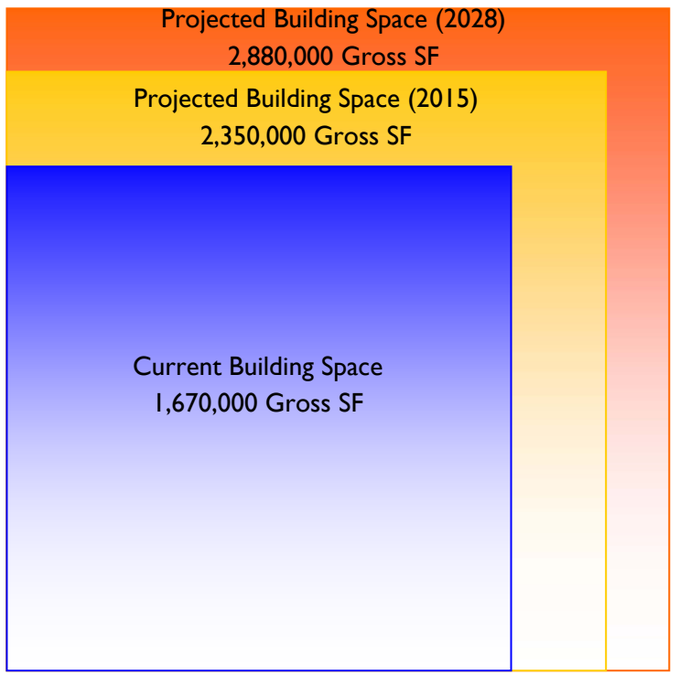
The total projected building space for the campus of 8,000 students is 2,350,000 gross square feet (GSF). This is 680,000 gross square feet or a 40% increase over the current space. The projected space for the campus of 10,000 students is 2,880,000 gross square feet. This is an additional 1.2 million gross square feet to the current space. The student growth is projected based on the demographic growth discussed in the previous chapter. The campus is assumed to reach 8,000 students by 2015 and 10,000 by 2028.

The total assignable area in Education and General (E&G) space is projected to grow 64% between 2003 and 2028. Projected E&G space for the year 2015 is 711,000 assignable square feet (ASF). This is 174,000 ASF or 35% growth from the base year. The projected E&G space for 2028 will be 885,000 ASF.

The Teaching and Library spaces will each increase by 50%. The Research space is anticipated to grow by 90%. Research activities and programs are assumed to increase as the university grows. The Office space will increase by 123%. The Office space includes faculty offices, non-faculty staff offices and office services such as conference rooms and workrooms. The Support space will grow by 33%.

Non-E&G space is anticipated to grow by 70% by 2015. The total growth by 2018 is 100%. Most of this increase is brought about by housing.

Total Building Space Diagram



Education & General Space Projection

	Actual* (ASF) 2003	Projected (ASF) 2003	2015	2028	Growth (2003-2028)
Student Enrollment	**6,033**	**6,033**	**7,937**	**10,000**	**66%**
Teaching	291,439	267,440	348,059	435,397	49%
Program 1	-	*32,282*	*41,921*	*52,365*	-
Program 2	-	-	-	-	-
Program 3	-	*106,355*	*138,653*	*173,643*	-
Program 4	-	*128,803*	*167,485*	*209,390*	-
Library	69,504	73,053	88,883	105,661	52%
Research	12,854	15,178	19,822	24,852	93%
Office	110,490	148,411	195,253	245,999	123%
Support	54,872	45,367	58,682	73,072	33%
Total E&G Space	**539,159**	**549,449**	**710,699**	**884,982**	**64%**
E&G Space Growth	**-**	**10,290**	**171,540**	**345,823**	**-**
Non-E&G Space	486,294	607,635	815,756	987,001	103%
Total (ASF)	1,025,453	1,157,084	1,526,454	1,871,982	83%
Total (GSF)	**1,667,804**	**1,780,130**	**2,348,391**	**2,879,973**	**73%**
Total Growth (GSF)	**-**	**112,326**	**680,587**	**1,212,169**	**-**

Note: * Actual space includes Texan Hall and Carr Education-Fine Arts Building expansion, but excludes closed residence halls such as Mayer, Runnels and University Halls.

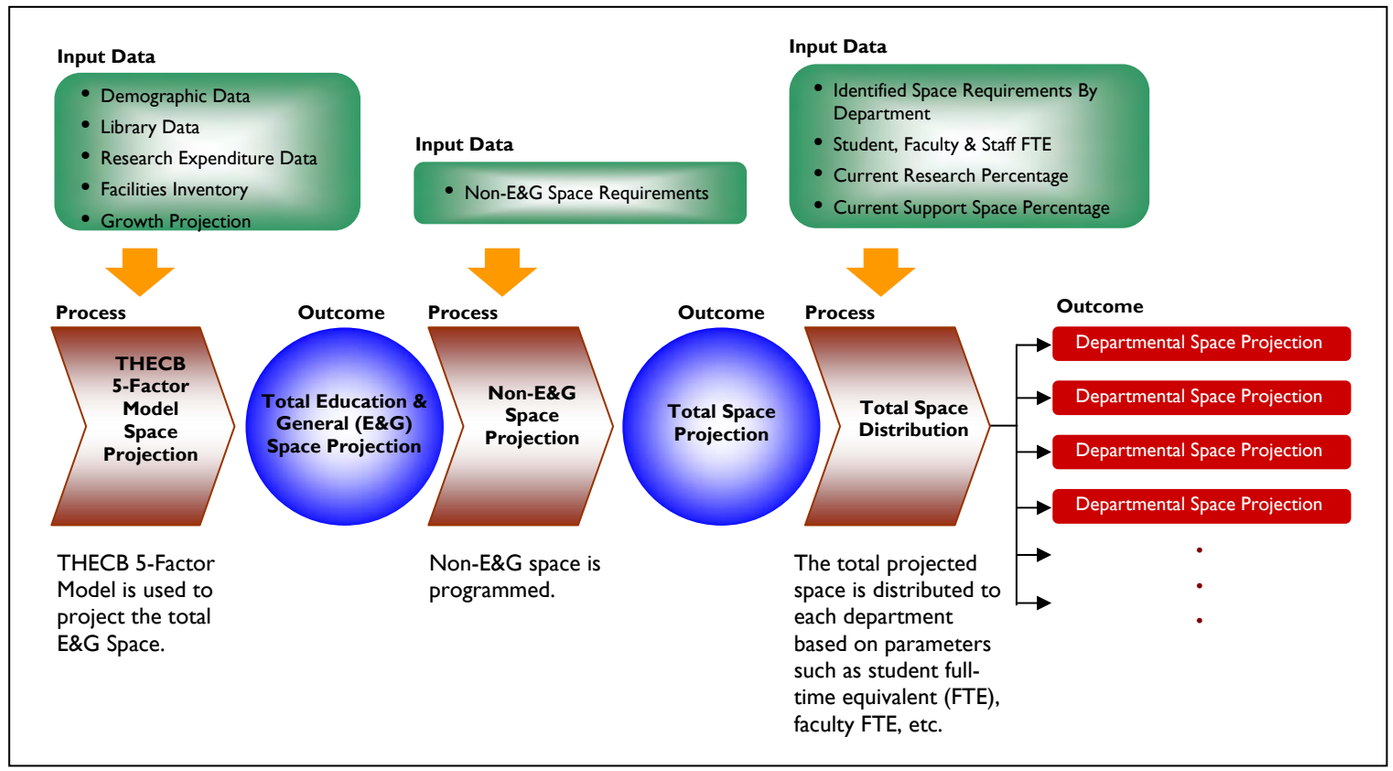
Education and General Space

E&G space is the space required to fulfill the mission of higher education such as teaching, research and public services. This space includes classrooms, teaching and research laboratories, faculty and staff offices and office services, libraries, common academic facilities such as information technology, physical plant facilities and support facilities. Auxiliary facilities such as residence halls, bookstores, intercollegiate athletics or other auxiliary enterprises are not included in this space.

Projection Methodology

Space projection is based on the Texas Higher Education Coordinating Board Five-Factor Space Projection Model 2002. The model projects spaces for 5 factors: Teaching, Library, Research, Office and Support space. Each factor is computed by parameters and input data such as student and faculty demographic information and research expenditures. While E&G space is projected by the model formula, non-E&G space is programmed with space requirements. The total projected space for the university is distributed to departments within various parameters. Input data was gathered during a series of interviews with department representatives and committee. Experienced planning consultants throughout the process used reasonable assumptions and decisions.

Projection Process Diagram



Projection Assumptions

The following assumptions were used to project future space needs:

- Constant student enrollment growth to 10,000 by 2028
- Graduate student enrollment percentage reaches 10% by 2028 and change of proportion is constant
- Full-time equivalent (FTE) student to headcount ratio remains the same as 2003 for undergraduate and graduate student
- Student FTE to faculty FTE ratio remains the same as 2003
- Non-faculty FTE is computed based on Five-Factor Model condition (1.8 times of faculty FTE)
- Research expenditure is increased proportionally to total student growth
- On-campus accommodations house 35% of total students (*Note: The percentage is based on Student Housing Study as discussed in Appendix I.)*
- Academic departments grow proportional to the university
- Classrooms are allocated to departments based on the number of students (*General classrooms are usually shared by all departments and have no ownership by certain department. Note: The classroom ownership issue is discussed in the main contents of the Master Plan.*)
- Non-E&G spaces are programmed as described in detail in the preliminary new building concept

Projection Assumptions

Item	2003	2015	2028
Undergraduate Headcount	5,608	7,236	9,000
Graduate Headcount	425	701	1,000
Total Headcount	6,033	7,937	10,000
Undergraduate FTE	4,968	6,411	7,974
Graduate FTE	220	362	517
Total FTE	5,188	6,773	8,491
Undergraduate FTE/Headcount Ratio	89%	89%	89%
Graduate FTE/Headcount Ratio	52%	52%	52%
Total FTE/Headcount Ratio	86%	85%	85%
Graduate Headcount %	7%	9%	10%
Graduate FTE %	4%	5%	6%
Faculty FTE	254	332	416
Student/Faculty Ratio	20	20	20
Non-Faculty FTE (Staff) with Current Student/Staff Ratio	560	731	916
Computed Non-Faculty FTE (1.8 times of Faculty FTE)	457	597	748
Student/Staff Ratio	9	9	9
Average Research Expenditure for Last 3 Years	1,484,916	1,938,613	2,430,118
Research Expenditure/Student FTE Ratio	286	286	286
Number of Beds Provided On-Campus Housing	1,560	2,778	3,500
Additional Number of Beds Provided On-Campus Housing	-	1,218	1,940
On-Campus Living Percentage	26%	35%	35%

Space Projection by Department

Department	Assignable Area Total (ASF)				E&G Area Total (ASF)				Teaching Space (ASF)					Library (ASF)				Research (ASF)				Office (ASF)				Support (ASF)				Non-E&G (ASF)			
	Actual	2003	2015	2028	Actual	2003	2015	2028	Actual*1	Actual w/ Distributed Classrooms *2	2003	2015	2028	Actual	2003	2015	2028	Actual	2003	2015	2028	Actual	2003	2015	2028	Actual	2003	2015	2028	Actual	2003	2015	2028
Business & Professional Studies																																
Accounting, Economics & Finance	9,556	10,312	11,824	15,807	9,556	10,312	11,824	15,807	1,032	7,967	7,311	10,112	13,421	-	-	-	-	-	-	274	570	1,589				-	-	-	-	-	-	-	-
Aerospace Studies	3,855	6,677	5,642	9,631	3,855	6,677	5,642	9,631	-	623	571	2,693	5,887	-	-	-	-	-	-	24	50	3,233				-	-	-	-	-	-	-	-
Computer Science	10,396	11,786	12,437	16,386	10,396	11,786	12,437	16,386	1,496	8,083	7,418	10,154	13,348	-	-	-	-	-	-	190	395	2,313	29,214	13,995	17,674	-	-	-	-	-	-	-	-
Kinesiology	59,407	58,255	61,496	66,004	54,097	52,945	56,185	60,694	43,087	50,111	45,984	52,225	55,486	-	-	-	-	-	-	266	552	3,451				535	442	572	712	5,310	5,310	5,310	5,310
Management & Marketing	13,249	16,870	15,324	20,317	13,249	16,870	15,324	20,317	646	8,048	7,385	10,267	13,689	-	-	-	-	-	-	299	625	4,882				319	264	341	425	-	-	-	-
Liberal & Fine Arts																																
Art & Music	44,476	50,362	59,416	63,905	31,784	37,670	32,724	37,213	16,679	26,259	24,097	28,330	31,523	-	-	-	-	-	-	185	383	5,525				-	-	-	-	12,692	12,692	26,692	26,692
Communications, Drama & Journalism	25,245	30,496	26,527	31,081	24,607	29,858	25,889	30,443	13,771	19,338	17,746	21,538	24,932	-	-	-	-	254	300	434	580	4,704				311	257	333	414	638	638	638	638
English	17,397	23,605	18,777	23,486	17,397	23,605	18,777	23,486	1,234	12,432	11,409	14,503	17,697	-	-	-	-	-	-	491	1,021	4,965				-	-	-	-	-	-	-	-
Government	8,740	10,664	10,721	14,622	8,740	10,664	10,721	14,622	-	7,022	6,444	9,137	12,401	-	-	-	-	-	-	275	571	1,718	56,771	17,608	22,194	-	-	-	-	-	-	-	-
History	9,328	11,624	11,229	15,156	9,328	11,624	11,229	15,156	-	7,337	6,733	9,428	12,653	-	-	-	-	-	-	285	591	1,991				-	-	-	-	-	-	-	-
Modern Languages	6,783	8,864	8,584	12,268	6,783	8,864	8,584	12,268	1,464	5,068	4,651	7,139	10,333	-	-	-	-	-	-	139	288	1,715				-	-	-	-	-	-	-	-
Psychology & Sociology	5,629	9,000	7,526	11,670	5,629	9,000	7,526	11,670	1,120	3,137	2,878	5,207	8,401	-	-	-	-	-	-	420	876	2,492				-	-	-	-	-	-	-	-
Sciences																																
Agriculture	29,834	29,636	31,959	37,743	29,834	29,636	31,959	37,743	14,757	19,203	17,621	21,498	25,038	269	-	-	-	1,524	1,799	1,891	1,992	3,073				5,766	4,768	6,167	7,679	-	-	-	-
Biology	38,023	40,196	40,131	44,719	38,023	40,196	40,131	44,719	18,808	28,893	26,513	31,008	34,270	-	-	-	-	4,230	4,995	5,291	5,610	4,900				-	-	-	-	-	-	-	-
Chemistry & Biochemistry	20,022	21,126	22,169	26,028	20,022	21,126	22,169	26,028	10,111	14,973	13,740	17,043	20,237	-	-	-	-	2,560	3,023	3,164	3,315	2,436				53	44	57	71	-	-	-	-
Mathematics	11,829	14,191	12,816	17,328	11,829	14,191	12,816	17,328	-	6,897	6,329	8,968	12,162	497	-	-	-	-	-	380	788	4,434	47,639	21,015	26,530	-	-	-	-	-	-	-	-
Nursing	13,772	17,627	14,258	19,112	13,772	17,627	14,258	19,112	2,907	6,962	6,389	9,179	12,597	471	-	-	-	-	-	123	257	6,338				-	-	-	-	-	-	-	-
Physical Therapy	8,451	9,816	10,907	15,967	8,451	9,816	10,907	15,967	3,788	6,041	5,544	8,940	13,411	-	-	-	-	-	-	83	177	2,410				-	-	-	-	-	-	-	-
Physics	27,787	28,322	29,199	33,685	26,618	27,153	28,030	32,516	11,102	17,983	16,502	20,053	23,247	796	-	-	-	3,015	3,560	3,759	3,973	3,278				1,546	1,279	1,654	2,059	1,169	1,169	1,169	1,169
Education																																
Education	14,695	19,179	17,130	22,132	14,695	19,179	17,130	22,132	2,533	9,294	8,528	11,364	14,558	-	-	-	-	-	-	351	738	5,243	10,519	5,246	6,626	158	131	169	211	-	-	-	-
Classroom																													0	-			
Classroom	-	-	-	-	-	-	-	-	121,136	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Academic & Student Affairs																																
Admissions Office	6,062	191	19,304	24,459	6,062	191	19,304	24,459	-	-	-	-	-	-	-	-	-	-	-	-	-	5,831				231	191	247	308	-	-	-	-
Career Development	1,819	-	5,946	7,535	1,819	-	5,946	7,535	-	-	-	-	-	-	-	-	-	-	-	-	-	1,819				-	-	-	-	-	-	-	-
Continuing Studies	1,960	1,370	5,268	9,147	1,960	1,370	5,268	9,147	1,493	1,493	1,370	3,744	7,217	-	-	-	-	-	-	-	-	466				-	-	-	-	-	-	-	-
Graduate School	2,011	239	5,939	7,520	2,011	239	5,939	7,520	-	-	-	-	-	-	-	-	-	-	-	-	-	1,723				289	239	309	384	-	-	-	-
Health Clinic & Counseling	4,155	4,155	4,155	4,155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				-	-	-	-	4,155	4,155	4,155	4,155
Information Technology	16,364	11,975	25,045	29,048	13,414	9,026	22,096	26,099	5,340	5,340	4,900	5,340	5,340	-	-	-	-	1,271	1,501	1,501	1,501	3,629				3,174	2,624	3,395	4,227	2,950	2,950	2,950	2,950
Library	72,154	77,736	93,566	110,344	67,470	73,053	88,883	105,661	-	-	-	-	-	67,470	73,053	88,883	105,661	-	-	-	-	-	-	60,510	76,685	-	-	-	-	4,683	4,683	4,683	4,683
Provost & VP for Academic & Student Affairs	3,791	570	10,875	13,766	3,791	570	10,875	13,766	-	-	-	-	-	-	-	-	-	-	-	-	-	3,102				690	570	737	918	-	-	-	-
Registrar's Office	405	-	1,324	1,678	405	-	1,324	1,678	-	-	-	-	-	-	-	-	-	-	-	-	-	405				-	-	-	-	-	-	-	-
Residence Life	15,463	15,463	15,463	15,463	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				-	-	-	-	15,463	15,463	15,463	15,463
Residence Halls	266,897	388,238	534,859	693,697	-	-	-	-	-																			-	-	266,897	388,238	534,859	693,697
Student Services, Student Development & Program Office	1,539	-	5,031	6,376	1,539	-	5,031	6,376	-	-	-	-	-	-	-	-	-	-	-	-	-	1,539				-	-	-	-	-	-	-	-
Univ Recreation & Intramurals	9,648	9,335	36,899	40,371	3,804	3,490	6,055	9,527	3,804	3,804	3,490	6,055	9,527	-	-	-	-	-	-	-	-	-				-	-	-	-	5,844	5,844	30,844	30,844
Advancement & University Relations																																
Alumni Relations	147	147	5,147	5,147	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				-	-	-	-	147	147	5,147	5,147
Development	9,193	8,907	11,444	14,916	3,468	3,183	5,719	9,191	3,468	3,468	3,183	5,719	9,191	-	-	-	-	-	-	-	-	-				-	-	-	-	5,725	5,725	5,725	5,725
Food Service	32,223	32,223	49,723	60,123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				-	-	-	-	32,223	32,223	49,723	60,123
Intercollegiate Athletics	80,467	78,858	88,285	93,520	8,088	6,479	15,906	21,141	7,060	7,060	6,479	9,311	12,784	-	-	-	-	-	-	-	-	1,028	-	20,746	26,292	-	-	-	-	72,379	72,379	72,379	72,379
Risk Management	248	-	1,594	2,020	248	-	1,594	2,020	-	-	-	-	-	-	-	-	-	-	-	-	-	248				-	-	-	-	-	-	-	-
Student Government, Special Events Facilities & Services	22,828	21,305	31,738	37,320	4,793	3,270	13,704	19,285	3,564	3,564	3,270	5,815	9,287	-	-	-	-	-	-	-	-	1,230				-	-	-	-	18,034	18,034	18,034	18,034
University Police	728	-	4,668	5,916	728	-	4,668	5,916	-	-	-	-	-	-	-	-	-	-	-	-	-	728				-	-	-	-	-	-	-	-
Finance & Administration																																
Bookstore, Post Office & Print Shop	8,025	8,025	8,025	10,031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				-	-	-	-	8,025	8,025	8,025	10,031
Finance & Administration	7,529	2,184	21,213	26,821	7,529	2,184	21,213	26,821	-	-	-	-	-	-	-	-	-	-	-	-	-	4,887				2,642	2,184	2,825	3,518	-	-	-	-
Financial Aid & Carr Scholarship	2,337	-	8,794	11,145	2,337	-	8,794	11,145	-	-	-	-	-	-	-	-	-	-	-	-	-	2,337	-	51,866	65,730	-	-	-	-	-	-	-	-
Human Resources	1,036	-	3,899	4,941	1,036	-	3,899	4,941	-	-	-	-	-	-	-	-	-	-	-	-	-	1,036				-	-	-	-	-	-	-	-
Physical Plant	50,539	39,928	65,847	83,353	43,939	33,328	59,247	76,753	1,039	1,039	953	3,290	6,762	-	-	-	-	-	-	-	-	3,743				39,158	32,375	41,877	52,146	6,600	6,600	6,600	6,600
Purchasing	1,782	-	6,704	8,496	1,782	-	6,704	8,496	-	-	-	-	-	-	-	-	-	-	-	-	-	1,782				-	-	-	-	-	-	-	-
Other																																
President's Office/University News & Info Services/Others	6,519	6,519	6,519	6,519	4,267	4,267	4,267	4,267	-	-	-	-	-	-	-	-	-	-	-	-	-	4,267	4,267	4,267	4,267	-	-	-	-	2,251	2,251	2,251	2,251
Texas State Data Center	21,109	21,109	21,109	21,109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21,109	21,109	21,109	21,109
Total	**1,025,453**	**1,157,084**	**1,526,454**	**1,871,982**	**539,159**	**549,449**	**710,699**	**884,982**	**291,439**	**291,439**	**267,440**	**348,059**	**435,397**	**69,504**	**73,053**	**88,883**	**105,661**	**12,854**	**15,178**	**19,822**	**24,852**	**110,490**	**148,411**	**195,253**	**245,999**	**54,872**	**45,367**	**58,682**	**73,072**	**486,294**	**607,635**	**815,756**	**987,001**

Note:

*1 Actual departmental space used for teaching functions.

*2 Classrooms are distributed among departments based on Program Areas and number of student full-time equivalent.

Preliminary New Building/Functional Space Concept for 2015

The following list of new buildings/functional spaces is a preliminary concept to accommodate space needs by the year 2015 or a student enrollment of 8,000. The listed spaces help to shape physical forms of academic and supporting space needs as possible new buildings. The approach used to develop this concept is only for the campus master planning purposes, and individual buildings should be re-evaluated in the building programming. The cluster of departments is based on the existing college structure and details of individual departmental relocations should be considered in the actual building project. Proposed new buildings or functional spaces can be combined or separated into multiple segments of buildings as needed.

This concept proposes new additional spaces only and does not consider demolition and replacement of currently occupied buildings as existing buildings are assumed to remain same. This new building concept may be modified during physical planning.

Academic Building I (Liberal Arts, Sciences, Education, IT and Continuing Studies)

This building will be approximately 45,000 ASF or 69,000 GSF. This building should ease congestion in the Academic Building and become a center of academic activities. Since most Liberal Arts departments are housed in this building, core curriculum classes will be offered here. It should also accommodate Information Technology and Continuing Studies space needs. The building should be located around the west campus near the Academic Building and Henderson Library. This building should be mainly used for the College of Liberal and Fine Arts after Sciences and Education get new buildings. This building should accommodate the following colleges and departments:

- English
- Government
- History
- Modern Languages
- Psychology and Sociology
- Biology
- Chemistry and Biochemistry
- Mathematics
- College of Education
- Information Technology
- Continuing Studies

Academic Building II (Business and Professional Studies and Sciences)

This building should be approximately 34,000 assignable square feet (ASF) or 53,000 gross square feet (GSF) accommodating classroom, office and research space needs for the academic departments. It should be located around the center of the campus near the Rassman Building, Mathematics-Computer Science Building and Vincent Nursing-Physical Science Building. This building should be used for the College of Business and Professional Studies after Sciences gets a new building by 2028. This building should accommodate the following colleges and departments:

- Accounting, Economics and Finance
- Aerospace Studies

Preliminary New Building/Functional Space Concept for 2015

2015 New Building/Functional Space Concept	Area (ASF)	Area (GSF)
Academic Building I (Liberal and Fine Arts, Sciences, Education, IT and Continuing Studies)	45,000	69,000
Academic Building II (Business and Professional Studies and Sciences)	34,000	53,000
"One-Stop Shop" Student Services Center	25,000	38,000
Performing Arts Center	38,000	58,000
Recreation Center	65,000	100,000
Residence Halls	268,000	412,000
Dining Hall	18,000	27,000
Central Storage and Physical Plant Warehouse	10,000	15,000
University Police (Addition)	3,000	4,000
Total	**461,000**	**707,000**

- Computer Science
- Management and Marketing
- Agriculture
- Nursing
- Physics

"One-Stop Shop" Student Services Center

This building should be approximately 25,000 ASF or 38,000 GSF providing a single location for all student services. This building will be probably the first place for potential and new students to come. It should be, therefore, accessible from off-campus and easily found. The following departments should be housed in this building:

- Admissions
- Registrar
- Residence Life
- Financial Aid and Carr Scholarship

Performing Arts Center

The center should be approximately 38,000 ASF or 58,000 GSF. This facility should accommodate a 850-seat performing arts theatre, a small sub-hall, support spaces and other necessary spaces. It should also accommodate academic spaces for Art, Music and Drama programs. This academic space needs should be projected for the full planning period to the year 2028. This facility is intended to host events for the university and community and should be accessible from off-campus. Approximately 200 to 250 parking spaces should be provided near the center. The following academic department should be included:

- Art and Music
- Communication, Drama and Journalism

Recreation Center

The center should be approximately 65,000 ASF or 100,000 GSF. This facility should accommodate a rock climbing wall, sand volleyball courts, game room, free weight area, weight machine area, health center, gymnasium with four basketball courts, indoor track, multi-activity center, classrooms (4), conference room(s), locker rooms, office space, racquetball courts (4), lounge area with televisions, swimming pool and necessary supporting facilities. This facility should be mainly used for student recreation while the existing Center for Human Performance should be used for academic programs. The total space provided in both Center for Human Performance and this new Recreation Center should provide adequate space for the following departments by the year 2028:

- Kinesiology
- Physical Therapy
- University Recreation & Intramurals
- Intercollegiate Athletics (if necessary)

Residence Halls

The university targets providing on-campus housing for 35% of the student body. The university currently has on-campus living capacity for 26% of the students. In order to provide on-campus accommodations to 35% of students by the year 2015, the university needs to add 1,200 beds to its inventory. It acquaints to approximately 268,000 ASF or 412,000 GSF by applying 220 ASF per bed. If University Hall is renovated and re-opened, it may be able to accommodate 280± additional beds depending on room configuration such as a private bedroom or traditional double room.

Dining Hall

Dining facilities should be added as the university grows. Current seating capacity is approximately 640. This is 0.4 seats per on-campus beds assuming slightly more than a two-seat turnover ratio. By keeping this ratio, an additional 500 seats should be provided on campus. This is an approximate 18,000 ASF or 27,000 GSF facility, including kitchen, storage, serving and seating spaces.

Central Storage and Physical Plant Warehouse

The university is in need of a central storage space. Approximately 10,000 ASF or 15,000 GSF storage should be provided near the Physical Plant. This facility should serve all academic and administrative departments.

University Police (Addition)

University Police will need more space as the university grows. Approximately 3,000 ASF or 4,000 GSF of space should be added. This space should be adequate for 2028. If the University Police is relocated to another existing building or a new building to accommodate their growth, it should be approximately 3,600 ASF.

Preliminary New Building/Functional Space Concept for 2028

The following new buildings are proposed as additional buildings by the year 2028 or student enrollment of 10,000 after all necessary buildings are provided by 2015. The concept is only for the campus master planning purpose, and individual buildings should be re-evaluated in the building programming. The development approach of this concept is same as the one for 2015 and described in the previous section.

This concept proposes new additional spaces only and does not consider demolition and replacement of currently occupied buildings as existing buildings are assumed to remain same. This new building concept may be modified during physical planning.

Academic Building III (Sciences)

This building should be approximately 43,000 ASF or 66,000 GSF accommodating instructional and research laboratory, classroom, office and research spaces for the College of Sciences. This facility should be provided in addition to the new Science Building, which is currently under construction. Sciences spaces provided in the Academic Building II should be relocated to this building allowing that building solely for Business and Professional Studies. This building should accommodate the following departments:

- All departments in College of Sciences except for Physical Therapy

Academic Building IV (Addition) (Education)

The College of Education should need 12,000 ASF or 18,000 GSF by 2028. This additional space needs will be needed after Carr Education-Fine Arts Building expansion completed in 2004. This space may be provided in a new building or addition to the Carr Education-Fine Arts Building. Spaces for Education provided in the new Academic Building I should be moved to this building.

Administration Building (Addition)

An additional 14,000 ASF of administrative spaces should be provided for all university administrative and support functions. This space may be provided in a new building or addition to the existing Administration Building or Hardeman Administration Building. If a new building is constructed, it should be approximately 21,000 GSF.

Student Center (Addition)

The current Houston Harte Student Center is designed for 8,000 students on campus. Once the university reaches the threshold, the Student Center should be expanded by 18,000 ASF or 28,000 GSF. This addition should accommodate the following spaces:

- Career Development
- Student Services
- Student Development and Program
- Food Service
- Student Government and Organizations
- Special Events Facilities and Services
- Auxiliary Enterprises such as Bookstore, Post Office and Print Shop

Preliminary New Building/Functional Space Concept for 2028

2028 New Building/Functional Space Concept	Area (ASF)	Area (GSF)
Academic Building III (Sciences)	43,000	66,000
Academic Building IV (Addition) (Education)	12,000	18,000
Administration Building (Addition)	14,000	22,000
Student Center (Addition)	18,000	27,000
Library (Addition) (Library, IT and Continuing Education)	52,000	79,000
Residence Halls	159,000	244,000
Dining Hall	10,000	16,000
Central Storage and Physical Plant Warehouse	16,000	25,000
Total	**324,000**	**497,000**

Library (Addition) (Library, IT and Continuing Education)

Henderson Library should be expanded by 50,000 ASF or 77,000 GSF. This addition should accommodate the library, Information Technology and Continuing Studies. Spaces provided in the new Liberal Arts, Sciences, Education, IT and Continuing Studies Building may be relocated to this new addition. If not, appropriate amount of space should be used for Liberal Arts departments.

Residence Halls

An additional 700 beds should be provided on campus when the university reaches 10,000 students. This is in addition to the new beds added onto by 2015, and the size should be approximately 159,000 ASF or 244,000 GSF.

Dining Hall

Dining facilities should also be provided as the on-campus population grows. Approximately 10,000 ASF or 16,000 GSF of space should be provided in a new facility or as an addition to the existing facility. The size of facility is based on the same turnover ratio as the existing described in the previous section.

Central Storage and Physical Plant Warehouse

The Central Storage should be expanded as the university grows. Approximately 16,000 ASF or 25,000 GSF of warehouse space should be provided.

Facility Conditions Assessment

Introduction

As part of the campus master plan process, URS Corporation was engaged to evaluate four residence hall buildings, of which three buildings are already closed.

The object of the site visit and assessment was twofold: First, to ascertain the overall condition of Mayer and Runnels Residence Halls, as well as the two, 10-story high-rise Residence Halls – University (Men's High-rise) and Concho (Women's High-rise). Second: To make recommendations on overall disposition of the structures. URS also reviewed two previous reports done for Angelo State University to compare findings and to note if significant changes had taken place. The first report is the Fire and Life Safety Evaluation of the Concho Residence Hall, dated January 27, 2003. The second report is the Master Plan for Energy Consuming Equipment, dated December, 2003. Both documents were reviewed for pertinent information relating to the observations made on October 26 and 27, 2004.

In addition to the original Phase I Report, the cost estimate for the two high-rise residence hall renovations are included. The cost estimate was performed by Project Cost Resources.

Methodology

URS retained the services of Aguirre Corporation to provide support in evaluating mechanical, plumbing and electrical (MEP) systems. This report is intended as a planning tool and not an in-depth analysis of the building systems described. URS visited ASU on October 26th and 27th. Mr. Paul Pillsbury, the mechanical maintenance supervisor for ASU, was the main source for information reported.

Definitions

For the purpose of this report, the following terms are used to describe the conditions observed:

- EXCELLENT – The component or system is new, or like new. It is fully functional and not in need of repair, renovation or replacement in at least the next five years.
- GOOD: - The component or system is still fully functional, but is no longer in a like new condition in either appearance or function. Repair, renovation or replacement will be needed within the next five years.
- FAIR – The component or system is useable, but its appearance and/or function is no longer in the optimum range. Repair, renovation or replacement is needed, but is not imminent.
- POOR – The component or system is not functioning for its intended purpose. Repair, renovation or replacement will be needed immediately for the building to function as intended.

Runnels Hall

General

Runnels was constructed in 1950 as one of the first structures on the present campus of Angelo State University. The total building area is listed in the previous master plan study as 15,998 SF. It is located at the corner of N Avenue and Johnson Street. It is almost identical to Mayer Residence Hall further to the south. Currently, Runnels is unoccupied and has been left in mothball condition, with utilities shut off for the last three years.

Building Shell

Exterior Walls

The exterior building walls consist of structural concrete masonry block with face brick. The walls are in excellent condition with no significant spalling or deterioration of the mortar joints. It is interesting to note that, while the building does not have masonry control joints, no cracking was observed on the building elevations (except for minor water damage at a planter next to the main entrance).

Exterior Glazing/Doors

For the most part, all doors and windows appear to be from the original construction. While serviceable, most exterior doors are in fair condition and need new hardware to meet accessibility requirements. All observed glazing consisted of single-pane glass set into metal frames with putty. Most window units had putty that was cracked and in need of replacement. A number of panes were broken or

replaced with plywood. The crank mechanisms for the windows were inoperable on some windows. More modifications of the windows would be necessary in any renovation from the removal of the window air conditioning units. Overall, the windows are in poor condition.

Roof

The roof structure is a poured in place concrete slab that cantilevers approximately three feet past the building face and is finished out with a stucco facia and soffit. The roof membrane appeared to be a built-up coal tar system with gravel topping. The roof appeared to have been replaced or retopped within the last 10 years. Although there had been significant rain the night before, there was only minor ponding at the gravel stops at the roof edge. However, most roof equipment and related flashing had not been replaced. A number of pipe penetrations and lead counterflashing were in poor condition and in need of replacement.

Interior

Layout

Runnels was constructed as a two-story dormitory with the main entrance and lobby located at the west end of the building. A double-loaded central corridor serves both floors. Janitors' closets and utility support spaces are generally accessible directly off these corridors. Individual rooms have lavatory sinks. Central toilet and shower facilities for both men and women are provided on both floors. The typical height from the floor to the bottom of ceiling surfaces is about 8'-3" with another 14" from the face of the acoustical ceiling to the bottom of the slab above. This is slightly higher in the main lobby area due to the step-up of about 2 feet from the entrance and lobby area to the first floor dormitory room area.

Flooring

Flooring is primarily carpet (in dorm rooms and corridors), with vinyl asbestos tile (VAT) in heavily-used common areas, such as stairways. While the 9-inch square VAT was in fair to good condition, it would most likely be removed due to the asbestos content. The carpet throughout was dirty and a heavy smell of mold indicates that all carpet would need to be replaced. Evidence of insect and rodent infestation – including an occupied squirrel nest on the second floor – further reinforce carpet replacement. Toilet/shower floors were finished with ceramic tile. Renovations in these wet areas were consistent with the good condition of these floors.

Wall Surfaces

Almost all wall surfaces were traditional plaster over masonry walls. The exception to this was the ceramic tile in toilet/shower areas. Most walls were in good condition, but all plaster walls should be repainted.

Ceilings

The typical ceilings were 2' X 4' suspended lay-in acoustical systems. The ceilings were in fair to good condition.

Doors

Most units were metal doors hung on metal frames. While functional, most doors were in fair condition,

Sign at main entrance to Runnels Hall


Main entrance area


First floor corridor

due to appearance. Hardware was worn and did not meet current accessibility requirements. A number of door frames were corroded at the base of the jambs.

Accessibility

Because Runnels was built in 1950, it does not meet current requirements as outlined by the Texas Accessibility Standards (TAS). Observed problems included, but were not limited to the following:

- Accessible path to building entrance interrupted by steps to the porch level.
- Stepped transition from lobby to first floor dormitory rooms.
- No lever door hardware or automatic entry doors (or equivalent alternative).
- No elevator to provide access to the second floor.
- Toilet stalls were observed to not fully comply with TAS.
- Shower stalls all had curbs of about 4 inches, making them inaccessible.
- Sinks and water coolers did not have the necessary clearance underneath for wheelchair access.
- Stairways did not have up-to-date railings on either side and were not of the proper diameter.

Code Compliance

The following items were noted that would need to be changed to meet current standard codes. They include, but are not limited to the following:

- Dead-end corridors. The distance from the end of the corridors to a stairway or exterior door is too great.
- The building does not have a fire sprinkler system.
- Asbestos is present in the VAT, and likely in plumbing insulation, and possibly the plaster walls.
- Other code deficiencies are listed under the Systems heading.

Building Systems

This section describes the existing conditions of the mechanical, plumbing, fire protection and electrical systems for both Mayer Hall and Runnels Hall.

Heating Ventilation and Air Conditioning Systems (HVAC)

Both housing units were originally designed with convection type (non-fan powered) cabinet heaters with hot water heating circulated from the campus infirmary building. These hot water convectors work in the same way as a baseboard radiator in that horizontal flat panel finned coils provide heat which rises up in the cabinet. This provides both convection heated air currents and to a lesser extent, radiant heating from the metal panel of the unit cabinet.

The condition of the cabinets and finned tube heat exchangers appeared good, although several areas were observed with teflon tape on the pipe threads which indicated some service was performed in the past.

The convectors have no thermostat control so it is assumed the building heating water is reset to respond to outside air temperatures.

The hot water heating piping has likely met its expected life and should be replaced if continued operation of this system is anticipated.

Stairwell leading to second floor. Note condition of carpet.

Typical lavatory and mirror in the rooms. No provisions are in place for accessibility, such as counter height or protection from drainpipes.

Typical dormitory room

Both residence halls were fitted with window air conditioning units with a total count of 40 plus in each building. These date in age from 1970 to 1997. It was not apparent as to how the power was added to the building to accommodate this load.

The building has no source of outside ventilation air. The restrooms on each floor have exhaust fans and cabinet heaters. It is assumed that the building ventilation air is provided by operable windows and infiltration (building leakage). The building would then operate at a negative pressure which can cause mold and mildew along with building water infiltration damage over an extended period of time.

HVAC recommendation is to remove all existing systems and install an appropriate HVAC system of four pipe chilled and hot water fan coils, air handlers, etc. The current system has met its expected service life.

Plumbing

The building plumbing system consists of sinks in each student room with a centrally located shower, water closets, and sinks in a common restroom.

The building drain, waste and vent system is cast iron. The domestic cold and hot water piping is steel. Both systems have met their expected life, and further useful service life is doubtful.

The fixtures appear to be original to the building, are aged and have met their expected life. The water closets and showers are not water-conserving type and should be updated to new fixtures.

The dorm room sinks, and plumbing appear dated and should be replaced.

Life Safety Systems

The buildings have smoke detectors and strobe type audible alarms. This system is an older, nonaddressable type system and should be updated to current code.

The building is not protected by an automatic sprinkler system. Fire hose cabinets and fire stand-pipe system will need evaluation and replacement due to the age of piping and the location of connections.

Exit lighting with battery packs and exit signs are installed; their current condition is unknown as the building has been mothballed for several years.

Electrical Power

The electrical power in this building is 208/120 volt service. Additional power receptacles have been added in the dorm rooms for both general power needs and window air conditioning units. There are no ground fault interrupting receptacles or breakers installed. The power system has met its expected life and should be replaced and updated to current code requirements.

The electrical lighting has been updated over the years to a majority of fluorescent light fixtures in the public areas and dorm rooms.

First floor utility closet containing hazardous combination of electrical boxes and janitor's sink.

Electric water cooler in corridor recess in violation of current accessibility requirements.

Corrosion of door jambs near toilet/shower.

Communications wiring: cable and telephone

These systems have been added over the years; their function and adequacy are unknown.

Recommendations for Building Systems

As described, these student housing buildings have met their expected life, piping, wiring, and MEP systems have been updated over the years but should be considered for total replacement if the buildings are to be remodeled. The uncertainty of their current condition precludes assuming their usefulness and cost-effective modification.

Overall Condition

The overall building structure appears very sound. It is a structural masonry construction with concrete floor and roof slabs, yet there are no construction or expansion joints. There also was no significant cracking observed in the face brick.

The roof system appears to have been maintained.

All glazing and most doors should be replaced.

All mechanical, plumbing, electrical and life safety systems should be replaced.

The building does not meet current exiting and accessibility requirements.

Summary

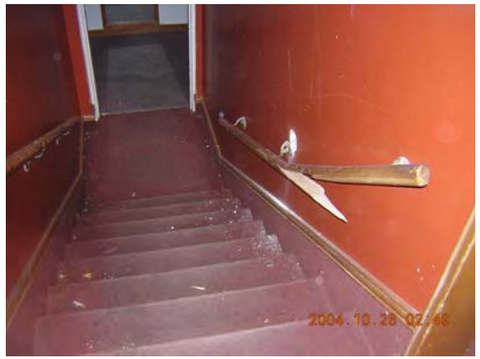
While the structure is still in excellent condition, numerous factors work against renovating it:

- It would be necessary to completely gut the building and start over for any use, such as office space, that would be envisioned.
- Because of its age, Runnels has asbestos, and possibly lead paint, that would need to be abated.
- The age of Runnels also is a reason that new exiting would need to be a part of the new design in order to meet current codes. Also, an elevator and other appropriate measures would have to be included in order to meet accessibility requirements. This would include modifying entrance paths and accessibility up the steps in the lobby area.
- The floor-to-floor height is problematic as well. It would be difficult to comfortably install HVAC ducts without severely compromising the already low ceiling heights. It would also need a complete replacement of mechanical, plumbing, alarm and electrical systems, which is consistent with the findings of the December 2003 report.
- The location of Runnels is a factor as well. It is located on what could be considered "prime real estate" for any future building. However, if converted to office spaces, it would not be convenient for faculty in relation to academic buildings.
- Based on the physical condition of the building as determined from this facility assessment, it is recommended that Runnels be demolished in order to utilize the site for future campus development.

First floor women's toilet/shower.

First floor women's toilet/shower.

Squirrel nest observed in second floor room.



Stairwell as viewed from the second floor.

West elevation and main entrance to Runnels Hall..

Ponding on porch roof after overnight rain.

Roof on Runnels Hall looking east. Note minor ponding at the edge.

Typical roof pipe penetration with lead counterflashing in need of replacement

Mayer Hall

General

The Mayer Residence Hall is almost identical – both in layout and in physical condition - to Runnels Residence Hall. Mayer was also built in 1950. The previous master plan lists the total building area as 13,592 SF. It is located off Johnson Street, south of the present campus security and health facilities. Currently, a portion of this building is being used for evidence storage and administrative space for campus security.

Building Shell

The composition and condition of exterior walls, glazing, doors and roof for Mayers is same as what was previously described for Runnels. The masonry walls are also in excellent condition. Doors are in fair condition. Windows are in poor condition.

Interior

While materials and condition of the interior of Mayer is basically the same as in Runnels, the carpet and walls were somewhat cleaner, probably because part of the first floor was occupied.

Building Systems

A description of the mechanical, plumbing, electrical and life safety systems is contained in Runnels Hall.

Overall Condition

As with Runnels, the overall building structure appears very sound. It is a structural masonry construction with concrete floor and roof slabs, yet there are no construction or expansion joints. There also was no significant cracking observed in the face brick.

The roof system appears to have been maintained, and in fact, appears to have been recently refurbished or replaced.

All glazing and most doors should be replaced.

All mechanical, plumbing, electrical and life safety systems should be replaced.

The building does not meet current exiting and accessibility requirements.

Summary

The assessment for Mayer Residence Hall is the same as what was described for Runnels. While the overall building structure is in excellent condition, the configuration and location work against it. It would also need a complete replacement of mechanical, plumbing, alarm and electrical systems, which is consistent with the findings of the December 2003 report. It would be a significant expense to bring the structure up to current code and accessibility standards, particularly the construction of an elevator. Finally, abatement of asbestos and possibly lead must be taken into account. Based on the physical condition of the building during this facility assessment, it is recommended that Mayer Residence Hall be demolished to make way for future development in this part of the campus.

Sign outside entrance to Mayer Hall.

Staining from water pouring off the roof. Note the lack of control joints and cracking.

North elevation and building entrance.

Men's shower area.

Second story dormitory room.

Roof area looking east.

Access hatch to crawl space under the building.

Women's toilet area.

Second floor corridor.

Recently installed galvanized flashing.

Asbestos insulated pipes in building crawl space.

Typical dormitory room.

Roof of Mayer Hall looking west.

Northeast corner of the building.

West elevation.

University Hall

General

The Men's High Rise Hall (University Hall) was constructed in 1968 as one of two 10-story dormitory towers sharing a central dining facility. The previous master plan study lists the total building area as 103,883 SF. Currently, University Hall is unoccupied while the other tower, Concho, is almost at 100% occupancy. The structure consists of concrete structural frame skinned in precast concrete panels along most of the north and south elevations. Brick covers the ends of the tower. Unless noted otherwise, the comments for University Hall also pertained to Concho Hall due to their similarity.

Building Shell

Exterior Walls

Both brick and precast surfaces appeared to be in excellent condition, aside from some minor staining.

Exterior Glazing/Doors

Most doors appear to be the original units. As such, the hardware does not meet current accessibility requirements. Window units, about 22" X 46", are of an unusual size and are single-pane units and are in good condition. Window caulking appears to be in good to fair condition.

Roof

The roof system is a built-up membrane, possibly coal tar. As with Runnels and Mayer, the actual roof membrane and gravel topping were in good condition, with estimated replacement and/or refurbishment within the last five years. The rooftop equipment, penetrations and related flashing and counterflashing has not been replaced or renovated. The overall roof system is in good condition.

Interior

Layout

University Hall is configured with a main entrance and lobby area on the north side of the tower. Another ancillary lobby area leads to two elevators. The basement area, houses the mechanical equipment and laundry. Adjacent to the laundry area is a toilet and small rooms with bathtubs. The second through tenth stories consisted of four single loaded corridors, two running out from each direction from the elevator lobby. This lobby is large enough to accommodate seating, a TV and bulletin board area. The Resident Assistant's dorm room is opposite the elevators off this lobby. The dorm rooms are served by corridors running along the exterior walls of the tower. Two dorm rooms – served by different corridors, share a common toilet and shower. Because the rooms are located in the interior of the floor, outside light is provided by clerestory windows in the wall common with the corridor, thus providing borrowed outside light. The dimension from finish floor to the structural slab above is about 11'-10". The approximate inside-to –inside dimension is 46' across the minor axis of the University Tower.

Flooring

Most flooring consists of carpet in the residence area. VAT is utilized in the most hard-used public areas.

Typical corridor

Typical dorm room. Note the shared toilet and shower between two rooms.

Roof.

Bath and toilet areas have ceramic tile.

Wall Surfaces

Wall surfaces are generally gypsum board construction. Clerestory windows are typically used to capture borrowed light from the corridor windows to the outside and direct it into the dorm rooms.

Ceiling

Ceilings are of an acoustical ceiling system in dorm rooms and a number of support spaces. Corridors, along with toilet/shower areas, have gypsum board. Most ceiling systems are in good condition.

Doors/Glazing

Doors and glazing are, for the most part, the original units for the building. The doors need new hardware to bring them into compliance with accessibility requirements, and are in good condition. Exterior glazing consists of single-pane glass. While serviceable, these units should be considered to be in fair condition due to the adverse affect on energy consumption.

Elevators

Elevator service in University Hall is performed by two high-speed cabs. Observing the condition of the equipment in the building penthouse, the elevators are in good condition.

Accessibility

Since University Hall was built in 1968, it does not comply with current accessibility requirements. Items that need to be correct include, but are not limited to the following:

- Accessible path to the building entrance has unacceptable grade changes.
- Stepped transition from lobby to the first floor dormitory rooms have no provisions for a ramp.
- No lever door hardware or automatic entry doors (or equivalent alternative).
- Elevators are in need of updating to provide appropriate graphics, bells and proper controls/button heights.
- Toilet, shower and lavatory arrangement for typical dormitory rooms do not comply in any of the room configurations to current standards.
- Shower stalls all had curbs of about 4 inches, making them inaccessible.
- Stairways did not have up-to-date railings on either side and were not of the proper diameter.
- Water coolers, countertops and light switches do not comply.
- Stair rails do not comply for diameter or configuration.

Code Compliance

University Hall was built in 1968 and is sprinklered, exiting requirements are not as big a problem as with Runnels and Mayer.

Building Systems

This section describes the existing conditions of the mechanical, plumbing, fire protection and electrical systems for both University Hall and Concho Hall.

Roof.

Ponding of water on lower high-rise roof.

Damaged flashing on roof parapet.

University Hall is currently empty although the utilities and building equipment are functioning. Concho Hall is fully occupied with all systems functional and in use.

The high rise residences were built in 1968. The HVAC, Electrical and Plumbing systems are original with replacement of HVAC units in process. All systems appear in good working order and serviceable. The fire alarm system has been updated to addressible based detectors in the recent past.

Heating Ventilation and Air Conditioning Systems (HVAC)

The building is provided chilled and heating hot water from underground utility tunnels and connected to the central energy plant. Chilled and heating water is supplied to multiple air handlers in the basement west side and first floor east side.

The air handlers provided heated or cooled air in duct risers up through chases in the building. The building is zoned with perimeter heating and cooling air handlers serving the north and south corridors of the building. The dorm rooms are interior to this corridor and are served by a cooling only air handler and duct riser. The rooms have individual thermostats with control dampers which modulate the amount of cooled air supplied to the room. The rooms share a common restroom water closet, shower, and sink area. This room is exhausted to duct risers which terminate on the roof through roof mounted exhaust fans.

Half of the air handlers have been replaced with the other half being original to the building. The existing air handler coils appear aged and due for replacement. The fans need rebuilding or replacement to extend their service life.

Many comfort complaints have been received due to the cooling system in the dorm rooms. According to student hearing, the lack of heating capability most likely results in student use of electric heaters or running the shower to provide heat.

The air handlers induce air from the outside at the first floor perimeter wall 4 feet above ground level. This location may result in more plant and soil material induction and seasonal allergy issues than a location higher in the building.

Building Management reported some cases of ductwork liner insulation coming loose and blocking the duct or otherwise partially obstructing air flow and resulting noise problems. This should be further investigated and addressed.

The building temperature controls and management system is a mixed system of DDC electronic controls on major equipment and pneumatic controls. It appears this is being updated as work is performed in the building.

The HVAC system has been well maintained, however, all systems should be replaced if the building is reused.

Review of the supply and air return paths, supply air ducted and return air in vertical risers, should be undertaken to understand the dynamics of the building during a fire event and subsequent smoke movement through the building.

Small storage area in typical dorm room now utilized for electrical wiring.

Air grills and sprinkler heads in typical corridor.

Basement laundry.

Plumbing

Domestic cold water is supplied by building pumps in the central plant which maintain pressure in the high rise. These booster pumps were replaced within the past year.

The domestic hot water is likewise boosted by the pressure pumps and supplied from the central plant. The hot water is generated by steam to hot water converters and stored in large tanks in the central plant.

No shortage of hot water for showers or cold water pressure was reported.

The building plumbing systems consist of cast iron drain waste and vent piping and copper hot and cold water supply piping.

Facilities management reported the water risers in the chases may be indequately supported. That is, excess movement and non secure pipe has been reported by the maintenance staff. If a remodel is undertaken, this should be addressed.

There appears to be, and it was reported, inadequate access to plumbing pipes in the vertical chases and at the fixtures on each floor for service and repair.

As currently seen in the building, piping and drain leaks result in water traveling vertically in the chases, which then evaporates into the return air system and becomes a source for hidden mold and mildew amplification (growth).

The plumbing fixtures are not low flow design. Any remodel or repair should consider replacement with low flow water closets, low flow shower heads, and low flow sink faucets. Building management reported that replacement parts for shower valves are no longer available, additionally, the handle design has sharp edges and could be a safety hazard. Replacement faucets should be non-scald (temperature and pressure equalized) design and single lever mixing valves.

The roof has multiple roof drains in good repair with vertical pipes in the chases to route rain water out of the building to underground storm drains. The roof also has overflow scuppers through the parapet.

Electrical

Electrical power enters the building from a nearby power company transformer at 480/277 3phase. A 1200 amp main switchboard distributes power, which is transformed to 120 volt single phase for receptacle loads.

The building has been upgraded with cable, internet, and additional lighting in the dorm rooms.

Lighting systems appear adequate for the space and appear to have some upgrads with energy conserving lamps.

The electrical system appears well maintained, however, the system may need replacement if the building is reused. Some consideration should be given to verifying the fault current protection design and coordination and replacing key breakers and fuses to obtain a coordinated system.

Water leak, probably from sprinkler system in the basement area laundry.

Basement elevator lobby.

Basement mechanical area.

The roof is protected by a lightning protection rod and down feeder cable system in good condition. Some air terminals have received lightning strikes and should be serviced. The elevator penthouse has been used for mounting radio and communications masts. There is no apparent lightning protection for these.

Life Safety Systems

The building is protected by a wet-pipe sprinkler system. Sprinkler heads provide full coverage in common and dorm rooms. A fire standpipe system is located in the stairwells. The fire pump is located in the central plant and has a back up diesel generator for emergency electrical power operation. The roof has fire department hose connections at the core of the building.

Smoke detectors are located in the common and dorm rooms and were recently upgraded to an addressable based system.

The audible and visual alarm system (strobes) may need upgrading to current standards but are in place.

There is no stairwell pressurization system. There is no duct riser smoke dampers or building smoke control system. The addition of these systems should be considered in any future work in the building.

Recommendations for Building Systems

As discussed, the building MEP systems are being replaced and upgraded as they age. An adequate budget should be provided to continue this but the systems appear in good repair and serviceable into the future. The vertical duct and piping chases have limited access and are transport means for moisture and smoke movement in the building. Providing improved access to the chases would be difficult. If any reconfiguration of the floor plan is undertaken, this should be addressed.

The building systems are very re-configurable and should be considered for modification if possible which would reduce cost of remodel to ½ that of replacement.

The plumbing fixtures should be considered for a planned upgrade and replacement as discussed.

A life safety study of the building should be undertaken to determine the feasibility of improving the smoke management ability of the tower. Vertical transport of smoke in the building should be managed to improve upon the inherent safety of a fully sprinkle protected high rise building.

Overall Condition

The building is in need of major repairs and replacements, particularly in building systems and interior finishes. The building shell itself is generally in a reusable condition. Beyond the physical condition of the building, the biggest problem noted was in the overall design and layout of the typical dorm room floors. The following were noted:

- Except at the Resident Assistant's room, no room has a window to the outside. Clerestory windows provide borrowed light from the corridors located along the building exterior walls.
- The clerestory windows and grilles in the doors provide poor sound isolation from activities in the halls. Hall lighting above the exterior windows also creates a problem at night when students want their rooms to be dark. It was noted that a number of the light bulbs in the hall had been removed.
- Spatial layout of the rooms is cramped and broken up by freestanding columns in the middle of the spaces, along with the closet configuration.

Because of the factors listed above, along with accessibility concerns, if the University Hall is to be maintained as a dormitory, a complete reconfiguration would be needed. This type of renovation would be at a significant cost since doors, glazing, and all interior partitions would have to be replaced. However, it appears that much of the original building mechanical, electrical and fire protection systems could be reused. This re-use translates into a renovation that would be significantly less than demolishing the structure and constructing a new building.

Some specific items were noted. For instance, there was a water leak in the basement laundry room, probably from the fire sprinkler system. It was also noted that the metal door frames leading to dorm room toilet/shower areas were typically corroded from years of exposure to water.

Summary

The URS scope of work differed from that of the assessment that was submitted on January 27, 2003, by Alderson and Associates. Their report was weighted towards technical evaluation and specific costs to refurbish and renovate the facility. A great deal of the findings in the initial report appear to still be valid. In comparison, the URS task was two-fold: First, to conduct a general assessment to update and augment the report from January 2003, and second, to

make a recommendation on the ultimate disposition of both high-rise dormitories.

The assessment for both University Hall and Concho Hall indicates that the dorm room spaces are not well designed. Conditions inside the rooms are cramped and the interior placement of the rooms do not allow for windows and outside rooms, except in the halls. There are noise and privacy issues introduced with the single-pane clerestory windows for the dorm rooms. The extensive array of utility services coming up through the center of the floors make re-use difficult without completely reconfiguring them. While the overall building structure is in excellent condition, asbestos content, accessibility issues and floor layout are problems that must be dealt with. However, partial re-use of mechanical, electrical and fire protection systems is possible, reducing the costs of renovation. While the overall technical findings from January 2003 still appear to be valid, they also show extensive replacement of finishes and building systems will be necessary. With renovations this extensive, the costs of refurbishment, approach that of gutting the floors and starting over. In talking with students and staff, the high-rise dormitories are seen by many as landmarks. They are also strategically located on the pedestrian mall running across campus. Based solely on the physical assessment of the structure, the building can be re-used if it is reconfigured to meet current codes, standards and the spatial needs of students.

Cost Estimate

Project Cost Resources estimated the renovation cost of the University Hall. The estimated cost of extensive renovation is a total of approximately $17 million, of which construction cost is $13 million. The cost includes complete interior renovation, partial replacement of building systems, partial exterior renovation, minor sitework, furnishings, fixtures, equipment, escalation and contingencies. Details of the estimate is described later in this chapter.

Conclusion

After comprehensive consideration of re-using or demolishing this facility, the master planning team recommends to demolish the University Hall and replace it with a newly designed residential facility. The cost to improve the quality of life in the existing facility exceeds its benefit that can be achieved in its limited conditions. Floor plate and height of the existing building limit the most desirable residential configuration while extensive interior renovation requires a high price. Since the existing building is located at the heart of the campus, the new facility should remain at the current location. Since the University Hall is already closed, it is a possible approach to demolish it without a temporary surge space.

Concho Hall

General

The Women's High Rise Hall (Concho Hall) was constructed in 1968 as one of two 10-story dormitory towers sharing a central dining facility. The previous master plan study lists the total building area as 103,883 SF. Currently, Concho Hall is at near 100% occupancy with a coed population. The structure consists of concrete structural frame skinned in precast concrete panels along most of the north and south elevations. Brick covers the ends of the tower.

Building Shell

The comments regarding the building shell are generally the same as those noted for University Hall. One exception to this was found on the roof. A large area of the membrane west of the elevator penthouse had delaminated from the roof structure. Nearby ponded water indicates seepage of moisture within the built-up layers, causing water vapor to create bubbles underneath the top layer and gravel. Paul Pillsbury stated that this area was slated for repair.

Interior

The comments regarding the interior are the same as those noted for University Hall.

Building Systems

A description of the mechanical, plumbing, electrical and life safety systems are contained in University Hall.

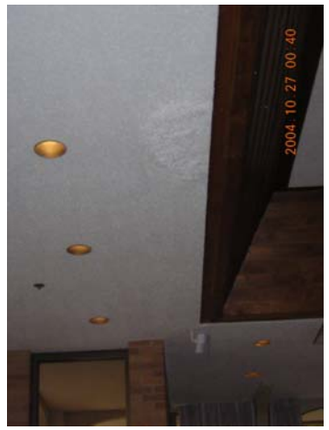
Overall Condition

The condition of Concho Hall is very similar to that of the University. Since this dormitory is near 100% occupancy, it is a little more "lived in". On the other hand, it is obviously cleaner.

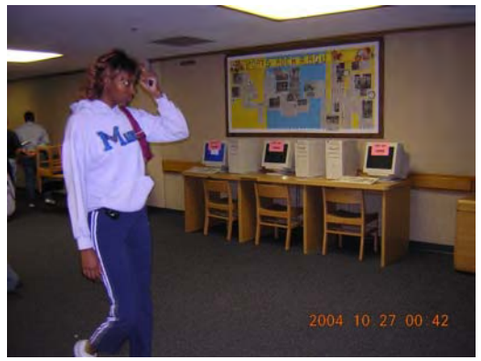
Summary

The assessment for Concho Hall is the same as for University Hall: The dorm room spaces are not well designed. Conditions inside the rooms are cramped and the interior placement of the rooms do not allow for windows and outside rooms, except in the halls. There are noise and privacy issues introduced with the single-pane clerestory windows for the dorm rooms. The extensive array of utility services coming up through the center of the floors make re-use difficult without completely reconfiguring them. While the overall building structure is in reusable condition, asbestos content, accessibility issues and floor layout are problems that must be dealt with. Most of the building systems require replacements as they are reaching their lifetime use, although partial re-use of some of the systems is possible to reduce the costs of renovation. In talking with students and staff, the high-rise dormitories are seen by many as landmarks. They are also strategically located on the pedestrian mall running across campus. Based solely on the physical assessment of the structure, the building can be re-used if it is reconfigured to meet current codes, standards and the spatial needs of students.

Ground floor lobby.



Water damage observed in ceiling of ground floor lobby.



Lobby adjacent to elevators on the ground level.

Cost Estimate

Project Cost Resources estimated the renovation cost of the Concho Hall. The estimated cost of renovation is a total of approximately $17 million, of which construction cost is $13 million. This is based on the same assumptions as the University Hall. Details of the estimate are described later in this chapter.

Conclusion

The master planning team recommends demolishing Concho Hall in the long term to provide a better quality of on-campus living opportunity as the same reasons the University Hall needs to be demolished. The building is currently occupied and a replacement facility should be planned prior to the demolition.

Central Plant

The central energy plant serves the majority of buildings on campus by the means of chilled water (cooling) hot water, and heated domestic water.

Cooling capacity consists of 3-1,000 ton chillers and 2-500 ton chillers added over the years. During the heat of summer, 3,000 tons of cooling capacity are needed to meet the campus requirements. Building management reported delivery of additional capacity is limited by the campus distribution piping and pumping arrangement. Expansion plans should include the cost of increasing this piping , pumping, and chiller capacity to serve planned building additions.

The cooling towers are masonry fill, site built concrete structures with 8 cells and fans. Additional capacity should be available from these towers by adding fill and increasing cooling fan capacity. The cooling towers are limited in performance and flexible operation due to their dedicated piping arrangement. Modification of the piping arrangement and flexibility in operation should be considered in a cooling capacity increase.

The space available to add chillers and boilers in the existing central plant is limited to smaller equipment in the cafeteria basement or replacing the existing 1,000 ton chillers with larger capacity chillers in the occupied equipment bays. Means to increase capacity should be possible within the existing space limitation without requiring a central plant expansion.

A second cooling only energy plant should be considered at the west end of the mall. This would allow flexibility in operation, minimize distribution piping size increases or additions, and minimize operational interruptions in the existing central plant due to equipment failure, replacement, or catastrophic events such as flooding or boiler explosion. The above assumes heavier cooling loads due to building additions occur towards the west end of campus.

The steam boilers in the central plant consist of two 1,000 horsepower steam boilers and one 200 horsepower steam boiler. It was reported that the 200 hp steam boiler was too small to serve the kitchen and domestic water heating needs in the summer while the 1,000 hp boiler was too large, thus causing inefficient operation of the system.

The campus distribution piping, heating and chilled water has experienced failures due to wear at elbows; this is due to high velocity water flow direction change causing erosion. A second chilled water plant would relieve this along with additional piping monitoring such as water loss metering.

The steam system currently operates with one deaerator tank. An additional tank and system should be provided for redundancy as one component failure such as this could disable the entire campus heating system or cause operation of the steam system with raw water make-up.

The chillers in place are dated and utilize R-123 refrigerant. R-123 refrigerant is scheduled for phase out in the future, and is considered a bridge refrigerant until implementation of zero ozone impact refrigerants are deployed in new and replacement equipment. Although R-123 will be available through the expected life of the existing chillers, most chiller replacements occur due to economics of operation versus wearing out.

To summarize, the existing central energy plant is well designed and operated. Future expansion capacity is limited by piping distribution on the campus and the need to have redundant stand-by equipment to serve the load if a major piece of equipment fails.

Cost Estimate

Project Cost Resources estimated the total cost to renovate two high-rise residence halls: University Hall and Concho Hall. The cost estimate is based on the physical condition assessment by URS, the housing market study by Anderson Strickler, the university and master planning consultants' provisions. The renovation is to completely gut and remodel the existing facility to upgrade the quality of life such as a higher ratio of single bedroom suites. The renovation costs for University Hall and Concho Hall are estimated as the same in details and doubled at the summary.

Estimate Assumptions and Qualifications

- This estimate includes a 15% "estimating contingency" due to the early concept stage of the design. As the design progresses this contingency will be reduced based upon more detailed documents.
- The program estimate format is core and shell with interior build out. Base MEP systems area included in the core with build out for MEP systems fit-out included in the interior build out number. Approximately 25% of the interior build out number is related to MEP lighting, ducts, branch components.
- The estimate assumes replacing existing exterior glazing. The quantity for this is assumed to be approximately 20% of the exterior wall surface.
- The estimate includes cost for exterior wall patch/repair/cleaning.
- The only sitework included in this estimate is to include a handicap ramp and to reconfigure some exterior sidewalk/flatwork. The sidewalk and flat work to be reconfigured is assumed to be approximately 5,000 sf of area.
- No site lighting, utility connections, or landscaping is included in the estimate. The estimate assumes chilled/hot water or steam mains are already in place to be reutilized for the renovation.
- The estimate values reflect only direct construction costs. No soft cost for management or design are included.
- Furnishings are included in the estimate under the FFE category.

Conclusion

The total cost of the renovation for the two high-rise buildings is estimated at $34 million. This amount includes approximately $12.7 million of construction cost for each building and mark-ups for general conditions and contingencies.

Based on this estimate and the facility condition assessment, the master planning team does not recommend the reuse of these two buildings. The high cost is caused by the complete gut and remodel of the existing buildings, which provides necessary quality of living instead of rooms with beds. The details of building conditions and recommendations are described in the Facility Condition Assessment section earlier in this report.

Angelo State University

SUMMARY - Renovation

Renovate Dormitories

Uniformat Program Cost Model

January 2005

		University Hall 104,300	Concho Hall 104,300
Sitework		$ 51,000	$ 51,000
Interior Demolition		$ 1,293,900	$ 1,293,900
Substructure		$ -	$ -
Superstructure		$ 130,000	$ 130,000
Exterior Closure		$ 692,000	$ 692,000
Roofing		$ 46,505	$ 46,505
Interior Construction		$ 3,862,253	$ 3,862,253
Conveying		$ 520,000	$ 520,000
Mechanical Plumbing		$ 1,032,570	$ 1,032,570
Mechanical Fire Protection		$ 229,460	$ 229,460
Mechanical HVAC		$ 2,680,510	$ 2,680,510
Electrical		$ 1,879,422	$ 1,879,422
Telecommunications		$ 312,900	$ 312,900
Subtotal Construction		**$ 12,730,520**	**$ 12,730,520**
General Conditions	7.5%	$ 954,789	$ 954,789
Subtotal		**$ 13,685,308**	**$ 13,685,308**
General Contractor Fee/Bond	4.0%	$ 547,412	$ 547,412
Subtotal		**$ 14,232,721**	**$ 14,232,721**
Programmer's Estimating Contingency	15%	$ 2,134,908	$ 2,134,908
Subtotal		**$ 16,367,629**	**$ 16,367,629**
Escalation	4.0%	$ 654,705	$ 654,705
Subtotal			
TOTAL		**$ 17,022,334**	**$ 17,022,334**
$/SF		**$ 163.21**	**$ 163.21**

GRAND TOTAL	**$ 34,044,668**

Student Dormitory

Angelo State University

Uniformat Program Cost Model — 104,300 sf

RENOVATE UNIVERSITY/CONCHO HALL — 17-Jan-05

Description	Quantity	Unit		Extension	Total	$SF
SITEWORK						
Site Demolition						
Site Demolition - Pavement	2,000	sf	$ 1.50	$ 3,000		
Pavements						
Handicap Ramp	1	ea	$ 18,000.00	$ 18,000		
Reconfigure Paving/Sidewalk at Entries	5,000	sf	$ 5.00	$ 25,000		
Miscellaneous Site	1	ls	$ 5,000.00	$ 5,000		
			Subtotal		**$ 51,000**	
BUILDING						
Demolition						
Asbestos Remediation	104,300	sf	$ 3.00	$ 312,900		
Interior Demolition						
Remove Interior Door/Fr/Hdwr	294	ea	$ 45.00	$ 13,230		
Remove Exterior Door	10	ea	$ 125.00	$ 1,250		
Remove Elevator Equip/ Keep Shaft	2	ea	$ 5,000.00	$ 10,000		
Remove Partitions/Walls	12,200	lf	$ 6.00	$ 73,200		
Demo Showers/Toilet Finishes	135	ea	$ 400.00	$ 54,000		
Remove Interior Finishes	104,300	sf	$ 1.00	$ 104,300		
Remove HVAC - Total Gut/Removal	104,300	sf	$ 2.20	$ 229,460		
Remove Plumbing - Total Gut/Removal	104,300	sf	$ 2.00	$ 208,600		
Remove Electrical - Total Gut/Remove	104,300	sf	$ 2.20	$ 229,460		
Remove Exterior Glazing	1	ls	$ 7,500.00	$ 7,500		
Miscellanous Demolition	1	ls	$ 5,000.00	$ 5,000		
Haul/Dispose	1	ls	$ 45,000.00	$ 45,000		
			Subtotal		**$ 1,293,900**	**$ 12.41**
Substructure						
			Subtotal		**$ -**	**$ -**
Superstructure						

Student Dormitory
Angelo State University
Uniformat Program Cost Model — 104,300 sf

RENOVATE UNIVERSITY/CONCHO HALL — 17-Jan-05

Description	Quantity	Unit		Extension	Total	$SF
Miscellaneous - Steel Brace/Support	1	ls	$ 40,000.00	$ 40,000		
Core/Firesafe New Penetrations	200	ea	$ 150.00	$ 30,000		
Infill Existing Slab at Penetrations	300	ea	$ 150.00	$ 45,000		
Miscellaneous - Concrete Repairs	10	flrs	$ 1,500.00	$ 15,000		
			Subtotal		$ 130,000	$ 1.25
Exterior Closure						
Exterior Wall - Glazing Assume 20% of Exter.	11,600	sf	$ 50.00	$ 580,000		
Clean/Patch Existing Exterior Wall	58,000	sf	$ 1.50	$ 87,000		
Exterior Doors	1	ls	$ 25,000.00	$ 25,000		
			Subtotal		$ 692,000	$ 6.63
Roofing						
Roofing System - Patch for Equipment	1	ls	$ 10,000.00	$ 10,000		
Miscellaneous Caulking and Sealants	104,300	sf	$ 0.35	$ 36,505		
			Subtotal		$ 46,505	$ 0.45
Interior Construction						
Ceilings						
Gypboard Ceilings	78,225	sf	$ 5.50	$ 430,238		
Acoustical Tile Ceiling	26,075	sf	$ 2.20	$ 57,365		
Allow for Furrdowns	1	ls	$ 35,000.00	$ 35,000		
Floor Common Area						
Residence Room Areas	59,400	sf	$ 25.00	$ 1,485,000		
Floor Lounge, Kitchen, Laundry	4,300	sf	$ 32.00	$ 137,600		
Building Lounge	1,400	sf	$ 30.00	$ 42,000		
Office	300	sf	$ 30.00	$ 9,000		
Storage	300	sf	$ 20.00	$ 6,000		
Directors Residence	1,000	sf	$ 40.00	$ 40,000		
Storage/Miscellaneous Spaces	1,000	sf	$ 20.00	$ 20,000		
67,700						
Unassignable						
Unassignable	36,600	sf	$ 20.00	$ 732,000		
104,300						
FFE						
Twin Beds	258	ea	$ 1,000.00	$ 258,000		
Desks/Chairs/Dressers	258	ea	$ 1,500.00	$ 387,000		

Student Dormitory
Angelo State University
Uniformat Program Cost Model — 104,300 sf

RENOVATE UNIVERSITY/CONCHO HALL — 17-Jan-05

Description	Quantity	Unit		Extension	Total	$SF
Sofa	64	ea	$ 800.00	$ 51,200		
Lounge Chair	81	ea	$ 450.00	$ 36,450		
Coffee Table	61	ea	$ 400.00	$ 24,400		
TV	61	ea	$ 500.00	$ 30,500		
Refrigerator	61	ea	$ 500.00	$ 30,500		
Miscellaneous FFE	1	ls	$ 50,000.00	$ 50,000		
			Subtotal		$ 3,862,253	$ 37.03
Conveying Systems						
Elevators	2	ea	$ 260,000.00	$ 520,000		
			Subtotal		$ 520,000	$ 4.99
Plumbing						
Plumbing Fixtures	104,300	sf	$ 4.40	$ 458,920		
Plumbing Equipment	104,300	sf	$ 1.00	$ 104,300		
Plumbing Piping	104,300	sf	$ 4.00	$ 417,200		
Plumbing Miscellaneous	104,300	sf	$ 0.50	$ 52,150		
			Subtotal		$ 1,032,570	$ 9.90
Fire Protection						
Fire Protection System	104,300	sf	$ 2.20	$ 229,460		
			Subtotal		$ 229,460	$ 2.20
HVAC						
Air Handling Equipment	104,300	sf	$ 2.00	$ 208,600		
Fan Coil Units	104,300	sf	$ 4.00	$ 417,200		
CHW Primary/Secondary Pumps	104,300	sf	$ 0.30	$ 31,290		
HW Primary/Secondary Pumps	104,300	sf	$ 0.30	$ 31,290		
HW Heat Exchanger System	104,300	sf	$ 0.45	$ 46,935		
Exhaust System	104,300	sf	$ 1.70	$ 177,310		
Ductwork	104,300	sf	$ 7.50	$ 782,250		
Grilles/Registers/Diffusers	104,300	sf	$ 0.75	$ 78,225		
CHW/HW Piping System	104,300	sf	$ 4.00	$ 417,200		
Condensate Recovery Piping	104,300	sf	$ 1.20	$ 125,160		

Student Dormitory
Angelo State University
Uniformat Program Cost Model 104,300 sf

RENOVATE UNIVERSITY/CONCHO HALL 17-Jan-05

Description	Quantity	Unit			Extension	Total	$SF
Temperature Controls	104,300	sf	$	3.50	$ 365,050		
			Subtotal			$ 2,680,510	$ 25.70
Electrical							
Primary Gear	104,300	sf	$	1.30	$ 135,590		
Panelboards 120/208V and 277/480V	104,300	sf	$	1.20	$ 125,160		
Transformers	104,300	sf	$	0.50	$ 52,150		
Emergency	104,300	sf	$	1.00	$ 104,300		
Lighting	104,300	sf	$	2.00	$ 208,600		
Devices	104,300	sf	$	1.70	$ 177,310		
Motor and Equipment Connections	104,300	sf	$	1.00	$ 104,300		
Conduit and Wire	104,300	sf	$	5.50	$ 573,650		
Fire Alarm System	104,300	sf	$	1.70	$ 177,310		
Audio Visual	1	allow	$	50,000.00	$ 50,000		
Television	104,300	sf	$	0.54	$ 56,322		
Security - Rough-in only	104,300	sf	$	0.50	$ 52,150		
Grounding/Lightning Protection	104,300	sf	$	0.60	$ 62,580		
			Subtotal			$ 1,879,422	$ 18.02
Telecommunication							
Telecommunication/Technology	104,300	sf	$	3.00	$ 312,900		
			Subtotal			$ 312,900	$ 3.00
			Subtotal Construction			$ 12,730,520	$ 122.06

Civil Engineering and Environmental Issues

Introduction

In order to complete the Campus Master Plan Phase I Task List assigned to JM Waller by Facility Programming and Consulting, Bob Clarkson and Ron Baker of JM Waller visited the Angelo State University Campus on September 21, 2004. We attended meetings with the faculty and staff of the university. In addition, we were able to tour the university grounds including a building vacated because of condition and obsolescence issues. The Associate Director of the Physical Plant, John Russell, conducted this tour. On October 28, 2004, Bob Clarkson returned to San Angelo to visit the off-campus facilities: the Agricultural Research Center, San Angelo Museum of Fine Arts, ASU Lake House and the West Texas Training Center again, accompanied by John Russell.

At the September meetings, we met with representatives of the Physical Plant to discuss civil and environmental issues that they had observed on the campus. We spent two plus hours with the Physical Plant foremen. The foremen were responsible for plumbing, HVAC, custodial, grounds, and electrical, some having more than one area of responsibility. Also present for this interview, was Jack Fielder representative from URS, who is part of the campus master planning team.

Traditional civil issues would normally include circulation, drainage, utilities, site and utilities issues. In the meeting with the Physical Plant representatives, they expressed little concern about any of these issues from their perspective. Upon further questioning and discussion, the following issues were identified in this meeting that may deserve further study:

1. They commented about previous drainage problems observed near the Student Center that was addressed with a specific project.
2. It was not clearly identified that there were other significant drainage issues, but drainage is something that deserves further study involving site assessments.
3. The foreman responsible for the grounds commented on the desirability of developing a method to use untreated water for the watering of the grounds. This issue is discussed further later in this report.
4. It was noted during discussions that Johnson Street, running north and south through the campus, had a problem with pedestrian traffic between the east and west portions of the campus.

Civil Engineering Concerns and Related Discussion

Circulation

The issues of traffic in general and Johnson Street specifically were assigned to URS in their task list and so will only briefly be mentioned here. Johnson Street is a busy secondary artery. A four lane undivided street, at present it carries community traffic through the campus as well as traffic to the campus. This is currently a problem and will become a bigger problem as the campus grows in terms of the number of students, and infill of the campus property with additional academic and residential buildings. One of the alternatives discussed is to close Johnson Street to traffic. This solution requires coordination with City Planning to identify an alternative route to carry the through community traffic or campus traffic who desire to reach the north side of the campus from the south. Other alternatives discussed included pedestrian overpass or underpasses.

Most campuses as they develop into larger more urban type campuses attempt to encourage pedestrian and/or bicycle traffic in preference to motorized vehicles. This creates a campus environment that is safer and more conducive to a learning and collegial atmosphere that would enhance recruiting and retention within the institution. The master plan should consider developing dedicated bicycle routes. Efforts should be made to reduce vehicle circulation internal and across the campus and move towards keeping parking facilities on the perimeter of the campus to the greatest extent possible.

Drainage Issues

Although not listed as a particular problem by the Physical Plant staff, we believe that there are drainage problems on this campus. The campus is very flat west of Jackson Street. The developed campus between Dena Street and West Avenue gently slopes from south to north. This same area from Rosemont Drive to Jackson Street slopes gently from west to east at slightly less than 0.5%. East of Jackson Street, the terrain falls off and eventually drains into South Angelo Addition and Jack Street to the east. There is an existing 30-inch storm drain carrying storm water from Jackson Street to within about 500 feet of the east campus border.

In meetings with the campus officials, they indicated that for the most part the campus drainage and the city drainage systems are surface drainage. Other than one project, which was specifically designed to address a problem that resulted when the work on the Student Center was completed, and a system to take drainage across their new dormitory site, there is no real drainage system for the campus either, other than surface and street drainage. This appears to be acceptable to the administration although we suspect that both vehicular and pedestrian traffic are at least somewhat restricted at times of heavy rainfall.

It appears that there had been little attention to storm drainage issues in most of the previous building and hardscape development on the Angelo State University campus. The master plan policy should include a statement that any future development should include detaining on the local site any additional drainage developed by installation of new buildings or hardscape and releasing that drainage from the site at a rate at or less than existed prior to the new development.

The east end of the property is lower just prior to where drainage exits to the city streets. This may offer an opportunity to install a retention or detention pond. If the university would like to use the runoff water to irrigate areas on the campus, particularly the athletic fields immediately adjacent to the low area, the pond could be designed to retain water to use for that purpose. If that is not the case, then the pond should be designed as a detention pond that is normally dry, but detains water temporarily during rainfall events to reduce impact on downstream areas.

The university should consider obtaining a storm drainage study that would provide the following information:

1. Storm water flows onto the campus from off-campus areas.
2. Magnitude of storm water flows on the campus and options for solving any existing problems.
3. Coordination with any storm water planning that has been done or is being done by the City.
4. Recommendations for how to handle additional development in terms of preventing additional drainage problems or mitigating any additional drainage caused by the additional development.
5. Recommendations on how to specifically prevent campus storm water flow from generating problems in the community downstream from the campus.

Irrigation System

As the grounds foreman requested, it might be possible to study a golf course type irrigation system where a pumping system could be installed on a pond designed to retain storm drainage water on the east end of the property. Information obtained from the Physical Plant indicates that the university expended nearly $25,000 for irrigation water so far this year on the campus. The average cost of the water used to irrigate was $2.26 per thousand gallons. In addition, the Physical Plant indicated that San Angelo had an abnormal amount of rain this year, which has caused them to turn off some systems for a while. Also the campus was subject to water rationing where irrigation could occur only once every two weeks. This indicates that the costs of irrigating the campus in a normal year would be substantially higher than in this current year.

Further study would require better contour information than what is currently available to determine how much water could be retained on the east side of the campus. Using this information, and matching potential water savings in areas that could most economically be irrigated with raw water, further study could estimate whether there would be enough water retained to provide significant irrigation and whether the avoided costs and conservation of treated city water is something that the university believes would justify the capital expenditure of any proposed irrigation system. It may be most practical for the athletic fields that are on the south and east of the campus.

Site Issues

In addition to issues specifically mentioned in the JM Waller work tasks from the Facility Programming and Consulting scope of work, the following issues are being presented for consideration as general observations for the Master Plan Development:

1. An important issue appears to be an option to minimize central campus vehicle traffic along with improving campus entrance identification. Although the buildings and grounds are attractive, the campus is not clearly identified at the many entrances along its perimeter and even the main roads bisecting the campus. Entrances from busy four lane streets should be minimized while encouraging entrance to the campus from less busy streets. It should be more obvious when one enters the campus grounds. This could be done through such mechanisms as developing standardized landscaped areas at entrances along with standard monuments and/or signage that would make clear that one is entering the campus. Creating a bench standard and installing, these benches in appropriate places around the campus would also be an improvement to the campus environment.
2. Adjacent property that is not currently owned by the university would contribute to campus unity and integrity and could be part of a long-term campus development and is presented as a consideration issue. The area between West Avenue N and Vanderventer (currently not campus property) is an excellent candidate for future acquisition by the university and should be a part of the campus. The area is not very attractive and acquisition of this area by the University would add additional area to handle any new facilities as well as clean up an existing eyesore.
    - This acquisition would further consolidate university property and eliminate the encroachment of commercial property influence in the university settings.
    - Additional property acquisition as part of a long-term plan would seem appropriate for the university. The university should consider acquisition of the area not currently owned and bounded by Johnson Street on the west, Dena Street on the north, Zenith Street on the south, and Varsity Drive on the east. These acquisitions would consolidate the campus areas now to the north and south of that area and "block out" the campus into a continuous block.
    - Acquisition of these properties would enhance the unity of the campus and ensure able space for development.

Other General Observations

The use of the student center for other than general student activities seems to hinder the center from offering some needed student services. It appears that the existing Student Center does not function as a student center, as is usually the case with most universities. It appears to be utilized more as a conference center. Developing this facility with additions or new facilities into a place for students to gather and use as their own facility might positively impact recruiting or retention.

Environmental Related Discussion

Environmental Related Facility Issues

All university facilities have current asbestos surveys. Since many of the facilities are pre-1978, numerous facilities have asbestos containing material present. Physical Plant Management is well aware of the asbestos presence and its locations. Work plans are carefully reviewed for all construction, modification, and refurbishment activities to ensure asbestos issues are properly addressed and all work will follow state regulatory guidelines for any disturbance or removal prior to any work. Lead is also present in many of the older facilities and work plans are reviewed to insure proper handling and disposal, if necessary. The presence of both lead and asbestos are important considerations for any future facility demolition. Physical Plant Management is aware of facility demolition regulatory requirements and proper landfill disposal considerations. Future demolition of university facilities should also consider the historical nature of the facility, since many of the facilities were constructed in the 1940's.

Air Quality

The city of San Angelo is in attainment status related to air quality. The university campus is in the center of the city and therefore is a related subset to the city air quality status. The university is nonindustrial in nature and has a very limited exposure to air pollutant generation. The campus central plant runs three boilers with natural gas provided by a local commercial gas utility. The boilers are backed up by fuel from a large underground storage tank of diesel

fuel (18,000 gal) for emergency operations or intermittent use. The diesel fuel is periodically burned off in order to recycle and maintain the fuel integrity. There is an emergency back up generator at the San Angelo Museum of Fine Arts, but these two power sources are the only known major sources of University infrastructure related to potential air pollution generation. The current University effect on local air quality is minimal. Electrical service to the university and its off campus locations is provided by a local commercial utility company and electrical power generation capability is not required by the university.

Water Quality

A local commercial water company provides water to the university. The university does have some limited water generation capability with low flow wells, but this water is presently limited to use for campus irrigation.

Waste/Hazardous Material

The university's solid waste requirements are handled through the use of a local solid waste management company. The university does not generate levels of hazardous materials/waste that would require regulatory management. Laboratory wastes are handled with full consideration and knowledge of regulation requirements. There is not a landfill on campus.

Storm Water Runoff

Due to recent regulatory changes, the U.S. Environmental Protection Agency (EPA) is emphasizing smaller cities storm water runoff issues. San Angelo is such a smaller city. With its urban campus, San Angelo State University is a subset of the city of San Angelo and university storm water runoff joins other city of San Angelo storm water runoff. The City of San Angelo storm water regulatory requirements could affect runoff generated from university property. Normally, a city of the size of San Angelo would be required to have a storm water permit exemption. Although storm water runoff regulatory requirements generally apply to "industrial" classified facilities, exemption for storm water permitting is proactive, in that the entity (in this case, the city of San Angelo) requiring exemption must apply for and be granted an exemption. The exemption would identify the nonindustrial nature of the affected facilities and the entity would usually be declared exempt. Although the City of San Angelo does not have a separate storm water runoff system, it may still be required to obtain storm water permit exemption due to the surface drainage which results from the existing roads, gutters and ditches. It is not required that the municipality have a separate municipal storm water/sewer system in order be required to obtain storm water permitting; a storm water system can include and be defined as roads with drainage systems, gutters and ditches. Although the current storm water runoff situation in San Angelo (and the university with its urban campus), may not have regulatory storm water issues at this point, it appears that future EPA emphasis is pointing towards a stronger regulatory environment for storm water management and control of storm water generated pollutant runoff. Federal EPA guidelines could consider parking lots with their vehicle related hydrocarbon residue buildup as a source of storm water pollution.

Miscellaneous items

Pest management on the main campus is handled by a contract with state licensed companies. There are no known issues associated with past pesticide or herbicide use. There are numerous mature trees on the main campus and consideration should be given to their preservation. A general university policy to evaluate trees in relation to future building sites and clearing should be developed as part of a site evaluation process for all proposed construction activity. General tree planting and replanting for trees that require removal (due to age or construction) should also be addressed in university policy. Overall, the university should consider development of a central university landscape plan. Such a plan could address the issues stated above, identify specific planting requirements tied to regional attributes, such as low water use plants, and could standardize and address campus replanting, plant types and landscape needs.

Technology Infrastructure Issues

Introduction

DataCom Design Group, Inc., was retained by Facility Programming and Consulting to provide technology infrastructure planning in support of the Angelo State University (ASU) campus master plan.

The purpose of this section is to furnish a description of the Technology Infrastructure and Equipment that is currently being used at the campus. This information will serve as a reference for the design team to evaluate design alternatives and estimate the costs for future facilities. This should be considered a working document. We encourage the design team to review and comment on this report. The final approved version will serve as a guideline for technical design and specifications.

General Description

Angelo State University sits on 268 acres in San Angelo, TX. Current student enrollment is just over 6,000 students. ASU has set a goal to expand it student population to 10,000 within 25 years. With this goal it is the desire of ASU to have 50% of the students living on campus. This growth creates a greater demand on technology systems and support. This document will address current conditions of the information technology infrastructure, including pathways, cabling capacities, and where deficiencies might exist that would hinder growth of the campus. This document will describe these conditions for information Technology, Audio Visual, CATV and Security systems.

Technology Types

The ASU campus is served by an IT department consisting of 70 full and part time staff members. The department is centrally located on the campus in the Rassman Building.

Voice Communications

ASU currently has no centralized voice communications system. Each building is served with separate key system telephone switches that are provided and maintained by Verizon. The copper cabling for these systems is also owned, installed and maintained by Verizon in a separate duct bank that runs parallel to the duct bank and tunnel system owned by ASU.

This configuration makes it difficult for ASU to have ownership of their voice communications, and creates timing delays for moves adds and changes. ASU currently has plans to migrate to a network-based voice over IP system. This system will run over the existing network.

Data Communications

ASU uses a collapsed backbone running on a mixture of single mode and multimode fiber optic cable. Cabling is run out of the data center in the Rassman building through six four inch conduits to the utility tunnel, and from there travels to each building served via a system of conduits and maintenance holes. This network is very limited in its redundancy and self-healing capabilities.

ASU is using 'ST' Type connectors on all of their fiber. The current fiber optic backbone is sufficient for all current IP based systems and those currently planned for addition.

The tunnel/conduit system is sufficient for the growth of the central part of the main campus. Any growth to the east or west ends of the campus would require additional conduit systems to be installed. This includes areas considered prime for new student housing and other non-E&G spaces.

Audio Visual

All classroom and conference room AV systems are stand alone systems. ASU has no plans for centralized control and distribution of these systems.

ASU has a radio station that uses streaming technology to distribute radio broadcasts to computers attached to the ASU network. While this technology uses high segments of available bandwidth, it has no current impact on the integrity of the campus network.

CATV

ASU does not distribute CATV signals from a main campus head-end. All building CATV connections are owned, installed and maintained by Cox Cable. These cables are run in conduit pathways shared with Verizon.

ASU has a local Television station that produces a raw feed that it sends to Cox Cable. Cox Cable modulates the feed onto its network for broadcast to the San Angelo community. ASU has no plans to discontinue this service, as it currently exists. There was some discussion of adding this service in the future to streaming video over the campus network.

Security

ASU has no centralized monitoring or control of security systems on the campus. There are roughly ninety IP based cameras deployed on the campus. These cameras are not monitored. Cameras are recorded onto a server housed in the IT department in the Rassman Building. Recordings are retrieved when needed as part of any investigation. Future expansion of this system will include complete campus coverage with cameras and centralized monitoring by campus police.

ASU uses a Diebold system for card access to critical secure areas such as laboratories. Use of this system is very limited. The system uses IP based control points and is maintained by the IT department. Future plans call for a more wide usage of this system and monitoring.

Technology in Education

Education departments at ASU use internet technology for communication and research purposes. Some departments are beginning to use the internet to provide online classes. This is a growing trend among universities across the country. As more ASU departments add online courses, the demand for bandwidth and server space will increase. This increase will in turn produce a greater demand for support staff to create and maintain the web based content. Increased content demands will in turn lead to increased space demands and further demands on staff to support them.

Conclusion

ASU has all the resources needed to meet the demands of the systems as presently constituted. ASU's plan for IT services is to migrate to IP based systems using the existing campus fiber backbone. This plan includes the growth of voice, data, AV, CATV, and security services. As plans to support this migration begin to emerge; care should be taken to monitor the campus backbone bandwidth allocations and usage. This will insure that there will be no degradation in the level of services already provided to any of these systems.

ASU is using an eight-inch ladder rack for a pathway in the utility tunnel. This ladder rack is for the most part filled to its capacity. It is recommended that this ladder rack be replaced with a full cable tray with a minimum size of twenty four inches. This will allow for all the growth needed for this pathway. Conduits from the Rassman building to the utility tunnel are available and will be sufficient if fill is properly managed. Currently there is no use of innerduct in these conduits. This makes it difficult to add cables to existing conduits. Any expansion to the east or west ends of the campus will require expansion of existing duct bank systems.

ANGELO STATE UNIVERSITY
A MEMBER OF THE TEXAS STATE UNIVERSITY SYSTEM

CENTENNIAL MASTER PLAN 2028

FACILITY PROGRAMMING AND CONSULTING
FORD, POWELL & CARSON