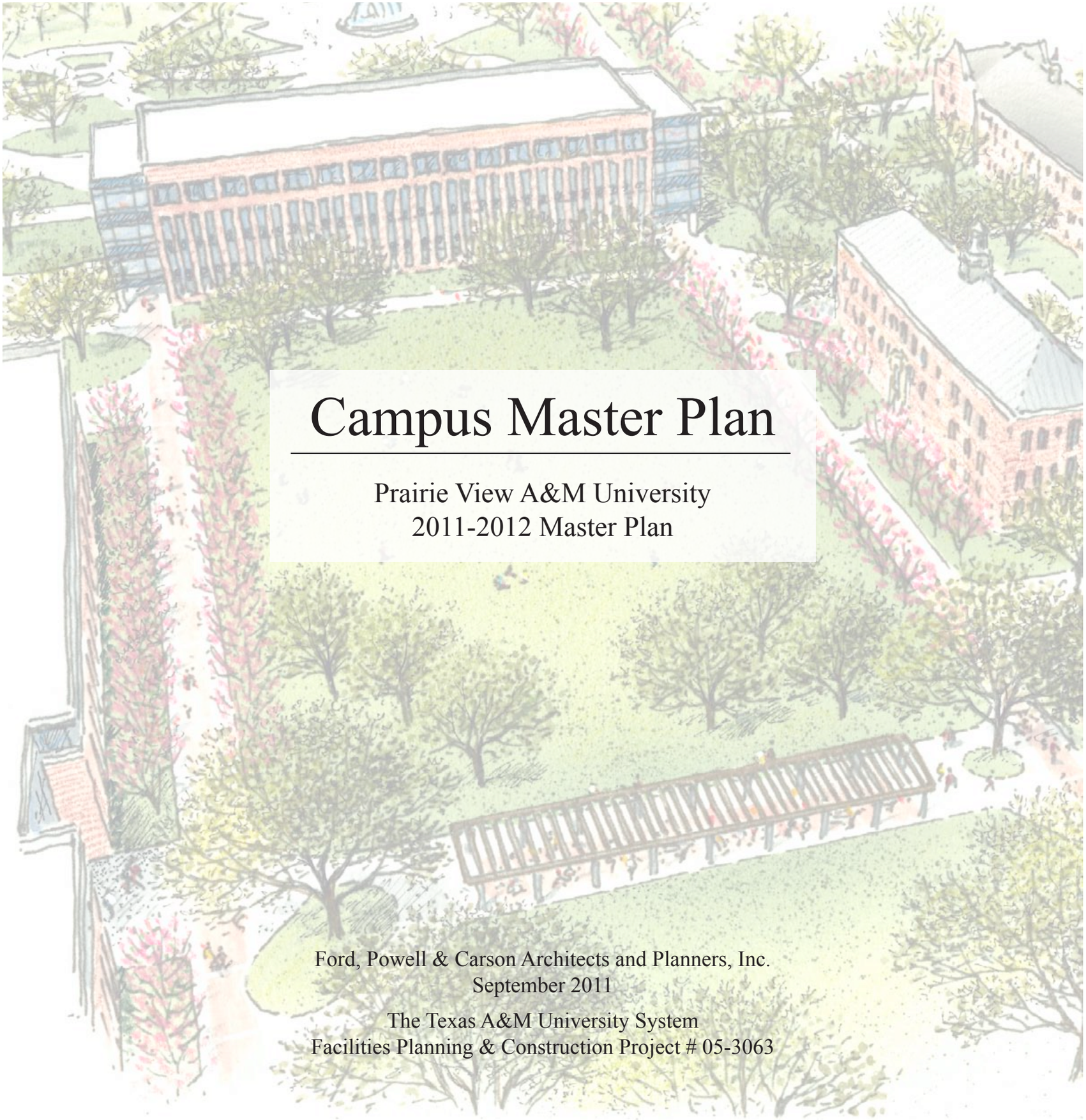

Campus Master Plan

Prairie View A&M University
2011-2012 Master Plan

Ford, Powell & Carson Architects and Planners, Inc.
September 2011

The Texas A&M University System
Facilities Planning & Construction Project # 05-3063

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1. Physical Master Plan

Introduction

Prairie View A&M University (PVAMU) is a university with a long and proud history. As an institution of the first class, it offers higher education to students from all over the Gulf Coast of Texas and the world, regardless of their background. Over its roughly 135 years in existence, the school has grown from eight students to over eight thousand and has evolved from a school focusing on agricultural programs to an institution offering highly regarded programs in a wide variety of disciplines.

The master plan focuses on creating a framework which will unify the campus in its physical form; a unity which will reflect the well-deserved pride in PVAMU. The physical planning portion of this master plan primarily focuses on the main campus. However, the university also operates satellite campus locations, and space implications as well as the connections of the main campus to these satellites and to the community will also be an essential aspect of this master plan.

This master plan has been developed in two phases. Phase I, Appendix A in this document, analyzes the existing conditions of the campus at PVAMU. The understanding gained through this analysis provides the background needed for the master plan itself. Phase 2, which this document represents, is the master plan itself. It consists of the physical master plan and the design guidelines which will serve as the framework for future development.

Master Plan Goals

As the process of master planning began, the committee along with the design team, developed a series of goals for the master plan.

ACCOMMODATE THE BUILDING PROGRAM

Plan facilities for 12,000 students

The goal for campus growth, as identified by the Texas Closing the Gaps initiative and PVAMU leadership, is to grow to 12,000 students. One of the most important facets of any campus master plan is to create a roadmap for growth for the university as it expands toward its growth targets.

Accommodate growth in campus housing

As more students come to campus, more housing will be needed in order to maintain the current percentage of students in on-campus housing. This is a particularly critical issue at a residential, rural campus like PVAMU's.

STRENGTHEN THE CAMPUS IDENTITY

Honor the history of the university

The history of PVAMU is notable and extensive in ways unlike any other Texas university, and that history is valued by those now at the university as well as generations of alumni. The campus should reflect and enhance that depth of history.

Create great outdoor spaces which draw people

The campus currently lacks outdoor spaces which students and others can use for informal gatherings or for studying. New spaces should be identified which draw people to them; well-used outdoor spaces create a sense of life and activity on campus.

Focus the campus core

The heart of the campus is a series of outdoor spaces to the west of the library. These spaces, however, are not focused, and they lack the vitality which they should have. Refocusing and strengthening the spaces will enhance the identity of the campus.

IMPROVE VEHICULAR/PEDESTRIAN INTERFACES

Implement more useful and safe pedestrian circulation

Both now and as the university grows, good pedestrian walkways are critical to making the campus a walkable, enjoyable place. Strong pedestrian corridors, with shade, seating, and other amenities, must be implemented.

Simplify vehicular circulation patterns

Campus roadways are convoluted, with a number of 90-degree turns, stops, and other complications. The circulation should be simpler in order to ease vehicular circulation as well as to make the pedestrian environment safer.

Implement standardized exterior signage

As the student body continues to grow, it will be necessary to implement improved standardized exterior signage that will promote a safe campus environment for vehicles and pedestrians.

Locate parking sufficiently and appropriately

As the campus grows, so will parking needs. As much as possible, future parking should be located in areas of greatest need.

INCORPORATE PUBLIC ART AND CRAFT

Incorporating art and craft into buildings, outdoor spaces, and other areas will enhance the beauty and vitality of campus. Possibilities for art and craft include murals, freestanding sculpture, decorative sconces, fountains, and light sculpture.

History and Culture

One of PVAMU's best assets, and one of its greatest strengths, is its long history. It is a point of connection for current students and faculty, alumni, and others in the state at large who are familiar with its mission and place in history. While promises of flagship treatment have not consistently been met, PVAMU truly is a flagship for Texas in that it will always have a unique cultural and historical role in the state.

That history has helped engender a deep and unique culture at the university which extends beyond mere school spirit. Unlike many other universities, being a part of PVAMU means something beyond just the touch of affiliation. Generations, standards, and appearances change, but connections to PVAMU grow deep roots.

Through a variety of causes – extensive demolition and lack of consistent investment among them – the historical core of PVAMU has been altered, and the principles of how the campus was organized at various points in its past are no longer clear. A truly successful master plan at PVAMU must recognize this, and therefore this plan acknowledges that its organizational principles are significantly derived from a study of the campus as it was. Spaces have been created and re-formed with new buildings in order to re-establish traditional relationships between building and landscape.

HISTORY

PVAMU is the second oldest institution of higher education in the state of Texas. The school was established as Alta Vista Agricultural and Mechanical College of Texas for Colored Youth on August 14, 1876. The institution was overseen by the Texas A&M Board of Directors, and a principal teacher was appointed to administer affairs at Alta Vista.

The Sixteenth Texas Legislature issued a charter for Prairie View Normal Institute for the training of teachers in 1879, in part as a solution to ongoing funding issues at Alta Vista, and later attached the agricultural and mechanical programs of Alta Vista to the Prairie View Normal Institute. Extensions to the federal Morrill acts of 1862 and 1890 established the school as a land grant college (by award of cash, rather than land). In 1945, the school was authorized to offer the same courses as the University of Texas, and in 1947, the same courses as at Texas A&M. PVAMU received its current name and status as an independent unit in the Texas A&M University System in 1973.

In the past several decades, constitutional amendments and state laws have been enacted to increase funding at PVAMU, which has historically lagged behind other state institutions. A constitutional amendment was passed in 1984 which restructured the Permanent University Fund to include PVAMU, and which also declared PVAMU to be enhanced as an "institution of the first class." In 2000, the state governor signed an agreement with the U.S. Department of Education's Office of Civil Rights which mandated the creation of new education programs and facilities in order to make PVAMU an education asset accessible to all Texans.

The rich history and culture of PVAMU also includes the legacies of our unsung heroes and heroines who died and were buried on the grounds of the PVAMU campus. The remains of former slaves, World War I and II veterans as well as numerous sharecroppers, field workers, farmers, domestic cooks, and washwomen lived to serve the people and families of Waller County. In 1982, concerned university administrators and professors organized a research campaign to preserve the sacred legacies of those buried on the campus grounds. In 1992, the University was able to register the location with the State of Texas as an official historical marker to acknowledge the Wyatt Chapel Slave Cemetery to celebrate the lives of many unmarked gravesites. In 1999, the 76th Texas House Legislature created House Bill No. 889 to establish the Texas Institute for the Preservation of History and Culture to be housed on the campus of Prairie View A&M University. Hence, more research and preservation is needed to fully memorialize this important site.

Figure 1.1:
Aerial of PVAMU in 1952

Figure 1.2:
Aerial of PVAMU in 1989

BUILDING LIST

Existing

Alvin I. Thomas Building 501
G. R. Woolfolk Political Science Building ... 503
Gilchrist / C. L. Wilson Eng. Buildings 504, 704
Thomas E. Gray Center 506
W. R. Banks Building 508
H. T. Jones Elementary School 515
A. N. Poindexter Veterinary Hospital 517
Transportation Center 523
Fry-Thomas Power Plant 529
Hilliard Hall - Communication Building 537
Anderson Hall 541
Evans Hall 544
May Building - Home Economics 658
M. T. Harrington Science Building 668
William J. Billy Nicks Building 669
Physical Plant Administration Building 674
Henrietta Farrell Hall 687
Owens-Franklin Health Clinic 688
Hobart Thomas Taylor Sr. Hall 689
Central Receiving / Police Station 727
Sewage Plant Control Building 734
Johnson-Phillip All Faiths Chapel 741
Wilhelmina Delco Building 742
S. R. Collins Engineering Tech. Building 743
John B. Coleman Library 744
Jesse H. and Mary Gibbs Jones Building ... 745
Leroy G. Moore Jr. Gym 758
Waller-Carden Cooperative Extension 761
University Village Phase 1 776
University Village Phase 2 777
University Village North Phase 3 778
W. A. Tempton Sr. Memorial Student Ctr ... 779
University College 782
Nathelyne Archer Kennedy Architecture Building 783
Don K. Clark Juvenile Justice and Psychology Building 789
E. E. O'Banion Science Building 790
Electrical Engineering Building 793
Nursing Building 833
Northwest Houston Center 845

Prairie View Memorial Park Cemetery ..... CEM

Master Plan

Academic Building 1 ..... A
Academic Building 2 ..... B
Academic Building 3 C
Academic Building 4 ..... D
Housing 1 ..... E
Food Service / Laundry Facility ..... F
Housing 2 ..... G
Housing 3 ..... H
Central Receiving Addition I
Childcare ..... J
Retail ..... K
Football Stadium L
Athletic Department Facility ..... M
Soccer and Track Stadium ..... N
Softball Stadium ..... O
Field House ..... P
Batting Cages ..... Q
Baseball Stadium ..... R
Nicks Addition - Volleyball and Basketball Practice ..... S
Nicks Addition - Recreation Center ..... T
Leroy G. Moore Jr. Gym Expansion ..... U
Ropes Course V

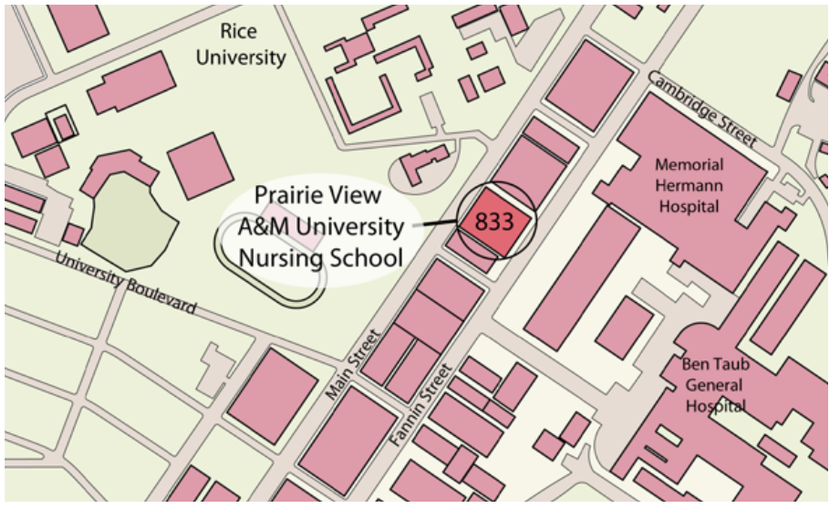


Figure 1.3: Nursing Building Plan

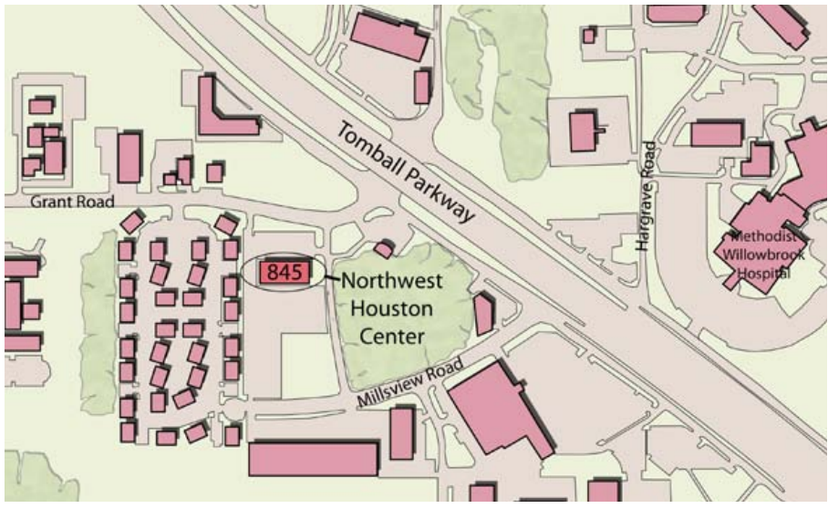


Figure 1.4: Northwest Houston Center Plan

Figure 1.5: Campus Master Plan

Campus Spaces

PVAMU's campus is a beautiful semi-pastoral setting. Its mature trees are majestic, and the way that campus walks thread amongst them establishes a clear and memorable campus identity. However, there are few outdoor spaces that have the kind of singular strength with which people can identify. The campus is a series of areas to walk through, rather than a coherent series of places to be, connected by those walks.

Creating great campus outdoor spaces has a two-fold purpose: first, to create historical references as outlined in the section on history and culture; and second, to enhance campus life through a sense of activity and life. Great spaces are not just a matter of beauty; they are specifically meant to relate to how people use – or should use – the campus.

MAJOR SPACES

The area around the fountain should be the heart of campus, but as noted in one of the student input sessions, it does not have a heart of its own. It is not clearly defined, is dominated by rather haphazard Greek organization displays, and has few protected places to sit. The space leaks out around the edges – it is large, not bordered closely by buildings, is cluttered by a haphazard layout of planting beds, and generally does not have any sense of being a special place other than the emphasis given to it by the fountain and statue.

The master plan proposes to rectify those deficits through strategically placing buildings to clarify and define the edges of the space, by reconstructing portions of the space itself to include more appropriate seating areas and simplified organization at the ground plane, and by instituting voluntary standards for student organization displays.

The same proposed building that helps to define the area around the fountain along with other proposed buildings define another major space. There are several other major spaces developed in the master plan and shown on the diagram to the right. While these don't have the historical importance of the area around the fountain, they are still critical in creating a series of places linking highly used areas of the campus.

SECONDARY SPACES

While PVAMU's identity should reside in its central space, it is no less important for secondary spaces to enhance campus life by giving people places to gather. Everything from recruiting, to student retention, to safety, to the basic standard of life of everyone who lives and works on campus, can be enhanced by places to gather. The master plan identifies a series of these less formal spaces on the diagram to the right.

Spaces like these make for a more lively campus, and they make walking across the campus a more enjoyable activity.

BUILT SPACES

Also shown on the diagram to the right are potential locations for smaller built spaces, most of which are located adjacent to new and existing buildings, which should be implemented as funds allow. These can be small structures, like trellises or seating areas that will help to define edges of paths or larger spaces. Areas such as these will provide the student body with protected outdoor spaces to sit and study, meet with friends or simply wait for classes within the tree covered landscape that is such a part of the campus identity.

- *Purposes of outdoor spaces:*
  - *To enhance campus life through a sense of activity and life*
  - *To link highly utilized areas of campus*
  - *To create historical references to spaces which formerly were part of campus*

- *Major spaces are reconstructed by strategically placing buildings*

- *Well-defined secondary spaces will help make a more lively campus*

- *Built spaces will help define edges of paths or larger spaces and provide gathering areas for students*

Figure 1.6: Existing and Proposed Campus Spaces

Building Sites: Academic

Four primary building sites have been identified for the next ten years. As described in the section on campus spaces, new buildings have been located to shape the spaces around them. They are located generally west of the central campus green area.

The first site to be built upon will be the site immediately west of Hilliard Hall. When funding can be identified, PVAMU will construct a 73,000 gross square foot facility, which will house business and agriculture classrooms, as well as agriculture-specific laboratories which will require loading docks. The site's northern end fronts on Anne Preston Street, which will be primarily a service corridor. Service access for the agriculture laboratories will be located here. The southern end will have more public spaces and will be located along the green area south of the Don K. Clark Juvenile Justice and Psychology Building. In conjunction with this building project, the university will need to complete several other projects. These include the renovation of Hobart Taylor Hall to house the Army and Navy ROTC programs once the business school relocates to the new building, a covered assembly area for the ROTC programs near Hobart Taylor Hall, and the demolition of E.B. Evans Animal Industries Building, Burleson Ware Hall and the D.L. Brewer Naval ROTC Building.

The second building site, and the linchpin to the redevelopment of the campus internal green areas, is the site south of Hilliard Hall. No other building site is more critical to redefining the lost edges of campus green areas than this one – it creates a much-needed boundary between the two major campus open areas, and it reinforces several of the strongest pedestrian axes as well.

- *There are multiple reasons to locate new academic buildings near the center of campus*
  - *To shape spaces*
  - *To connect centers of student population*
  - *To return a sense of campus back to the campus core*

- *The first building site will be immediately west of Hilliard Hall*

- *The second, and most critical site, will be south of Hilliard Hall and will create a boundary between the two largest campus green spaces*

- *Two additional building sites have been identified, though the program requires only one site in the next 10-year interval*

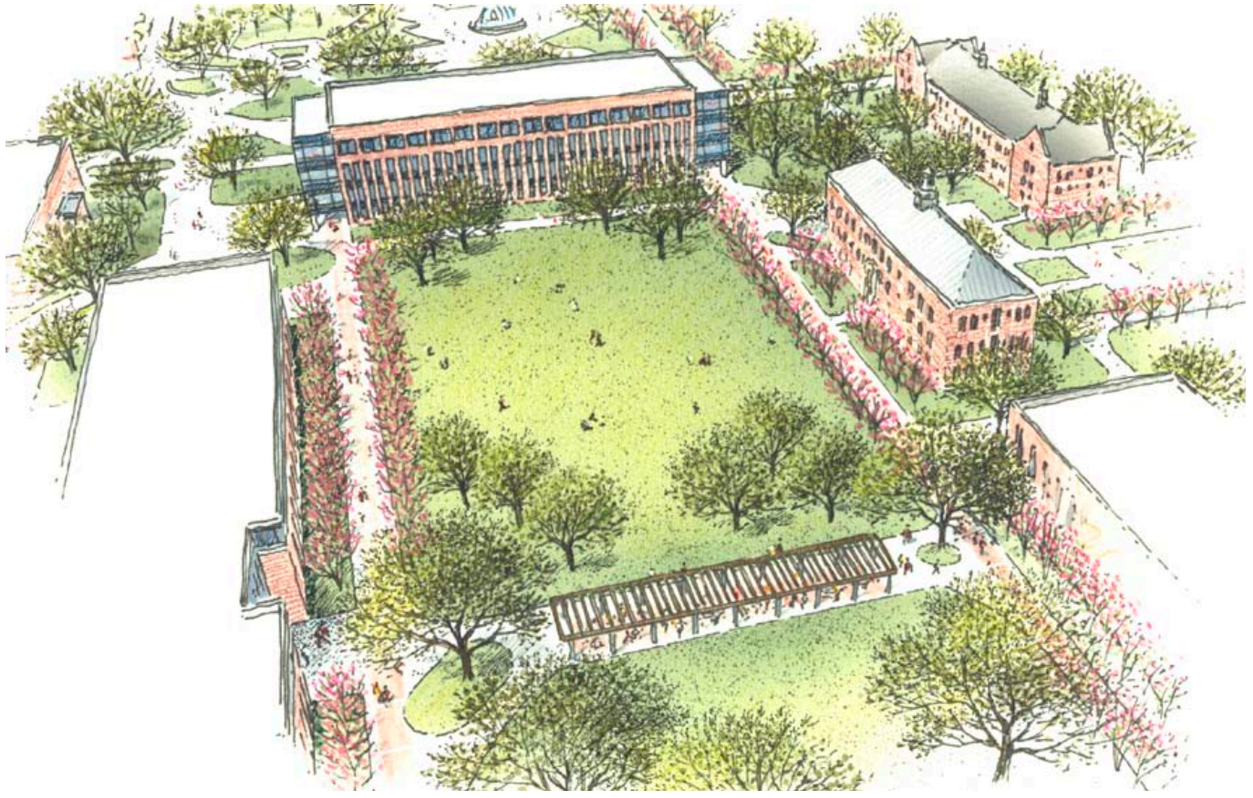


Figure 1.7:
Aerial view of building sites 2, 3, and 4

A second consideration for this site is that it also bridges the open area between three of the campus buildings listed on the National Register: Hilliard Hall, Evans Hall, and Anderson Hall. Because the four buildings are in such close proximity (Hilliard Hall and the new building will face one another across a plaza), the designer of this building should ensure that a relationship is developed between the four buildings. However, the architectural guidelines later in this document as well as the requirements of the site itself should be primary determinants of building design.

Two additional building sites have been identified in this plan. Building programs, site concerns and other factors will determine the order in which these sites are developed. They are just south of the first building site and to the east of the park area. Both sites help to define major paths and spaces.

Geotechnical studies of the sites must be performed on any proposed building site prior to design. The campus has expansive soils, and groundwater may be present in multiple locations, so geotechnical information and proper foundation and drainage design are particularly critical here. The sites immediately west and north of the central campus green area, in particular, should be studied carefully. They are close to the location of the former Alumni Center, which was demolished in part because of groundwater issues.

Figure 1.8: Building Sites

Building Sites: Housing and Other

In order to provide a maximum amount of flexibility for future campus housing, several different sites have been identified which can be used for developments of different types as warranted.

The likely first housing site is southeast of the Nathelyne Archer Kennedy Architecture Building. This site is optimal for upper-division, graduate, or married-student housing because of its distance from the more lively undergraduate campus housing and easy access off campus.

Another site is shown west of the Wilhelmina R.F. Delco Building and the Don K. Clark Juvenile Justice and Psychology Building. This western site can be used for a number of different types of housing, from additional lower-division housing to an honors-specific hall, and will house about 300 beds. Its location just to the west of the campus academic areas will help to generate more activity on campus at night and on weekends, and it is close to the Memorial Student Center and athletics facilities.

The master plan calls for the demolition of E.B. Evans, and when the new multipurpose classroom and laboratory building is constructed, ROTC functions can be moved to Hobart Taylor Hall. That will allow the demolition of the D.L. Brewer Naval ROTC Building and Burleson Ware Hall and subsequent construction of 500 beds north of University College, which, like the western site, can be used for a variety of different housing types.

PVAMU resides in a rural and isolated setting where limited retail opportunities exist for students, employees, and visitors. In order for PVAMU to be prosperous it must invest energy and capital into the economic development of Waller County and the City of Prairie View. The PV Retail Park will help to create main street businesses that offer attractions and amenities for students, employees, community members and visitors. There will be a significant effort to market the park both internally and externally. The growth potential for small start-up businesses include brand concepts, restaurants, clothing shops, bowling and billiards, design shops, skating, a laundry facility, beauty shops, and more. PVAMU's goal is to enhance growth and build prosperity in the region through entrepreneurship, innovation and community engagement.

A site for retail footage has been identified south of the upper division/graduate/married student housing site. The site has been located to allow for easy access for off-campus visitors and can be secured and controlled separately from the rest of campus.

The PVAMU National Alumni Association and the Prairie View A&M Foundation may have on-campus locations in the future. Sites for those facilities will be determined at a later date; criteria for sites should be developed by the PVAMU administration in consultation with those groups and other stakeholders.

- *Use housing to help form spaces within the campus core*
- *Expand the University College concept: 500 beds*
- *Lower-division and honors specific housing: 300 beds*
- *Upper-division/graduate and married student housing: 300 beds*

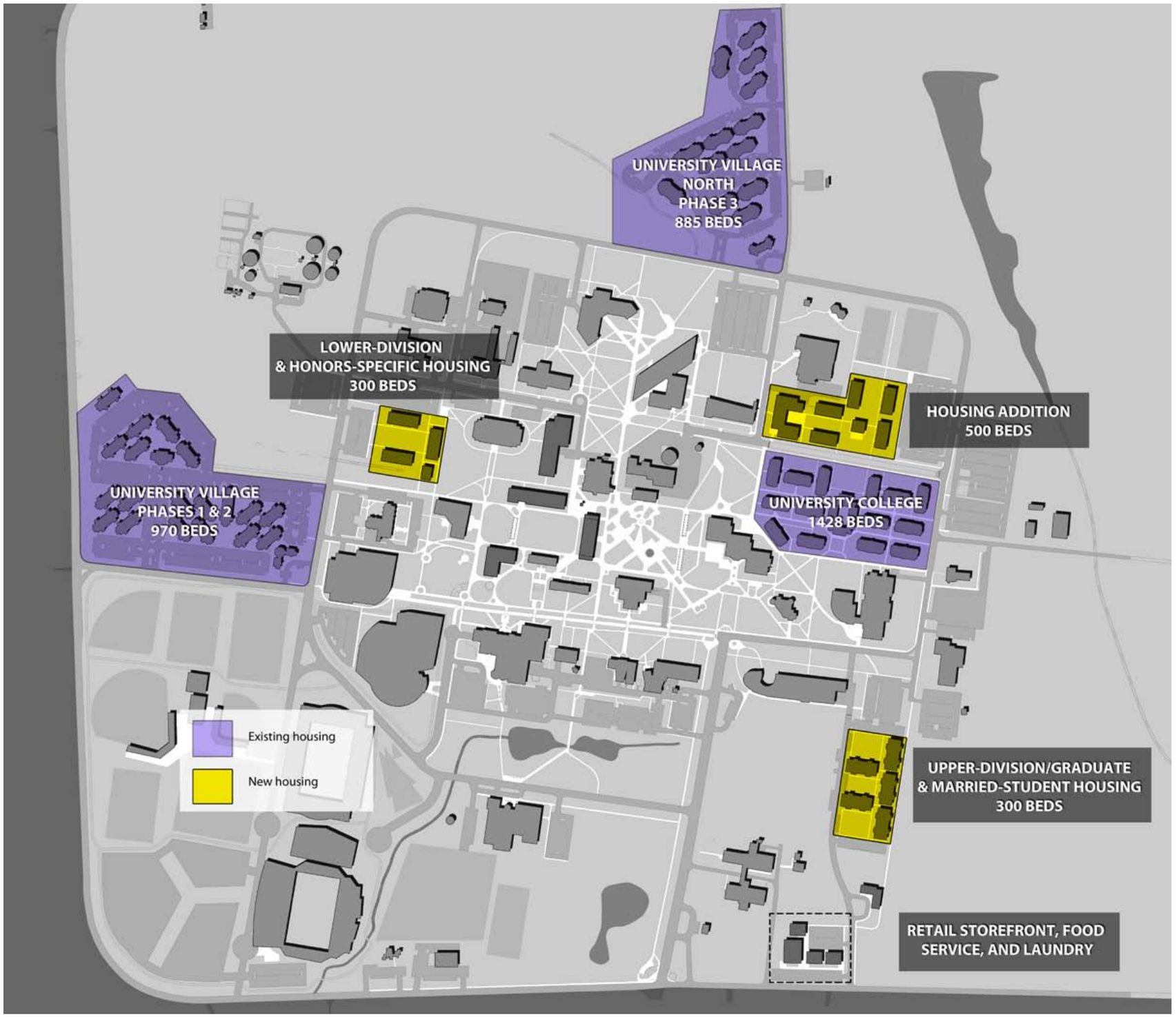


Figure 1.9: Housing Locations

Pedestrian Walkways

The overall pedestrian network should be conceived of a series of nodes – the gathering places addressed on previous pages – connected by pedestrian walks which also connect to the main points of traffic generation (campus housing) and destinations (the MSC, various classroom buildings, the library, and others). The walks are not destinations in and of themselves; they are the infrastructure which ties the campus together. The major pathways should not only connect students and faculty to buildings and spaces, but also to each other and the history of the place.

Architectural guidelines later in this document define how different types of walks should be designed. Existing walks should be redeveloped as funding allows.

A hierarchy of paths can be seen in the accompanying diagram. Not all walks should be designed in the same way; primary paths should receive emphasis via lighting, planting, and paving, as well as incorporation of amenities like benches, trash receptacles, and other landscape-oriented features.

- *Considerations for a major pedestrian walkway:*
  - *Provides connections to major points of traffic generation (campus housing)*
  - *Provides connections to major destinations*
  - *Provides connections between major spaces (as defined in previous pages)*
  - *Provides connections with the history/culture of the university*

Figure 1.10: Pedestrian Walkway

Figure 1.11: Existing and Proposed Pedestrian Walkways

Multi-use Paths

In addition to campus walkways, PVAMU will also have a network of multi-use paths for recreation – runners, walkers, and bicyclists. Paths have been located to take advantage of the natural areas in and around campus while staying close to trafficked areas for safety. A loop will run all the way around the campus, while other paths will be located in specific areas of campus such as the athletics/recreation area and near the future pond.

Paths will be constructed of various materials depending on funding and appropriateness. Colored concrete, decomposed granite, and even mulch in wooded areas are all acceptable materials for walking paths; paths intended for both pedestrians and bicyclists should be constructed of concrete. Asphalt typically should not be used because of its tendency to crack in changing moisture conditions.

The American Association of State Highway Transportation Officials (AASHTO) has developed guidelines for pathway construction which should be used for campus paths. Generally, they require paths to be at least eight feet wide, and preferably ten feet wide, if the paths will be used by both pedestrians and bicyclists. The curvature of the path is governed by the expected speed which bicyclists will travel, and path surfaces should be selected according to intended usage.

Lighting may be installed at some paths, depending on location and expected usage. Where lighting is installed, minimum light levels should be chosen to create safe conditions.

Emergency call stations should be installed along the paths. PVAMU's standard is for hardwired stations (both data and power) for reliability; cellular and solar data and power should not be used.

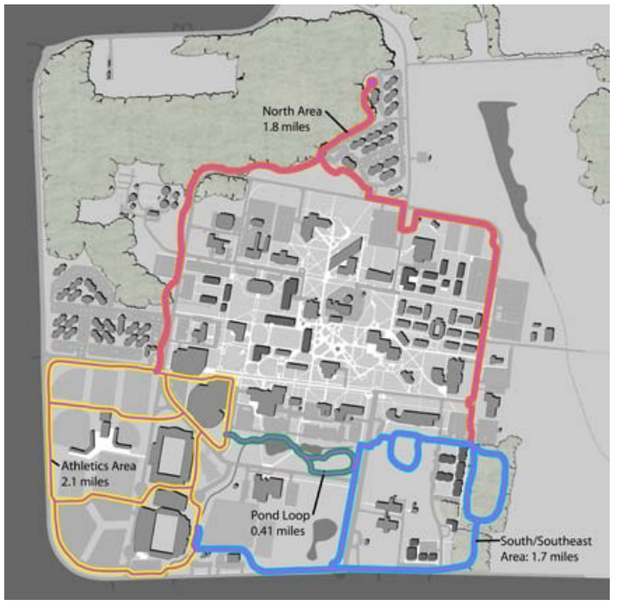


Figure 1.12: Multi-use Paths Mileage

Figure 1.13: Campus Loop Mileage

Mileages

Athletics area:	*2.1 miles*
Pond loop:	*0.41 miles*
South/southeast area:	*1.7 miles*
North area:	*1.8 miles*
Total mileage:	*6.0 miles*
Campus loop:	*3.2 miles*

Figure 1.14: Proposed Campus Multi-use Paths

Roadways and Parking

ROADS

As PVAMU's campus developed outward, the relatively simple campus roadway system became more complicated. Some sections of roadway were added to connect to new land, and other sections were closed to limit access to what became pedestrian-centric areas. Over the years, this has resulted in a perimeter roadway ring which has a number of 90-degree turns, short straight sections, and a number of uncontrolled pedestrian crossings.

The master plan reworks the roadway network to simplify and formalize the basic outer ring strategy. In conjunction with the recommendations in the section about pedestrian walkways, connections across the ring road will be strengthened to emphasize pedestrian traffic over vehicular traffic.

Service and fire access to the campus core will remain necessary. The roads which are or will be closed to public vehicular traffic (as indicated on the accompanying diagram) will remain capable of handling emergency vehicles and delivery trucks, but they need not remain asphalt to do so – earth stabilization products which allow for grass to be grown while still supporting vehicles the weight of a fire truck are widely used to re-vegetate previously paved areas. This technique can also be used in areas which are currently unpaved in order to significantly improve service and emergency access to the center of campus.

PARKING

As at many university campuses, PVAMU's primary issue with parking is not overall capacity, but placement. Good parking management strategies – restricting on-campus residents to resident-only lots and concentrating commuter parking in several areas, served by shuttles – are already in place. The master plan response to parking issues focuses on providing strategically placed additional parking and utilizing the banks of parking called for by the athletics master plan to provide overall parking capacity.

Existing Parking Counts
- *Residential: 1,819*
- *Open and Controlled: 2,815*

Existing Parking Ratios
- *Residential: .55 spaces per bed*
- *General: .52 spaces per student (excluding on-campus residents)*

Master Plan Parking Counts
- *Residential: 2,400*
- *Open and Controlled: 3,400*

Master Plan Parking Ratios
- *Residential: .55 spaces per bed*
- *General: .45 spaces per student (excluding on-campus residents)*

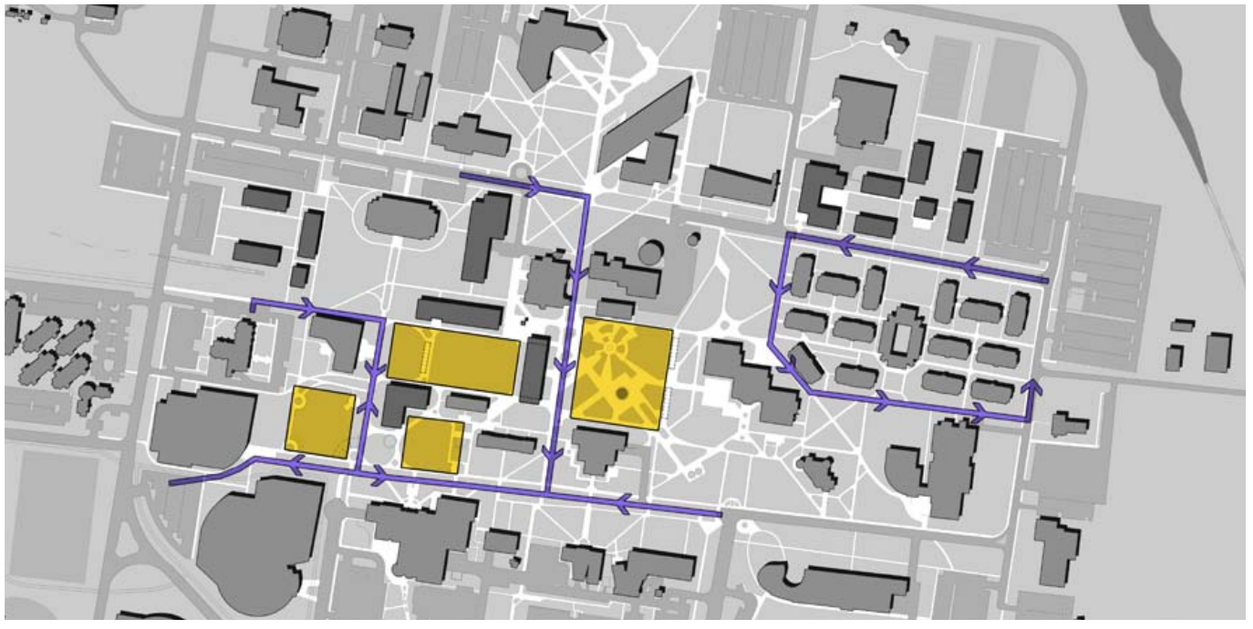


Figure 1.15:
Emergency Service Routes to Campus Spaces

Figure 1.16: Roadways and Parking

Campus Art

Art within the campus has the ability to enhance the university. As well as the added beauty art can bring to the campus filled with natural beauty, it can bring a life and vitality to campus life. Objects of art often become the center of traditions within the university thus helping to enrich the culture of the university. The artwork can help to link the heritage of the past with the present university.

PVAMU has several instances of public art on campus located in places that work well within the framework of the master plan. In addition, a location has already been set for a panther statue in front of the Memorial Student Center; that location is included on this plan as well.

Although a public art master plan is not a part of this document, several locations have been identified for future installations. The system of visual and pedestrian axes established in this master plan can be greatly enhanced by locating artwork appropriately. The diagram depicts several locations which are particularly good for public art installations.

Figure 1.17: Existing Fountain

Figure 1.18: Existing Memorial Statue

Figure 1.19: Existing Sculpture

Campus art should:

- *Enhance the beauty of campus*
- *Promote vitality of the campus – many traditions form around these aspects of a campus*
- *Express and connect to the heritage of the university*

Figure 1.20: Art Locations

Landscape

From a landscape perspective, one of the most distinctive characteristics of the campus is the image of stately buildings on a hilltop, situated in a dense canopy of trees surrounded by open pastoral grasslands. The contrast between the core of the campus and the surrounding environment is striking and should be preserved.

Arrival onto the campus is an experience of passing through a larger-scaled natural landscape to an environment that is pedestrian-scaled. This is most apparent where there are groves of mature shade trees.

The landscape structure of spaces, walks, streets and courtyards should complement and reinforce the spatial intentions of the architecture. As new buildings begin to define spaces and re-establish order to the campus core, so too should landscaping. Landscaping cannot be underestimated as it brings aesthetics and functionality to the campus through consistency in site design.

Landscape guidelines later in this document define how landscape in different areas of the campus should be treated. The guidelines also recommend the use of appropriate native plants that achieve the proper aesthetic effect as well as being appropriate to the climate and context of the campus. Avoidance of invasive and/or high maintenance plant materials is emphasized.

Landscape Goals:

- *Preserve character of existing zones: campus core, fields and woods*
- *Preserve mature existing canopy trees, particularly at core*
- *Add canopy trees to reinforce spaces created by new buildings*
- *Use trees to emphasize major pedestrian walkways*
- *Emphasize usable spaces for enhanced student activity and life*
- *Implement sustainable landscapes that are regionally appropriate, drought tolerant and low maintenance*
- *The connection between the campus and the surrounding regional landscape should be reinforced*
- *Follow security principles for defensible space (CPTED)*

Figure 1.21: Stormwater Retention Area

Figure 1.22: A major space including informally arranged groupings of large canopy trees, open lawn and accent plantings.

Figure 1.23: Primary walks with continuous rows of shade trees of a single species.

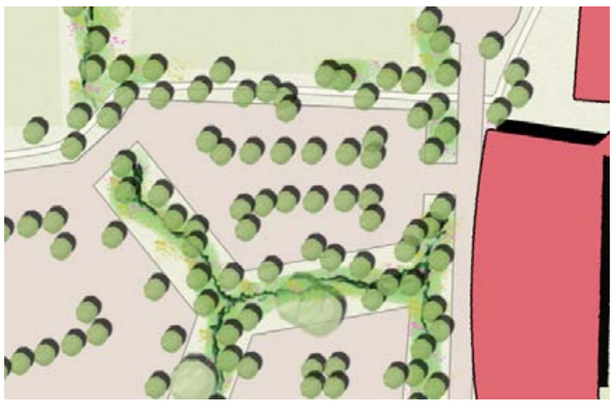


Figure 1.24: Bio-swales at a major parking area to slow down, capture and cleanse runoff to surrounding creeks.

Figure 1.25: Aggressive tree planting at the Recreation Fields is recommended to break down the area into defined spaces, provide shade and buffer the area from the rest of campus.

Figure 1.26: The existing drainage channel widened to become a stormwater retention pond to reduce irrigation demands while providing an attractive amenity to the campus.

Classrooms

Utilization studies performed as part of the existing conditions analysis identified two main opportunities to improve utilization, one for classrooms and one for laboratories, while also allowing for reduced operational expenses by combining usages in both cases.

The first opportunity is to combine class sections into larger classes, where appropriate, in order to address the lower utilization of large classrooms on campus. Combining small sections into larger ones reduces the pressure on classrooms in the 28-40 person range and also increases utilization of larger classrooms. Other institutional efficiencies can also be gained by this strategy – fewer instructional resources are required, and the incremental costs of supporting additional classrooms with technology, maintenance, and other basic needs are lower.

The chart in Figure 1.27 shows an analysis of classroom size versus a composite of section size times number of sections. The red portion of the graph indicates that more sections are scheduled in these classroom sizes than the 38 periods per week goal of the Texas Higher Education Coordinating Board (THECB. The green portion represents under-scheduling. The proposed resolution is to combine smaller sections into larger sections, which would even out both situations and improve utilization of campus resources.

In addition to better utilization of existing capacity, PVAMU will also benefit from the ability to bring space in the Northwest Houston Center online to absorb demands for space as the university grows. Projections of future facilities on the main campus include the usage of space at the Northwest Houston Center as a primary means of accommodating inital growth.

- *Increase overall classroom utilization by combining smaller sections*
- *Combined sections make better use of existing campus classrooms*
- *By reducing the number of sections, requirements for other supporting resources are reduced*

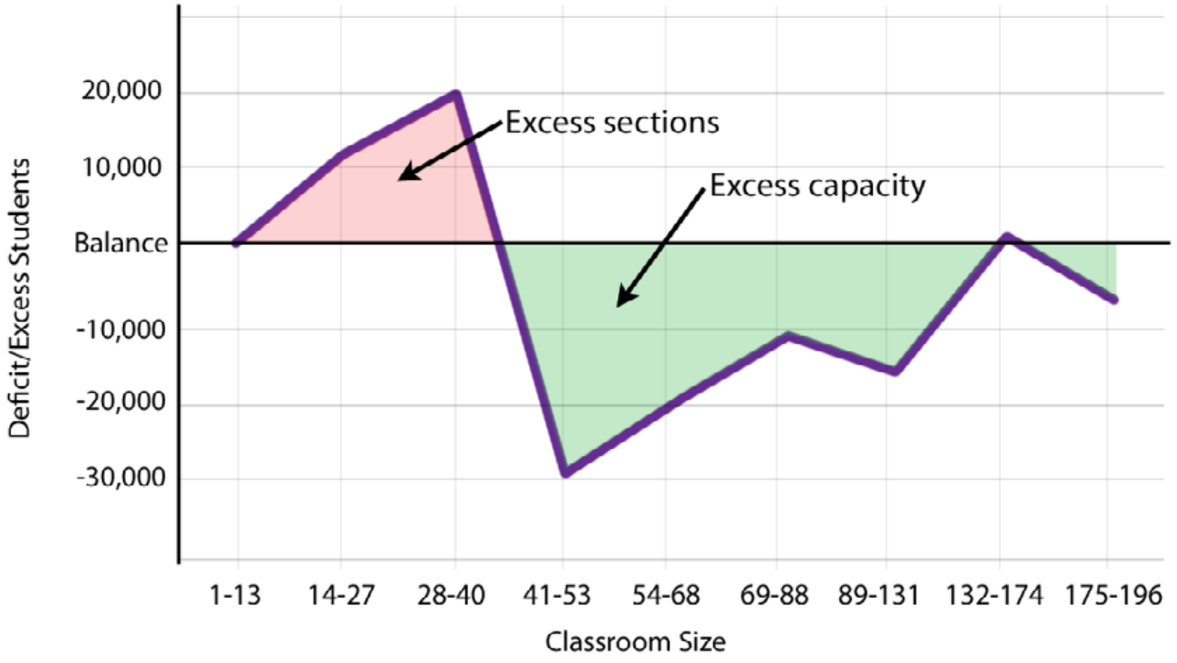


Figure 1.27: Excess section size and excess classroom capacity per the utilization analysis

- *Laboratory utilization is below THECB guidelines, in part because of the number of specialized labs which aren't used every semester*
- *Laboratory utilization can be increased by creating bays for specialized equipment which are shared with open lab space*

Laboratory utilization at PVAMU is considerably below the THECB's guidelines. As recommended in the utilization report, part of this can be resolved by reclassifying facilities and/or scheduling lab sections in labs rather than classrooms, but the larger issues are related to a pure lack of demand.

Part of that issue is the need for specialized laboratory space which isn't required every semester because it is dependent upon whether or not a particular course is scheduled. Most of PVAMU's labs have dedicated equipment and support spaces, which means that the entire laboratory must go unutilized if that particular section is not scheduled.

One solution to this problem is to combine bays dedicated to specialized equipment with shared open laboratory space. This solves the problem of dedicating entire labs to intermittent uses by allowing the shared open space to be used for multiple specialized labs. Figure 1.28 depicts one potential arrangement for combining two bays of specialized lab equipment and/or support space with a more general, open lab area.

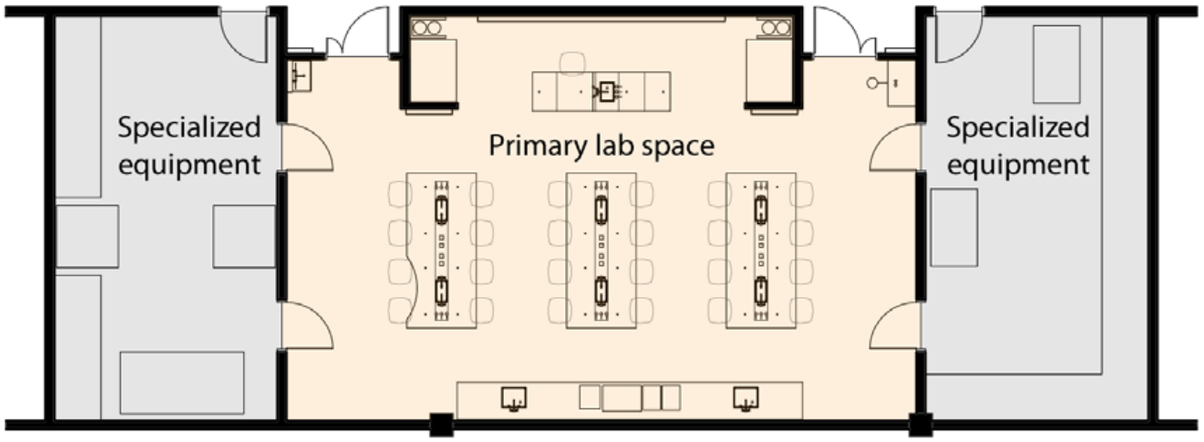


Figure 1.28: Shared laboratory space with dedicated bays for specialized equipment

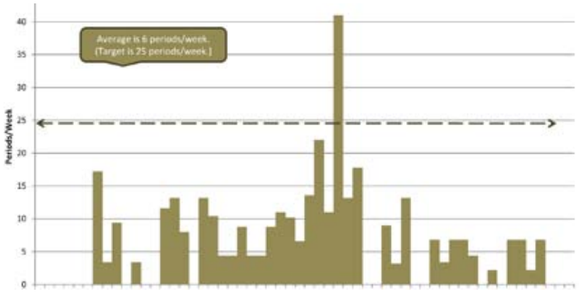


Figure 1.29: 2010 laboratory utilization, showing generally low lab usage

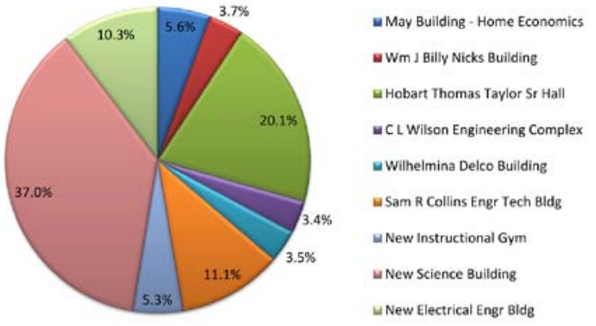


Figure 1.30: 2010 laboratory utilization by building

Phasing

Master plans should be flexible so that the plan is not invalidated by necessary modifications as needs are better defined. Expansion of academic facilities at PVAMU over the next 10 years will not be extensive and is projected to be primarily multipurpose buildings, which aids in flexibility. One potential sequence of construction is depicted on the accompanying diagrams, but other options are equally valid if circumstances dictate.

The term of this master plan is 10 years. However, sites beyond those needed in the next ten years have been identified for both housing and academics, and they are identified in a long-range plan. The sites identified in the Phase 1 and Phase 2 plans should be utilized before the long-range sites.

PHASE 1 BUILDING LIST

Master Plan

Central Receiving Addition I
Recreation Center ..... T
Academic Building 1 ..... A
Housing 1 ..... E
Retail ..... K
Academic Building 2 ..... B
Food Service / Laundry Facility ..... F
Football Stadium L
Athletic Department Facility ..... M
Soccer and Track Stadium ..... N
Softball Stadium ..... O
Field House ..... P
Batting Cages ..... Q
Baseball Stadium ..... R
Volleyball and Basketball Practice (Nicks) ..... S

PHASE 1 CAPITAL RENEWAL PROJECTS

- Replace HVAC Units and Energy Management System in Farrell Hall
- Replace Air Handling Units at Billy Nicks Building
- Repair & Upgrade the University Utility Tunnel System and develop mapping of Campus Utility Systems
- Replace Boiler #7
- Replace Air Handling Units in Evans Hall
- Replace Air Handling Units and Fan Coil Units in Anderson Hall
- Road Repairs
- Repair Electrical Cable Feeders
- ADA Upgrades - Evans Hall and Anderson Hall
- Install Fire Alarm Systems
- Install Fire Sprinkler Systems
- Replace Chiller #5
- Install Filtrations System for Chilled Water Loop
- HVAC Cleaning
- Mechanical Room Piping, Insulation, Upgrade - Owens Franklin Health Center and Anderson Hall
- Upgrade Mechanical Room - A.I. Thomas Building and Evans Hall
- Repair and Upgrade Sump Pumps - Ownes Franklin Health Clinic and Anderson Hall
- Mechanical Room PIping Upgrade - New Gym and Hilliard Hall
- Anderson Hall interior enhancements
- W.R. Banks - First Floor Fiscal Office Remodel
- Caulk and Reseal windows - Evans Hall
- Roof Repairs - A.I. Thomas Building and S.R. Collins Building

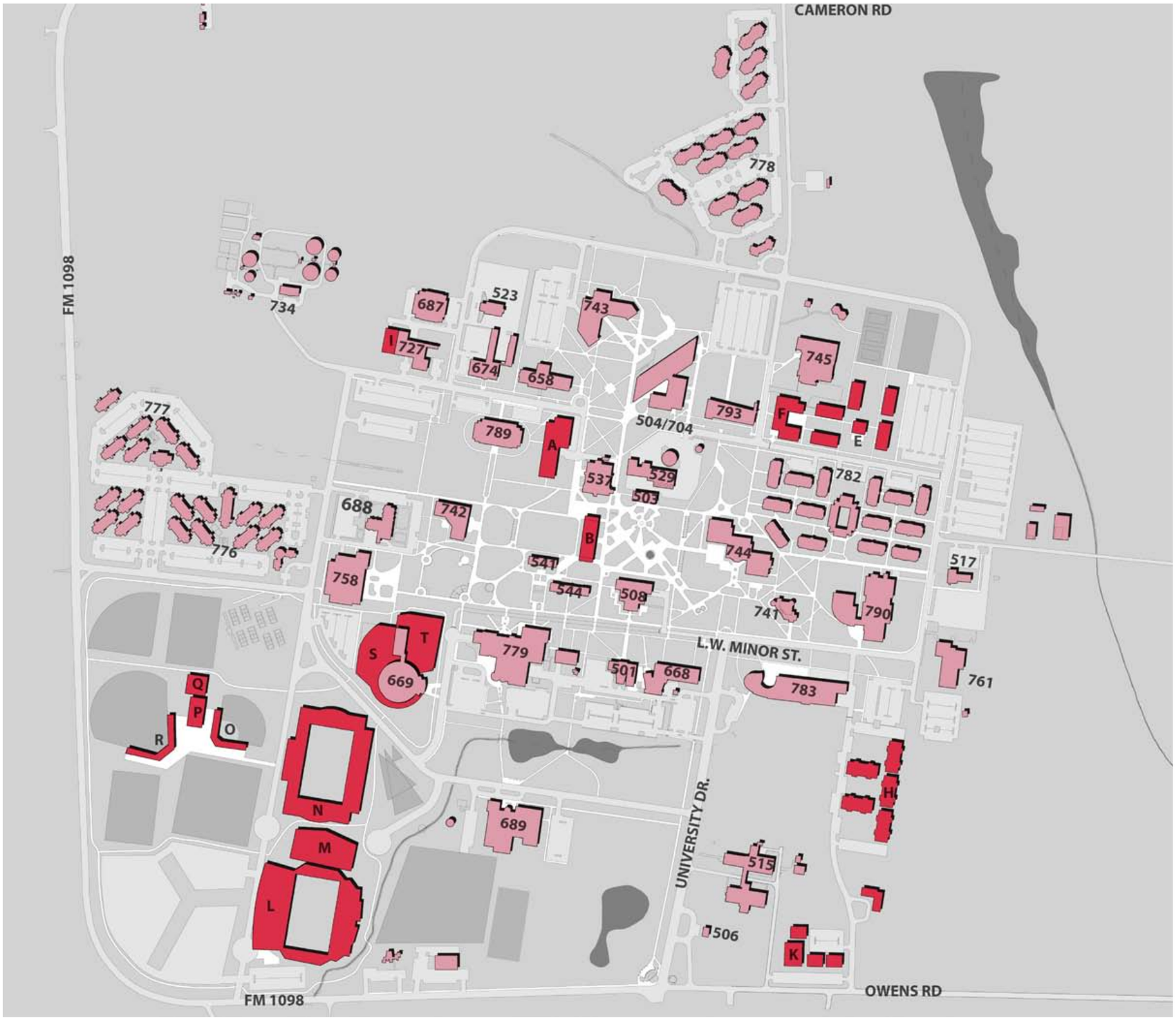


Figure 1.31: Phase 1 Plan

Cost

Cost figures below were developed to give planners and administrators a general idea of the costs involved with the different projects discussed in this master plan. The figures in this table have been escalated to mid-2013; projects which occur after that time should have cost estimates adjusted appropriately to reflect inflation. The figures include all hard construction costs, bonds and insurance, and the general contractor's fee; they do not include soft costs such as design fees, project management fees, furniture, fixtures, and equipment, geotechnical studies, and similar items. A number of assumptions about construction types and building usage were made in order to generate appropriate estimates. Some notes about those assumptions follow.

MASTER PLAN COST FIGURES (ESCALATED TO MID-2013)

Building Name	Size (GSF)	Cost/SF	Construction Cost
Academic Building 1	73,000	$411	$30,000,000
Academic Building 2	46,000	$250	$11,500,000
Academic Building 3	60,000	$250	$15,000,000
Academic Building 4	48,000	$250	$12,000,000
Housing 1	140,000	$119	$16,720,000
Housing 2	110,000	$120	$13,170,000
Housing 3	160,000	$133	$21,210,000
Food Service	23,000	$364	$8,380,000
Child Care	7,000	$159	$1,110,000
Retail	25,000	$169	$4,220,000
Ponds and Bridge	110,000	$9	$1,000,000

Academic Buildings: All buildings are three to four stories, concrete frame with brick and glass envelope. Foundations will be structured slabs with drilled piers. Academic Building 1 includes 5,000 GSF of laboratory space in addition to 67,000 GSF of office and classroom space.

Housing: All housing will be light frame construction with exterior envelopes consisting of 50% brick, 50% siding. Foundations will be slab-on-grade.

Food service and child care: Similar to housing in that they will be 50% brick, 50% siding as well as slab-on-grade. Interior finishes and mechanical equipment in the food service facility, obviously, are considerably different from those in the child care facility.

Retail: Light steel framing with a 50% brick, 50% siding exterior envelope on a slab-on-grade.

Pond: Synthetic liner with two aerators and an earth dam. Construction of an improved bridge is included as well. Construction costs for the pond, liner, and dam itself are approximately $330,000.

PHASE 1 CAPITAL RENEWAL PROJECTS COST FIGURES

Project	Total Cost
Replace HVAC Units and Energy Management System in Farrell Hall	$150,000
Replace Air Handling Units at Billy Nicks Building	$750,000
Repair & Upgrade the University Utility Tunnel System and develop mapping of Campus Utility Systems	$1,000,000
Replace Boiler #7	$1,000,000
Replace Air Handling Units and Fan Coil Units in Anderson Hall	$300,000
Replace Air Handling Units in Evans Hall	$292,000
Road Repairs	$1,000,000
Repair Electrical Cable Feeders	$2,750,000
ADA Upgrades - Evans Hall and Anderson Hall	$295,000
Install Fire Alarm Systems	$730,000
Install Fire Sprinkler Systems	$2,800,000

2. Design Guidelines

Colors and Materials

BRICK

PVAMU is a brick campus: the predominant building material is a red and dark-colored vertically-scored brick blend, accented by limestone and cast stone. New buildings should use these same materials for their basic palette. Some new buildings – the Electrical Engineering Building and the E.E. O'Banion Science Building, in particular – have successfully matched the historic brick blend and limestone/cast stone detailing. With the proviso that the massing and forms of those buildings are not necessarily preferred, designers should look to those components of those buildings for material references.

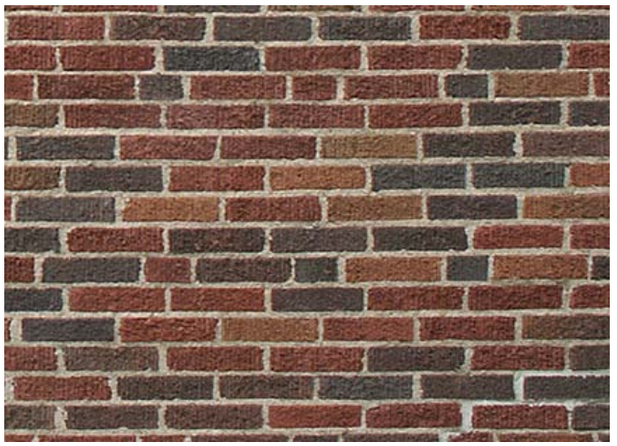


Figure 2.1: Typical brick

DECORATIVE ACCENTS

Several of the historic buildings on campus have decorative tile ornament (frequently called encaustic tile, though it is more likely a mosaic cementitious tile) on vertical surfaces. This technique could be re-introduced on new buildings.

Figure 2.2: Cast stone accents

Figure 2.3: Electrical Engineering Building

Figure 2.4:
Decorative tile accents

Figure 2.5:
Decorative tile accents

Figure 2.6:
Electrical Engineering Building - Glazing

GLAZING

Glazing on campus is a mixture of clear and solar gray glass. Modern low-e and double-glazing technology allows for clear glass to have performance superior to that of the older single-pane gray glass; new glazing should be clear, but should utilize a full array of technological solutions to minimize insolation and maximize thermal separation.

Building Shapes and Forms

As outlined earlier, one of the primary goals of this master plan is to strengthen the campus identity by honoring the history of the university, creating great outdoor spaces, and focusing the campus core.

Building form is a unique consideration because it has the potential to effectively strengthen the campus identity by addressing all three of the points listed above – consequently, it is fundamentally important to establishing a positive perception of campus cohesiveness. There are several families of building form on the campus, as detailed in the Existing Conditions Report. The most historically significant, and a reference for future buildings, are the National Register buildings: G.R. Woolfolk, W.R. Banks, A.N. Poindexter, Hilliard, Anderson, and Evans halls. In particular, Woolfolk, Banks, Anderson, and Evans should be emphasized as precedents.

It is difficult – if not essentially impossible, and certainly not desirable – to build new buildings which mimic those historic buildings exactly. Successful architecture references, abstracts, and incorporates the features of important contextual influences without directly imitating or copying those qualities. The result of these efforts is a regionally appropriate and contextually sensitive building that people enjoy occupying. Thus, the goal is not to design to any one certain aesthetic, but instead, to let the master plan goals, program-specific conceptual ideas, and the practical considerations for the function of the building dictate form. At the very least, new campus buildings should respond to challenges presented by the region's climate and solar patterns; vernacular precedents suggest covered walkways and breezeways, building orientation to maximize natural ventilation from the prevailing winds, courtyards, and large windows or punched openings to capture daylight as appropriate responses to the campus microclimate.

Goals for building shapes and forms:

- *Respect historic architectural precedents*
- *Respect the axes both existing and those developed in the master plan.*
- *Develop great exterior spaces with the form of the building*
- *Incorporate massing to maximize efficiency and daylighting*

Figure 2.7: G.R. Woolfolk Entry

Figure 2.8: Anderson Hall Pediment Feature

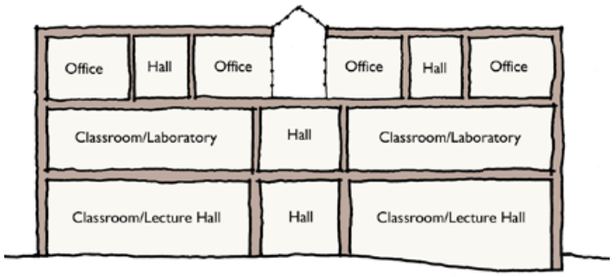


Figure 2.9:
Potential Massing Diagram - Section

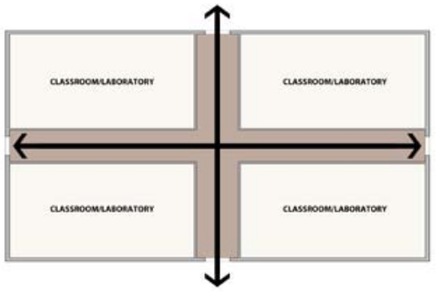


Figure 2.10:
Historical Massing Diagram - Plan

New buildings will be significantly larger than the historic buildings, and the functional requirements of laboratories and other modern necessities and techniques dictate differences in how buildings are laid out and detailed. Future buildings on campus should primarily be the product of a thoughtful and meticulous dialogue between the university and the designers. A strong parti (or conceptual approach) is the fundamental key to designing an exquisite building because it hierarchically organizes and informs all design decisions (diagram of "progressive" versus "traditional" architecture).

Figure 2.11:
Evans Hall Entry

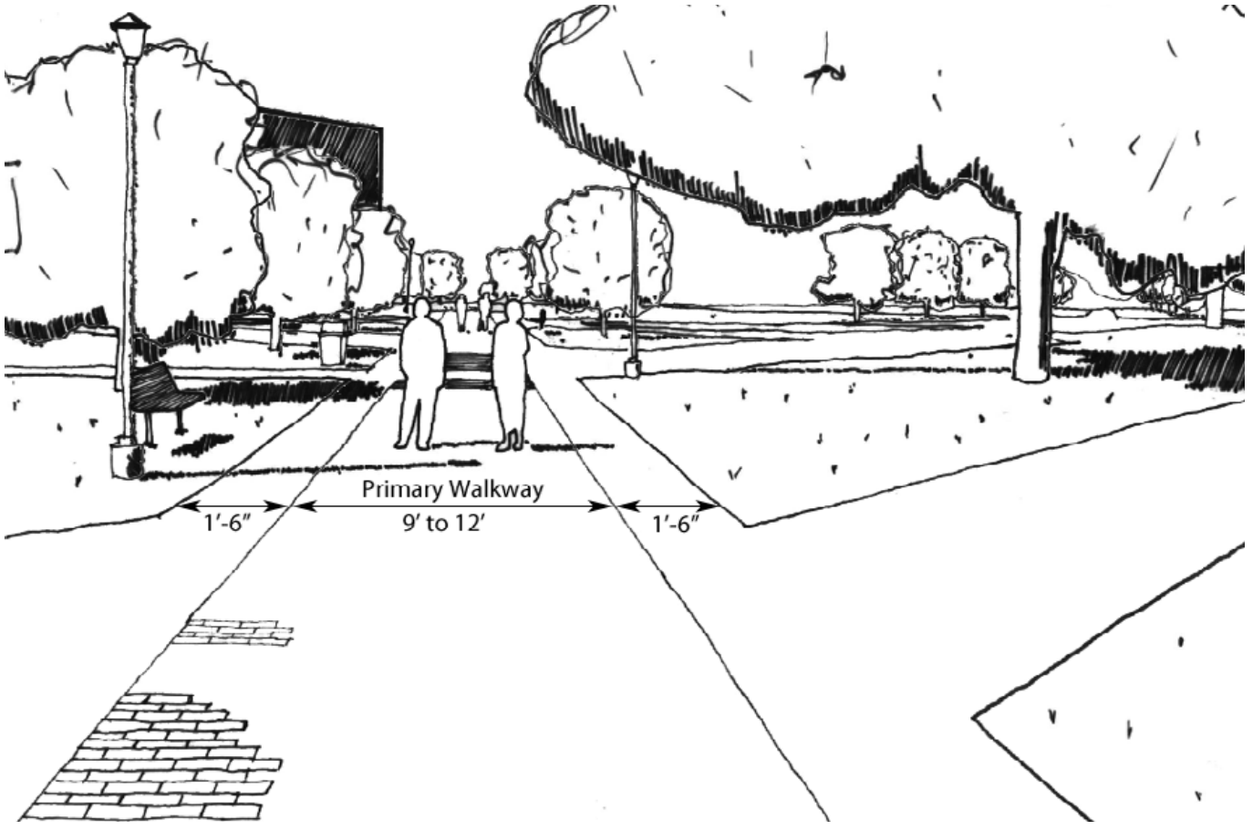
Walkways

PRIMARY WALKS

Primary campus walks are those which form the major campus pedestrian axes. They are designated in plan in the section on pedestrian walkways earlier in this document. Primary walks should be well-shaded and planted according to the landscape guidelines. They should also receive careful and sufficient lighting, since they will carry the most pedestrian traffic at night. Benches and waste bins should be located periodically along the primary walks. In some portions of campus, primary walks are doubled paths; this should not be done with future walks.

Paving on primary walks should be a mixture of broom-finished concrete and concrete pavers. Existing walks should be converted to this type of paving as conditions require and as funding allows.

Emergency call stations should be installed along the paths. PVAMU's standard is for hardwired stations (both data and power) for reliability; cellular and solar data and power should not be used.



Primary Walkways

- *12 feet to 15 feet wide*
- *Well shaded*
- *Ample lighting*
- *Incorporate pavers*
- *Locate benches and waste bins periodically*
- *Locate historical markers at appropriate locations*

Converted Roadways

- *Maintain service and emergency access*
- *Grassy (but driveable) mall*
- *Paved areas bordering and at crosswalks*
- *Well shaded*
- *Locate benches and waste bins periodically*
- *Locate historical markers at appropriate locations*

Figure 2.12: Primary Walk

Secondary Walkways

- *6 feet to 8 feet wide*
- *Limited amenities*

CONVERTED ROADWAYS

The master plan calls for several existing roads to be converted into pedestrian malls. Access for emergency and service vehicles must be maintained along these corridors, however, which means that they must be wide enough and strong enough to support heavy vehicles. Grass-topped paving materials (Grasscrete, Grasspave, or a number of other proprietary products), which can support heavy vehicle traffic, should be used alongside paved areas in order to make the access routes for vehicles wider while maintaining a grassy appearance.

Otherwise, these walkways will be similar to primary walks – they will be relatively wide, will be lined by trees, lighting, and other amenities, and will connect heavily used facilities.

SECONDARY WALKS

Secondary walks are narrower and less traveled than primary walks; they frequently connect primary walks on a diagonal or are otherwise relatively minor. They should not have the same emphasis on planting and amenities that the primary walks do, because they often cross spaces which should not be visually dissected by trees and other vertical features. Secondary walks should be simple walks with lighting as required, and generally no more than that.

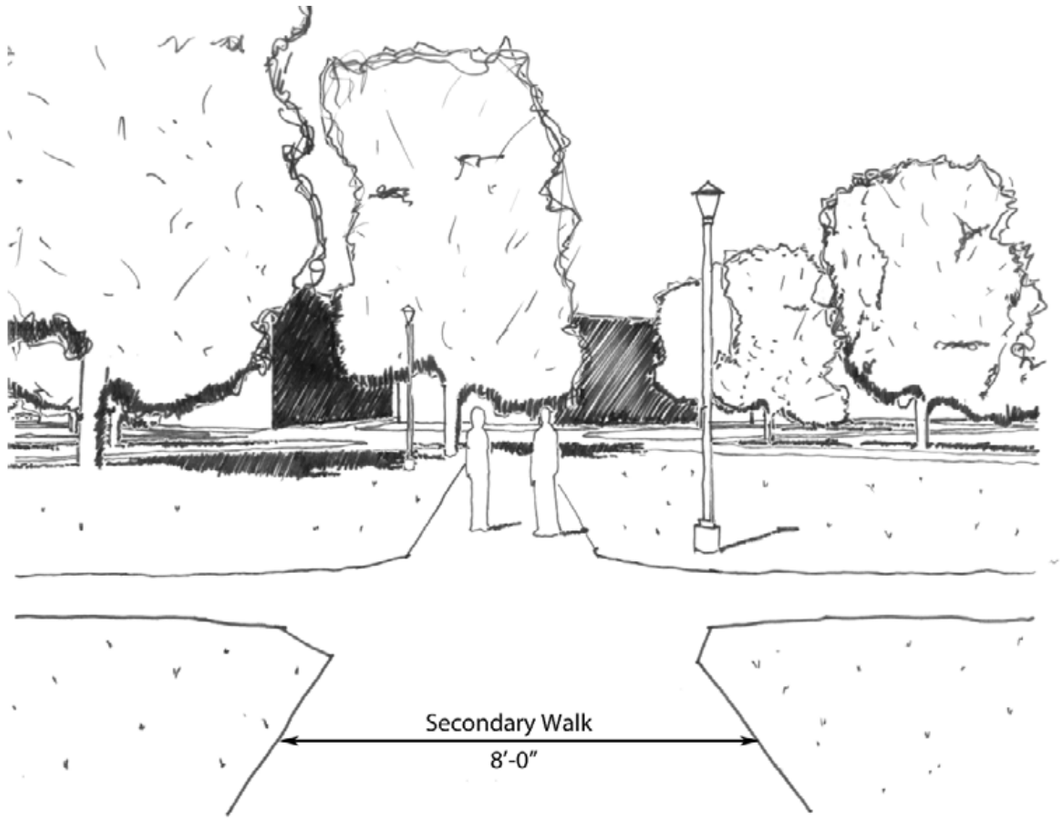


Figure 2.13: Secondary Walk

Landscape

CAMPUS SPACES

Landscaping should be used in concert with the addition of new buildings as indicated in the physical master plan to achieve purposeful, coherent and meaningful spaces.

Major Spaces
Provide informally arranged groupings of large canopy trees along the edges of spaces to preserve an open lawn in the middle. Trees along the edges not only help to define the space but provide shade over walkways that are typically located at the edges as well. The arrangement of plantings should complement the architecture and provide the most memorable aspect of the character of the space. Accent planting should focus on gathering areas and building entrances.

Secondary Spaces
Although these spaces are not as critical as major spaces, the same landscape principles apply.

Built Spaces (Courtyards, Seating Areas)
These smaller areas are typically associated with adjacent buildings and provide opportunities for informal gatherings and break areas between classes. The level of detail should be greater than the larger campus spaces and include a more diverse design palette containing special paving, seating, pedestrian scaled structures, canopy trees, ornamental trees, shrubs, perennials, groundcover and vine planting.

WALKS

Canopy shade trees along campus walks are essential. Trees not only provide pedestrian comfort but also reinforce campus wayfinding.

Figure 2.14: Major space

Figure 2.15: Major space

Figure 2.16: Primary walk

Major Spaces
- *Informal groupings of large canopy trees along edges*
- *Open lawn in the center*
- *Accent plantings at gathering areas and building entrances*

Built Spaces
- *Smaller spaces typically associated with buildings*
- *Informal gathering area*
- *Greater level of detail; special paving, seating, artwork and planting*

Primary Walks

- *Continuous rows of shade trees of a single species*
- *Use different species on different walks to distinguish walks from one another*
- *Emphasize trees that exhibit distinctive characteristics during the active school year*
- *Strategically place seating along the walks*

Pedestrian Malls (Converted Roads)

- *L.W. Minor Street*
- *Infill existing canopy trees with new live oaks*
- *Reduce the amount of paving by changing the roadway to grass paving, which will continue to allow emergency traffic*

Figure 2.17: Grass paving

Figure 2.18: Grass paving

Figure 2.19: Grass paving

Primary Walks

It is recommended that continuous rows of shade trees of a single species be associated with primary walks. Each walk into campus may have a different variety of tree to distinguish it from the other walks. Consider using trees with interesting characteristics like flowers, fall color, distinctive foliage or bark. Emphasis should be placed on trees that exhibit distinctive characteristics during the active school year. Seating areas should be strategically located along the walks and enhanced with shrub plantings.

Pedestrian Malls (Converted Roads)

The proposed pedestrian mall at L. W. Minor Street is a long linear space that is bordered with large canopy trees (predominately live oak) along much of its length. It is recommended to completely infill the remaining open portions of the mall with large caliper live oak trees to quickly establish it as a significant space.

Although the mall is converted from an existing roadway it is recommended to reduce the amount of paving to a pedestrian scale and introduce more vegetation. As service and emergency vehicle will still need access along the mall the vegetated ground plane (lawn) should be reinforced with a porous grass pave system rated for vehicle loads.

STREETS

Many of the existing primary streets on campus have formal rows of live oak trees along both sides. It is recommended continuing that pattern of street trees to other existing streets that do not have street trees and to new additions to the campus loop road.

Loop Road

Continue the pattern of formal live oaks street

trees along the rest of the loop road with the exception of two areas where it passes through a significant landscape character zone.

At the northwest corner of the campus the loop road passes through a part of the existing woods. The live oak trees should give way to the existing trees in this area. Minimal clearing of the existing woods should be done to allow for the road.

At the northeast corner of the campus, the topography slopes to the distant pastures. In order to maintain a visual and physical connection to this area the live oak trees should give way and allow the grassland to extend into the campus.

University Drive
Preserve and maintain the existing rows of live oak trees along this important street. Infill gaps in the existing tree pattern.

PARKING

Parking lots are inherently not attractive and are inhospitable. It is recommended that adequate screening and buffering be provided to mitigate their adverse effects. Trees should be planted around the perimeter and the interior of parking lots. A continuous landscape buffer should be planted around the perimeter of the lots. Additional tree and shrub planting should be provided to direct people to connecting walkways. The introduction of bio-swales and bio-retention basins is encouraged to slow down, capture and cleanse runoff to surrounding creeks.

RECREATION FIELDS

This area is dominated by large expansive fields of turf. Aggressive tree planting is recommended around the fields to break down the area into de-

Figure 2.20: Bio-swale at parking area

Figure 2.21: Landscaping at parking area

Figure 2.22: Landscaping at parking area

Roadways
- *Maintain existing rows of trees*
- *Infill with new live oaks at any gaps*

Parking
- *Use planting to screen and buffer parking areas from campus*
- *Use trees and shrubs within the parking areas to direct people to walkways*
- *Introduce bio-swales and bio-retention basins to slow down, capture and cleanse runoff*

Recreation Fields

- *Use planting to screen and buffer recreation fields from campus*
- *Aggressively plant trees to define smaller spaces and provide shade for pedestrians and spectators*

Natural Areas

- *Introduce some of the natural systems of woods, grasslands and drainage into the outer areas of campus*
- *Create a new stormwater retention pond by expanding the drainage channel north of Hobart Taylor Hall*
- *Create a second pond near the main campus entrance*
- *Use the stormwater retention ponds to reduce the campus' irrigation demands*

Figure 2.23: Stormwater retention pond

Figure 2.24: Stormwater retention pond

Figure 2.25: Stormwater retention pond

fined spaces, provide shade for pedestrians and spectators and buffer the area from the rest of campus. The large parking lot proposed for this area should follow the guidelines stated for parking in this document. Runoff from the parking lot should be slowed down and captured into bio-swales and bio-retention basins.

NATURAL AREAS

A significant portion of the campus is identified with woods and grassland and is ultimately linked to a regional drainage system. These valuable features should be preserved. It is recommended to allow these natural systems to penetrate the campus to demonstrate the natural processes of water movement and vegetative growth.

One of the new components of the master plan is a stormwater retention strategy which can reduce irrigation demands on PVAMU's wells while also providing an attractive amenity for the campus. One retention pond will be located just north of Hobart Taylor Hall, along the alignment of the stormwater drainage channel which currently exists there. The channel will be widened and sculpted to hold a significant amount of water – the surface area will be more than an acre – which can be used to irrigate campus landscape and the athletic fields south of the pond. A second pond will be located near the main campus entrance, at University and FM 1098. It will also perform a retention/irrigation function.

The size of the pond must be determined by an engineering study of irrigation demands, rainfall amounts, and evaporation rates. Because the pond will be an amenity, not just a tank for irrigation, a minimum level for the pond, below which irrigation needs should be supplied from other sources, should be set. The location of the pond was set in part by the watershed of the site – much of the campus drains to the site, so a significant amount of water should be available during rains.

CAMPUS PLANTING

The compositional location of new plantings should work in combination with existing plant materials to establish an order for outdoor spaces that are clearly defined and perceived as a unified whole. Plantings should reinforce the physical structure of the master plan and should function to define outdoor spaces rather than to merely add decoration.

Plantings should be used to enhance a sense of place, create outdoor spaces, frame views, control foot traffic, and hide unsightly utility and service functions. While the purpose of these guidelines is not to be prescriptive in terms of planting design, there are general concepts that should be followed with new projects and day to day campus maintenance.

Campus plantings should be appropriate to the scale and setting of a university environment. Plantings should be composed as large masses and rows rather than as fussy collections.

The existing precedent of canopy trees and open lawns with appropriate foundation planting and minimal ornamental displays should be preserved. Enhanced plantings at important locations and buildings is recommended to soften the impact of the buildings and create special areas of interest in the landscape. Utilitarian plantings such as screening should respond to the character of the campus landscape rather than to what is being screened.

The landscape should be predominantly one of native shade trees; shrubs and lawn and should emphasize those materials that are appropriate to the climatic conditions of the region and specific conditions of the site.

Figure 2.26: Bio-retention basin

Figure 2.27: Bio-retention basin

Figure 2.28: Bio-retention basin

Campus planting should:

- *Reinforce the structure of the master plan*
- *Define exterior spaces*
- *Frame views*
- *Control foot traffic*
- *Hide unsightly utility and service functions*
- *Have a scale and setting appropriate to the university environment*
- *Be composed of large masses and rows*
- *Preserve the precedent of canopy trees and open lawns as possible; use indigenous plant species that promote the use of xeriscape principles*

Irrigation

- *Promote the conservation of water*
- *Give priority for irrigation to the campus core, scaling back the irrigation as landscapes transition from the intensive campus core to simpler expressions toward the outer edges of campus*
- *Use the stormwater retention pond for irrigation, especially at the recreation fields*

To the degree possible, landscapes should include the use of plant species that are indigenous to the natural plant communities of the region and which promote the use of xeriscape principles. In cases where non-invasive exotic plants are used to enhance the landscape, plantings should be limited to those non-invasive species that are able to resist periods of drought and which require little maintenance, fertilization or use of synthetic chemicals.

PLANTS

Trees

Oaks and in particular live oaks are the predominant campus tree. A shift to more diversity of tree species is encouraged. The existing groves at the campus core are old and will eventually need to be replaced. A tree replacement plan is recommended to optimally maintain the existing trees and to begin planting new trees in their vicinity to keep the tree canopy intact.

Shrubs/Groundcovers

Plantings in many of the older parts of campus have exceeded their usefulness and are in need of refreshing or replacement. New plantings should focus on native and drought tolerant plants. Consideration should be given to keeping the height of shrubs and small trees clear for broad visibility and security. Overly intricate plantings out of character and scale with the setting should be avoided.

Lawn

Manicured and irrigated lawns are an asset to campus life, particularly at the campus core. However, they require a significant amount of water and energy to maintain and should be prioritized where make the greatest impact. There should be a hierarchy of lawns as they relate to the various campus landscape zones. The campus core should have the highest level of resources for watering and maintenance. Farther away from the campus core the level of watering should be reduced and the use of native grass encouraged.

IRRIGATION

Water is more and more becoming a precious commodity. These landscape guidelines encourage the conservation of water. Priority should be given to the campus core. As landscapes transition from intensive at the campus core to simpler expressions toward the outer edges of the campus, so too should irrigation be scaled back to what is necessary. New irrigation installations should comply with current PVAMU standard landscape irrigation components. The use of recycled or gray water from storage ponds is highly encouraged.

PLANT LIST

Large Trees	Common Name	Scientific Name
	American Elm	Ulmus americana
	American Holly	Ilex opaca
	Bald Cypress	Taxodium distichum
	Bradford Callery Pear	Pyrus calleryana 'Bradford'
	Bur Oak	Quercus macrocarpa
	Caddo Maple	Acer saccharum 'Caddo'
	Cedar Elm	Ulmus crassifolia
	Chinese Elm	Ulmus parvifolia
	Chinkapin Oak	Quercus muelenbergii
	Escarpment Live Oak	Quercus fusiformis
	Golden Raintree	Koelreuteria paniculata
	Japanese Blueberry Tree	Eleaocarpus decipiens
	Loblolly Pine	Pinus taeda
	Mexican Sycamore	Platanus mexicana
	Pecan	Carya illinoinensis
	River Birch	Betula nigra
	Shumard Oak	Quercus shumardii
	Slash Pine	Pinus elliottii
	Southern Live Oak	Quercus virginiana
	Southern Magnolia	Magnolis grandiflora
	Red Oak	Quercus Shumardii
	Texas Ash	Fraxinus texensis
	Water Oak	Quercus nigra
	Weeping Willow	Salix babylonica
	Willow Oak	Quercus phellos
Small Trees	Crape Myrtle	Lagerstroemia indica
	Crape Myrtle 'dark purple'	Lagerstroemia indica 'catawba'
	Crape Myrtle 'lavender'	Lagerstroemia indica 'yuma'
	Crape Myrtle 'lavender'	Lagerstroemia indica 'zuni'
	Crape Myrtle 'white'	Lagerstroemia indica 'natchez'
	Eastern Redbud	Cercis Canadensis
	Forest Pansy Red Bud	Cercis Canadensis 'Forest Pansy"
	Flowering Dogwood	Cornus florida
	Mexican Plum	Prunus mexicana
	Possumhaw	Ilex decidua
	Texas Mountain Laurel	Sophora secundiflora
	Texas Lilac Vitex – (F, Sp, Su)	Vitex agnus-castus
	Texas Redbud	Cercis texana
	Yaupon Holly	Ilex vomitoria

Plant List

- *The plant list is a revision to the existing PVAMU plant palette*
- *The list was condensed to focus on plants that support the stated goals of these landscape guidelines and include more plants that are native and non-native adapted and/or drought tolerant*

Shrubs	Common Name	Scientific Name
	American Beauty Berry (Sp, Su)	Callicarpa Americana
	Blue Pacific Juniper	Juniperus conferta
	Chinese Hibiscus – (F, Su)	Hibiscus Rosa-sinensis
	Crape Myrtle lavender	Lagerstroemia indica 'dwarf royalty'
	Crape Myrtle purple/magenta	Lagerstroemia indica 'Velma's Royal delight"
	Drift Rose (coral,peach,red)– (F, Sp, Su)	Meidrifora rosa
	Chinese Holly	Ilex cornuta
	Compact Mexican Firebush (Sp,Su,F)	Hamillis Patens
	Dwarf Yaupon Ilex	vomitoria 'Nana'
	Burford Holly	Ilex cornuta 'Burfordii'
	Dwarf Burford Holly	Ilex cornuta 'Dwarf Burford'
	Dwarf Horned Holly	Ilex cornuta 'Rotunda'
	Dwarf Yaupon Holly	Ilex vomitoria 'Nana'
	Dwarf Azalea – (Sp)	Rhododendron atlanticum
	Dwarf Nandina	Nandina domestica 'Nana'
	Dwarf Variegated Ginger	Alpinia zerumbet 'Variegata nana'
	Formosa Azalea	Azalea indica 'formosa'
	Forsythia (F)	Forsythia X intermedia
	Fountain Grass	Pennisetum setaceum
	Fraser Photinia	Photinia fraseria
	Glossy Abelia	Abelia grandiflora
	Greg's Mistflower	Eupatorium greggii
	Heavenly Bamboo	Nandina domestica
	Indian Hawthorn 'Pinkie' – (F, Sp)	Rhaphiolepis indica
	Indian Hawthorn 'Balerina' – (F, Sp)	Rhaphiolepis umbellata
	Japanese Evergreen	Viburnum japanicum
	Japanese Viburnum	Viburnum japonicum
	Judge Solomon Azalea – (Sp)	Azalea indica 'solomon'
	Knock Out Rose – (F, Sp)	rosa 'Radrazz'
	Katy Road Pink Rose (F, Sp)	Rosa 'carefree beauty'
	Leatherleaf Mahonia	Mahonia bealei
	Lemon Day-lily – (Su)	Hemerocallis lilioasphodelus
	Oleander – (Su)	Nerium oleander
	Primrose Jasmine	Jasminum mesnyi
	Purple Fountain Grass	Pennisetum setaceum 'rubrum'
	Red Formosa Azalea – (Sp)	Azalea indica 'formosa'
	Sago Palm	Cycas revoluta
	Sandankwa Viburnum – (W, Sp, Su)	Viburnum suspensum

General Hardscape

The park project completed in 2011 at L.W. Minor and O.J. Thomas streets should be the model for hardscape elements such as trash receptacles, benches, and lighting (which is addressed in detail later in this document).

TRASH RECEPTACLES

Dumor 158-32-25BT, color to match those used at the park. Mount receptacles on 30" diameter concrete pads.

BOLLARDS

Removable Bollards

Fairweather steel bollard B-4A

Hydraulic Bollards

SOMAX Technology AHB-300 automatic hydraulic bollard or similar, painted to match the color of campus lighting

BENCHES

Dumor 19 Series 6-foot bench, color per PVAMU

Figure 2.29: Hardscape

Signage

Included for reference in the master plan is a summarized version of the signage standards developed for the university. For the full standards, refer to the Wayfinding Signage System Master Plan report.

WAYFINDING SYSTEM

The following are objectives of the PVAMU wayfinding standards:

- Reinforce site boundaries and identity
- Identify key entry points into the site
- Define pathways for vehicular traffic
- Define pathways for vehicular traffic to parking areas
- Define pathways for pedestrians from parking areas to the individual buildings
- Create an awareness of destinations and promote those destinations

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890&
Times New Roman PS MT Regular
Times New Roman PS MT Regular Adobe Postscript Font

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890&
Helvetica Neue 65 Medium
Helvetica Neue65 Medium Adobe Postscript Font

Purchasing Fonts:
Signage Contractor to purchase all necessary fonts.
Times New Roman PSMT can be purchased from The Font Factory
http://www.fontfactory.com

PAINT

P1	P2	P3	P4	P5	P6	P7
Dark Brown	Warm Gray	Pure Black	Silver	Dark Blue	White	Red
Mattews Paint To Match PMS 7519	Mattews Paint To Match PMS Warm Gray 1C	Mattews Paint	Mattews Paint MP18071	Mattews Paint MP02758	Mattews Paint	Mattews Paint MP10241

VINYL

P8	P1	P2	P3	P4	P5	P6
PV Purple	White	Black	Red Reflective	White Reflective	Green Reflective	Blue Reflective
Mattews Paint To Match PMS 2592	3M 7725-10	7725-12	7725-63	3M Engineer grade 3290	3M Engineer grade 3277	3M Engineer grade 3275

Figure 2.30:
Project Standards: Typeface

- Emphasize special aspects of the site which make it unique and interesting
- Reduce the visual clutter or overuse of signs to reduce confusion
- Enhance the perception of the site as a safe, clean, and welcoming environment
- Create a system consisting of simple components that are easily fabricated and easily maintained

Ref. No.	Description/ Finish	Manufacturer	Notes
Paint			
P1	Brown/Eggshell Finish	Matthews Paint	PMS 7519
P2	Warm Gray/Eggshell Finish	Matthews Paint	PMS Warm Gray 1C
P3	Pure Black/Eggshell Finish	Matthews Paint	Pure Black
P4	Metallic Silver	Matthews Paint	MP18071
P5	Dark Blue	Matthews Paint	MP02758
P6	White	Matthews Paint	White
P7	Red	Matthews Paint	MP10241
P8	PV Purple	Matthews Paint	PMS 2592
Vinyl			
V-1	3M White Scotchcal	7725-10	
V-2	3M Black	7725-12	
V-3	3M Red Reflective	7725-63	
V-4	White 3M Engineer Grade Reflective	3290	
V-6	Green 3M Engineer Grade Reflective	3277	
V-7	Blue 3M Engineer Grade Reflective	3275	
Material			
M1	Cast Stone PVAMU Mix/Smooth Finish		Mix Details: -1 sack Atlas White Portland Cement with 1 oz. Lanbert Bright Yellow. 4 parts "Big Sandy" sand to 1 part blended cement color mixture. Stone to match E.E. O'Banion building precast concrete.
M2	Cast Zinc (White Metal)		
M3	Aluminum		
M4	Brick in PVAMU Campus Standard Modular Velour Finish		Blend: 25% BL-2 30% BL-3, 35% BL-5, 10% BL-20
M5	1/4" Acylic		Exterior Grade
M6	Non-Glare Acrylic		Acrylite P-95
M7	Black Acrylic		Acrylite

Figure 2.31:
Project Standards: Color and Material

Figure 2.32: Campus Signage Locations

Figure 2.33: Building Signage Locations

Figure 2.34: Roadway Signage Locations

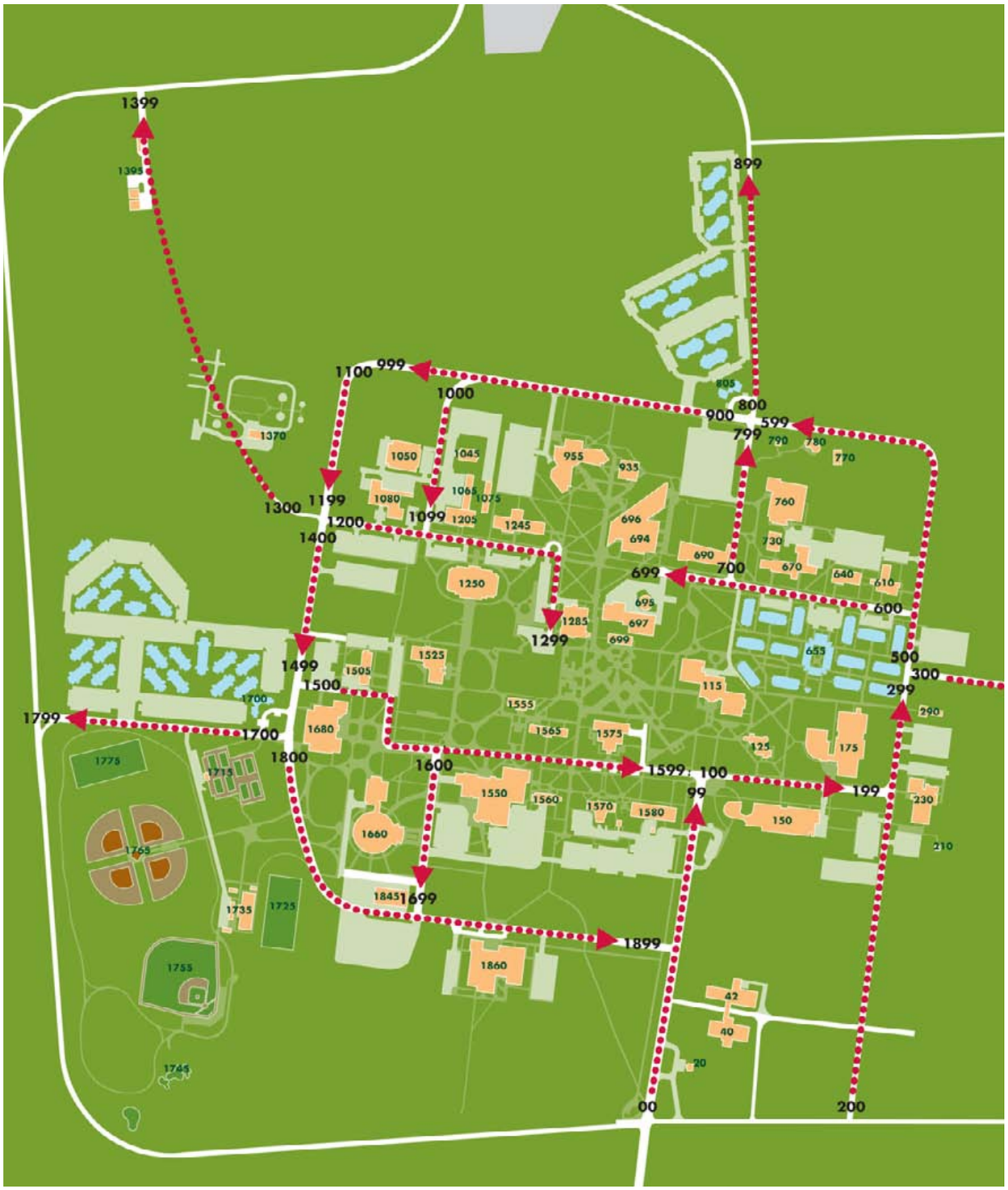


Figure 2.35: Direction plan

EXTERIOR SIGNAGE SYSTEM

Secondary Entrance Monument

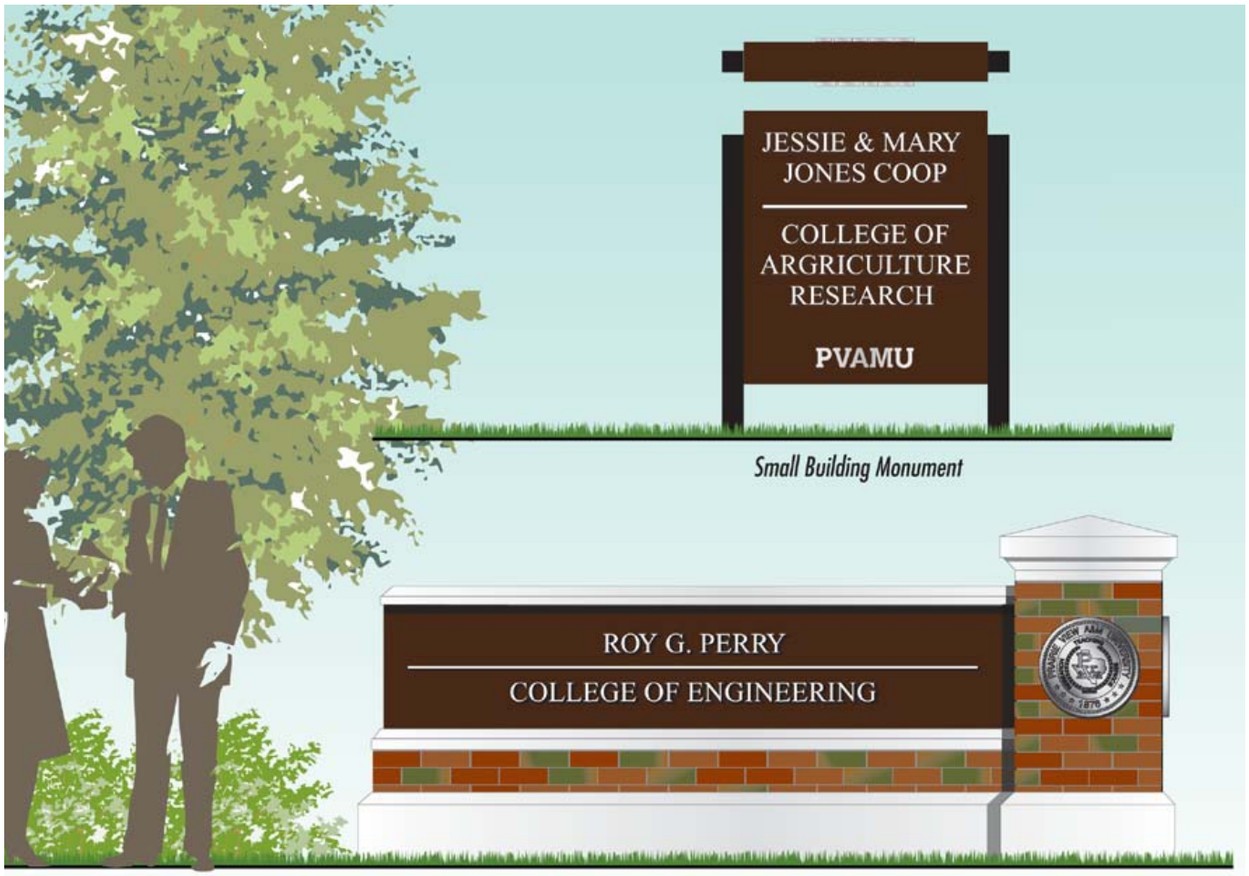
The purpose of this sign is to help to establish the boundaries of the campus, to identify the secondary entrances, or to provide a gateway and to convey the PVAMU identity in an attractive form that will be functional and legible both during the day and at night.

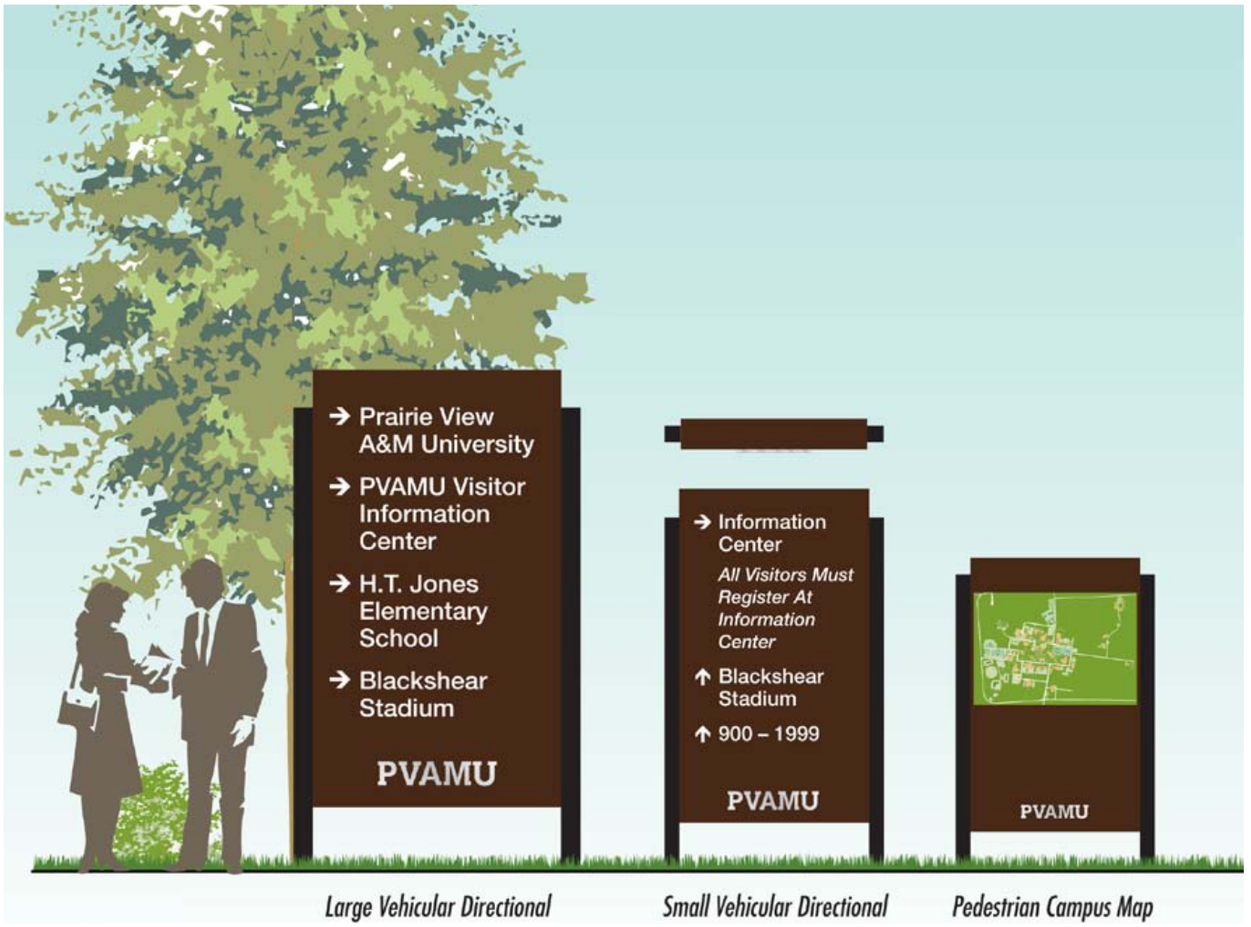
This category of sign is intended to convey information. Content may also include, but is not limited to, parking lot information, policy information, hours of operation, security information and identification of limited or restricted access.

This double-sided building monument identity sign is to be placed perpendicular to the street near the main entrance of the building and/or other high traffic entrances near the building.

Large Building Monuments are used for larger buildings while Small Building Monuments are used for smaller buildings when the mounting locations for the signs are also very limited.

The entire monument is to be mounted to a concrete footing designed by a licensed structural engineer.





The sign types are intended to direct vehicles or pedestrians to destinations around campus and to reinforce the preferred pathways for each category of vehicular/pedestrian traffic.

The size of the sign is dictated by the size of the type and the length and complexity of the messages. The type must be of a size and contrast for legibility to drivers at various rates of speed.

The sign cabinet to be 1/8" thick aluminum cladding seamlessly fabricated around internal aluminum frame structure. For all non-illuminated signs, all text and graphics is to be applied as cutout reflective vinyl or to be located near source of ambient light for night viewing. The entire sign assembly must be mounted to a concrete footing designed by licensed structural engineer.

Large and small directionals are to be single-sided only. Pedestrian directionals with campus map will be double-sided.

This category of sign is intended to convey information. Content may also include, but is not limited to, parking lot information, policy information, hours of operation, security information and identification of limited or restricted access.

Parking lots to be color coded with 3 different colors for student and visitor Parking, faculty/staff and visitor parking, and faculty/staff-only parking. All posts are to be painted black only.

The "No Weapon" regulatory sign is to be placed at all entrances of the campus.

IDENTIFICATION SIGNAGE

The function of identification sign is to confirm destination, to establish recognition of a particular site, entrance, building, or area. It is to be fascia mounted at locations selected to provide maximum visibility from primary vehicular approaches.

W

17" High Black Letterform

Primary Building Identity — Large

The sizes of the primary building identities are in three different sizes: large is 17 inches high; medium is 12 inches high; and small is eight inches high. For medium size buildings, the letterforms will be 12 inches tall. Secondary building identity or secondary building information – for example, "Communication Building" – is to be six inches tall.

Letters are to be a non-illuminated channel type. Twelve-inch, eight-inch, and six-inch tall letters are all to have a 1-1/2 inch return thickness. Sign construction and mounting hardware is to be engineered by structural engineer licensed with the state of Texas to meet maximum local wind load requirements and detailed on the sign contractor's stamped shop drawings.

There are two color options for all letterforms on campus — black and silver. Utilize black or silver based on the color of the building, choosing the appropriate color to achieve maximum contrast.

Building address vinyls are to be six-inch tall opaque white vinyl. Mount the address vinyls on glass transom above entrance doors. When the entrance doors are not visible to the streets, additional address letterforms are to be used to reinforce the information for visitors and emergency vehicles.

O 12" High Silver Letterform
Primary Building Identity
—Medium

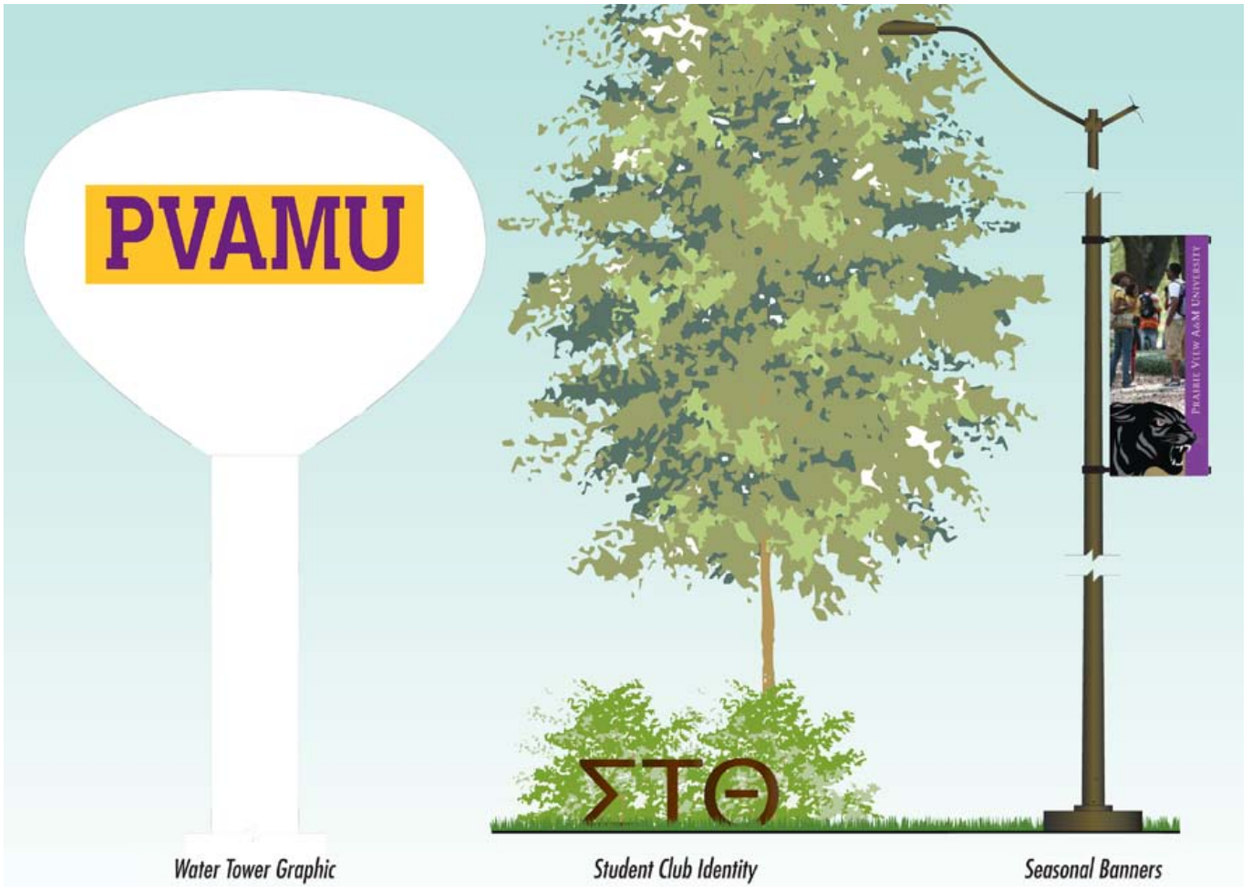
1090 6" High Silver Letterform
Building Address Letterforms

H 12" High Silver Letterform
Primary Building Identity
—Medium

C 6" High Silver Letterform
Secondary Building Identity

1 6" High White Vinyl
Building Address Vinyl

OTHER SCHOOL SIGNAGE AND GRAPHICS



Signs in this category may be thematic and may support wayfinding by identifying destinations in a memorable, fun and attractive way. Some signs in this category may function as storytelling devices, presenting text and photos that convey the unique history and character of the campus.

Interpretive graphics may consist of stand-alone signs such as a seasonal banner or possibly a group of elements such as an exhibit.

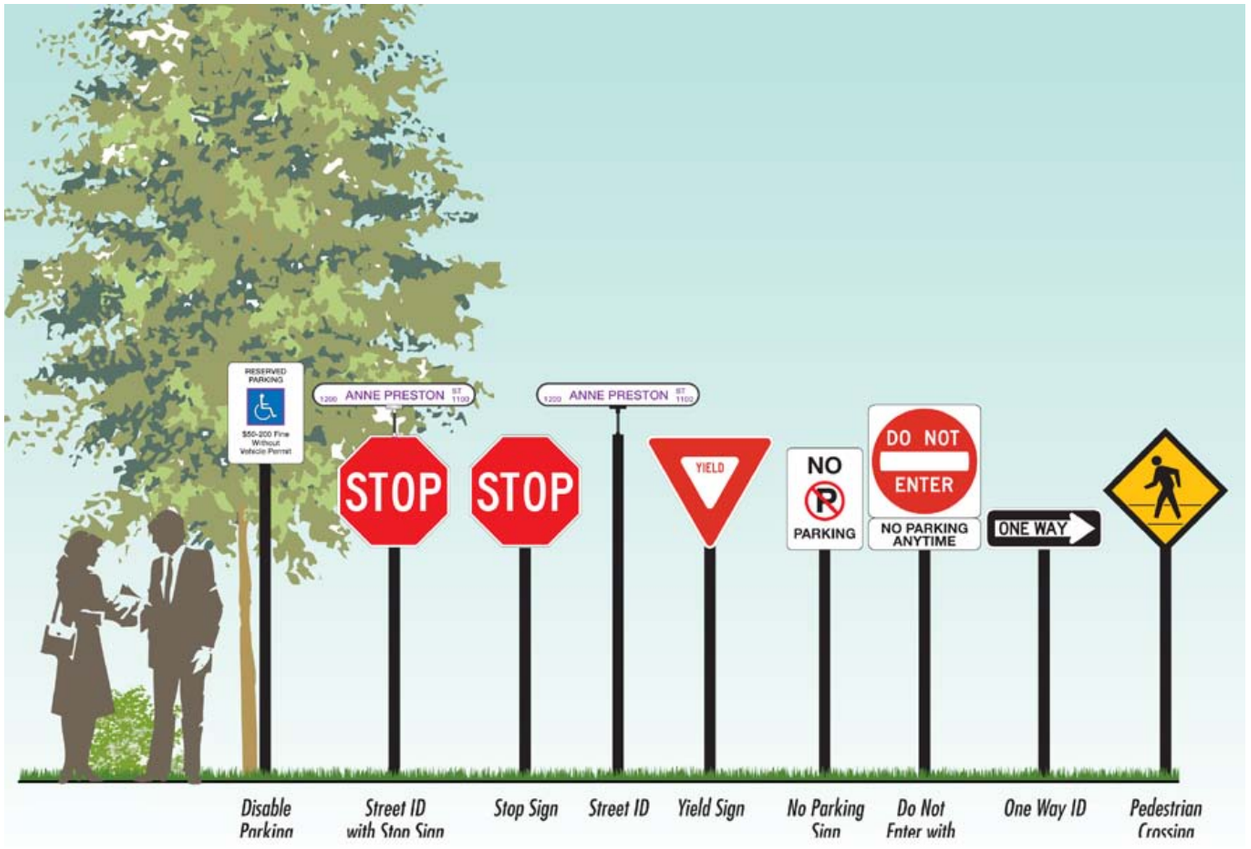
Student club identity letterforms and signage is to be a maximum of 36 inches tall. Where letterforms are used, they are to be dark bronze letterforms.

Water tower and banner graphics are to be fully developed at a different time. These are not the final designs.

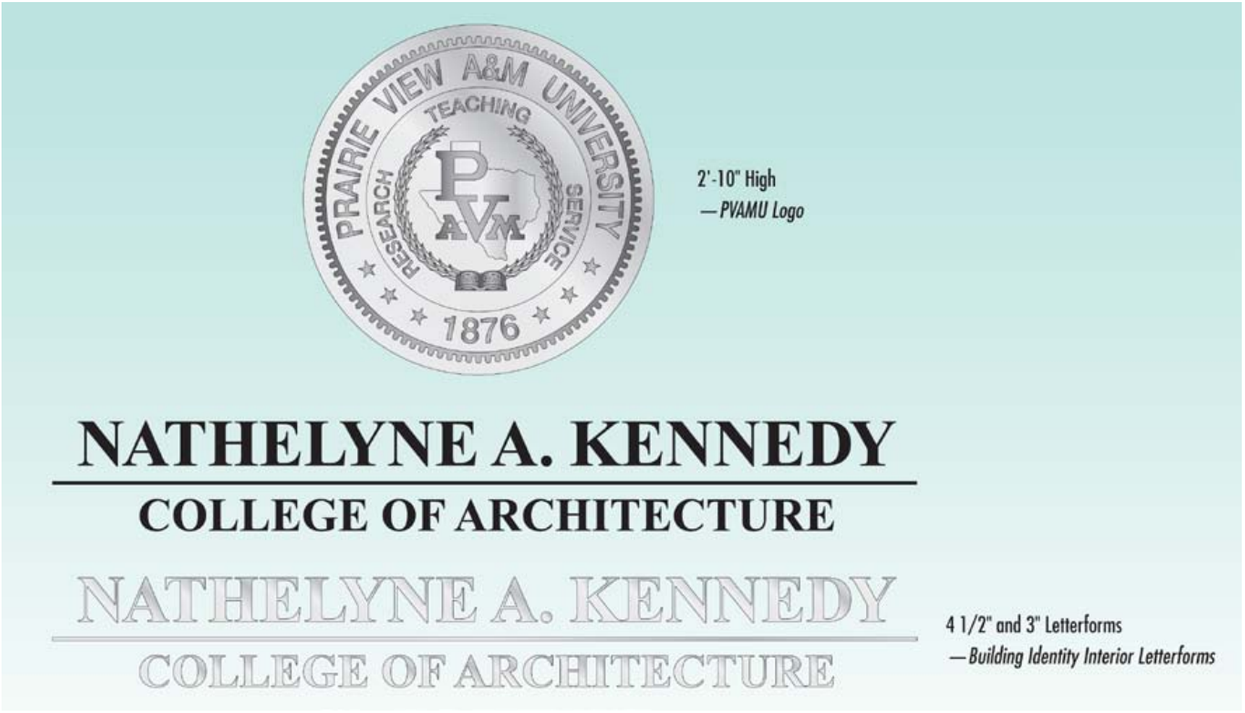
REGULATORY SIGNAGE

These signs serve the practical and necessary purpose of regulating vehicular traffic. Content may include traffic control messages such as Stop, Yield, Speed Limit, One Way, etc. Additionally, these signs may identify restricted parking, or restricted entry access. As traffic control devices, street identification signs are also included in this category. Signs may be single or double-sided as needed.

All posts are round and painted black. Where new panels are replacing old panels on an existing pole, the signage contractor is responsible for field-verifying existing conditions and selecting appropriate mounting brackets and hardware to work with the existing post.

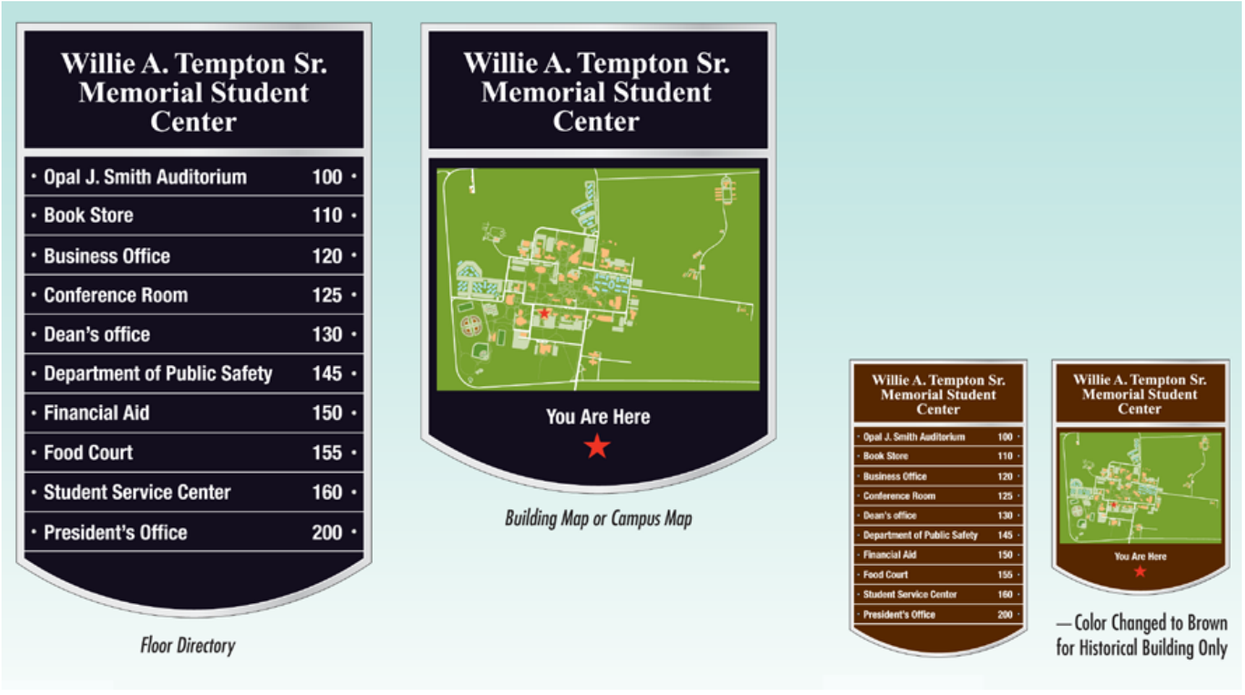


INTERIOR SIGNAGE SYSTEM



The function of this identification sign is to confirm destination, to establish recognition of a particular site, entrance, building, or area.

The standard size of the logo is 2 feet 10 inches. The standard size for the building name is 4 1/2 inches and 3 inches for the college name. However, the size standards may vary for the size of the walls. There are two color options for the letterforms — black and silver. Utilize black or silver based on the color of the walls, choosing the appropriate color to achieve maximum contrast. Letterforms are to be clear-coated or anodized to prevent formation of patina or oxidation. Logo or letterforms are to be stud-mounted to wall.

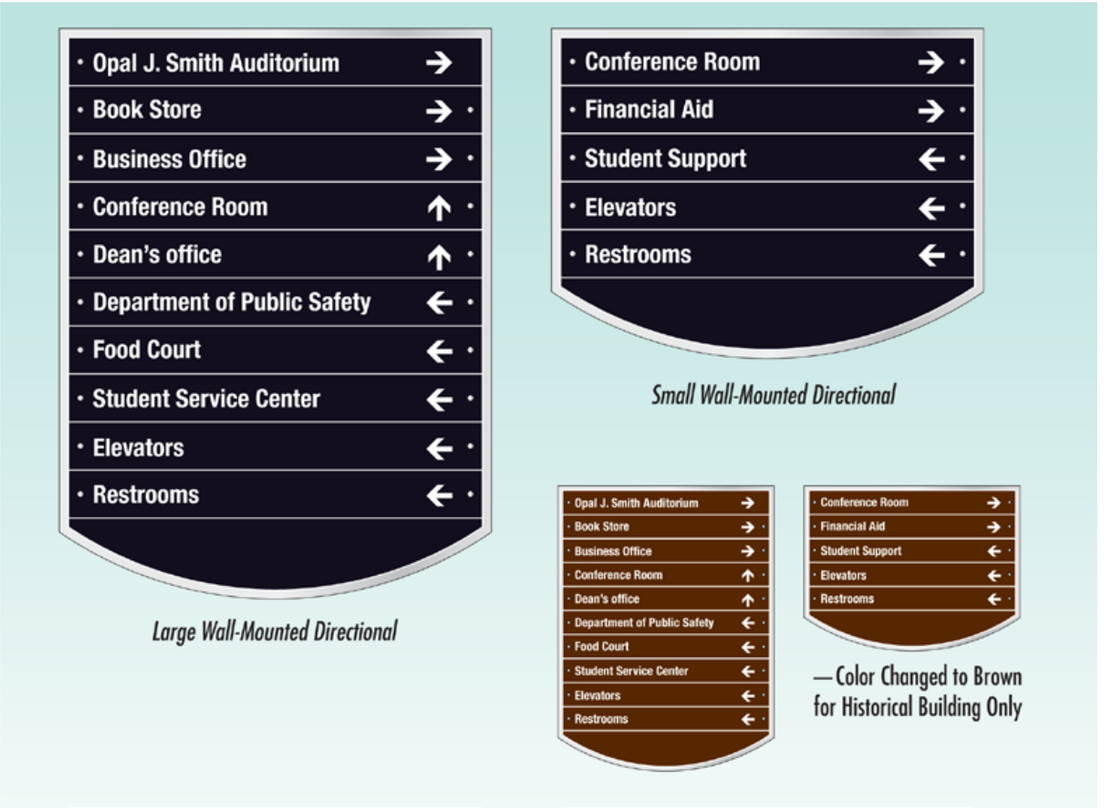


The function of an orientation sign is to locate the user within the environment of the site, building and/or area with regard to time and place.

This signage program includes orientation signs at building entrances, elevator lobbies and emergency evacuation maps.

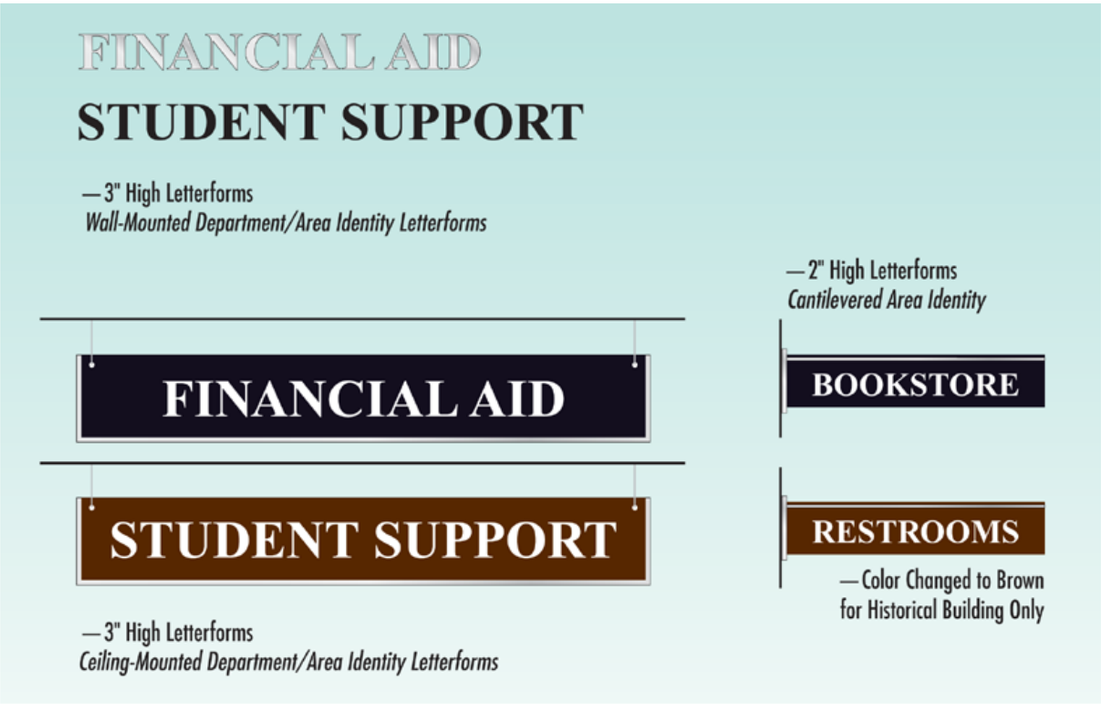
These signs are intended to direct people to destinations within individual buildings and between buildings/around campus where two or more buildings physically connect. Additionally, these signs reinforce the preferred pathways between destinations, helping end-users to avoid restricted areas, or lengthy, inefficient routes.

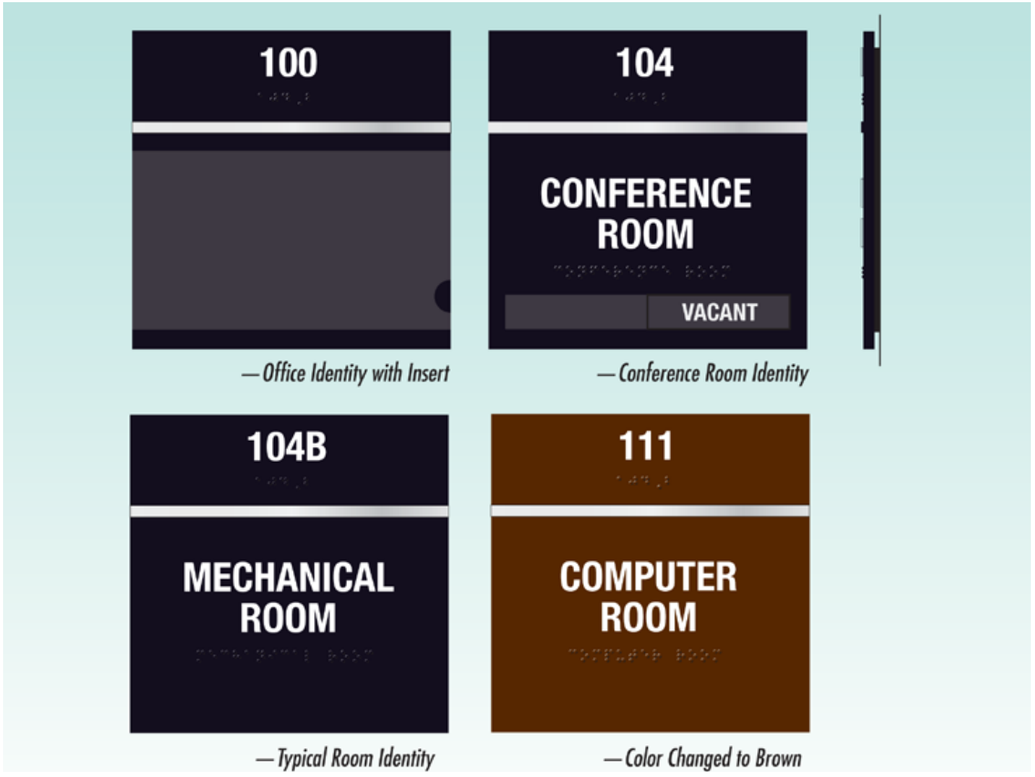
The size of the signs anticipates length and complexity of typical messages. Braille and raised-character text is not required by ADA for wayfinding signs, however, contrast, clearance and type size requirements still apply.



Area identity and department identity signs are to be used to identify the various space and departments within the building.

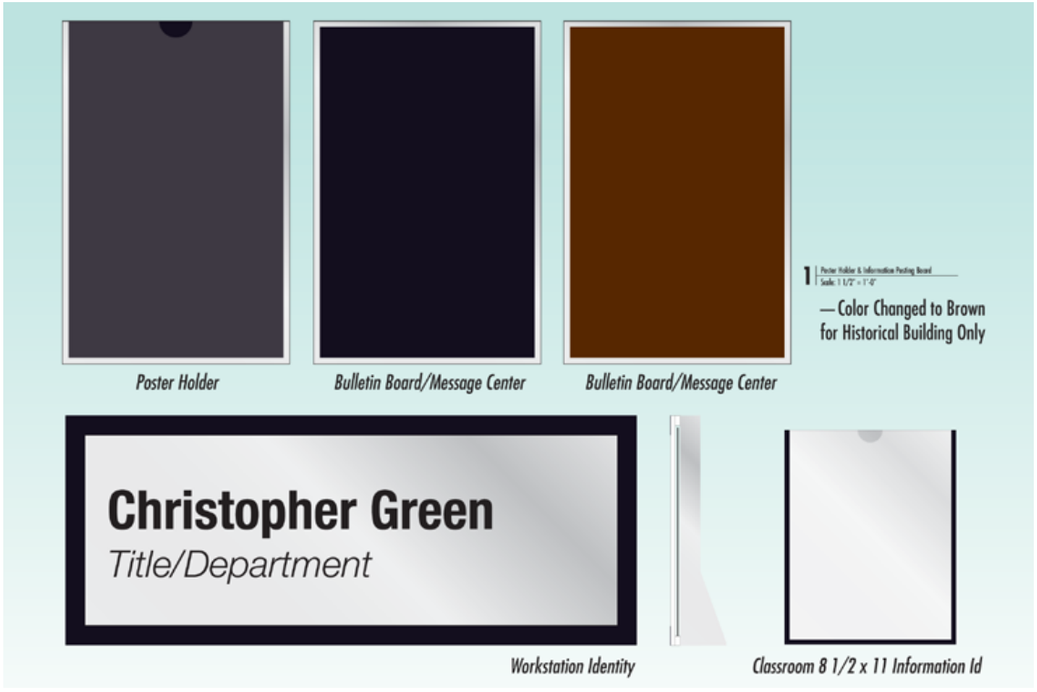
There are two color options for the letterforms – black and silver. Utilize black or silver based on the color of the walls, choosing the appropriate color to achieve maximum contrast. Letterforms are to be clear-coated or anodized to prevent formation of patina or oxidation. Logo or letterforms are to be stud-mounted to wall.





Identification signage is concerned with identifying permanent rooms, defining the location and boundaries of departments, highlighting and identifying amenities, and identifying personnel offices.

In compliance with ADA, Braille and raised-character text have been incorporated as well as 70% contrast between type color and background color. ADA mounting heights is five feet to the center of the sign.



Signage in this category is not required by code. However, the signage can de-clutter and organize the information that is posted by PVAMU or students.

The two-foot by three-foot information posting board and poster holder can be mounted vertically or horizontally and can be placed wherever PVAMU desires.

Workstation identity signs are to identify personnel workstations or when the wall is not available for an office identity sign.

Classroom 8 1/2 x 11 information identity signs are to be placed at the doors of the classrooms. They will be used by faculties to post information related to individual classes.

Signage in this category may be required by state and local building codes, the Americans With Disabilities Act (ADA), the Occupational Safety and Health Administration (OSHA), as well as PVAMU Risk Management.

In compliance with ADA, Braille and raised-character text have been incorporated for some sign types, as well as 70% contrast between type color and background color. ADA mounting heights are five feet to the center of the sign.

Signage in this category is required by state and local building codes, the Americans With Disabilities Act (ADA), the Occupational Safety and Health Administration (OSHA), as well as PVAMU Risk Management.

The size of the copy and message are restricted as shown. In compliance with ADA, Braille and raised-character text have been incorporated as well as 70% contrast between type color and background color. ADA mounting heights are five feet to the center of the sign.

Signage in this category is required by state and local building codes, the Americans With Disabilities Act (ADA), the Occupational Safety and Health Administration (OSHA), as well as PVAMU Risk Management.

Some signs require tactile & screen-tipped copy and Grade II Braille. The map needs to indicate the two nearest egress stairs/exits.

The elevator egress map needs to be mounted adjacent or above elevator call buttons per ADA and code requirements.

The elevator regulation identity sign is required to be placed within ten feet of each elevator bank. The elevator cab identity sign is required to number each elevator cab at first floor only.

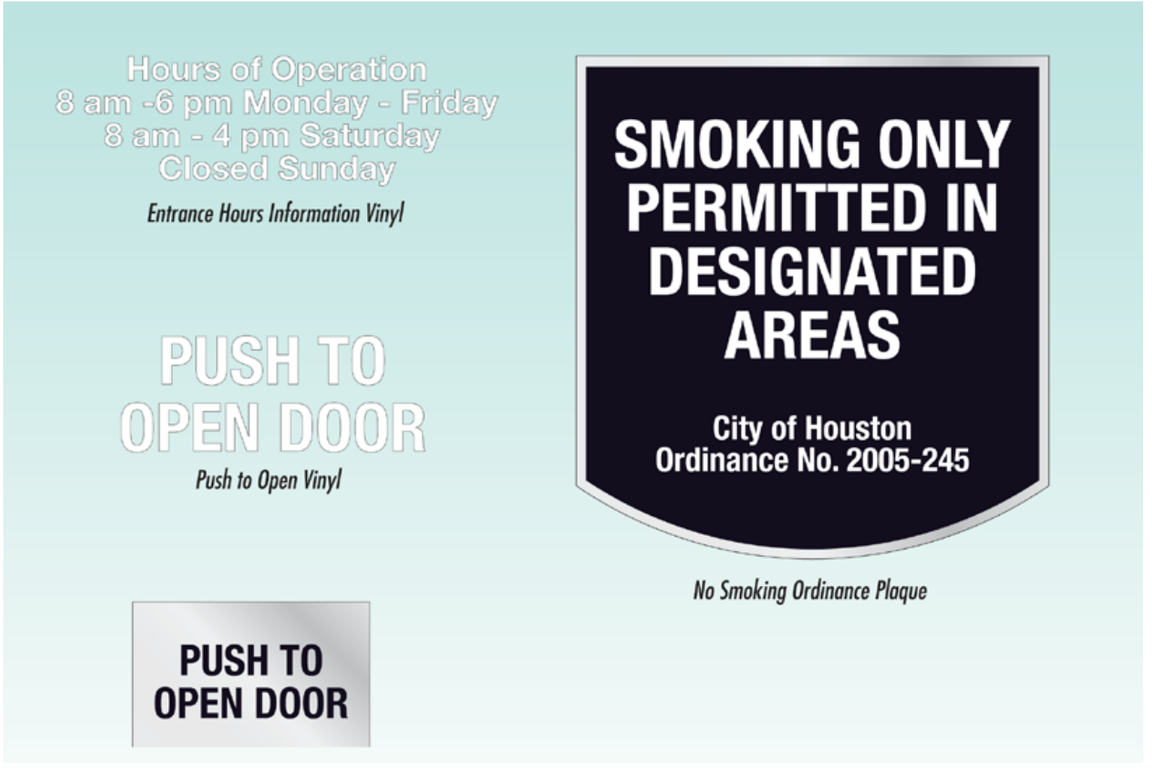
The size of the copy and message are restricted as shown. In compliance with ADA, Braille and raised-character text have been incorporated as well as 70% contrast between type color and background color. ADA mounting heights are five feet to the center of the sign.

Signage in this category is required by state and local building codes, the Americans With Disabilities Act (ADA), the Occupational Safety and Health Administration (OSHA), as well as PVAMU Risk Management.

The "No Weapon" vinyl and "Door Unlock" vinyl notices must be placed at every entrance as required by code.

The PVAMU logo vinyl sign will be placed on glass doors at entrances in order to avoid safety issues.

The "Fire Exit Do Not Block" vinyl notice will be placed on all other side doors that could possibly become additional egress exists in an emergency.



Some signage in this category is also required by state and local building codes, the Americans With Disabilities Act (ADA), the Occupational Safety and Health Administration (OSHA), as well as PVAMU Risk Management.

Public Art and Architectural Craft

Public art should be incorporated into building projects at PVAMU. 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. A campus committee should be established to direct and encourage the inclusion of public art, and the integration of this committee with the building process should start at the very beginning of each building project.

PUBLIC ART

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.

ARCHITECTURAL CRAFT

Opportunities for architectural craft include decorative tile and decorative sconces on the buildings themselves. Incorporating craft into the buildings helps to give the campus a human scale in addition to relating back to the historic buildings on campus.

Figure 2.36: Existing Fountain

Figure 2.37: Existing Sculpture

- *Incorporate public art and architectural craft into building projects*
- *Locate appropriately near established axes and in major spaces*
- *Maintain/enhance the areas around existing art, allowing their incorporation into the daily life of the students*

Organization Displays

Traditions and commemorations of history should be encouraged at PVAMU. The Greek organization displays in the main campus green area are a tradition dating back to the 1960s, if not before, and they are a visible and important part of campus life. However, the campus as a whole could benefit from more focused and better maintained displays, particularly as the master plan re-shapes and strengthens the central campus space, and this document is a proposed outline for how that could be accomplished.

IMPORTANCE

The location for organization displays is in the center of campus, and as the campus develops, it will become the heart of campus in both a physical and symbolic sense. Displays should enhance the area, rather than detract from it, and should be seen as an important and honored tradition for PVAMU.

ONGOING OVERSIGHT

A group should be established to oversee installations on an ongoing basis. The oversight committee should be drawn from a rotating set of student groups, with permanent representation from university administration, including the Director of Campus Maintenance, the Assistant Vice President for Physical Plant Services, other Physical Plant personnel and a staff representative from Student Affairs. The committee should be limited in size and should have an odd number of members to avoid stalemates. The group should meet regularly to review existing displays and to review and approve or deny new applications based on available space and adherence to appearance guidelines.

Figure 2.38: Existing Organization Display

EXCLUSIVITY

The opportunity to have an organizational display should be a reward for service and participation; it should not be an expectation. Furthermore, the ability to keep a display should be tied to the work that the group does in installing and maintaining the display. The number of displays should be regulated so that having one is an honor.

APPEARANCE GUIDELINES

The displays should use a basic materials palette drawn from the same materials which are used on campus buildings, hardscape, and signage. However, current traditions are for organizations to differentiate themselves through colors and letter forms, and this tradition should be encouraged and accommodated within reasonable limits. Regardless of materials and colors used, all displays should be carefully put together and maintained.

The size of displays should be regulated, and the size should be reduced from that of some of the current installations. A space six to ten feet on each side seems appropriate, but the oversight committee should discuss and set that limit. A height limitation of 36 inches for signs and letterforms should be used, per the signage guidelines elsewhere in this document.

Displays should have a sense of permanence – materials should be solid and firmly anchored. Materials which can be easily altered (such as small rocks or other items simply set on the ground) should not be used in order to discourage vandalism and to avoid a cluttered appearance.

Roads and Parking

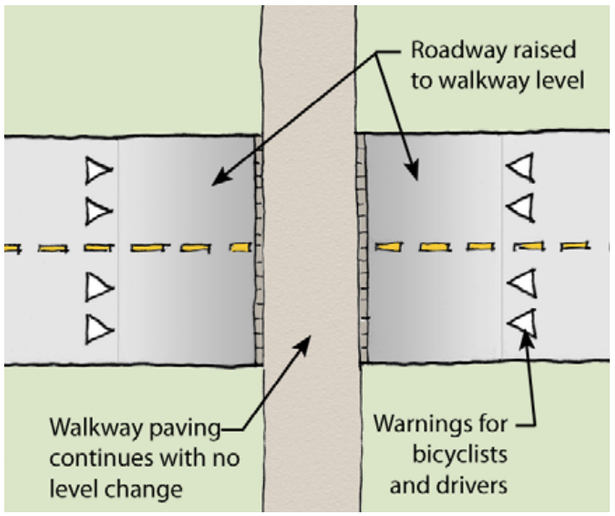
ROADS

Roads at PVAMU should be secondary to pedestrian walks. Choices about layout and materials should be made with this in mind, and specific features like walks and planting integrated into the parking lots, raised walks crossing roads, and special paving at crosswalks should be incorporated wherever possible.

The University has many asphalt roadways. Some of these roadways have historical maintenance problems. The roads should be evaluated, prioritized and a schedule developed for replacement. The work should be concentrated on the loop path designated by the Master Plan.

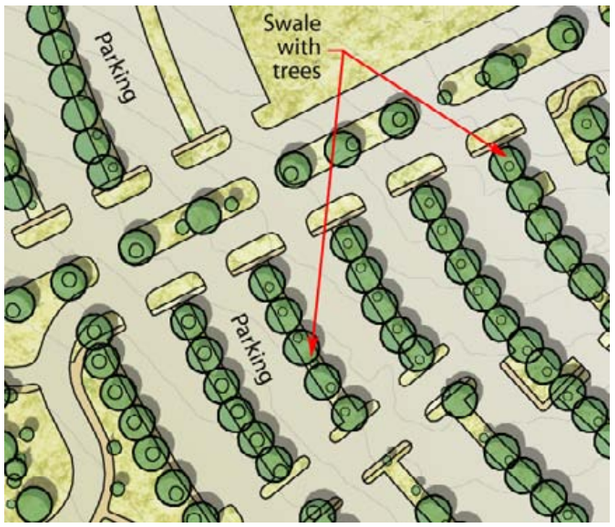
PARKING

A significant amount of new parking will be required as PVAMU grows, and if steps are not taken to control the appearance of future seas of asphalt, they may come to dominate parts of the campus experience. New parking lots should be planted and parking rows should be separated with green swales to direct rainwater and to soften the appearance of the parking areas. Where feasible, pervious paving should be used to minimize runoff issues.



New roadways should:
- *Integrate walks and planting*
- *Integrate pavers at crosswalks*
- *Not dominate the perception of the campus*

Figure 2.39: Crosswalk Diagram



New parking areas should:
- *Be planted with trees*
- *Incorporate green swales to direct rainwater*
- *Use pervious paving when feasible*
- *Not dominate the perception of the campus*

Figure 2.40: Parking Diagram

Exterior Lighting

PVAMU is one of the rare university campuses with relatively consistent campus-wide lighting. Unfortunately, the standard fixture is not appropriate for the campus – it is a 1980s/1990s-era modern fixture which does not comply with dark skies initiatives, nor is it visually a good choice for the campus. Future pedestrian fixtures should be those used in the park project completed in 2011. The current fixtures should be removed and replaced with appropriate fixtures as funding allows.

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 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.

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 to fourteen feet. 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. Wall-mounted sconces cannot provide large amounts of general-purpose light, but by highlighting architectural elements, sconces can help to define spaces. Glare should be eliminated wherever possible.

Good lighting heightens the interest of spaces at night, but it also helps 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.

Sustainability

Awareness of environmental topics and interest in energy and resource conservation has become a significant issue in building construction. While many opportunities are available only at the level of building design, and not at the master planning level, there are also many situations which can be addressed on a site-wide basis.

LEED

The LEED system of certification provides a framework for establishing environmentally sound projects. Even if certification is not pursued, the LEED framework can still be a guide, and designers can use it as a means of evaluating design choices from an environmental perspective. LEED certification should be pursued on a case-by-case basis; it may not be practical in all instances due to cost condiderations.

The credits in the Sustainable Sites (SS), Water Efficiency (WE), Energy and Atmosphere (EA), and Materials and Resources (MR) sections of the LEED Resource Guide are a good starting point for site-wide issues. However, blindly following the LEED criteria is not sufficient. A thoughtful designer can and should adapt design responses to particular sites and programs in order to achieve more than can be encompassed in a points-based system. The following addresses several pertinent LEED credits with PVAMU-specific commentary; not all sections are applicable, so not all are included.

SS Prerequisite 1: Construction Activity Pollution Prevention

The concerns addressed by this prerequisite are actually state law – stormwater pollution prevention plans are required for all projects over a given surface area.

Figure 2.41: Carpool Diagram

SS Credit 1: Site Selection
While the central campus area is well defined and is largely not affected by this point, perimeter sites (such as in the agricultural areas) could be affected. This credit requires that buildings, hardscape, roads, or parking not be developed in a number of areas, including on prime farmland (per US Code of Federal Regulations Title 7, Vol. 6, Parts 400-600, Section 657.5), on land lower than five feet above the 100-year floodplain, land within 100 feet of wetlands, or land within 50 feet of a body of water that can support fish or recreational use. The development of these types of areas at PVAMU should be avoided if possible.

SS Credit 2: Development Density and Community Connectivity
This credit encourages re-development of previously used areas. This is particularly applicable to PVAMU, as significant parts of the campus which are vacant now were previously developed. Buildings in these areas – as are all of the academic building sites on the master plan – are encouraged.

SS Credit 4: Alternative Transportation
As PVAMU's population grows, alternative means of transportation will become more important. Public transportation connections should be sought in order to provide connections to satellite campuses. Bicycling on campus should be encouraged by incorporating bicycle storage near appropriate campus buildings. Additionally, the feasibility of using alternative fuel, including compressed natural gas, for campus vehicles should be investigated.

Parking capacity for the future campus has been sized based on current usage. As more students live on or close to campus, their need for personal vehicles may be diminished. PVAMU should encourage on-campus students to do without personal vehicles and off-campus students to carpool whenever possible. Preferred parking spaces for carpooling students should be established. If such programs are successful in reducing parking demand, fewer parking spaces than called for in the master plan should be built.

SS Credit 5: Site Development
This credit is intended to conserve natural areas, to restore damaged areas, and to promote biodiversity. PVAMU has few greenfield sites on campus, but previously developed sites can achieve this credit by protecting at least 50% of the site (excluding the building footprint) or 20% of the total site area (including the building footprint), whichever is greater.

SS Credit 6: Stormwater Design
Impervious cover creates stormwater runoff. Minimizing impervious cover – buildings, hardscape, and other paving – can reduce stormwater detention requirements and limit polluted runoff. The ponds proposed in the master plan north of

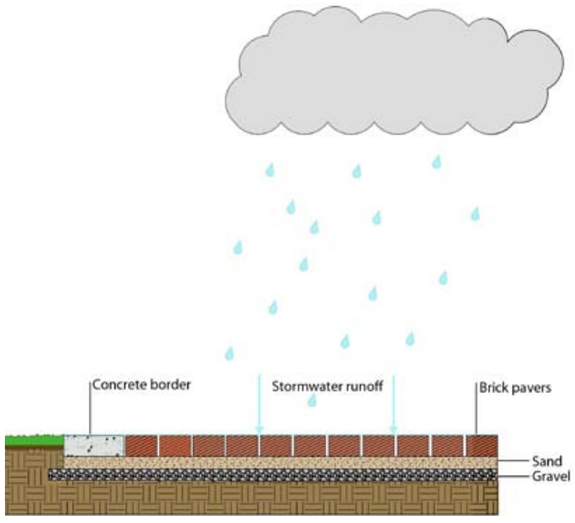


Figure 2.42:
Pervious Cover Diagram (reduces stormwater runoff)

Hobart Taylor Hall can play a part in coping with runoff, but impervious paving should be limited in order to reduce the size of the problem in the first place. Pervious asphalt, porous concrete, and pavers can all reduce runoff.

SS Credit 7: Heat Island Effect
Heat islands are localized areas of higher heat caused by dark paving and lack of shade, like asphalt parking lots. Planting trees in parking areas and hardscape to achieve 50% shade, retaining existing tree cover, and lighter-colored paving materials can all minimize this effect and qualify for credits. Also, using high-reflectance materials on roofs or vegetated roofs can also ameliorate the heat island effect.

SS Credit 8: Light Pollution Reduction
Minimizing light pollution will primarily benefit the school by reducing energy costs. Exterior lighting systems should be carefully designed to place light only where it is needed and only in the amounts which are required. The notes about future campus lighting take these considerations into account.

WE Credit 1: Water Efficient Landscaping
Future landscaping on campus should be selected to minimize watering requirements. Further, usage of collected rainwater can reduce consumption of potable water. The ponds proposed in the master plan are intended in part to fulfill this part of a water-efficient strategy.

WE Credit 2: Innovative Wastewater Technologies
Reduction of potable water use is also the intent of this credit. Water-conserving fixtures such as low-flow or composting toilets and use of nonpotable water in sewage conveyance are options. PVAMU also treats all wastewater on site, which qualifies for this credit as well, if the wastewater is treated to tertiary standards and is used on-site (as for irrigation) rather than released into waterways.

WE Credit 3: Water Use Reduction
With the use of low flow urinals and toilets, reductions in potable water usage can be obtained. A reduction of 40% can result in four points towards LEED certification.

EA Prerequisite 1: Fundamental Commissioning of Building Energy Systems
Commissioning is intended to ensure that as-built conditions match designers' intentions. The sophisticated HVAC and controls systems of modern buildings – especially those common in LEED-certified buildings – require coordination and confirmation of operation. Because of this, commissioning is a requirement for LEED certification and a best practice for building construction.

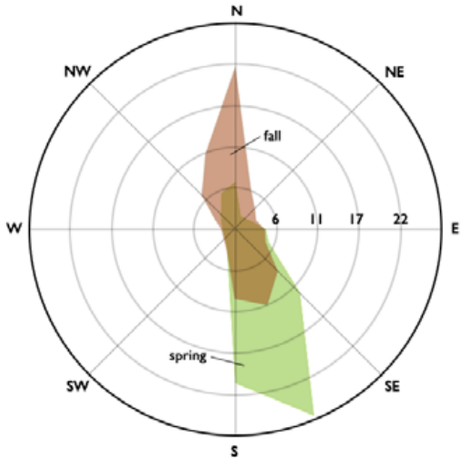
EA Prerequisite 2: Minimum Energy Performance
Credits can be achieved by improving energy performance beyond a certain minimum; this prerequisite sets that minimum. Also, the state of Texas mandates that all new buildings meet the requirements of ASHRAE 90.1. This mandate requires that all new state buildings use at least 14% less energy than a base building as described in ASHRAE 90.1 Appendix G. There are several different paths to compliance with this prerequisite.

EA Prerequisite 3: Fundamental Refrigerant Management
This prerequisite requires that no CFC-based refrigerants are used in HVAC equipment.

EA Credit 1: Optimize Energy Performance
Credits can be achieved beyond the baseline set by EA Prerequisite 2 by using various strategies to

reduce energy use. This credit encompasses all available planning and technological solutions to reductions of energy use, from multi-paned low-e glazing, to solar hot water systems, to cutting-edge heat reclamation equipment. The architectural guidelines in this document provide structure for some of these items, but the majority must be determined by architects and engineers at the time of design.

Figure 2.43:
Fall-Spring Wind Rose



How to read a wind rose: Wind roses are graphs showing from which winds come during a certain period. These wind roses are broken up by the four seasons, and two seasons are shown on each graph. Wind roses are frequency graphs – a greater distance from the center of the graph indicates a greater frequency of wind from that direction in the period shown.

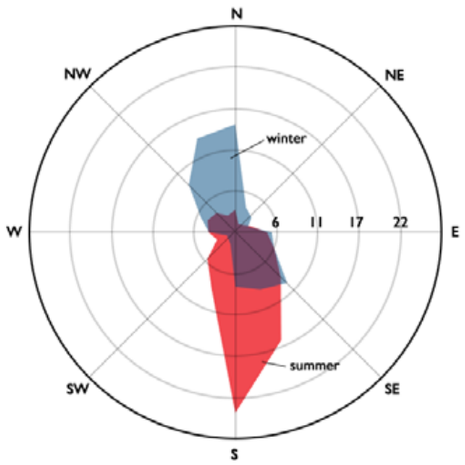


Figure 2.44:
Winter-Summer Wind Rose

EA Credit 2: On-site Renewable Energy

Renewable energy systems like solar, geothermal, and wind reduce demands on fossil fuels. Attaining the various levels of renewable energy production in this credit call for varying levels of investment, and institutional and system policies toward this type of investment should be used as a guide for how and when this type of technology is incorporated into projects. PVAMU has the advantage of looking at energy production as a system which can affect the entire campus instead of on a project-by-project basis.

EA Credit 6: Green Power

More than any other credit, this one is a simple tradeoff of dollars for LEED credit. This credit involves the purchase of power from renewable sources, which many utilities now offer for a higher price. Usage of this credit should be weighed against the potential to save money in the long run by instead purchasing more efficient equipment or other strategies.

MR Prerequisite 1: Storage and Collection of Recyclables

This prerequisite is good practice, but as of this writing it involves investment by the institution. While universities in urban environments may be able to operate campus recycling programs at a zero-cost basis because of the rates paid by commercial recyclers and the ease of transporting materials to them, PVAMU does not have that advantage – transportation and other issues mean that extensive recycling programs are a net cost. For a PVAMU building to be LEED certified, recycling must be implemented at that building, however. The potential for recycling programs should be revisited regularly and programs implemented when feasible.

MR Credit 1: Building Reuse
One of the most basic strategies to conserve energy is to conserve buildings. The set of sub-points in this credit are targeted at extending the lives of buildings, and where this is financially feasible and sensible for the university, this should be (and frequently is) done. However, considerations of changing building usage, the investments required to maintain and make older buildings accessible and safe, and long-term university strategies should also be considered.

MR Credit 2: Construction Waste Management
Building construction produces a great deal of waste, and sending that waste stream to recycling or re-using construction materials where possible limits the amount that must be sent to landfills. This credit should be explored on a project-by-project basis; depending on the type of construction and the contractor, management of waste can be very feasible.

MR Credit 3: Materials Reuse
Even when buildings cannot be feasibly renovated or re-used, their materials often can. Structural elements, brick, furniture, certain types of flooring, and finish materials like doors, frames, and paneling can all be salvaged and re-used on new projects.

MR Credits 4,5,6: Recycled Content, Regional Materials, and Renewable Materials
Building projects should use materials which have a low environmental impact whenever possible. Materials which do not emit chemicals as they cure and age contribute to healthier conditions inside buildings. Products which are made from recycled material encourage future recycling and in many cases require less energy to produce. Materials which are manufactured locally do not require expensive and pollution-causing transportation and are more cost-effective in many cases.

OTHER PVAMU SPECIFIC SUSTAINABILITY STRATEGIES

Condensate Collection
PVAMU is located in a humid climate, and outside air used for HVAC is pretreated to remove moisture. This condensate should be collected and utilized for irrigation or other non-potable water uses.

Shading Structures
Windows should be shaded wherever possible, with the proviso that the historical precedents on campus discussed in earlier guidelines sections do not utilize shading extensively, so designers should utilize building massing and orientation as much as possible to cope with solar exposure rather than applied shades. Shades can either be applied individually to windows or they can be large structures or extensions of roofs which shade a larger area of glass. Designers should investigate both horizontal and vertical shades, as they can both be effective depending on exposure. Wind uplift is a consideration – shades should be designed to resist winds per code requirements.

Building Orientation

The footprints of buildings are somewhat determined by the master plan, but the massing and fenestration of those buildings are resolved by individual designers. The way that building masses are disposed and how windows are placed on those masses can have a considerable effect on building performance. Designers should investigate ways to locate the largest amounts of glass on north and shaded south faces.

Prevailing wind directions should also influence how buildings and outdoor spaces are oriented. Summer winds tend to come from the south, so that exposure should be open. Winter winds come primarily from the north and northwest, so those exposures should be relatively closed to minimize cold winds.

Rainwater Collection

Given PVAMU's annual rainfall, there is a significant opportunity to collect rainwater for use in landscape irrigation. This issue can be pursued in individual buildings projects as well as in a campus-wide system. The designers of each project should research the viability, cost, and benefits of implementing rainwater collection, storage, and distribution for irrigation. One way to begin this process without overburdening any particular project with system-wide costs would be to require individual projects to collect enough water to supply most of the needs of the landscaping installed in that project. The lessons learned in those projects should dictate whether it is to PVAMU's benefit to implement campus-wide systems.

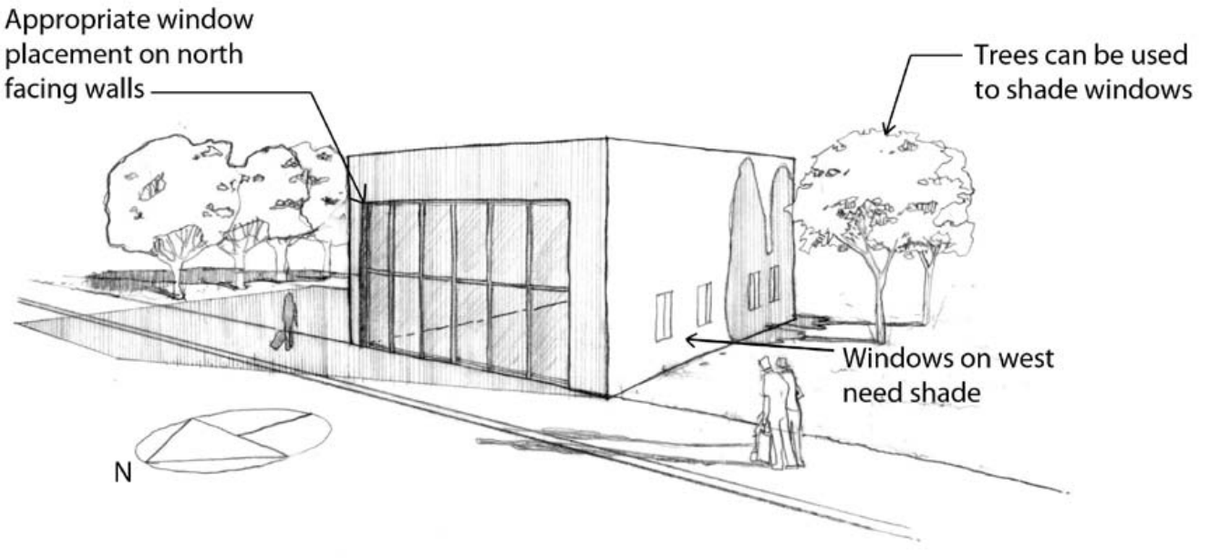


Figure 2.45:
Building Orientation Diagram

3. Technical Report

Utilities / MEP

DOMESTIC WATER

A new water well is desirable both to reduce the pumping requirements on the existing wells and to provide more equalized pressure across the campus. One possible location is southeast of the Waller-Carden Cooperative Extension Building. This location would minimize the amount of new roadway to get to the site, and it is close to an existing water main.

It is anticipated that the campus will be required to undertake water conservation measures for compliance with green initiatives in addition to the need for additional wells to meet the increase in water demand from additional academic, housing and other facilities in the master plan.

Figure 3.1: Proposed Water Well Location

Figure 3.2: Domestic Water Plan

CHILLED WATER

Chiller #5 and its associated pump are scheduled for replacement within the next two years. The campus is scheduled to add a chilled water filtration system in the near future. With the replacement of Chiller #5 , the existing chiller plant will have the capacity to accommodate the additional 281,000 SF of multipurpose classrooms, laboratory spaces, food service and the laundry for a total anticipated 850 cooling tons.

The future housing (410,000 GSF) will require 1250 tons of cooling. These additional cooling tons cannot be accommodated by existing chilled water facilities. New point of use systems will be required to be part of the design of the three housing facility additions.

PIPING SYSTEMS

There are existing water distribution lines located near most of the proposed facilities that could be used to provide water for the proposed facilities. However, water system assessment should be undertaken prior to extension of existing services.

There are existing storm water and sanitary sewer systems located near most of the proposed facilities that could be used to provide these services for the proposed facilities. However, water and sanitary sewer systems assessment should be undertaken prior to extension of existing services.

Figure 3.3: Chilled Water Plan

STEAM

The current peak steam load is estimated at 65 MMBTUH. Boiler #7 is rated at 25 MMBTUH (MMBTUH= 1,000,000 BTUH) and is scheduled for replacement within the next two years. With the replacement of Boiler #7 , the existing steam plant will have the capacity to accommodate the additional 281,000 SF of multipurpose classrooms, laboratory spaces, food service and the laundry for a total anticipated 15 MMBTUH. The current capacity of the central plant can meet the future planned facility additions.

The future housing (410,000 GSF) will require heating of 20 MMBTUH. This additional MMBTU load can be accommodated by the existing boiler plant. However, to provide redundancy in the operation of the steam plant, it is recommended that the housing heating requirements should be addressed by using new point of use hot water systems for the housing additions.

HVAC CONTROLS

The Johnson Control System is being extended to other campus buildings. The multi-purpose classrooms, laboratory spaces, food services, the laundry and the housing need to be provided with compatible controls for seamless functionality of these facilities.

FIRE PROTECTION

Fire hydrants should be located so that all portions of the buildings are within 300 feet of a fire hydrant. A new fire lane will run from Anne Preston Street to John B. Coleman Library to provide aerial apparatus access.

The proposed new buildings need to be provided with compatible fire alarm systems for seamless campus-wide functionality.

STORM WATER / PONDS

New ponds are proposed along the existing channels south of W. A. Tempton Sr. Memorial Student Center and the Administration Building. The ponds will be a site feature and can also be used to supplement the irrigation system. The drainage area to the ponds, by surface and piped flow, is approximately 60 acres. Waller County has average annual rainfall of 38.20 inches. Assuming a run-off coefficient of 0.5, the ponds would receive approximately 95 acre-feet of water annually. The ponds would be two stage, with approximately the top 3 feet used for irrigation storage and the remainder being permanent pond. This would provide approximately 5 acre-feet of irrigation water when the ponds are full.

SANITARY SEWER / WASTEWATER

The sewage treatment plant and the sewage system will need upgrades to accommodate additional loads generated by the additional academic, housing and other facilities under the master plan. The implementation of water conservation measures mandated by state and the federal regulations will help by reducing existing loads on the treatment plant.

Figure 3.4: Steam Plan

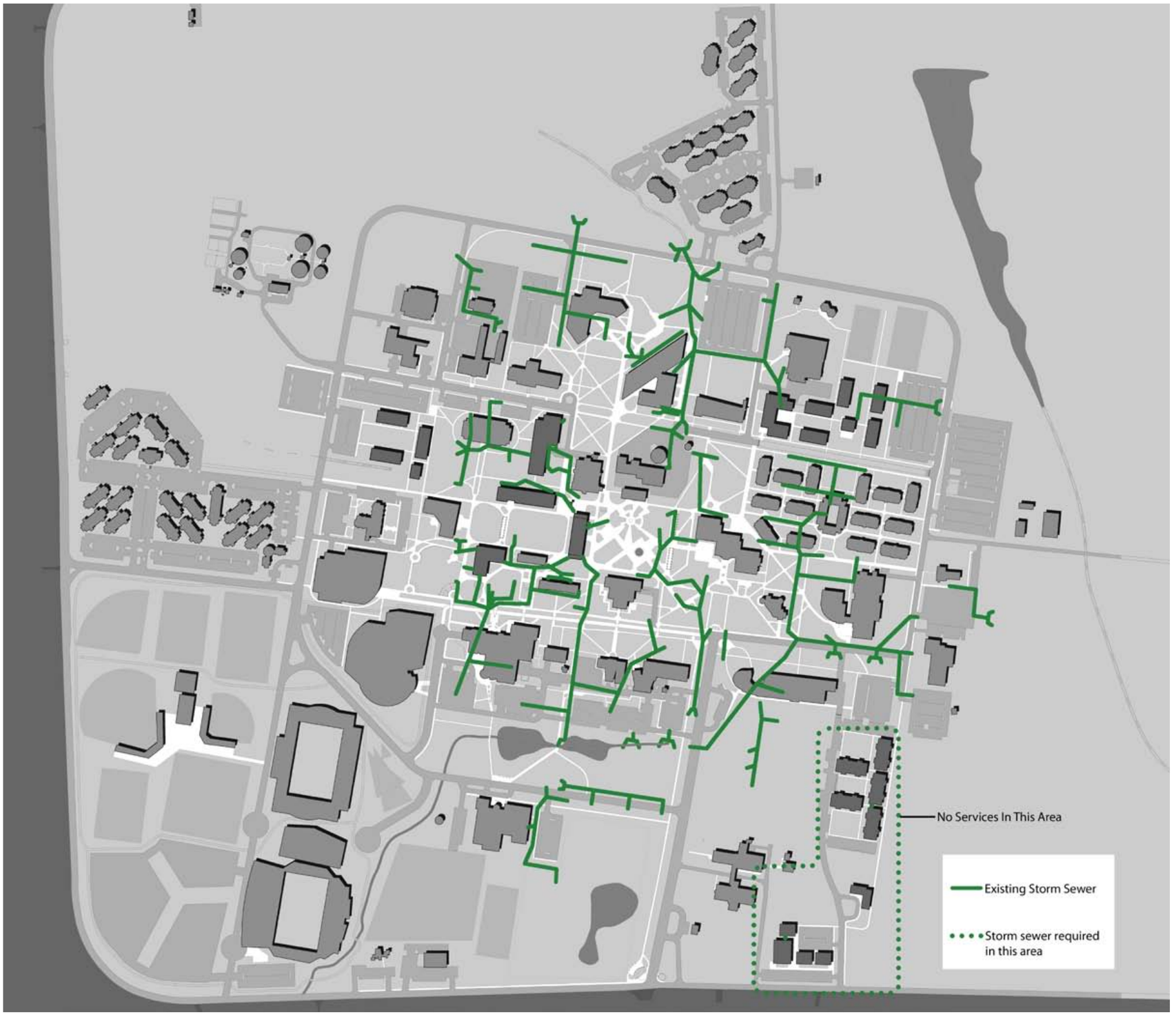


Figure 3.5: Storm Sewer Plan

Figure 3.6: Sanitary Sewer Plan

ELECTRICAL

Incoming Electrical Service

The electrical network has approximately 60% spare capacity. The academic buildings should add approximately 2500 kW, the new housing units should add approximately 3200 kW, and the other buildings should add approximately 630 kW. The existing campus electrical service has adequate spare capacity to accommodate the proposed new loads.

Electrical Distribution Network

Currently one of the feeders from the switching station is scheduled for replacement and has been disconnected from the electrical distribution system.

The campus recently replaced one of the existing underground feeders and has prioritized maintenance targets for the replacement of others. The underground electrical distribution network is in good condition and capable of handling the proposed new loads.

LIGHTING

Existing pedestrian walkways have floodlights on steel poles. The majority of existing pedestrian walkway fixtures consist of translucent globes with metal halide lamps atop tapered, concrete poles. However, these fixtures are slowly being replaced with Dark Sky compliant semi-spherical fixtures.

Similarly, the existing bollards are being replaced. Currently, the majority of these fixtures have round, steel structures with various light distribution options. The campus has installed some solar-powered bollards with LED light sources to study their effectiveness before pursuing any further replacements. Future renovations or new construction projects need to account for these changes to the pedestrian pole and bollard fixtures.

The addition of new academic buildings, housing units, and other facilities to the campus will alter some of the pedestrian pathways around campus. As the campus undergoes the process of standardizing their pedestrian and roadway lighting, the new design will need to meet campus standards for safety and industry accepted recommended light levels. The IESNA recommends an average of 5 footcandles, with an average-to-minimum uniformity ration of 5:1, for walkways.

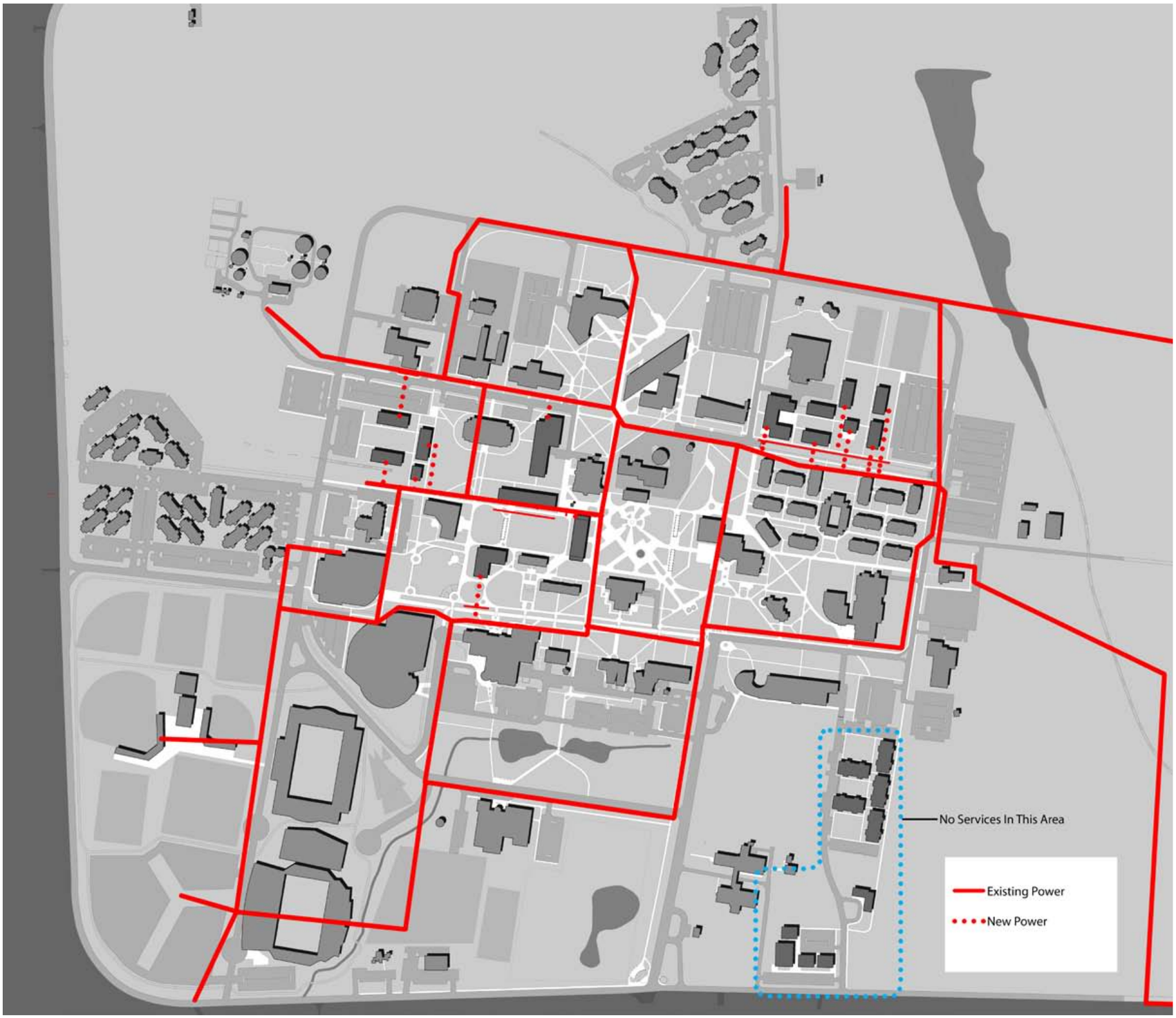


Figure 3.7: Power Plan

NEW BUILDINGS

General

Based on available utility mapping, utility lines currently are located under Academic 1, Academic 2, Academic 3, Academic 4, Food Service, Housing 1 and Housing 2. A detailed utility study will be necessary prior to design of these buildings to determine if utilities need to be relocated.

Academic 1

Academic 1 is to be located on Anne Preston Street, between the Don K. Clark Juvenile Justice and Psychology Building and Hilliard Hall. Domestic water, sanitary sewer, electrical, communications and chilled water services for the building are available from existing lines located in Anne Preston Street. Academic 1 is the only new academic building that will need natural gas service, which is available in Anne Preston Street.

Academic 2

Academic 2 is to be located south of Hilliard Hall. Domestic water, sanitary sewer, communications and electrical services are available in the area immediately north of the building. Chilled water service is available either from the existing lines running north-south immediately east of Hilliard Hall, or from the lines running east-west between Hilliard Hall and Academic 2.

Academic 3

Academic 3 is located immediately south of Academic 1. Sanitary sewer, chilled water, communications, electrical and steam services are available from existing lines immediately south of the building. Domestic water is available from existing lines immediately east of the site.

Academic 4

Academic 4 is to be located along L. W. Minor Street, between Anderson Hall and the Wilhelmina R. F. Delco Building. Domestic water and sanitary sewer service are available immediately west of the site. Chilled water is available from the existing line immediately south of Academic 3. Electrical service is available either from the lines south of Academic 3, or south of L. W. Minor Street. Communications service is available from immediately east of the site. Steam service is available from the south, east, and west sides of the site.

Food Service / Laundry Facility

The Food Service facility is to be located on the north east corner of the intersection of Anne Preston Street and B. B. O'Banion Street. Domestic water and communications service are available on the west side of the site. Chilled water, steam and natural gas services are available on the south side of the site. Sanitary sewer and electrical services are available on the south side of Anne Preston Street.

Housing 1

Housing 1 is located along Anne Preston Street, immediately east of Food Service. Domestic water, sanitary sewer and electrical services are available on the south side of Anne Preston Street. Communications service is available on the north side of Anne Preston Street, immediately east of the site.

Housing 2

Housing 2 is located at the south east corner of the intersection of Anne Preston Street and Oscar Pipkin Street. Domestic water and communications services are available along Anne Preston Street. Sanitary sewer service is available in the middle of the site. Electrical service is available on the south side of the site, or on the north side of Anne Preston Street.

Housing 3

Housing 3 is located in the southeastern part of the campus, south of L. W. Minor Street and north east of Jones Elementary. Domestic water is available on the south and west sides of the site. Sanitary sewer service is available in the parking lot on the north side of the site. Electrical service is located along the north side of L. W. Minor Street. Communications service is available from south of Carden-Waller Cooperative Education Extension or from the north east side of Nathelyne Archer Kennedy Architectural Building.

Child Care

Child Care is to be located south of Housing 3 and east of Jones Elementary. Domestic water is available south of Housing 3. Sanitary sewer service is available on the north side of Jones Elementary. The nearest source for all other utility connections is the existing public utilities at F.M. 1098.

Retail

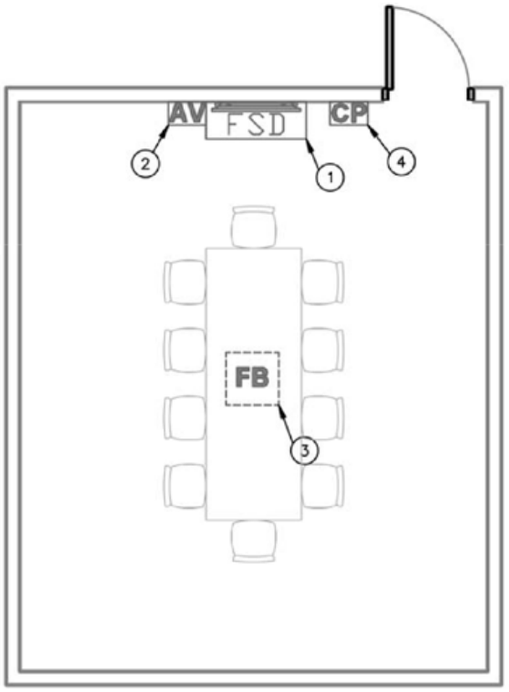
The retail area is located along F.M. 1098 Loop, south east of Jones Elementary. Retail is distant from on-campus utilities, and at a lower elevation than Jones Elementary. Utility services should be brought from the existing public utilities at F.M. 1098.

Technology

PVAMU has five different class types on campus based on student capacity. The master plan identifies the different audio/visual technologies needed for each type.

Type A - Seminar Space

- Basic presentation system
- Capacity: 10 + students
- Average Size: 500 square feet
- Layout: Conference table and chairs

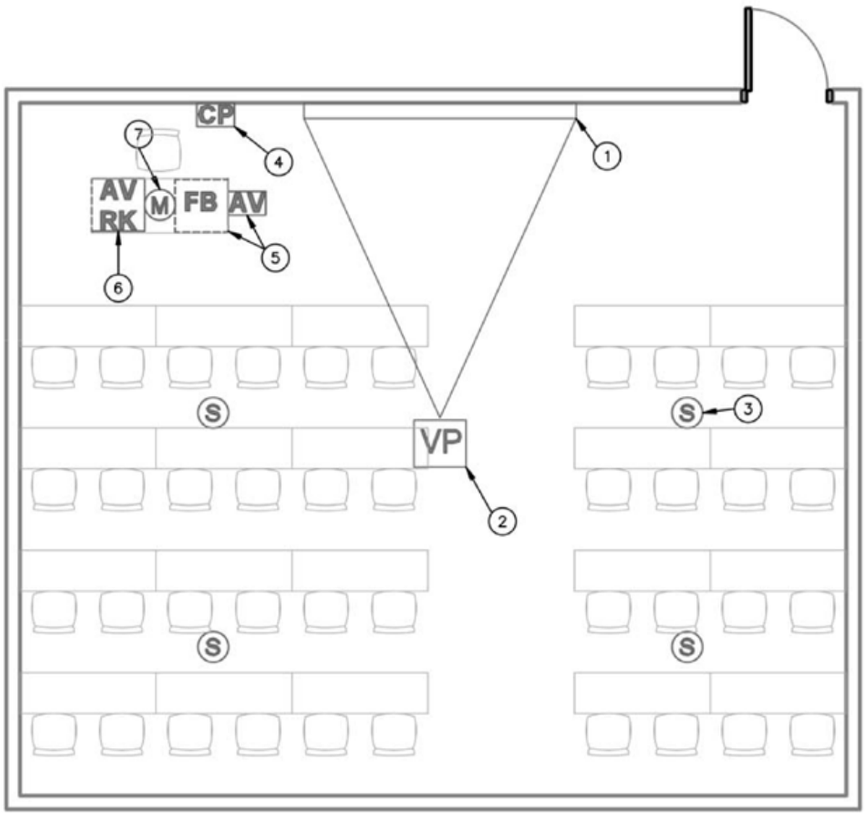


Drawing Key:

1. LCD/LED Flat Screen Display
2. Wall Mounted Interface Plate
3. Floor Box with Interface Plate
4. Wall Mounted Simple Control Plate

Type B - Small Classroom

- Presentation system
- Capacity: 20 + students
- Average Size: 625 square feet
- Layout: 2 - person movable tables with movable chairs

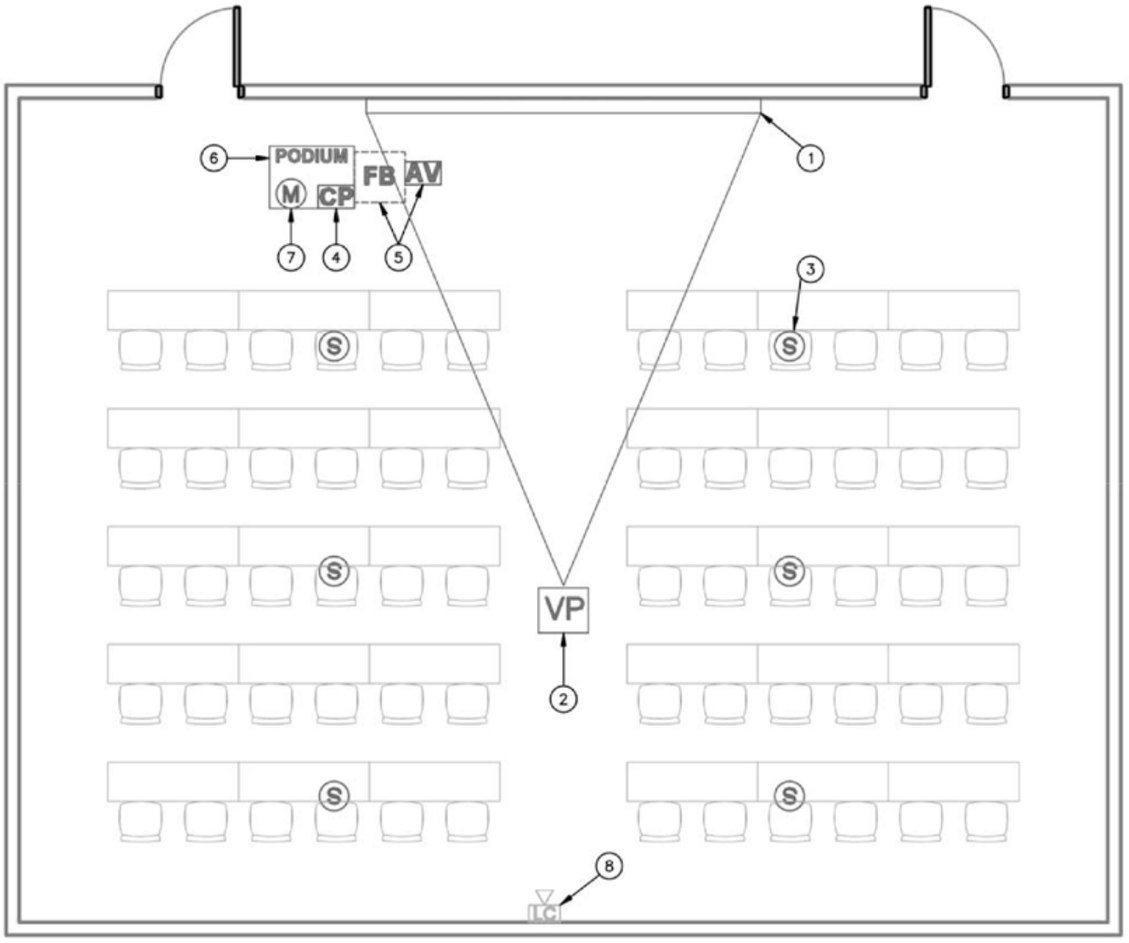


Drawing Key:

1. *16:9 Electric Projector Screen with RS232 Control*
2. *3,000 Lumen Projector*
3. *Ceiling Mounted Loudspeaker*
4. *Wall Mounted Simple Network Control System*
5. *Floor Box Mounted A/V Interface Plate*
6. *A/V Rack with DVD/VHS, Video/ Audio Switching, and Control System*
7. *Microphone*

Type C - Medium Classroom

- Presentation System with One Way Video Conference for Instructor Only
- Capacity: 40 + students
- Average Size: 725 square feet
- Layout: 2 - person movable tables with movable chairs

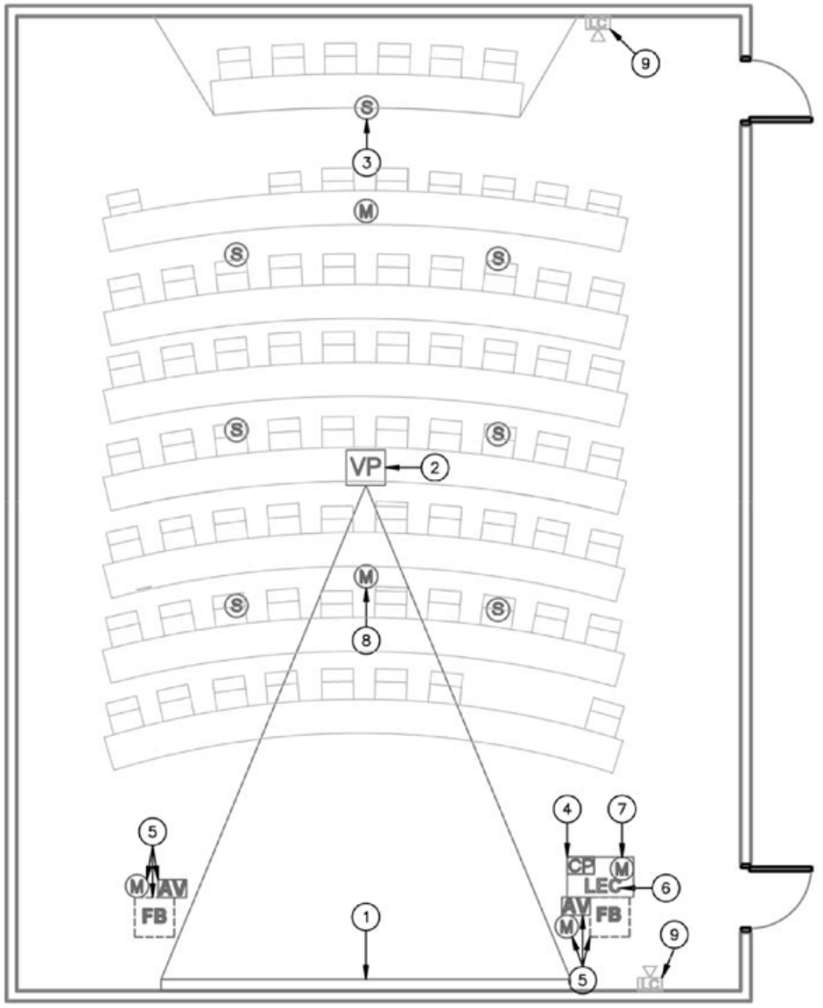


Drawing Key:

1. *16:9 Electric Projector Screen with RS232 Control*
2. *3,000 Lumen Projector*
3. *Ceiling Mounted Loudspeaker*
4. *Podium Mounted Simple Network Control System*
5. *Floor Box Mounted A/V Interface Plate*
6. *Podium with A/V Rack with DVD/VHS, Video/Audio Switching, Control System, and Video Conference System*
7. *Microphone*
8. *Single Video Conference PTZ Camera*

Type D - Large Classroom

- Advanced Presentation System
- Capacity: 60 + students
- Average Size: 1,200 square feet
- Layout: Fixed auditorium seating with note-taking folding arm-tables, level floor

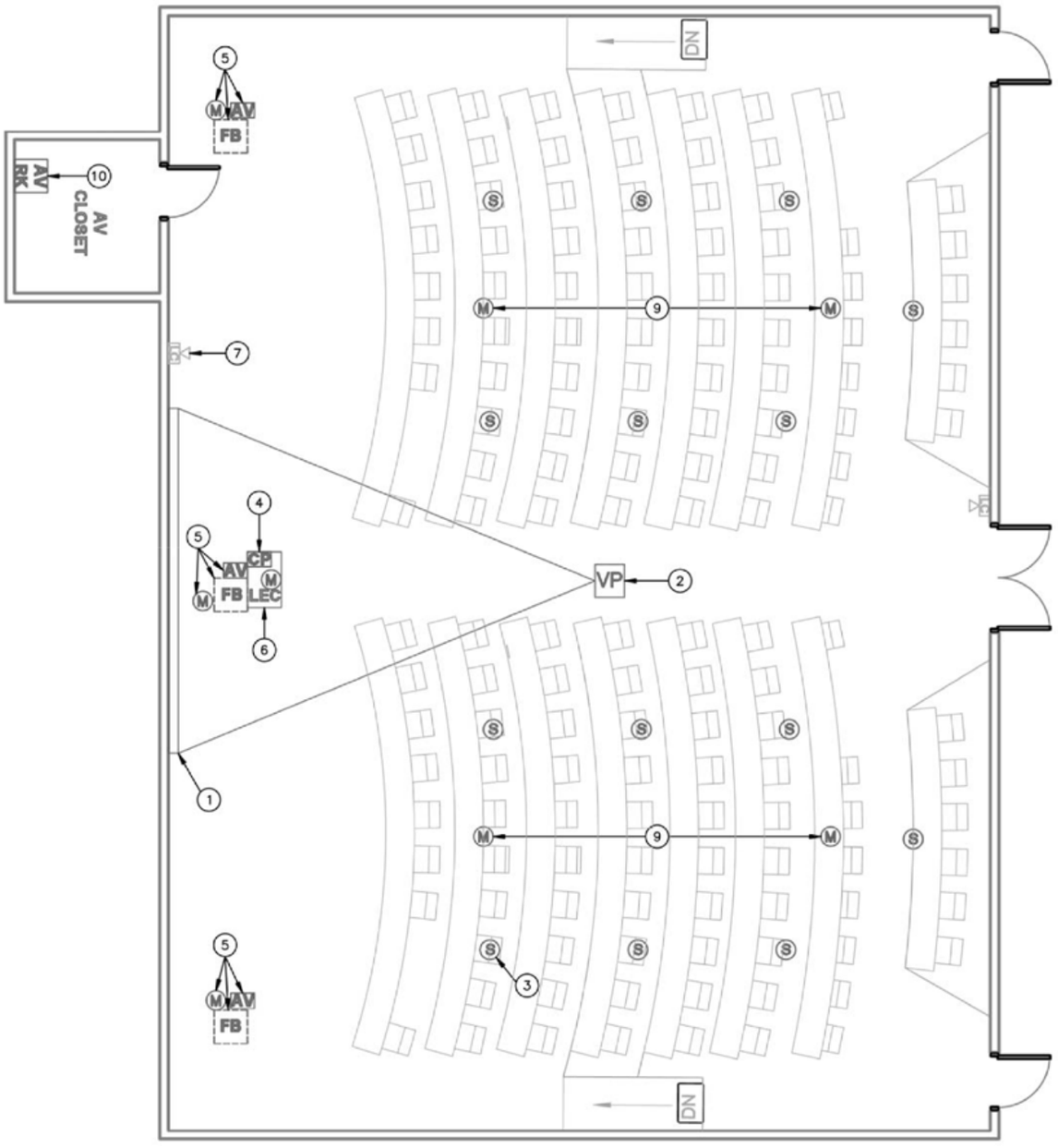


Drawing Key:

1. *16:9 Electric Projector Screen with RS232 Control*
2. *4,500-5,5 Lumen Projector*
3. *Ceiling Mounted Loudspeaker*
4. *Podium Mounted Color Touch Screen Control System*
5. *Floor Box Mounted A/V Interface Plate with Microphone Connection*
6. *Podium with A/V Rack with DVD/VHS, Video/Audio Switching, Control System, and Video Conference System*
7. *Podium Microphone*
8. *Video Conference Microphone*
9. *Dual Video Conference PTZ Cameras*

Type E - Large Lecture Space

- Advanced Presentation System With Distance Learning
- Capacity: 150 + students
- Average Size: 3,500 square feet
- Layout: Fixed auditorium seating with note-taking folding arm-tables, sloped floor



Drawing Key:

1. *16:9 Electric Projector Screen with RS232 Control*
2. *8,000-10,000 Lumen Projector*
3. *Ceiling Mounted Loudspeaker*
4. *Lectern Mounted Color Touch Screen Control System*
5. *Floor Box Mounted A/V Interface Plate with Microphone Connection*
6. *Portable Lectern with A/V Rack with DVD/VHS, Video/Audio Switching, Control System, Goose-neck Microphone, Confidence Monitor, Document Camera, OFCI Computer with Keyboard and Mouse*
7. *Dual Video Conference PTZ Cam-eras*
9. *Video Conference Microphone*
10. *AV Rack: A/V Switcher, Audio DSP, Video Conference Codec with AEC, Wireless Microphone, Porta-ble Annotation Tablet, Audio Mixer and Audio Amplifier*

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UNIVERSITY

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Vergel L. Gay, Chief Facilities Planning and Construction Officer
Dan Kennedy, Director of Project Planning
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