

# Phase 1 Report: Existing Conditions

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Texas A&M University at Galveston  
Mitchell Campus Master Plan

April 2008

Ford, Powell & Carson Architects & Planners, Inc.

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## 1. Background

# Introduction

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Texas A&M University at Galveston (TAMUG) is a unique institution. It has a more refined mission than most universities, yet it is part of a larger institution (Texas A&M University) which has a very broad set of programs. TAMUG's focus on marine and maritime programs mean that it is a leader in those particular areas, so students from around the nation and world are drawn to it; unlike many Texas universities, TAMUG's student body is not drawn merely from surrounding counties. TAMUG's programs also require very different, and more specialized, facilities than most institutions.

These factors indicate that a successful master plan for TAMUG will be more focused than those of many other institutions. Because TAMUG has specific program requirements which many other universities do not, a master plan which addresses merely formal planning issues would fail to provide the targeted guidance which is most useful to the university. Conversely, an unelaborated plan which only addressed practical issues, and not the less tangible issues of spirit and character, would fail no less profoundly than a plan which ignored the physical realities of the campus.

This master plan focuses primarily on the Mitchell Campus. TAMUG also operates the Waterfront Campus – home of the Texas A&M Center for Marine Training and Safety – facilities at Fort Crockett, and a small rowing facility near Pirate's Cove. It is the intention of the university to consolidate the programs currently located at Fort Crockett to the main campus, so this master plan provides for relocation of those spaces to the Mitchell Campus.

This master planning effort is broken into two parts. The first part, which this document represents, is an analysis of current conditions and presentation of growth projections. Master plans which are most useful to universities are those which are most effective in addressing the physical and programmatic issues each particular institution faces; the first step in doing so is to understand the current conditions thoroughly. The analyses and studies herein contain the seeds of the master plan itself.

# Mission Statement

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Texas A&M University at Galveston (TAMUG) is a special purpose institution of higher education for undergraduate instruction in marine and maritime studies in science, engineering, and business and for research and public services related to the general field of marine resources.

The institution is under the management and control of the Board of Regents of the Texas A&M University System (TAMUS), with degrees offered under the name and authority of Texas A&M University at College Station (TAMU). TAMUG programs focus on the scientific, technical, business, socioeconomic, and environmental policy issues concerning the oceans, coastal regions, and maritime industries.

TAMUG accomplishes its mission by providing the following services:

- An integrated program of undergraduate education, including maritime training for professional license programs
- Scholarly research in the marine sciences, engineering, and humanities
- Outreach programs for the public about marine issues and to serve the maritime industry
- A “window to the sea” that serves as a national resource in support of education, research and public service in marine and maritime fields

# History

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The Galveston Marine Laboratory and the Texas Maritime Academy provided the foundation for what was to become Texas A&M University at Galveston (TAMUG). Pioneered in the late 1950s by two Galveston marine biologists, Dr. Albert Collier and Dr. Sammy Ray, the Marine Laboratory conducted scientific research in oceanography and marine biology. Meanwhile, Rear Admiral Sherman Wetmore, U.S. Naval Reserve, and other interested Galvestonians petitioned the Texas Legislature to appropriate monies to establish the Texas Maritime Academy.

The academy began operation as part of the Texas A&M University System in 1962. The federal government also provided a training ship, the 15,000 ton Texas Clipper, a former passenger-cargo liner, in 1965. In 1968, a gift of one hundred acres of land for a campus on Pelican Island portended a new direction for the institution. The gift from native Galvestonian George P. Mitchell (A&M Class of '40) and the Mitchell-Dobbins Land Corporation was made in honor of Mitchell's father, Mike. An additional gift of 35 acres of land adjoining the Mitchell Campus was presented by Mitchell in 1993. The Texas Institute of Oceanography was established in 1989 to provide a "window to the sea" for marine and maritime research in Texas.

TAMUG now serves as an ocean-oriented campus of Texas A&M University. The campus offers a unique blend of programs including majors in sciences, business, engineering, and transportation. Students receive a hands-on approach to education which complements their academic studies. The atmosphere fostered by the faculty, staff, and students emphasizes the intimate relationship between the university and the sea.

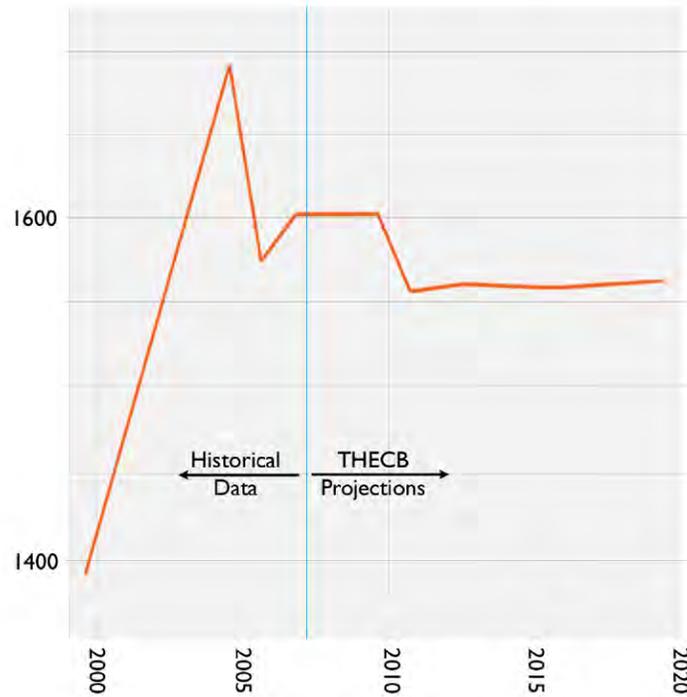
In 1998, Maritime Studies became the first bachelor of arts academic program. A campus on Offatts Bayou was established in 1993 with the purchase of 14 acres of land on Teichman Road. The campus houses the Center for Marine Training and Safety as well as research and recreational facilities.

There are three residence halls on campus. A new physical education facility opened in 1994 to provide for TAMUG's physical education coursework. The facility was the training camp facility for the world champion Houston Rockets in 1994 and 1995. The Jack K. Williams Library, completed in 1986, contains over 46,000 books, 35,000 bound volumes of journals, and a collection of charts and maps. The library also houses the Galveston Bay Information Center.

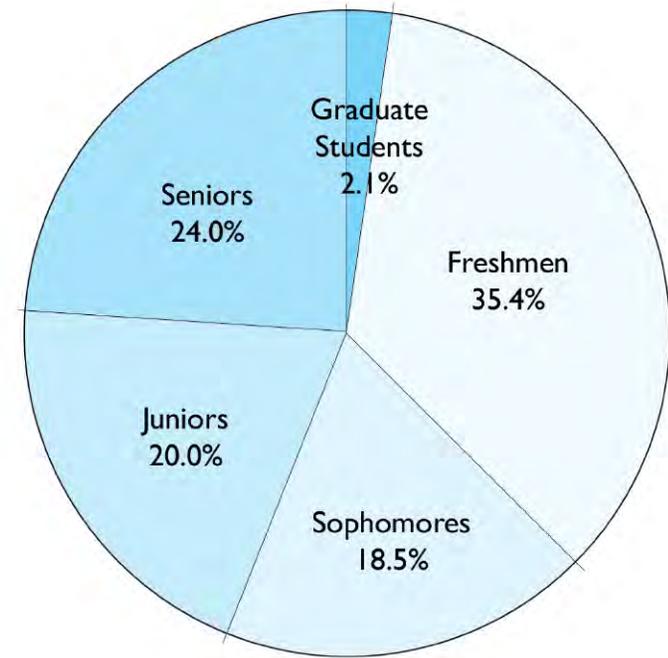
In 1996, the original training ship was replaced with the 393-foot USN Chauvenet, which was renamed Texas Clipper II. In addition to being a floating campus during summer cruises, the ship provides additional classroom, meeting, and training space during the school year. In 2005, Texas Clipper II was replaced by a new training ship, the USNS Sirius, which will be renamed Texas Clipper III.

Enrollment increased significantly from ninety-one students in 1971 to approximately 1,600 at present. The first "non-license" students (including women) enrolled in 1973, and women registered as cadets for the first time in 1974.

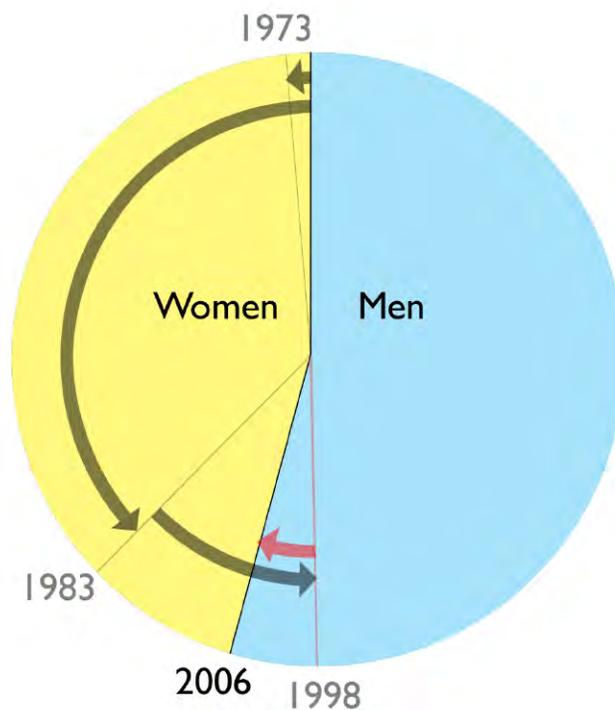
# Student Body



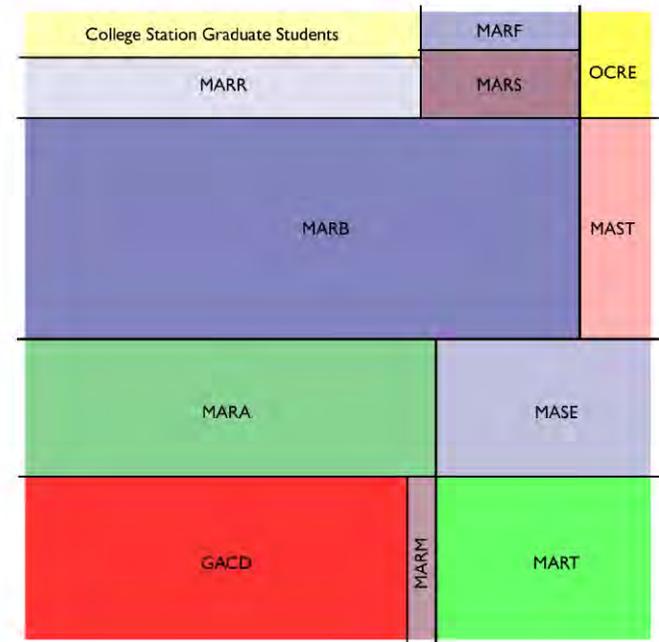
Historical enrollment and THECB projections



Enrollment by classification



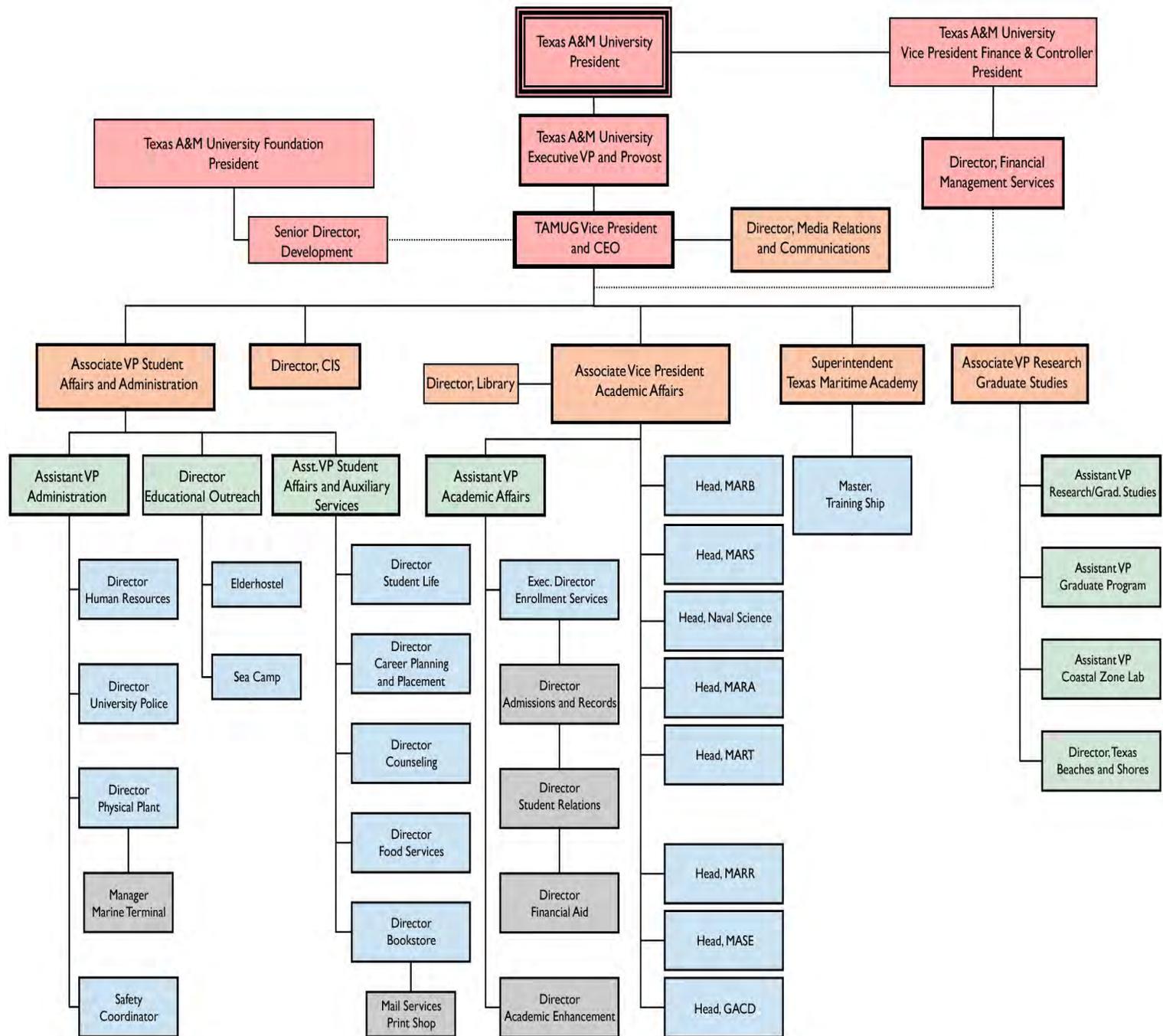
Enrollment by gender



Enrollment by program; refer to page 5.1 for expansion of abbreviations

Sources: THECB Participation Forecast 2007-2020, and TAMUG Enrollment Summary Fall 2006 (statistics as of 20th class day), September 25, 2006

# Organizational Chart



Source: Adapted from: Unknown Author. "Texas A&M University at Galveston Organizational Chart – June 2007." Texas A&M University at Galveston web site. 17 Oct. 2007.

# Admission, Attending, and Housing

## Admission requirements

Domestic applicants who rank in the top 25% of their high school graduating class, achieve a combined SAT math and SAT critical reading score of at least 1300, with a test score of at least 600 in each of these components of the SAT, or a composite ACT score of at least 30 with a test score of at least 27 in ACT math and ACT English, and meet minimum course work will be automatically admitted.

Applicants not meeting the above requirement will have their complete application file reviewed to make an admission decision. Factors considered are:

- Four years of English.
- Three and a half years of mathematics to include Algebra, Geometry, Algebra II and at least one-half year of advanced math.
- Three years of science with at least two courses from Biology I, Chemistry I or Physics I.

## Costs of attending

Semester costs listed below are for all Texas resident students except those in license-option curricula or graduate programs. This schedule is based on a student registered for 15 credit hours during the regular school year (fall and spring semesters).

Tuition: \$2340

Fees: \$2534.80

Total: \$3027.55

Double-occupancy room: \$1075

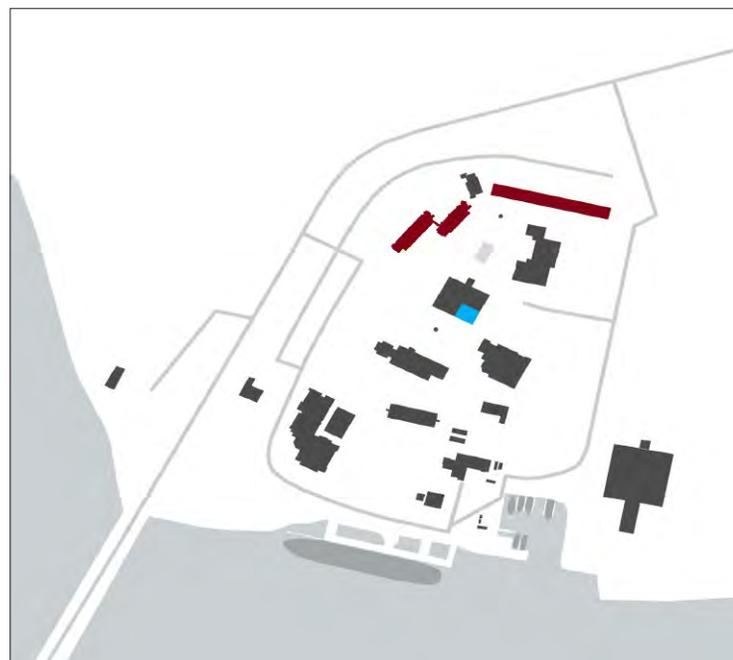
21 meal plan: \$1526.33

Additional fees may apply, depending on coursework.

## Housing

There are more than 600 on-campus beds in three residence halls on the north end of campus. There are nearly 300 additional beds in nearby off-campus housing located to the east of the on-campus halls. All undergraduate students enrolled in more than nine hours are required to live on campus while space is available; approximately 40% of undergraduates live on campus. Additionally, license-option students are required to live on campus, so students may only pursue a license option if campus housing is available for them. Rooms are double occupancy, and most rooms share a bathroom with one other room.

All on-campus residents must purchase either a 15- or 21-meal plan. Students who live off campus have the choice of ten- or five-meal plans, or they may purchase meals individually or in blocks of five or ten. The main dining hall, known as the Captain's Landing, is open continuously from 6:30 AM to 7:00 PM on weekdays. The Galley, a smaller food service venue, is open for more limited hours during weekdays only.



Campus housing locations (maroon) and dining hall (blue)

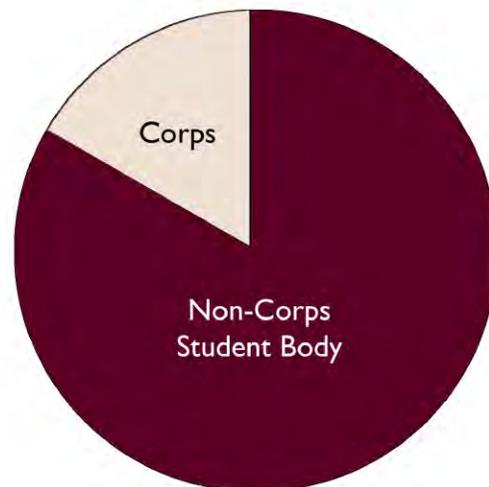
Sources: "Attendance Costs for Resident Non Graduates\_2007-2008." Texas A&M University at Galveston web site. 17 Oct. 2007. <[http://www.tamug.edu/fiscal/Student%20Financial%20Services/costsres\\_07-08.htm](http://www.tamug.edu/fiscal/Student%20Financial%20Services/costsres_07-08.htm)> and "Student Organizations." Texas A&M University at Galveston web site. 17 Oct. 2007. <<http://www.tamug.edu/stuact/Studentorganizationsframes.htm>>.

# Organizations

## Texas Maritime Academy and U.S. Maritime Service Corps of Cadets

Students must apply separately to the Texas Maritime Academy (TMA), and once accepted, are members of the U.S. Maritime Corps of Cadets. Cadets stand watch on the training ship and have paramilitary requirements including muster, training, uniforms, and room inspection. Various certifications are required, and minimum grades must be achieved in various courses. Students in the Marine Transportation major must participate in the Corps; participation is an option for all other majors. Students in the Naval ROTC program are required to participate in the Corps as well.

Cadets go on three summer training cruises. While Texas Clipper III, a former U.S. Navy combat stores ship, awaits refitting required before she can sail with a full complement of cadets, students are placed on training vessels operated by other U.S. maritime academies.



Corps enrollment (including LO, ROTC, and Spirit Unit)

## Student Organizations

### Sponsored:

Aggie Crew  
BUILD: Building Unity in Leadership Development  
Checkin' Crew  
Naval ROTC Drill Team  
Nautilus: Student newspaper  
Residence Hall Association  
SALT Camp: Sea Aggies Learning Traditions  
Student Government Association

### Affiliated:

Aggie Ultimate Frisbee  
Anime Club  
Baseball Club  
Catholic Student Association  
Dive Club  
Drama Club  
Fishing Club  
Prop Club  
SNAME  
SPRING Team  
Surf Club  
Swim Club  
TAMUG SEED  
Texas Academy of Science  
Women's Soccer Club

### Varsity sports:

Sailing  
Rowing



## 2. Architecture and Spaces

# Location and Approach



The campus is located, as befits a marine- and maritime-focused university, on a waterfront site on Pelican Island. While the campus is technically in the city of Galveston, it does not have a clear sense of identification with the city itself – Pelican Island is in some ways like the rural surroundings of a city because of its lack of development and separation from Galveston Island.

The sequence of approaching TAMUG is perhaps best described as a difficult opportunity. The spectacle of driving over the causeway and bridge to Pelican Island, with the university and ship visible across the water, is unique and immediately reinforces TAMUG's mission. However, the university's physical features do not clearly address this sequence, nor does the actual entrance to the university have any relationship to the bridge or waterfront.

The training ship, the former USNS Sirius, dominates the view of campus from the Pelican Island bridge. As seen in the size comparison to the left, the ship is considerably larger than the largest building on campus, the Engineering Building. While the future Science Building will also be a large building, it will not compare in size to the training ship either. Even though the ship is far larger than any structure on campus, it does not dominate the campus except from the Pelican Island bridge and from the waterfront itself. This is due in part to the way grade slopes up from the waterfront and because of the decline in perspective as one moves further back into campus.

Location map



Engineering Building



Kirkham Hall



Training Ship

Building and ship comparison



Typical view of ship from campus showing size comparison

# Site Plan

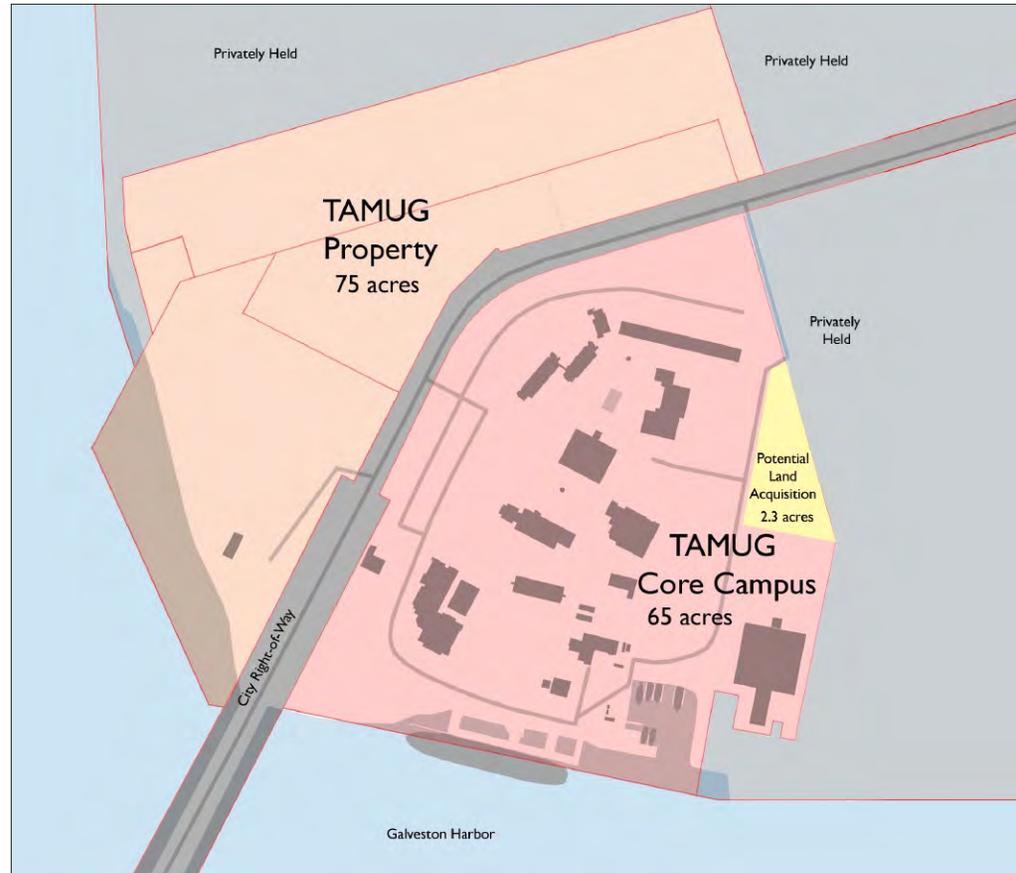


# Site and Land

The Pelican Island campus consists of 15 main buildings, a small boat harbor, and an extended quay which is home to the university's training ship. Seawolf Parkway veers right about a third of a mile inland, and the campus is located in the area carved out by this arc. The buildings range from one to four stories, though the general impression of the campus is of two-story concrete buildings. There is little vertical relief to the campus.

While TAMUG controls land on both sides of Seawolf Parkway, the main campus is entirely on the south and east sides of the road. The main campus is elongated in the north-south direction, which means that waterfront footage is somewhat constrained. Because there is little development on Pelican Island, the campus is relatively isolated: its only neighbors are a barge-cleaning facility, a gas station, and two student housing developments.

The land west and north of Seawolf Parkway is mostly undeveloped and is studded with pools of water and wetlands. Most of Pelican Island was formed by dredge spoils, and this process is still ongoing on parts of the island. There is a spoils site near the shore, west of Seawolf Parkway, which was used when the channel and training ship berth were most recently dredged.



Property map

# Buildings and Major Facilities

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## Kirkham Hall (3001)

Kirkham Hall contains classrooms, biology laboratories, and administrative space. It, together with Marine Transportation (formerly the Engineering Building), were the first two campus buildings.

Built 1971; 19,448 GSF

Elevation 15.0 feet



## Marine Transportation (3002)

This building, also known as the Engineering Lab Building, contains classrooms and laboratories.

Built 1971; 13,290 GSF

Elevation 14.9 feet



## Oceanography (3003)

The oceanography program is housed in this building.

Built 1971; 5635 GSF

Elevation 15.0 feet



## Mary Moody Northern Student Center (3004)

The cafeteria and student affairs offices, as well as a lounge, are contained in this building, completed in 1976.

Built 1976; 18,068 GSF

Elevation 15.5 feet



### **Ocean and Hullabaloo Halls (3004A/B)**

This two-wing dormitory, the first on the TAMUG campus, accommodates 240 residents.

Built 1976; 54,287 GSF

Elevation 14.9 feet



### **Central Service Building (3006)**

The campus central plant and physical plant offices are housed here.

Built 1976; 15,603 GSF

Elevation 14.7 feet



### **Classroom-Laboratory Building (3007)**

This building, completed in 1979, contains the main administrative suite as well as classrooms and the campus's largest lecture hall.

Built 1979; 40,628 GSF

Elevation 16.0 feet



### **Mariner Hall (3009)**

Mariner Hall is the largest dormitory on campus.

This four-story structure was completed in 1982.

The building's design was based on existing plans for a hotel chain.

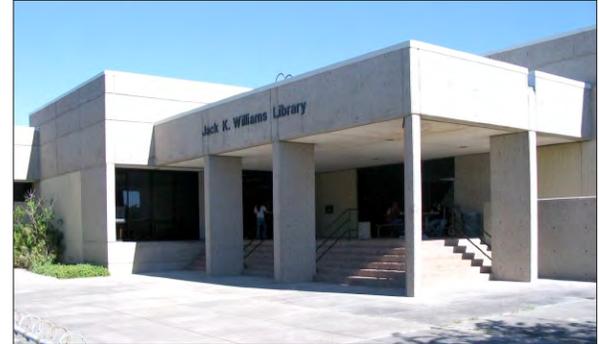
Built 1982; 103,372 GSF

Elevation 15.3 feet



### **Williams Library (3010)**

In addition to the main library, this building also houses a student computing center. The building was completed in 1986.  
Built 1986; 26,825 GSF  
Elevation 15.5 feet



### **Boat Basin (3012)**

The boat basin is home to TAMUG's research, line-handling, training, and other vessels.  
12 slips



### **USTS Texas Clipper III (3016)**

The university's main training ship is a floating classroom.. Originally christened the USNS Sirius, she was transferred to TMA in 2005.  
524 feet long, 16,792 tons full load



### **Physical Education Facility (3018)**

Opened in 1994, this facility houses a gymnasium, racquetball courts, an exercise room, and a weight training room.  
Built 1994; 29,500 GSF  
Elevation 15 feet (approximate)



**Student Support Building (3025)**  
This building houses campus police and other support functions.  
Built 1995; 5,992 GSF  
Elevation 15 feet (approximate)



**Sea Aggie Center (3026)**  
The Sea Aggie Center was converted from a warehouse into a computer lab, a lecture classroom, offices, a bookstore, educational outreach, and other auxiliary functions.  
Acquired 2002; 74,212 GSF



**Marine Engineering Research Complex (3027)**  
Also known as the Engineering Building, this facility is TAMUG's largest academic building. It was completed in 2005.  
Built 2004; 58,515 GSF



**Residence Life Center (3028)**  
The Residence Life Center houses a game room and various offices.  
Built 2006; 3,858 GSF



# Building Evaluation

TAMUG's buildings are a largely a mix of precast concrete, site-cast concrete, concrete block, and brick. There is not a singular architectural language evident, though the materials and massing of many of the buildings is quite cohesive. The buildings have been well maintained and are generally in serviceable condition, with the exception of Mariner Hall, as noted below. Several temporary buildings and steel shipping containers are located near the waterfront.

The utilitarian nature of many of the buildings is clear from their appearances. The Central Service Building, the electrical distribution substation, the Oceanography Building, and several others are good examples. This austere character is in keeping with a narrow interpretation of the nature of those buildings, perhaps, but the appearance of the remainder of the buildings bears some similarity to those facilities. While this resemblance is undoubtedly due to issues of cost and durability, not aesthetic homage, it nonetheless points to one of TAMUG's primary physical issues: campus buildings are successful from the perspectives of durability and cost, but they generally do not reflect the character, mission, and life of the university.

The master plan must deal with this issue – the stark contrast between the university's mission and culture and its facilities – in a clear and direct way. The atmosphere projected by a school's campus plays in integral part in recruiting, in retention, and in the school's own self-image. A successful campus is one which does not just house classrooms, offices, and support spaces, but which also plays an active, supportive role in the life and activities of the school as a whole.

Apart from these general issues, there are also several specific situations which the master plan should address:

- Mariner Hall is notable in that it is in poor shape compared to the other buildings, and it has clearly outlived its usefulness. It is the largest dormitory on campus, so replacing it is not a simple matter of demolition and new construction; the capacity of Mariner must be made up in another facility, probably by building its replacement prior to demolition. This presents siting and phasing challenges which must be addressed in the master plan.
- Space projections (see section 5) imply the expansion of several facilities, including the library and the student center. The master plan must consider current and future needs as well as the fitness of the respective facilities for retention and expansion.



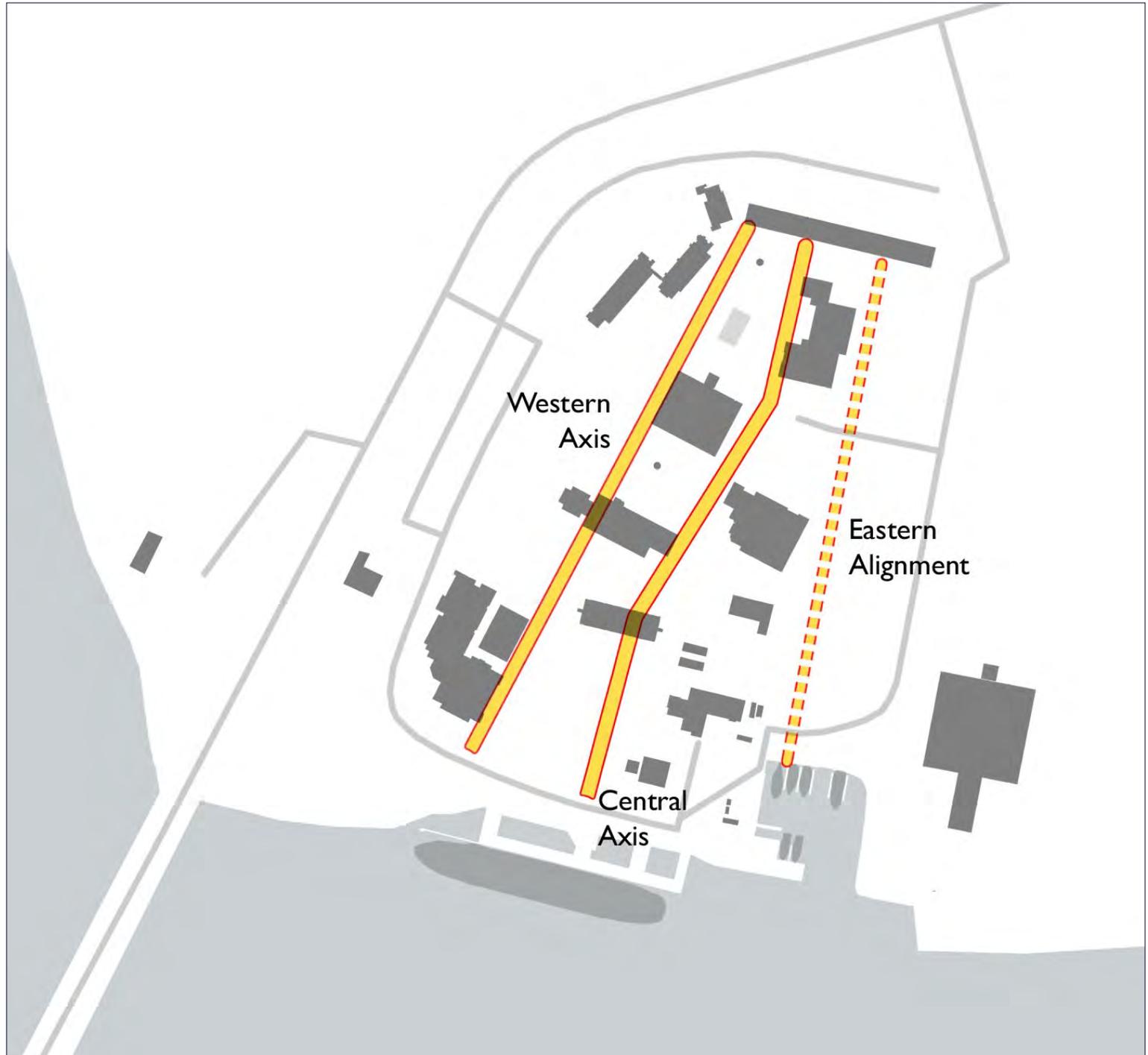
*Mariner Hall*

- The Sea Aggie Center has served well in its current capacity as a combination student services center and classroom building, but neither the location nor the facility are ideal for those uses.
- Several buildings (Oceanography and the Student Support Building, for example) are either out of character with the rest of the campus or are in the way of likely future building sites.
- Several programs require storage, fitting, and other facilities which have necessitated the installation of storage units and other temporary structures. These needs should be accommodated in permanent facilities.



*Storage containers*

# Campus Axes



# Central Axis



1



3



5



7



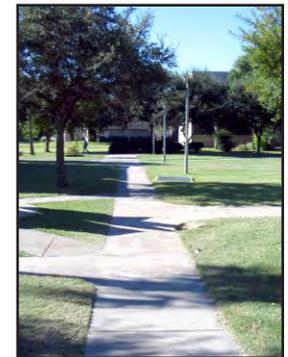
The axis which runs north through the campus from the ship (here called the central axis) is arguably the most significant on campus. The lower portion of the axis, from Kirkham down to the ship, is well aligned, but the upper portion is not clearly designated even though it is relatively heavily traveled.



2



4



6



8

# Western Axis



1



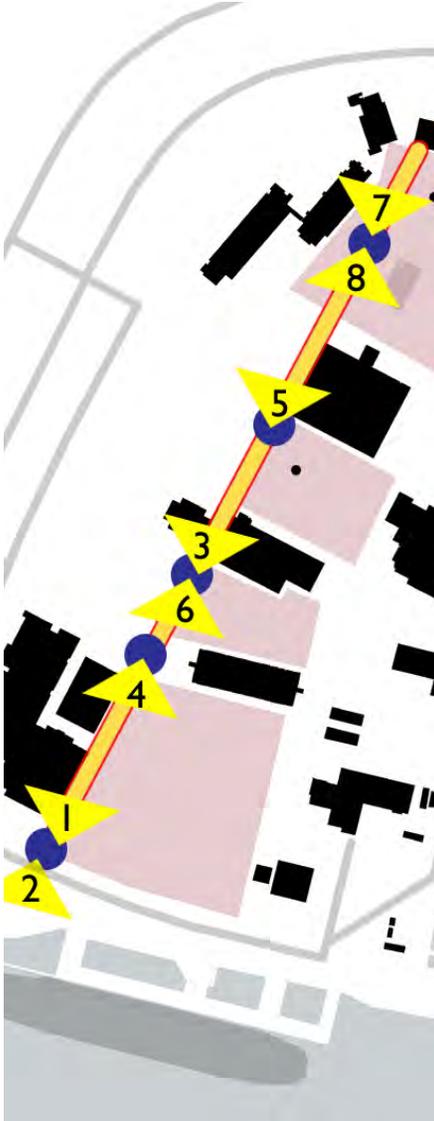
3



5



7



The central portion of the western axis demarcates the western edge of the built campus. On its north and south terminuses, the western axis runs between buildings and major open spaces. The axis is particularly strong as it runs past the Engineering Building.

2



4



6



8



# Eastern Alignment



1



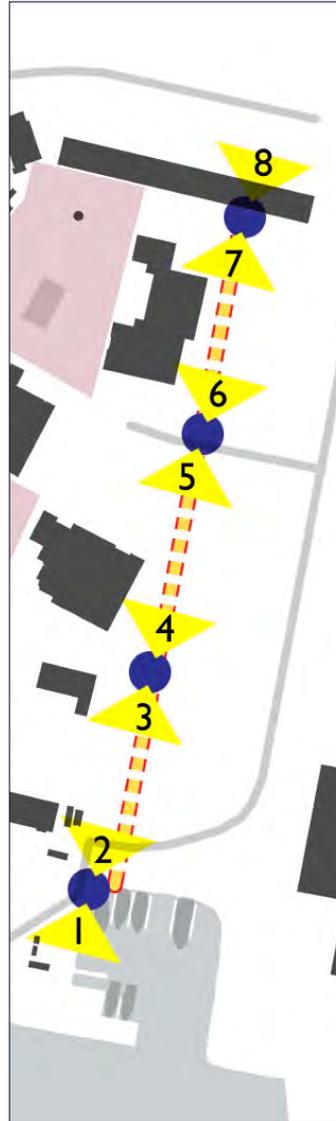
3



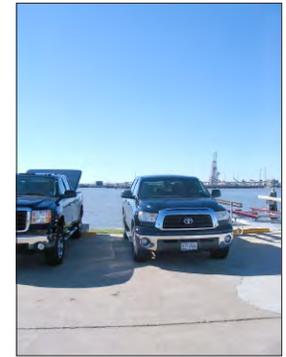
5



7



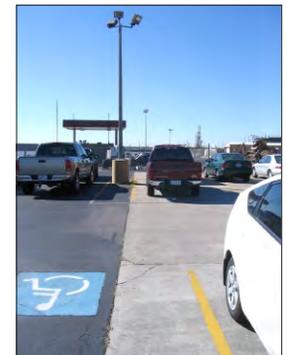
This axis is implied, rather than apparent, because the campus has not been significantly developed in these areas. Instead, these photos serve as documentation of the areas along this alignment which could be developed into a third major campus axis connecting directly to the small boat basin.



2



4



6



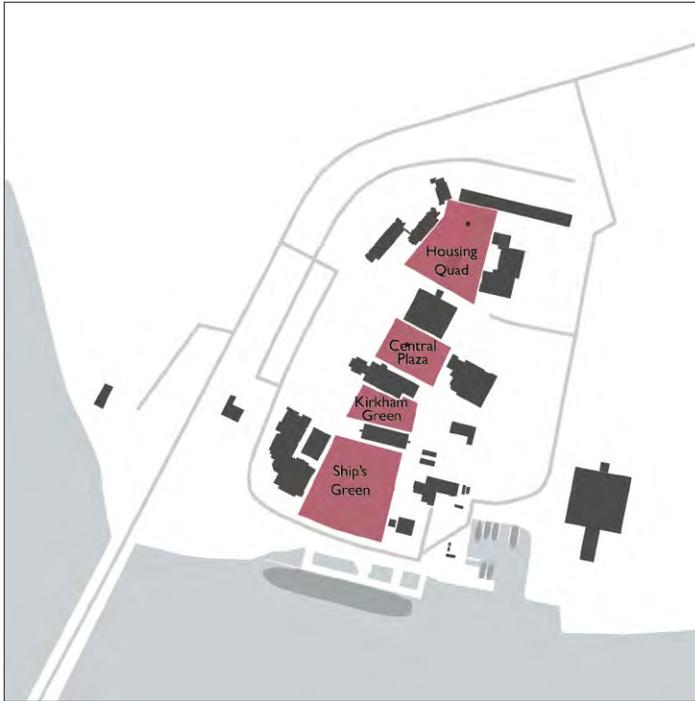
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# Visual Axes

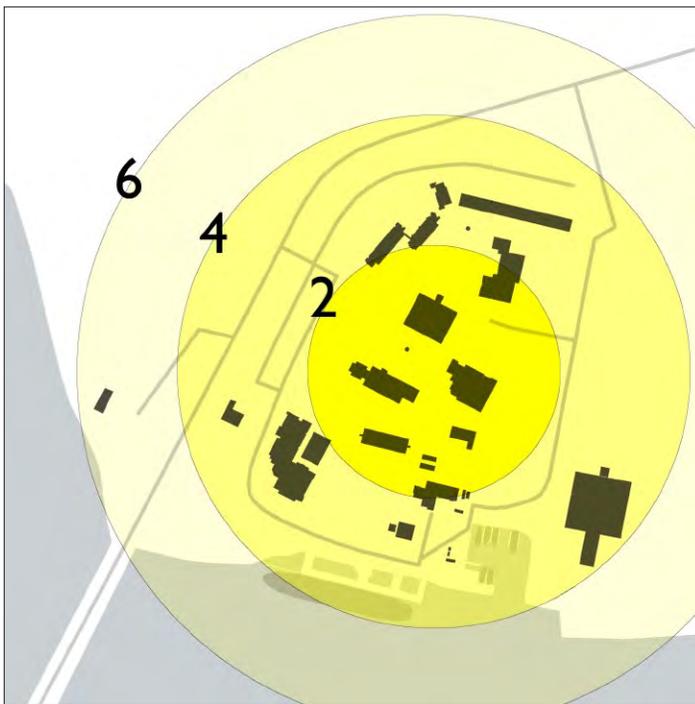


Visual axes and points of collision between different grids; see previous page for discussion

# Campus Spaces and Walking Times



Primary campus open spaces



Walking times from campus center

Campus buildings are roughly organized around four spaces: the area encompassing the pool and gazebo, here called the Housing Quad; the plaza including the clock tower, noted as the Central Plaza; the space between Kirkham Hall and the Classroom Lab Building; labeled Kirkham Green; and the large lawn running toward the waterfront and training ship southwest from Kirkham Hall, bordered by the Engineering Building, here called the Ship's Green. There are axes along both long sides of this assembly of spaces, though those axes are not continuous nor marked in any fashion.

Pedestrian traffic focuses on the Central Plaza. There is also a significant amount of pedestrian activity in the area of the Housing Quad, with a long path which extends to the northeast toward the off-campus student housing. The campus is quite small, and it is entirely walkable within typical class-changing periods. Walk materials are mostly pebble concrete, plain concrete, and asphalt.

One notable main pedestrian way is the path which runs behind the cafeteria loading dock (marked with a green dot in drawing to right) – in spite of its less-than-scenic nature, this alignment is a heavily-traveled route from Kirkham Hall, the library, and nearby buildings to the recreation center and student housing. The path from the west end of the Classroom Lab Building to Ocean Hall is also worth mentioning; this path is unpaved, though well-traveled.

As can be seen in the parking utilization analysis later in this document, students and faculty are on campus much of the day as well as into the evening. In fact, observations of pedestrian traffic indicated that there was nearly as much foot traffic in the evening (observed at 8:00 PM) as during the morning and mid-afternoon. This is no doubt due in part to a high percentage of on-campus residents, but TAMUG's particular blend of research and academic programs plays a significant part in this as well.

# Pedestrian Circulation

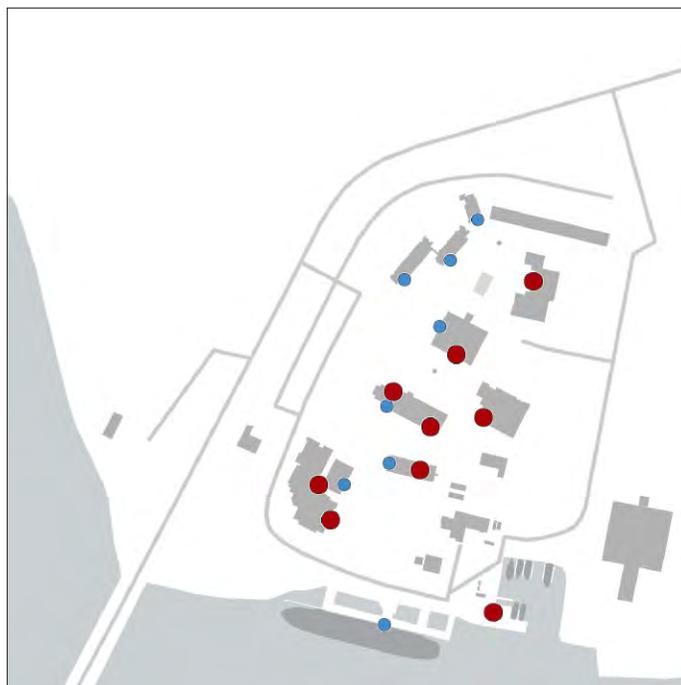


*Pedestrian traffic patterns*

# Campus Zones



Campus zones



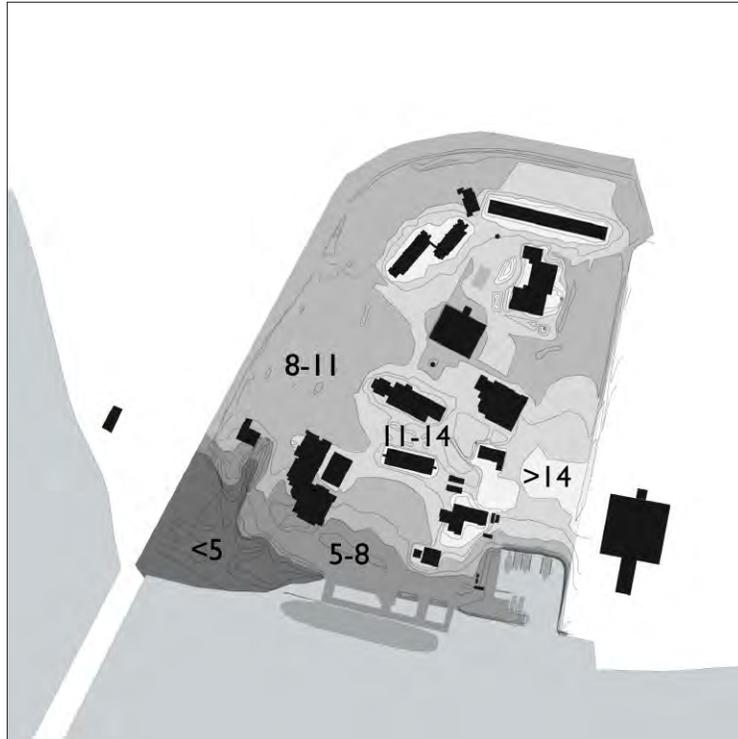
Building entrances

The campus can be divided into three zones: an academic/research portion, which is closest to the waterfront; a student services portion, which is the midsection of the campus; and student housing, which is furthest north. The off-campus student housing is located further east and contiguous with the campus student housing zone. The Sea Aggie Center, which has both student services and academic spaces, is not connected to, nor particularly near, the rest of the student support facilities. It is, however, close to the rest of the academic/research facilities.

Building entrances are denoted in the diagram on the bottom left as major entrances (maroon dots) or secondary entrances (blue dots). The major building entrances are roughly coincident with the four major campus spaces identified earlier. The boat harbor has an entrance identified in this diagram, though it is not a building, because the activity there merits some mention in this analysis. Beyond the passing identification of entrances with the four major campus spaces, there is not a significant single criterion for how entrances are oriented or located.

Identification of visual axes is a subjective task, but it can elucidate intersections between intended organization and how the campus actually functions. The diagram on the next page shows axes which are established by various buildings or other features. It is instructive to note that this diagram does not coincide particularly well with the ways shown on the pedestrian path diagram earlier in this document; the master plan should seek to resolve these points of collision.

# Topography



Topography

Like most of Galveston and Pelican islands, the campus is largely below 15 feet above sea level. Areas near the shore are even lower, of course, but the campus grades quickly up from the shoreline to above ten feet above mean sea level (MSL). All major building entrances and finished floor levels are above 11 feet MSL. The highest campus terrain is on the eastern edge of campus, just north of the boat basin. Land near Seawolf Parkway is lower, and almost all of it is below 11 feet MSL. Several walkways have been noticeably elevated by grading above the level of nearby ground, which, given the generally low elevations of campus, is no doubt useful in rainy periods. Drainage grates which collect sheet runoff from grassy areas are evident in some areas.

The relatively large percentage of land below 11 feet MSL on the north and west edges of campus indicates that the prime areas for new construction, from the perspective of topography, are around the current campus center as well as off to the east and northeast of campus. This has implications for land acquisition – potential acquisition targets which are above 11 feet MSL are more attractive because their potential use is greater. The university will always be able to make use of a significant amount of land below flood level for uses like recreation and parking, however, and land below a desirable elevation can be built up to desired levels, though the expense of that is of course an issue. Current topography should therefore be a consideration, but not necessarily an overriding concern, in siting new structures and purchasing land.



Drainage grate



Elevated walk

# Landscape



View from Pelican Island causeway. One of the first impressions of TAMUG is the vegetation along the shore. Trees are noticeable in an area naturally void of woods.

The lake and adjacent wetlands at the TAMUG Wetlands Center is a refuge for a wide variety of birds.



The natural environment of Pelican Island and Galveston Bay is evident on both sides of the causeway. Native vegetation and wildlife are prevalent.

The main campus edge along Seawolf Parkway is lined with mature live oak trees and an oleander hedge. The edge defines the campus and screens a large parking lot. The opposite side of the parkway is undefined even though it is part of the TAMUG campus.



The beach line along the west side of Pelican Island provides a significant contrast to the interior of the island and the main campus.

The formal entry into campus is adequately landscaped. The single palm tree is out of place in the live oak and oleander context. Because of the effective screening from the oleander hedge, visibility into campus is limited until entering campus. Planting south of the entry appears older and healthier. However, planting to the north appears to be struggling to stay alive.



The TAMUG Wetlands Center is an ideal demonstration of the island's natural environment.

Planting north of the main entry appears to be struggling to stay alive, particularly the live oak trees, which may be a result of poor soils.





The main entry drive is well lined with small trees. At the end of the drive is variety of plants and signs that block a view of the Student Center and prominent lawn.

This is a new road and walk with no landscaping, particularly no trees.



The main parking lot is defined by crape myrtles and palm trees. However, there are no trees in the expansive lot to provide shade.

Landscaping at the Sea Aggie Center entrance is a good example of tropical plantings that are in character with and thrive in a coastal environment.



Oleander hedges are the predominant landscape feature on campus, particularly as screen hedges. This walkway along a parking lot has no trees to provide shade.

Trees around the central quad help define the space and provide needed shade.



Another walk and parking lot with little landscaping and no shade trees.

The double row of trees in front of the Classroom-Laboratory Building is a good example of shade trees providing a desirable pedestrian environment.





There are a variety of spaces at the dormitories that provide seating and shade. Although the oleander hedge defines the space, the scale of the plants does not make it a comfortable environment.

Landscaping around the library consists of a variety of plantings, including perennials, which provide an area of botanical interest on campus. However, the sizes of the planting beds are small and marginally effective for this type of planting scheme.



This is a good example of a seating area that is well covered by shade trees. There is good visibility to and from this spot.

Landscaping at the Radar School plaza is eclectic and insignificant for this space. Many of the plants are not growing well. The space is inhospitable and the lack of shade is obvious.



Seating in this area around the picnic pavilion lacks shade and would be better suited if the nearby eucalyptus trees were closer. Although the eucalyptus trees are large, they appear to have reached maturity and may be in decline.

The formal arrangement of palm trees and the slightly raised lawn at the Physical Education Facility adds a stately character to the building's foreground.



This seating area is well used and provides adequate seating in shade and sun.

The berms in front of Kirkham Hall provide a nice contrast to the flat topography of the island. However, the constrained size and shape of the berms limit the effectiveness of the space. The berms are difficult to mow and the vitex plantings do not seem to be appropriate for this environment.





The plantings in front of Kirkham Hall are doing very well. However, the plantings lack scale and would benefit from the addition of larger shrubs or trees.

There are low lying areas in the lawns around campus that show signs of salt accumulation and/or nutrient depletion due to drainage.



The plantings around the Student Center appear to be doing well including the pine trees which are ever-green.



Although the plantings at the Residence Life Center are new, the selection of plants is questionable for the long term. The shrubs that line the walkway would be better suited around the building instead of where they are located.



Plantings of oleanders around buildings are over-used and do not seem to be suited to this application because of soil, water, or maintenance factors.



Sycamore trees do not appear suitable to this environment.



Photinia shrubs do very well.



Pittosporum shrubs do very well.



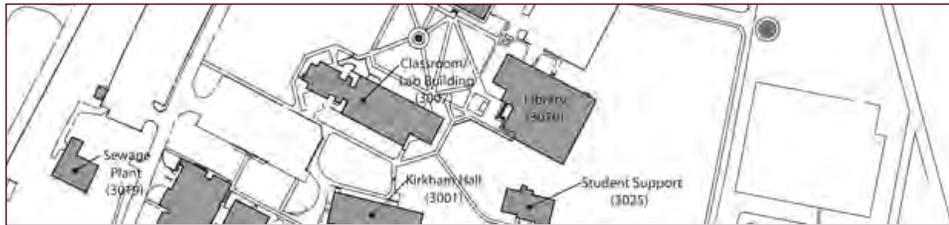
Hibiscus shrubs do very well.



Indian Hawthorn shrubs do very well.



Dwarf Yaupon Holly shrubs do very well.



### 3. Signage and Wayfinding

# Wayfinding Introduction

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The information presented in this document, based on an extensive photo survey of the campus and in-person and virtual (via email) meetings with various university stakeholders, is intended to capture existing conditions on the TAMUG Mitchell Campus and describe wayfinding challenges. The components of wayfinding addressed in this document include the wayfinding function of the university's web site and campus signage. Feedback generated by this document will help ensure the proper focus for our recommended strategies, to be documented in a subsequent wayfinding master plan.

Prospective Students | Current Students | Former Students | Visitors



**Home**  
**Safety Resources**  
**Emergency Contacts**  
**Department Information**  
**Evacuation Information**  
**Campus Regulations**  
**Crime Prevention**  
**Privacy Statement**  
**Annual Security Report**  
**Campus Maps**

## Campus Maps

**Fort Crockett Area**  
**Mitchell Campus**  
**Teichman Campus**  
**Fishing Map**  
**Event Map**

**Directions to the Mitchell Campus:**  
 (from I-45 South)  
 Take I-45 South across the causeway to Galveston.  
 Exit 1C: Teichman Road.  
 Turn left at the stop sign.  
 Continue straight until you reach the light.  
 Turn left and continue across the causeway to Pelican Island.  
 The Mitchell Campus - North entrance will be on your right.

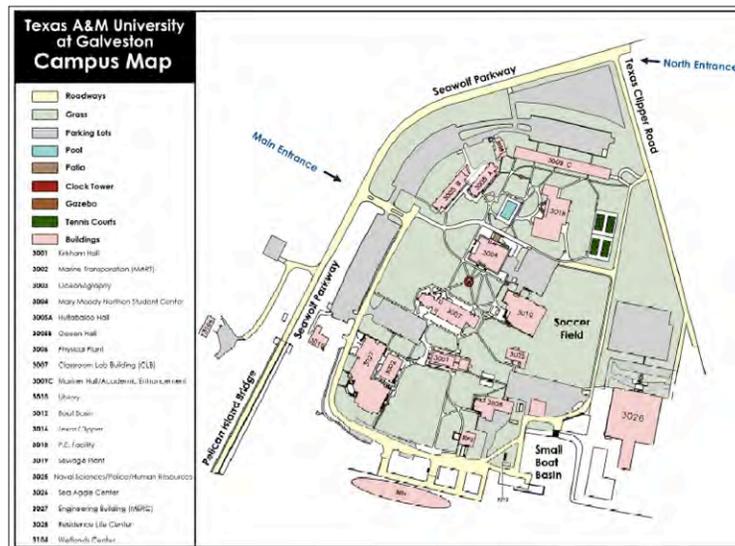
**Be a Silent Witness - Report a Crime Anonymously**

E-2 Campus/Emergency Alert System

Campus maps and directions are three clicks deep into the TAMUG web site, requiring the user to select the somewhat cryptic “About TAMUG” in the sidebar to access maps and directions. The subsequent listing of three Texas A&M-related sites in Galveston, mixed with fishing and event maps, lists the Mitchell Campus beneath the Fort Crockett Area, when the Mitchell Campus is easily the largest of the three sites. The web site does not provide a description of the naming hierarchy for the TAMUG campus, which is disconcerting if the user is not aware of multiple locations in Galveston:

*Texas A&M Galveston*  
*Mitchell Campus (on Pelican Island)*

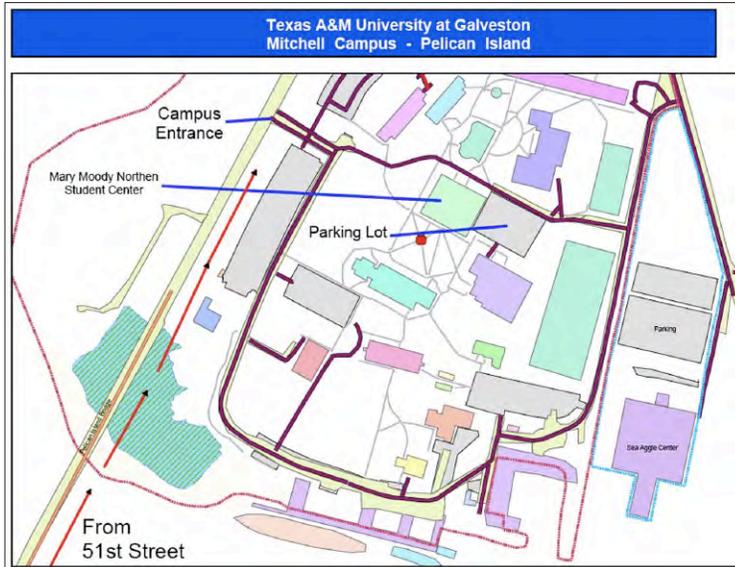
This is a serious consideration in light of the fact that the campus draws students from around the nation and the world. Incidentally, these maps appear on a screen associated with the campus police and are maintained by campus police.





The Mitchell Campus map utilizes four-digit building address numerals which double as a Texas A&M University System inventory number and a life-safety response number. The legend corresponding to the map provides building names referenced by this four-digit address convention. There were no maps available on the web site to place the campus into the larger context of Galveston Island or the Texas state highway system. This requires visitors, prospective students and others to seek other on-line tools (such as Google or Mapquest) to specifically locate the campus. There is also an error in the directions set from Interstate 45 that directs motorists to turn left at the “first light,” when it should be the second light.

Only one of four Mitchell Campus maps found on the web site references the two streets that border the campus, Seawolf Parkway and Texas Clipper Road, while all four maps reference the Pelican Island Bridge. The campus map most directly accessed on the web site does not provide orientation to or differentiation of parking, nor orientation to the north entrance, which is the entry point to campus for most first-time and one-time visitors.



# Campus Identification and Highway Signage



The Mitchell Campus is one of three TAMUG campuses on Galveston Island. The other two are the Fort Crockett Campus and the Teichman Road Campus (also known as the Bayou Campus). The former is primarily geared toward scientific research and is home to graduate students and most faculty research offices, while the latter is used for sailing classes and other recreational activities, as well as storage.

To further complicate identification of the Mitchell Campus and its differentiation from the other two campuses, students refer to the campus as the Pelican Island Campus, while staff and faculty refer to it as "TAMUG". The Texas A&M University System acknowledges the campus by its formal designation: Texas A&M University at Galveston (no reference to Mitchell Campus).

There are presently no signs on Interstate 45 that direct motorists to the TAMUG Mitchell Campus. According to TAMUG officials, the university's enrollment is not considered large enough by the Texas Department of Transportation to qualify for directional signage along Interstate 45. However, TAMUG has recently received new signage on both east- and west-bound sides of Harborside Drive directing to the campus, and has aspirations for improving campus directional signage on Highway 87 (Broadway Street).



# Campus Approach



The main approach to the campus is via the Pelican Island Bridge, which is raised periodically for vessels too tall to pass under the lowered bridge. When the bridge is raised, sirens alert traffic in both directions. Guard rails equipped with flashing lights are also deployed, blocking lanes in both directions, similar to a railroad crossing.

Other than by boat, this is the only route onto Pelican Island and the Mitchell Campus, so there is a strong sense of remoteness and isolation. Public transit to the campus is via the city of Galveston's Island Transit bus service, which arrives on campus twice a day. Students and staff currently use this service in relatively small numbers, perhaps due to the infrequency of the trips.

The training vessel, the Texas Clipper, with its maroon central stack and university seal, is used by the Texas Maritime Academy and is a strong visual landmark for the campus. The ship's docked position at the leading edge of the campus, where the land gives way to Galveston Harbor, provides great visual access from the Pelican Island Bridge for the university.



Aside from this edge, however, the campus domain is not well marked, except for short spans along Seawolf Parkway leading up to the main entrance in either direction, where large concrete blocks connected by chains and some landscaping mark the transition from campus to city street.

# Campus Signage Overview



The existing signage on campus has a utilitarian appearance with reflective white vinyl messages on maroon painted aluminum panels that are mechanically attached to painted grey metal support posts. The signage is almost exclusively oriented to motorists. The only pedestrian signage is at building entrances, typically as individual letter forms or glass-mounted vinyl to identify the building and deliver operational messages, such as hours of visitation for residence halls.

All campus signage is coordinated by and through the Physical Plant, with different points of responsibility for various interior sign types as well as traffic control signage. Campus entrance identification and vehicular directional signage is fabricated and largely installed by an outside vendor, with some smaller sign types installed by TAMUG physical plant personnel. There is currently no system in place to document the campus sign inventory.



The campus sign design conventions are dictated by the Texas A&M University (TAMU) System sign guidelines. However, these guidelines have recently been updated to allow flexibility for individual campuses. The TAMU "Red Book" includes sections for each campus in the TAMU System. With regard to the TAMU graphic identity, the only appearances of the system's official name and seal are on the training ship central stack and on the sign identifying the campus main entrance. The physical plant is in the process of standardizing the maroon and white colors on signage to match the TAMU identity as closely as possible.



# Campus Entrance Identification



The main entrance is the only location at which signage is coordinated with lighting and landscape, and it is situated in a median planter that divides incoming and exiting traffic.

The utilitarian aesthetic found in other campus signage is present here with painted aluminum panels, supported by unfinished concrete supports, illuminated by conspicuous fluorescent light fixtures with exposed conduit. The planting bed that serves as an apron for the sign is contained by a patterned and unfinished concrete curb. A lone palm tree at the leading edge of the planting bed punctuates the entrance.

The two entrances to campus are referred to as the main (west) entrance and the north entrance, conversationally, on signage, and on the web site. The north entrance is actually on the east edge of campus and is accessed from Texas Clipper Road, but is noted on campus site plans at the intersection of Seawolf Parkway and Texas Clipper Road.

Based on the way in which the campus is used, the main entrance is more symbolic than functional. That is because new and prospective students as well as conference and luncheon attendees, most of whom are new to campus, are received in the Sea Aggie Center, which is accessed from the north entrance.

The Sea Aggie Center also serves as an orientation center for visiting families taking guided tours of the campus. In fact, the common area of the Sea Aggie Center is used as the registration and staging area for the biannual Sea Aggie Preview event, as well as the venue for dinners and luncheons for new student conferences, of which there are seven per year for newly accepted students.

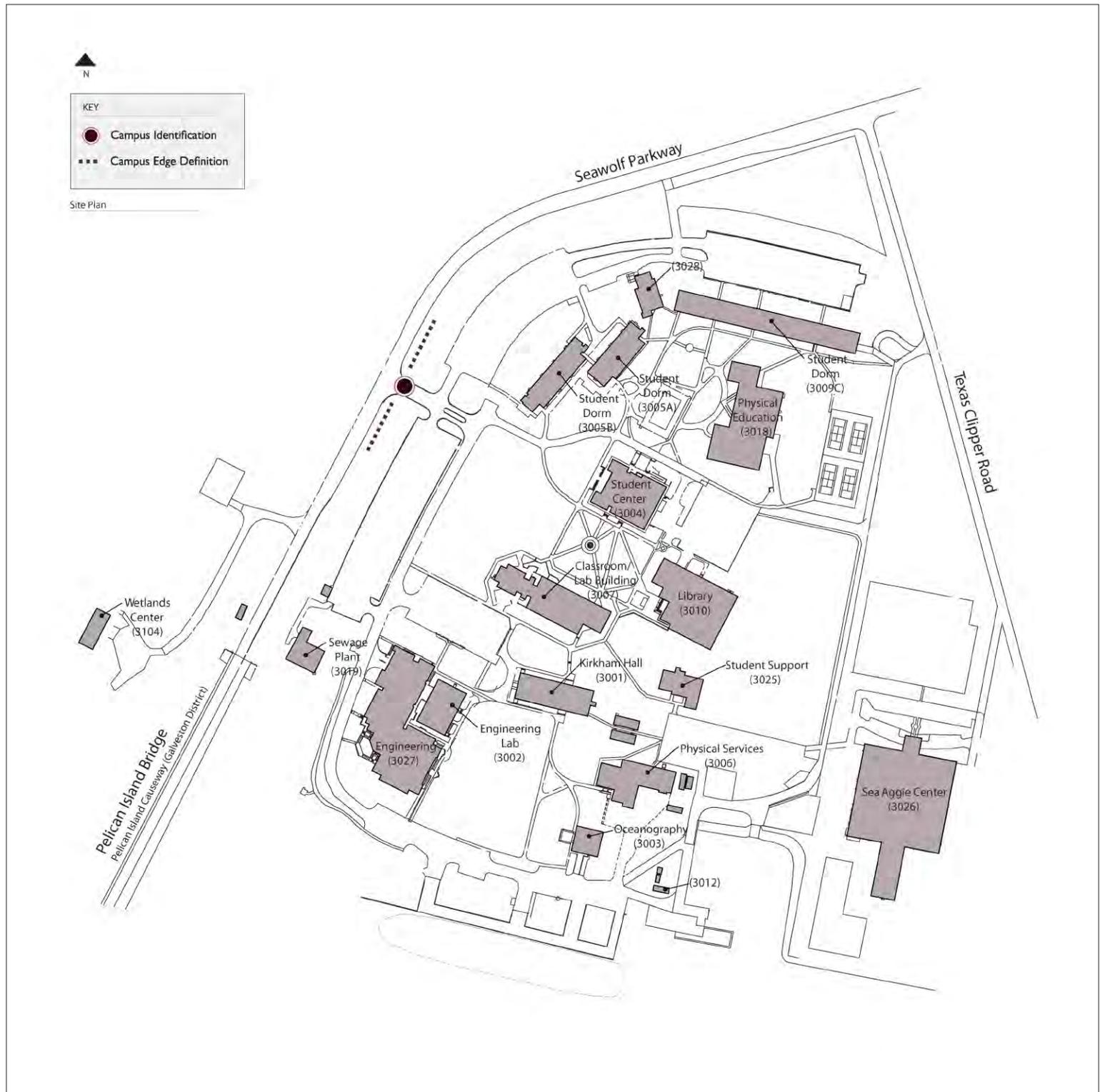
There is a notable absence of any city of Galveston street signs to identify Seawolf Parkway and Texas Clipper Road, which hampers TAMUG staff providing directions, particularly by phone.

Of further concern is the general appearance of the campus along Texas Clipper Road, and specifically at the Sea Aggie Center. This facility is a leased property and, despite efforts by the TAMUG physical plant, has a dilapidated look. This is exacerbated by the industrial nature of the road, the rusty chain-link fence enclosure, and the adjacent junk boat yard, all of which are visually disparate from the balance of the Mitchell Campus.





# Campus Identification and Edge Definition



# Vehicular Directionals



Campus signage oriented to motorists suffers from three major problems: (1) there are too many destinations listed; (2) the size of text is not sufficient to accommodate visibility at a reasonable distance, and (3) the signs themselves are not of a sufficient scale to accommodate the information they must carry.

In addition, the directional sign in advance of the main entrance (coming from the bridge) lists destinations that are most directly accessed from the north entrance, which is a bit counter-intuitive, especially given the number of destinations that must be processed by the motorist.

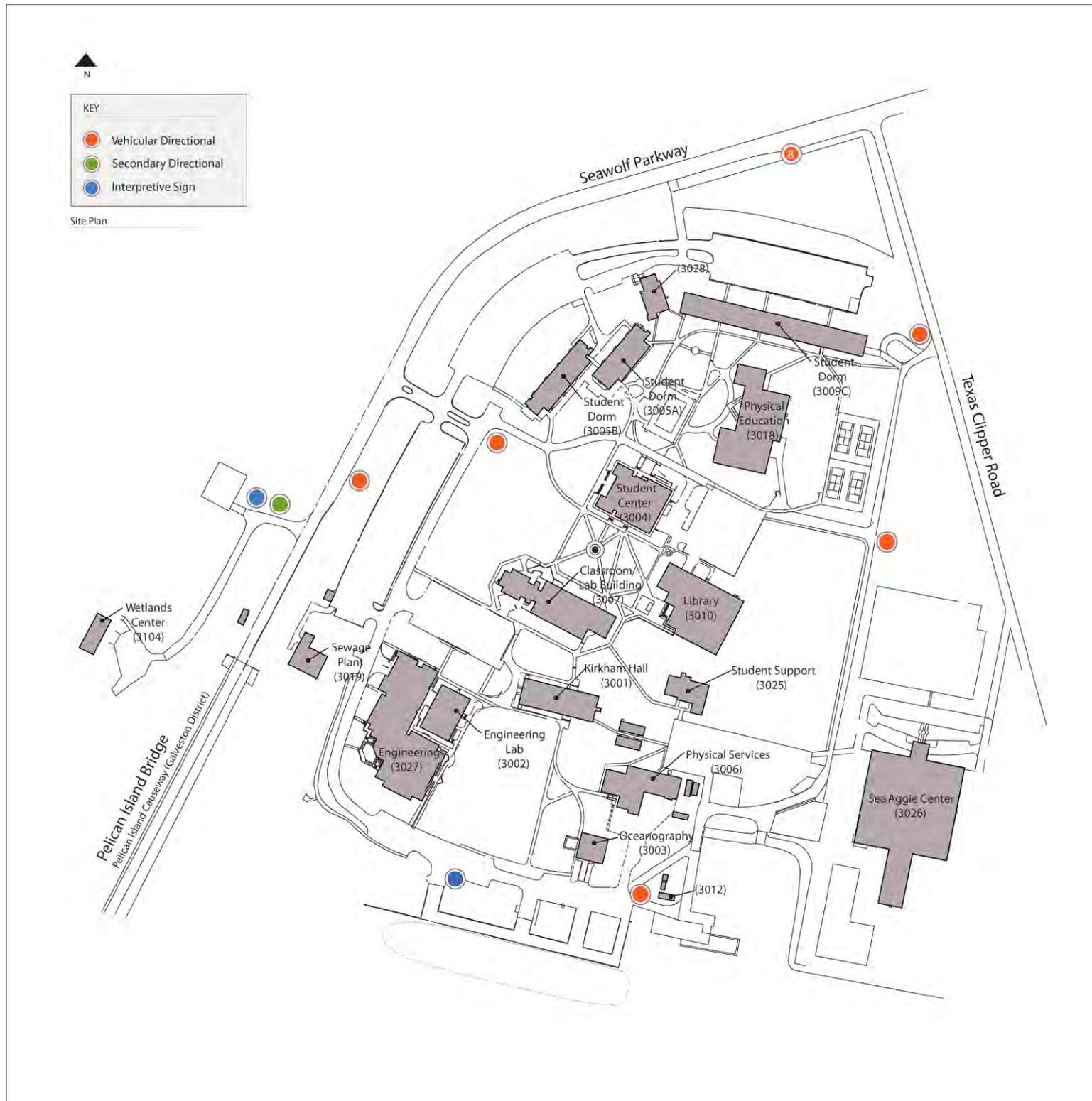
And since there are no distinct zones defined on campus, either by signage or on web-sourced maps, vehicular directionals are reduced to directory-type menus of building address numerals and names.



There is very little on-campus vehicular directional signage, which places the onus of wayfinding on the large facade-mounted four-digit address panels (see the “Building Identification” section) with no building names to orient motorists to their destination(s).



# Vehicular Directional



# Parking Identification



Parking permits are issued as “Student” or “Faculty/Staff,” with parking areas designated for faculty/staff, on-campus residents, or a combination thereof. The various parking lots on campus are identified by alphabetic designations (A, B, C) on signage, but this information is not cross-referenced with printed maps from the TAMUG web site nor displayed on parking permits. The parking lot designations are largely used by campus police for parking rules enforcement and by the physical plant for maintenance purposes.

A specific example of where clear identification of campus parking areas, via signage and on the web site, would be helpful is special event parking for events in the Northern Student Center. Via the web site, campus visitors and new and prospective students are directed to parking directly east of the student center. However, since this parking lot is not specifically identified on signage, event attendees must navigate the site based solely on their recollection of or reference to a map, again, without parking designations, from the web site.



# Building Identification



Campus buildings are currently identified with three types of signs: (1) a 5-foot by 2-foot facade-mounted metal panel, painted maroon with reflective white vinyl alpha-numeric designations in a 1-foot cap-height; (2) individual letter forms, painted black, mounted to the face of the building, and (3) white vinyl mounted to glazing adjacent to building entry doors.

The former sign type is used in pairs on buildings, with one panel oriented for a clear line of sight to motorists traveling on Seawolf Parkway, and the other for a clear line of sight when motorists (and pedestrians) are on the campus.

These building address panels reflect a Texas A&M University System inventory number and double as a life-safety emergency address. And while they are highly visible, these signs lend an institutional feel to the campus and do not speak to the function of the building, e.g. 3010 is the library, and 3026 is Sea Aggie Center.



There are four locations, – the Physical Education Facility, Northern Student Center, Williams Library and Kirkham Hall, – where individual letter forms are used at pedestrian level to identify buildings. With the exception of the Physical Education Facility, this particular type of sign is used to identify campus benefactors.

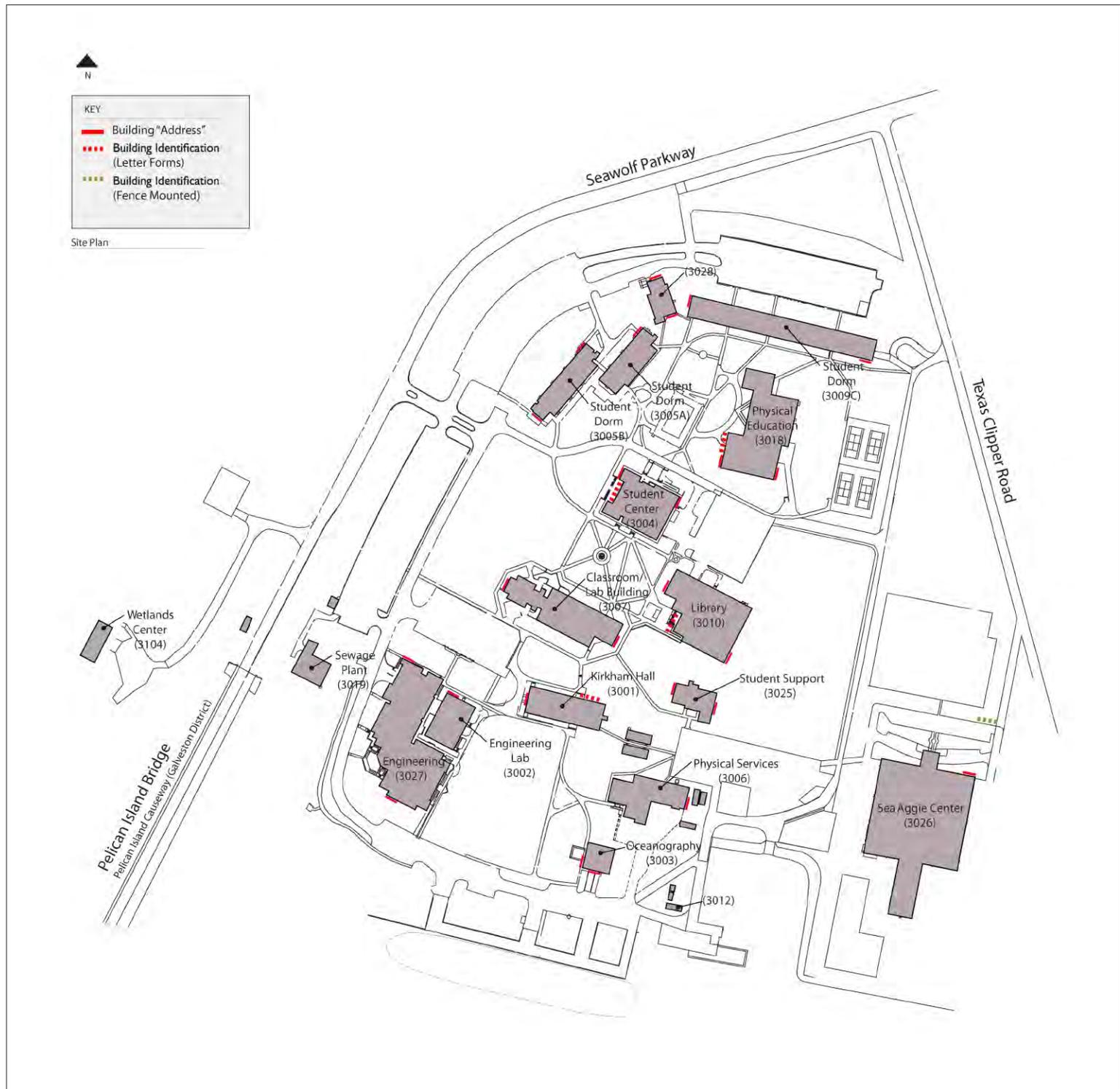


The letter forms in all four cases are painted a dark color (black or duranodic bronze) that contrasts well with the pervasive light color of the building facades.

Vinyl on glass is used as a tertiary means to identify buildings and convey operational messages like visitation hours and codes of conduct.



# Building Identification



# Pedestrian Orientation



There are no pedestrian-oriented signs on campus, with the exception of the interpretive panel located across Seawolf Parkway at the driveway entrance to the Wetlands Center.

The large building address panels are visible to pedestrians on campus, but they do not indicate each building's function to first-time students and visitors.

There are several locations in the academic and residential areas of the campus that might accommodate pedestrian orientation, but none exist currently.



# Wayfinding Summary

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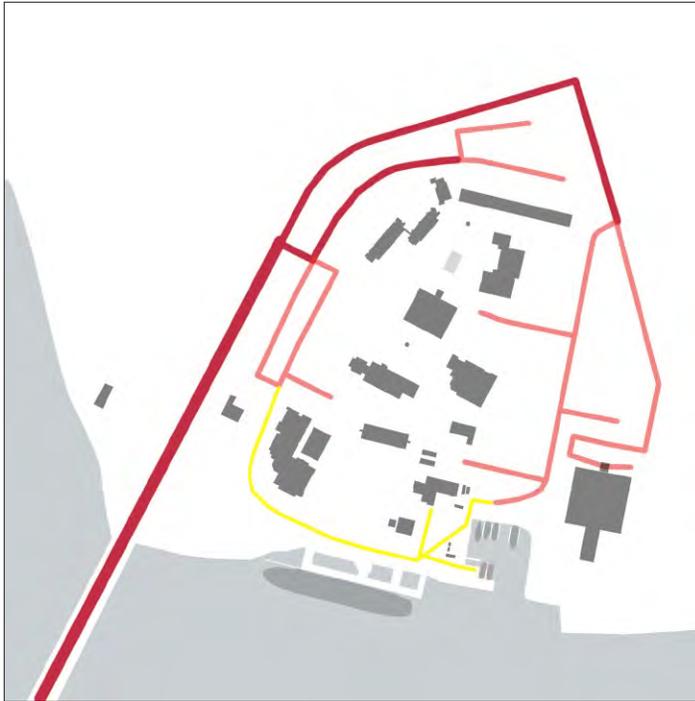
There are several challenges to effective wayfinding at the Texas A&M University at Galveston campus, most of which can be overcome with a coordinated approach to environmental graphics needs. This approach will be defined as the wayfinding component of an overall campus master plan document.

Potential improvements include the consistent use of the campus name "Texas A&M University at Galveston," appropriate designations for campus entrances, effective and functional identification of building names and functions, as well as intuitive vehicular and pedestrian directional and orientation signage. Environmental graphic elements that address these challenges will also convey a unique sense of the place for the campus and its unique proximity to the ocean while supporting ease of maintenance and longevity.

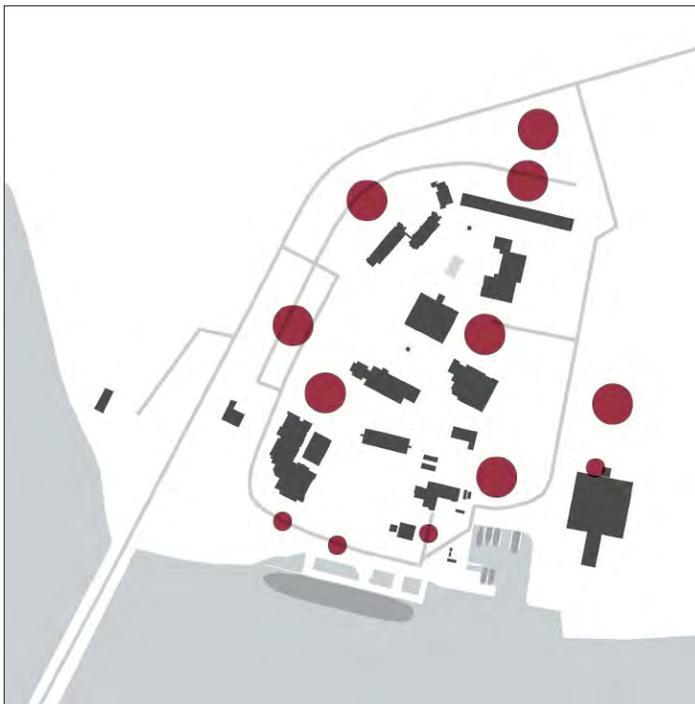


## 4. Utilities and Roadways

# Vehicular Circulation



Roadways



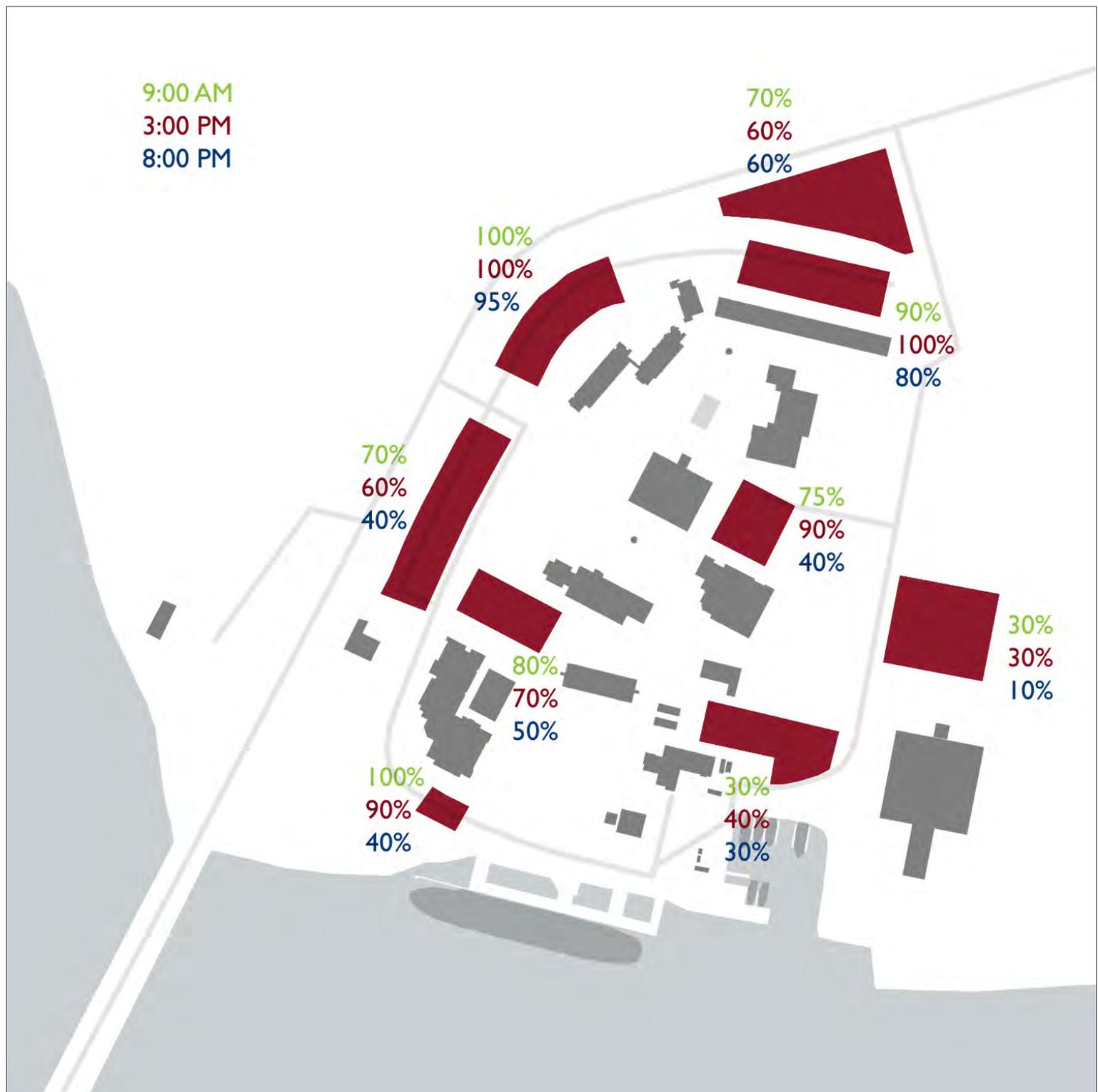
Parking locations

Because TAMUG's enrollment is relatively small and college course schedules tend to spread student traffic out during the day, there are relatively few traffic capacity issues on campus. Parking is also widely dispersed across campus, which reduces peak traffic. Additionally, the relatively large percentage of students who live on or next to campus further reduces the impact of traffic on campus. In fact, perhaps the most difficult traffic issue the campus faces is delay caused by the opening of the bascule bridge on Seawolf Parkway, which is the only means of accessing the campus by car.

Parking utilization reflects TAMUG's high percentage of on-campus residents and the extended schedules of research-oriented programs. As seen in the utilization graphic on the next page, peak parking utilizations for different lots occurs at different times during the day, but generally, there is not a huge swing between morning, afternoon, and evening hours. In some lots, such as those near the dormitories, this is indicative of resident students' vehicles remaining parked during the day, but in other lots, such as the faculty lot near the Classroom Lab Building, this shows that faculty and students tend to stay on campus into the evening.

Overall, the campus has more parking capacity than is required by the current enrollment. Because of the small size of the campus, TAMUG has the advantage of having a large number of parking spaces within short walking distance of main campus destinations. Unlike many universities, TAMUG has not been forced to implement remote parking or other means of controlling parking. While this situation is better than that of most other universities, it should be acknowledged that the satisfaction of students and faculty with parking is not measured relative to other schools, but to an ideal parking situation which is realistically unattainable. That is, in spite of the more than adequate parking supply, students and faculty will still express some degree of dissatisfaction. Additionally, what is now an acceptable situation will quickly become problematic as the campus population grows. If current parking is taken up by buildings, as is likely, this problem will only be exacerbated.

# Parking Analysis



Parking utilization, observed on 10/24/2007

# Utilities



Sanitary sewer lines and wastewater treatment plant



Major thermal utility lines and central plant



Water lines



Electrical ductbanks and electrical substation

Source: CAD data from TAMUG Physical Plant, obtained October, 2007.

## Electrical Distribution

The existing electrical distribution system consists of one 12,470 volt 3-phase circuit routed in an underground ductbank. The system is a loop system with above-ground switches that tap the loop for connection to the individual buildings.

Building Connected Load:	
3001 & 3002	500 kVA
3007	500 kVA
3005	500 kVA
3004	500 kVA
3009	500 kVA
3010	225 kVA
3003 (Cent. Plt.)	1,000 kVA
3006	300 kVA
3008 (Boiler)	300 kVA
3008 (Ship)	500 kVA
Sewage Treat/Oil spill	300 kVA
Science Building	1,000 kVA
Cent. Plt. Upgrade	500 kVA

**Total Connected Load 5,905 kVA**

Total Demand Load:	
Measured from CPE	2,300 kVA
Est. from Science Bldg. Addition	750 kVA

**Total Demand 3,050 kVA**

Total Circuit Capacity (4/0 Cable @ 12,470 Volts)	6,371 kVA
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**Spare Capacity in Circuit 3,321 kVA**

## Chilled Water Distribution

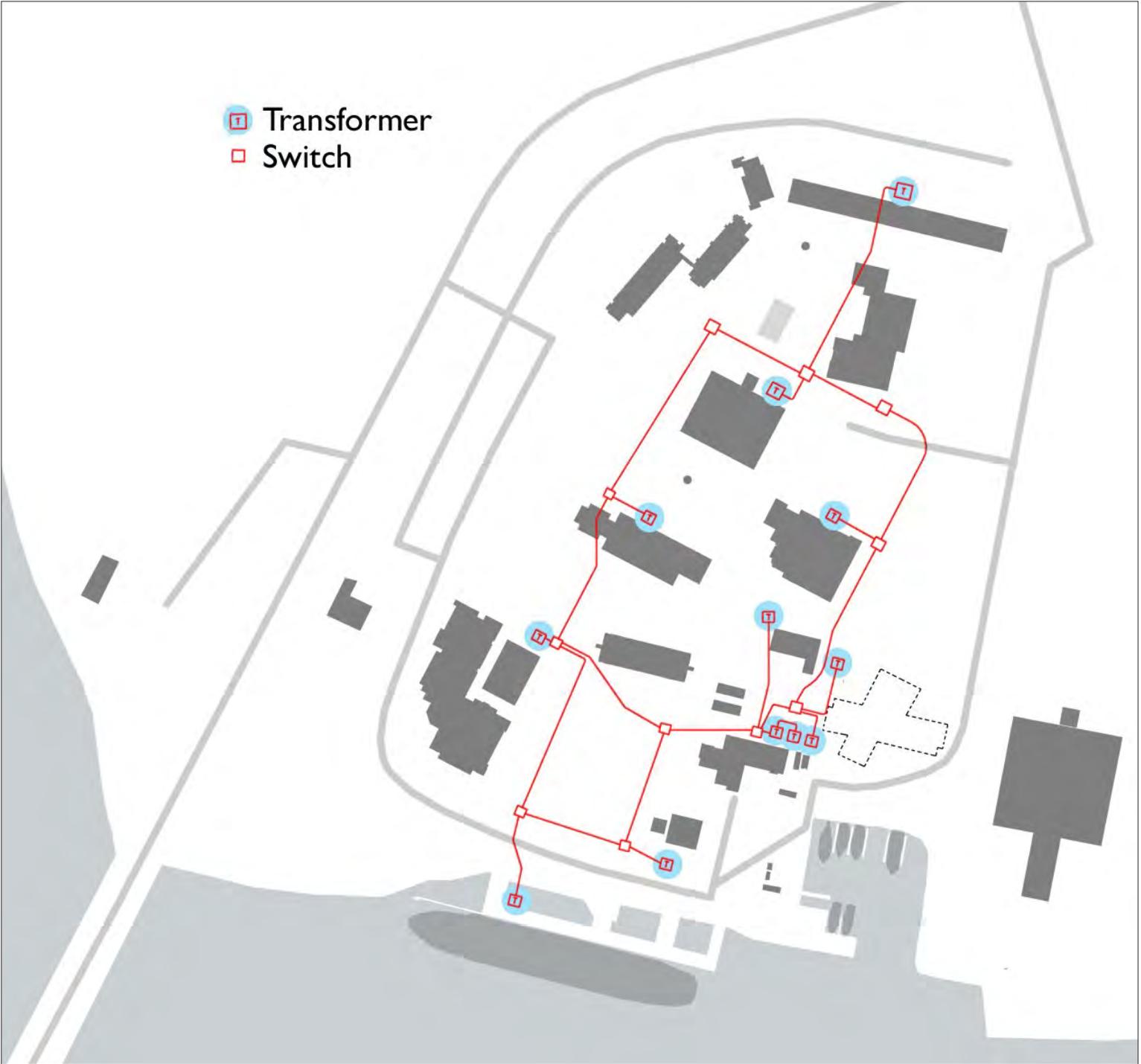
The existing central plant has a total cooling capacity of 1,800 tons. This consists of one 800 ton and two 500 ton chillers. The firm cooling capacity is 1,000 tons.

The cooling demand is 1,800 tons. In the event a chiller is out of service, there will be insufficient capacity to supply chilled water in the summer months.

The 1,800 tons of peak chilled water demand requires about 3,600 GPM through distribution lines. There are three sets of 12-inch diameter chilled water lines exiting the central plant. One set is routed directly to the new science building. Each set of lines has a distribution capacity of 2,500 GPM. There is a bottleneck in the distribution system where the 8-inch lines are reduced to 6-inch diameter lines immediately downstream of the classroom lab building.

## Heating Water Distribution

The existing central plant has four 1,650,000 BTUH boilers providing a firm capacity of 4,950,000 BTUH. The demand for the heating water system is 6,000,000 BTUH. The loss of one boiler in the winter could cause a heating issue in the building, but due to the climate this is not as critical as the cooling firm capacity.



Electrical distribution



Mechanical distribution

# Technology Infrastructure

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## Existing Conditions

The infrastructure to support the voice and data networks at TAMUG consists of a variety of signal pathways including copper campus (inter-building) backbone cable and singlemode/multimode fiber optic backbone cables. These cables run throughout the campus in a system of underground distribution conduit banks and sub-surface vaults for use as pull points and changes in direction of the cable. The different media provide the platform to deliver the various campus wide services needed to serve administrative operations, building service, the faculties' needs, and the student population. Currently, the types of services include an Ethernet data network, VOIP, and POTS (Plain Old Telephone Service). Some of the issues that must be considered are the capacity for current and future operations, the routing of the systems, locations of the maintenance points, survivability of pathway and cabling infrastructure, conduit identification, and as-built records.

TAMUG currently has a campus telecommunications drawing that shows the Outside Plant (OSP) distribution for the campus. This is an AutoCAD drawing of buildings that has been updated by hand showing the conduit runs, hand holes, fiber counts and copper pairs. Most of the fiber runs are multimode, but the type of every run is not indicated.

Telephone and high speed internet service at the campus is provided by AT&T. This service is routed across the Pelican Island Bridge. CATV service is provided by satellite for the dorms. There is no distribution of CATV beyond the dorms. Except for the dorms, the phone system for the buildings on campus is VOIP. The dorms use standard telephone service so that 911 calls can be identified to a specific dorm room. VOIP 911 calls designate a specific building but not a specific location within a building.

## Campus Technology Overview

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

Technology plays an ever-increasing role in the delivery of instruction. Both instructional technologies and support technologies require an infrastructure that not only meets the current needs but also allows for growth and reconfiguration as needs and emphasis change. In addition to the traditional use for data communications, the technology infrastructure serves video, security, wireless, Building Management Systems (BMS), and ultimately, voice communications. The impact of the technology infrastructure is far-reaching. Every single member of the faculty, staff and student body requires its proper and reliable functioning.

The existing communications vault and conduit system on campus is a number of years old and as such has a significant number of the conduits filled to capacity.

To provide communications services to these areas a determination must be made regarding the availability of conduits in the existing conduit system and their availability to have both copper and fiber installed. With the change to VOIP some existing copper cabling could be removed to free up space for future development.

## Technology Assessment

- The existing system is not reliable, scalable, or resilient, nor is there a flexible technology infrastructure for future development.
- No telecommunications standards exist.
- The existing infrastructure does not incorporate redundant routing, back-up systems, or preventative methodologies.
- Existing duct banks have reached capacity.
- An accurate document is not available that shows the number of conduits in the ductbank and how each is populated.
- The majority of the fiber optic cable installed is multimode, and will not address future bandwidth requirements. Single mode fiber is required for today's needs and to ensure adequate bandwidth into the future.

## Conclusion

- There should be a focus on the inclusion of IT infrastructure requirements in the ongoing campus building cycle.
- A reorientation of the budgeting process on a strategic level is a must for adequate planning and management of resources available to the campus as a whole.
- The entire campus telecommunications system for the TAMUG campus will be only as secure and robust as its weakest link.

# Water and Wastewater

Water is supplied to the campus by a 24-inch main recently drilled beneath Galveston Harbor which surfaces north of the boat basin. Wastewater is treated at a TAMUG-owned plant next to Seawolf Parkway, near the southeast corner of the campus.

The existing wastewater treatment plant has a capacity of 200,000 gallons per day. On average, 60,000 gallons per day are treated. Texas Commission on Environmental Quality (TCEQ) rules require that a plant expansion be designed when capacity reaches 75%, so the current 30% capacity indicates that a significant amount of growth is possible before expansion or replacement will be required. The plant is rather old, however, and it can be assumed that maintenance costs will increase.

Estimated water supply and sewer demand for the future building areas outlined in Section 3 were projected using the “City of Houston Planning & Operations Support Division Discharge Criteria Sheet,” with each type of development calculated according to the Service Equivalency Unit (SUE) for that development type. Building types, square footages, housing, and other features of the projected development will likely change as the master plan is developed, but these estimates are sufficient for long-range planning projections.

As can be seen from the table, total sewer demand, added to the current demand, will surpass the 150,000 GPD threshold which will trigger the TCEQ-mandated plant expansion/replacement. Total sewer demand will not exceed the total capacity of the plant, but as additional non-TAMUG development will likely occur at the same time, sewer demand will almost certainly exceed the plant’s capacity by the end of the master planning period. Housing is one of the most significant generators of sewer demand, so housing developments on the island – TAMUG on-campus housing or otherwise – beyond the 700 beds currently projected will increase sewer demand commensurately.



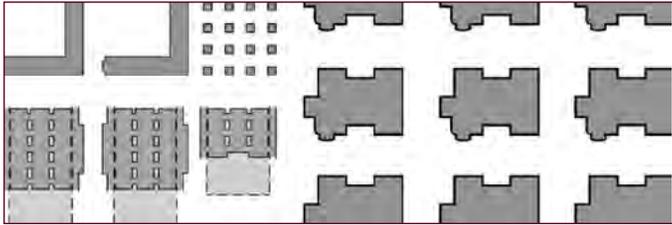
Water main (right side) and sanitary sewer treatment plant (left, in green)

Unit	SUE	Sewer Demand	Water Demand
800 seat auditorium	.03170/seat	7,990 GPD	12,430 GPD
320,000 GSF academic space	.000335/sf	33,770 GPD	52,530 GPD
60,000 GSF research space	.000335/sf	6,335 GPD	9,850 GPD
700 additional housing beds	.317/unit	69,900 GPD	108,735 GPD
6,000 GSF activity center	.0025/sf	4,725 GPD	7,350 GPD
<b>TOTAL</b>		<b>122.720 GPD</b>	<b>190.895 GPD</b>

# Buildable Area



*Areas in blue denote prime buildable area*



## 5. Projections

# Program Areas

Divisions	Fall 2006					Fall 2010				
	%	FTSE			Totals	%	FTSE			Totals
		UG	Masters	PhD			UG	Masters	PhD	
<b>Program Area 4</b>	31.13%	485	18	0	503	32.25%	615	30	0	645
GACD	15.41%	249	0	0	249	14.25%	285	0	0	285
Masters of Marine Rsrcls Mgmt (MARM)	1.11%	0	18	0	18	1.00%	0	20	0	20
Maritime Administration (MARA)	14.60%	236	0	0	236	15.00%	290	10	0	300
University Studies										
Environmental Law & Policy	0.00%					1.00%	20	0	0	20
Marine Recreation Management	0.00%					1.00%	20	0	0	20
Other	0.00%									0
<b>Program Area 3</b>	40.16%	649	0	0	649	39.00%	750	25	5	780
Maritime Studies (MAST)	3.53%	57	0	0	57	3.50%	70	0	0	70
Ocean and Coastal Resources (OCRE)	2.29%	37	0	0	37	2.25%	45	0	0	45
Marine Science (MARS)	2.78%	45	0	0	45	2.50%	50	0	0	50
Marine Biology (MARB)	31.56%	510	0	0	510	30.75%	585	25	5	615
<b>Program Area 2</b>	22.15%	358	0	0	358	23.25%	465	0	0	465
Marine Transportation (MART)	8.66%	140	0	0	140	9.00%	180	0	0	180
Maritime Systems Engineering (MASE)	7.67%	124	0	0	124	8.25%	165	0	0	165
Marine Engineering Technology (MARR)	5.82%	94	0	0	94	6.00%	120	0	0	120
<b>Program Area 1</b>	6.56%	26	50	30	106	5.50%	25	53	32	110
Marine Fisheries (MARF)	1.61%	26	0	0	26	1.25%	25	0	0	25
College Station Graduate Students	4.95%	0	50	30	80	4.25%	0	53	32	85
<b>TOTALS</b>		<b>1,518</b>	<b>68</b>	<b>30</b>	<b>1,616</b>		<b>1,855</b>	<b>108</b>	<b>37</b>	<b>2,000</b>
		93.9%	4.2%	1.9%			92.8%	5.4%	1.8%	
Divisions	Fall 2017					Fall 2027				
	%	FTSE			Totals	%	FTSE			Totals
		UG	Masters	PhD			UG	Masters	PhD	
<b>Program Area 4</b>	34.25%	729	124	4	856	36.83%	895	200	10	1,105
GACD	13.25%	331	0	0	331	12.33%	370	0	0	370
Masters of Marine Rsrcls Mgmt (MARM)	1.50%	0	34	4	38	2.00%	0	50	10	60
Maritime Administration (MARA)	15.50%	298	90	0	388	16.33%	340	150	0	490
University Studies										
Environmental Law & Policy	1.25%	31	0	0	31	1.67%	50	0	0	50
Marine Recreation Management	1.25%	31	0	0	31	1.50%	45	0	0	45
Other	1.50%	38	0	0	38	3.00%	90	0	0	90
<b>Program Area 3</b>	36.50%	803	85	25	913	34.00%	830	140	50	1,020
Maritime Studies (MAST)	3.50%	78	10	0	88	3.33%	80	20	0	100
Ocean and Coastal Resources (OCRE)	2.75%	69	0	0	69	3.33%	100	0	0	100
Marine Science (MARS)	2.75%	69	0	0	69	3.33%	100	0	0	100
Marine Biology (MARB)	27.50%	588	75	25	688	24.00%	550	120	50	720
<b>Program Area 2</b>	24.75%	594	25	0	619	25.67%	720	40	10	770
Marine Transportation (MART)	8.50%	213	0	0	213	8.17%	245	0	0	245
Maritime Systems Engineering (MASE)	9.25%	206	25	0	231	9.50%	235	40	10	285
Marine Engineering Technology (MARR)	7.00%	175	0	0	175	8.00%	240	0	0	240
<b>Program Area 1</b>	4.50%	31	50	31	113	3.50%	40	40	25	105
Marine Fisheries (MARF)	1.25%	31	0	0	31	1.33%	40	0	0	40
College Station Graduate Students	3.25%	0	50	31	81	2.17%	0	40	25	65
<b>TOTALS</b>		<b>2,156</b>	<b>284</b>	<b>60</b>	<b>2,500</b>		<b>2,485</b>	<b>420</b>	<b>95</b>	<b>3,000</b>
		86.3%	11.3%	2.4%			82.8%	14.0%	3.2%	

# Total Projected Space

As TAMUG grows to 3,000 students, over 400,000 additional gross square feet of academic, office, library, research, and support space will be needed. These spaces have been projected using the Texas Higher Education Coordinating Board's (THECB) five-factor model, which is the state-mandated model for calculating space needs. The table below also shows projected square footages at several points in the university's growth as well as its needs as of 2006. TAMUG is currently space deficient in several areas, most notably library space. The lack of teaching and research space is reflected in TAMUG's typically high utilization factors for classrooms and labs.

Housing, recreation, and other components will grow as well. Numbers and sizes of these types of facilities are not dictated by the THECB; they are targets set by the university itself. The facilities shown on the following space visualization plan were derived from discussions with the university. The housing footprints depicted are for three-story buildings; academic footprints are based off of a three-story building (Science Building) and the Engineering Building and Classroom Lab Building.

The land owned and controlled by TAMUG between Seawolf Parkway and Galveston Harbor is about 65 acres. The area currently occupied by academic, research, and support facilities, not including parking, housing, or recreational space, is about 20 acres. The THECB model predicts about 366,000 gross square feet for the current student population. In growing to 3,000 students, this total will nearly double, to 712,000 square feet. At current densities, this would require nearly 40 acres of land, which would be two-thirds of the total area within Seawolf Parkway. This is not sustainable given requirements for parking and other space required in the future. This indicates that as the campus grows, the density of academic and other facilities must increase in order for that growth to be viable, and additional land must be used for housing, parking, and recreational needs.

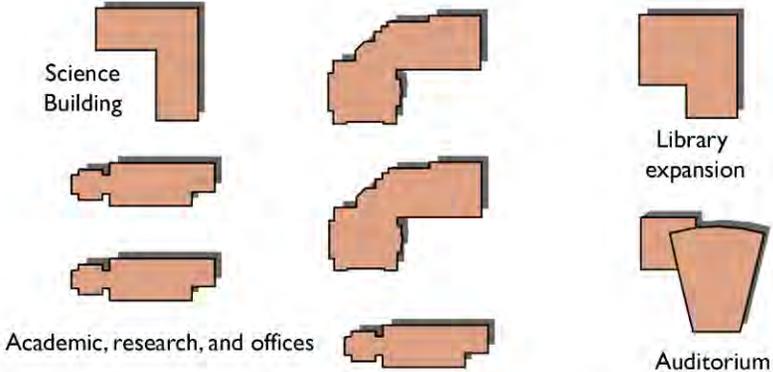
Total TAMUG Gross					
	All units gross square feet	2006	2010	2017	2027
Teaching	Predicted	145,772	172,177	211,896	257,008
	Current and Under Construction	136,262	136,262	136,262	136,262
	Needed Space	9,511	35,915	75,634	120,746
Library	Predicted	44,501	53,336	69,138	87,085
	Current and Under Construction	3,635	3,635	3,635	3,635
	Needed Space	40,865	49,701	65,502	83,450
Office	Predicted	98,403	108,483	135,604	217,082
	Current and Under Construction	89,962	89,962	89,962	89,962
	Needed Space	8,441	18,522	45,643	127,121
Research	Predicted	47,374	47,215	68,751	91,614
	Current and Under Construction	37,643	37,643	37,643	37,643
	Needed Space	9,731	9,572	31,107	53,971
Support	Predicted	30,244	34,309	43,685	58,751
	Current and Under Construction	31,718	31,718	31,718	31,718
	Needed Space	(1,474)	2,591	11,966	27,033
Totals	Predicted	366,294	415,520	529,073	711,541
	Current and Under Construction	299,220	299,220	299,220	299,220
	<b>Needed Space</b>	<b>67,074</b>	<b>116,300</b>	<b>229,853</b>	<b>412,321</b>

# Space Visualization

The generic footprints to the right are intended to aid in the visualization of the additional square footages called for in the projections. Actual building, parking, and other footprints will be determined by the master plan, and even those footprints will be symbolic of intention rather than proscriptive. The footprints show only new elements; they do not include replacement of existing square footages. For example, the 400+ beds of Mariner Hall, which will be replaced in the master plan, are in addition to the 700 beds shown here.

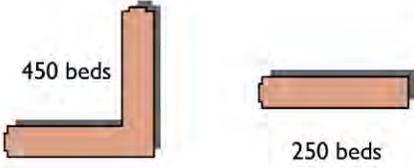
Some of the footprints imply assumptions about the number of buildings and whether certain functions will be accommodated in building expansions or new buildings; like the shape of the footprints themselves, these assumptions are made only for visualization purposes and will be thoroughly explored in the master planning process.

## Academic, Research, Library, and Other Built Space

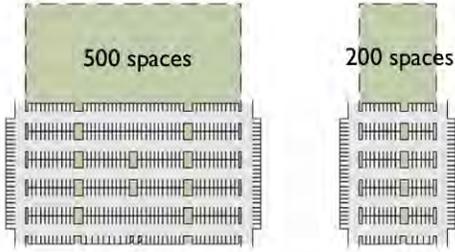


Shapes shown are examples only and are not meant to suggest final building form

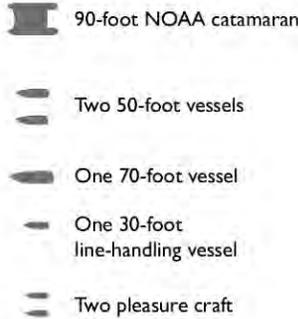
## Housing



## Parking



## Vessels



## Recreational and Student Activities

