Dear Campus Community and Friends of the University:

It is with great excitement that I announce creation of the Campus Master Plan for Texas A&M University-Corpus Christi. This master plan represents an important moment for the university by planning for the long-term physical growth on two campuses—Island and Momentum. In linking these two campuses, our university now has a long-term plan to accommodate our growing and changing needs as it rises to the challenge of providing a 21st Century higher education experience. As a foundational document, this master plan helps us maximize our existing resources while efficiently and effectively planning for future needs to maintain our competitive edge as a rising public university in Texas.

For our current and future students, faculty members, and researchers from the Coastal Bend Region and beyond, this master plan aims to establish a vibrant campus experience focused on academic excellence, research distinction, and student life vitality. It seeks to maximize our existing resources as an island campus—enhancing connections to the water, promoting environmental stewardship—while also thoughtfully planning future buildings and green open spaces on a limited amount of land.

This master plan helps us optimize our existing Island Campus for academic and research purposes while also engendering a vibrant student life experience and expanding green open space. It establishes a new front door for our university—a Visitor and Interpretive Research Center—and it creates several new outdoor promenades that build upon our existing campus spine.

For Momentum Campus, this master plan sets forth a bold yet functional plan to bolster our athletics facilities, provide additional student housing, and create a convocation center that can become a focal point and activity hub for the university.

Most important, near-term physical growth issues are identified and planned for in a pragmatic and action-ready manner while aligning with the big picture for our university in the next 20 plus years. This master plan will inform future capital planning efforts, our strategic planning process (for Momentum 2020) and other future building projects. This master plan also strikes a balance between being specific and detailed, yet flexible enough to adapt to changing scenarios in the future.

In closing, I would like to thank our students, faculty and staff as well as our external community stakeholders who participated in making this master plan a reality. Through our engagement process over the past six months, the consensus we were able to generate around a common vision for our future is remarkable and speaks to the quality of this master plan.

Sincerely,

Flavius C. Killebrew
President/CEO
Texas A&M University-Corpus Christi
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Office of State Representative Todd Hunter, District 32

Mayor Nelda Martinez, City of Corpus Christi
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Part 1: Executive Summary
Texas A&M University - Corpus Christi (TAMU-CC) is at a pivotal point in its development as a university. With growing enrollment, evolving academic plans, increasing physical space needs, and limited land on the island, the university is facing some important decisions as it plans for the long-term future of both its Island and Momentum Campuses. As the university continues to meet the demands that come with being a regional leader in higher education, it is also proactively planning to meet future challenges of a highly competitive and ever-evolving higher education marketplace.

This master plan ‘writes the script’ for future growth of both the Island and Momentum Campuses. It establishes a vision for growth that rises to the occasion by addressing critical resource allocation questions for both the near-term and long-term. How much future space will the university need? Where should research functions be located? How can the university foster a vibrant student life?

While it is not a crystal ball, this master plan attempts to answer these questions and many more. It anticipates future facility needs and enrollment growth, as well as infrastructure and utility requirements. It takes the best qualities that already exist on campus and enhances them. Above all, this document establishes a sense of place and enhances the identity of all campus locations.
Executive Summary

Master Plan Goals
Through the planning process, several major goals emerged for this master plan:

Establish a Vision
Generate an over-arching conceptual vision for the long-term development of both campuses to meet enrollment growth projections and university objectives.

Connect the Campuses
Improve physical connectivity and create a comprehensive land use scheme for both campuses.

Prioritize Projects
Prioritize specific near-term projects to meet existing needs and inform the capital improvement campaign.

Improve the Campus Experience
Enhance landscape and building aesthetics that build upon the campus’ unique settings and create memorable spaces that foster student life and university pride.

Inform the Strategic Plan
Provide a foundational vision for campus growth to be considered by stakeholders creating a new strategic plan (the university will embark on the creation of a new strategic plan called Momentum 20/20 in 2013).
Guiding Principles

Principle #1: Optimize Future Land Use on Island Campus for Academic and Research Purposes
- Focus new academic and research building projects on the island
- Seek compact design solutions that maximize building potential without creating utility capacity issues or reducing public open space
- Use surface parking lots as building sites

Principle #2: Utilize Momentum Campus for Athletics, Future Housing, and Other Auxiliary Functions
- Momentum Campus can best be used for the following purposes: athletics, additional student housing, administration functions (purchasing, payroll, budget, human resources, etc.), ROTC, facilities services, office space (to include technology commercialization, private partnerships, long-term research)

Principle #3: Enhance Campus Connectivity and Access
- Multiple modes of transportation can improve getting to and from campus
- Further develop student life

Principle #4: Expand Upon the Spine (Enhance Campus Outdoor Spaces)
- The north-south spine is the most successful outdoor space on campus. The spine is pedestrian friendly and heavily used by students, faculty, and staff. Replicate the spine’s landscape aesthetic elsewhere on campus to create gathering spaces that are intimate, “third” places

Principle #5: Capitalize on Being an Island Campus
- Emphasize the unique setting of the university by promoting access to the water, creating landscape zones that recognize unique ecosystem, and protecting environmentally sensitive areas

Principle #6: Seek Transportation and Parking Solutions to Manage Supply and Reduce Demand
- Implement multiple strategies to balance providing parking with utilizing land for other purposes
- Create future parking garages to provide parking supply
Master Plan Highlights
The master plan creates a physical strategy for long-term development that plans for future university space needs to match enrollment targets. Beyond meeting benchmark targets and projections, the master plan creates a visionary 21st century university on two campuses. The master plan promotes the campus experience and enhances student life by creating beautiful green spaces, connections to the water, and planning campus facilities that integrate with the landscape.

There are several key takeaways in this master plan:

Near-term Projects are Identified
This plan features new near-term buildings with associated landscape areas. The Life Sciences Research Building; Arts, Media & Communications Building; and Learning Resource Center are all included.

Future Front Door Created
In a complete shift, the existing boat storage and facility services area in the southwest corner of Island Campus are re-imagined as a new front door to campus: the Visitor and Interpretive Research Center, with its iconic viewing tower, becomes the new emblem for the campus.

Outdoor Green Space as a Connective Network
This master plan increases overall green space (courtyards, pathways, gardens, lawns) from 18 acres to 29 acres on the Island Campus. With the increase in green space, the campus experience is enhanced. Buildings are linked to one another via a network of pedestrian pathways and gathering places.

Land Use Logic
The organization of this master plan is governed by an underlying logic that strategically arranges functions in different areas of the campus. On Island Campus, research, science, and engineering functions grow west while liberal arts and arts, media and communications grow east. Student life functions remain the hub of activity in the south section and water’s edge of the campus.

Gathering Momentum
The original plan for Momentum Campus—the Campus Expansion Plan completed in 2008—is validated as many of the same land uses and building functions remain, but in a slightly different configuration.

By The Year 2025...
The University is projected to have 20,662 students
An increase of approximately 10,100 students, approximately doubling the Fall 2012 enrollment

The University is projected to need 5 million gross square feet of building space (including housing)
An increase of 2.5 million gross square feet over 2013

The University is projected to need 3,626 student beds on two campuses
An increase of almost 2,000 beds compared to Fall 2013

The University is projected to top $45 million in annual research expenditures
An increase of approximately $30 million, tripling the anticipated 2013 expenditure
Momentum Campus at a Glance
Built on the assumptions of the 2008 Campus Expansion Plan, this master plan identifies similar uses and overall design concept as the original plan, but provides several new elements and minor adjustments to the physical layout.

Implementation Underway
The athletics complex is already being constructed. The tennis center was built in 2010, and the soccer/track and field facility will be complete in 2013. Future softball and baseball diamonds are still in the plan, and will be phased-in.

Convocation Center Hub
Acting as a catalyst and monumental space, the future convocation center will provide a large multi-use space for commencement activities, sporting events, concerts, and meeting spaces. It will also anchor future development adjacent to the Momentum Campus as it matures into an urban district.

Islander Town
The potential for a mixed-use district with student housing, office/research space, and retail space is an exciting opportunity for Momentum Campus. Establishing a presence on Ennis Joslin Road will be a great way for the university to engage the community and it will create a front door to campus.
Executive Summary

Momentum Campus Long-term Master Plan

- Auxiliary Services, Storage, Receiving
- Athletics Complex
- Convocation Center
- Islander Town Mixed Use District
- Hotel & Conference Center
- Student Housing
- Athletics Facilities Expansion
- Potential Central Plant Location
Project Impetus

What began as a small private university of 312 students in 1947 on Ward Island (formerly a World War II military outpost) is now an emerging regional research institution with 11,000 students, two campuses (Island and Momentum) totaling approximately 380 acres, 1.9 million gross square feet of facilities, and annual research expenditures approaching $15 million. The university is maturing into a leading academic institution with world-class research centers and academic programs geared towards serving South Texas students as well as students from across the country and around the globe.

The driving force behind the Campus Master Plan for Texas A&M University-Corpus Christi is to plan today to meet current needs while charting a visionary path for the development of campus in the future. As the university seeks to grow overall student enrollment to 20,000 by 2025 (a 45% increase in enrollment compared to the anticipated Fall 2013 level), the time to define the vision for physical campus growth is now. What will the university look like in the future? How will it rise to meet the challenges of higher education in the 21st century?

The anticipated growth projections and university ambitions present an exciting opportunity for the university to build new traditions while enhancing existing ones; further establish its identity as the “Island Campus” while practicing environmental stewardship; and foster an environment that promotes research activity and academic excellence while improving the student life experience.

This master plan rises to the challenge of planning for one university on two campuses. It leverages Oso Bay as a critically important habitat and aesthetic feature. It seeks to build partnerships with external stakeholders. Most importantly, it enhances the campus experience for students, faculty, staff, and community members.
A Foundation to Guide Growth

This master plan provides a foundation to guide university growth for the near-term (0-5 years), mid-term (6-10 years), and long-term (beyond 10 years). University decision makers can refer directly to this document when making future physical improvement and capital investment decisions. As a guiding document, the master plan addresses primarily physical growth issues pertaining to land use, facility needs, student life, public open spaces, transportation and utilities, athletics, student housing, and environmental sustainability. Enrollment and facility space projections, based on benchmarking peer institutions and Texas A&M-Corpus Christi is no exception. Given the university’s growth projections and ambitions, it is challenging for a master plan to anticipate every future development. It is common for universities to update their master plan every five years or so to address new issues that arise.

Priorities for Implementation

As an action-ready document, this master plan prioritizes projects including new facility, utility, and landscape improvements over three different time phases: near-term (0-5 years), mid-term (6-10 years) and long-term (beyond 10 years). By prioritizing projects, this master plan proactively aids university decision makers in preparing capital improvement plans, submitting projects to the Texas Higher Education Coordinating Board and the State of Texas Legislators for Tuition Revenue Bond funding.

A Living Document

This master plan, however, is not a fixed, unalterable document. While it writes the script for long range campus development and prioritizes near-term projects based on the most accurate and current information, the master plan can be updated or altered in the future to accommodate changing circumstances in funding, strategic planning, enrollment, or any other major change. Universities are dynamic, evolving institutions and Texas A&M-Corpus Christi is no exception. Given the university’s growth projections and ambitions, it is challenging for a master plan to anticipate every future development. It is common for universities to update their master plan every five years or so to address new issues that arise.

Priorities for Implementation

As an action-ready document, this master plan prioritizes projects including new facility, utility, and landscape improvements over three different time phases: near-term (0-5 years), mid-term (6-10 years) and long-term (beyond 10 years). By prioritizing projects, this master plan proactively aids university decision makers in preparing capital improvement plans, submitting projects to the Texas Higher Education Coordinating Board and the State of Texas Legislators for Tuition Revenue Bond funding.

Master Plan Goals

Through multiple meetings with President Killebrew and the President’s Cabinet, several major goals emerged for this master plan:

- Establish a Vision: generate an over-arching conceptual vision for the long-term development of both campuses to meet enrollment growth projections and university objectives
- Connect the Campuses: improve physical connectivity and create a comprehensive land use scheme for both campuses
- Prioritize Projects: prioritize specific near-term projects to meet existing needs and inform the capital improvement campaign
- Improve the Campus Experience: enhance landscape and building aesthetics that build upon the campus’ unique settings and create memorable spaces that foster student life and university pride
- Inform the Strategic Plan: provide a foundational vision for campus growth to be considered by stakeholders creating a new strategic plan (the university will embark on the creation of a new strategic plan called Momentum 20/20 in 2013)

Introduction

“We are at a critical point where we need to best decide how to maximize our resources moving forward.”

- President Killebrew
Any successful master plan must include strong stakeholder involvement and collaboration. The Texas A&M University-Corpus Christi Campus Master Plan incorporated a multi-phase process to achieve this involvement that included university leaders, students, and community members from project initiation in early March of 2013 to the presentation of the plan in August of the same year.

Initiation: The process began with an initiation workshop, during which the project team met with key stakeholders to gather initial information on the campus and determine project goals. This phase involved an initiation symposium that included a meeting of the Steering Committee to inform the guiding principles of the plan as well as individual interviews to understand key areas of need and ongoing strategies of the university.

Analysis and Vision: The analysis & vision phase followed, assessing the existing built and natural environments of the campus in relation to future needs of the university. During this phase, the project team conducted site analysis that factored in existing land use, transportation, infrastructure, and environmental constraints that would bear on the development of the Master Plan. The team also conducted stakeholder interviews with the heads of the various colleges, athletics department, physical plant, etc. to inform a space needs analysis and preliminary space projection. Based on these analyses, the project team developed a set of guiding principles to support the university mission and inform the creation of a Vision Plan or concept plan. The analysis and concept plan were presented to the steering committee and at a public input session to gather feedback.

Development: After this workshop, the plan moved into the development phase, testing the technical feasibility of concepts raised in the Vision Plan diving into greater detail on specific site issues including circulation, connectivity, utilities and parking requirements. This phase resulted in a public input session with campus stakeholders and progress review on the Development Plan with the Steering Committee.

Refinement: Finally, the refinement phase synthesized the outcomes of all other phases into a final plan document and priority recommendations for plan implementation. The final campus master plan and outcomes therein were shared with the Steering Committee, other stakeholder groups, and the broader campus community.
Master Plan Guiding Principles

A guiding principle is a concise, over-arching objective for the campus master plan. It serves as a basis for planning decisions, and it reflects the strategic initiatives of the university. Importantly, it responds to feedback gathered during the planning process.

Principle #1: Optimize Land Use on Island Campus for Academic and Research Purposes

Land on the Island Campus island is a limited resource. This principle seeks to create an urban campus with compact development to best utilize land.

• Focus new academic and research building projects on the island
• Further develop student life
• Seek compact design solutions that maximize building potential without creating utility capacity issues or reducing public open space
• Use surface parking lots as building sites

Principle #2: Develop Momentum Campus for Athletics, Student Housing, and Other Auxiliary Functions

Momentum Campus can best be used for the following purposes:

• Athletics
• Additional Student Housing
• Some Administration Functions (purchasing, payroll, budget, human resources, etc.)
• ROTC
• Facilities Services
• Office Space (to include technology commercialization, private partnerships, long-term research)

Principle #3: Enhance Campus Connectivity and Access

Multiple modes of transportation can improve getting to and from campus:

• Focus resources on key pathways
• Create additional pedestrian-only zones
• Address transportation connections between Momentum and Island Campus
• Explore alternatives to single-occupant automobile transportation
• Create/maintain east-west service route through campus
• Improve wayfinding for visitors to the campus

Principle #4: Expand Upon the Spine (Enhance Campus Outdoor Spaces)

The north-south spine is the most popular outdoor space on campus. The spine is pedestrian friendly and heavily used by students, faculty, and staff.

• Replicate the spine’s landscape aesthetic elsewhere on campus
• Create gathering spaces that are intimate, “third” places
• Enhance pedestrian connections east-west
• Create covered/shaded areas for pedestrians
• Implement utility corridors to align with campus outdoor spaces
Principle #5: Capitalize on Being an Island Campus
Emphasize the unique setting of the university
- Promote access to the water
- Create landscape zones that recognize unique ecosystem
- Protect environmentally sensitive areas
- Enhance environmental sustainability where feasible
- Ensure island is prepared to mitigate the effects of natural disasters

Principle #6: Seek Transportation and Parking Solutions to Manage Supply and Reduce Demand
Implement multiple strategies to balance providing parking with utilizing land for other purposes
- Promote alternative transportation to/from both campuses
- Optimize parking lot/garage utilization
- Develop parking demand management strategies to control supply
- Seek incremental change in parking/automobile culture
Engagement and Outreach

Stakeholder Involvement and Consensus Building

The formation of this master plan would not be possible without the high amount of stakeholder and community engagement integrated into the planning process. Meeting with and listening to stakeholders greatly enhanced the content of this master plan, and generating consensus on planning issues among multiple stakeholder groups was a central task accomplished through the planning process. As part of the process, the planning team conducted four planning workshops of a day and a half in length, each of which were comprised of a sequence of action packed, on-site meetings with stakeholder groups.

All aspects of campus growth were discussed with stakeholders ranging from the President’s Cabinet and City of Corpus Christi officials to the student body and community members. Discussing academic programs with College Deans, for example, yielded a thorough understanding of the physical issues and opportunities facing the academic and research arms of the university. In another example, discussing recreational outdoor space and the need for hybrid study/group meeting spaces was an important topic for students. Meeting with external (non-university) stakeholders such as the Corpus Christi Metropolitan Planning Organization and the Corpus Christi Naval Air Station (NAS) led to important exchanges of existing conditions and future plans.

As an integral part of the planning process, a sequence of meetings organized into four planning workshops were held with the Master Plan Steering Committee and Advisory Committee to obtain insight and final direction on all master plan decisions. A series of four meetings with each committee occurred over the duration of the project. The meetings were a great opportunity for the master plan team to present the most recent planning analysis and concepts and for the committees to provide comments, ask questions, and give feedback. The Steering Committee, comprised of President Killebrew and his cabinet, functioned as the final decision-making body for the master plan. The Advisory Committee, composed of other university members, government leaders, neighborhood representatives, and students, functioned as a guiding body providing insight for the Steering Committee to consider.

University Stakeholder Groups

- President Killebrew
- President’s Cabinet
- Facilities Services
- University Housing
- Marketing and Communications
- University Police
- University Services
- Engineering Services
- Information Technology Services
- Community Engagement
- Athletics Department
- College of Business
- College of Science and Engineering
- College of Education
- College of Nursing & Health Sciences
- College of Liberal Arts
- College of Graduate Studies
- Conrad Blucher Institute
- Harte Research Institute
- Faculty Senate
- Student Body

Community Stakeholder Groups

- City of Corpus Christi
- Corpus Christi Metropolitan Planning Organization
- Corpus Christi Regional Transportation Authority
- Corpus Christi Naval Air Station
- Nueces County
- Pharaoh Valley Homeowner’s Association
Web-based Outreach

In addition to on-site meetings, a project website was created as an educational and engagement tool. The website included the following components:

- An **About** section that summarized the intent of the master plan
- A **Phase/Timeline** section that provided an overview of the planning process and hosted presentations made by the planning time available for download
- A **Team** section that provided the list of Steering Committee, Advisory Committee, and Consultant Team members
- A **Participation** section that included download links to important documents and links to two online surveys: a student survey and a visual preference survey.

**On-line Surveys**

Two online surveys were created as information gathering tools. One survey was focused on obtaining student input. The student survey was comprised of 22 questions ranging from straightforward demographic information to qualitative questions. Almost 400 students—or 5% of the student body—completed this survey providing a robust amount of insightful information. The second survey was a visual preference survey that asked respondents to rate the quality of an on-campus space displayed in a photograph. Almost 200 people responded to the twenty question survey. Analysis of the survey results is included as part of this master plan in Part 3: Analysis.

**Visual Preference Survey**

Students, Faculty, and Staff were presented with an online “visual preference survey” which allowed them to rate the quality of a number of public spaces around the campus. The project team selected twenty-two images of different types of public spaces (seating areas, walkways, courtyards, parking lots, etc.) and survey respondents were asked to rate each space as desirable, average, or undesirable. There were 194 responses to this survey.

Not surprisingly, areas with ample vegetation and seating were rated the most desirable, while areas with extensive asphalt or concrete pavement or lower architectural quality were rated least desirable. The results help inform which types of spaces people are drawn to, and which spaces on campus need particular attention to create a more welcoming environment.
Student Survey

As part of the engagement process, a twenty question online survey addressing the existing campus was made available to students wishing to provide their input in the planning process. Beginning in April and closing in June, the survey received nearly 400 responses and covered areas related to quality of existing facilities, transportation and parking, the natural environment, and student activities.

Several items stand out from the data collected from this survey. First, there appears to be high agreement that the overall campus and surrounding environment are highly valued by students. An overwhelming majority of students (93%) agreed that the campus makes a good first impression on students. Corresponding to this, 75% said they highly value a connection to the water surrounding campus, and environmental sustainability ranked highly on issues most important for the campus to address in the future.

While the general impression of the campus was positive, there were a number of items that stood out as issues among the survey respondents. Of respondents, 75% said they drive to campus and 81% agreed it was easy to get to campus with a car, yet only 29% of students agreed that there is an adequate amount of parking on campus, and parking and transportation emerged as the most important issue for the campus to address in the future. On the other hand, only 18% of students agreed that student housing on campus is a desirable place to live. As the university grows, the interplay of transportation, parking, and quality of on-campus housing will have to be reconciled to begin to resolve these perceived issues.

Of existing spaces and facilities on campus, no one area stood out as exceptionally effective or ineffective; lecture halls were rated most effective, while outdoor spaces were rated least effective, though not dramatically so. Students indicated that they used the University Center, Library, and Dugan Wellness Center most frequently, and that the amount and quality of academic space was very important for the university to address in the future.

Introduction
A Unique Setting

In and Around Corpus Christi

The City of Corpus Christi is set in South Texas along the coast of the Gulf of Mexico, about 125 miles north of the U.S.-Mexico border. The city and the campus both hug Corpus Christi Bay, a body of water 12-15 miles across protected by barrier islands, functioning simultaneously as a busy port and an estuary with incredible biodiversity. The TAMU-CC campus is located roughly eight miles southeast of Downtown Corpus Christi. The original campus is set on Ward Island, surrounded by the waters of Corpus Christi Bay to the north and Oso Bay to the south. The newly created Momentum Campus is set on the mainland, directly west of the Island Campus across Oso Bay.

The City of Corpus Christi has grown substantially since the university first received its charter, from the 1950 census population estimate of roughly 108,000 to the 2010 Census population estimate of 312,000, and it is now the 8th largest city in Texas. Neighboring cities of Portland, Kingsville, Port Aransas and others contribute to the Corpus Christi-Kingsville Combined Statistical Area which had a population of over 500,000 as of the 2010 Census.

1. Downtown Corpus Christi
2. TAMU-CC Garcia Arts and Education Center
3. S.P.I.D Commercial Corridor
4. TAMU-CC Momentum Campus
5. TAMU-CC Island Campus
6. Corpus Christi Naval Air Station
7. TAMU-CC Business Innovation Center
8. Mustang Island State Park
9. Ingleside Naval Station
10. Corpus Christi Regional Context Map
Both the Island and Momentum Campuses are set along the shores of Oso Bay, a beautiful saltwater bay with abundant wildlife.

Island Campus is on Ward Island and is connected to the mainland via Ocean Drive, an arterial street extended west toward downtown Corpus Christi. To the east of Island Campus is the Corpus Christi Naval Air Station (NAS), which has an access gate east of campus on Ocean Drive. One of NAS’s flight paths clips the northeast corner of the Island Campus, limiting (but not restricting) potential development.

Momentum Campus is surrounded by an existing residential neighborhood and is close to two golf courses, one of which (Pharaoh’s Country Club) is no longer in use. Further south of Momentum Campus along Ennis Joslin Road is a cluster of multi-family housing. A wastewater treatment facility borders the campus to the north.

Located across the Oso Bay Bridge on South Padre Island Drive is the TAMU-CC Business Innovation Center (the “Flour Bluff”) site.
Environment and Ecology

Eco-Region

Corpus Christi is located in the western edge of the Gulf Coast Prairies and Marshes eco-region, which is outlined by the Louisiana border to the north and Brownsville to the south. The 60 mile wide band along the Texas coast is shaped with shallow bays, estuaries, salt marshes, dunes and tidal flats caused by long and continual confrontations with the sea, wind and rain.

The region is a slowly drained plain with elevations that range from near sea level to almost 150 feet. Plants of this region must be highly salt tolerant or halophytic because of this proximity. The region includes barrier islands along the coast, salt grass marshes surrounding bays and estuaries, remnant tallgrass prairies, oak parklands and oak mottes scattered along the coast, and tall woodlands in the river bottomlands.

Historically, the coastal river bottoms of this area consisted of woodlands but excessive farming and urbanization have reduced their cover. Today more brush species such as mesquite and acacias are more common now than in the past. The area is still home to important wildlife refuges.

The original vegetation of Ward Island is unknown because there was no access to the island before World War II. An aerial image taken in 1934 indicates that four natural zones of vegetation existed before development occurred on the Island. The four zones include a Hackberry Zone located west on the Island, a South Zone, an East Zone comprised of wetlands as well as a pond and a Central Zone.

Hackberries and some sea grasses are the only native species on the Island. Mesquite and acacias are considered invasive species. Although little is known about the native plant life at Ward Island, we know that native vegetation in the eco-region consists of salt grass marshes, tallgrass prairies, oak mottes and woodlands.
Precipitation

The average rainfall in Corpus Christi is approximately 34" per year. On Ward Island monthly rainfall amounts are lowest in winter while they are highest during the months of May and September. The region is prone to drought due to high summer temperatures, high winds and low humidity, which result in evaporation rates ranging from 16" to 28" per year. Sixty-seven percent of water demand in the Gulf Coast is met through surface water; 36% of demand is municipal, 35% is manufacturing, 23% is for irrigation.

Competing demands for water upriver from bays and estuaries prevents freshwater from flowing into the bays and estuaries and mixing with saltwater, thus affecting the salinity of these areas and the ability of young species to survive.

River Basins / Major Bays

Corpus Christi borders the south bank of the Nueces River; the city also surrounds the Corpus Christi Bay which is split between the San Antonio – Nueces and the Nueces –Rio Grande Coastal Basins. The Corpus Christi Bay system includes three of seven estuaries in Texas: Aransas, Corpus Christi and upper Laguna Madre. The bay is separated from the Gulf of Mexico by Mustang Island and is fed by the Nueces River and Oso Bay from Oso Creek.

The Corpus Christi Bay system has been designated as an estuary of national significance by the Environmental Protection Agency. The area is home to more than 490 species of birds and 234 species of fish. Oso Bay is an enclosed, tertiary bay located on the southern shore of Corpus Christi Bay. It receives freshwater inflows from Oso Creek and exchanges water with Corpus Christi Bay. Muddy sediments caused by rainfall have lengthened Oso Creek and as stream water reaches Oso Bay broad estuarine environments are formed around the east, south and west shores of Ward Island.
Sensitive Habitats

The wind-tidal flats of the Blind Oso are part of Oso Bay, located between Ennis Joslin Drive and Ward Island. The flats consist of primarily clays, with areas high in organic material found near the City of Corpus Christi Oso Wastewater Treatment Plant. In general, this area is covered with shallow water, with wind playing an important role in the flooding and exposure of the Blind Oso.

Wind-tidal flats are significant feeding areas for aquatic bird life on the entire Texas Gulf Coast. They are essential foraging habitats for wintering and migrating shorebirds and wading birds and are important to several state- or federally-listed endangered or threatened species or “species of concern”: Piping and Snowy Plovers, Reddish Egret, White-tailed Hawk, and Peregrine Falcon.

Benthic and epibenthic invertebrates form the prey base for shorebirds when flats are exposed and for crabs and demersal fish when they are inundated. Wading birds feed on nekton when flats are inundated, and raptors feed on shorebirds.

Interruptions or alterations of these food web relationships due to either natural and/or human disturbances have the potential for negative consequences to both threatened and non-threatened bird populations.

Prevailing Winds

Two principal wind patterns dominate in Corpus Christi and the Ward Island area. The prevailing wind for the area originates from the southeast and has an average annual velocity of 14 miles per hour. While these strong southeasterly winds prevail throughout most of the year, they are most pronounced in the spring through mid-summer. North-northeasterly winds associated with cold fronts prevail December and January. Maximum gusts range from 60 miles per hour to 120 miles per hour.

Storm Surge

In 1970, the Island Campus was inundated by a storm surge caused by Hurricane Celia (a Category 3 hurricane with winds of 125-130 mph). The island is essentially at sea level, and National Oceanic and Atmospheric Administration (NOAA) map sea water inundation at 4-6 feet along the perimeter of the island and gradually increasing to 13-18 feet in the center of the island.
Campus History

Since the decommissioning of the former U.S. Navy training facility in 1947, an institution of higher education has occupied Ward Island. From its beginnings as the small Baptist college (known briefly as Arts and Technological College and changed to University of Corpus Christi (UCC) during its first semester of operation), the campus has grown from its original 312 students to a student population of over 10,000. The original campus was housed in leftover wooden buildings that originally housed the naval training center, with the first permanent university buildings beginning construction in 1956 and onward.

After spending its first 26 years as a private four-year college, the land and facilities were donated to the City of Corpus Christi, who transferred the property to Texas A&M University and where it became a public state institution. After a brief three year stint under this new title, and six years operating as Corpus Christi State University, the Texas State Legislature incorporated it into the Texas A&M University System in 1989. After entering into the A&M System, the campus experienced significant growth; the university constructed larger classroom, administration, and research buildings including the Harte Research Center, Performing Arts Center and others. This growth has continued to present, necessitating the creation of a second campus across Oso Bay that began in 2007 that has only just begun to take form.

The Island University

Known as the “Island University,” Texas A&M University-Corpus Christi’s Island Campus is one of the most unique settings for a university in the country. Situated on the scenic 243-acre Ward Island, the campus is surrounded by water with Corpus Christi Bay to the north and Oso Bay to the south. This unique setting is clearly evident upon entering the campus along Ocean Drive where a large university sign welcomes visitors as they cross the bridge from the mainland.

The island campus was established shortly after the military base was closed. Over time the campus built new buildings along a central axis in the middle of the island. Several military buildings still existed on the campus. Eventually, all but one of the military buildings were removed as the campus expanded from the core. As late as 1991, the campus only had 19 buildings. Today, the campus features over 40 buildings including student housing. The campus now stretches across the island from east to west.

With the establishment of the Momentum Campus on the mainland, the university now functions on two campuses with Oso Bay in the middle. Momentum Campus, at 137 acres, represents a strategic opportunity for the growing university to meet the demand of its athletics program today and address other space needs in the future. The two-campus, one-university model represents an exciting point in history for Texas A&M University-Corpus Christi as it expands its academic offerings, enhances its research output, and engenders vibrant student life.
Analysis

Historic Aerial Photographs of Ward Island (1934, 1948, 1962)

Island Campus Expansion Figure Ground Diagrams (1971, 1991, 2012)
Island Campus is organized into three main zones: the north-south spine/campus core, which is the academic and student life center of the campus; the east side, which contains student housing; and the west side, which features environmental research institutes. The spine/campus core is the most intensely used area of campus (including (1) Bell Library, (2) University Center, (3) Dugan Wellness Center), and it is surrounded by surface parking lots to the east and west. Ocean Drive is the northern boundary of campus and is the northern terminus of the central spine. Two primary access roads run parallel to the spine and provide automobile access to the parking lots. Most of the buildings on both the east and west side are built along Oso Bay with an environmental buffer zone and continuous hike and bike trail forming a green necklace on three sides of the campus.
Central Spine and Campus Core

The “spine,” as it is commonly known, is a central north-south walkway that bisects the island.

The central spine is a highly vegetated and shaded pedestrian-only zone that links academic, administrative, and student life buildings along with exterior courtyards and open spaces. It is one of the most beloved features of the campus and is considered the campus core. The University Center, the student union, is located at the southern terminus of the spine. The University Center is a central activity hub. It is one of most intensely used buildings on campus with about 60% of students using it a few times a week or more. Extending to the north, the spine links the Center for the Sciences, Center for Instruction, the Faculty Center, the Mary and Jeff Bell Library, the Student Services Center, the Center for the Arts, and Corpus Christi Hall. The view to the north along the spine frames Corpus Christi Bay. The central node at the entrance to Bell Library is a meeting place and activity hub (the Starbucks Coffee shop on the first floor of the Faculty Center is a popular meeting location as well).

Immediately to the west of the spine is the Michael and Karen O’Connor Building that curves around an outdoor courtyard connecting to the spine. The Welcome Center, a visitor information space, faces the courtyard. The Center for Engineering (also referred to as “the Engineering Building”) extends west of the spine near the university Center. Immediately to the east of the spine is the Dugan Wellness Center, Island Hall, which houses the College of Nursing and Health Sciences, and Fieldhouse.

The Performing Arts Center (PAC) is prominently located along Ocean Drive to the north of the Center for the Arts. The campus core contains the majority of academic, student life, and administrative function space, and it is the most densely and heavily used area on campus.

The southern extent of campus is the baseball and softball diamonds, both of which face out towards Oso Bay. Both of these ball fields will be relocated to Momentum Campus as part of the athletics complex.

The East Campus

Student housing is the predominant land use east of the campus core. There are 19 apartment and residence hall buildings organized in “U” or courtyard shapes with communal amenity buildings interspersed. Several large surface parking lots, for both general use and resident only use, are interspersed between buildings. There are a lack of integrated, connected walkways linking student housing to the campus core and a lack of quality, vegetated outdoor spaces. The surface parking lots, which are heavily utilized, act as barriers to campus cohesion. Other land uses on the east side of campus include a small classroom building, Classroom East, and student counseling and health service functions.
The West Campus

The west side of campus features science, and research functions. The Conrad Blucher Institute, Harte Research Institute, and the Carlos Truan Natural Resource Center form the nucleus of environmental research activity. All three of these buildings are located along Island Boulevard and back up to the tidal flat area of Oso Bay, providing an outdoor laboratory for many researchers and students. The southwest corner of campus has utilitarian and infrastructure spaces: the central physical plant, university boat storage, central receiving, vehicle maintenance, and the university police. The campus’ first parking garage, the 1,241 space/ three story Bayside Parking Garage, is located immediately to the west of the campus core. The Early Childhood Development Center, a public elementary school operated in partnership with the Corpus Christi Independent School District, is located just west of the campus core along Ocean Drive.

Student Housing

By the Fall 2014 semester, the university will provide housing for 15% of its student body—1,790 beds—on the east side of Island Campus. This number includes the four residence halls that are under construction. There are 18 resident halls, a recreation building, swimming pool, and a main housing office building, which total approximately 550,000 gross square feet. There are 1,040 parking spaces reserved for residents. All housing is built, maintained, and managed through a 27-year lease agreement between the university and Camden Property Trust, a large real estate investment trust that focuses on multifamily housing. Parking spaces are part of the lease agreement and must be provided for residents only.

The NRC Lease

The Carlos Truan Natural Resource Center, which houses several State organizations dedicated to environmental policy and research, is leased to the State through 2017. Once the lease expires in 2018, the property returns to university. Potential reuse of the facility for research or instructional purposes should be explored, but the long-term development plan does not include the NRC.

Existing Buildings

As buildings have been built over several decades, various architectural styles and building types exist on Island Campus that create some level of visual interest, but, in general, do not evoke an overall sense of place or visual cohesion typified by many other campuses in Texas and across the country. A small core of original campus buildings built in the 1960s is the lone exception to the general lack of architectural consistency on campus. When the campus expanded in the past, it adopted various architectural styles as evidenced by buildings such as the Center for Instruction (post-modern) and the Harte Research Institute (deconstructivism). Meanwhile, residence halls conform to a post-Colonial style typically seen in multi-family residential subdivisions. The generally accepted feeling on campus is that the mix of architectural styles does not establish a sense of place nor do they connect to the surrounding landscape. The campus is not governed by a set of design guidelines, which could help the university generate some level of architectural unity.
Modernist Campus Core
Along the existing spine, there are several two-story buildings built in two time periods (the early 1960s and in the late 1970s) that do establish some visual continuity through the use of restrained Modernist architecture—limited material palette (stucco and cedar), limited windows, orthogonal building geometries, no ornamental features. These buildings (Center for the Sciences, Faculty Center, Bell Library, Corpus Christi Hall, University Services Center) are linked together through the use of arcades (covered outdoor walkways) that provide shade. The Student Services Center is a glass-clad, circular building set apart from the aesthetic of the campus core.

Beyond the Core
Essentially every building built after 1978 features a slightly different architectural style. Some buildings completely break with the Modernist core by using different materials and expressions while other buildings use tan colored concrete or stucco that attempts to match the Modernist core. Most buildings do not take advantage of framing views out towards the water.
Recent/Planned Construction

There are several projects under construction during this master planning process that are included in the final master plan. Integrating these projects into the master plan can provide for more comprehensive and holistic growth that recognizes current decisions the university has made regarding facility/infrastructure upgrades.

Dining Hall (#4 on map)
At 21,000 gross square feet, the new student dining hall, under construction between the Fieldhouse and the Bayside and Harbor Residence Halls, will provide dining services for students, faculty, and staff. Located in close proximity to existing residence halls, the dining hall will greatly improve the on-campus housing experience and it will function as a student life activity hub throughout the school day.

New Student Housing (#5 on map)
Two new student residence halls are under construction surrounding the dining hall on the former recreation field and two residence halls are planned in the same location. All four residence halls will be three stories tall and have 75 beds per building.

University Center Expansion (#2 on map)
The 35,000 gross square foot addition to the university Center is in the design process. The addition has two components: (1) a western extension of assembly function space and new entrance facing the Jellyfish Parking Lot and (2) a southern outdoor patio that connects to the main atrium and food court area.

Research Buildings One and Two (#1 on map)
Two single-story, 4,000 gross square feet research buildings were recently built adjacent to the Conrad Blucher Institute. These steel frame structures will be used for science-based research.

Curlew Parking Lot Modifications (#3 on map)
The existing southern access drive that links to Sand Dollar Boulevard will be rebuilt to include a wider sidewalk that will enhance connectivity between the campus core, new dining hall, and student housing.

Other Proposed Projects
Two projects have been proposed for Island Campus before the campus master plan process began. These projects have not yet been funded, nor do they exist on MP1 (THECB) — the university’s capital improvement project list. However, these projects are incorporated into this master plan.

Learning Resource Center: Bell Library Addition (Hector P. Garcia Memorial Wing)
A 20,000 gross square feet addition to the existing Bell Library is proposed. The addition is designed to the west of the existing library and would connect to the existing central hallway. It is organized around a central atrium.
Analysis

Momentum Campus Land Use
The 2008 Campus Expansion Master Plan for Momentum Campus identified the following land uses for the new 137-acre campus: athletics, a convocation center, research/office, retail, student housing, and auxiliary/facilities back-of-house uses. The master plan was formally adopted by President Killebrew, and in 2010 the university began implementing the plan starting with athletics—a new outdoor, lighted tennis center was built containing 12 courts, shaded benches, and two central pavilions. The tennis center is on Nile Drive in the same location (but different orientation) indicated in the master plan.

Athletics Complex
The first phase of the Momentum Campus Athletics Complex, comprising a track and field/soccer stadium on the west end of the campus, is now complete. The stadium is part of an architectural site plan organized around a new central plaza. The complex includes lighted baseball and softball diamonds for competition. Press boxes, seating, locker rooms, and concession spaces are incorporated into the site plan.

Recreation Fields
Three recreation fields are being built on the east side of Nile Drive near the stormwater ditch. The fields, are meant to serve as general purpose (non-athletic department) use for students. Soccer, ultimate frisbee, and flag football are a few examples of potential uses for these fields. A small surface parking lot will be built to the north of the fields. The fields will need to be lighted to permit evening/night use. The new lights will need to be engineered to limit the amount of light pollution (light hitting adjacent structures).

Other University Facilities
Coastal Bend Business Innovation Center at Flour Bluff
A former bank office building, the Coastal Bend Business Innovation Center at Flour Bluff, is a 35,500 gross square foot business incubator facility. It can accommodate up to 26 in-house companies that would share basic services, equipment, and technology.

Woo Sung Lee Alumni Welcome Center
Located on Ennis Joslin Drive near the intersection with Ocean Drive, the alumni welcome center is a 5,700 gross square foot facility serving the needs of alumni networking, alumni relations, and it provides general campus information.

Antonio E. Garcia Arts and Education Center
The Antonio E. Garcia Arts and Education Center, located on the west side of Corpus Christi, connects the university to the community by providing programs, art exhibits, and hosting community meetings. Educational programs in the arts, dance, health and nutrition, family support, and literacy are provided at low or no cost to community members.

Analysis
Landscape and Open Space

Existing Open Space in the Campus Core

What is the one image that any visitor on the Texas A&M Corpus Christi campus recalls? It would be the experience of the walk they took from the University Center to Corpus Christi Hall. The “Spine” as it is referred to by campus community, is much more than just the twenty foot wide walkway that connects these two end points, but is rather a series of alternating landscape spaces that interlock with programmed academic and social spaces throughout the entire experience. It represents the identity of the campus with its lush landscape, diverse programed spaces of cafés, library, student union, acidic and the President’s Office, to a variety of paving materials, partially covered walks. It is this interlocking of architecture and landscape that make these series of open spaces unlike any other campus experience in Texas. Consequently, this master plan utilizes this interlocking spaces concept as the basis all future pedestrian connections that emanate from the core campus to its perimeter. (See the Architecture and Landscape Qualities section at the end of Par 5: Final Plan).

The spine is defined by three covered walkways that are designed and integrated into Corpus Christi Hall, the Jeff and Mary Bell Library and by the Center for the Sciences. Three Landscape Typologies

Three Landscape Typologies

The Island Campus has three primary open space typologies in the core of the campus:

Small Intimate Spaces

Usually located off to one side of a medium courtyard space, small intimate spaces include a seating area along a wall or have free-standing benches and tables. These spaces are the smallest outdoor spaces on campus. They are usually defined by either building facades on all sides or by dense landscape vegetation that separates itself from the larger space it adjoins. These spaces tend to foster personal or small group activities. An example of a small intimate space is the seating area just east of the spine created by the covered walkway of Bell Library.

Medium Courtyard Spaces

Defined by a single building or series of buildings that are located close together, medium courtyard spaces are typically enclosed on all sides or at minimum on three sides. These spaces can be used for informal gatherings by small to medium numbers of people. Many times these spaces will have a centralized element such as a fountain or statue to define a focal point. Vegetation typically exists as two lines of trees along the perimeter or is located informally throughout the space creating a tree canopy of the entire courtyard. An example of this is the courtyard between south end of Corpus Christi Hall and the north end of Bell Library.
Large Formal Spaces

Large formal spaces feel like they are the most public and accessible open spaces on campus. As with other outdoor spaces, they are typically defined on all four sides by building. These spaces most typically are more defined by the facades of the buildings rather than the landscape, but the landscape should help to further define the edges of the space while providing shade for pedestrian walkways. These spaces are the most memorable for the campus community and visitors as they tend to be the most majestic of all the spaces on campus and tend to be used for large social and event gatherings. Much like the courtyard spaces, the vegetation in these large formal spaces can be planted to reinforce the perimeter, or reflect a more informal canopy effect by planting throughout the space. An example of a large formal space is the grass lawn between the Dugan Wellness Center and the Center for Instruction.

Potential Large Formal Spaces

The campus also has a number of areas that have huge potential for being great outdoor spaces. In most cases, these areas are existing surface parking lots or underutilized in-between space. Some of these areas will be easier to convert than others. Some could be done over a course of a summer break so as to really impress students, faculty, and staff upon their return for the fall semester.

An example would be the lawn and parking area between the Early Childhood Center and Classroom West Building. Although a portion of the parking could be removed and landscaped, much of this area could be designed in order to create a series of small, medium and large spaces as defined above.
Circulation and Transportation

Accessing the Island

There are two main roads serving the Island Campus: Ocean Drive and Ennis Joslin Road. Ennis Joslin Road is the north-south arterial street that links the campus with South Padre Island Drive. The four-lane, county-owned road is a boulevard with dedicated turn lanes and traffic signals at major intersections. Ocean Drive is the main east-west arterial street connecting the campus with several city neighborhoods and downtown. The road, which features views of Corpus Christi Bay, is a four lane boulevard with dedicated turn lanes and traffic signals at important intersections.

The campus on Ward Island can only be accessed via the Ocean Drive bridge from the west, and the only exit back to the mainland is made via this same bridge. While Ocean Drive does continue eastward to the Naval Air Station, this access point is closed off to normal traffic. Limited access on and off the island is an issue of concern in the event of an emergency evacuation.

The “T”-intersection of Ocean Drive and Ennis Joslin Road does experience traffic congestion during rush hour in the morning (between 8am and 9am) and when the Naval Air Station personnel change shifts at around 4pm each day. Occasionally there is a traffic accident at this intersection.

Getting to Momentum

Ennis Joslin Road is the main vehicular road serving the Momentum Campus. Nile Drive, bisects the existing Momentum Campus and facilitates connectivity between Ennis Joslin Road to the north and South Padre Island Drive to the south.

There are three existing access drives off of Nile Drive to the Athletic Complex on Momentum Campus: one serves the athletics complex parking lot and two drives serve the tennis complex parking lot. There is currently only one access drive to this facility, limiting how visitors can come and go.

Parking is provided for both complexes. Sidewalks exist throughout the site to provide pedestrian links to Nile Drive. On the east side of Nile Drive, planned recreation fields will have a small surface parking lot with driveway access to Nile Drive.

Campus Roadway Condition

Existing campus roadways are in good condition. The Bayside Parking Garage project included repaving of Island Boulevard, Surf Drive, Oso Lane and Seagull Lane, so all major roadways on the west side of the campus have been recently paved. The major roadway on the east side of the campus, Sand Dollar Boulevard, is in good condition.
Modes of Transportation

While there are several transportation options available, the majority of people drive to campus and park their cars in surface lots. In an online survey conducted in 2013, 74% of students indicated that they drove their own car to campus, while 16% indicated that they lived on campus, and far fewer indicated that they took the bus or used active transportation (~5% and 3% respectively) to get to campus.

Public Bus

There is bus service to campus operated by the Corpus Christi RTA, with one stop located at the terminus of the spine on Ocean Drive. All students and university employees can ride the bus for free anywhere within the service area. The following routes provide service to the campus:

66 - TAMU-CC connection (from connecting to other bus routes)
5 - Alameda/NAS (Between Downtown and the NAS via Ocean Drive)
51 - Park & Ride (across the bay to Portland)
Active Transportation

In addition to vehicular traffic, others choose to take active transportation to campus. Bicycling, walking, longboarding, etc. are all existing options, though are significantly less utilized than vehicular transportation. Past analysis has indicated that active transportation and bus trips will have to constitute a greater share of the transportation mix based on the existing capacity of Ocean Drive and space limitations for parking on the island.

Walkability

Both Island and Momentum Campuses have advantageous pedestrian walk distances. Almost the entirety of both campuses can be walked within ten minutes with the majority of buildings lying within a five minute walk of each other.

The accompanying diagrams show approximate walk times at different distances from the center of each campus. As is evident from these maps, the scale of each campus is such that a person could easily make their way from one end to the other if provided with safe routes and appropriate infrastructure.
Parking Overview

The existing campuses have 6,049 parking spaces spread out among numerous lots and one parking structure, with 5,857 of these on the Island Campus and 372 on the Momentum Campus. A total of 1,158 of these spaces are reserved for on-campus student housing which is provided for 68% of students living on campus.

In order to address the issue of growing enrollment and limited land area on the island campus a parking structure was completed in 2011 containing 1,241 parking spaces, which is included in the total above. With current enrollment at 10,510 (plus 1400 faculty and staff) there is presently one parking space for every 2.0 people - or one space for every 2.5 people if residential parking is omitted. These ratios are comparable to other peer, commuter-based institutions.

In an online survey conducted from April to June of 2013, roughly 2/3 of students indicated that they felt there was not an adequate amount of parking on campus. The parking utilization survey did indicate that many of the lots were nearly full at peak hours (1:15pm) though significant excess capacity still exists in the Hammerhead lot as well as the newly built parking structure.

Analysis

PARKING LOT KEY

1. Harte
2. NRC
3. Misc A
4. Minnow
5. Starfish
6. Seahorse
7. Wec B
8. Angelfish
9. Bayside Parking Garage
10. Jellyfish
11. Reserved A
12. Misc C
13. Turtle Cove
14. Sand Dollar
15. Sea Breeze
16. Tarpon
17. Cuttle
18. Big Shell
19. Miramar 5
20. Reserved B
21. New Halls
22. Hammerhead
23. Coral
24. Pelican
25. Miramar 1
26. Miramar 2
27. Miramar 3
28. Miramar 4
29. Miramar Lane

Existing Parking Lot Diagram

Average parking Lot Utilization (9:15am)
Impervious Surface

An impervious surface is any surface where water is unable to infiltrate the ground. For the purposes of this analysis, all buildings, roads, parking lots, and sidewalks are considered impervious. While paving materials do exist that allow water to infiltrate into the ground, these technologies are not currently utilized on the campus.

An analysis of total area of impervious surfaces covering the current campus compared to the total area of the campus reveals that 60% of the campus surface area is impervious.

Past Traffic Impact Study (conducted in 2006)

As a part of the 2007 TAMU-CC Campus Master Plan Update, a Traffic Impact Study was prepared and included as an appendix. This study looked at the implications of different potential levels of campus growth and associated scenarios related to transportation and parking.

At the time, the campus had roughly 4,100 parking spaces. The study assessed scenarios for 50% and 100% growth in the student body.

Among the major findings of this study were that some roadway and parking improvements would need to be made to accommodate 50% growth. Ocean Drive would not need to be expanded, but an additional 2,000 parking spaces would be required to bring the total number of spaces on campus to 6,100, which was declared to be the maximum traffic volume for the Island Campus.

Under a 100% growth scenario, the traffic demand would exceed the capacity of Ocean Drive & Ennis Joslin Road, necessitating either off-island parking and shuttle service or costly improvements to the roads and bridges with parking structures on campus.

The study concluded that an off-campus, satellite parking lot with frequent shuttle service would be more cost effective than the road/bridge improvements to Ocean Drive.
Utilities Infrastructure

Overview
The utilities infrastructure for both the Main and Momentum Campuses present several existing opportunities and challenges that will need to be addressed as the university grows. Currently, utilities are provided by several entities.

The university’s infrastructure consists of the following systems:
- Stormwater
- Water Supply (provided by the City of Corpus Christi)
- Sanitary Sewer (connects to City of Corpus Christi lift station)
- Natural Gas (provided by City of Corpus Christi)
- Electricity (supplied by American Electric Power)
- Data/Communications
- Mechanical Systems

Important note: for all existing utility drawings please see Appendix C: Infrastructure Plan.

Island Campus
Existing utilities for the Island Campus area are described below.

Stormwater
The campus drains radially into the adjacent bays to the north, south, east and west. Stormwater runoff into the bays is conveyed by underground drainage systems and overland flows. Additional information will need to be gathered to analyze the underground storm drain system to identify potential design solutions that increase the efficiency of the storm drain system.

It has been reported that the Tarpon parking lot has flooding problems. Sign warning of flooding should be posted to alert people utilizing the parking lot. If feasible, a future project could include connecting this lot to the storm drain system.

Water Supply
Water is supplied by the City of Corpus Christi. The Island Campus is served by a 16" water main located at the northwest corner of Ward Island. The City’s Water Master Plan indicates that the 16" main was installed between 1998 and 2000. The City water department was contacted and they stated they are not aware of any supply issues in the area of the Island Campus.

Water Distribution
The primary distribution lines for the island campus are 12" mains. There are two branches of 12" main that are connected to the 16" line coming into the campus. One of these parallels Ocean Drive, turns south on Sand Dollar Boulevard, then west on Curlew Drive, terminating south of Center for Instruction. The second branch runs south along Island Boulevard to Oso Lane where it heads east to Seagull Lane, where it then heads south and east, terminating south of the university Center loading dock.

There is a gap of approximately 850 feet between the two termination points. Consideration should be given to closing this gap, thereby creating a 12" loop around the campus. A loop will provide more flexibility in shutting down parts of the system for maintenance and provide more balanced flow for fire flow.

The University may consider having an engineering hydraulic model of the distribution system developed to better evaluate the existing water system loading. Based on the engineering hydraulic model the adequacy of the existing system to fulfill current and future demands can be anticipated.

Sanitary Sewer
The existing sanitary sewer collection system outfalls into a city owned and operated lift station at the west end of Ward Island. The entire campus uses this one lift station to transport all sanitary sewer flows off the island and into the city of Corpus Christi’s public wastewater system.

Historically the campus has had problems with excessive amounts of inflow and infiltration (I&I) into the sanitary sewer system. This has resulted in the lift station high level alarm switch being triggered, usually associated with heavy rain periods.
of weather. Recent line replacements appear to have solved this issue for now. City records indicate that there is not an odor control system on the lift station. If odor does become a problem, the City should be contacted about upgrading the lift station.

Electricity
The campus has underground distribution with two 12.47kV utility services to the campus. These two circuits are routed through the campus to various pad mount switches (PS). These switches then serve step down transformers from the fused side of the switch. Typical step down voltages are 12,470-4,160Y/2,400V for two central plant chillers, 12,470-480V/277V for classroom buildings, 12,470-208Y/120V for large residence halls and 7,200-240/120V for small residence halls. A majority of the campus is served from one circuit or the other with very few points to switch over to the opposite circuit. The central plant is set up such that each transformer can be served from either circuit using a primary selective switching scheme.

Each campus feeder, Feeder “A” and Feeder “B”, has BMWA of capacity. The campus is set up such that one feeder can support the entire campus. Therefore, the campus capacity is BMWA with the intent for each feeder to be half loaded. The 3-year historical peak average is 7.4MWA.

Feeder “A” is considered the primary campus feeder. The estimated current load on this feeder is 4.3MWA. There is approximately 3.7MWA (BMWA-4.3MWA) spare capacity on this feeder. Feeder “B” is considered the secondary feeder. The estimated current load on this feeder is 3MWA. There is approximately 5MWA (BMWA-3MWA) spare capacity on this feeder.

Overall, there is spare capacity on the campus electrical distribution system. There is enough spare capacity to add an additional 1500 ton chiller to the central plant and approximately 140,000 square feet of building space.

The electric utility company (AEP) has stated that an upgrade to the existing electrical distribution is in design. A cable replacement project will increase capacity to 10MWA.

Existing Cooling System
The central plant on Island Campus is equipped with three 1000 ton chillers and two 1500 ton chillers for a total cooling capacity of 6000 tons. An equipment pad, pipe connections, cooling tower, and other provisions have been installed for a future 1500 ton chiller. As it stands, the firm capacity of the plant is 4500 tons, which means if the largest chiller is off-line or inoperable; the most cooling capacity available for the campus is 4500 tons.

Existing Campus Cooling Demand
Chilled water metering data for the central plant taken in 15 minute intervals over the last year indicates a peak cooling demand of 4700 GPM or about 2400 tons to occur near the first week of September. With the current capacity of 4500 tons and the current peak demand of 2400 tons, the campus is able to expand by 2100 tons without surpassing the firm capacity of the plant. Based on the current peak demand and the total area of buildings served by the central loop, the 2100 ton expansion capacity at the plant would allow for an additional 1,100,000 sqft of similar-use, similar-diversity buildings to be added to the loop.

Existing Heating System
The central plant currently houses two 13,300 MBU Kewanee boilers as well as a 3-part modular boiler with a 13,300 MBH capacity which is being installed. The firm heating capacity with this new boiler installed and running will be 26,600 MBH.

Existing Campus Heating Demand
Because of the hot, humid South Texas climate, there is not much space heating demand throughout the year. Most of the heating hot water on campus is used for reheat purposes in the summer in order to control humidity. In the summer, the air used to condition the buildings is cooled to extract moisture, but then must be reheated to prevent overcooling internal spaces. Currently, the central plant has no issues meeting the heating demands of the campus.
Utilities Infrastructure (Continued)

Momentum Campus

The existing site conditions vary throughout the site. False Oso Creek, Saltwater Coastal Flat Wetlands, dense brush and vegetation, and vacant areas are all located within the west area of the site. Since the original master plan a tennis complex with parking area has been constructed and the university is in the process of completing a new track and soccer complex with parking area.

The east area has three recreation fields being built on what was previously a municipal baseball and softball field complex. The site will require removal of remaining structures prior to installation of proposed improvements to serve the master site development.

Stormwater

The existing drainage system located along Nile Drive includes pipes that vary in size from 18 to 36 inch diameter and outfalls north to the existing drainage system along Ennis Joslin Road. The existing drainage system located along Ennis Joslin Road includes pipes that vary in size from 24 to 48 inch diameter and outfalls east to Oso Bay.

An existing drainage easement is located along the north side of the site. This drainage easement varies in width from approximately 817 to 875 feet and encompasses False Oso Creek and Saltwater Coastal Flat Wetland areas of the site. False Oso Creek drains east to existing multiple box culverts which run under Ennis Joslin Road and outfall to Oso Bay.

The existing on-site drainage that was installed on the west side consists of underground drainage system with inlets and pipes sized to collect and drain stormwater to the south. Existing pipe (RCP) diameters vary from 18 to 33 inches in size connect to inlets and discharge to the drainage ditch located along the south property line.

Stormwater detention is being provided in the existing drainage channels located on the south side of the site. The tops of the drainage channels vary in width and depth. The drainage channels on the west and east sides are to be connected to each other via a proposed 36 inch diameter culvert pipe that crosses under Nile Drive. This installation has not occurred as part of the new improvements. The existing drainage channel on the west side of the site crosses the existing 36” force main. A 2′ x 6′ box culvert (RCB) with rip rap on each side is proposed at this location to convey flow under the existing force main. Existing power poles and overhead electric lines lie within the location of the proposed drainage channel.

Each of the proposed independent internal drainage systems outfall to the existing south drainage channels which currently outfalls to the golf course on the west side. The ultimate outfall for the momentum campus will discharge at False Oso Creek via a proposed 48 inch pipe (RCP), which has not been installed with the current improvements.

Discussions with the City of Corpus Christi revealed that the existing drainage systems along Nile Drive and along Ennis Joslin Road are currently at capacity. They are therefore not suitable for meeting further capacity requirements. For this reason, False Oso Creek was selected as the proposed outfall location, using a designed outfall structure.

Water Supply

An existing 12 inch water line (PVC C900) is located along the west side of Nile Drive (inside the Nile Drive right of way) and an existing 16 inch water line (PVC C900) is located along the west side of Ennis Joslin Road (inside the Ennis Joslin Road right of way). The existing 16 inch water line runs above ground where it crosses False Oso Creek. An existing 10 inch water line (CIP) crosses the west area of the site from the north property line to the Oso Wastewater Treatment Plant.

The existing 10, 12, and 16 inch water lines are looped lines which are owned and maintained by the City of Corpus Christi. Static pressure along the existing 12 and 16 inch water lines is maintained at 300 foot intervals. The line will need to be looped to provide circulation and maintain demand pressures for the west side. In addition, this will provide a secondary source, should there be a break in the line. No new waterline improvements have been constructed on the east side of the momentum campus.

Effluent

Within the past year, the City of Corpus Christi installed a sixteen (16) inch PVC effluent reuse water line that begins at the northeast area of the existing Oso Wastewater Treatment Plant, which is located north of the west side of the Momentum Campus, and runs south along the west side of Nile Drive past the south campus limits.

The on-site waterline installed to date on the west side is an 8 inch waterline that dead ends on the west side. This differs in size from the previous master plan which recommended a 12 inch. The line has a several hydrants and differs from the previous master plan that placed hydrants at 300 foot intervals. The line will need to be looped to provide circulation and maintain demand pressures for the west side. In addition, this will provide a secondary source, should there be a break in the line. No new waterline improvements have been constructed on the east side of the momentum campus.

Analysis
**Sanitary Sewer**

An existing 48 inch wastewater line (RCP) is located along Nile Drive approximately 10 feet inside the east back of curb (inside the Nile Drive right of way). An existing 8 inch effluent line and 12 inch force main are located inside an existing 15 foot utility easement along the west side of Ennis Joslin Road. The existing 8 inch effluent line and 12 inch force main run above ground where they cross False Oso Creek. An existing 12 inch wastewater line (VCP) is located inside a 20 foot utility easement along the south property line of the east area of the site.

There are multiple existing wastewater lines that cross the west area of the campus. An existing 36 inch wastewater force main (DIP) crosses the west area inside a 15 foot utility easement from the south property line to the Oso Wastewater Treatment Plant. Two existing 36 inch wastewater lines (VCP), which are parallel and adjacent to each other, cross the west area inside a 30 foot utility easement from the west property line to the Oso Wastewater Treatment Plant. An existing 24 inch wastewater line (VCP) crosses the west area inside a 15 foot utility easement from the north property line to the Oso Wastewater Treatment Plant.

An existing 8 inch wastewater line (VCP) is located inside a 15 foot utility easement along the south property line of the west area of the site. An existing 4 inch effluent line (PVC) crosses the west area from the Oso Wastewater Treatment Plant to the west property line and is available for future use for the development. A portion of the existing 4 inch effluent line is in conflict with a proposed building shown on the schematic site plan and will require relocation prior to construction of the proposed building.

All of the existing wastewater lines noted above are owned and maintained by the City of Corpus Christi. Three existing manholes are located along the existing 48 inch wastewater line between Pharaoh Drive and Ennis Joslin Road and are spaced at intervals that vary from 400 to 700 feet.

A new 8 inch wastewater collection line has been placed on the south side of the west side of the Momentum Campus. The line follows the scheme of the previous master plan but follows a different alignment. The line runs from Nile Drive to west property line and will serve the southern portion needs. The 36-inch force main is located under the stands and the track and field. Should this force main need to be repaired the new track/soccer improvements will possibly need repair as well.

**Electricity**

Existing overhead electric, telephone, and cable lines are located along the west side of Nile Drive and along the east side of Ennis Joslin Road. Existing overhead electric lines are located within a 20 foot utility easement along the south property line of the west area of the site. The overhead electric lines noted above are owned and maintained by American Electric Power (AEP). The overhead telephone and cable lines noted above are owned and maintained by Grande Communications.

There are multiple existing overhead electric lines that cross the west area of the site. Existing overhead electric lines cross the west area running north and east within a 15 foot electrical easement from the south property line to the Oso Wastewater Treatment Plant. Existing overhead electric lines are located within a 15 foot utility easement along the south property line of the west area of the site. The overhead electric lines noted above are owned and maintained by American Electric Power (AEP).

New electric lines were placed on the west side of the momentum campus. The new lines are located in an easement that runs east to west with feeds to the north. The new lines cross the south side drainage channel and then drop underground following the previous master plans dry utility scheme. The line is not looped as shown in the master plan and the university may want to consider providing a secondary feed.

The campus has underground distribution with a 12.47KV utility service to the campus. The circuit originates from an overhead line along the west property line approximately midway down from Nile Drive. The distribution system has a capacity for 3.5MVA, based on the cable size. The estimated load is 0.46MVA. Therefore, the campus has an estimated capacity of 3MVA (3.5MVA-0.46MVA).
Site Opportunities and Constraints

Through the planning process, a distinct list of site opportunities and constraints emerged that helped inform planning decisions.

Opportunities

1. Beautiful, unique island setting - the university’s setting is a feature that stakeholders identified as distinct. Many stakeholders mentioned how much they value a connection to the water and that the island setting is an attribute.

2. Existing outdoor ‘spine’ - the Island Campus’s core exterior path is highly appreciated by students, faculty, staff, and visitors as a comfortable, aesthetically-pleasing landscape.

3. Existing land use zones - the organization of land uses on Island Campus with research uses on the west side, academic/student life uses in the middle, and student housing on the east side set up a logical organization for future expansion.

4. Expansion at Momentum Campus - the university is already implementing its 2008 Campus Expansion Master Plan by building an athletics complex, but there is a lot of potential in the land that remains to be developed.

5. Generating activity along Ennis Joslin Road - there is the potential to generate active uses along Ennis Joslin Road as part of the Momentum Campus that can inject a sense of vitality.

Constraints

1. One-way ingress/egress to Island Campus - the only way to enter or exit Island Campus is via the Ocean Drive bridge. This is a problem for emergency evacuation.

2. Naval Air Station flight path - the Corpus Christi Naval Air Station has several runways and one flight path clips the northeastern edge of the Island Campus (see pg. 35). This limits the types of land uses and the heights of buildings that can exist under the flight path. Essentially, non-inhabitated uses are preferred such as parking lots/garages, utilities, green open space.

3. Storm Surge - hurricanes and tropical storms are a fact of life in the South Texas Coastal Bend area. With the Island Campus existing on an island essentially at sea level, large storm events could produce storm surges capable of flooding the campus.

4. Sensitive Ecosystem - the beautiful island setting is a sensitive ecosystem providing habitat for birds, aquatic life, and unique vegetation. The ecosystem should be protected, and, thus, it limits potential expansion in some areas of campus.
Enrollment

As noted in previous parts of this master plan, TAMU-CC is at a critical point in its history as it expands academic program offerings, grows enrollment, and increases research activity within a challenging funding environment and, for the purposes of this master plan, a fixed amount of real estate. This section focuses on two major factors that have high implications on university resources: enrollment and facility space. These two factors are the most significant influences on future funding decisions.

Milestone Time Periods

Three years were selected as milestone dates for establishing enrollment and space projection targets: 2015, 2020, and 2025. The first milestone year (2015) help guide near-term planning goals that are more specific and detailed as more variables are known. For example, the university already is planning on building an arts, media and communications facility to address near-term space needs for the School of Arts, Media, and Communication. The latter two milestone years (2020 and 2025) address long-term planning needs that are important, yet not as specifically defined in terms of identifying specific facilities.

Existing Enrollment

In Fall of 2012, the university had a total enrollment of 10,510. This total enrollment, also known as the “headcount enrollment,” includes any student registered for a course, regardless if they are full-time, part-time, graduate or undergraduate. Another enrollment measure often used is Full-Time Student Equivalents (FTSE), which normalizes total enrollment by typical full-time credit hours for a degree-seeking student at that level. When analyzed through this measure, TAMU-CC had 8,198 FTSE as of Fall 2012.

By The Year 2025...

The University is projected to have 20,662 students
An increase of approximately 10,100 students, approximately doubling the Fall 2012 enrollment

The University is projected to need 5 million gross square feet of building space (including housing)
An increase of 2.5 million gross square feet over 2013

The University is projected to need 3,626 student beds on two campuses
An increase of almost 2,000 beds compared to Fall 2013

The University is projected to top 45 million in annual research expenditures
An increase of approximately $30 million, tripling the anticipated 2013 expenditure

Existing Enrollment

In Fall of 2012, the university had a total enrollment of 10,510. This total enrollment, also known as the “headcount enrollment,” includes any student registered for a course, regardless if they are full-time, part-time, graduate or undergraduate. Another enrollment measure often used is Full-Time Student Equivalents (FTSE), which normalizes total enrollment by typical full-time credit hours for a degree-seeking student at that level. When analyzed through this measure, TAMU-CC had 8,198 FTSE as of Fall 2012.
Looking at historical rates of enrollment at the university coming from the region can help inform future enrollment projections. Approximately 50% of students who attend TAMU-CC come from one of the nine counties that fall at least partially within a 50 mile radius from the campus. Using overall population projections for these nine counties can give some indication of future growth. The nine counties included in this region are: Aransas, Bee, Jim Wells, Kenedy, Kleberg, Live Oak, Nueces, Refugio, San Patricio.

Historically, TAMU-CC has captured 40-45% of the local higher-education market, meaning that of everyone who pursued any sort of higher-education within the nine county area during a given year, 40-45% attended TAMU-CC. Despite this high rate of capture, overall educational attainment is low in the nine county region, with more than 50% of people achieving a high-school diploma or less. Statewide, higher education initiatives seek to improve this measure, and based on the current low attainment in the local area, TAMU-CC can expect to see an increase in enrollment from the local market at a higher rate than of the total population increase.

Enrollment Compared to Peers

For the past 20 years, TAMU-CC has grown from approximately 4,500 students in 1993 to approximately 10,500 students as of the Fall 2012 semester. This represents an average year-to-year growth rate of 4.62%. This growth has been constant over the 20-year period and is expected to continue. TAMU-CC is smaller than most of its peers in terms of headcount. The headcount to FTSE enrollment ratio for TAMU-CC is 78%, which is close the average of TAMU-CC peer universities (75%). This illustrates that the peer universities are where TAMU-CC wants to be for headcount enrollment in the future and that TAMU-CC is on target with its FTSE ratio. Also, for space projection purposes, all calculations are normalized into a ratio of FTSE per NASF.
Enrollment Projections

All enrollment projections use the Fall 2012 headcount (10,510) and FTSE (8,198) enrollment as a baseline.

Full Time Student Equivalent (FTSE) Projection Using Academic Surveys

By quantifying the results of the academic surveys, the following FTSE enrollment targets were identified: 2015 = 9,480; 2020 = 13,421; 2025 = 16,117. The largest colleges will remain the College of Liberal Arts (including the School of Arts, Media, and Communication) and the College of Science and Engineering (including the School of Engineering and Computing Sciences). The College of Science and Engineering is projected to experience the largest growth in FTSE enrollment.

The FTSE growth projection was derived from the semester credit hour (SCH) data obtained through the academic surveys, which were distributed to all TAMU-CC Colleges. The SCH data was then converted to the FTSE number by using the following ratios:
- 15 undergraduate SCH per FTSE
- 12 graduate SCH per FTSE
- 9 doctoral SCH per FTSE
- 12 special/professional SCH per FTSE

Future Headcount Enrollment

Headcount enrollment is derived from the FTSE projections using the historical ratio of 1 headcount to 0.78 FTSE. Based on this ratio, the following specific headcount enrollment targets were identified: 2015 = 12,615 students; 2020 = 17,206 students; and 2025 = 20,662 students.

For comparative purposes only two additional enrollment projections were created as a cross-check to the FTSE ratio calculation: (1) projection based on historical enrollment growth, (2) projection based on regional population growth. Both of these projections yielded slightly lower headcount numbers for the milestone dates.

Graduate / Undergraduate Breakdown

The existing graduate to undergraduate student ratio is 20% to 80%. By 2020, the university’s goal is to reach a 25% to 75% graduate to undergraduate enrollment ratio. As a result, graduate enrollment is projected to increase by 70% or 1,778 students between 2015 and 2020. By 2025, there will be just over 5,100 graduate students and approximately 15,500 undergraduate students attending TAMU-CC.

Projected Total Enrollment

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Projected Undergraduate and Graduate Enrollment

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Academic Surveys

Academic surveys were completed by every college dean, academic department head, and, for research expenditure purposes, the Harte Research Institute. The survey was divided into three areas: the first asked the student credit hour data by program area and level for each year indicated, the second asked the number and type of degrees offered for the years indicated, and the final area requested the number of total faculty FTES for each year indicated, as well as the research expenditures expected.

The results from the academic survey were used to derive enrollment growth, serve as the basis for the space projection for each individual college, and establish existing research expenditures.

Five Colleges with Enrollment

TAMU-CC has five colleges with enrollment:
- College of Business
- College of Education
- College of Nursing and Health Sciences
- College of Liberal Arts
- College of Science and Engineering

TAMU-CC has a College of Graduate Studies to administer graduate student academics. All graduate students are enrolled in one of the five colleges.
Space Projections

The facility space projections are based on peer university benchmarks and factor in the projected rise in enrollment, research expenditures, and on-campus student housing goals. All facility space projections are based on Fall 2012 existing space quantities.

Projection Methodology

As part of the planning process, space projections were generated based on two models: (1) the Texas Higher Education Coordinating Board (THECB) 5-Factor Model and (2) Peer Benchmarking. The 5-factor model is a mathematical projection of the need for space in five categories: teaching, library, research, office, and support. Although the 5-Factor Model is the current standard the State of Texas uses to assess how much educational & general space a university should have, it is over 20 years old and, in many cases, does not adequately account for new pedagogies used in current instructional environments.

It is assumed that the THECB will be going through a process of updating the 5-factor model, but it is unclear at the time of the writing of this document when that process might be completed. Additionally, the 5-Factor Model is a “university-wide” projection and does not have the ability to accurately project space for individual colleges or functions within a campus.

As a check against the 5-Factor Model, this master plan projects space based on the median NASF/FTSE of the peer universities. Although this track does not project space based on a “model” or standard, it does project space based on what other universities are providing.

Peer Benchmarking Used for Space Projection

As TAMU-CC is benchmarking itself against peer universities that have enrollments or programs at a level at which the university wants to achieve, this method of space projection is used for this master plan.

By using peer benchmarking, the university is adopting a more conservative and realistic space projection. The space projection is based on the median NASF/FTSE, which establishes a common comparative metric.

For example, the peer benchmarking projection identifies approximately 2.5 million gross square feet of additional space needed by 2025 while the THECB 5-Factor model identifies approximately 3.7 million gross square feet, a difference of 1.2 million gross square feet or 32%.

It is recommended that TAMU-CC monitor the progress of the THECB’s update to its 5-Factor Model, and the university should revisit this space projection once the new model is complete.
Education and General
As of Fall 2012, TAMU-CC has 1,660,422 net assignable square feet (NASF) of facilities not including student housing. Based on peer benchmarking and university enrollment target, TAMU-CC will need to add 254,000 NASF of education and general space by 2015 (a target that the university is on track to meet); 952,000 NASF by 2020; and 1.4 million NASF by 2025. Assuming a conversion ratio—or “grossing factor”—of 62%, the university will need to add approximately 2.5 million GSF by 2025. Again, the 2.5 million GSF target is based on peer benchmarking, not the 5-Factor Model (which projected 3.7 million GSF for the exact same time period/academic need). The peer benchmarking target was preferred by university stakeholders and the Steering Committee as the more realistic and reasonable target.

Based on the academic survey results and existing facility analysis, the largest space needs are in the College of Science and Engineering (CoSE), which will require approximately 470,000 NASF by 2025. At 55 NASF per FTSE, the CoSE falls well below the median amount of space compared to its peers (85 NASF per FTSE).

As an outcome of recent facility construction, the College of Business and College of Nursing and Health Science will not require any additional space through the 2025 planning window based on current enrollment growth and facility use assumptions.

The School of Arts, Media, and Communication needs approximately 128,000 NASF by 2025. Space for the College of Education, College of Liberal Arts, administration, and maintenance space is also needed but to a lesser degree.

Student Life and Services
Student life and student service facilities are also a large space need (approximately 430,000 NASF by 2025). This space need will be lowered when the new University Center expansion (20,995 NSF) and Dining Hall (13,453 NASF) open.

Athletics
With the continued implementation of the athletics complex at the Momentum Campus, the space need for the Athletics Department will be met (assuming the Fieldhouse is retained or an equal/greater replacement facility is identified). Note that for athletics, the space for outdoor fields/courts is not counted.

Student Housing
As of Fall 2013, TAMU-CC has 1,641 beds, which can house approximately 15% of its student body.

Housing is a high priority for the university in the near and mid-terms. The university has a goal of housing 25% of its FTSE undergraduate enrollment on campus by 2020 and 30% of its undergraduate FTSE enrollment by 2025. Aligning this goal with the projected rise in FTSE enrollment, the university needs to add 895 beds by 2020 and an additional 941 beds by 2025. By applying a higher education best practice factor of 350 gross square feet per bed, the university will need to add approximately 642,000 gross square feet of housing by 2025.

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Legend: = PROJECTED GSF
Research Expenditures and Space

The existing research expenditures were obtained from the academic survey responses. In 2013, TAMU-CC reached $14.9 million in annual research expenditures. Currently, TAMU-CC tracks behind the median of its peers in both NASF of research per FTSE and NASF of research space per research dollar expenditure.

The university has the goal of becoming an “emerging research university,” which entails reaching $45 million per year for total research expenditures. The projections contained in this master plan, which are extrapolations of the academic survey results, project that the university will reach that goal by the year 2025.

TAMU-CC currently has approximately 44,700 NASF of dedicated research space on campus (area compiled by adding together room codes 250-255 in the THECB space inventory). At approximately 5 NASF per FTSE, TAMU-CC is below the median of its peer universities (almost 10 NASF per FTSE).

Other Needs - Open Space

While the space projection conducted for this master plan identified a wide range of facility needs for the university, it does not reflect the need for outdoor open space and landscaping. Open space such as walkways, courtyards, open lawns, recreation sport fields, gardens, and water features play an important function in connecting buildings, enhancing the identity of the campus, enhancing visual aesthetics, and providing places for activities such as group picnics, outdoor classes, theatrical performances, and informal recreation (frisbee toss, etc.).

Students have mentioned the lack of recreation space on Island Campus. The campus lacks the types of green spaces for informal recreation that help generate student life activity. There are approximately 18 acres of outdoor open spaces on TAMU-CC’s Island Campus (including landscaped walkways, gardens, courtyards, lawns, etc). An increased amount of open spaces will be required as enrollment grows and to improve the overall campus aesthetic and function.
Master Plan Concept and Organization

Long-term Concept Plan

By charting the path for the long-term growth of the university, the concept plan seeks to identify land uses, circulation routes, building locations and density, utility corridors, and active open spaces while preserving sensitive habitat zones and establishing connections to the water. The concept plan envisions a campus setting that optimizes land by increasing building density (with new buildings being three to four stories in height depending on location) and fostering a vibrant campus experience by increasing the amount of green open space. The concept plan recognizes that land is a limited and valuable resource and that it is in the university’s best interest to optimize its existing land holdings.

The two-campus, long-term concept plan responds to the guiding principles set forth by the Steering Committee in three important ways:

• Future land use on Island Campus will be for academic, research, and student life functions with an increase in overall green open space (existing student housing, academic, and research functions will remain).

• Future land use on Momentum Campus will be for athletics, student housing, a convocation center, and auxiliary/support functions.

• Establishes a grid organization of pedestrian circulation pathways that link open spaces, buildings, and promote connection to the water.

By establishing distinct land uses for both campuses, this master plan considers the university in a holistic manner—appropriating land uses to meet growth projections that best capitalize on existing resources and context while reducing unnecessary duplication.

Connectivity between the two campuses relies upon existing roadway infrastructure. Improving alternative transportation options and incorporating a viable shuttle bus service will help mitigate traffic problems between the campuses. A future limited-access, pedestrian-priority bridge over Oso Bay connecting the two campuses is a potential long-term idea, but one with environmental and cost challenges. Nevertheless, the bridge is contained in this master plan as it has great potential to unite the two campuses.
Expanding the University’s Campuses

With the establishment of Momentum Campus, the university now operates on two campuses. As a central premise of this master plan, linking Island Campus to Momentum Campus is an important pursuit. Establishing transportation connectivity between the two campuses, for example, is one important element.

Each campus is positioned for different types of uses based on existing conditions. Aligning complimentary land uses between the two campuses is important as the university seeks to maximize the use of its existing land holdings.

The final plan part of this master plan is organized by campus with Island Campus explained first, and Momentum Campus second.

Island Campus Overview

The long-term development plan for Island Campus concentrates future academic and research buildings within a framework of pedestrian pathways and landscaped green open spaces that expand upon the existing spine in the campus core. Existing parking lots are converted to new buildings or green spaces while future parking will be accommodated in large parking garages. This strategy will require a shift in automobile culture on campus, but it is an essential strategy for optimizing land the university owns.

The development plan for Island Campus accomplishes several things:

• Creates a new iconic front door at the terminus of Island Boulevard - the Visitor and Interpretive Research Center (boat storage and other facility service functions will be relocated)
• Connects future buildings to existing buildings via pedestrian pathways
• Develops memorable gathering spaces
• Enhances student life amenities
• Bolsters the academic and research footprint of the university

In terms of transportation connectivity, the development plan provides direct access to parking garages from the existing main roads—Island Drive and Sanddollar Drive. It also creates a limited-access service lane connecting Island Boulevard to Sanddollar Boulevard. Ocean Drive is still utilized as the main access road to campus and the existing RTA bus stop is preserved. These solutions enable the campus core to be predominately pedestrian only.

Signature projects included in the long-term development plan include the aforementioned Visitor and Interpretive Research Center, the Life Sciences Research Building and Quad, Arts, Media and Communication Quad, an aquatics center, the completion of the jogging trail loop, and retrofitting the fieldhouse (a long-term pursuit).
“We are essentially an urban campus.”
- President Killebrew
Final Plan

Island Campus Long-term Development Plan
Island Campus Design Concepts

Extend Campus Core Spine
The existing north-south central spine will be extended north to Corpus Christi Bay and south to Oso Bay. The pedestrian-only spine will link various academic, administrative, and student life functions. The spine will terminate in pavilions with views of the water on both ends.

Oso Bay Promenade
A major east-west spine is envisioned that extends from the area just south of the existing Harte Research Institute eastward through O’Connor Hall, intersecting with the existing north-south spine of the campus core, and then moving further east towards Coral and Pelican residence halls. This spine is pedestrian-only and will connect several courtyards and other great spaces as well as the future Life Sciences Research Building on the west side and the Arts, Media & Communications Buildings on the east side—both buildings are top near-term priorities.

East Campus Promenade
Terminating on axis with the future arts and communication building, the east campus promenade is a major north-south pathway connecting the arts and communication quad to Island Hall, the Dining Hall, the future aquatics center, and the amphitheater park on the south of the island. This promenade will be a pedestrian-only zone with a highly vegetated landscape, outdoor seating areas, and a wide walkway that is integrated as an outdoor arcade within adjacent buildings when feasible.
Pedestrian Circulation

Existing pedestrian circulation is concentrated in the campus core, with a strong north-south flow along the existing spine and a smaller east-west flow extending from the University Center to Island Hall and the student housing.

Pedestrian circulation will be greatly increased in the long-term development plan with the creation of pedestrian-only zones (see next page) and by reducing the amount of large surface parking lots, which discourage pedestrian connectivity. Pedestrian circulation provided via promenades, sidewalks, and green spaces will connect all buildings.

Furthermore, by bolstering pedestrian-only zones and limiting where automobiles interact with pedestrians, pedestrian safety is enhanced.

Disability Services

Accommodating people with disabilities is a very important aspect of the final plan. Providing handicap access in parking garages, and between the garages and buildings will be incorporated into the future design of those facilities. Provided parking spaces and loading/drop-off areas for disabled people will need to be accommodated in the site design of each new facility.
Creating Pedestrian Only Zones

The long-term plan simplifies the movement of vehicles within the Island Campus. General vehicle use can be restricted to Island Boulevard and Sand Dollar Boulevard providing direct access to the new parking garages. The remainder of the campus can be accessed by approved staff and service vehicles only via control bollards. These restrictions can be lifted on student move in and move out day to allow convenient loading and unloading for students living on campus. Careful control of the vehicle circulation in this way allows for a reduction in the conflicts between vehicle and pedestrian routes and establishes a more pedestrian friendly core to the campus.

Parking will be reassigned for students living on campus, with existing areas of single use residential parking being replaced with informal open space and courtyards and parking provision being provided as multi-purpose parking spaces within new parking garages.

The long-term plan creates an efficient service loop providing access to service areas on the southern side of the University Center extending from the Central Plant on the west to the student housing area on the east. Use by service vehicles only further reduces potential conflict between vehicles and outside gathering areas such as the University Center patio and new informal recreation open spaces to the south of Island Hall.
Landscape Zones

The long-term development plan for Island Campus is guided by an over-arching landscape concept. The recommended landscape eco-zones for the campus were developed to mimic native vegetation of the Gulf Coast Prairies and Marshes Eco-region in an effort to sustain regional natural habitat. A cross section of planting in the region shows the location of these relevant to the shore: with saltgrass marshes closest to the coast, followed by tallgrass prairies, then woodlands, concluding with oak mottes which extend farthest inland.

The location of the landscape eco-zones should occur on campus as they naturally occur in the eco-region. In doing so, the salt grass zone will help re-establish salt grass marshes and wetlands as recommended in 2007 plan. The grass prairie zone will extend around the perimeter and within surface parking. In the woodlands zone, tree species should include those typically found at river bottomlands such as pecans, elms and coastal live oaks. And the oak motte zone should be located at the center of the campus and be limited to oak species and sabal palms. Additionally, this master plan recommends preserving the sabal palm bosque located in a formal row as these are part of the existing cultural landscape of the campus.

This master plan recommends extending and directing planting efforts along pedestrian corridors and at the core of the island. By superimposing the pedestrian network, open space, and the landscape zones, a hierarchy of planting is achieved for this master plan. Additionally, the planting palette along the pedestrian network serves as an educational component as it is inspired by the naturally occurring Gulf Coast Prairies and marshes eco-region from coast to inland. More detailed information on landscape zones and an extensive plant guide can be found in Appendix F.

Final Plan

Zone 1 - Oak Motte
- Regularly maintained lawns of Bermuda and Buffalo grasses, a balanced mix of deciduous and evergreen groundcovers, perennials, shrubs, and ornamental trees.

Zone 2 - Woodlands Zone
- Deciduous trees typical of river bottomlands, regularly maintained grasses, a combination of deciduous and evergreen groundcovers, perennials, shrubs, ornamental trees and canopy trees.

Zone 3 - The Grass Prairie
- Lawns of primarily Bermuda grass requiring less irrigation, mix of ornamental grasses and evergreen groundcovers, perennials, shrubs, ornamental and canopy trees.

Zone 4 - Salt Grass Marsh
- Re-establishment of salt grass marshes and wetlands, restoring natural habitat for local wildlife. Unmanicured, requiring little maintenance or irrigation.

Zone 5 - Sabal Palm Bosque
- Formal rows of plantings as part of the cultural and dramatic landscape of campus, may include unique specimens requiring substantial care.

Zone 6 - Main spine, cross spines, major plazas/courtyards, and pedestrian corridors
- Bright blooms and lush foliage to indicate and accentuate pedestrian network and campus corridors.
Building Organization

The building organization on Island Campus seeks to concentrate various programmatic uses in specific areas without fundamentally changing the organization of existing building uses. The campus core remains academic with some student life and service functions intermixed. Several academic buildings will be located to the south of the university Center. These buildings will have views out to Oso Bay and form the southern extent of the existing campus spine.

To the immediate east of the campus core, arts, communication, and liberal arts functions will grow. Further to the east, student housing remains with some exterior recreation space and student life functions integrated. There are only two additional residential halls planned for Island Campus. Beyond that, all new housing will be built on the Momentum Campus. A new aquatics center and informal green space are located near the existing student housing.

To the west of the campus core, the life sciences and research building and quad will be built. Further to the west and south are additional science and engineering academic/research functions including expansion buildings for the Harte Research Center and the Visitor and Interpretive Research Center. Future expansion of the College of Science and Engineering should occur to the west of the existing campus core.

Parking garages are strategically located on the campus. One garage is planned on the west side of campus adjacent to the existing garage. Two garages are located along Ocean Drive and buttress Sand Dollar Boulevard. All of these garages will have some type of additional use incorporated into the first floor of a garage or as a liner building fronting an elevation of a garage. One additional garage is planned for resident-use only along the far-east side. This garage will be built once the housing lease agreement with the private developer (Camden) expires.
**Momentum Campus Master Plan**

The long-term development plan for Momentum Campus is largely based on the land uses and urban design ideas in the 2008 Campus Expansion Plan. The main components of the original plan are intact albeit in different configurations. A new athletics complex is the near-term priority and major anchor of the campus. Over the long-term, a future convocation center will be the hub of the campus, and it can be used for multiple functions: basketball/volleyball games, graduation ceremonies, music/theater performances, conventions.

The urban district surrounding the convocation center will be a vibrant, pedestrian-friendly, mixed-use district containing office, retail, and, potentially, research space. This urban district could be called “Islander Town” for its mix of university and other functions. A future hotel is slated for one of the buildings next to the convocation center.

Student housing is a primary use that is prioritized in the near to mid-term for Momentum Campus, and the housing can be integrated with the urban district surrounding the convocation center.

Finally, auxiliary service/utilitarian functions will be located to the west of the existing wastewater treatment facility. These functions—purchasing/receiving, back-of-house administrative offices—are an appropriate utilization of campus as it makes more land on Island Campus available for academic/research use.

Boat storage will be relocated from Island Campus in the near-term. Momentum Campus may be a location for a new boat storage facility or that facility may be located elsewhere.

**Momentum Campus Plan Key Takeaways**

The development plan for Momentum Campus accomplishes several things:

- Establishes all future athletic functions in one central location
- Creates a multi-use convocation center
- Develops a mixed-use district and destination along Ennis Joslin Road
- Creates more student housing to reach housing targets
- The potential for public-private partnerships for developing the campus exists as well as leasing office/research space to other entities/corporations

**“Until now, all our neighbors have been fish.”**

- President Killebrew (quote from 2008 Momentum Campus Expansion Planning Process)
Building Organization

Centered on the convocation center, a mix of buildings is integrated into an urban district. Hotel, office/research, and residential uses surround the convocation center.

Student housing is located to the south of Momentum Drive and along Ennis Joslin Road.

The athletics complex extends to the west of the convocation center.

Throughout the Momentum Campus, mixed-use buildings are planned that incorporate ground level retail/office into a residential or office building exist.
Implementation

Project Priority Matrix

The project priority matrix organizes specific building projects into one of three time periods: near-term, mid-term, and long-term. As an implementation tool, this matrix helps prioritize projects based on needs and logical development phasing.

Projects listed within a time period are not necessarily listed in order of importance or in sequence, but they are listed from specific to general. For example, the Life Sciences Research Building is a defined, specific project for the near-term while "Additional Academic / Research Buildings (to meet space projection)" is a general acknowledgement of needed facilities without a specific building in mind.

Note: asterisk (*) indicates project is under construction.

<table>
<thead>
<tr>
<th>PROJECT PRIORITY MATRIX</th>
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<tbody>
<tr>
<td>Near-term (to 2018)</td>
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<tr>
<td>(0-5 years)</td>
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<tr>
<td>ISLAND CAMPUS</td>
</tr>
<tr>
<td>Dining Hall and Student Housing (Tarpon Hall, Anchor Hall, plus two future halls)*</td>
</tr>
<tr>
<td>University Center Expansion*</td>
</tr>
<tr>
<td>Life Sciences Research Building</td>
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<tr>
<td>Arts, Media &amp; Communications Building</td>
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<tr>
<td>Learning Resources Center</td>
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<tr>
<td>Boat Storage Relocation (off Campus)</td>
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<tr>
<td>Baseball and Softball Fields Relocation</td>
</tr>
<tr>
<td>Student Housing (to meet space projection)</td>
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<tr>
<td>Jogging trail completion</td>
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<tr>
<td>MOMENTUM CAMPUS</td>
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<tr>
<td>Athletics Complex Full Build-Out (Baseball and Softball Fields, Tennis Center Locker Rooms)</td>
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<tr>
<td>Student Housing - Islander Town Mixed Use District (initial phase)</td>
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<tr>
<td>Auxiliary, Storage, Receiving Facility</td>
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<tr>
<td>ADDITIONAL PROJECTS</td>
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<tr>
<td>Shuttle Service Connecting Campuses</td>
</tr>
<tr>
<td>New Commuter Lot at Business Innovation Center (Flour Bluff)</td>
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</tbody>
</table>
Island Campus Signature Projects

Island Campus Near-term Signature Projects

In the near-term (0-5 years), there are several building projects that are a high priority, some of which and are part of the university’s capital improvement plan. It is important to note that two of the top priorities are currently under construction or in advanced building design phases with anticipated completion in 2013-2014: the Dining Hall (21,000 gross square feet) and the University Center Expansion (34,991 gross square feet).

The following projects are near-term priorities for this master plan:

- **Life Sciences Research Building**
  A 145,000 gross square foot academic and research facility with 79,750 square feet of Education & General Space.

- **Arts, Media & Communications Building**
  A 93,000 gross square foot academic space for the School of Arts, Media, and Communication with 55,000 gross square feet of Education & General Space.

- **Learning Resources Center (Bell Library Expansion)**
  A 30,000 gross square foot expansion to Bell Library with 19,800 gross square feet of Education & General Space.

- **Student Housing**
  Additional student housing will be needed to meet near-term demand. New housing should be located on the east side of campus near existing apartment and resident halls.

- **Boat Storage Facility relocated off of Island Campus**
  Boats will be relocated away from Island Campus. Storage buildings will remain in the near-term. A future site better suited to launch access for research purposes will be selected in the near-term.

Over the mid-term, the relocation of the boat storage area and administrative and facilities services offices will make land available on Island Campus for the Visitor and Interpretive Research Center and other future buildings.

Note: an asterisk (*) indicates that the project is currently on the capital expenditure plan list.
Final Plan

Island Campus Near-term Development Plan

LEGEND

- Existing building
- New building
- Covered walkway/spine
- Jogging trail extension

1. Life Sciences Research Building and Quad
2. Arts and Communication Building and Quad
3. Jogging Trail
4. Learning Resource Center (Bell Library Expansion)
5. Residence Halls
6. Boat Storage to be Relocated to Momentum
Island Campus Near-term Landscape Projects
In the near-term (0-5 years), there are several building projects that are a high priority, some of which are part of the university’s capital expenditure plan. It is important to note that two of the top priorities are currently under construction or in advanced building design phases with anticipated completion in 2013-2014: the Dining Hall (21,000 gross square feet) and the University Center Expansion (34,991 gross square feet).

The following projects are near-term priorities for this master plan:

- **Life Sciences Research Building Quad**
  Landscaping for the courtyard, sidewalk, and immediate green space around the future Life Sciences Research Building.

- **Arts, Media & Communications Quad**
  Landscaping for the courtyard, sidewalk, and immediate green space around the future Arts, Media & Communications Building

- **Completed Jogging Trail**
  New drop-off area for the Early Childhood Development Center (ECDC) with right-in/right-out curb cut on Ocean Drive and a single-aisle surface parking lot with egress to Island Boulevard.

- Landscaping of former parking lot between ECDC and Life Sciences Research Building.

- **Near-term Landscape Plan**
  Completion of jogging trail on the north side (along Ocean Drive)

- Creation of continuous 8 foot wide path with street crossing markers on south side of Ocean Drive to connect east and west ends of existing Jogging trail.
**Island Campus Mid-term Signature Projects**

**Visitor and Interpretive Research Center**

As a visitor welcome center, research facility, and iconic campus building, the Visitor and Interpretive Research Center provides a new front-door for the Island Campus and it terminates the vista looking south down Island Boulevard.

The center capitalizes on its location next to Oso Bay. The building and landscape intermingle; the tallgrass prairie and saltgrass marsh extend from the bay into the circular courtyard. A wood-plank boardwalk connects the two buildings. An iconic tower, open to the general public, is a bird watching platform and overlook.

Functionally, the center is a welcome center for visitors, a research center dedicated to studying Oso Bay and the Coastal Bend. The center might also include classrooms, conference rooms, offices, and a museum. A future needs assessment and facility program will need to identify uses in more details.

**Multi-use Parking Garages**

There are seven proposed parking garages in the long-term development plan. These parking garages, which have a higher up-front construction cost compared to surface lots, will be critical for the university as it seeks to optimize its land use and generate campus life.

Several of the parking garages will have some type of additional use incorporated into the first floor or as a liner building fronting an entire elevation of a garage. The additional uses could range from retail to office functions.

The future parking garage surrounded by student housing on the east side of campus could move closer to the aquatics center (green space would be created in lieu of the parking garage).

**Aquatics Center**

An indoor/outdoor aquatics center that can be used for general recreation activities will be located at the end of Sand Dollar Boulevard near existing student housing and Island Hall. The aquatics center will serve as a hub for student life activities and it could also be open to members of the general public. The facility, which could be anywhere from 75,000 gross square feet to 115,000 gross square feet is large enough for an Olympic-size pool. The aquatics center will have an outdoor pool and/or lazy river with a sun patio. The informal green lawn to the west of the aquatics center can be used for recreational purposes.

A small surface parking lot will be built adjacent to the facility for handicap accessible parking, visitor drop-off/pick-up, and short-term waiting.
**Island Campus Long-term Signature Projects**

Central Campus Recreation Lawn

A large recreational green space will become a focal point for campus life around Island Hall, the dining hall, and along the East Campus Promenade. Once the Aquatics Center is compete on Island Campus, the outdoor swimming pool and ancillary functions to the east of the fieldhouse will be removed, clearing the way for a large green space. The outdoor space can host multiple student functions including picnics, dances, student organization meetings, music performances as well as recreation activities.
Momentum Campus Signature Projects

Momentum Campus features six signature projects that, as a whole, generate vibrant, mixed-use, pedestrian-friendly campus. The major activity hubs are the athletics complex, which is partially open and under construction, and a future convocation center. Between the two activity hubs are a mix of uses ranging from student housing to retail, office, and a hotel/conference center.

Momentum Campus Near-term Signature Projects

Athletics Complex

The athletics complex is the first project to be built on the Momentum Campus, and it is currently in progress. In 2009, the university opened the Tennis Complex, which is the first phase of the athletics complex. The university is currently building the soccer and track and field facility. The final components of the athletics complex are the baseball and softball diamonds and the central plaza that unites all of the facilities.

Auxiliary Services, Storage, and Receiving Facility

Located to the west of the existing wastewater treatment facility, there will be an auxiliary office building, service/loading area, and facility service building. The new facilities will be accessed via service road connecting to Nile Drive.

Several offices will be relocated from Island Campus to a new facility at Momentum Campus. Facility services might also be located in this area.
Islander Town Mixed-Use Development

Along Ennis Joslin Road, a new mixed-use, pedestrian-friendly development will establish an identify for Momentum Campus and become an important destination and amenity for student living on campus, neighboring residents, and visitors. A three to four story building that directly abuts a sidewalk is recommended. An attractive façade with storefront windows facing the sidewalk is important. Outdoor seating for restaurants will help enliven the district. Retail should exist on the first floor and student housing should exist on the upper floors. A parking garage should be located in the middle of the block behind the buildings but integrated into the overall design concept.

Momentum Campus Mid-term Signature Projects

Student Housing

Additional student housing is planned for the southern edge of Momentum Campus. This housing will take advantage of the proximity to Islander Town and the student recreation fields. The buildings should be built along the road with only nominal walkway and landscape setbacks from the street front. Behind the buildings, surface parking lots will provide parking. It will be important to limit light pollution from the surface parking lot as the student housing backs up to an existing single-family residential neighborhood.
Momentum Long-term Projects

Convocation Center

As the central hub for Momentum Campus, the convocation center will be a focal point for the university and an anchor to spark future development. The convocation center will be used for multiple functions: basketball/volleyball games, graduation ceremonies, music/theater performances, conventions.

Although a future needs assessment and facility program will need to be conducted before design begins, the convocation center could seat anywhere from 8,000 to 10,000 people and range from 200,000 to 250,000 gross square feet. It could also have additional function space for hosting events, classroom space, athletics department offices, and conference rooms. A large parking garage will be required as will a central plant. The convocation center will bolster development surrounding it.

Hotel and Conference Center

Located adjacent to the convocation center, a hotel and conference center with multipurpose meeting rooms and exhibit halls could exist. Demand for a hotel will be generated by the athletics complex, convocation center, as well as increased activity on the Island Campus.
Potential Projects Beyond Campus

RTA Expansion, Shuttle Service, and Commuter Parking

As the university grows, the current dominance of the personal automobile and surface parking is expected to transition to a more diversified mix of public and active transportation and structured parking. This goal aligns with Guiding Principle #6: Seek Transportation and Parking Solutions to Manage Supply and Reduce Demand.

As part of managing long-term growth, the university should implement a shuttle system from a remote parking lot providing approximately 500 off-campus spaces (the location and exact number of spaces should be determined by a future transportation systems plan). Shuttle bus stops should be conveniently provided at Momentum Campus and Island Campus. A single, frequent shuttle loop will provide sufficient connectivity between the two campuses. Expansion of the route to connect to near-by multi-family housing could also be considered in the long term.

The Corpus Christi RTA, which currently provides three bus routes serving the university, has been engaged in this master planning process and is receptive to the idea of altering and/or increasing bus service to the University as the student population grows and as the Momentum Campus develops. New bus service and stops have been discussed to serve the momentum campus that would loop in along the same route as the proposed shuttle.

Oso Bay Bridge Opportunity

A potential pedestrian bridge linking both campuses was discussed during the 2008 Campus Expansion planning process for Momentum, but it was ultimately ruled out due to environmental concerns as the closest path between the two campuses was through a very sensitive ecosystem. However, this idea might be plausible if the bridge were to be located further to the south and east of the environmentally sensitive portion of Oso Bay. Therefore, this master plan establishes an approximate zone for future consideration of a limited-access, pedestrian-priority bridge connecting the two campuses. This idea is very preliminary, but it is a long-term aspiration of the university. The bridge would meet Guiding Principle #3: Enhance Campus Connectivity and Access.

The bridge would be engineered to handle vehicles for maintenance or emergency egress purposes. As previously noted, Island Campus is currently a one-way-in/one-way-out campus relying on Ocean Drive. A future limited access bridge could potentially serve as a second egress for emergency evacuation. The primary intent of this bridge, however, is to facilitate pedestrian and bicycle transportation between the two campuses. Everyday vehicular use will be strictly prohibited. Depending on the final location of the bridge, it will range from 1,000 to 1,500 feet in length. Viewing platforms and covered seating areas will need to be integrated into the design to offer places of recreation (fishing, bird watching) as well as respite.

Case Study: Applying Multiple Transportation and Parking Solutions at the University of North Carolina-Chapel Hill

In 2010, the University of North Carolina-Chapel Hill (UNC) undertook several changes to address parking and transportation issues on campus. Chief among these was an alteration to the allocation of parking permits; only students living on campus or beyond a 2-mile radius of the center of campus were allowed to purchase a permit, and no permits were issued to freshman unless they qualified for a “hardship circumstance”. The University also doubled the number of Park-and-Ride spaces, increasing ridership by 90%.

Additional transportation services included:

- Dedicated point-to-point shuttles between on-campus locations or off campus locations owned by the university
- Emergency ride home shuttles
- Participation in the zipcar car sharing program
University Beach Alternative Opportunity

The existing University Beach, located on the north side of Ocean Drive and extending into Corpus Christi Bay, is an under-utilized asset of the campus (the beach is technically owned by the City of Corpus Christi but is largely used by the university). Originally created as a research project investigating beach erosion, the beach is used sparingly for fishing, walking, and as a launch area for wind-surfing.

At a minimum, the beach could be better utilized by creating facilities to support beach volleyball, wind-surfing, kite-surfing, kayaking. In this scenario, a dock for boat launching/fishing and storage facility would be required. An expanded beach area might also be required and would depend on coordination with the City of Corpus Christi.

There is the potential, however, to re-imagine the beach as a multi-use recreation space that is one half beach and one half grass recreation field. This concept could retain the best parts of having a beach on campus—swimming, wind surfing, etc.—and also create some much needed recreation space. The recreation space would be created by filling in the eastern half of the existing beach. A new theatre pavilion and several picnic gazebos could also be built.

This concept is shown as an alternative and is not part of the baseline development concept as it involves future decision making regarding funding, most suitable use, maintenance, and partnering with the City of Corpus Christi to create.

The City of Corpus Christi has a sequence of parks extending into Corpus Christi Bay along Ocean Drive (Cole Park, Ropes Park, Swantner Park). By adopting the university beach alternative concept, the sequence of parks would extend further east and city residents as well as university members will gain a recreational amenity.
Architectural and Landscape Qualities

Architectural Qualities
To develop a consistent and high quality built environment for both Island and Momentum Campuses, specific architectural qualities should be developed as common themes for new and renovated buildings. By adopting common design ideas and motifs in all new building the university can create a cohesive campus character. Architectural elements such as building massing, building orientation, arcades/loggias, and courtyards, are important to define.

Building Massing
Building height on the Island Campus should be restricted to no more than four stories and not less than three stories. Buildings located on the east side of campus should be three stories tall (primarily due to flight path restrictions of the Naval Air Station) and buildings on the west side of campus should be four stories.

Because of the limited amount of land suitable for development on the Island Campus, no future building should be less than three stories tall. Promoting compact campus development will optimize land use.

Courtyards
Exterior courtyards create a place of respite from the heat and wind while acting to beautify the campus landscape with vegetation. Courtyards that vary in size should be incorporated into future building project as specified in this plan. The courtyards should be highly vegetated, and
provide seating areas, walking paths, planted areas, and, in some cases, water features or sculptures. It is important that all courtyards have a sense of enclosure by being defined on all edges by an arcade, building edge, or walkway.

**Walkways and Arcades**

**Wide Walkways and Arcades**

The existing Central Spine from Corpus Christi Hall to the Center for the Sciences is an approximately 22 foot wide walkway that is integrated into building. This is the model for future primary spines throughout the Island Campus.

As highlighted in the plan, the major spines will be 20 feet wide and, depending on the program of the building, could be multi-level arcades similar to Corpus Christi Hall.

For buildings with arcades along the south or west facades, additional shading devices will need to be considered. In some cases the arcade may only be located on the ground floor.

**Secondary Walkways and Arcades**

Secondary arcades will be twelve feet wide and will primarily be located at the ground floor of buildings.

**Tertiary Walkways and Arcades**

These walks are to be eight feet wide and are to be a part of an external pedestrian circulation system and usually define a smaller courtyard within a building or complex of buildings.

These walkways can either be located on the ground level or on all levels of the building depending on the solar orientation and or program needs of the building (see page 97).

**Bridge Connectors**

Bridge connectors should be used between building wings in order to create a sense of enclosure and connectivity between buildings. The connectors should be multi-level where feasible.

**Building Orientation**

The orientation of a building has important implication on how the building functions in response to environmental elements (sun, wind, rain). Energy use and peoples’ comfort are highly influenced by building orientation.

**Orientation to Respond to the Sun**

The campus grid is rotated several degrees from north and therefore a building’s longest facade should run northwest to southeast as much as possible in order to reduce solar heat gain.

Internal courtyards for buildings should be large enough to encourage outside gather spaces, but small enough to protect from the sun and wind.

Each building design should include a solar study to determine the best size, shape and orientation of each building courtyard.

**Orientation to Respond to Wind and Rain**

The majority of the tropical storm events approach the campus from the southeast therefore covered walkways and loggias designed into the buildings should be located along the northern or western facades where possible to protect pedestrians from the elements.
Landscape Qualities

The following Landscape Qualities are intended to ensure the quality and character of the campus outdoor environment. The qualities covered in this plan are comprised of four elements related to the campus landscape, each with a set of recommendations. These are:

- Sidewalk and hardscape materials
- Parking
- Site furnishings
- Vegetation (see Appendix)

Each element section includes a description of the element; the intent of the recommendation, diagram, location and sources of additional information is presented where applicable. These recommendations are based on the Visual Preference results and the overriding principles of site appropriateness and context, functionality, economy, quality and sustainability. Furthermore, this plan recommends developing comprehensive design guidelines for directional and wayfinding signage, as well as gateways to help build identity and communicate to visitors that they are entering campus.

Sidewalks and Hardscape

Hardscape materials currently employed at Texas A&M- Corpus Christi include the following: concrete; stamped concrete; brick; concrete pavers; grass pavers and river rock. These materials are of disparate sizes and color which limits the cohesiveness of existing great spaces and sidewalks throughout the campus. Additionally, walks along the existing east-west axis currently consist of wide and lengthy expanses of concrete which rated as low quality space by 58% of respondents that participated in the Visual Preference Survey. Special paving bands and treatments at intersections can break the visual monotony of all-concrete pavements, highlight key crossings and announce plaza/courtyard and sacred space locations.

This plan recommends using a unified hardscape palette and standard paving patterns to improve connectivity between the existing high quality spaces along the Central Spine, the potential great spaces along the east-west cross spines and the future pedestrian linkages.

Typical sidewalk treatments will fall into one of the following four categories:

**Type D sidewalks** are existing sidewalks that are four to six feet in width that will be demolished to receive bands at regular intervals. Stretcher course bands are Pavestone Hollandstone in a custom blend that is 75% “Antique Terracotta” and 25% “Antique Savannah”. The inlay will be Pavestone Hollandstone 100% “River Red”.

Type D sidewalks that are 10 to 12 feet in width will be demolished to receive bands and brick inlays at regular intervals. The inlay will be Pavestone Hollandstone 100% “River Red”. Brick stretcher course bands are Pavestone Hollandstone in a custom blend that is 75% “Antique Terracotta” and 25% “Antique Savannah.”
Sidewalks and Hardscape (continued)

**Type C** sidewalks will be four to six feet in width and will be a combination of standard concrete with minimal brick inlay details at regular intervals. The inlay will be Pavestone Hollandstone 100% “Oaks Blend”. Stretcher course bands are Pavestone Hollandstone in a custom blend that is 75% “Antique Terracotta” and 25% “Antique Savannah.”

**Type B** sidewalks will be eight to ten feet in width and will be a combination of standard concrete with minimal brick inlay details at regular intervals. The inlay will be Pavestone Hollandstone 100% “Oaks Blend”. Stretcher course bands are Pavestone Hollandstone in a custom blend that is 75% “Antique Terracotta” and 25% “Antique Savannah.”

**Type A** sidewalks will be ten to twelve feet in width and will be a combination of standard concrete with brick inlay details at regular intervals. The inlay will be Pavestone Hollandstone 100% “Oaks Blend”. Brick stretcher course bands are Pavestone Hollandstone in a custom blend that is 75% “Antique Terracotta” and 25% “Antique Savannah.”

Tree-lining sidewalks and appropriately scaling and landscaping building entries based on vegetation recommendations will help provide a more pedestrian-friendly and campus-like atmosphere.

Parking Lots

All parking lot areas are required to include canopy trees that shade a minimum of thirty-five (35) percent of any individual parking lot. Parking lots must be designed to incorporate the use of landscaped islands, divider islands, perimeter berms, buffers and/or walls to minimize views from adjacent streets and sidewalks. Additionally, sidewalks should be incorporated into landscape medians as necessary to direct visitors toward campus and reduce potential conflicts between pedestrians and automobiles. Buffering parking from walkways should be a priority as 76% of respondents of the Visual Preference Survey described views from parking areas as low quality spaces.

Landscape medians should double as drainage swales and should alternate between medians with sidewalks. These bio-swarles as well as perimeter berms should be designed to function as filtration during storm events. All islands must be planted with turf grass, shrubs or groundcover material under the shade trees.

Bio-Retention Strategies

In order to mitigate the negative effects of stormwater run-off on water quality, filter strips, vegetated bioswarles, and porous pavement should be explored as design options for new parking lots. The goals of these strategies is bio-retention and on-site filtration, which will improve the water quality of Oso Bay and Corpus Christi Bay by reducing non-point source pollution.
Site Furnishings

Site furnishings at TAMU-CC should fit harmoniously with the structures and outdoor spaces at the campus and strengthen the sense of place for students, faculty, staff, and visitors. Currently many inconsistent types of benches, bike racks, trash bins and other structures exist around the campus. By using only one variety of each of these furnishings, the campus will achieve a much more cohesive appearance. As the campus evolves, disparate existing site furnishings should be removed and replaced with the following recommendations.

Benches
Keystone Site Furnishings Reading Bench #RE26 is 6 feet in length and comes with an attached back. A matching coffee table, Model RERT, is available and can be used in more intimate spaces with less pedestrian traffic. Benches should be placed on a bed of the same material as adjacent paving or decomposed granite and anchored per the manufacturer’s recommendations. Bench can be customized with laser cut logo or wave design.

Table Set
Keystone Site Furnishings Saxony Table Set #SY6-2 is available in ADA accessible option and complements the horizontal slats of the Reading Bench. Table sets should be placed on a bed of the same material as adjacent paving or decomposed granite and anchored per the manufacturer’s recommendations. Benches can be customized with laser cut logo or wave design.

Bicycle Rack
Keystone Site Furnishings Sonance Bike Rack can be purchased in single loops. These racks can be placed outside of building entries for convenient bike parking and should be powder coated to match other site furnishings. Racks should be installed 4' apart and at least 1'-6" away from concrete pad/ sidewalk edge.

Trash Receptacle
Keystone Site Furnishings Trash Receptacle # RE3D-32 has a 32-gallon, side-opening design with a large bonnet top. This receptacle can be ordered in a powder coat finish matching other site furnishings at Texas A&M - Corpus Christi, and should be placed near seating areas and at building entries.

Bollards
Keystone Site Furnishings Harbor Bollard #HRR-6A consists of an angled top and stands 37" in height. These bollards can be fixed or removable with locking capabilities. Bollards should be used to provide a barrier between vehicles and pedestrians.

Lighting Fixtures
Pedestrian-scale lighting will provide for a safe and secure environment, create a defining visual characteristic during daylight hours and reinforce unity along central spine axis, east-west cross spines and Village Grid. The Exelia Column consists of a light column with a housing constructed from round die-cast aluminium and clear PC cylinder.
Summary of Master Plan Space Provision

Built Facility Space Calculation

The following table quantifies the total amount of facility space for the total build-out of both Island and Momentum Campuses. The logic of this table tracks facility space from existing through the near-term sub-total to the long-term build-out, accounting for demolished buildings and new construction along the way. The table calculates facility space for each campus and then adds up the total at the end.

The total build out for both campuses is approximately 6.3 million gross square feet. This is beyond the 5.1 million gross square feet projected by the 2025 planning milestone. The additional 1.2 million gross square feet is for university (academic, research, student life, housing, athletics) development beyond 2025 and for other uses not included in the space projection such as the convocation center, private-sector/collaborative office space, retail space, and the hotel and conference center.

The total build out provides 3,711 student beds, which is slightly higher than the 3,626 student beds projected to be needed by 2025.

Multi-use parking garages are not included in this calculation.

<table>
<thead>
<tr>
<th>FACILITY SPACE CALCULATION</th>
<th>Building Use</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Academic, Research, Student Life, Admin, Support, Other¹</td>
<td>Housing</td>
</tr>
<tr>
<td>Island Campus Existing</td>
<td>1,235,946²</td>
<td>561,020</td>
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<td>Island Campus Near-term Demolished</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Island Campus Near-term New Buildings</td>
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<td>63,010</td>
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<tr>
<td>Island Campus Near-term Subtotal</td>
<td>1,558,982</td>
<td>624,030</td>
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<td>Island Campus Long-term Demolished</td>
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<td>0</td>
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<tr>
<td>Island Campus Long-term New Buildings</td>
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<td>132,450</td>
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<tr>
<td>Island Campus Total Long Term Build Out</td>
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<td>756,480</td>
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<tr>
<td>Momentum Campus Existing</td>
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<td>0</td>
</tr>
<tr>
<td>Momentum Campus Near-term Demolished</td>
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<td>0</td>
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<td>Momentum Campus Near-term New Buildings</td>
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<td>208,671</td>
</tr>
<tr>
<td>Momentum Campus Near-term Subtotal</td>
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<td>208,671</td>
</tr>
<tr>
<td>Momentum Campus Long-term Demolished</td>
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<td>Momentum Campus Long-term New Buildings</td>
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<td>Momentum Campus Long-term Build Out</td>
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</tr>
<tr>
<td>COMBINED TOTAL LONG-TERM BUILDING</td>
<td>4,742,752</td>
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</tr>
<tr>
<td>TOTAL GSF FOR TAMU-CC LONG-TERM</td>
<td>6,315,742</td>
<td></td>
</tr>
</tbody>
</table>

¹. ‘Other’ includes the convocation center; hotel and conference center; and retail / general office space
². Figure provided by Camden Miramar
³. Existing space total fall 2012 (not including the Business Innovation Center at Flour Bluff, which has 39,500 gsf)
⁴. Accounts for two additional resident halls (75 beds each) planned near the dining hall
⁵. Number of beds provided in calculation exceeds projected 2025 need by 85

NOTE: All figures are GSF
### Island Campus

<table>
<thead>
<tr>
<th>Facility to be removed</th>
<th>Academic</th>
<th>Research</th>
<th>Admin</th>
<th>Athletics/Rec.</th>
<th>Student Life</th>
<th>Housing</th>
<th>Support</th>
<th>Parking</th>
<th>Mixed Use/Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing facilities</strong></td>
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<td><img src="image2.png" alt="Diagram" /></td>
<td><img src="image3.png" alt="Diagram" /></td>
<td><img src="image4.png" alt="Diagram" /></td>
<td><img src="image5.png" alt="Diagram" /></td>
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<td><img src="image7.png" alt="Diagram" /></td>
<td><img src="image8.png" alt="Diagram" /></td>
<td><img src="image9.png" alt="Diagram" /></td>
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<tr>
<td><strong>Near-term proposed facilities</strong></td>
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<td><img src="image11.png" alt="Diagram" /></td>
<td><img src="image12.png" alt="Diagram" /></td>
<td><img src="image13.png" alt="Diagram" /></td>
<td><img src="image14.png" alt="Diagram" /></td>
<td><img src="image15.png" alt="Diagram" /></td>
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<td><img src="image17.png" alt="Diagram" /></td>
<td><img src="image18.png" alt="Diagram" /></td>
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<tr>
<td><strong>Long-term proposed facilities</strong></td>
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<td><img src="image20.png" alt="Diagram" /></td>
<td><img src="image21.png" alt="Diagram" /></td>
<td><img src="image22.png" alt="Diagram" /></td>
<td><img src="image23.png" alt="Diagram" /></td>
<td><img src="image24.png" alt="Diagram" /></td>
<td><img src="image25.png" alt="Diagram" /></td>
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</table>

### Momentum

<table>
<thead>
<tr>
<th>Facility to be removed</th>
<th>Academic</th>
<th>Research</th>
<th>Admin</th>
<th>Athletics/Rec.</th>
<th>Student Life</th>
<th>Housing</th>
<th>Support</th>
<th>Parking</th>
<th>Mixed Use/Other</th>
</tr>
</thead>
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<tr>
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<td><img src="image29.png" alt="Diagram" /></td>
<td><img src="image30.png" alt="Diagram" /></td>
<td><img src="image31.png" alt="Diagram" /></td>
<td><img src="image32.png" alt="Diagram" /></td>
<td><img src="image33.png" alt="Diagram" /></td>
<td><img src="image34.png" alt="Diagram" /></td>
<td><img src="image35.png" alt="Diagram" /></td>
<td><img src="image36.png" alt="Diagram" /></td>
</tr>
<tr>
<td><strong>Near-term proposed facilities</strong></td>
<td><img src="image37.png" alt="Diagram" /></td>
<td><img src="image38.png" alt="Diagram" /></td>
<td><img src="image39.png" alt="Diagram" /></td>
<td><img src="image40.png" alt="Diagram" /></td>
<td><img src="image41.png" alt="Diagram" /></td>
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<td><img src="image44.png" alt="Diagram" /></td>
<td><img src="image45.png" alt="Diagram" /></td>
</tr>
<tr>
<td><strong>Long-term proposed facilities</strong></td>
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<td><img src="image47.png" alt="Diagram" /></td>
<td><img src="image48.png" alt="Diagram" /></td>
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<td><img src="image50.png" alt="Diagram" /></td>
<td><img src="image51.png" alt="Diagram" /></td>
<td><img src="image52.png" alt="Diagram" /></td>
<td><img src="image53.png" alt="Diagram" /></td>
<td><img src="image54.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

Space Comparison Diagram
Parking Provision

While surface parking lots are drastically eliminated over the long-term development of Island Campus in favor of new buildings, parking and transportation alternatives, and green space, it is important to note that the total number of parking spaces actually increases on Island Campus from 5,857 today to 6,311 over the long-term, full build-out.

A significant increase in parking is planned for Momentum Campus. Today, the campus has 372 spaces in the surface parking lot serving the athletics complex. Over the long-term, 3,589 additional spaces are planned in parking garages and surface lots bringing the total to 3,961 spaces.

In addition to parking on both campuses, a 500 space off-site commuter lot is proposed at a future location to be determined.

Total long-term parking is 10,772 spaces, which is almost 200% more spaces compared to today. This master plan assumes a factor of 350 gross square feet per space for calculation the number of spaces in a particular garage.

Parking Structure Near Student Housing

The future parking structure surrounded by existing housing on the east side of the campus may be located further south on the green open space across the service drive from the aquatics center. This option could enhance accessibility to the aquatics center for people driving to campus. If the parking structure is relocated to this location, then the former location will become green open space (not additional

<table>
<thead>
<tr>
<th>Parking Provision</th>
<th>Island Campus Existing</th>
<th>Island Campus Proposed New</th>
<th>Island Campus Spaces Removed</th>
<th>Island Campus Long-term</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5,857</td>
<td>+4,997</td>
<td>-4,543</td>
<td>6,311</td>
</tr>
<tr>
<td>Momentum Campus Existing</td>
<td>372</td>
<td>+3,589</td>
<td>0</td>
<td>3,961</td>
</tr>
<tr>
<td>Momentum Spaces Removed</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Momentum Campus Long-term</td>
<td>3,961</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Off Site Commuter/ Shuttle Lot</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Existing (Both Campus)</td>
<td>6,229</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Proposed Parking Number Long-term</td>
<td>10,772</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Open Space Provision

A primary driver of campus life and evoking a sense of place, open space is a crucial component of the long-term development plan. The total build-out on Island Campus increases green open space (courtyards, quadrangles, lawns, gardens, walkways) by approximately 11 acres—a 58% increase. 28.7 acres are planned. The largest increase in green open space is in the form of courtyards, patios, and gardens—a 14 acre increase.

Open space provision is partially driven by the landscape eco-zone concept where the creation of vegetated, outdoor open spaces that mimic natural areas in the Coastal Bend is a fundamental organizing principle for the Island Campus. As a resource, Appendix D: Landscape Guide provides recommendations for plant types suitable for campus open spaces.

Finally, the increase in open space is a result of the planned reduction in surface parking lots. The reduction is due to the application of a comprehensive managed parking and transportation system.

### ISLAND CAMPUS OPEN SPACE PROVISION

<table>
<thead>
<tr>
<th>Student Open Space Availability</th>
<th>Existing (Acres)</th>
<th>Proposed (Acres)</th>
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</thead>
<tbody>
<tr>
<td>Central Spine spaces</td>
<td>6.5</td>
<td>7.0</td>
</tr>
<tr>
<td>Courtyards / patios / gardens</td>
<td>3.1</td>
<td>17.3</td>
</tr>
<tr>
<td>Informal space by Oso Bay (currently around softball and baseball diamonds)</td>
<td>8.4</td>
<td>4.4</td>
</tr>
<tr>
<td>Total Space</td>
<td>18.1</td>
<td>28.7</td>
</tr>
</tbody>
</table>
Next Steps
The creation of this master plan is an important feat for TAMU-CC as it considers how to best manage and prioritize its existing resources and identify its future needs. As the university moves forward with implementing this plan, there are several next steps it should consider.

Comprehensive Transportation and Parking Systems Plan
In adherence to Guiding Principle #6: Seek Transportation and Parking Solutions that Manage Supply and Reduce Demand, a detailed transportation and parking plan should be conducted to evaluate alternative the feasibility of implementing strategies. The plan should explore in greater detail the strategies recommended in this master plan: commuter parking lots, a shuttle system connecting campuses and remote parking lots, car sharing services (e.g. Zipcar), improvement of active transportation networks (pedestrian, bicycle infrastructure).

The plan should calculate existing and future parking demand on both the Island and Momentum Campuses to align with enrollment growth yet realizing that overall parking space reduction is an important objective. Finally, the plan should explore the viability of introducing parking zones that have different permit prices based on distance from the campus core, and it should recommend whether or not freshmen should be permitted to have their own cars on campus.

Architectural and Landscape Guidelines
This master plan provides important yet limited guidance on architectural qualities for new buildings on the Island Campus. A more in-depth plan should be created to establish detailed architectural and landscape design guidelines. With the goal of creating visual continuity and a high quality built environment, design guidelines are a useful tool for the university to use when beginning the design and construction of a new facility.

Architectural issues to be explored in the guidelines include the following: orientation, height, massing, facade articulation, entrances, window treatments, material choices. Landscape issues to be explored include: walkway designs, pavement types, outdoor furniture, pedestrian safety amenities (e.g. bollards), lighting, signage, water features, plant types. Guidelines for designing for people with disabilities should be included for both architectural and landscape recommendations.

Programs of Facility Requirements
Detailed facility programs should be created for all near-term building projects. The programs will need to be created so the near-term projects can be included on the Texas A&M University System Capital Improvement Plan (CIP).

Utility Infrastructure Cost Estimates
Preliminary rough-order-of-magnitude cost estimates should be calculated for new utility corridors that will be required for future building projects.

Campus Master Plan Update (5-year)
The assumptions and recommendations contained within this master plan will need to be re-examined in the form of a campus master plan update. As mentioned in the introduction, this master plan is a living document. It provides recommendation for future planning decisions, and it charts the university’s growth over the near and long-term. However, the master plan will need to evolve and adapt to changing situations.

The campus master plan update provides an opportunity to revisit this master plan. The update should occur approximately five years after this master plan (2018). The update is not a complete overhaul of the master plan, but rather a targeted look at specific topics the university feels that it needs to develop further.
**Appendix A**

**DEVELOPMENT SCHEDULE**

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**Development Schedule**

The following development schedule accompanies the Master Plan to provide approximate gross square foot areas for each building, building use and number of floors. These figures should be used as a general guide for future facilities planning in advance of more detailed site planning to accompany an individual project’s program of requirements.

### DEVELOPMENT SCHEDULE - ISLAND CAMPUS

<table>
<thead>
<tr>
<th>Building reference</th>
<th>Floors</th>
<th>Use</th>
<th>GSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 - Arts, Media &amp; Communication</td>
<td>3</td>
<td>Academic</td>
<td>52,621</td>
</tr>
<tr>
<td>A2 - Arts, Media &amp; Communication</td>
<td>3</td>
<td>Academic</td>
<td>35,043</td>
</tr>
<tr>
<td>A3 - Arts, Media &amp; Communication</td>
<td>3</td>
<td>Academic</td>
<td>33,588</td>
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<tr>
<td>A4</td>
<td>3</td>
<td>Academic</td>
<td>34,906</td>
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<td>A5</td>
<td>3</td>
<td>Academic</td>
<td>34,977</td>
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<td>A6</td>
<td>3</td>
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<td>A7</td>
<td>3</td>
<td>Academic</td>
<td>53,635</td>
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<td>A8</td>
<td>3</td>
<td>Academic</td>
<td>110,170</td>
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<td>A9</td>
<td>3</td>
<td>Housing</td>
<td>85,265</td>
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<tr>
<td>A10</td>
<td>3</td>
<td>Housing</td>
<td>67,279</td>
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<tr>
<td>A11</td>
<td>3</td>
<td>Academic</td>
<td>49,839</td>
</tr>
<tr>
<td>A12</td>
<td>3</td>
<td>Academic</td>
<td>49,845</td>
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</table>

<table>
<thead>
<tr>
<th>Building</th>
<th>Floors</th>
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<th>GSF</th>
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</thead>
<tbody>
<tr>
<td>B1</td>
<td>3</td>
<td>Research / Academic</td>
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<tr>
<td>B2</td>
<td>3</td>
<td>Research / Academic</td>
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</tr>
<tr>
<td>B3</td>
<td>3</td>
<td>Research / Academic</td>
<td>33,517</td>
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Island Campus Development Schedule Reference Plan
## DEVELOPMENT SCHEDULE - ISLAND CAMPUS

<table>
<thead>
<tr>
<th>Building</th>
<th>Floors</th>
<th>Use</th>
<th>GSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
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<td>Academic</td>
<td>118,963</td>
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<tr>
<td>D2</td>
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<td>D3</td>
<td>3</td>
<td>Research / Academic</td>
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<tr>
<td>D4</td>
<td>3</td>
<td>Research / Academic</td>
<td>88,040</td>
</tr>
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<td>D5</td>
<td>3</td>
<td>Student life</td>
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<td>H2</td>
<td>3</td>
<td>Housing</td>
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<tr>
<td>P1 (ground floor only, blue area)</td>
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<td>P2 (ground floor only, blue area)</td>
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<td>P1</td>
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<td>Parking</td>
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<tr>
<td>P2</td>
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<td>Parking</td>
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<tr>
<td>P3</td>
<td>4</td>
<td>Parking</td>
<td>260,964 / 746</td>
</tr>
<tr>
<td>P4</td>
<td>4</td>
<td>Parking</td>
<td>402,584 / 1,150</td>
</tr>
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</table>

### Building Floors Use GSF

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<th>Building</th>
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<tr>
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<td>4</td>
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<td>B7</td>
<td>4</td>
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<td>B8</td>
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<tr>
<td>B9</td>
<td>3</td>
<td>Research / Academic</td>
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</tr>
<tr>
<td>B10 (including observation tower)</td>
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<td>Research / Academic</td>
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</tr>
<tr>
<td>B11</td>
<td>3</td>
<td>Research / Academic</td>
<td>47,237</td>
</tr>
<tr>
<td>C1 - Life Sciences Research</td>
<td>3</td>
<td>Academic</td>
<td>79,443</td>
</tr>
<tr>
<td>C2 - Life Sciences Research</td>
<td>3</td>
<td>Academic</td>
<td>41,618</td>
</tr>
<tr>
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<td>3</td>
<td>Academic</td>
<td>80,723</td>
</tr>
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<td>C4</td>
<td>3</td>
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<td>41,618</td>
</tr>
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<td>C5</td>
<td>3</td>
<td>Academic</td>
<td>86,585</td>
</tr>
<tr>
<td>C6</td>
<td>3</td>
<td>Research / Academic</td>
<td>49,439</td>
</tr>
<tr>
<td>C7</td>
<td>3</td>
<td>Research / Academic</td>
<td>105,608</td>
</tr>
<tr>
<td>C8</td>
<td>3</td>
<td>Research / Academic</td>
<td>49,217</td>
</tr>
<tr>
<td>C9</td>
<td>3</td>
<td>Research / Academic</td>
<td>109,262</td>
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<tr>
<td>C10 - Library Extension</td>
<td>0</td>
<td>Academic</td>
<td>15,796</td>
</tr>
</tbody>
</table>

* = Near-term Priority
### Appendix A

**DEVELOPMENT SCHEDULE**

<table>
<thead>
<tr>
<th>Building</th>
<th>Floors</th>
<th>Use</th>
<th>GSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>3</td>
<td>Housing</td>
<td>68,693</td>
</tr>
<tr>
<td>R2</td>
<td>3</td>
<td>Housing</td>
<td>34,195</td>
</tr>
<tr>
<td>R3</td>
<td>3</td>
<td>Housing</td>
<td>34,195</td>
</tr>
<tr>
<td>R4</td>
<td>3</td>
<td>Housing</td>
<td>88,764</td>
</tr>
<tr>
<td>R5</td>
<td>3</td>
<td>Housing</td>
<td>30,817</td>
</tr>
</tbody>
</table>

- **O1**: 4 Floors | Office | 190,767 |
- **O2**: 4 Floors | Office | 65,885  |
- **O3**: 4 Floors | Office/mixed | 76,374 |
- **O4**: 4 Floors | Office/mixed | 183,765|
- **O5**: 4 Floors | Housing/mixed | 98,854 |
- **O6**: 4 Floors | Commercial | 164,564|

<table>
<thead>
<tr>
<th>Building</th>
<th>Floors</th>
<th>Use</th>
<th>GSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>4</td>
<td>Housing/mixed</td>
<td>283,783</td>
</tr>
</tbody>
</table>

- **S1**: 2 Floors | Multi-use | 225,000 |
- **S2**: 1 Floor | Athletics | 4,932  |
- **S3**: 2 Floors | Athletics | 37,489 |
- **S4**: 2 Floors | Athletics | 51,971 |
- **S5**: 1 Floor | Athletics | 6,577  |

<table>
<thead>
<tr>
<th>Building</th>
<th>Floors</th>
<th>Use</th>
<th>GSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>1</td>
<td>Storage / Receiving</td>
<td>26,550</td>
</tr>
<tr>
<td>G2</td>
<td>1</td>
<td>Aux. Support</td>
<td>20,185</td>
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<table>
<thead>
<tr>
<th>Building</th>
<th>Floors</th>
<th>Use</th>
<th>GSF / Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>5</td>
<td>Parking</td>
<td>386,601 / 1,105</td>
</tr>
<tr>
<td>P2</td>
<td>5</td>
<td>Parking</td>
<td>213,388 / 610</td>
</tr>
<tr>
<td>P3</td>
<td>5</td>
<td>Parking ( &amp; Central Plant)</td>
<td>314,378 / 898</td>
</tr>
</tbody>
</table>

- **GSF**: Gross Square Footage
- **Spaces**: Parking Spaces

**Momentum Campus Development Schedule Reference Plan**
# Island Campus Existing Housing Calculation

<table>
<thead>
<tr>
<th>Building Name</th>
<th>Area (GSF)</th>
<th>Floors</th>
<th>Number of Beds</th>
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<tr>
<td>Miramar Office</td>
<td>2,572</td>
<td>1</td>
<td>0</td>
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<tr>
<td>Miramar Apts 2</td>
<td>17,400</td>
<td>3</td>
<td>72</td>
</tr>
<tr>
<td>Miramar Apts 3</td>
<td>20,736</td>
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<tr>
<td>Miramar Apts 4</td>
<td>20,736</td>
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<tr>
<td>Miramar Apts 5</td>
<td>19,404</td>
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<tr>
<td>Miramar Apts 6</td>
<td>28,104</td>
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<td>72</td>
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<tr>
<td>Miramar Apts 7</td>
<td>24,334</td>
<td>3</td>
<td>76</td>
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<td>Miramar Apts 8</td>
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<td>3</td>
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<tr>
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<td>Miramar Apts 10</td>
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<td>74</td>
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<tr>
<td>Miramar Apts 11</td>
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<td>74</td>
</tr>
<tr>
<td>Recreation Building</td>
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<td>108</td>
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<tr>
<td>Harbor</td>
<td>20736</td>
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<td>52</td>
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<tr>
<td>Port</td>
<td>18093</td>
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<tr>
<td>Corral</td>
<td>31341</td>
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</tr>
<tr>
<td>Pelican</td>
<td>26685</td>
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</tr>
<tr>
<td>Laguna</td>
<td>28308</td>
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<td>76</td>
</tr>
<tr>
<td>Marina</td>
<td>28320</td>
<td>3</td>
<td>75</td>
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<tr>
<td>Surf and Jetty</td>
<td>77103</td>
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<td>252</td>
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<tr>
<td>Tarpon*</td>
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</tr>
<tr>
<td>Anchor*</td>
<td>27,500</td>
<td>3</td>
<td>75</td>
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<tr>
<td><strong>Existing Total (Fall 2013)</strong></td>
<td><strong>561,020</strong></td>
<td></td>
<td><strong>1,640</strong></td>
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<tr>
<td>Future Hall 1</td>
<td>35,500</td>
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<td>75</td>
</tr>
<tr>
<td>Future Hall 2</td>
<td>27,500</td>
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<td>75</td>
</tr>
<tr>
<td><strong>Total Planned (Fall 2014)</strong></td>
<td><strong>624,020</strong></td>
<td></td>
<td><strong>1,790</strong></td>
</tr>
</tbody>
</table>

*Currently under construction will open 2013.
Appendix C
INFRASTRUCTURE PLAN

Storm Water

Island Campus

Near-term Plan
Bioswales complying with TCEQ design criteria should be constructed at locations where concentrated flow enters Oso Bay.

Long-term Plan
New storm drains should be directed to sanctuary area between Buildings B9 and B10.
Bioswales complying with TCEQ design criteria should be constructed at locations where concentrated flow enters Oso Bay.

Island Campus Storm Water
Near-term

Proposed drainage improvements for the near-term include a storm sewer system consisting of inlets and pipes located along the new east-west roadway and at the boat storage building parking areas. A new north-south drainage ditch is proposed west of the existing track and field facility. A new forty-eight (48) inch outfall pipe is proposed at the downstream end of the new ditch to run northwest and release at False Oso Creek.

Long-term

Proposed drainage improvements for the long range campus build out include a storm sewer system consisting of inlets and pipes located along the multiple new roadways and parking areas within the Momentum Campus east area. A new east-west drainage ditch is proposed along the south side of the east area. A new sixty (60) inch culvert pipe is proposed to cross Nile Drive and connect the new east area drainage ditch to the existing west area drainage ditch.
Water Supply

Island Campus

**Near-term**

Waterlines that require relocation should be formed into coherent corridors. The water line under Building A1 and A3 should be relocated to the north, out of the building footprints.

**Long-term**

Waterlines that require relocation should be formed into coherent corridors.

- Building C6 and P1 conflict with existing 12” water mains, so either footprints/locations of buildings should shift to avoid 12” main, or main should be rerouted as necessary.
- Construct a new line to serve Buildings A4 - A7, A9, and A10, connect to 12” line in Sand Dollar Boulevard.
- Construct a new line to serve Buildings D3 - D6, connect to 8” line south of Island Hall.
- Construct a new line to service Buildings B10, C8 and PL1.
- Construct a new line to serve Buildings B5 and B6.
- Construct a new line to serve Buildings B8 and B9.

Completing the 12” loop will allow for more maintenance shut down flexibility and more balanced water pressure.

Avoid placing new buildings (B1) over City of Corpus Christi 16” water line.
Momentum Campus

Near-term
Proposed water improvements for the near-term include an eight (8) inch looped water distribution system consisting of pipes, gate valves, and fire hydrants located at the north and west sides of the Momentum Campus west area. The west end of the new water loop is proposed to connect to the existing eight (8) inch water line located west of the track & field facility. The east end of the new water loop is proposed to connect to the existing twelve (12) inch water line located along Nile Drive.

Long-term
Proposed water supply improvements for the long-range campus build out include a twelve (12) inch looped water distribution system consisting of pipes, gate valves, and fire hydrants located at the north, central, and south sides of the Momentum Campus east area. The new water loops are proposed to connect to the existing twelve (12) inch water line located along Nile Drive at two (2) locations. The new water loops are proposed to connect to the existing sixteen (16) inch water line located along Ennis Joslin Road at three (3) locations.
Wastewater

Island Campus

**Near-term**
Sanitary lines that require relocation should be formed into coherent corridors. Sewer lines to be relocated include:

- Lines under A1 and A3 footprints. Relocate into Sanddollar Parking Lot and connect to existing on east side of Center for the Arts.
- Line under C1 and C2 footprints. Relocate to north of C1, in Starfish Parking Lot, and parallel to Island Boulevard.

**Long-term**
Sanitary lines that require relocation should be formed into coherent corridors. Sewer lines to be relocated include:

- The line under A8 should relocate to the north as an extension of line relocated for A1 and A3.
- Lines under A4 and A9 should relocate into the roadway south of A4 and A9, extend to the existing line east of Mary and Jeff Bell Library. This line will also provide service for A5, A6, and A7.
- Construct an extension to serve D1 and D2.
- Construct an extension to serve D3 - D6
- Construct an extension to serve B10 and PL1.
- Construct an extension to serve B1 - B6.
- Reroute the line adjacent to Island Boulevard away from P2.
- Reroute as necessary to remove lines from under B7-B10 and provide new service to them.

The lift station will require pump upgrades, to be coordinated with City of Corpus Christi Wastewater.

The design of B9, B10, and sanctuary area should be coordinated with existing City of Corpus Christi lift station as indicated on the diagram.

If it is projected that the area around the City of Corpus Christi lift station is going to be a high people traffic area, consideration should be given to negotiating its relocation with the City of Corpus Christi.
Near-term Plan

Proposed wastewater improvements for the near-term include an eight (8) inch gravity wastewater collection system consisting of pipes and manholes located east of the new boat storage buildings. The downstream end of the new wastewater collection system is proposed to connect to the existing thirty-six (36) inch gravity wastewater line located northwest of the new boat storage buildings.

Long-term Plan

Proposed wastewater improvements for the long range campus build out include eight (8) inch gravity wastewater collection systems consisting of pipes and manholes located at the north, central, and south sides of the Momentum Campus east area. The new wastewater collection systems are proposed to connect to the existing forty-eight (48) inch wastewater line located along Nile Drive at two (2) locations.
Electrical

Island Campus

Near-term Plan
Overall, there is spare capacity on the campus electrical distribution system. For the near-term additions there are 377,262 square feet of proposed academic building space and 98,480 square feet of proposed housing space. This results in an estimated 2.2 MVA of added load to the system. The electric utility company (AEP) has stated that an upgrade to the existing electrical distribution is in design. No information on this upgrade has been received at this point.

Long-term Plan
The long-term load is estimated at 16.8 MVA to be added to the system. With the existing load and the added near-term load, the net load to the campus is estimated at 25 MVA. Prior to the completion of the long-term build out, each campus feeders will need to be upgraded to carry this estimated load.

Emergency Service
Emergency service will be provided by diesel fired generators to future buildings. It was not reported how emergency egress is addressed in buildings without generators. Future buildings three stories and higher will require a fire pump. This will affect the size of the emergency generator.
Momentum Campus

Near-term Plan

The proposed electric utility corridors for the near-term run along the north and west sides of the Momentum Campus west area. The corridor along the north side runs from the existing primary line along Nile Drive westward to the baseball/softball fields. The corridor along the west side runs from the west side of the track and field facility to the new boat storage buildings.

Long-term Plan

The proposed electric utility corridors for the long range campus build out include corridors located at the north, central, and south sides of the Momentum Campus east area. The majority of the proposed electric utility corridors follow along proposed roadways and they run westward to the existing primary line along Nile Drive.
Natural Gas

Island Campus

Future Buildings

Table 2 shows estimated natural gas demand for existing buildings that will not be demolished and future buildings. The central plant future demand is based off of the heating load listed in the mechanical portion of this report. Estimated demands for future buildings were based on building function and building size. During the design process for each new building on campus, the design team will need to communicate the estimated gas demand of the new building with City of Corpus Christi. As the owner of the gas main, the city will be responsible for providing adequate gas capacity to the campus.
Momentum Campus

**Near-term Plan**

The proposed gas utility corridor for the near-term runs along the new east-west roadway located on the north side of the Momentum Campus west area. The corridor runs from the new boat storage buildings eastward to the existing gas line along Nile Drive.

**Long-term Plan**

The proposed gas utility corridors for the long range campus build out include corridors located at the north, central, and south sides of the Momentum Campus east area. The majority of the proposed gas utility corridors follow along proposed roadways and they run westward to the existing gas line along Nile Drive.
Data Connections

Island Campus

Near-term Plan
New data connections will need to be created for the new dining hall, Life Sciences Research Building and the Arts, Media & Communications Building. New data connections should be built along existing utility corridors, following electric, water, or gas lines, were feasible.

Long-term Plan
Most of the planned long-term buildings already existing along a data utility corridor. However, where existing data lines do not exist, new lines will need to be create to create a redundant, comprehensive network.
Momentum Campus

**Near-term Plan**

The proposed data/communications utility corridors for the near-term run along the north, east and west sides of the Momentum Campus west area. The corridor along the north side runs from Nile Drive westward to the baseball/softball fields. The corridor along the east side runs from the new east-west drive southward to the existing facilities along Nile Drive. The corridor along the west side runs from the west side of the track and field facility to the new boat storage buildings.

**Long-term Plan**

The proposed data/communications utility corridors for the long range campus build out include corridors located at the north, central, and south sides of the Momentum Campus east area. The majority of the proposed data/communications utility corridors follow along proposed roadways and they run westward to the existing facilities along Nile Drive.
Appendix C
INFRASTRUCTURE PLAN

Mechanical

Mechanical System – Central Plant Capacity

Analyses of the TAMU-CC Island Campus and Momentum Campus thermal capacities and distribution systems were performed for two phases of campus expansion, the near-term which includes future development for the next 5 years and Full Build-out which includes all campus growth for the foreseeable future (2025 and beyond). The near-term expansion is minimal in terms of thermal demands; however, the Full-build out will require upgrades to the current central plant thermal equipment in order to meet the increased campus demands during this phase. It is also recommended that during this phase, additional distribution piping be added to the campus to create a series of chilled water and hot water “loops” in order to increase the hydraulic performance of the distribution system.

Island Campus

Near-term Plan

The new buildings estimated for the near-term and Full Build-out phases of campus expansion are separated by use into five main categories: Housing, Mixed Use, Academic, Arts, and Research/Lab. Based on the function of each building and engineering experience the square feet/Ton (cooling) and BTU/square foot (heating) values listed in Table 2 were used to estimate the future design or maximum loads of each new building. A 60% diversity is then applied to each building to determine the peak demand on the central plant. The current housing on campus is not served by the central chilled water loop. It is recommended that future housing follows this same theory and utilizes local DX equipment instead.

Using the data in Table 2 it is determined that the peak demand on the plant after all near-term buildings are integrated into the campus is 3733 tons of cooling and 18,590 MBH of heating. The cooling and heating demand on the central plant in this phase of campus expansion can be met with the plant’s existing firm cooling capacity of 4500 tons; however, it is recommended that a new 9900 boiler similar to the existing 3-module boiler be added in order to increase the plant’s firm heating capacity to 19,800 MBH and meet the heating demands of the campus.

Long-term Plan

The buildings proposed during the Final Build-out phase, if implemented, will increase the campus central cooling and heating demand from 3733 tons and 18,590 MBH to 9901 tons and 55,295 MBH, respectively. The large increase in heating demand can be attributed to the types of buildings which come online during this phase of expansion. While the moderate Corpus Christi climate allows for minimal space heating in the winter, many buildings such as research facilities, labs, and academic buildings with lecture halls on campus will require a considerable amount of re-heat throughout the year. These buildings are air-change driven which means, per code, a certain amount of pre-treated outside air must be provided to the buildings. Re-heat, then, occurs when the necessary amount of pre-treated outside air decreases the space temperature below the space temperature set point and thus must be reheated to maintain the space temperature. Table 3 gives the thermal demands of each proposed building at the time of peak-plant demand. Because the campus thermal demand after the Final Build-out is larger than the plant’s current firm capacity it is recommended to expand the central plant at the beginning of this phase of campus expansion. Suggested central plant upgrades to each thermal system are as follows:

Cooling Capacity - Add four 1500 ton chillers, cooling towers, and all associated equipment to the central plant for a total firm capacity of approximately 10,500 tons. Since a sixth chiller was previously anticipated in the 2009 Central Plant Expansion, and space allocated for this equipment, the Final Build-out will require space for three additional chillers and cooling towers. It is not recommended to increase the capacity by replacing the existing 1000 ton chillers because of concerns with the capacity of the associated cooling towers. While increasing plant capacity is relatively easy from an equipment upgrade standpoint, increasing the capacity of the cooling towers is difficult given the volume constraints of the concrete cells.

Heating Capacity - At the beginning of the Final Build-out phase it is recommended to add 36,500 MBH of modular boiler capacity to increase the firm heating capacity of the central plant from 19,800 MBH to 56,300 MBH; however, before any plant expansion occurs it is necessary to meter the heating water trend of the existing buildings in order to calculate the anticipated peak load on the central plant. The diversity of 40% used in this analysis may be conservative and metering data at time of expansion will provide a more accurate campus heating water diversity at the central plant.
Option 1
Build two complete loops on the east and west sides of the existing campus loop, each of which will be tied into the existing loop. Adequate distribution to all buildings can be accomplished with a differential pressure (between the supply and return piping) at the plant of about 15-20 psi. The Pipe-Flo model for this scenario indicates a differential pressure of 17 psi at the plant; however, this model does not take into account every source of pressure loss (elbows, pipe transitions, etc.) which may appear in the piping distribution system once the build-out is complete. This option is recommended.

Option 2
Delete the northern most portion of the new loop so to avoid connecting to the existing lines on the west side. With this option adequate distribution to all buildings can be accomplished with a differential pressure of approximately 15-20 psi.

Option 3
Delete a portion of the east loop. This option can be implemented for material cost savings on distribution piping; however, compared to option 1, this option will increase the necessary differential pressure at the plant by 5 psi.
**Momentum Campus Mechanical**

**Near-term Plan**
Currently, there are no thermal utilities located on the Momentum Campus. The existing buildings which do need thermal utilities are served with local heating and cooling equipment. The expansion of this campus in the near future is minimal from a thermal standpoint and does not warrant the addition of a central plant at this phase. Therefore, heating and cooling should be provided with standalone equipment at the buildings.

**Long-term Plan**
A central plant may be beneficial once the thermal utility demand becomes large enough. If the master plan utilizes the campus for research or heavy-use buildings (e.g. a convocation center or hotel/conference center), a new central plant becomes a viable option once approximately 150,000 sqft to 200,000 sqft of these specific building types are planned for implementation on the campus.
Effluent Water System

Momentum Campus

On the west side of the Momentum Campus, the future baseball field, future softball field, and area west of the existing track are proposed to be irrigated with effluent reuse water, along with three existing intramural fields. Within the past year, the City of Corpus Christi installed a sixteen (16) inch PVC effluent reuse water line that begins at the northeast area of the existing wastewater treatment plant, and runs south along the west side of Nile Drive past the southern limits of the campus.

Based on irrigating green areas with one (1) inch of water per week, the following quantities of irrigation water were calculated for each area of the campus:

1. Existing Sports Complex (west side of campus) - 55,134 gallons (7,388 cubic feet)
2. Future Sports Complex (west side of campus) - 123,693 gallons (16,575 cubic feet)
3. Existing Intramural Fields (east side of campus) - 179,674 gallons (24,076 cubic feet)

An approximately 50,000 cubic-foot holding pond is proposed to store effluent reuse water that will be used to irrigate the areas listed above. The pond’s proposed location is southeast of the future boat storage buildings on the west side of the campus. An eight (8) inch effluent reuse water line is proposed to connect to the existing sixteen (16) inch line along the west side of Nile Drive.

Appendix C
INFRASTRUCTURE PLAN
### MEP ENGINEERING REPORT

**Island Campus - Thermal**

Currently, the campus buildings are served by chilled water and heating water piping which runs from the central plant to a thermal distribution loop concentrated around the center portion of the campus. The existing piping is adequately sized to distribute enough thermal utilities to meet the needs of the existing buildings; however, the distribution from the central plant must be re-assessed for each project phase. As buildings are added to the campus thermal loop, the hydraulic performance of the distribution system changes. An adequate differential pressure between the supply and return water lines must be maintained in order for proper flow to occur. Some things which affect this overall distribution are the size of the lines, the flow required, and the distance from the central plant in which these lines must run. Pipe-Flo, a hydraulic modeling software program, was used to assess the capacity of the current thermal distribution piping and make recommendations for future distribution piping expansions. An example of the Pipe-Flo model for the Final Build-out phase can be found in Appendix A.

### Near-term Plan

The buildings proposed to be added in the near-term phase of campus expansion are expected to increase the central plant peak cooling demand from 2873 tons to 3733 tons. If a 12°F temperature difference is available near the center portion of the campus, the central plant must be capable of supplying the additional chilled water demand of 897 tons. The existing cooling capacity of the central plant is 2873 tons and can be increased to 3733 tons by adding a new cooling loop around the existing campus. The new chilled water demand is expected to increase the central plant peak heating demand from 14,412 MBH to 15,290 MBH. The increase in campus heating demand from 7465 gpm to 8970 gpm may be accomplished with a differential pressure of approximately 15-20 psi. The Pipe-Flo model for this scenario indicates a differential pressure of 17 psi at the plant; however, this model does not take into account every source of pressure loss (elbows, pipe transitions, etc.) which may appear in the piping distribution system once the build-out is complete. This option is recommended.

### Option 1

Build two complete loops on the east and west sides of the existing campus loop, each of which will be tied into the existing loop. Adequate distribution to all buildings can be accomplished with a differential pressure (between the supply and return piping) at the plant of about 15-20 psi. The Pipe-Flo model for this scenario indicates a differential pressure of 17 psi at the plant; however, this model does not take into account every source of pressure loss (elbows, pipe transitions, etc.) which may appear in the piping distribution system once the build-out is complete. This option is recommended.

### Option 2

Delete the northern most portion of the new loop so as to avoid connecting to the existing lines on the west side. With this option adequate distribution to all buildings can be accomplished with a differential pressure of approximately 15-20 psi.

### Table 4

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<tr>
<th>Phase</th>
<th>Buildings</th>
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<th>Cumulative Campus CHW Tons</th>
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<th>HW (gpm)</th>
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**MECHANICAL ESTIMATED FUTURE DEMAND**

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**Option 3**

Delete a portion of the east loop. This option can be implemented for material cost savings on distribution piping; however, compared to option 1, this option will increase the necessary differential pressure at the plant by 5 psi.

**Momentum Campus**

**Near-term Plan**

Currently, there are no thermal utilities located on the Momentum Campus. The existing buildings which do need thermal utilities are served with local heating and cooling equipment. The expansion of this campus in the near future is minimal from a thermal standpoint and does not warrant the addition of a central plant at this phase. Therefore, heating and cooling should be provided with standalone equipment at the buildings.

**Long-term Plan**

The last phase of development adds a number of office and residential-type buildings to the Momentum Campus. Table 5 gives the estimated cooling demand of the proposed office buildings and convocation center. As noted before, the residential-type buildings will be served by local heating and cooling equipment. Because of the moderate thermal load of the proposed buildings and the benefits of a central plant, a chilled water only central plant is recommended to be built at the beginning of this phase.

The heating load for the type of buildings proposed in this phase will be minimal and it is recommended that local gas or electric heat be implemented at each building. Appendix F shows a proposed central plant location and main chilled water piping distribution for this campus. Some advantages of a central include, lower first cost for buildings, lower maintenance at each building and greater reliability. The lifetime of centralized water-cooled equipment located at a plant is about twice that of localized air-cooled equipment at each building. Because of the coastal conditions (salt, specifically) life of equipment exterior to buildings is even shorter.
### MEP ENGINEERING REPORT

#### ESTIMATED DESIGN LOADS

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**NATURAL GAS ESTIMATED FUTURE DEMAND - ISLAND CAMPUS**

**Appendix E**
Existing Gas Line

Island Campus Natural Gas

Appendix E
NATURAL GAS FUTURE DEMAND - ISLAND CAMPUS
Appendix F
LANDSCAPE GUIDE

Zone 1 - Oak Motte
This area should be located at the center of the campus and be predominately Oak species and Sabal Palms. Zone 1 areas fall at the inner sections of the island, with less public edges of the campus. This area is comprised of the campus’s spine and the landscape aesthetic should be regularly maintained, its intimate gathering spaces or “third” places framed and shaded by canopy trees and specimen pine trees. Lawn in these areas can be a mixture of Bermuda and Buffalo grass and will be mowed and irrigated regularly. Plantings will be a balanced mix of deciduous and evergreen groundcovers, perennials, shrubs, and ornamental trees.

Zone 2 - The Woodlands
Tree species in this area should include those typically found at river bottomlands such as Pecans, Elms and Coastal Live Oaks. The predominance of deciduous trees with textured foliage and bark will help mark the changing cool and hot seasons in the area for future student housing. Zone 2 occurs in the areas of higher visibility or “front door” areas of campus. Lawn in these areas can be a mixture of Buffalo grass and Bermuda grass and will be mowed and irrigated regularly. Annual plantings should be changed seasonally at front door locations for dramatic color statements. Plantings will also include a combination of deciduous and evergreen groundcovers, perennials, shrubs, ornamental trees and canopy trees.

Zone 3 - Grass Prairie
This zone will extend around the perimeter and within surface parking. Zone 3 areas tie the more highly maintained landscapes of Zones 1 and 2 with the lower-maintenance Salt Grass Marsh Zone. These areas will be centered on student life facilities such as the future hike/bike path loop and users closeness to the water edge. Lawn areas will be predominately Bermuda grass, which requires less irrigation. Planting beds will contain a mix of ornamental grasses and evergreen groundcovers, perennials, shrubs, ornamental trees and canopy trees, with much more evergreen to balance deciduous grass plantings. In this area, all plants other than grasses should be selected for their lower maintenance than those in Zone 1 and 2 areas. Grasses nearness to the coast will provide a unique sensory experience through grass texture and its movement in the wind.
Zone 4 - Salt Grass Marsh
This zone will help re-establish salt grass marshes and wetlands as recommended in 2007 plan. These which are on the north end of campus, do not require manicured lawns or lush planting beds. Where applicable, grass can be replaced with decomposed granite as a walking surface or landscape mulch. No planting beds will occur in this zone as all plantings are dedicated to restoring natural habitat and attracting wildlife. In the Zone 4 areas, plants should be selected that are salt tolerance and will be planned such that they require very little time, effort or irrigation.

Zone 5 - Sabal Palm Bosque
This area requires preserving the Sabal Palm Bosque located in a formal row as these are part of the existing cultural landscape of the campus. Annual plantings will be changed seasonally at front door locations for dramatic color statements. Special specimen plantings are acceptable in this zone which will require regular care, time, effort and irrigation.

Zone 6 - Blooms and Foliage
This area calls for special plant species that produce bright blooms and lush foliage. This Zone also requires regular care, time, effort and irrigation. This Zone is a high priority area because it is an overlay of the main spine, cross spines, major plazas/courtyards, new buildings and pedestrian corridors located at the core of the island. Additionally, the planting palette along the pedestrian network serves as an educational component as it is inspired by the naturally occurring Gulf Coast Prairies and Marshes eco-region from coast to inland.
**Appendix F**

**LANDSCAPE GUIDE**

**Texas Red Oak / Quercus buckleyi**
- Deciduous
- Exposure: Sun
- Flower: N/A
- Minimum Planting Size: 3” caliper
- Uses: Zone 1

**Bur Oak / Quercus macrocarpa**
- Deciduous
- Exposure: Sun
- Flower: N/A
- Minimum Planting Size: 3” caliper
- Uses: Zone 1

**Australian Pine / Casuarina cunninghamiana**
- Evergreen
- Exposure: Sun/Part Shade
- Flower: N/A
- Minimum Planting Size: 3” caliper
- Uses: Zone 1

**Aleppo Pine / Pinus halepensis**
- Evergreen
- Exposure: Full Sun
- Flower: N/A
- Minimum Planting Size: 3” caliper
- Uses: Zone 1

**Live Oak / Quercus virginiana**
- Evergreen
- Exposure: Sun
- Flower: Yellow
- Minimum Planting Size: 3” caliper
- Uses: Zone 1

**Pecan / Carya illinoinensis**
- Deciduous
- Exposure: Sun/Shade
- Flower: N/A
- Minimum Planting Size: 3” caliper
- Uses: Zone 2
Mexican Sycamore / Platnus mexicanus
Deciduous
Exposure: Sun
Flower: N/A
Minimum Planting Size: 3” caliper
Uses: Zone 2

Lacebark Elm/ Ulmus parviflora
Deciduous
Exposure: Full Sun
Flower: Green
Minimum Planting Size: 3” caliper
Uses: Zone 2

Cedar Elm / Ulmus crassifolia
Deciduous
Exposure: Sun/part shade
Flower: Green
Minimum Planting Size: 3” caliper
Uses: Zone 2

Ebano/ Pithecellobium flexicaule
Semi-evergreen
Exposure: Sun
Flower: Cream or Yellow
Minimum Planting Size: 3” caliper
Uses: Zone 3

Anaqua/ Ehretia anacua
Evergreen
Exposure: Full Sun
Flower: Yellow
Minimum Planting Size: 3” caliper
Uses: Zone 3

Thornless Mesquite / Prosopis chilensis
Evergreen
Exposure: Full Sun
Flower: Green
Minimum Planting Size: 3” caliper
Uses: Zone 3

Aleppo Pine / Pinus halepensis
Evergreen
Exposure: Full Sun
Flower: N/A
Minimum Planting Size: 3” caliper
Uses: Zone 1

Live Oak / Quercus virginiana
Evergreen
Exposure: Sun
Flower: Yellow
Minimum Planting Size: 3” caliper
Uses: Zone 1

Pecan / Carya illinoinensis
Deciduous
Exposure: Sun/Shade
Flower: N/A
Minimum Planting Size: 3” caliper
Uses: Zone 2
Appendix F
LANDSCAPE GUIDE

Texas Honey Mesquite / Prosopis glandulosa
Deciduous
Exposure: Full Sun
Flower: 3" long
Minimum Planting Size: 3” caliper
Uses: Zone 3

Tiny-Capsule Eucalyptus / Eucalyptus microtheca
Evergreen
Exposure: Full Sun
Flower: Pale Yellow, White
Minimum Planting Size: 3” caliper
Uses: Zone 3

Texas Sabal Palm / Sabal texana
Evergreen
Exposure: Sun/Part Shade
Flower: Small White Flower
Minimum Planting Size: 10' Ht.
Uses: Zone 1, 5

Canary Island Date Palm / Phoenix canariensis
Evergreen
Exposure: Full Sun
Flower: Small White/Cream/Gray
Minimum Planting Size: 10’ Ht.
Uses: Zone 5

Date Palm / Phoenix dactylifera
Evergreen
Exposure: Full Sun
Flower: N/A
Minimum Planting Size: 10’ Ht.
Uses: Zone 5

Queen Palm / Arecastrum Romanzoffianum
Evergreen
Exposure: Full Sun
Flower: Green
Minimum Planting Size: 10’ Ht.
Uses: Zone 5
Rhapis Palm / Rhapis excels
Evergreen
Exposure: Part Sun/Shade
Flower: Green
Minimum Planting Size: 7' Ht.
Uses: Zone 5

Windmill Palm / Trachycarpus fortunei
Evergreen
Exposure: Part Shade
Flower: Yellow
Minimum Planting Size: 10' Ht.
Uses: Zone 5

Chinese Fan Palm / Livingstonia chinensis
Evergreen
Exposure: Full Sun
Flower: Green
Minimum Planting Size: 10' Ht.
Uses: Zone 5

Florida Sabal Palm / Sabal palmetto
Evergreen
Exposure: Sun/Part Shade
Flower: White/Cream/Gray
Minimum Planting Size: 10' Ht.
Uses: Zone 5

Pygmy Date Palm / Phoenix roebellinii
Evergreen
Exposure: Sun/Part Shade
Flower: Yellow
Minimum Planting Size: 10' Ht.
Uses: Zone 5

Mediterranean Fan Palm / Chamaerops humilis
Evergreen
Exposure: Sun/Part Shade
Flower: Yellow
Minimum Planting Size: 10' Ht.
Uses: Zone 5

Canary Island Date Palm / Phoenix canariensis
Evergreen
Exposure: Full Sun
Flower: Small White/Cream/Gray
Minimum Planting Size: 10' Ht.
Uses: Zone 5

Date Palm / Phoenix dactylifera
Evergreen
Exposure: Full Sun
Flower: N/A
Minimum Planting Size: 10' Ht.
Uses: Zone 5

Queen Palm / Arecastrium Romanzoffianum
Evergreen
Exposure: Full Sun
Flower: Green
Minimum Planting Size: 10' Ht.
Uses: Zone 5
Appendix F
LANDSCAPE GUIDE

Mexican Fan Palm / Washingtonia robusta
Evergreen
Exposure: Sun/Part Shade
Flower: White
Minimum Planting Size: 10' Ht.
Uses: Zone 5

California Fan Palm / Washingtonia filifera
Evergreen
Exposure: Sun/Part Shade
Flower: White and Yellow
Minimum Planting Size: 12' Ht.
Uses: Zone 5

Pindo Palm / Butia capitata
Evergreen
Exposure: Sun/Part Shade
Flower: White
Minimum Planting Size: 10' Ht.
Uses: Zone 5
Red Bud / *Cercis canadensis var. texensis*
- **Deciduous**
- **Exposure:** Sun/Part Shade
- **Flower:** Pink to Magenta
- **Minimum Planting Size:** 10' Ht.
- **Uses:** Zone 1

Littleleaf Palo Verde / *Parkinsonia microphylla*
- **Deciduous**
- **Exposure:** Sun/Part Shade
- **Flower:** Yellow
- **Minimum Planting Size:** 10' Ht.
- **Uses:** Zone 1

Mexican Plum / *Prunus mexicana*
- **Deciduous**
- **Exposure:** Sun/Part Shade
- **Flower:** White
- **Minimum Planting Size:** 10' Ht.
- **Uses:** Zone 1

Sweet Bay Magnolia / *Magnolia virginiana*
- **Semi-evergreen**
- **Exposure:** Sun/Part Shade
- **Flower:** White
- **Minimum Planting Size:** 10' Ht.
- **Uses:** Zone 2

Crape Myrtle / *Lagerstroemia indica*
- **Deciduous**
- **Exposure:** Sun
- **Flower:** Pink, Red, White, Purple
- **Minimum Planting Size:** 10' Ht.
- **Uses:** Zone 2

Desert Willow / *Chilopsis linearis*
- **Deciduous**
- **Exposure:** Sun/Part Shade
- **Flower:** Pink, Lavender
- **Minimum Planting Size:** 10' Ht.
- **Uses:** Zone 3, 4
Texas Mountain Laurel / Sophora secundiflora
Evergreen
Exposure: Sun/Part Shade
Flower: Purple
Minimum Planting Size: 10’ Ht.
Uses: Zones 2, 3

Mexican Olive / Cordia boissieri
Evergreen
Exposure: Sun/Part Shade
Flower: White
Minimum Planting Size: 10’ Ht.
Uses: Zones 3

Evergreen Pear / Pyrus kawakamii
Evergreen
Exposure: Full Sun
Flower: White
Minimum Planting Size: 10’ Ht.
Uses: Zone 3

Wild Persimmon / Diospyros texana
Deciduous/ Semi-evergreen
Exposure: Sun
Flower: Green-white
Minimum Planting Size: 10’ Ht.
Uses: Zone 4

Vitex / Vitex agnus-castus
Deciduous
Exposure: Full/Part Sun
Flower: Purple
Minimum Planting Size: 8’ Ht.
Uses: Zone 4

Dwarf Orchid Tree/ Bauhinia congesta
Evergreen
Exposure: Full Sun
Flower: Pale Pink
Minimum Planting Size: 8’ Ht.
Uses: Zones 6
Manfreda/ Manfreda Variegata
Evergreen
Exposure: Sun/Part Shade
Flower: Orange-yellow
Minimum Planting Size: 18” Ht; 24” min spread
Uses: Zone 1

Primrose Jasmine/ Jasminum mesnyi
Evergreen
Exposure: Full Sun
Flower: Yellow
Minimum Planting Size: 36” ht.; 36” sprd.
Uses: Zone 1

Firebush/ Hamelia patens
Evergreen
Exposure: Full sun, Partial Sun/Shade
Flower: Yellow
Minimum Planting Size: 12” ht.; 18” sprd.
Uses: Zone 1

Barbados Cherry/ Malpighia glabra
Evergreen
Exposure: Sun/Partial Sun
Flower: Pink
Minimum Planting Size: 18” ht. 18” sprd.
Uses: Zone 1

Firecracker Plant/ Russelia equisetiformis
Evergreen
Exposure: Sun/Light Shade
Flower: Red
Minimum Planting Size: 2-3’ ht.; 2-3’ sprd.
Uses: Zone 1

Yucca/ Yucca spp.
Evergreen
Exposure: Sun/Light Shade
Flower: White
Minimum Planting Size: 18” Ht; 18” min spread
Uses: Zone 1

Wild Persimmon / Diospyros texana
Deciduous/ Semi-evergreen
Exposure: Sun
Flower: Green-white
Minimum Planting Size: 10’ Ht.
Uses: Zone 4

Vitex / Vitex agnus-castus
Deciduous
Exposure: Full/Part Sun
Flower: Purple
Minimum Planting Size: 8’ Ht.
Uses: Zone 4

Dwarf Orchid Tree/ Bauhinia congesta
Evergreen
Exposure: Full Sun
Flower: Pale Pink
Minimum Planting Size: 8’ Ht.
Uses: Zones 6
American Beautyberry / Callicarpa Americana
Deciduous
Exposure: Light Shade
Flower: Lilac, Pink, White
Minimum Planting Size: 24” ht.; 24” sprd.
Uses: Zone 1

Esperanza / Tecoma Stans
Evergreen
Exposure: Full Sun
Flower: Yellow
Minimum Planting Size: 24” ht.; 24” sprd.
Uses: Zone 1,2

Natal Plum / Carissa macrocarpa
Evergreen
Exposure: Full Sun
Flower: White
Minimum Planting Size: 12” Ht; 12” spread
Uses: Zone 2,4

Viburnum / Viburnum acerifolium
Deciduous
Exposure: Partial Sun/ Shade
Flower: White
Minimum Planting Size: 18” ht.; 24” sprd.
Uses: Zones 2

Holly Fern / Cyrtomium falcatum
Evergreen
Exposure: Full /Partial Shade
Flower: N/A
Minimum Planting Size: 1 Gal 12” Ht; 12” min spread
Uses: Zone 2

Coppertone Loquat / Eriobotrya japonica ‘Coppertone’
Evergreen
Exposure: Full Sun, Partial Sun/Shade
Flower: Pale Pink
Minimum Planting Size: 24” ht.; 24” sprd.
Uses: Zone 2
Sotol/ Dasylirion texanum
Evergreen
Exposure: Sun / Partial Sun
Flower: White
Minimum Planting Size: 18” ht.; 24” sprd.
Uses: Zone 2

Shrimp Plant/Justicia brandegeana
Evergreen
Exposure: Partial/ Full Shade
Flower: White
Minimum Planting Size: 24” Ht; 24” spread
Uses: Zone 2, 3

Indian Hawthorne ‘Clara’ / Raphiolepis indica ‘Clara’
Evergreen
Exposure: Sun/Part Shade
Flower: White
Minimum Planting Size: 18” Ht; 18” spread
Uses: Zone 2

Dwarf Burford Holly / Ilex cornuta ‘Burfordii Nana’
Evergreen
Exposure: Sun/Part Shade
Flower: White
Minimum Planting Size: 18” Ht; 18” min spread
Uses: Zone 1, 2

Scarlet Sage / Salvia Coccinea
Deciduous
Exposure: Sun/ Shade
Flower: Red
Minimum Planting Size: 18” Ht; 18” min spread
Uses: Zone 2, 4

Dwarf Yaupon / Ilex vomitoria ‘Nana’
Evergreen
Exposure: Sun/Part Shade
Flower: N/A
Minimum Planting Size: 24” Ht; 24” min spread
Uses: Zone 2
**Appendix F**

**LANDSCAPE GUIDE**

- **Rosemary / Rosmarinus officinalis**
  
  *Evergreen*
  
  *Exposure: Sun/Light Shade*
  
  *Flower: Red, Blue, Purple, White*
  
  *Minimum Planting Size: 18” ht; 18” min spread*
  
  *Uses: Zone 2*

- **Green Variegated Pittosporum / Pittosporum tobira**
  
  *Evergreen*
  
  *Exposure: Sun/shade*
  
  *Flower: White*
  
  *Minimum Planting Size: 6’ ht.; 4’ sprd.*
  
  *Uses: Zone 1, 2*

- **Elaeagnus / Elaeagnus pungens**
  
  *Evergreen*
  
  *Exposure: Sun/Part Shade*
  
  *Flower: Cream*
  
  *Minimum Planting Size: 24” ht.; 24” spread*
  
  *Uses: Zone 3*

- **Silverberry/ Elaeagnus commutata**
  
  *Evergreen*
  
  *Exposure: Full Sun*
  
  *Flower: White*
  
  *Minimum Planting Size: 24” ht.; 24” sprd.*
  
  *Uses: Zone 3*

- **Mexican Honeysuckle/ Justicia spicigera**
  
  *Evergreen*
  
  *Exposure: Sun/Part Shade*
  
  *Flower: Orange*
  
  *Minimum Planting Size: 18” ht.; 24” sprd.*
  
  *Uses: Zone 2, 3*

- **Aloe Vera/ Aloe Vera**
  
  *Evergreen*
  
  *Exposure: Full Sun/Part Shade*
  
  *Flower: Yellow*
  
  *Minimum Planting Size: 18” ht.; 18” min spread*
  
  *Uses: Zone 1, 3*
Bluestem Joint Fir / Ephedra equisetina  
Evergreen  
Exposure: Sun/Part Shade  
Flower: N/A  
Minimum Planting Size: 18" Ht.; 18" spread  
Uses: Zone 3, 4

Century Plant / Agave Americana  
Evergreen  
Exposure: Sun/Light Shade  
Flower: Bright Yellow  
Minimum Planting Size: 18" Ht.; 18" min spread  
Uses: Zone 3

Texas Sotol / Dasylirion texanum  
Evergreen  
Exposure: Sun/Part Shade  
Flower: White  
Minimum Planting Size: 12" ht.; 18" sprd.  
Uses: Zone 3

Prickly Pear / Opuntia spp.  
Evergreen  
Exposure: Sun/Light Shade  
Flower: Orange; red; Purple; White  
Minimum Planting Size: 18" Ht.; 18" min spread  
Uses: Zone 3

Silver Texas Sage / Leucophyllum frutescens 'Silver Cloud'  
Evergreen  
Exposure: Full Sun  
Flower: Purple Pink  
Minimum Planting Size: 24" Ht.; 24" sprd.  
Uses: Zone 3

Waxleaf Ligustrum / Ligustrum japonica  
Evergreen  
Exposure: Sun/Shade  
Flower: White  
Minimum Planting Size: 24" Ht.; 24" sprd.  
Uses: Zone 3
**Appendix F**

**LANDSCAPE GUIDE**

**Shiny Xylosma / Xylosma congestum**
- Evergreen
- Exposure: Sun/Shade
- Flower: N/A
- Minimum Planting Size: 6' ht.; 4' sprd.
- Uses: Zone 3

**Gulf Coast Penstemon / Penstemon tenuis**
- Evergreen
- Exposure: Sun/Part Shade
- Flower: Pink Purple
- Minimum Planting Size: 12" ht.; 12" sprd.
- Uses: Zone 4

**Mexican Bush Sage / Salvia leucantha**
- Semi-evergreen
- Exposure: Full Sun
- Flower: Purple
- Minimum Planting Size: 24" Ht.; 24" sprd.
- Uses: Zone 3, 4

**Heartleaf Ice Plant / Aptenia cordifolia ‘Red Apple’**
- Evergreen
- Exposure: Part/ Full Sun
- Flower: Red
- Minimum Planting Size: 1 Gal 12" Ht; 12" sprd.
- Uses: Zone 4

**Japanese Yew / Podocarpus macrophyllus**
- Evergreen
- Exposure: Sun/ Shade
- Flower: White
- Minimum Planting Size: 6' ht. 4' sprd.
- Uses: Zone 5

**Wax Myrtle / Myrica cerifera**
- Evergreen
- Exposure: Sun/Part Shade
- Flower: Cream
- Minimum Planting Size: 24" Ht; 24" min spread
- Uses: Zone 5
Firecracker Plant / Russelia equisetiformis
Semi-evergreen
Exposure: Sun/Partial Shade
Flower: Red
Minimum Planting Size: 24" Ht; 24" spread
Uses: Zone 5, 6

Bottlebrush / Callistemon citrinus 'Little John'
Evergreen
Exposure: Full Sun
Flower: Red
Minimum Planting Size: 24" Ht; 24" spread
Uses: Zone 3, 5

Cast Iron Plant / Aspidistra elatior
Evergreen
Exposure: Full shade
Flower: N/A
Minimum Planting Size: 18" Ht; 18" min spread
Uses: Zone 5

Copper Leaf Plant / Acalypha wilkesiana
Evergreen
Exposure: Full sun
Flower: Pink
Minimum Planting Size: 1 Gal 12" Ht; 12" min spread
Uses: Zone 5

Seagreen Juniper / Juniperus x pfitzeriana 'Sea Green'
Evergreen
Exposure: Sun/ Shade
Flower: N/A
Minimum Planting Size: 18" ht.; 24" sprd.
Uses: Zone 5

Hamelia / Hamelia patens
Evergreen
Exposure: Sun/Part Shade
Flower: Orange-red
Minimum Planting Size: 18" ht.; 18" sprd.
Uses: Zone 5
**Appendix F**

**LANDSCAPE GUIDE**

*Jatropha / Jatropha integerrima ‘Compacta’*
- Evergreen
- Exposure: Sun/Part Shade
- Flower: Red
- Minimum Planting Size: 6’ ht. 4’ sprd.
- Uses: Zone 5

*Plumbago / Plumbago auriculata*
- Evergreen
- Exposure: Sun/Shade
- Flower: Sky Blue
- Minimum Planting Size: 12” ht. 18” sprd.
- Uses: Zone 5

*Green Texas Sage / Leucophyllum frutescens ‘Green Cloud’*
- Evergreen
- Exposure: Full Sun
- Flower: Purple Pink
- Minimum Planting Size: 24” ht.; 24” sprd.
- Uses: Zone 3, 5

*Bougainvillea / Bougainvillea ‘Monas’*
- Evergreen
- Exposure: Full Sun
- Flower: Pink
- Minimum Planting Size: 18” Ht; 18” min spread
- Uses: Zone 6

*Texas Dwarf Palmetto / Sabal Minor*
- Evergreen
- Exposure: Sun/Shade
- Flower: White
- Minimum Planting Size: 24” Ht; 24” min spread
- Uses: Zone 6

*Sky Flower / Duranta erecta ‘Sapphire Showers’*
- Evergreen
- Exposure: Full Sun
- Flower: Purple
- Minimum Planting Size: 24” ht.; 24” sprd.
- Uses: Zone 3, 6
Bird of Paradise/ Strelitzia reginae
Evergreen
Exposure: Partial/ full sun
Flower: Orange
Minimum Planting Size: 18” ht.; 24” sprd.
Uses: Zone 6

Pride of Barbados/ Caesalpinia pulcherrima
Evergreen
Exposure: Full Sun
Flower: Orange/Yellow
Minimum Planting Size: 24” ht. 24” sprd.
Uses: Zone 6

Shell Ginger/ Alpinia zerumbet ‘Variegata’
Evergreen
Exposure: Part/ Full Sun
Flower: White
Minimum Planting Size: 24” ht.; 24” sprd.
Uses: Zone 6

Ixora/ Ixora coccinea
Evergreen
Exposure: Sun/Part Shade
Flower: Yellow, Red
Minimum Planting Size: 18” ht.; 24” sprd.
Uses: Zone 6

Crinum Lily/ Crinum Americanum
Semi-evergreen
Exposure: Sun/Part Shade
Flower: White
Minimum Planting Size: 12” ht. 12” sprd.
Uses: Zone 6

Cut-Leaf Philodendron/ Philodendron selloum
Evergreen
Exposure: Partial to Full Sun
Flower: White
Minimum Planting Size: 24” ht.; 24” sprd.
Uses: Zone 6
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Esperanza / Tecoma Stans ‘Orange Jubilee’
Evergreen
Exposure: Full Sun
Flower: Orange
Minimum Planting Size: 24” ht. 24” sprd.
Uses: Zone 5,6

Evergreen
Exposure: Full Sun
Flower: Varies
Minimum Planting Size: 24” ht.; 24” sprd.
Uses: Zone 5, 6
**Purple Fountain Grass / Pennisetum setaceum ‘Rubrum’**
Semi-evergreen  
Exposure: Full sun  
Flower: Red  
Minimum Planting Size: 8” Ht; 18” spread  
Uses: Zone 1

**Artemesia / Artemesia x ‘Powis Castle’**
Evergreen  
Exposure: Sun/ Shade  
Flower: Yellow  
Minimum Planting Size: 18” Ht.; 24” sprd.  
Uses: Zone 1

**Asparagus Fern / Asparagus densiflorus ‘Sprengeri’**
Evergreen  
Exposure: Part Sun/ Shade  
Flower: White  
Minimum Planting Size: 1 Gal 12” spread and ht.  
Uses: Zone 1, 3

**Dwarf Mexican Petunia / Ruellia brittoniana**
Deciduous  
Exposure: Full Sun/ Part Shade  
Flower: Purple  
Minimum Planting Size: 18” Ht; 18” min spread  
Uses: Zone 1

**Texas Lantana / Lantana urticoides**
Deciduous  
Exposure: Sun  
Flower: Yellow/Red  
Minimum Planting Size: 18” Ht; 18” min spread  
Uses: Zone 1

**English Ivy / Hedera helix**
Evergreen  
Exposure: Part Sun/Shade  
Flower: Yellow-green  
Minimum Planting Size: 1 Gal, 5’ leader  
Uses: Zone 1
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Trumpet Vine / Campsis Radicans
Deciduous
Exposure: Sun
Flower: Light Blue/White
Minimum Planting Size: 1 Gal 12” Ht; 12” spread
Uses: Zone 1

Evergreen Giant Liriope / Liriope Muscari ‘Evergreen Giant’
Evergreen
Exposure: Sun-Shade
Flower: Lilac, Purple
Minimum Planting Size: 1 Gal 12” Ht; 12” min spread
Uses: Zone 1

Foxtail Fern/ Asparagus densiflorus ‘Myers’
Evergreen
Exposure: Partial Sun
Flower: White
Minimum Planting Size: 18” Ht; 18” spread
Uses: Zone 2

Asian Jasmine / Trachospermum asiaticum
Evergreen
Exposure: Sun/Shade
Flower: White
Minimum Planting Size: 1 Gal
Uses: Zone 2

Mexican Turks Cap / Malvaviscus arboreus var. mexicanus
Evergreen
Exposure: Sun/Part Shade
Flower: Red
Minimum Planting Size: 1 Gal 12” Ht; 12” spread
Uses: Zone 2

Confederate Jasmine / Trachospermum jasminoides
Evergreen
Exposure: Sun/Shade
Flower: Orange, White
Minimum Planting Size: 1 Gal, 5’ leader
Uses: Zone 2
Virginia Creeper / *Parthenocissus quinquefolia*
Deciduous
Exposure: Sun/Shade
Flower: Light Blue/White
Minimum Planting Size: 1 Gal, 5' leader
Uses: Zone 2

Pampas Grass / *Cortaderia selloana*
Evergreen
Exposure: Sun/Light Shade
Flower: White
Minimum Planting Size: 18" Ht; 18" spread
Uses: Zone 3

Gulf Muhly / *Muhlenbergia capillaris*
Deciduous
Exposure: Sun
Flower: Magenta
Minimum Planting Size: 18" Ht; 18" spread
Uses: Zone 1, 3

Fountain Grass / *Pennisetum setaceum*
Semi-evergreen
Exposure: Sun
Flower: Pink Rose/Mauve
Minimum Planting Size: 18" Ht; 18" spread
Uses: Zone 2, 3

Lindheimer’s muhly / *Muhlenbergia lindheimeri*
Semi-evergreen
Exposure: Sun/part shade
Flower: White
Minimum Planting Size: 18" Ht; 18" spread
Uses: Zone 3

Purple Trailing Lantana / *Lantana Montevidensis*
Semi-evergreen
Exposure: Sun/Part Shade
Flower: Purple
Minimum Planting Size: 1 Gal 12" Ht; 12" spread
Uses: Zone 3

Asian Jasmine / *Tracheospermum asiaticum*
Evergreen
Exposure: Sun/Shade
Flower: White
Minimum Planting Size: 1 Gal
Uses: Zone 2

Mexican Turks Cap / *Malvaviscus arboreus var. mexicanus*
Evergreen
Exposure: Sun/Part Shade
Flower: Red
Minimum Planting Size: 1 Gal 12" Ht; 12" spread
Uses: Zone 2

Confederate Jasmine / *Tracheospermum jasminoides*
Evergreen
Exposure: Sun/Shade
Flower: Orange, White
Minimum Planting Size: 1 Gal, 5' leader
Uses: Zone 2
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Cape Honeysuckle / Tecomaria capensis
Evergreen
Exposure: Sun/Light Shade
Flower: Orange
Minimum Planting Size: 1 Gal, 5’ leader
Uses: Zone 3

Butterfly Vine / Mascagnia macroptera
Evergreen
Exposure: Part/Full Sun
Flower: Yellow
Minimum Planting Size: 1 Gal, 5’ leader
Uses: Zone 3

Dwarf Euryops / Euryops pectinatus ‘Munchkin’
Evergreen
Exposure: Full sun, partial sun/shade
Flower: Yellow
Minimum Planting Size: 12” ht, 18” sprd.
Uses: Zones 4

Sea Coast Blue Stem / Adropogon scoparius
Deciduous
Exposure: Sun/Part Shade
Flower: N/A
Minimum Planting Size: 1 Gal 12” Ht; 12” min spread
Uses: Zones 4

Salt Grass / Distichlis spicata
Semi-evergreen
Exposure: Sun
Flower: Bronze
Minimum Planting Size: 18” Ht; 18” spread
Uses: Zones 4

Miscanthus ‘Adagio’ / Gramineae
Semi-evergreen
Exposure: Sun
Flower: White, Pink
Minimum Planting Size: 18” Ht; 18” spread
Uses: Zones 2, 4
Giant Seaoats / Chasmanthium paniculata
Semi-evergreen
Exposure: Sun
Flower: White, Pink
Minimum Planting Size: 18” Ht; 18” spread
Uses: Zones 4

Breeze™ Dwarf Mat Rush / Lomandra longifolia
Evergreen
Exposure: Sun/Part Shade
Flower: Yellow
Minimum Planting Size: 18” Ht; 18” spread
Uses: Zones 4

Cape Rush / Chondropetalum tectorum
Evergreen
Exposure: Full Sun
Flower: Brown
Minimum Planting Size: 18” Ht; 18” spread
Uses: Zones 4

Frosty Curls Sedge / Carex albula
Evergreen
Exposure: Sun/Part Shade
Flower: Brown
Minimum Planting Size: 12” Ht; 18” spread
Uses: Zones 4

Dallas Blues Switch Grass / Panicum virgatum ‘Dallas Blues’
Evergreen
Exposure: Sun/Part Shade
Flower: Red
Minimum Planting Size: 18” Ht; 24” spread
Uses: Zones 4

Shoregrass / Monanthochloe littoralis
Evergreen
Exposure: Sun/Part Shade
Flower: N/A
Minimum Planting Size: 18” Ht; 24” spread
Uses: Zones 4
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Smooth Cordgrass/ Spartina alterniflora
Evergreen
Exposure: Sun/Part Shade
Flower: White
Minimum Planting Size: 18” Ht; 24” min spread
Uses: Zones 4

Coastal Prairie Mix (Native American Seed)
Exposure: Sun/Part Shade
Flower: White
Minimum Planting Size: Hydroseed
Uses: Zones 4

Prostrate Rosemary/ Rosmarinus officinalis ‘Prostratus’
Evergreen
Exposure: Full Sun
Flower: Lavender
Minimum Planting Size: 18” Ht; 18” spread
Uses: Zone 5

Purple Heart/ Setcreasea pallida
Herbaceous
Exposure: Partial / Full Sun
Flower: Pink
Minimum Planting Size: 12” Ht; 12” min spread
Uses: Zone 6

Scarlet Firethorn/ Pyracantha coccinea
Evergreen
Exposure: Full sun
Flower: White
Minimum Planting Size: 1 Gal, 5’ leader
Uses: Zone 6

Bermuda Grass / Cynodon dactylon
Deciduous, Grass Mix
Exposure: Sun
Flower: N/A
Planting Size: Sod/Seed
Uses: Zone 1,2,3,5