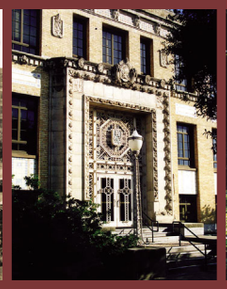
CAMPUS MASTER PLAN


TEXAS A&M UNIVERSITY

CAMPUS MASTER PLAN

TEXAS A&M UNIVERSITY

July, 2004

Campus Master Plan Steering Committee

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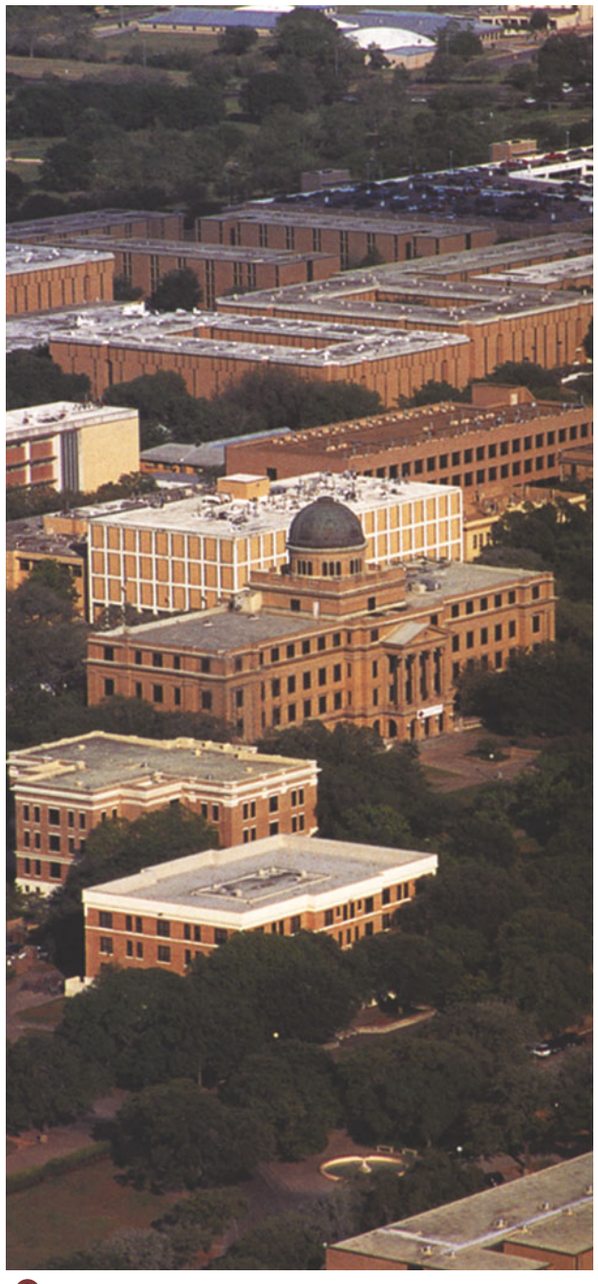

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LETTER FROM THE PRESIDENT

Dear Members of the Texas A&M Family,

A university's excellence is and always will be measured, first and foremost, by the quality of its programs, students and faculty. Its built environment – from buildings and other structures to the space that surrounds and contains them – must be their equal. The quality of Texas A&M University's facilities must reflect the quality of the people and programs they house.

Additionally, research indicates that the physical appearance of a campus can be a "make-or-break" factor for prospective students when selecting a college or university. Our culture of excellence requires an infrastructure of excellence.

Since its founding, Texas A&M has distinguished itself by producing great leaders, scholars and citizens for our world while extending the boundaries of knowledge and understanding through excellence in teaching, research and innovation. We now aspire to a higher level of excellence, with Vision 2020 our guide for achieving recognition among the nation's top 10 public universities by the end of the next decade.

For roughly the first half of Texas A&M's history, its campus and buildings were a visual representation of both the academic heritage it had inherited and the excellence to which it aspired – and subsequently achieved. But the rapid population growth of recent decades necessitated equally rapid expansion of facilities, usually without benefit of any logical, strategic or comprehensive plan for campus development.

Texas A&M has come a long way in 127 years, but the long-term sustainability of its distinctive culture and traditions, its spirit and its reputation for excellence depends, at least in part, upon a well-planned, high quality campus.

Developed by and for the Texas A&M community, this Campus Master Plan will guide the development of our campus for at least the next half century. It aims to give meaning to spaces and structures, to encourage and facilitate connectivity among people, places and programs; and to restore the aesthetic link between the heritage we inherit and the excellence to which we continually aspire.

Sincerely,

Robert M. Gates

President

FIGURE 1

Aerial view of the Academic Building. Photo reprinted from Texas A&M University: A Legacy of Tradition, courtesy of Nancy Glenn.

FIGURE 2

Dr. Robert M. Gates, President.

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FIGURE 1

Charles A. Sippial, Sr.,
Vice President for Administration

1

LETTER FROM THE VICE PRESIDENT

Greetings to the Campus Community:

As Texas A&M University was approaching its Sesquicentennial celebration in 2001, it became apparent that we were in need of a Campus Master Plan. Substantial growth in student body size over the past thirty to forty years required concurrent growth in facilities beyond anything previously envisioned. In 1962, there were 7,000 students attending Texas A&M, and our campus proper (omitting farms, etc.) consisted of 4,580,000 sf of building space. In recent years, the student population has held steady at approximately 45,000 students; today's campus includes 15,123,000 sf of buildings.

The future holds more growth. Vision 2020 calls for increasing the graduate student population, and President Gates has made a commitment to greatly increase the number of faculty over the next five years. In addition, the number of Texas high school graduates entering higher education will continue to increase. These factors dictate that the number of campus buildings must grow. Some new facilities will house incoming faculty; others are needed to house non-academic functions that will be displaced from the heart of campus to accommodate the new faculty.

Many of our campus buildings are maintenance-intensive, and our deferred maintenance is high. Some buildings that require considerable renovation have historical significance and the investment should be made. Others should eventually be demolished. Decisions need to be made regarding the distinction between the two.

During the past few decades, the siting of new buildings has resulted in unnecessary campus sprawl, thus increasing travel distance to classes and other activities—moving away from the pedestrian-friendly campus we desire. In addition, because architectural and landscape standards were limited, the exterior appearance of most new buildings is inconsistent and unattractive when compared with the older buildings on campus.

Our intent now is to build a university campus we will be proud of long into the future, a campus that reflects our vision, mission, and strategic plans. The urgency of the moment often causes us to want to deviate from our standards because it is expedient. We must strongly resist the tendency to site and design facilities to satisfy an immediate short-term requirement at the expense of the long-term quality of the campus. A campus is space and buildings, but it is the people who make a university great. The campus must support their efforts through its quality facilities and its pleasant and functional surroundings.

Thus, in May 2001, I appointed a Steering Committee to develop a new master plan. The purpose of the committee was to create a Statement of Work for a planning consultant firm, select the firm, and oversee the development of the plan. Hundreds of campus constituents have been involved in the design of this new plan, which we anticipate will serve us well for fifty years.

The document that follows includes a civic structure plan that defines outdoor spaces as well as building opportunities; a fifty-year demolition plan; architectural principles and guidelines; landscape principles and guidelines; and a process to ensure that future decisions regarding campus growth conform to this Campus Master Plan. Following this plan will ensure that the campus of Texas A&M will be attractive, supportive, user-friendly, and will enhance the quality of life for generations to come.

Sincerely,
Charles A. Sippial, Sr.
Vice President for Administration

UNIVERSITY MISSION

Texas A&M University is dedicated to the discovery, development, communication, and application of knowledge in a wide range of academic and professional fields. Its mission of providing the highest quality undergraduate and graduate programs is inseparable from its mission of developing new understandings through research and creativity. It prepares students to assume roles of leadership, responsibility, and service to society. Texas A&M assumes as its historic trust the maintenance of freedom of inquiry and an intellectual environment that nurtures the human mind and spirit. It welcomes and seeks to serve persons of all racial, ethnic, and geographic groups, women and men alike, as it addresses the needs of an increasingly diverse population and a global economy. In the twenty-first century, Texas A&M University seeks to assume a place of preeminence among public universities while respecting its history and traditions.

FIGURES 2 TO 5
Student life at Texas A&M

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4

RELATIONSHIP OF CAMPUS PLANNING TO STRATEGIC PLANNING

Campus planning and strategic planning express the aspirations of the University in concrete terms. They provide a vision for the institution, although one relates specifically to the quality of the built environment, and the other relates to the quality of the institution as a whole. Both seek to:

- ***establish goals for the University;***
- ***enhance the institution's stature; and***
- ***establish a basis and demonstrate a need for a capital campaign to support the campus plan and the strategic plan.***

These thoughts could be applied to either campus planning or strategic planning. The important distinction is that the intent of the campus plan is to support the strategic plan. While the goals listed above could apply to campus planning, they do so only in the sense that they are also goals of strategic planning. Practically speaking, the campus plan should be a representation of the strategic plan in its physical environment.

Texas A&M University has set forth its intent to be considered one of the top ten public universities in America through its strategic plan, Vision 2020. To attain its goals, the University will utilize not only the institutional strategic plan, and those of the individual colleges, but also an effective campus plan. Vision 2020 states twelve imperatives to aid Texas A&M in its quest to gain consideration as a top ten public university.

The Twelve Imperatives

1. ***Elevate our faculty and their teaching, research, and scholarship.***
2. ***Strengthen our graduate programs.***
3. ***Enhance the undergraduate academic experience.***
4. ***Build the letters, arts, and sciences core.***
5. ***Build on the tradition of professional education.***
6. ***Diversify and globalize the A&M community.***
7. ***Increase access to knowledge resources.***
8. ***Enrich our campus.***
9. ***Build community and metropolitan connections.***
10. ***Demand enlightened governance and leadership.***
11. ***Attain resource parity with the best public universities.***
12. ***Meet our commitment to Texas.***

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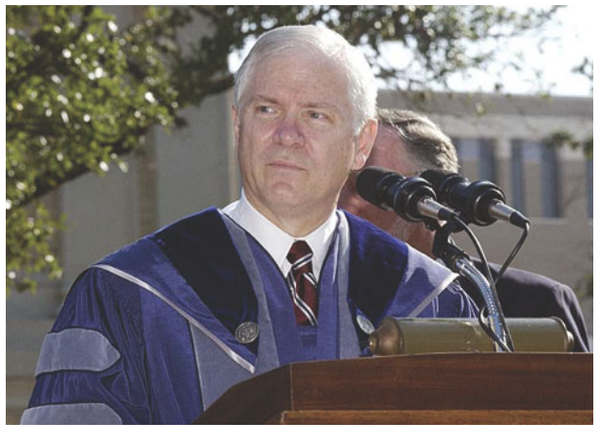
FIGURE 1
Former U.S. President George H.W. Bush and University President Robert Gates in the 2002 Academic Convocation Procession.



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Upon assuming the Office of the President in 2002, Dr. Robert Gates, in an effort to develop immediate progress toward the goals set forth in Vision 2020, distilled these imperatives down to **four broad goals**:

1. ***enhance our faculty;***
2. ***enhance the graduate/undergraduate experience;***
3. ***focus on diversity; and***
4. ***enhance the quality of our physical environment.***

Clearly, the Campus Master Plan most directly affects those goals that relate to the enhancement of the quality of the physical environment. The question, then, is how can a campus plan support the other goals of the Strategic Plan?

The ability to attract and retain world-class faculty depends on many factors. With a competitive, merit-based compensation structure comparable to peer institutions, first-class facilities that provide ample opportunity to conduct teaching and research activities become more important. The opportunity to engage in faculty-to-faculty and faculty-to-student scholarly exchange in a variety of settings—in short, the sense of an academic community—is a major consideration. Such exchanges take place in classrooms and labs, but they also frequently take place in the indoor and outdoor public spaces that describe the true nature of the campus community. It is these public areas in conjunction with the physical proximity of departments that begin to make interdisciplinary teaching and research possible on campus. The public realm is the portion of campus most effectively addressed by the Campus Master Plan and monitored by a design authority whose major responsibility is that realm.

The relationship between the institution and its surrounding metropolitan community plays a role not only in the recruiting and retaining of faculty and students, but in the ability to enhance their experience at the university as well. Because Texas A&M University is relatively isolated from major metropolitan centers (Houston being two hours away by automobile), the University must develop that sense of community first within itself, then with the towns of Bryan and College Station, and then with other metropolitan areas. The Campus Master Plan explores opportunities to reinforce the sense of community both on the campus and through its physical relationship to the surrounding community.

Evaluation of space, both for teaching and research, is essential to ensure that it is being appropriately utilized and that the spaces provided are equal to the teaching and research mission of the campus. Through comparison of space utilization data from other institutions that are already considered top ten public universities (benchmarking), and conducting a space needs analysis based on the individual colleges, the University can ascertain what steps are necessary to ensure parity with those institutions. Space utilization and needs analysis also aid in the evaluation of requests for implementation of specific projects and the ability to substantiate requests for funding of those projects.

The quality of the campus environment, its relationship with its surrounding community, and the effectiveness of its teaching and research facilities all have a direct link to the strategic vision of an institution. The Campus Master Plan is a manifestation of that vision reflected in its physical environment. Perhaps the greatest attribute that a university must have to enable the Campus Master Plan to fully support its Strategic Plan is leadership: leadership that understands the vision of both plans, and how they are related, as well as a commitment to developing a process that will ensure the success of both the Campus Master Plan and Strategic Plan.

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FIGURE 2
Texas A&M University President Dr. Robert M. Gates.

FIGURE 3
Texas A&M University Executive Vice President and Provost Dr. David B. Prior.

1

"The campus should reflect the energy and spirit of the campus community."

Master Plan Steering Committee comment in a "Goals" Workshop, 2002

THE HISTORIC CAMPUS

Although founded in 1871, it was between 1909 and 1962 that Texas A&M developed a uniquely beautiful campus and a distinctive socio-academic culture. It was this period that provided what we now refer to as the "historic core" of the campus and the proud tradition of the "Aggie Community." Indeed, it is images from this era—the academic postcards—that fill the memories of generations A&M alums.

Between 1962 and the present day, the Aggie Community has continued to be enriched, and the campus has expanded from 7,500 to 45,000 students. During this same period, however, time-tested principles of campus design have been discarded, and the quality of the campus environment has been severely degraded owing to inappropriate architecture, inadequate landscape, and crisis planning brought on by unprecedented growth. Today there is widespread feeling that there is a misfit between the mission of the University community and its current physical environment.

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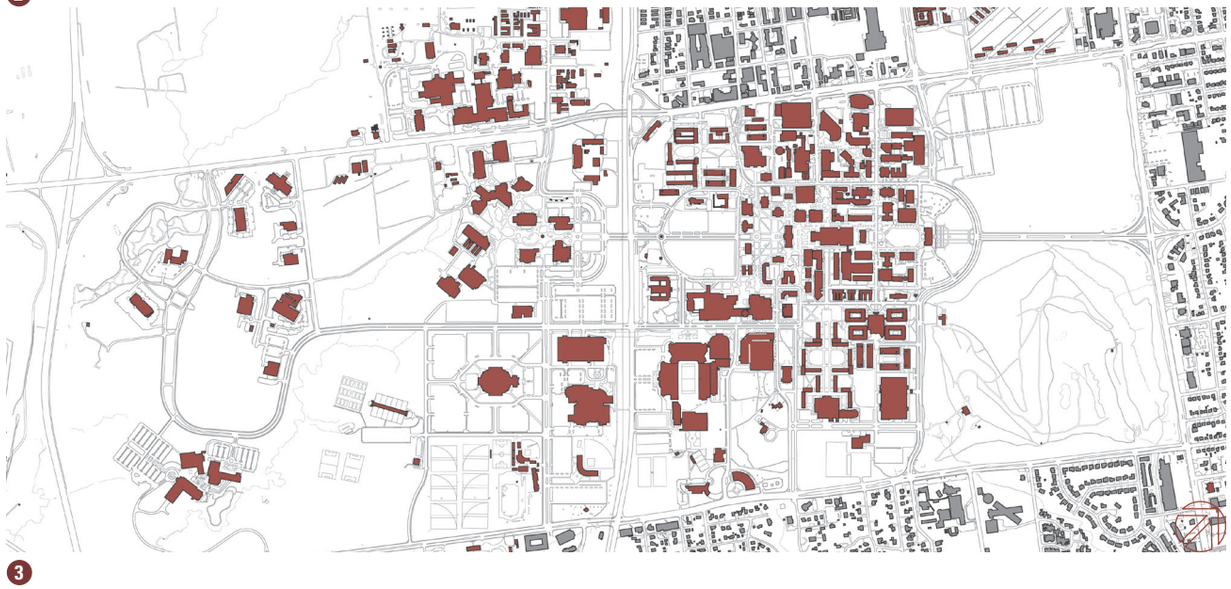

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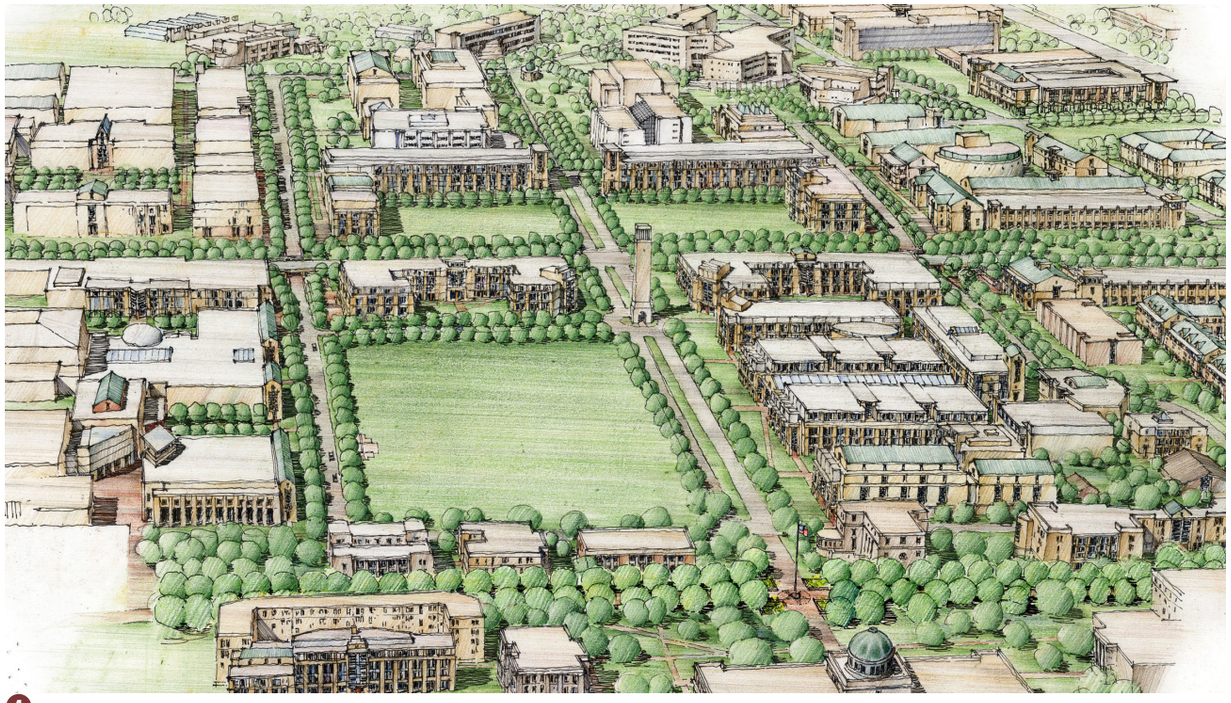
FIGURE 1
View of the Academic Building from the Library Quadrangle.

FIGURE 2
View looking west from Albritton Bell Tower.

FIGURE 3
Plan showing the state of the campus in 2003.

A VISION FOR THE FUTURE



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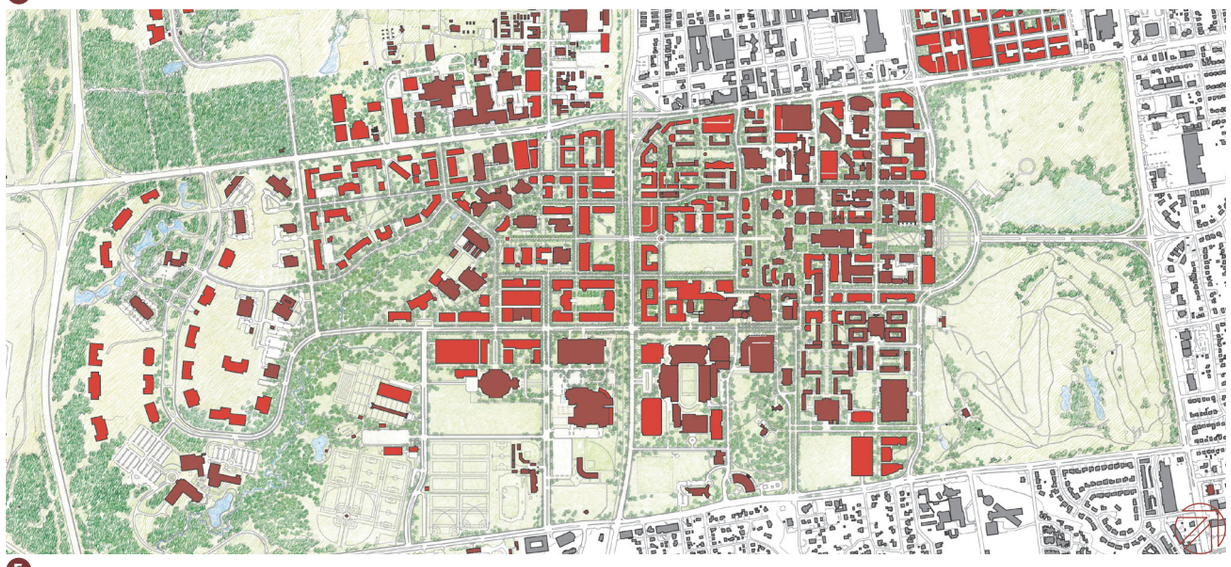

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THE FUTURE CAMPUS

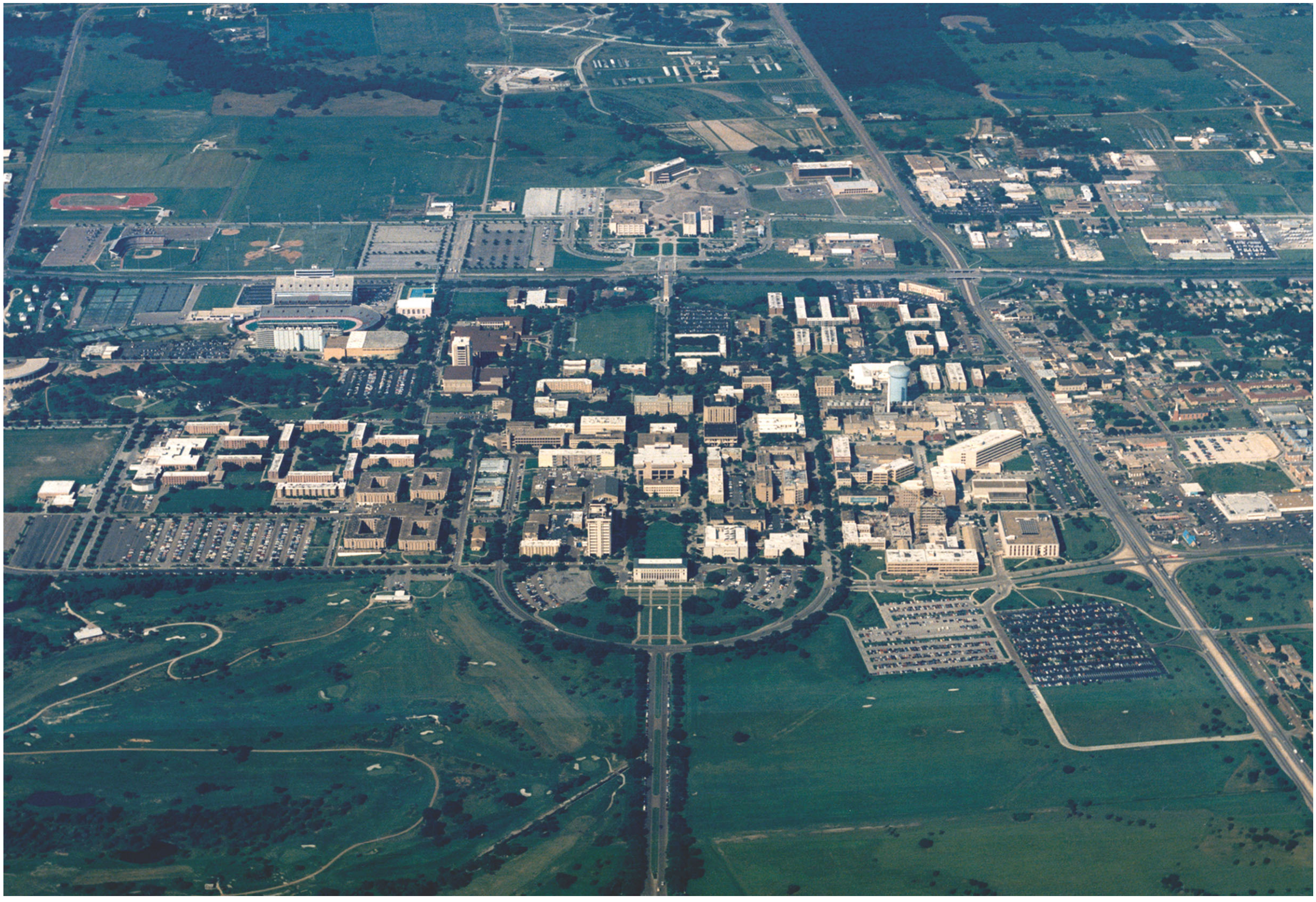
The Campus Master Plan provides a roadmap and a planning ethic for the future. It is flexible but firm in order to ensure a beautiful and functional campus environment in the twenty-first century. The Plan proposes a radical reorientation of campus development policy in order to bring the physical environment into complementary alignment with the academic and social mission of the University, achieve the ideals of Vision 2020, and enhance the quality of campus life. It seeks to accomplish this through two primary means: *growth management* and *improved quality of the physical environment*.

The plan identifies the best qualities of the campus and advocates their conservation and extension by reestablishing a coherent pattern of buildings, landscape, and open space. It provides an open space plan, a building location and density plan, architectural and landscape guidelines, and a planning process. Above all, the plan seeks to develop one integrated pedestrian campus rather than an "east" and a "west" campus. New campus quadrangles are the backbone of this strategy and the link between A&M's past and future. These new quadrangles, along with the buildings that frame them, will be the "postcards" of the future.

FIGURE 4
Aerial view of the future campus looking west, illustrating the integration of the campus.

FIGURE 5
Proposed future campus plan.

FIGURE 6
Perspective view of the proposed new West Quad.



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I. INTRODUCTION

COMMUNITY AND THE CAMPUS MASTER PLAN

The development of a campus master plan is an important event in the life of any institution. The 2003 Campus Master Plan for Texas A&M University is especially so, coming as it does at a pause between a forty-year period of "crisis growth" and an uncertain future of "planned growth."

A master plan requires the involvement of a large cross section of the university in a cooperative and interdisciplinary collaboration, thereby offering a unique opportunity for an extended period of reflection, assessment, and renewal. Most people within a large university lead busy, focused lives, and few have the time or opportunity for a larger cross-sectional view of the whole. The development of a master plan provides that opportunity for a wide variety of people. In short, the production of a master plan is a community-enhancing experience, and, like most things of true value, a good plan must come from the inside—from the community—not from the outside. In other words, to be truly effective a master plan should grow out of the culture of the place to make a better functioning, more attractive, and more welcoming campus —one that is more what the community wants it to be.

Texas A&M University is a very special place, but it is also part of a larger context of American educational institutions. Indeed, there is a long tradition of both American campuses and American campus planning, and it is useful to consider Texas A&M within the context of that larger framework.

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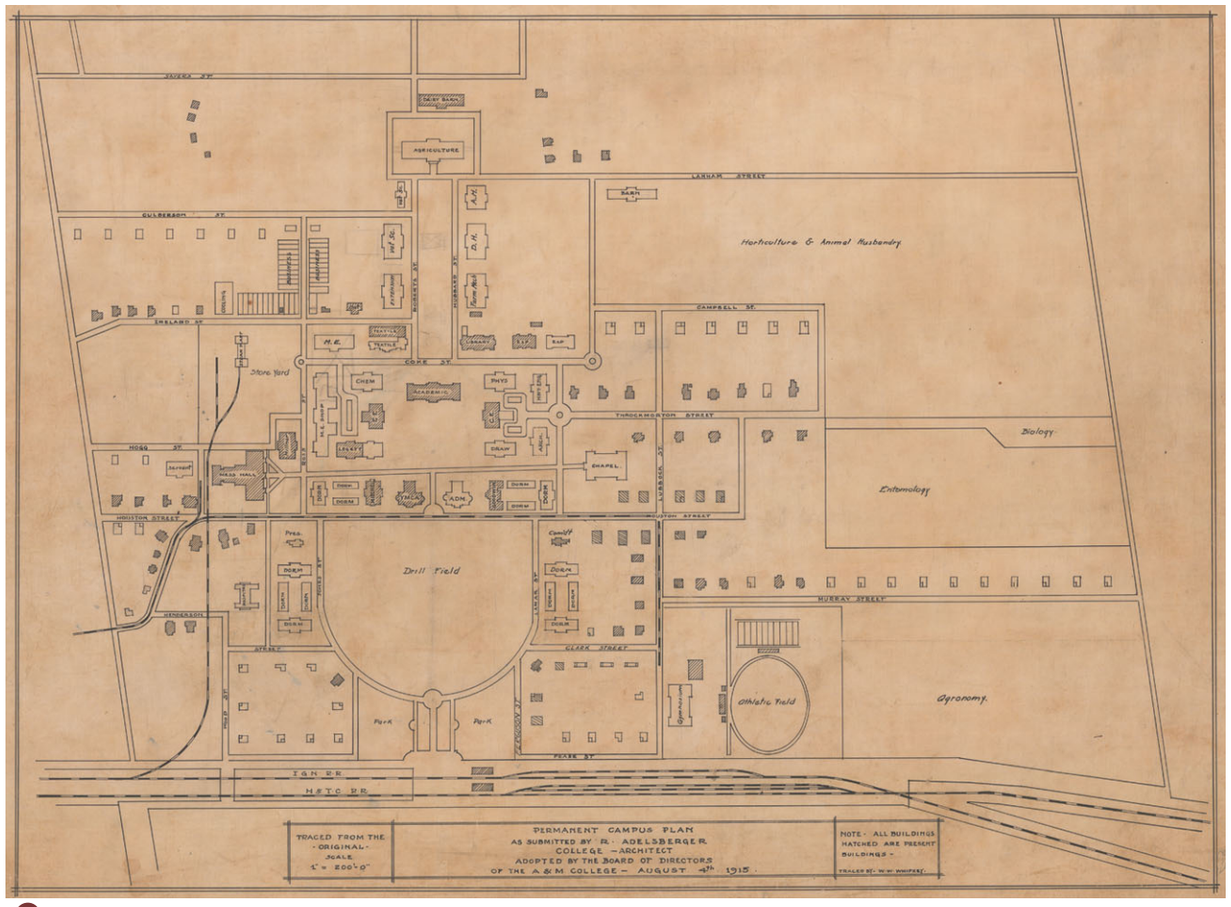

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FIGURE 1
Aerial view of the campus, ca. 1987.

FIGURE 2
"Permanent Campus Plan" by Adelsberger, 1915.

FIGURE 3
Boots and pennies: a tradition at the Sul Ross statue in front of the Academic Building.

THE AMERICAN UNIVERSITY CAMPUS

FIGURE 1
View of the Lawn, The University of Virginia.

Universities are among Western civilization's most revered and important institutions. Fewer than one hundred institutions have survived since the fourteenth century, and the majority of those are universities. The persistence of this tradition gives some indication of the depth of meaning universities have to our culture.

The tradition of the American university is a special case: although it has roots deep in the seventeenth century, it is very different from that of the European university. American universities are more open, and more engaged with the landscape than their European predecessors; and they reflect the enlightenment ideals of the new world. Indeed, the university campus is one of America's most unique and poignant models of civic form.

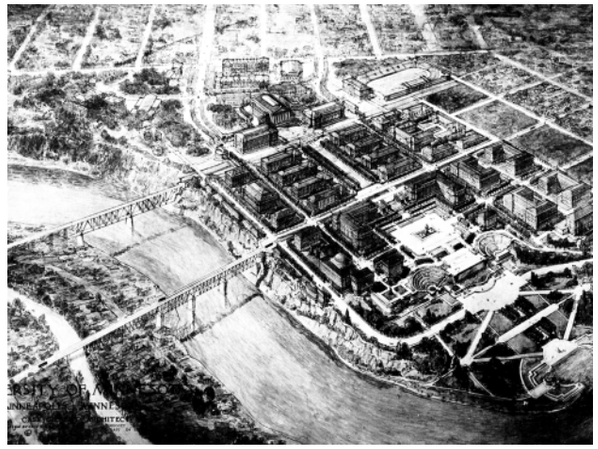
Our best campuses are neither purely urban nor purely pastoral, but a rich blend of buildings, landscape, and civic space. Like physical mirrors of the United States Constitution, our campuses project an image of balanced reciprocity between the public and private realms, between the ideal and the circumstantial.

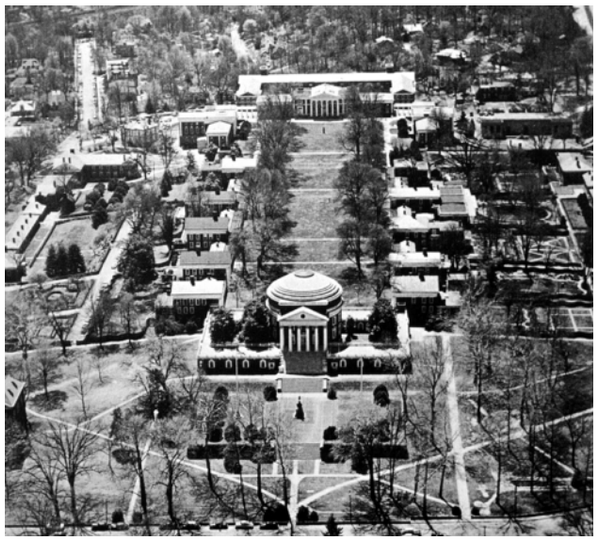
Thomas Jefferson provided enlightened direction in the early nineteenth century with his design for the University of Virginia. It is no accident that Jefferson referred to his plan as an "Academical Village," for it is, if anything, a metaphor of society and the city —a neoclassical ideal "adapted to the circumstances of the place." Like the United States Constitution, it is an elegantly balanced debate between public and private interests.

The formal concept of the plan is in fact quite simple. As in the traditional city, it is the clarity and stability of the central public space—the "Lawn"—and the clear pattern of the public streets that allow, indeed promote, variation in the form of private pavilions and gardens.

The point is that campus design is urban design, and urban design is the design and management of the public realm—i.e., public spaces—rather more so than the private realm of individual buildings. Therefore, the most important lesson of the Lawn for campus planning is that precise control of public space allows for flexibility and change in individual buildings and hence should be the principal instrument of physical planning. In other words, it is the pattern of campus open spaces—*quadrangles, courts, walks,* and *streets*—that provide the civic setting for individual buildings and for our most evocative memories of campus life.

In fact, for almost two hundred years Jefferson's University has been the most compelling image of American social, political, and academic ideals. From the land grant colleges of the nineteenth century to the educational wing of the City Beautiful movement in the twentieth century, this campus planning tradition has served us well. It was a tradition that was even able to absorb and accommodate the large and functionally complex modern building programs, such as libraries, science buildings, and physical education buildings that were introduced in the first half of the twentieth century.





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There have been two major periods of university expansion in twentieth-century America: one before the World War II; the other after.

During the first period of university expansion, before World War II, buildings and landscape cooperated to define and shape the civic spaces of the campus, i.e., streets, courts, and quadrangles. Typically, there was a compact core of academic buildings arranged around a street and/or quadrangle. This period provided the quintessential image we associate with the American "campus." The historic core of Texas A&M is an example of such a composition, providing the "postcards" that express memories of the place.

3

FIGURE 2
Aerial view of the Lawn, The University of Virginia.

FIGURE 3
Aerial perspective of the University of Minnesota Master Plan by Cass Gilbert, 1910.

FIGURE 4
Plan of the University of California at Santa Barbara, 1983.

4

After World War II, American campuses expanded rapidly in ever wider rings of new, often odd, buildings around the historic cores. Most buildings from this period do not define and shape open space. Rather, they sit in the middles of their sites, like suburban buildings. Profuse landscape provides a futile attempt to relate them because there is no legible pattern of streets, courts, and quadrangles. The postwar parts of the A&M campus are examples of this kind of growth. The original urban pattern on which the campus developed has been significantly weakened, and in some cases erased, thereby contributing to a sense of placelessness.

We are now poised on the edge of a third period of expansion, with a unique set of issues. Most American campuses find themselves facing the need for significant new expansion, but they have finite, nonexpandable boundaries and large areas of incoherent buildings and spaces. This is forcing a broad reassessment of how to plan and build.

TEXAS A&M UNIVERSITY

The most profound of the many Texas A&M traditions is surely that of the "Aggie Community." Despite being one of the largest campuses in the country, the genuine sense of community expressed by alumni, students, staff, and faculty is without parallel among American universities. Transcending time, this sense of community unites generations and provides a civic dimension as an honorable measure of individual contributions. This tradition was once reflected in the place and physical setting of the campus. This should again be the case. Two snapshots of the campus illustrate the relationship of the Texas A&M campus to the development periods described above, and the magnitude of the issue.

Shortly after World War II, around 1960, there were about 7,000 students at Texas A&M. The main campus consisted of ca. 4,500,000 square feet of buildings and occupied ca. 375 acres to the east of Wellborn Road and the railroad. The campus could be traversed easily on foot in 15 minutes. The density was not high, but buildings aligned on the streets and defined a series of quadrangles organized along an east-west axis established by the Academic Building and the Administration Building. This is the campus that generations of Aggies remember.

Today, there are 45,000 students, and the central campus extends west, beyond Wellborn Road and the railroad, to FM 2818. This extended area is over 1,100 acres and requires almost 45 minutes to traverse on foot from east to west. During the same 40-year period, the building area has increased by 10.5M square feet—from 4.5M to over 15M. The density of the historic core to the east is now normal by campus standards, and the civic sequence of open spaces in this area has been maintained. West of Wellborn Road, however, the density is low—a density normally associated with suburban sprawl: buildings do not define spaces, and the landscape has no structure, and no intent.

What is the order of magnitude of this increased population? Including students, faculty, and staff, the University now totals more than 52,000 people—approximately the number of citizens in classical Athens. The 2000 U.S. census identifies 1,804 cities and towns in Texas, ranging in population from fewer than 100 to almost 2,000,000. There are 48 Texas cities of 50,000 or more people. If Texas A&M were a city it would be the 48th largest in Texas. Thus, Texas A&M is not a small place, but a major urban settlement, located near the center of a triangle defined by Texas's four largest metropolitan areas: Dallas (5,221,801), Houston (4,669,571), San Antonio (1,592,383), and Austin (1,249,763). This is almost incomprehensibly remote from Texas A&M's beginning in the middle of the Texas post oak savannah ecoregion, with the railroad serving as the only connection to the outside world. Given the population, area, and context of the campus, as well as the uncertainties of the future, the development of a culture of planning at Texas A&M is an imperative.

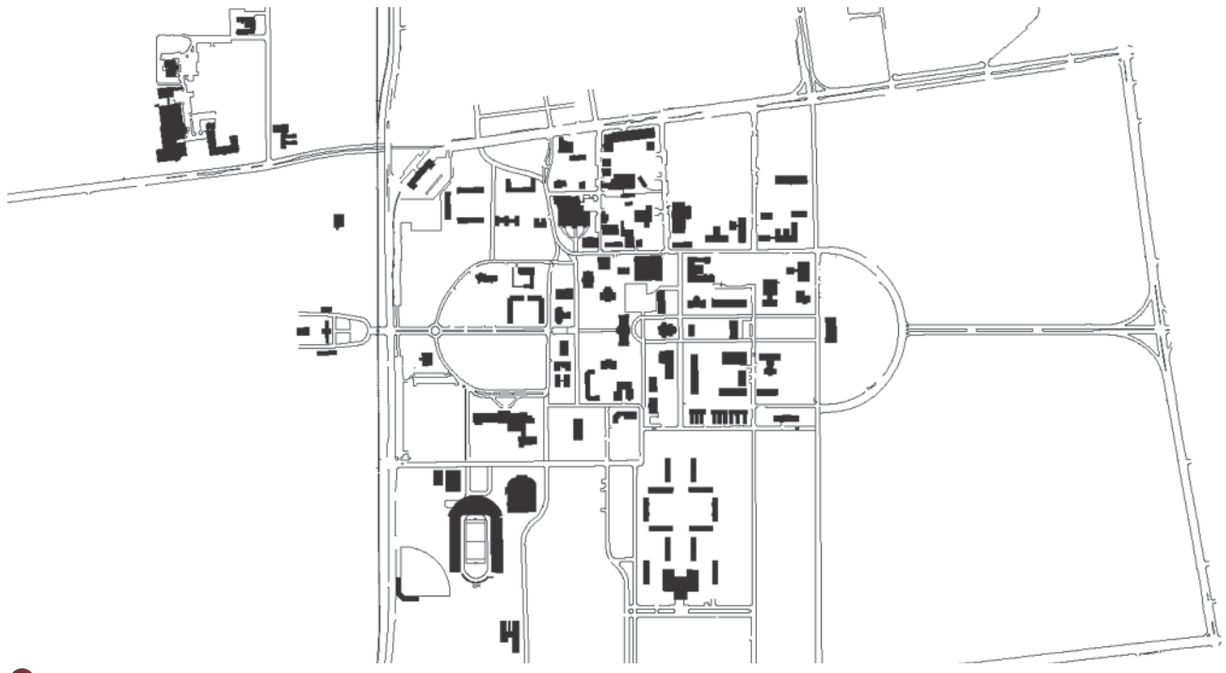

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FIGURE 1
Plan showing the state of the campus in 1962.

FIGURE 2
Plan of the campus and surrounding community, 2003.

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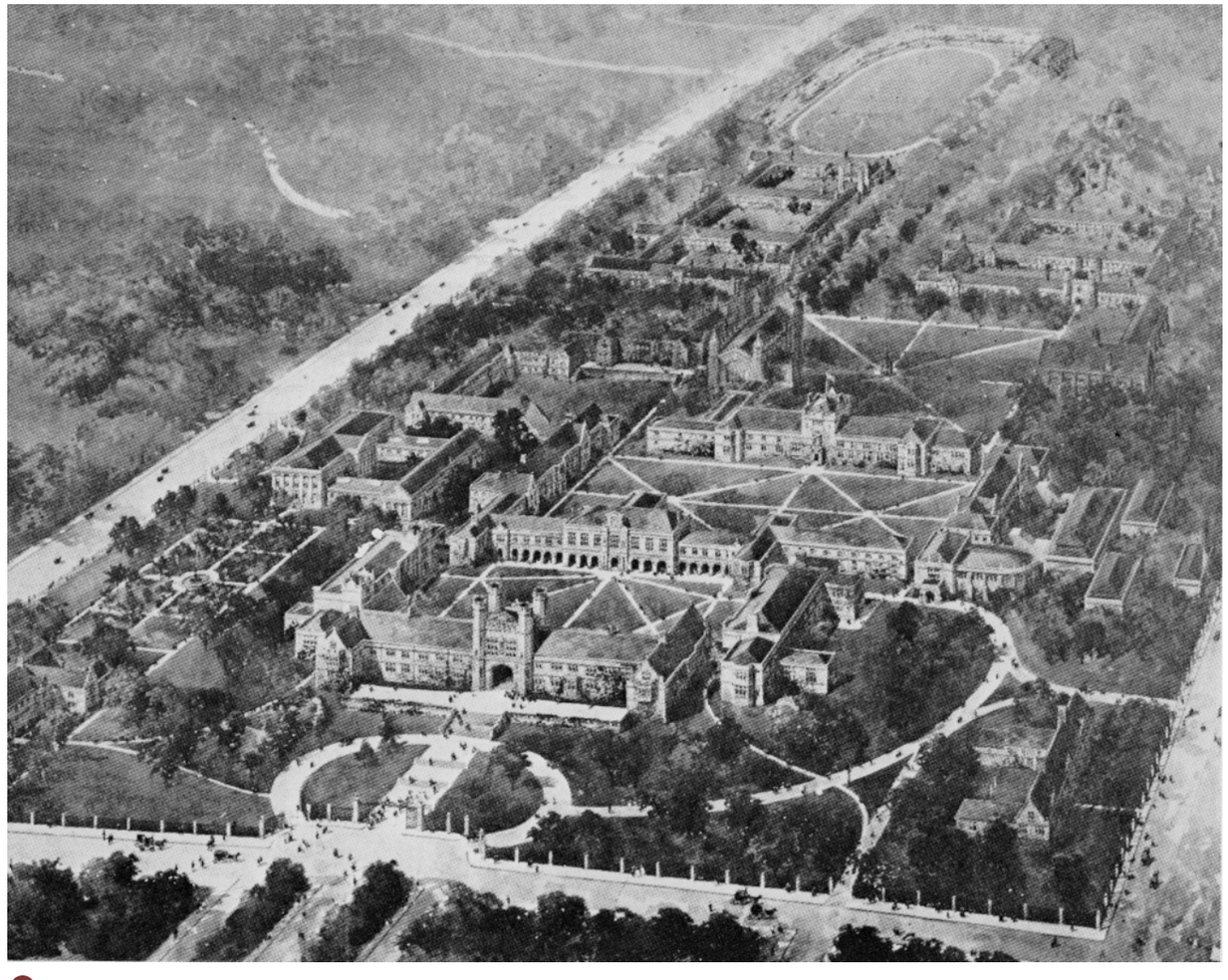
FIGURE 1
Design for Washington University, St. Louis, by Cope and Stewardson, ca. 1910.

FIGURE 2
Rendering of design for the University of Minnesota, by Cass Gilbert, 1910.

FIGURE 3
Master Plan for the Illinois Institute of Technology, by Ludwig Mies van der Rohe, 1940.

FIGURE 4
Street view, University of Southern California.



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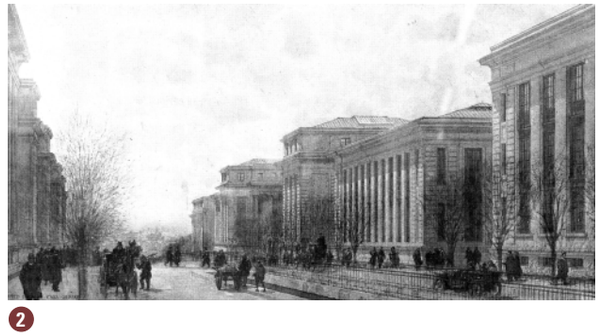
CAMPUS PLANNING IN AMERICA

Until World War II, campus planning was a relatively straightforward activity. The first half of the twentieth century was a simpler time: there was general consensus about a coherent environment comprising architecture, landscape, and public open space; there was agreement about the necessity of both a public realm and a private realm; there was usually a campus architect who drew and revised the plan of the campus as new buildings were added; and—most important—architects understood all of this. Because of this, our campuses were able to absorb and accommodate increasingly large and complex modern building programs, such as the libraries, science buildings, and physical education buildings that were introduced during this period. In fact, most campuses benefited from not just one plan, but a series of plans. The University of Illinois, for example, had at least thirteen plans in nine years between 1905 and 1914. Thus, far from being absolute, these early campus plans were used as part of an organic process of campus development.



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Post–World War II Planning

After World War II, things changed completely. It is as if a kind of cultural atom bomb vaporized everything that had come before, and cities, campuses, and families were changed forever. Planning traditions that had been developed over centuries were readily discarded in the name of progress, modernism, and expediency; and a long transition from the dominance of the public realm in the seventeenth century to the dominance of the private realm in the twentieth century was completed: there was no longer an emphasis on coherent environments; the private realm of buildings took precedence over the public realm of campus spaces; the role of the campus architect diminished or disappeared; and architects understood little about architecture and less about planning. The result is that since World War II, the decline of the quality of the physical environment is evident everywhere. In the postwar period, the campus plan became the master plan. Unlike its predecessor, however, the master plan was too often taken literally, rather than as an instrument of speculation and reinterpretation; and since the master plan emphasized buildings rather than spaces, it could never be current enough to guide the dynamic unpredictability of the evolving modern campus.

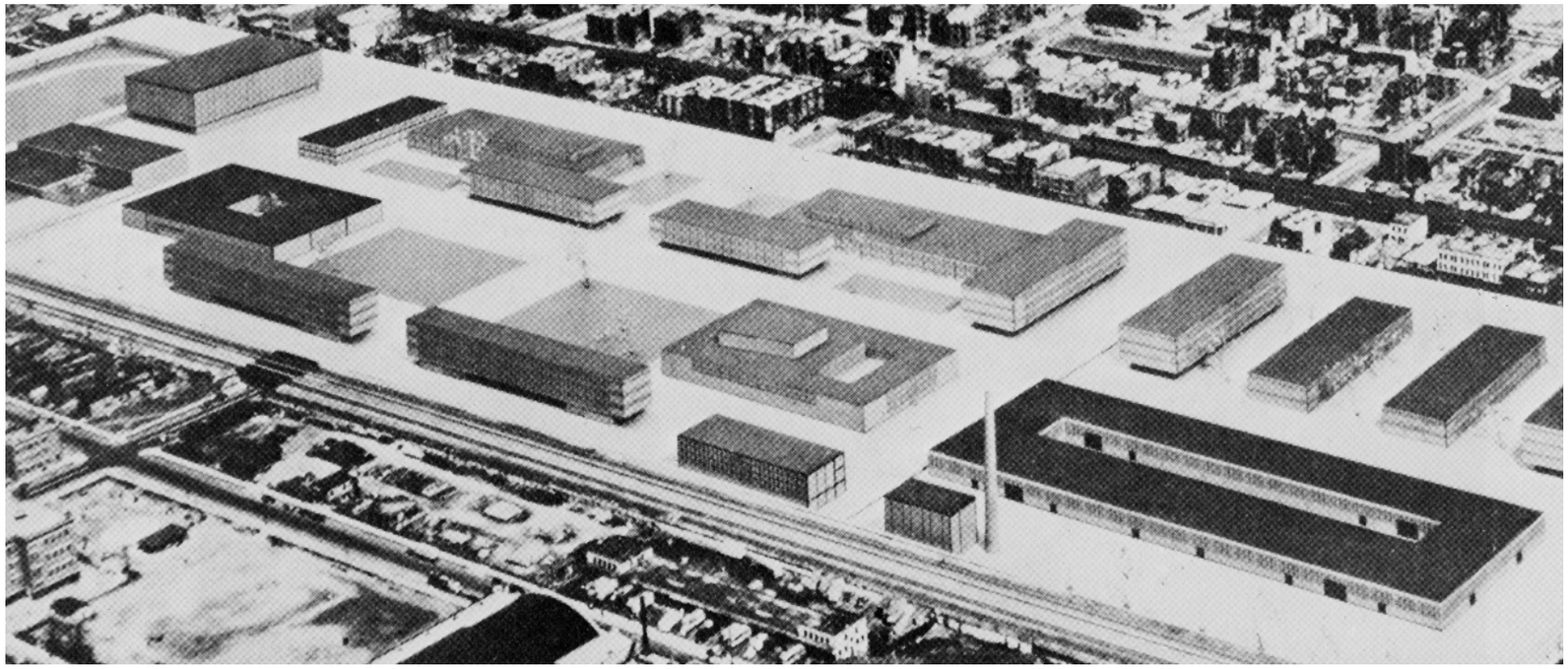

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FIGURE 1
Planning Team/Steering Committee in Goals Workshop.

FIGURE 2
Steering Committee members in Goals Workshop.

Contemporary Planning

In our time there is no easy answer to producing a high-quality campus environment, but minimally, three things are required: ***a vision, a plan,*** and ***a process.***

A Vision

A vision for the university is the bedrock of any master plan. Two important ideas underlie any vision of campus planning. *One is that the physical environment matters; the other is that there is a relationship between academic ideals and physical reality*.

A campus is neither a resort nor a city. Rather, it is quasi-urban. Like a model for the city, it is at once ideal and practical—a textbook example of *civitas*. An intellectual vision must have a relation to society as a whole, and the campus should mirror that idea. In other words, there needs to be a balance between the public interests of the larger environment and the private interests of users and donors. To achieve this, both a plan and a process are required. Vision 2020 provides the bedrock for the Campus Master Plan for Texas A&M.

A Plan

To be an effective instrument over time, a campus master plan must be flexible. Three levels of plans and guidelines are useful: a ***Long Range Plan***, a series of ***District Plans***, and a series of ***Site Development Plans***.

The ***Long Range Plan*** establishes the overall intent of university development. It defines the primary spatial anatomy—the hierarchical pattern of public spaces, or civic structure—of the campus as well as the relationship of the campus to its surroundings. It should be a design plan that suggests the quality of buildings and spaces, not a generic plan such as a use and circulation diagram. Policies should accompany the Long Range Plan in order to provide the authority that underpins the plan.

District Plans are neighborhood, or area, plans that bridge the gap between the Campus Plan and the siting and design of individual buildings. The District Plan adds flexibility and precision to the Long Range Plan, and saves it from having to be specific about everything. District plans should be accompanied by landscape and architectural design principles regarding the form of public open space and the architectural character of buildings.

Site Development Plans are usually program-specific feasibility studies that develop more particular requirements not covered by the District Plan. Site Development Plans should be accompanied by architectural and landscape guidelines specific to the project.

Together, these three types of plans provide the flexibility and precision required for campus development and are indispensable to the process.

A Process

Process may be more important than the plan, because a good process can produce a plan, but no plan can produce a process. In other words, the plan must be implemented, monitored, and used on a daily basis. Therefore, the University must be vested in the plan.

To be effective, the process needs to address both public and private interests. In the recent past this balance has been difficult to achieve. Great attention has been given to private concerns such as assignable square footage, and almost none has been spent on public concerns such as open space. To maintain a balance, understanding, active participation, and cooperation are required among four entities: ***users, facilities, design authority***, and ***the architect***.

Users have a largely "private" agenda. They are primarily concerned with getting the most square footage possible and the best functional arrangement. Their special requirements must be acknowledged, but these needs should also be put in the context of the larger whole—financially, formally, socially. For example, the exterior of the building and the site development should be subject to appropriate budgetary attention in order to fulfill the facility's responsibility to the public realm.

Facilities, as used in this context, refers to planning, design, construction, and maintenance. They also tend to have a largely "private" agenda, as they are concerned primarily with budget, schedule, and maintenance. To the degree that they are also a planning authority, they may be concerned with the long-term viability of a project. In this sense, they also have a public agenda.

Design authority has an almost completely "public" agenda, in that it is primarily concerned with the promotion, development, and maintenance of the quality of the public realm. Thus, it plays a large role in the development of plans and guidelines, architect selection, and design review of projects. Design authority may be vested in an individual, such as a University Architect, in a Design Review Board, or both. Effective design review requires the authority of support from the highest levels of the university.

Architects should have an acutely developed understanding of both public and private responsibilities. This is not always the case, however, as many architects have become adept at servicing and delivering complex projects, but may be less adept at understanding and designing the public realm. For example, "specialist" firms may have an understandable appeal to users of that particular building type, but they may have no credentials at all for design in the environment in which the facility is placed. Thus, a vision, a plan, and a process must be accompanied by careful selection of the architect. The design authority should play a leading role in architect selection.

THE TEXAS A&M PLANNING TEAM AND PROCESS

The core campus planning team consisted of Barnes Gromatzky Kosarek Architects with Michael Dennis & Associates. Consultants were Dr. Bryce Jordan, academic and strategic planning; Sasaki Associates, landscape; and Paulien Associates Inc., academic space planning. The team was selected in June, 2002, and began work in August, 2002, with the Texas A&M Campus Master Plan Steering Committee.

The campus planning process began with one year of discussions within the University. Then the design team began with a diagnostic phase, during which briefings were held with the deans and senior administration, as well as faculty and student representatives. The master planning team also conducted a reconnaissance of the campus and gathered the basic documentation required for the planning effort. At the end of this phase, a presentation of findings was made to the president, interim provost, senior administration, and deans. The team presented the results of the briefings, which were outlined as goals; the results of the reconnaissance, which were outlined as building and landscape evaluations; and a process to accomplish the master planning goals.

During 2002–2003 the team developed the Campus Master Plan in collaboration with representatives of the University and continued to meet with stakeholder groups for information and presentations. Status presentations were made in two public forums, and over one hundred stakeholder meetings were held. Enthusiasm and participation increased as the plan developed. Thus, the plan is one that actualizes the University's goals.

1

2

FIGURE 1
View of the Academic Building.

FIGURE 2
View of Kyle Field.

PURPOSE AND ORGANIZATION OF THE PLAN

The Campus Master Plan is intended as a strategic and tactical guide for the physical development of the campus over the next fifty years. It is a hierarchical, comprehensive plan that proposes a radical reorientation of campus development policy in order to bring the physical environment into alignment with the academic and social mission of the University. It is intended to achieve the ideals of Vision 2020 and to enhance the quality of campus life.

The organization of the Plan is important because it is something of a hybrid relative to the hierarchical system described above under "Campus Planning." Basically, it is a more extensive, more particular Long Range Plan than that described above, and it contains no district plans. This in no way obviates the necessity for and importance of district plans and site development plans; nor does the Plan's particularity on some levels diminish the longevity of its authority on more general levels. For convenience, the Campus Master Plan is organized as four major chapters:

1. ***The Long Range Plan, and University Policies***
2. ***The Landscape Plan, Principles, and Guidelines***
3. ***The Architectural Plan, Principles, and Guidelines***
4. ***Process***

Each of these sections is intended as a stand-alone component, but they are completely integrated. They are articulated solely for clarity and ease of use. An Academic Space Plan complements the Campus Master Plan as a separate document.

GOALS OF THE PLAN

During the initial part of the campus planning process, a series of eight goals was articulated by the campus community. Over and over the planning team heard that "the quality of the campus's physical environment should reflect the spirit and quality of the students and faculty." In other words, there was a sense of misfit between the physical environment and the socio-academic environment. The eight goals were the following:

1

1. Reinforce campus identity

Most of the positive physical contributions to campus identity are associated with the buildings, spaces, and sculptures of the east core of the campus: the Administration Building, the Academic Building, Albritton Tower, Military Walk and the Academic Quad, the Memorial Student Center, the Drill Field, and so on. Campus identity should be reinforced by further positive contributions.

2

2. Reinforce campus community

The remarkable sense of community on campus is not reinforced by the physical setting. In fact, it is made more difficult to maintain. The physical setting should enhance and promote a greater sense of community. Proximity is important to facilitating a feeling of community; dispersal is a barrier. The campus should be a compact, cohesive environment in order to achieve this goal.

3

3. Establish connectivity

Interdisciplinary activity is essential to research and knowledge today. This is difficult on the Texas A&M campus because sprawl has created excessive discontinuity. The railroad and Wellborn Road create an especially strong barrier between the east and west parts of the campus. Connectivity needs to be reestablished between places, between academic and research activities, between faculty and students, and between campus and the community.

4. Create architecture that contributes positively to the campus community

Too many recent buildings are isolated objects that contribute little to the campus community. Buildings should be better neighbors through their siting, exterior design, interior public space design, and landscape. The Campus Master Plan should mandate this. The renovation of existing buildings should consider and reinforce their relationship to the community.

5. Promote spatial equity and appropriateness

Recurrent themes in workshop discussions were spatial inadequacy, inappropriateness of space to use, and inappropriate location. Equitable spatial standards need to be developed, as well as a space allocation system that also considers the reuse of existing space. A comparative space analysis and an Academic Space Plan should serve as the basis for space allocation.

4

5

6. Establish an accessible, pedestrian campus

The "population" of the campus is approximately 52,000 students, faculty, and staff. About 10,000 students live on campus. This means that approximately 42,000 people commute to campus —many by car. There are also numerous service vehicles, buses, and so on. The goal is to rationalize the circulation patterns, keep private cars to the periphery, and make the campus an accessible, pedestrian one.

7. Promote sustainability

The campus has finite land and resources. The goal is to promote sustainability by teaching, planning, and acting in an environmentally sustainable manner.

8. Develop a supportive process

The aim is to develop a process that enables the attainment of the above goals in a transparent, inclusive, and efficient manner.

FIGURE 3
View of Albritton Tower from Wellborn Road and the railroad.

FIGURE 4
View of Nagle Hall.

FIGURE 5
Students between classes.

THE LANGUAGE OF THE PLAN

An obscure but important late-seventeenth-century French treatise on architecture begins with the observation that "confusion about terms is the greatest hindrance to the understanding of an art." The meaning of words is important, and especially so in this Plan. Therefore, in order to avoid confusion, some basic terms used throughout this Campus Plan need to be defined. More important than definitions, however, these are terms that are *concepts*—concepts that are fundamental to the making and understanding of the Plan. Indeed, they are an introduction to the Plan. They are:

- ***Quadrangle***
- ***Court***
- ***Park***
- ***Garden***
- ***Paths and Walks***
- ***Tree-lined Walks***
- ***Street***
- ***Boulevard and Avenue***
- ***Drive***
- ***Highway***
- ***Building***
- ***Facade***
- ***Block***
- ***Build-to line***
- ***Campus Fabric***
- ***District***
- ***Civic Structure***
- ***Policies, Principles, and Guidelines***

FIGURE 1
The Arts Quad at Cornell University.

1

Quadrangle: This is a term unique to campuses. It is the campus equivalent of the urban square. Quadrangles are large public spaces defined by buildings and landscape. They are usually pastoral in nature, with no decisive function and a seemingly inseparable relationship between the space and the buildings that define them. Most of America's memorable campuses are organized around the idea of the quadrangle. The three major quadrangles at Texas A&M are the East Quad, the Library Quad/Diversity Plaza, and the Academic Quad.

FIGURE 2
The Academic Quadrangle at Texas A&M University.

2

Court: This is both an architectural and an urban term denoting a relatively enclosed private or semiprivate open space within a building, or a semiprivate or public open space within a group of buildings. Courts may be purely private or purely public, but they are usually limited in size and legible in form. Their character and use are directly related to the functional uses that surround them. There are few courts of note at Texas A&M, but the Memorial Student Center has two: the paved student court on the north side, and the court between the Regents' wing and the MSC.

3

Park: This is a large tract of land that often includes lawn, grassland, and woodlands and is used for ornament and recreation. Parks are usually larger, more naturalistic, and have fewer geometric boundaries than quadrangles. The area surrounding the President's house at Texas A&M is a park.

Garden: A garden is usually bounded, restricted in size, and infused with meaning; i.e., they are passive, contemplative spaces where plants are the focus. The Horticulture Garden is an example at Texas A&M.

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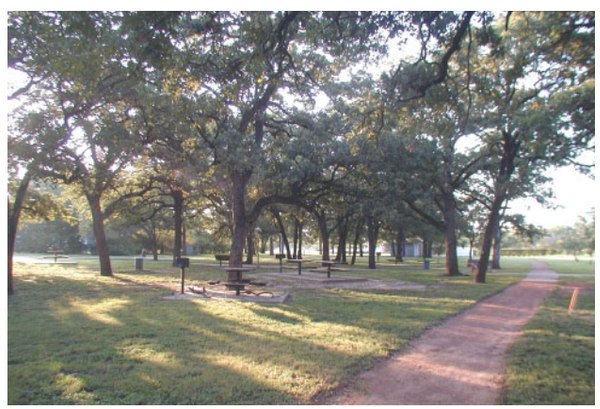

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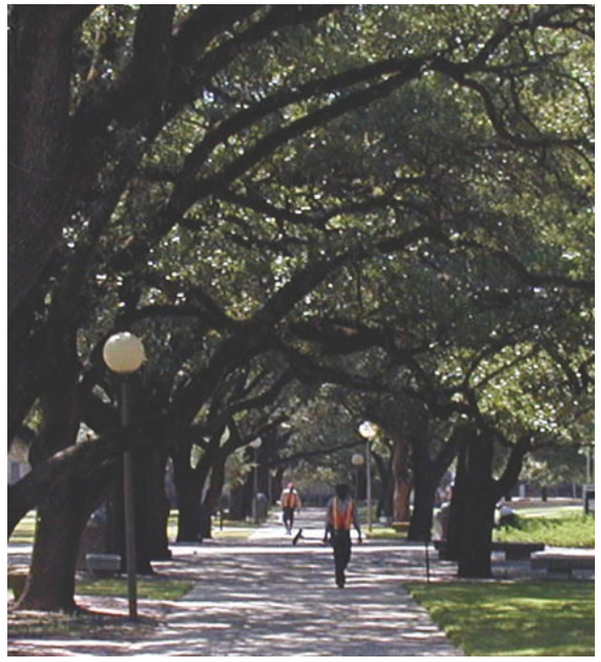
FIGURE 3
The Mudd Hall of Philosophy courtyard at The University of Southern California.

FIGURE 4
Courtyard between the MSC and the Regents' wing at Texas A&M.

FIGURE 5
Spence Park at Texas A&M.

FIGURE 1
Tree-lined walk at Texas A&M.

FIGURE 2
Tree-lined street at Texas A&M.



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Paths and Walks: These are relatively narrow pedestrian connectors through campus spaces. Some may be reinforced by trees; others not.

Tree-lined Walks: These are sometimes former streets that have been converted to pedestrian use. Locust Walk at the University of Pennsylvania and McCosh Walk at Princeton are examples of this type. Tree-lined walks give structure and shade and are important for the major pedestrian routes through the campus.

Street: In our time this urban term has come to imply vehicles, movement, and asphalt or concrete paving. Traditionally, however, the term "street" has denoted a defined, linear urban space that is at once a connector and a place, and as such, one that is for both vehicles and pedestrians. That is the usage in this Plan.

Generally, streets are small-scale, low-speed, local connectors. There are several different types of streets, but they are urban in character, with raised curbs, short building setbacks, wide sidewalks, and street trees along the edges. There are many beautiful streets on the Texas A&M campus: Ross Street and Joe Routt Boulevard, among others.

3

4

FIGURE 3

Avenue des Champs Elysee, Paris.

FIGURE 4

Example of a highway: Texas Avenue, Texas A&M.

Avenue and Boulevard: These are both nineteenth-century French terms that have lost some of their meaning in our time. Their restored meaning is used in this Plan. The distinctions between the two terms are subtle, and arguable. In general, avenues are larger, straighter, more arterial thoroughfares, such as the Avenue des Champs Elysee or the Avenue Foch in Paris, while boulevards are more local boundaries to neighborhoods, such as the Boulevard Richard Lenoir in Paris. Both avenues and boulevards are relatively high-volume thoroughfares, and are designed for pedestrians as well as vehicles, with multiple lanes of traffic, multiple rows of trees, and often a planted center median. Wellborn Road and University Drive should be developed as boulevards.

Drive: A drive is an edge between an urban and a parklike condition. Examples include Memorial Drive in Cambridge and Storrow Drive in Boston. For example, Texas Avenue could be "Texas Drive" adjacent to the Texas A&M campus. But University Drive should be "University Avenue" or "University Boulevard," in both name and, more important, form.

Highway: A highway is a limited-access, high-speed vehicular corridor, designed with high-speed parameters for vehicles only. It usually traverses open country continuously. Highways and their standards are not appropriate in thickly settled urban areas. Two high-capacity street types that are appropriate for urban areas are the avenue and the boulevard. Wellborn Road is currently a highway, but should be redesigned as a boulevard.

FIGURE 1
Diagram illustrating the relationship of buildings, landscape, and civic space, i.e., the campus fabric.

FIGURE 2
Plan of Roman Florence showing a five-minute walk.

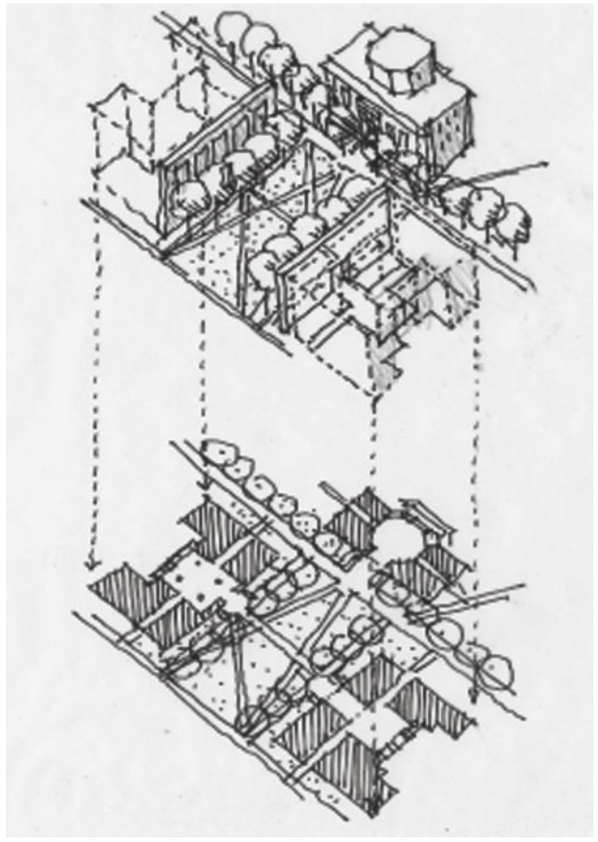
FIGURE 3
Plan of the Greek city, Priene, showing a five-minute walk.

Building: This is an architectural term usually describing enclosed volumes for "private" uses. On a campus most buildings are public in their accessibility, but some have restricted access, such as libraries, while others, such as student centers, are extensions of the public realm. Traditionally, buildings have been the primary means of defining the public spaces of the campus. Building types refer to function or purpose: library, dormitory, etc. Architectural types refer to form: courtyard type, etc. In this Plan, a distinction is made between two architectural or form types: urban and suburban.

Facade: This is an architectural term. Its simple meaning is the exterior vertical surface of a building, usually parallel to a frontage line, or build-to line. Its more sophisticated sense implies a greater density of architectural meaning through its artistic development. A simpler form of vertical surface is an elevation. Thus, buildings may have multiple facades, no facades, or three elevations and one facade.

Block: This is an urban term, usually denoting a group of buildings organized along streets and defining the public space of the street on the outside of the block, and semiprivate or "community" space on the interior of the block.

Build-to Line: Build-to lines are the opposite of setbacks. Major building faces must align on these lines in order to describe and mandate the form of public spaces. Minor deviations from the build-to lines may be permitted, but not ones that significantly alter the form of the public space.



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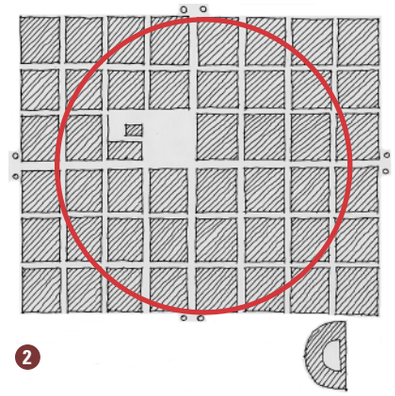
Campus Fabric: Buildings, blocks, quadrangles, courts, and streets form the fabric of a campus. The fabric of a campus is similar to that of a town, but it is more open and less dense. Also, the fabric of a campus often includes the interior space of buildings as an extension of the exterior public realm.



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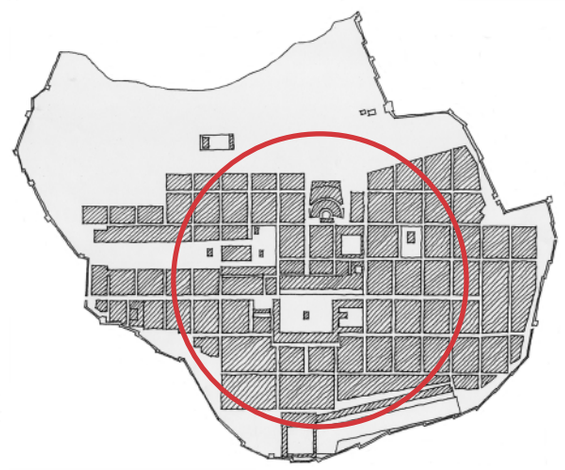

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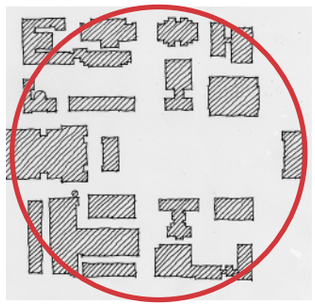
District: Strictly speaking, a district is a monofunctional area of the city, and a neighborhood is a multifunctional area, but for the purposes of this Plan they are interchangeable. A district, or a neighborhood, is defined by three characteristics: a clear center, consistent urban fabric, and a clear edge. In practice, however, all three may not be present. A clear center is most important;



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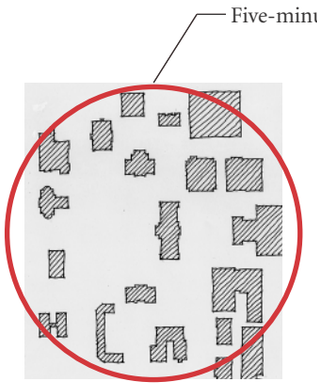

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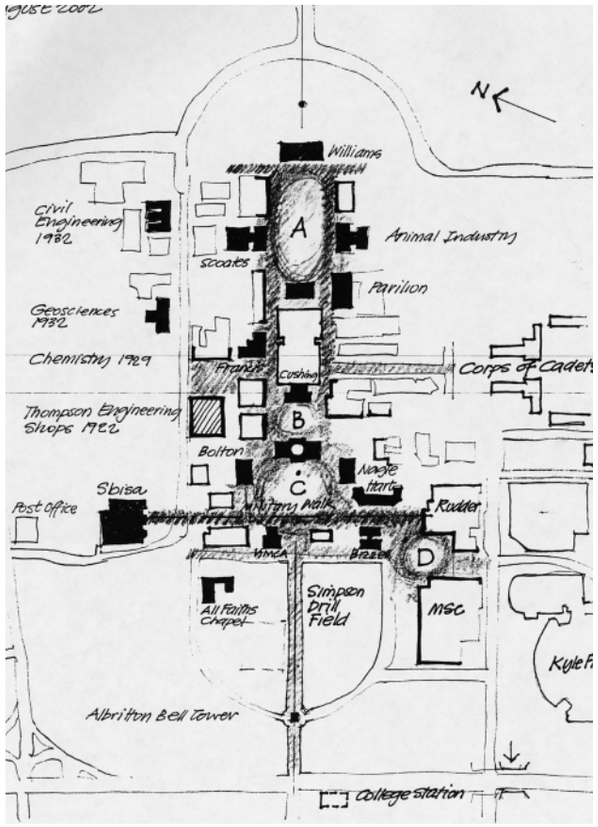
a clear edge less so. These characteristics derive from Greek and Roman towns such as Priene and Roman Florence, which were self-contained communities that could be traversed on foot in approximately five minutes. The historic core of the A&M campus is comparable in size, and the contemporary campus is composed of similarly sized units, or districts.



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Civic Structure: This term refers to the primary sequence of public space and buildings that forms the anatomy of the town, district, or campus. The civic structure is defined by the surrounding urban, or campus, fabric.

Policies, Principles, and Guidelines

Policies, principles, and guidelines are an integral part of the campus plan. They form the "ethic" that underlies the plan. Without them, the plan can go awry; with them, the plan can be developed, changed, or remade. Definitions and examples of each are:

Policy: A policy deals with long-range issues; e.g.:
In order to promote a compact, pedestrian-oriented campus, building development will be limited to the indicated zones at an F.A.R. of approximately 1.0 and a building coverage of 27–35 percent.

Principle: Principles deal with general issues; e.g.:
In order to support the above policy, buildings in the central campus will align on the build-to lines delimiting public space, and be three to five stories high.

Guideline: Guidelines deal with specific conditions; e.g.:
Buildings will have vertical surfaces of brick masonry and window openings of 25–45 percent.

FIGURE 4
Plan of the East Quad District showing a five-minute walking diameter.

FIGURE 5
Plan of the Academic Quad District showing a five-minute walking diameter.

FIGURE 6
Diagram of the Texas A&M civic structure, from a draft of "The Campus Remembered," 2002, by David Woodcock.

FIGURE 1
Bird's–eye perspective view of proposed Campus Plan by F. E. Giesecke, 1910.

II. THE EVOLUTION OF THE CAMPUS

Texas A&M University has enjoyed a rich history over the last 127 years. The largest campus in The Texas A&M University System and the first public institution of higher learning in Texas, it was founded in 1876 in the blackland prairie/post oak savannah region of Texas, near the Brazos River.

1876 TO 1908: THE BEGINNING

Although officially established by the Texas Legislature in 1871, the Agricultural and Mechanical College of Texas actually opened in October 1876 as a branch of the University of Texas for the study of agriculture, mechanical arts, and the natural sciences. The "campus" was 2,416 acres of tangled brush and briar on the treeless prairie about four miles south of the young town of Bryan. The first building, Old Main, was sited at the high point on the prairie and essentially defined the dividing line between the Brazos River and Navasota River basins. Initially the campus consisted of two major structures, Old Main (the Stewards Hall) and President's Home (later Gathright Hall), along with five minor structures. The architect of Old Main and Gathright was Jacob Larmour, a prominent architect in Austin.

The first thirty years saw the construction of over ten significant buildings, most of them designed by Larmour or Eugene T. Heiner of Houston. Both men were prolific architects of excellent reputation in late-nineteenth-century Texas. Larmour is credited with making significant contributions to the development of the character of Congress Avenue in Austin through a number of commercial structures. He also designed additions to the Texas School for the Blind (1875), the Texas School for the Deaf (1876), the Travis County Courthouse (1875), the Llano County Courthouse (1890), and the State Penitentiary at Huntsville (1879). Heiner achieved notoriety as an architect of county courthouses and jails throughout the 1880's and '90's.

In 1884, the railroad depot was built west of campus on axis with Old Main along what is now known as Wellborn Road (Figure 1). This axis formed the beginning of the structure about which buildings and roads would be organized. Structures of the period were characterized by picturesque massing, either Victorian or Second Empire in style. Old Main was a four-story Second Empire structure constructed of red brick and limestone, with a slate mansard roof containing the fourth floor. Although constructed prior to the depot, its twin towers would punctuate the axis from the entry at the railroad and east up Old Main Drive.

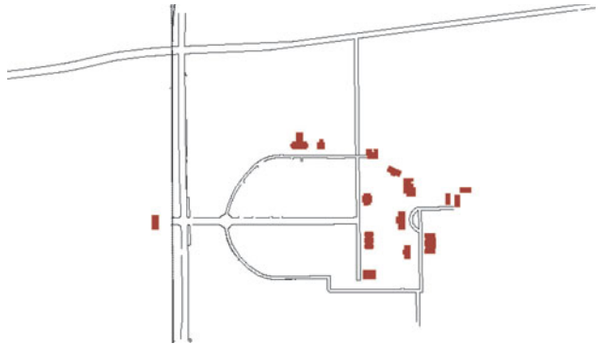

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FIGURE 2
Campus development from 1876 to 1908. Buildings constructed during this period are shown in maroon.

FIGURE 3
The oldest known photograph of Old Main, ca. 1880.

FIGURE 4
Campus photograph from about 1895. Visible from far left to right are: Gathright Hall (partially off photo), Ross Hall, Austin Hall, Mechanical Engineering Shops, Old Main, Pfeuffer Hall, and the Assembly Hall.

FIGURE 1
Permanent Campus Plan by Adelsberger, 1915.

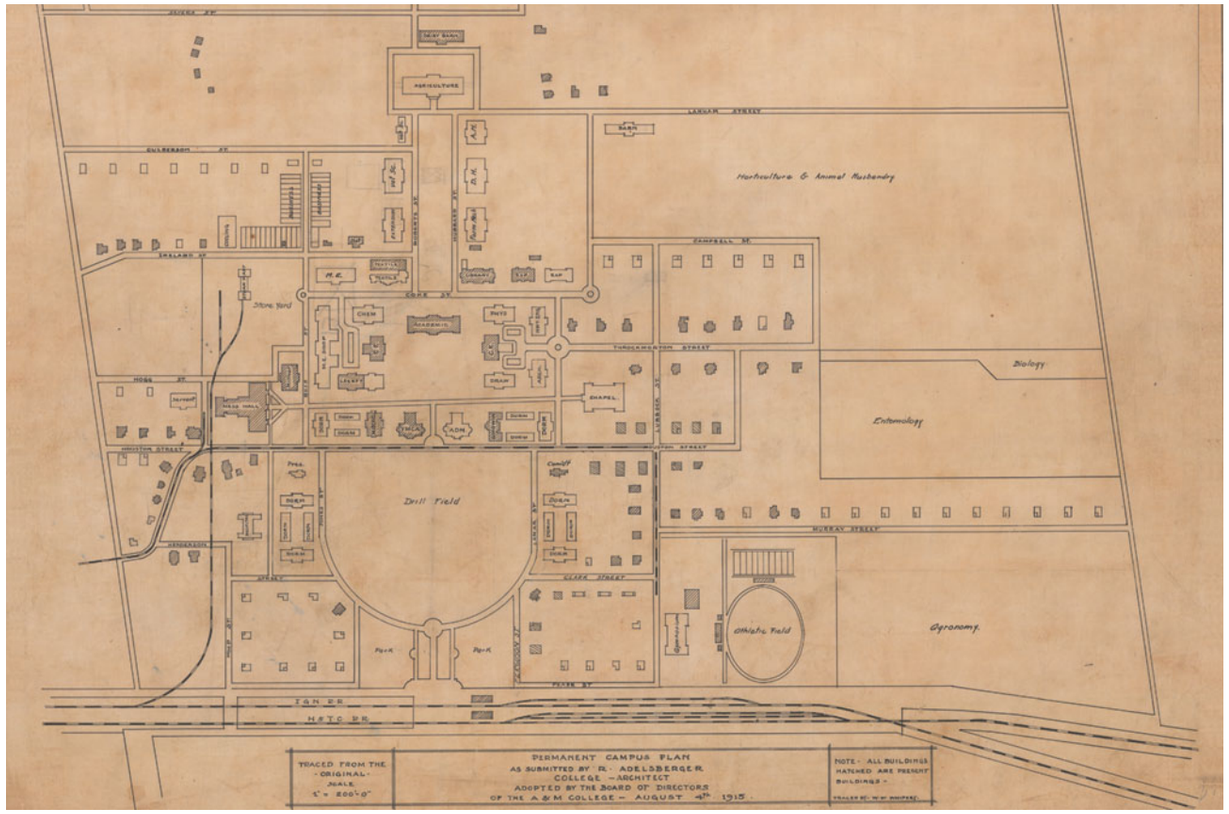
FIGURE 2
Campus development from 1909 to 1919. Buildings constructed during this period are shown in maroon.

The Assembly Hall, Ross Hall, Goodwin Hall, Pfeuffer Hall, along with Old Main and Gathright, defined what existed of the civic structure at the time, all essentially between Old Main and the railroad. This civic structure, however rough at the time, would become the genesis of the campus spaces that thousands of former students now know as the Simpson Drill Field, Old Main Drive, and the Academic Quad.

1909 TO 1919: DEVELOPMENT OF THE CAMPUS CORE

Beginning with the appointment of the first Campus Architect, F. E. Giesecke, in November, 1908, this decade marked the establishment of a major portion of the historic campus core that thrives today. The office of the College Architect was responsible for virtually all of the buildings on campus at the time, and as such, it had considerable influence on the quality of the campus environment. In 1912, Giesecke left to head the new Department of Architecture at the University of Texas, and was replaced by Rolland Adelsberger, then E. B. LaRoche, then H. N. June. Giesecke returned in 1927 to preside over yet another important period in campus history.

This period saw the construction of the Academic Building (1912), Nagle Hall (1909), Bolton Hall (1912), Bizzell Hall (1914), the YMCA Building (1914), Leggett Hall (1911), Sbisa Mess Hall (1912), Guion Hall (1918), and Francis Hall (1918). These structures marked a departure from the Victorian and Second Empire buildings of the late nineteenth century and a return to the classicism that would define the campus over the next two decades. Although classical in composition, proportion, and rhythm, the buildings were usually modest in detail and materials. Designed to replace Old Main after it was destroyed by fire in 1912, the Academic Building with its copper dome remains an enduring symbol of Texas A&M's quest for greatness over ninety years after its completion.



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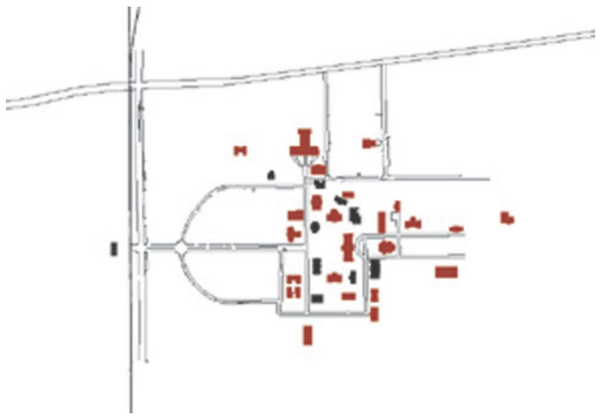

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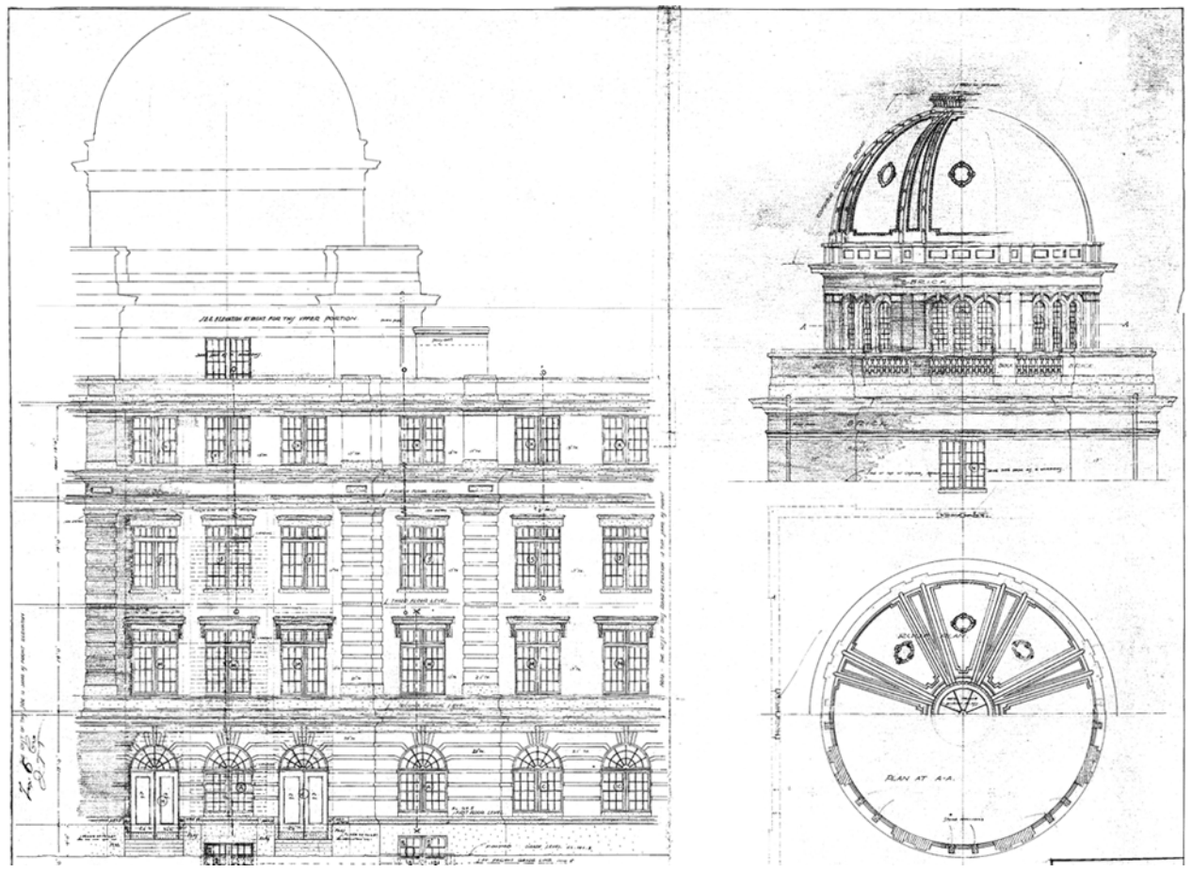

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In 1915, Campus Architect Rolland Adelsberger submitted a plan for the campus entitled "Permanent Campus Plan." While modestly depicted, the plan represented many of the elements of the civic structure in their infancy. The intent was clear: the development of an important quad to the east of the Academic Building, "filling out" the quad to the west of the Academic Building, the development of housing quads, the construction of a legible street system, and the construction of Military Walk (including its development slightly off parallel from Houston Street). The plan was adopted by the Board of Directors and served as catalyst for a logical development of the campus for almost twenty years.

Corresponding to the appointment of the Campus Architect in 1908 was the appointment of F. W. Hensel as an instructor in horticulture in 1913. Hensel became the University's first landscape architect and a formidable force in creating the landscape and civic structure of the campus that we know today.

FIGURE 3
Partial Academic Building, elevation and dome detail, 1912.

FIGURE 4
Photo of Nagle Hall.

FIGURE 5
Elevation of Nagle Hall.

FIGURE 6
Panorama of Academic Quad and Military Walk ca. 1917 taken from the roof of the YMCA Building. Prominent buildings from left to right are Sbisa Dining Hall (partially off photo), Gathright Hall, Leggett Hall, Ross Hall, the Academic Building, Pfeuffer Hall, Nagle Hall, Foster Hall, Assembly Hall, and Goodwin Hall.

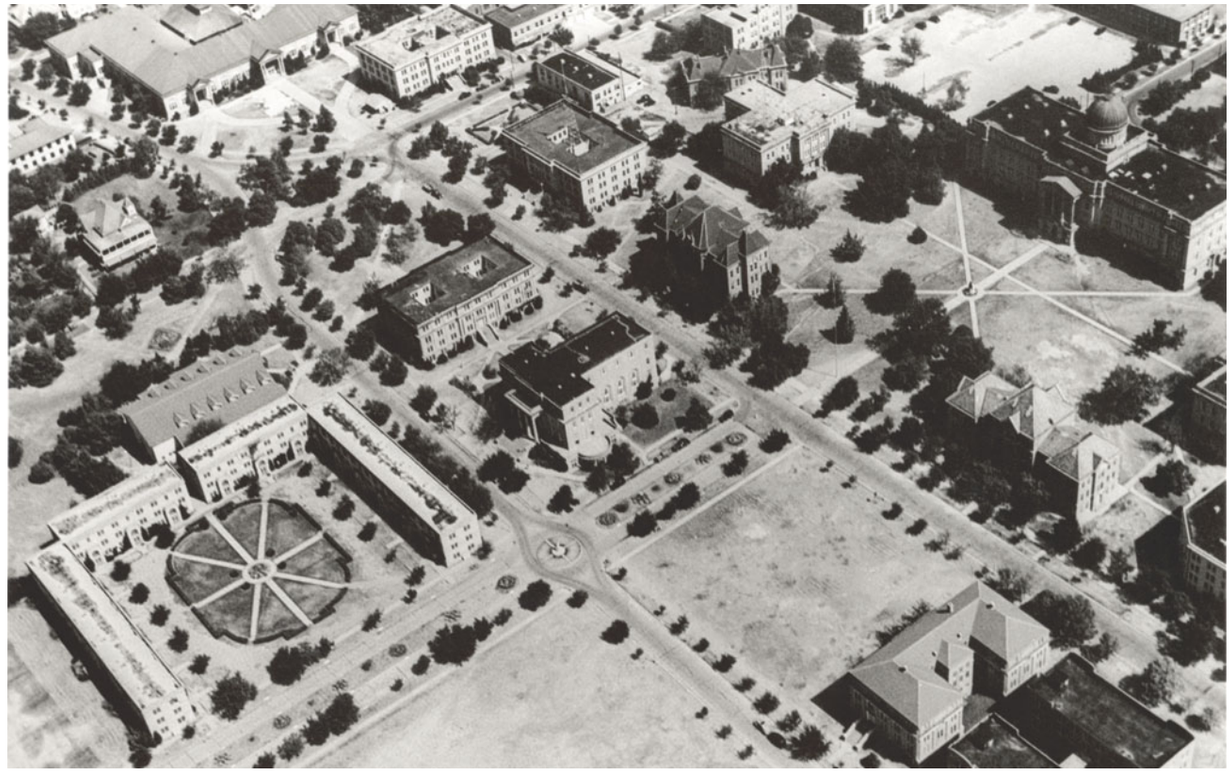

FIGURE 1
Aerial photo ca. 1940 indicating further development of the civic structure in the late 1920s and 1930's. Note courtyard formed by Law and Puryear Dormitories in the lower left.

FIGURE 2
Scoates Hall entrance, 1932.

FIGURE 3
Detail drawing of Scoates Hall entrance, 1932.

FIGURE 4
Campus development from 1920 to 1941. Buildings constructed during this period are shown in maroon.

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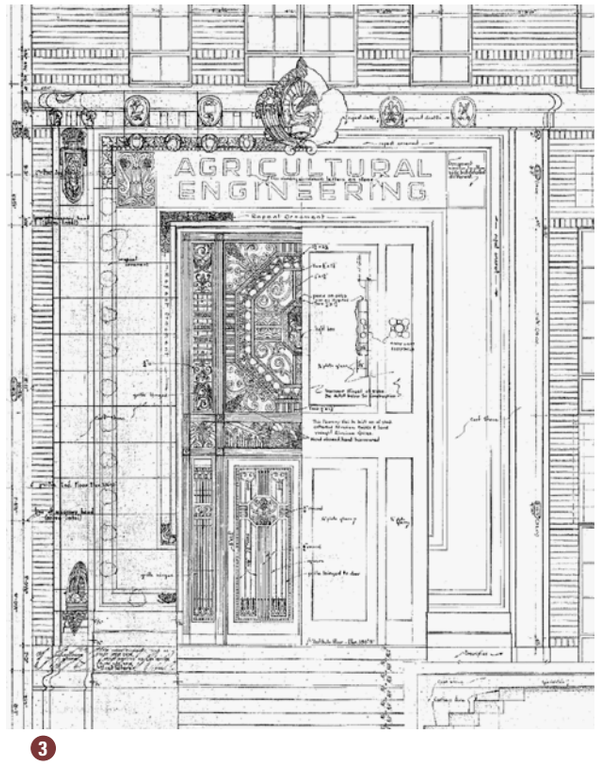

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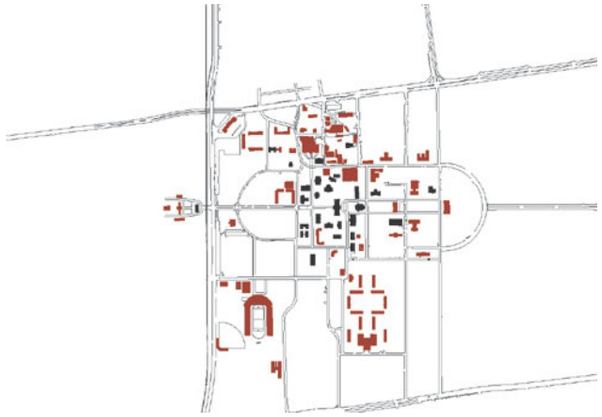

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1920 TO 1941: REORIENTATION AND EXPANSION

The 1920's and '30's represented a time of vast change for Texas A&M College. The 1920's saw further development of a return to classically proportioned structures, as typified by Physics (1920, renamed Psychology in 1987), the Agriculture Building, and the Extension Service Building (1924, renamed Military Science in 1933), in addition to the formal establishment of the Simpson Drill Field in 1920. After World War I, Hensel embarked on a plan to plant memorial live oaks around the Simpson Drill Field, an immense contribution to the physical definition of the space. He continued planting live oaks on campus streets through the 1930's.

With the construction of the Chemistry Building in 1929 came a completely new direction for campus architecture. This new direction solidified and expanded what we now know as the historic core of campus. At the helm of the change was Samuel

FIGURE 5

Photograph of Military Walk looking South from Sbisa, ca. 1920. Military Walk served as the processional route from Guion Hall to Sbisa Mess Hall until the early 1970s. While it still exists, it is no longer a functioning street. Prominent buildings from left to right are Gathright Hall (partially off photo), Leggett Hall, Ross Hall, Foster Hall, Assembly Hall, Guion Hall (on axis with Military Walk), Goodwin Hall, YMCA Building, and Mitchell Hall.

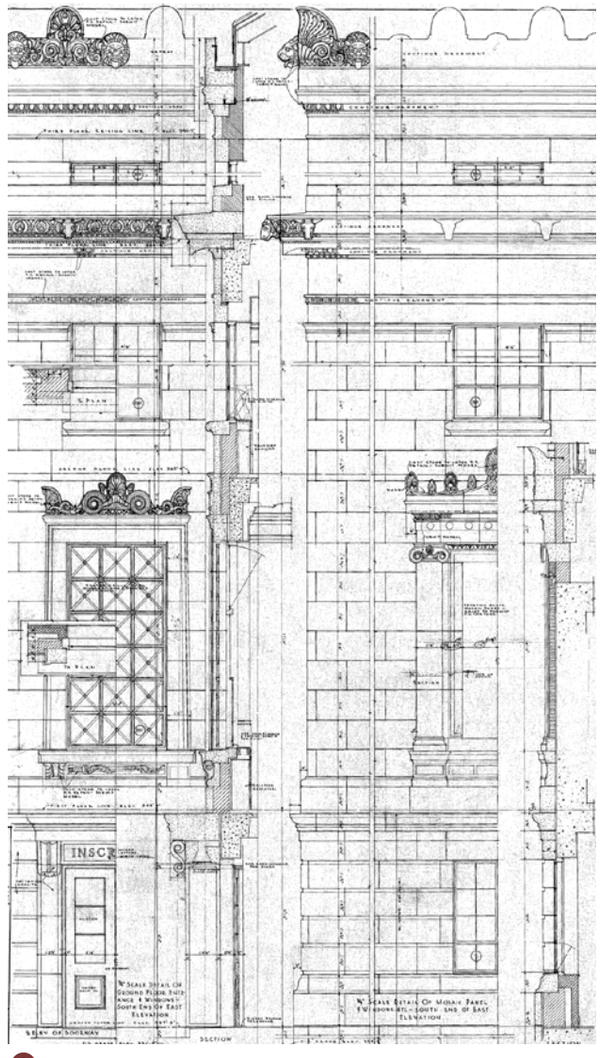
FIGURE 1
Details of the Administration Building (now the Williams Administration Building), 1932.

FIGURE 2
Administration Building (now the Williams Administration Building), elevation, 1932.

FIGURE 3
Relief cast stone detail at the Administration Building cornice.

C. P. Vosper, an architect working as Chief Designer in the office of the College Architect, F. E. Giesecke. In most cases, Giesecke was responsible for the building's structure, while Vosper was responsible for its architectural language. While under employment of several architectural firms, Vosper made significant contributions to the architectural landscape in central Texas. He came to Texas A&M from the University of Texas in 1928, where he had been instrumental in assisting with the accreditation of the Department of Architecture.

At Texas A&M, the impact of Vosper's work during this period is readily identified by his attention to detail, unusual details that mark the buildings as structures of Texas A&M University through the imagery they convey. Reminiscent of the work of Goodhue at the Nebraska State Capitol, Vosper's work embodies the spirit of the place in animal figure relief, polychrome tile and stone mosaics, and intricate ironwork. Beginning with the Chemistry Building, Vosper was the architectural spark behind some of the most memorable buildings on campus. The year of 1932 was



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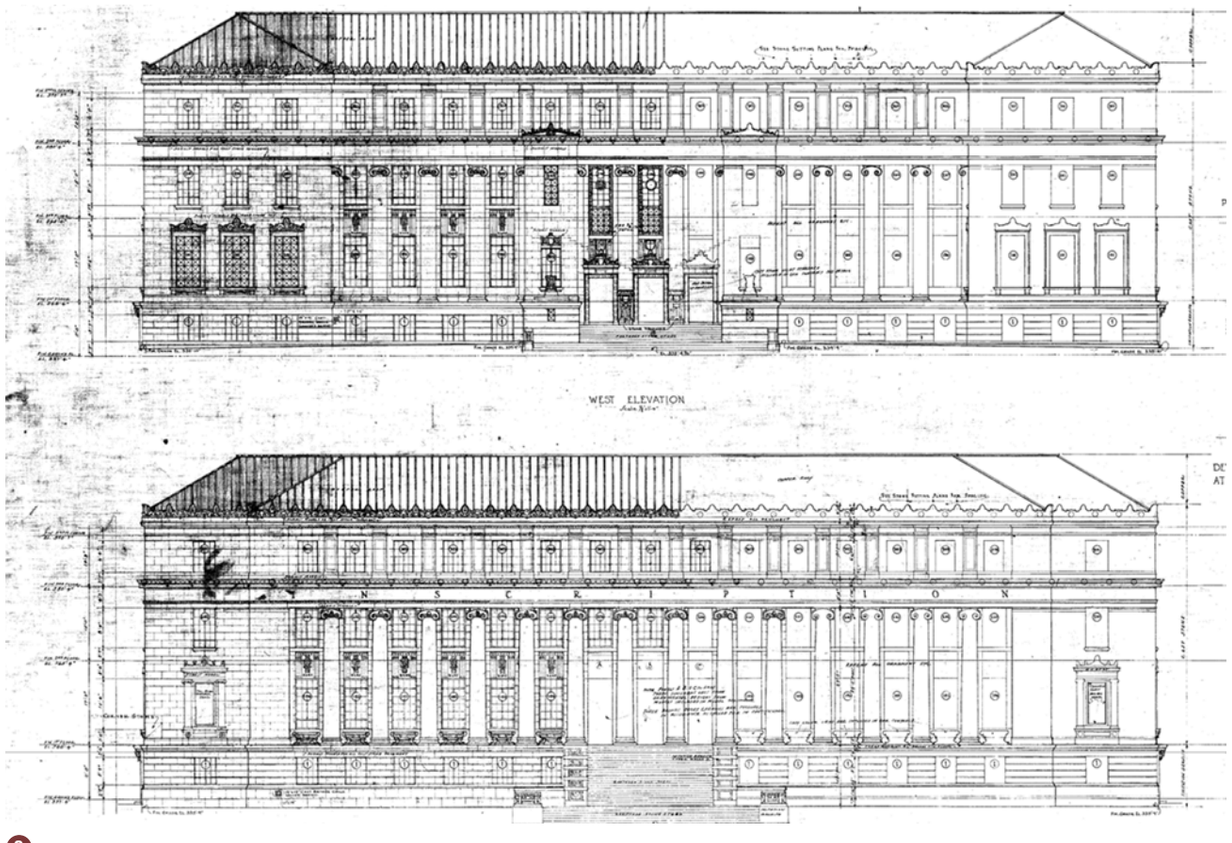

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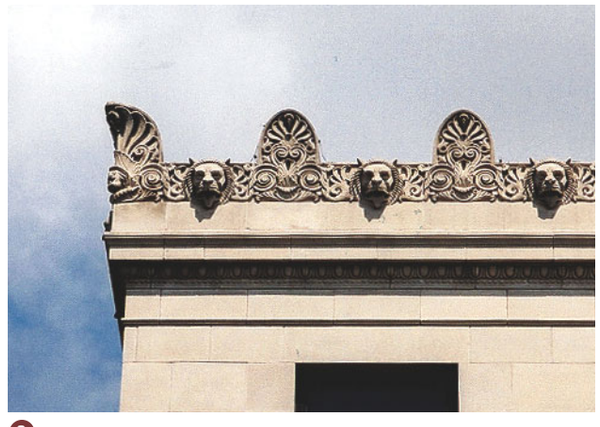

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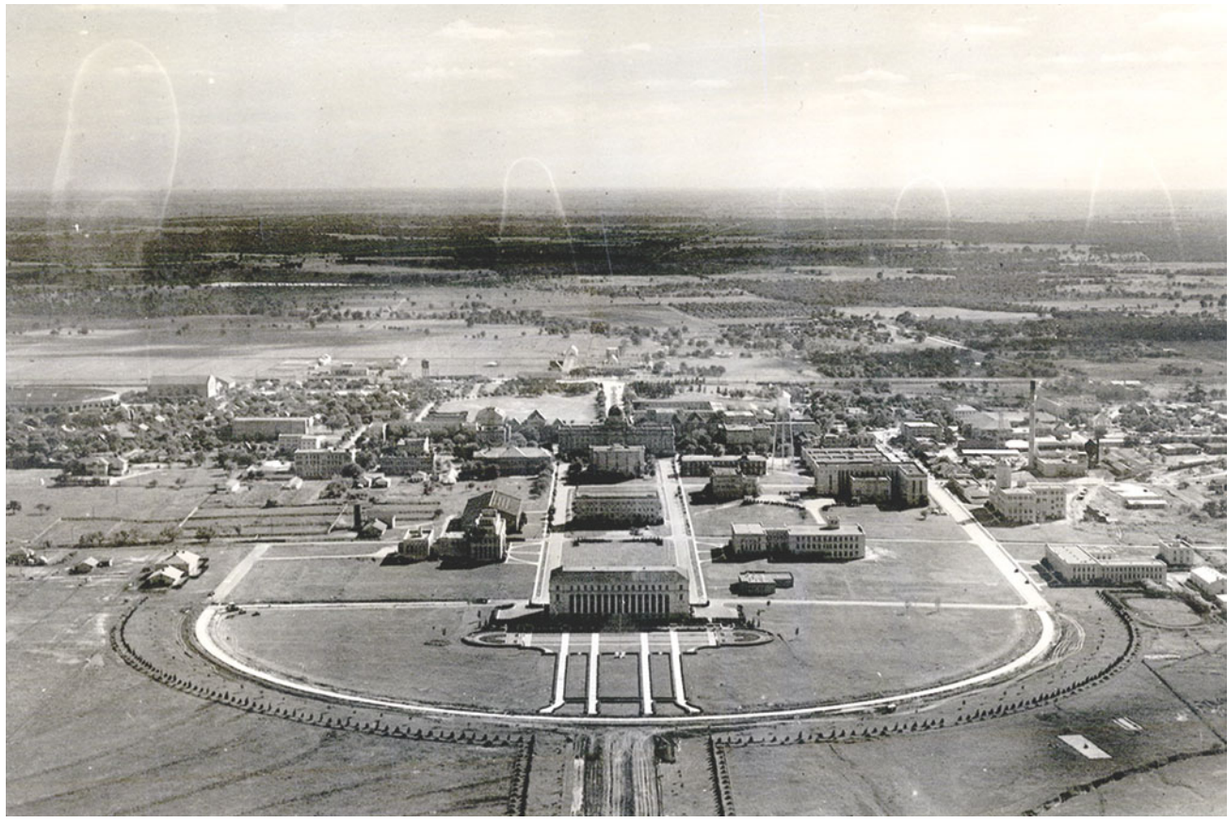

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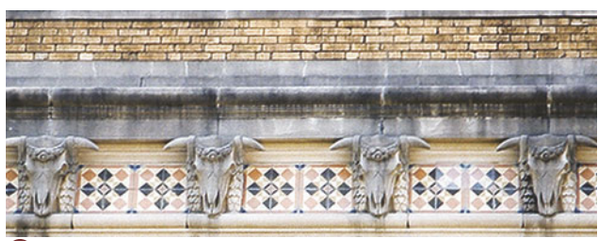

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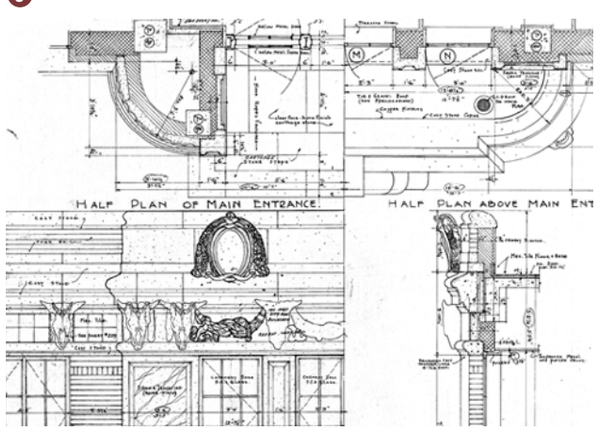

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perhaps the most prolific in the Vosper/Giesecke era, witnessing the beginning of the Agricultural Engineering Building (later renamed Scoates Hall), Animal Industries Building, Petroleum Engineering (later renamed Halbouty Geosciences Building), Veterinary Hospital (later to become Civil Engineering), and the Administration Building (now the Williams Administration Building).

With Hensel's guidance, the placement of Scoates Hall, the Animal Industries Building, and the Administration Building began to define the East Quad. Owing to the vision and successful lobbying efforts of Hensel, the new route for Highway 6 would be established on the east edge of campus, allowing the Administration Building to terminate an axial entrance to the campus from the new highway. This marked a major departure point in campus planning at Texas A&M. The main entry no longer coincided with the railroad to the west; it was now from the east. The plan for the new east entry is clearly more processional and grand in scale

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FIGURE 4
Aerial photo from 1936. Extension of civic structure to the east by Hensel and buildings by Vosper and Giesecke are evident. Note New Main Drive is not yet paved. Roberts and Hubbard Streets extend from the Academic Building to the Administration Building. Together with the Animal Industries Building, the Pavilion, Agriculture (History), Scoates Building, and the Administration Building define the Agricultural Quad.

FIGURE 5
Detail of the Animal Industries Building facade.

FIGURE 6
Detail of stone pebble mosaic at the Halbouty Geosciences Building.

FIGURE 7
Enlarged detail drawing of the Animal Industries Building facade.

FIGURE 8
Cast stone relief at the Halbouty Geosciences Building depicting seashells and mollusks.

FIGURE 9
Cast stone relief at the Animal Industries Building facade.

FIGURE 1
Aerial photo of campus, 1962.

FIGURE 2
Campus development from 1942 to 1962. Buildings constructed during this period are shown in maroon.

FIGURE 3
Memorial Student Center, 1950.

than the entry from the railroad station. However, it is interesting that the idea of a semicircular loop is still evident, even though at the time, existing buildings made a complete loop impossible. Perhaps it was thought that eventually the opportunity to complete the loop would arise. The importance of these changes to the civic structure cannot be overstated. The civic structure not only formed a spine that consisted of a series of streets and quads, it extended that structure from the western edge of the campus to the eastern edge.

Vosper left in the mid-1930s, and the campus saw the creation of fourteen new dormitories, including twelve to house the Corps of Cadets. These buildings were modest in scale and detail; however, their arrangement would define another significant piece of the campus civic structure, establish a change from the solely east-west axis, and begin to strengthen the secondary north-south axis.

1942 TO 1962: THE POSTWAR ERA

The postwar period was characterized by rapid growth. In addition, most of the buildings did not represent the quality and character of the first seventy years of campus growth, and in general, fewer resources began to be dedicated to the most public part of the building, the facade. The buildings of this period mark the beginning of a time when new structures on the campus would no longer relate to the older ones architecturally. While the quality of the structures themselves was not commensurate with the

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previous decades, many of these structures were still placed in such a way as to create a community of spaces. They continued to define quadrangles, streets, and other components of the civic structure.

Most notable among the buildings of the postwar period are the Memorial Student Center (1950), the Richard Coke Building (1951), the G. Rollie White Coliseum (1952), the Printing Center (1955), the Herman Heep Building (1957), Biology Sciences Building East (1950), Henderson Hall (1958), the Doherty Building (1960), and All Faiths Chapel (1958). As architecture, none of these buildings represents the state of the art in the profession at the time. However, what is more interesting is that the vocabulary of the buildings had begun to become more isolated from one structure to the next, even those built within the same time frame. Perhaps it was a result of the extraordinary growth during this period, but there were other contributing factors. Records indicate that, although the office of College Architect remained, its role became that of executing some of the buildings, while others went to outside firms. This represented an important change in direction for the campus and a significant loss of an overall continuity for its architecture.

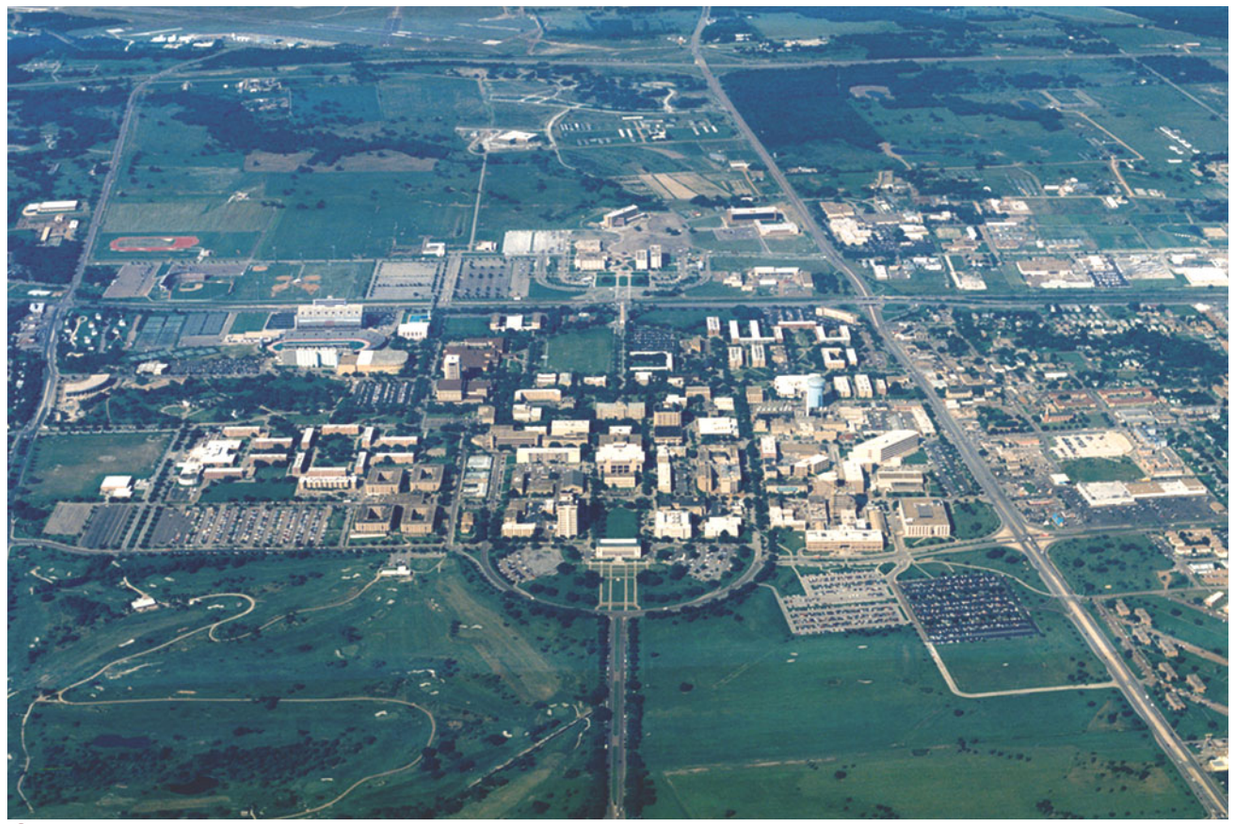
FIGURE 4
Richard Coke Building, 1951.

FIGURE 5
All Faiths Chapel, 1958.

FIGURE 6
G. Rollie White Coliseum, 1952.

FIGURE 1
Aerial photo, 1987.

FIGURE 2
Campus development from 1963 to 2003. Buildings constructed during this period are shown in maroon.



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1963 TO 2003: SUBURBANIZATION OF THE CAMPUS

This period is rather long compared with those previous, primarily because relatively few positive things happened to the campus's physical environment. It represents the demise of the College Architect in the role that it had served in the first part of the twentieth century. In 1967, the Office of Planning and Institutional Analysis at Texas A&M was created and given the task of creating a master plan and providing planning support services on a continuing basis. In 1972, the Office of Planning and Institutional Analysis along with Caudill, Rowlett & Scott published a report entitled "Texas A&M University Campus Planning Workbook." During the 1970's Military Walk ceased to be a street, and with the introduction of landscape berms and concrete seating areas placed at either end, began to represent very little of the qualities of its early life. Coinciding with the changes to Military Walk was the introduction of landscape berms in other parts of the campus, the most detrimental to the civic structure being the large berm at the west end of the East Quad. Much of this work began in 1972 with the Texas A&M University Campus Planning Workbook and continued with the 1974 Landscape Master Plan by Myrick, Newman & Dahlberg.

While the buildings of this period are certainly varied in terms of style, quality, and contributions they make to the campus, the major impact of this period is the decentralization of the campus community, characterized by sprawl. It is an issue not only at Texas A&M, but, with few exceptions, at virtually every major university in the United States. Buildings from this period are almost always program driven, with little regard for their contribution to a sense of community. Odd-shaped footprints combined with siting of buildings driven by the need to have access to convenient surface parking have contributed to the degradation of the campus environment.

Another significant component of the sprawl is the relationship

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between surface parking growth and student population. The University currently has over 45,000 students and over 33,000 parking spaces. Of these spaces, approximately 23,000 are in surface lots, and using an average of 300 square feet/space, this provides a total of about 6,900,000 square feet, or about 159 acres in surface parking.

The 1981 West Campus Master Plan by Schrickel, Rollins, and Associates advocated further development of the area of campus west of Wellborn Road, and the subsequent 1990 Master Plan, also by Schrickel, Rollins, began to recognize the problems faced by this approach. The 1990 Plan identified the following problems with the development of West Campus: distance from East Campus, linkage across Wellborn Road and the railroad, and the lack of a symbolic axial connection to the east campus. Neither plan adequately addressed the unrealized potential for continued development within East Campus, and the need to return to a critical density that would enhance the campus environment. Density in the east campus is one way to diminish the distance (both perceived and actual) between West and East Campus.

With few exceptions, and despite the negative impact of additions on other parts of the campus, the civic structure of the historic campus core survived this period and, in some cases, was actually enhanced by additions. Examples of enhancements are the Albritton Bell Tower (1984), New Main Drive improvements (2002), and the Koldus Building (1991). The Koldus Building is important in that given the number of parking spaces at the University, it represents a building typology that is perhaps appropriate for the future, that of structured parking wrapped by occupied space that further defines the civic structure.

What is apparent in 2003 is that what has always been Texas A&M's most prevalent resource, land, is in fact finite. To improve the quality of the campus environment, to preserve the best parts of campus, and to preserve land and resources for future generations, the University must return to those ideals on which it was founded, the embodiment of the spirit of Texas A&M University in its physical environment.

FIGURE 3
Albritton Tower, 1984.

FIGURE 4
Biochemistry/Biophysics Building, 1989.

FIGURE 5
Kleberg Building, 1978.

FIGURE 6
Eller Oceanography and Meteorological Building, 1973.

FIGURE 1

Aerial photo of the Campus in 2003 looking east. Sprawl of West Campus in the foreground contrasts with relative compactness of East Campus in the background.

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III. THE CAMPUS TODAY

The evolution of the campus at Texas A&M University over the last century illustrates that, from its founding up until the start of World War II, those charged with development of the campus followed a set of tenets that served (and continue to serve) the campus well. Development of a compact campus with a clear system of streets, paths, and quadrangles framed by buildings that were human in scale, articulate in detail, had clearly defined entrances, and sited to create spaces: this was the norm.

Beginning immediately after World War II, the campus expanded to respond to the enormous growth, and in the process did not adhere to the tenets of earlier periods of the campus development. Buildings were developed farther and farther apart and began to relate to one another less in their architectural language. This in turn led to sprawl and the degradation of the campus's physical environment, particularly in West Campus.

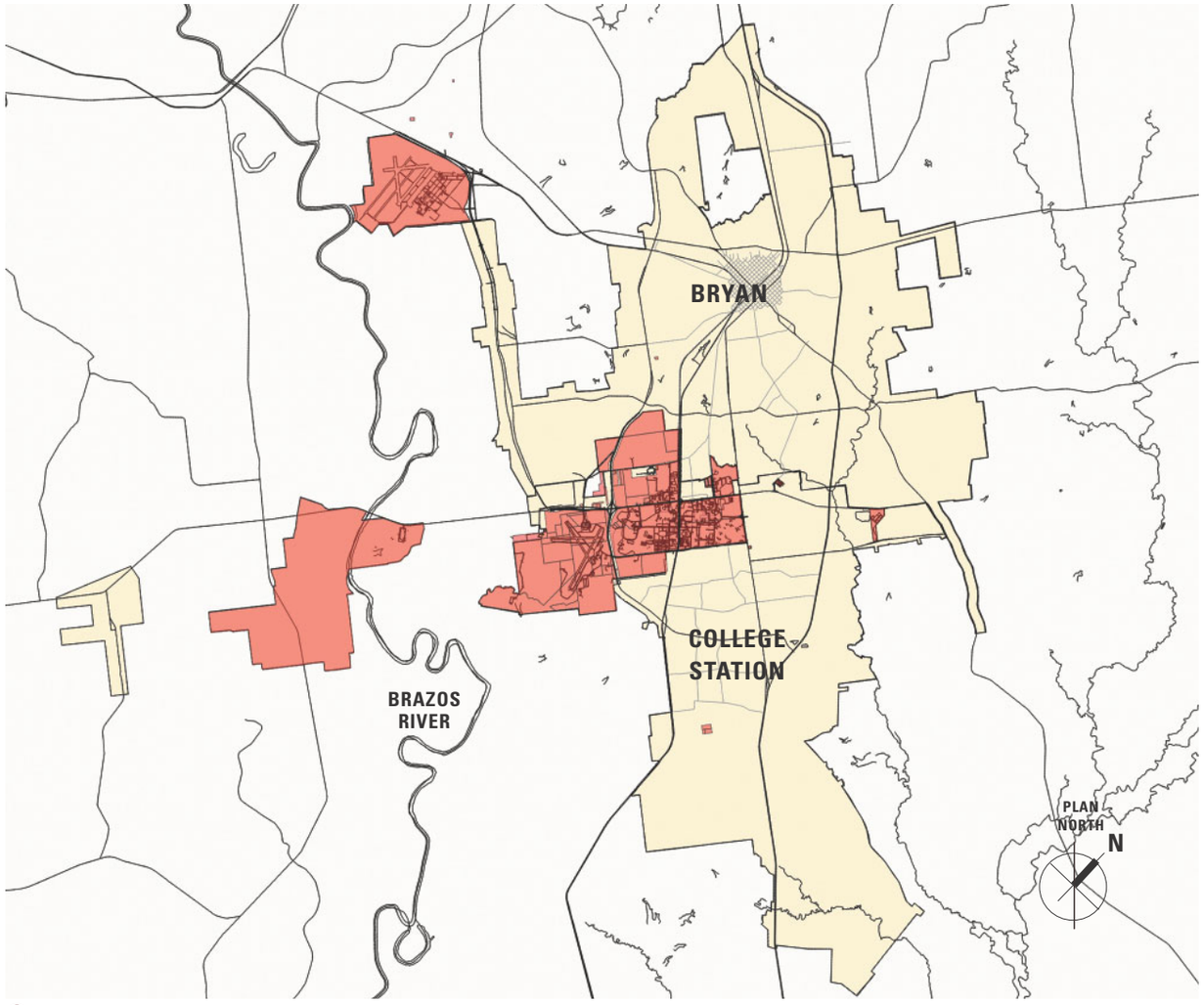

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FIGURE 2
Map of the Bryan and College Station area showing Texas A&M land ownership.

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FIGURE 3
An aerial photo of the A&M campus from 2002.

STATE OF THE CAMPUS

Texas A&M University today is markedly different from the campus of the early twentieth century. In addition to East and West Campus, the University's holdings include the Riverside Campus, the Student Leadership Retreat Center site, Easterwood Airport, Research Park, Hensel Park, the University Apartments, the Brazos Duplex site, and the School of Veterinary Medicine, the Animal Science Teaching and Research Center, University Farm, and several buildings—the University Services Building,

the John B. Conally Building, and the Business Management Services Building. Texas A&M University's original main campus is composed of 748 acres, more or less, bounded by Texas Avenue, George Bush Drive, Wellborn Road, and University Drive. West Campus is composed of an additional 1,083.7 acres; Easterwood Airport is composed of 2,157.5 acres. In each case, the University also owns the mineral rights as well as the surface rights. Adding contiguous properties, the "campus" is composed of approximately 5,280 surface acres.

Adding these properties with others, such as the Animal Science Teaching and Research Center (574.5), the Riverside Campus (1,929.6), the University Farm (3,192), the John B. Conally Building (6.8), the Business Management Services Building (1.03), and the University Services Building (57.3), yields a total of approximately 11,000 surface acres in the vicinity of Bryan and College Station. In total, the University owns approximately 18,940 surface acres in Texas; the total mineral acres are slightly less at approximately 18,215.

Geographically, the contiguous campus as we know it extends from the Student Leadership Retreat Center site at the western approach end of runway 4-22 at Easterwood Airport, eastward to Texas Avenue; and from the southern approach end of runway 16-34 northward past F&B Road. The main academic and research portions of the campus, and thus the bulk of the campus development, are bound by F&B Road on the north and George Bush Drive on the south, and Harvey Mitchell Parkway (FM 2818) on the west and Texas Avenue on the east. Although arguably one of the most important components of the Bryan and College Station area, the campus has little in the way of physical connection to the community. Bound largely on three sides by green space, the edge along University Drive is underdeveloped in the context of fostering a strong physical linkage to the Northgate area.

Within the geographic boundaries of the campus lies a relatively consistent pattern of land use. With some exceptions, academic, residential, athletics, and support have fairly distinct groupings. With the development of West Campus, units or departments with functional ties to other units or departments on East Campus were located on West Campus because land was plentiful and it allowed them to be more clearly associated with their own identity. The bulk of the land on the periphery is open but includes uses such as the airport, USDA facilities, the Golf Course and Polo Field, as well as the Ag/Equestrian Center to the south of George Bush Drive. No land has been dedicated to remain development-free, with the exception of the Polo Field and Golf Course on the east side of the campus.

Within East Campus (between Wellborn Road and Texas Avenue, and between University Drive and George Bush Drive), the environment is predominantly defined by a legible pattern of streets, paths, quadrangles, and other open spaces. Buildings generally line the streets and open spaces in such a way that they define what we know as the civic structure. Most of the buildings in this part of the campus are two to four stories in height, with several mid-to high-rise buildings (Harrington Tower, Eller O&M Tower, Rudder Tower, the Richardson Petroleum Engineering Building, and the new Chemical Engineering Building) that disrupt the overall consistency of the scale of this part of the campus. The architectural significance of buildings on East Campus varies, although with few exceptions, buildings constructed before World War II make up the architecturally significant category. The landscape on East Campus is mature and adds immensely to the quality of the environment; the hardscape, however, lacks a cohesive feel or a hierarchy that would define the types of spaces to a finer degree.

West Campus (the area between Wellborn Road and FM 2818, and George Bush Drive and Raymond Stotzer Drive) is physically isolated from East Campus by Wellborn Road and the railroad, and is defined by free-form streets and paths that have no relationship to East Campus, or to the buildings and spaces on West Campus. The buildings are inwardly focused, generally unwelcoming, and unarticulated. The landscape is a mixture of mature and immature specimens, which, when combined with the overscaled, free-form streets and paths, do not serve to define spaces in a cohesive manner. Surface parking consumes a vast amount of land that would be better suited for development or left as green space.

The campus today possesses positive aspects as well as negative aspects. The following list summarizes those qualities.

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FIGURE 1

The Academic Building, built in 1912, has a clearly defined entrance that many later buildings lack.

FIGURE 2

Although in need of enhancements, the quadrangle east of the Academic Building demonstrates earlier efforts to create a campus with a clear system of streets, paths, and quadrangles.

FIGURE 3

The mature landscape of the East Campus is an integral part of the quality of the environment. The "Century Oak" is an excellent example of the mature landscape and is one of the oldest live oaks in the area.

POSITIVE ASPECTS OF THE CAMPUS

1. ***East campus has an intact civic structure (streets, paths, quads, and plazas) that provides a framework for the buildings.***
2. ***There is a sustainable, compact core that supports efficient and enjoyable pedestrian travel.***
3. ***It has a rich and varied architectural heritage on which to build and from which to draw inspiration.***
4. ***It possesses substantial undeveloped open space.***
5. ***It has a rich and varied landscape heritage that reinforces the civic structure.***
6. ***There are numerous tradition-rich places on campus that people revere.***

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NEGATIVE ASPECTS OF THE CAMPUS

The state of the campus in 2003 is a result of a variety of factors. The Long Range Plan will examine the opportunities available to reinforce the positive aspects of the campus as well as address the negative aspects. It will provide a roadmap for a return to those tenets that served the campus up until the beginning of World War II.

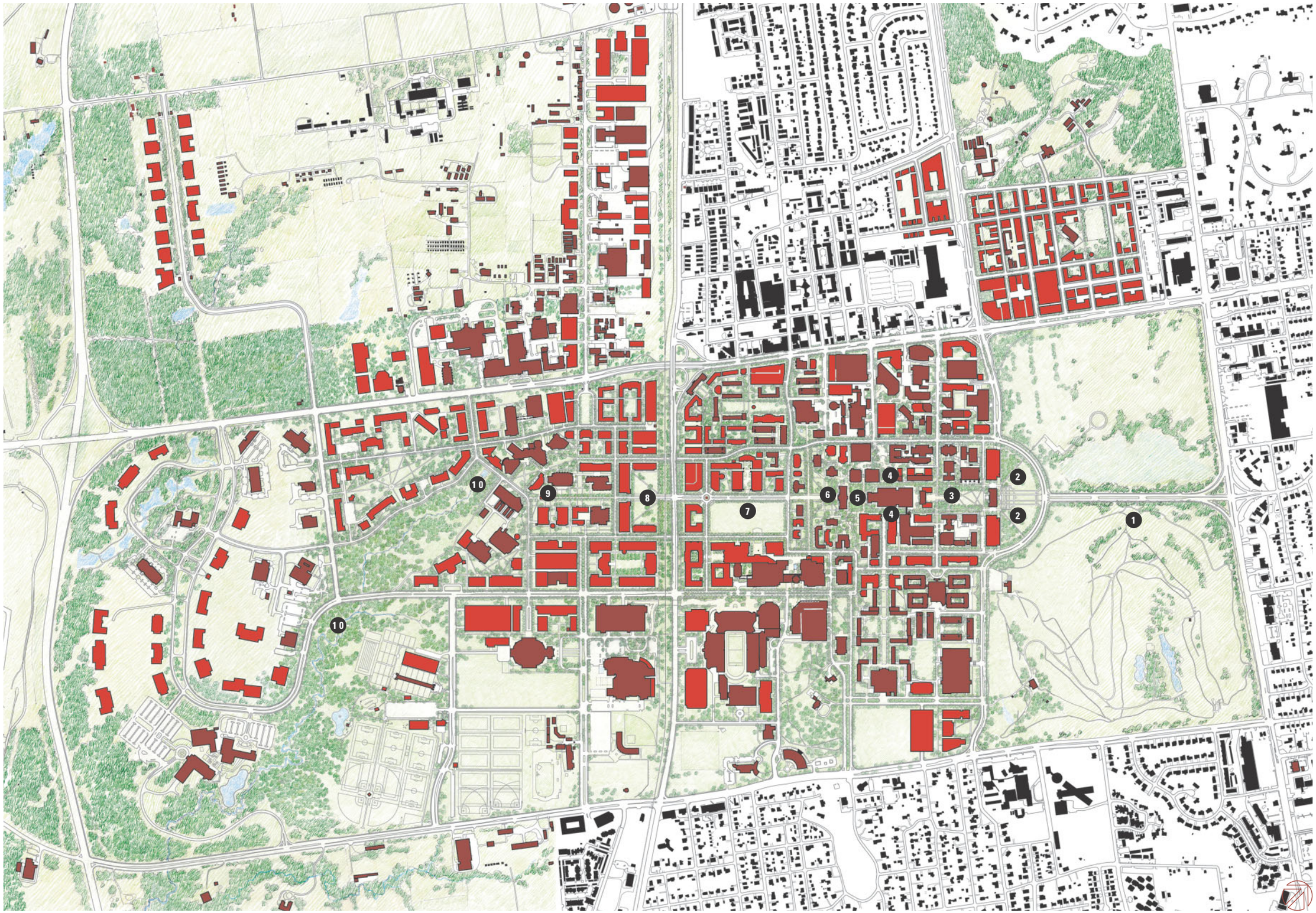
The major physical problems with the Texas A&M campus today are the following:

1. ***There is a disconnection between East Campus and West Campus caused by Wellborn Road and the railroad and reinforced by the difference in building and landscape contributions.***
2. ***The civic structure that exists on East Campus has not been extended to West Campus.***
3. ***There are several isolated buildings that do not reinforce a sense of community or campus identity.***
4. ***Degradation of the campus architectural heritage from insensitive additions and renovations to historic buildings and construction of newer buildings whose quality is not commensurate with the older ones.***
5. ***Excessive vehicular access to many parts of the campus conflicts with use by pedestrians.***
6. ***Large amounts of surface parking utilize valuable land and do not contribute to the campus environment.***
7. ***Campus development at inadequate density consumes open space and contributes to sprawl.***
8. ***There is a gradual erosion of open space, without defining new spaces.***
9. ***The lack of a defined edge on University Drive weakens the physical connection to the community.***
10. ***There is a perception that there is a lack of space on campus when compared to other institutions.***
11. ***The process for site selection and design approval has failed to produce high-quality buildings or a high-quality campus environment.***

FIGURE 1
A map of the Texas A&M campus in 2003.

FIGURE 2
The free-form streets and paths of West Campus have no relationship to East Campus or the buildings they serve. Isolated buildings on West Campus do not reinforce a sense of community or campus identity.

FIGURE 3
Photo of University Drive illustrates the challenge in forging a positive connection to the community given the vehicle-dominant nature of the street.



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IV. THE LONG RANGE PLAN

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FIGURE 1
Proposed Long Range Plan, with the major components identified.

FIGURE 2
Proposed West Quadrangle looking west from Wellborn Road at Old Main Drive.

OVERVIEW

As stated earlier, the Campus Master Plan for Texas A&M University is intended as a strategic and tactical guide for the physical development of the campus over the next fifty years. It is a hierarchical, comprehensive plan to bring the physical environment into alignment with the mission of the University. The plan seeks to accomplish this through two primary means: *growth management* and *improved quality of the physical environment*.

The central part of the Campus Master Plan is the Long Range Plan. Its name is intentional. It comprises *elements*—the Green Reserve, Development Zones, Community Interface, etc.—that are the specific guides for long-term development, as well as specific *components*—the East Quad and its buildings—that form the backbone, or central spine, of the campus.

Strategic Recommendations of the Long Range Plan:

- ***Extend the existing civic and landscape structure of the historic core through to West Campus;***
- ***Unite East and West into one campus by building development along the central axis of the campus;***
- ***Increase the building density of the Mid and West Campus;***
- ***Create new quadrangles in the west parts of the campus;***
- ***Redevelop Wellborn Road as a tree-lined boulevard;***
- ***Develop two underpasses under Wellborn Road and the railroad;***
- ***Redevelop University Drive as a safe, pedestrian-friendly, tree-lined boulevard;***
- ***Replace surface parking with green spaces, buildings, and garages, and limit private vehicles to the perimeter of campus; and***
- ***Improve the quality of campus architecture and landscape.***

Major Components of the Long Range Plan:

1. ***New Main Drive;***
2. ***The Administration Building East Lawn area;***
3. ***The East Quad;***
4. ***The east-west pedestrian walks on the north and south side of the East Quad and library;***
5. ***The Library Quad and Diversity Plaza;***
6. ***The Academic Quad and Military Walk;***
7. ***The Simpson Drill Field area and new underpasses at Jones Street and Lamar Street;***
8. ***New West Quad and Wellborn Road;***
9. ***The West Campus Extension of Old Main; and***
10. ***The White Creek Greenway.***

INTRODUCTION

The Long Range Plan is one of four fundamental parts of the Texas A&M Campus Master Plan. The other three are the Landscape Plan, the Architectural Plan, and the Process. The Long Range Plan is less prescriptive in detail than either the Landscape Plan or the Architectural Plan, but it is highly prescriptive in its larger ideas. Intended as a broad framework that will guide development of the campus over the next fifty years, the Long Range Plan addresses issues of university *planning policies, open-space structure, land use, density of development, primary circulation systems, infrastructure,* and *relationship to the surrounding community*. The goal is to provide a stable but precise framework that enables near-term decisions regarding physical development to contribute to a sustained long-range vision of the campus—one that conserves campus resources and produces a beautiful, efficient, and coherent campus environment through the twenty-first century.

Texas A&M faces a myriad of unpredictable issues in the future. The full implications of Vision 2020 on the physical environment cannot be fully known at this time, and the impact of Texas's projected demographics on the University is elusive. Finally, the only predictable thing about future developments in science and technology promises to remain unpredictability itself. This is not a new circumstance. No one predicted the explosive growth of American campuses after World War II, and that growth could not be controlled. The quality of American campus environments suffered enormously as a result.

The Long Range Plan is intended to be at once stable and flexible, by combining the stability of time-tested planning principles at Texas A&M with the dynamic flexibility to accommodate evolving program needs. It does this quite simply: *the structure of open space on campus and the campus development parameters have the precision and stability to ensure long-term viability, while there is no prescription regarding building programs and functions*. In other words, the spaces are fixed, but the buildings can change. As a dynamic instrument, the Long Range Plan should be augmented by more detailed District Plans that address more specific issues and needs.

THE ORGANIZATION OF THE LONG RANGE PLAN

The Long Range Plan comprises four distinct parts: the *Campus Plan and Major Components*; university *Policies*; the Plan's interrelated *Elements*; and a recommended *First Phase Plan*.

The *Campus Plan* and its major architectural and landscape components are presented first in order to give an overview—a preview of what the campus might become over time. In fact, it will never be exactly as the Plan indicates. The Plan is simply illustrative of one of many possibilities. Likewise, the *Major Components* are intended as images that illustrate and give personality to the plan, not as literal prescriptions.

University *Policies* are an indispensable part of the Campus Master Plan, providing the authority of the plan, and enabling the university to implement, monitor, and enforce the plan.

The interrelated series of *Elements* undergird the plan and guide its development. They are intended to be finite and relatively inflexible—the "infrastructure" of the plan. They are defined in geographic and sometimes quantitative terms. Some, such as the Civic Structure, are more important than others, but together, these elements form a comprehensive strategy for the conservation and development of the campus.

The *First Phase Plan* illustrates approximately ten years of growth concentrated around the central part of the campus in order to implement the core of the plan as effectively as possible.

MAJOR COMPONENTS OF THE PLAN

Texas A&M is unusual in that rather than having developed as a series of buildings grouped around multiple quads, the campus has a dominant east-west axis that forms the spine of the civic structure. That east-west spine is subdivided into a number of components that make up the central sequence of the campus.

Existing Components of the Spine

Beginning at the intersection of New Main Drive and Texas Avenue, the existing components of the spine are:

1. ***New Main Drive;***
2. ***The Administration East Lawn;***
3. ***The East Quad;***
4. ***The east-west pedestrian walks north and south of the East Quad and Library Complex;***
5. ***The Library Quad and Diversity Plaza;***
6. ***The Academic Quad and Military Walk; and***
7. ***Old Main Drive and Simpson Drill Field.***

Beginning in the late 1970s, the campus began to develop west of Wellborn Road and the railroad. In the course of this development, the civic structure or spine of the campus that had served as its organizing element through its first hundred years was not extended to the west side of Wellborn Road and the railroad. The

1

FIGURE 1
Campus diagram showing the major existing components of the campus spine.

Long Range Plan focuses on revitalizing the existing part of this spine and extending it westward to aid in knitting the east and west portions of the campus together.

Revitalization consists of minor intervention to enhance established components of the civic structure, but extending the existing civic structure westward will entail major reconfiguration of street alignments as well as significant infill of buildings.

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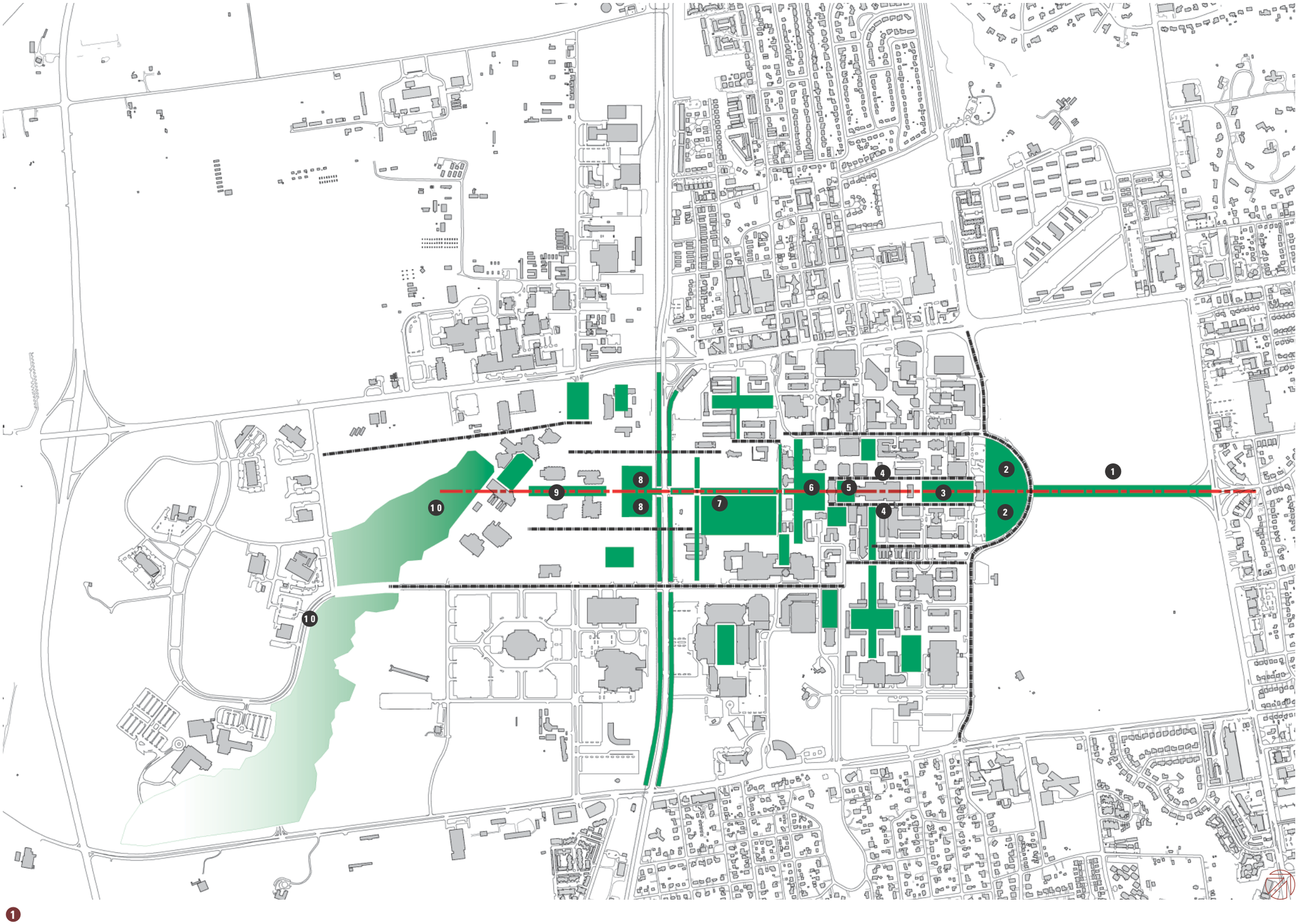
FIGURE 2
Aerial photo looking west, 2003.



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Major Components of the Long Range Plan

The major components of the Long Range Plan are:

1. ***New Main Drive;***
2. ***the Administration Building/East Lawn area;***
3. ***the East Quad;***
4. ***the east-west pedestrian walks on the north and south side of the East Quad and the Library Complex;***
5. ***the Library Quad/Diversity Plaza between the Academic Building and Cushing Library;***
6. ***the Academic Quad and Military Walk;***
7. ***the Simpson Drill Field area, and new underpasses at Jones Street and Lamar Street;***
8. ***a new West Quad, and the redevelopment of Wellborn Road as a tree-lined boulevard;***
9. ***the West Campus extension of Old Main; and***
10. ***the White Creek Greenway.***

These major components do not encompass all of the improvements recommended in the Plan; they are those that are necessary to make the east and west parts of the campus feel like one campus. Another goal is to enhance the sense of campus identity and community. Redevelopment and extension of the spine will provide new opportunities for academic and support facilities to accomplish this goal and will strengthen the pedestrian nature of the campus. This portion of the plan will discuss the intent and recommendations of each of the major components.

1. New Main Drive

The intent of this component is to provide a ceremonial main entry to the campus.

Significant improvements for this area were completed by the University in 2002. In addition, consideration should be given to the health of trees that line the drive, particularly those in the western one-third. As the campus matures, the university should avoid the temptation to introduce curb cuts, build structures, or otherwise dilute the continuity of New Main Drive.

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FIGURE 1

Proposed civic structure plan highlighting the major components of the Long Range Plan.

FIGURE 2

Aerial photograph showing improvements to New Main Drive completed in 2002.

FIGURE 1
Aerial photograph of existing conditions at the East Lawn and East Quadrangle.

FIGURE 2
Aerial view of the proposed improvement to the East Lawn and the East Quadrangle.

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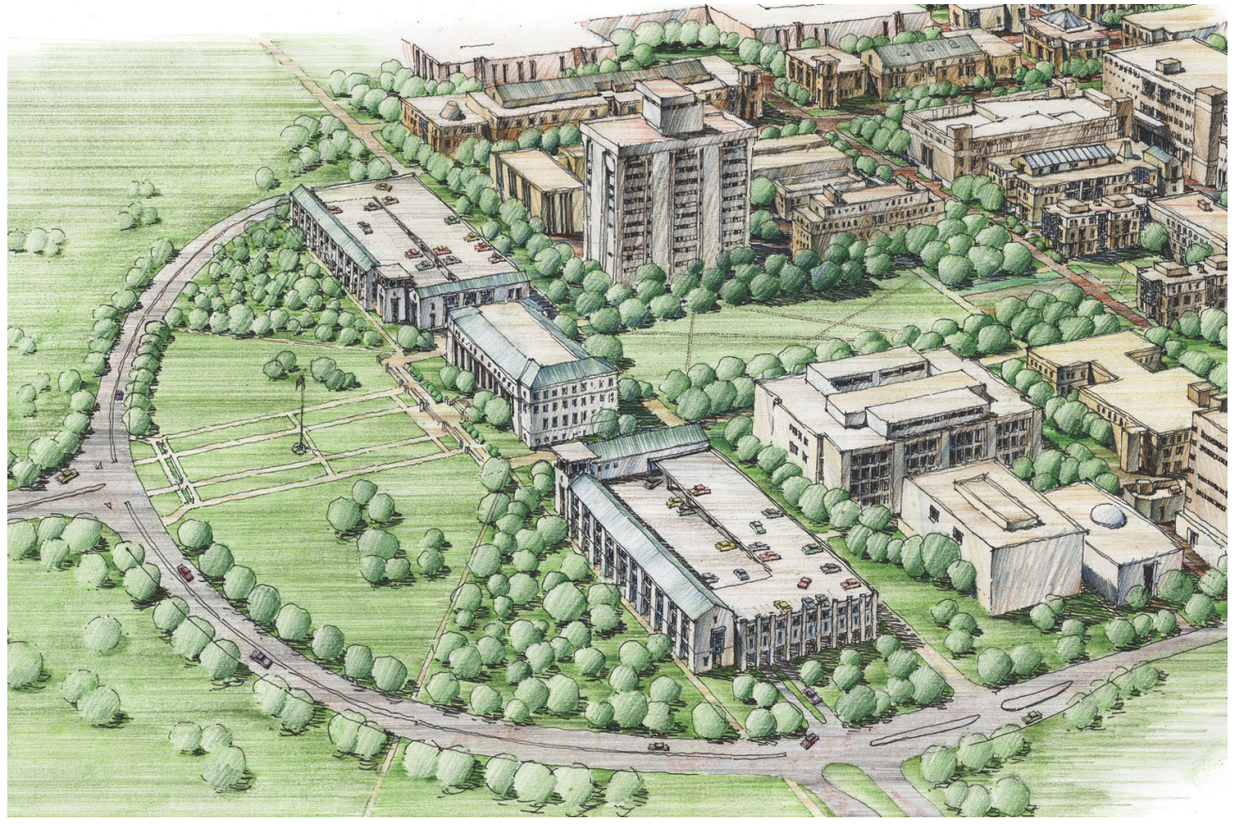

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2. The Administration Building/East Lawn area

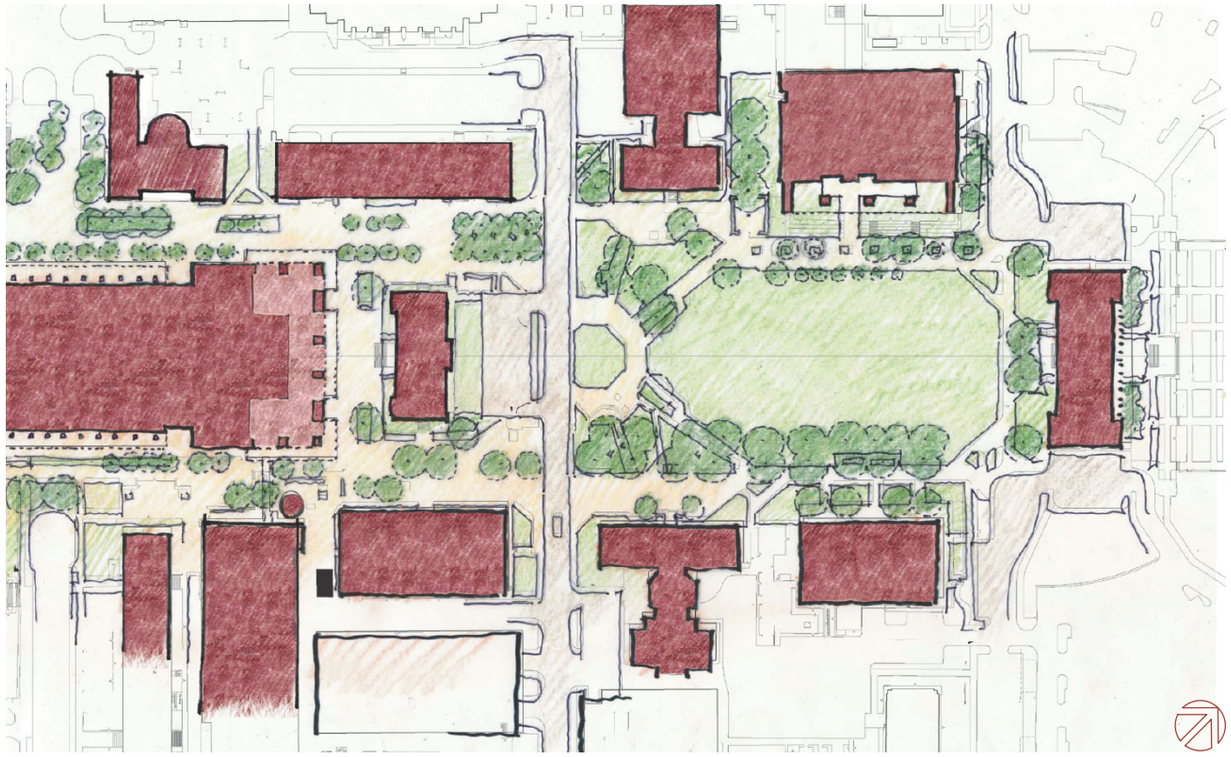
The intent is to eliminate surface parking in the East Lawn area, provide additional building space to support functions in that area, and strengthen the main entry to campus.

The recommendation is to construct two new parking garages as shown to absorb surface parking in that area. Each garage should be wrapped on two sides with occupied space of architecture that is both subservient and complementary to the Williams Administration Building. The facades of these buildings should align with the predominant facades on the east-west pedestrian walks, and these walks should be extended to the east side of the Administration Building. Walkways east of the Administration Building should be reconfigured to pull the complex together and strengthen the dominant position of the Administration Building.

3. The East Quad

The intent of this component is to return the East Quad to its original configuration, which will make it more useful as a space and strengthen the relationship between the Williams Administration Building and the History Building.

The berm at the west end of the quad should be removed. This will provide for a stronger visual relationship between the Administration Building and the History Building and make the quad more useful for both formal and informal activities. Additionally, it will enhance the drainage characteristics of the space, which currently are literally drowning the live oaks along the north edge of the quad. The live oaks on the south side of the quad are quite beautiful and should remain. The live oaks on the north side should be replaced after the quad is regraded. It is recommended that vehicles be prohibited from using Spence Street from the Chemistry Building to the north face of the Central Campus Garage.



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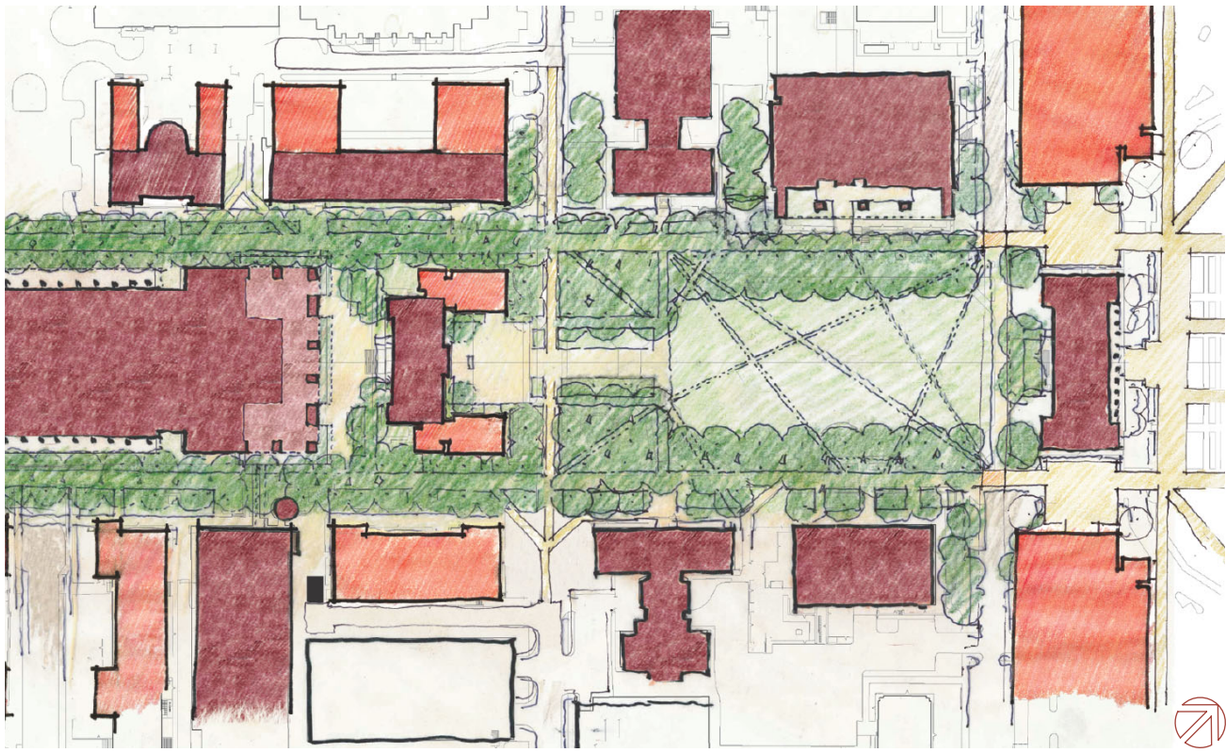

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4. The East-West Pedestrian Walks

The intent of this component is to reinforce the concept of the walk as a unifying element in the civic structure. Originally conceived as east-west streets (Roberts Street and Hubbard Street), the walks continue to be the strongest pedestrian link in the core of the campus. Unfortunate building encroachments on the walk (the Langford Architecture Building), along with inconsistent paving patterns and irregular tree spacing, have led to a somewhat disjointed feel to the walk.

The recommendations are to construct any new buildings or additions in such a way that their dominant facades align with the predominant building lines (Scoates/Francis on the north, the Academic Building/Administration in the center, and Animal Industries on the south). Proposed additions to the History Building should reinforce the center line of the quadrangle as well as define the western edge of Spence Street. Each east-west path along the walk should be planted with a double row of trees to establish a continuous tree-lined walk from the Administration Building westward to the Academic Building. Encroachment by the Architecture Building prohibits planting a northernmost row of trees along its face. Consistent ADA-compliant paving should be installed along the entire length using interlocking pavers. Spence Street and the transit route that crosses the East Quad in front of the Williams Administration Building should be marked by either contrasting pavers or concrete.

FIGURE 3

Plan of existing conditions at the East Quadrangle and the pedestrian walks.

FIGURE 4

Plan of the proposed improvements to the East Quadrangle and the pedestrian walks.

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FIGURE 1
Aerial photograph of existing conditions at the Library Quadrangle.

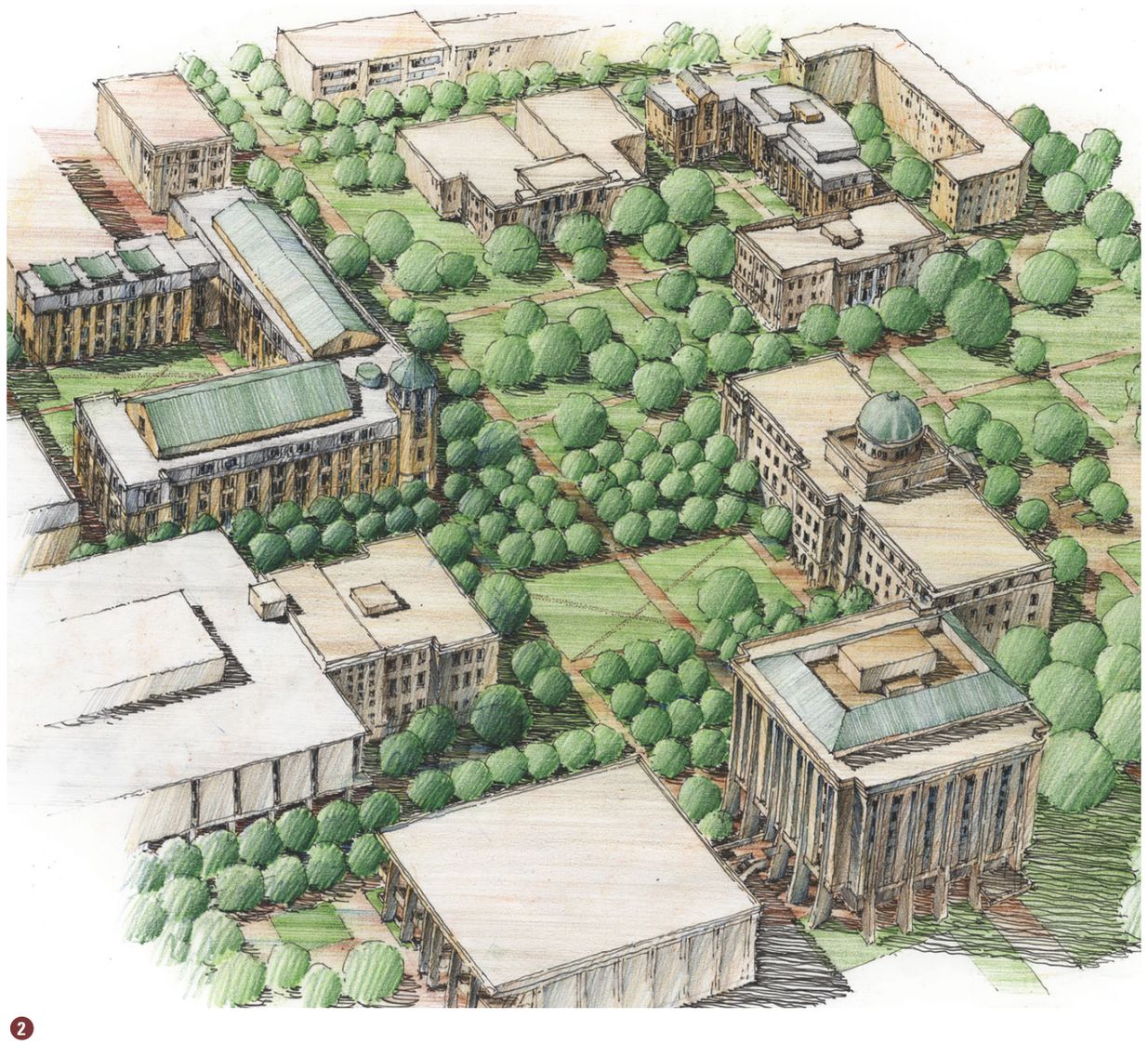

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FIGURE 2
Aerial view of the proposed improvement to the Library Quadrangle.

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FIGURE 3
Existing view looking north across the Library Quad.

5. The Library Quad and Diversity Plaza

The intent of this component is to clarify and strengthen the relationship between the Academic Building and Cushing Library; to establish a stronger edge to the north and south of this space; and to make the quad a gathering place rather than simply a "pass through" space.

Recommendations for this space are to continue the double row of trees on the east-west walk to the east face of the Academic Building and add at least one row on the interior of each double row that extends from the addition to Cushing Library westward to the Academic Building. Paving patterns should be configured to form a small, formal, central lawn that allows for a strong visual connection between Cushing Library and the Academic Building. The contemplated Diversity Plaza should be a part of the Library Quad and support its overall goals. Small seating areas could be incorporated in such a way that they do not obstruct pedestrian traffic. Any new buildings contemplated for the area (such as possible replacements for the Biological Sciences Building West and the Biological Sciences Building East) should honor the north-south build-to lines of the mall. Given the generally open feel of the south-southwest corner of the quad, consideration should be given to a vertical element at the southeast corner (in the event of replacement of the Biological Sciences Building West) to provide it with an anchor.

6. The Academic Quad and Military Walk

The intent is to enhance an already beautiful space with minor intervention and to return Military Walk to its former status as a processional, pedestrian street.

One recommendation is to eliminate the small parking areas (Lots 44 & 28) and replace Lot 44 with landscaping that maintains the vista of the Academic Building from Old Main Drive. Lot 28 should be replaced in the future by a structure similar in scale to the YMCA Building or Bizzell Hall. Eventual replacement of the Beutel Health Center should be considered, with replacement structure(s) also being similar in scale to the YMCA Building. All new buildings should follow build-to lines that address Military Walk.

There has been much discussion in workshops regarding Military Walk, with many people expressing a desire to return it to a processional pathway. The Long Range Plan agrees with this proposal. It is recommended that a broad central path be developed, and that the concrete seating areas at the north and south ends be removed to allow the path to terminate at Sbisa and the Rudder Plaza. This path should not be used for vehicular traffic. Care should be taken to protect existing trees that define the path in its current state.

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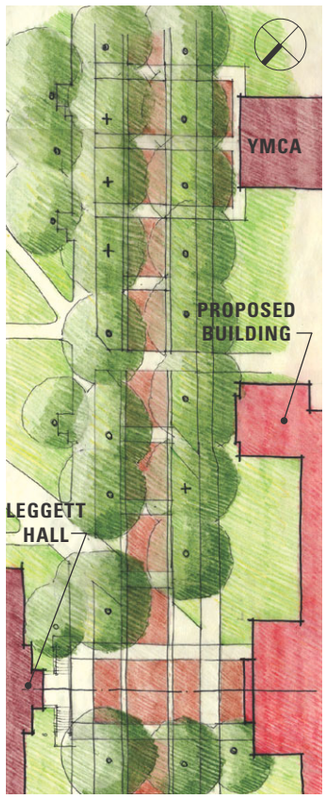

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FIGURE 4
Existing conditions at Military Walk looking south.

FIGURE 5
Proposed sketch of Military Walk looking south.

FIGURE 6
Proposed partial plan of Military Walk at the YMCA Building and Leggett Hall.

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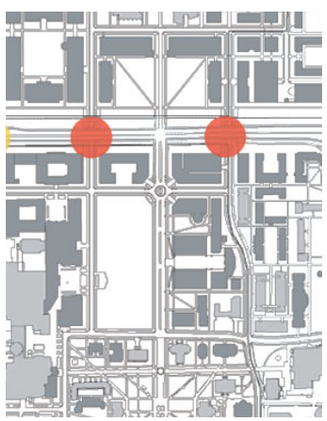

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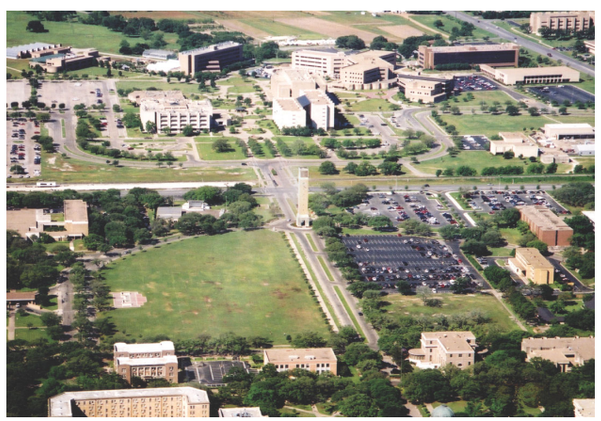

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7. The Simpson Drill Field Area and the Underpasses at Jones Street and Lamar Street

Given the westward growth of the campus, and considering the proposed connections under Wellborn Road and the railroad, the Drill Field area is projected to become the geographic center of campus in the future. The intent of this component is to provide space for anticipated growth in this area in order to reverse the trend of sprawl, and to better define the Drill Field through existing and future buildings.

A fundamental recommendation for this area is to construct two underpasses under Wellborn Road and the railroad to accommodate all modes of traffic. The south and north underpasses should be equidistant from the centerline of Old Main Drive. Benefits of this alignment include the possibility of accommodating future growth of the Memorial Student Center, the redevelopment of the Cain Hall site, and the provision of strong south and west edges for the Drill Field. Clark Street should be realigned to be on a north-south axis with Albritton Bell Tower. This will provide a more defined western edge for the Drill Field and allow for development between Clark Street and Wellborn Road. The buildings adjacent to the underpasses should be developed with their Jones and West Lamar Street edges containing at least partial floors that extend to the lowest level of the underpass. These floors should be given uses that support and require pedestrian traffic. The area north of Old Main Drive across from Simpson Drill Field, between realigned Clark Street and Houston Street, should be redeveloped at the prescribed density, with the major facades of new buildings aligning along Old Main Drive. The buildings should also have entries on their north faces to accommodate pedestrian traffic utilizing the north underpass. Landscaping should be enhanced by preserving existing trees where possible and planting new ones that define the edges of spaces and paths.

FIGURE 1
Aerial view of the proposed improvement to the Simpson Drill Field area, new underpasses, the new West Quadrangle, and West Campus.

FIGURE 2
Diagram showing location of proposed underpasses.

FIGURE 3
Aerial photograph of existing conditions at the Simpson Drill Field area and West Campus.

FIGURE 4
Existing conditions along Old Main Drive looking west, with Albritton Tower visible behind the trees.

FIGURE 5
View looking west on Old Main Drive showing proposed development north of the Simpson Drill Field.

FIGURE 6
View from the southwest corner of the Simpson Drill Field looking northwest.

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8. New West Quad and Wellborn Road

The intent is to increase the connectivity between the east and west parts of the campus by incorporating the new underpasses at Jones Street and West Lamar Street, to provide structured open space for West Campus by developing the area between the Heep and Kleberg buildings and the railroad, and to reduce the perceived distance between the west and east parts of the campus. It is also a desire to provide an enhanced presence to the campus from Wellborn Road.

Recommendations include developing Wellborn Road as a seam, or a boulevard, rather than a divider, and extending the civic structure westward across Wellborn Road by providing a major new quadrangle for the west part of campus. Buildings to the north of the Jones underpass and the south of the West Lamar underpass should address the lowest level of the underpass and align to define Wellborn Road and the new West Quad. Future buildings to be developed between the Jones and West Lamar underpasses should be aligned to address each underpass. The buildings should be configured so that their long dimension defines the western edge of the new quadrangle and screens the Heep and Kleberg buildings. Vertical elements are appropriate at the corners adjacent to Old Main Drive, to imply a gateway to the west and extend the central axis of the campus.

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FIGURE 1
Aerial perspective showing proposed improvements to Wellborn Road including the proposed underpasses and the West Quad.

FIGURE 2
Aerial photo showing the existing conditions on Wellborn Road.

FIGURE 3
Photo from the top of Albritton Tower showing the existing conditions of Wellborn Road and West Campus.

FIGURE 4
Proposed West Quadrangle looking west from Wellborn Road at Old Main Drive.

FIGURE 1
Existing view looking east between Biochemistry/Biophysics and the Heep Building on the left and Kleberg on the right.

FIGURE 2
Existing photo of Military Walk is a good example of an alleé on campus.

FIGURE 3
Partial plan at the proposed West Campus extension of Old Main Drive. The extension is proposed to be a pedestrian alleé.

9. Development of West Campus Extension of Old Main

The intent of this component is to connect the axial civic structure about the centerline of Old Main Drive to the more rural character of the Texas landscape typified by the White Creek Greenway.

The recommendation is to continue the axial line of Old Main Drive westward between Heep and Kleberg. While Old Main as a street should terminate at Olsen Drive just west of the West Quad, it should continue as a walk defined by a double row of trees between Heep and Kleberg. This walk will turn northwest at the southwest corner of Biochemistry/Biophysics and terminate at the headwaters of the White Creek Greenway. Paving should distinguish the extension of Old Main from streets and other sidewalks. It is recommended that the turn from a westerly heading to that of northwesterly occur at a pavilion or gazebo. This structure provides a three-dimensional visual termination of the east-west axis, and also signifies a change to the rural landscape.

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FIGURE 4
Existing conditions at White Creek near the Bush Library at the Texas Transportation Institute Building.

10. White Creek Greenway

The intent of this component is to build on an existing natural feature, incorporate it as a portion of the civic structure, and root the campus firmly in the natural landscape. The Greenway could become a laboratory for the study of native Texas Riparian Landscape.

The recommendation is to restore the area to a natural state. Native Riparian Landscape should be incorporated utilizing guidelines described in the Landscape Plan under the Texas Landscape heading. The guidelines describe three distinct zones referred to as Inner, Middle, and Outer Core and suggest a three-hundred-foot-wide Riparian buffer.

These components represent not the entire plan but its major parts. They form the central armature around which other parts may be organized. Development of the campus edges and selective infill are also important, but they are secondary to the central sequence.

Additional Components of the Plan

Other key components include the proposed improvements to University Drive, the development of Research Park II north of Raymond Stotzer Boulevard (preserving the wooded area along Stotzer), the redevelopment of the University Apartments area into a mixed-use center with commercial development to support the housing, and the realignment of Clark Street to allow expansion of the Memorial Student Center.

POLICIES

The following statements of policy establish the terms by which the University adopts the basic parts of the Campus Master Plan: the Long Range Plan, the Landscape Plan, the Architectural Plan, and the Process for implementing and managing the Plan.

Policy 1: **Mission and Goals**

The University acknowledges the importance of the relationship between the campus environment and the academic mission of the institution, as well as the relationship to the surrounding community. To achieve this, the University endorses and affirms the eight goals articulated by the Master Plan Steering Committee:

1. reinforce campus identity;

2. reinforce campus community;

3. establish connectivity;

4. create architecture that contributes positively to the campus community;

5. promote spatial equity and appropriateness;

6. establish an accessible, pedestrian campus;

7. promote sustainability; and

8. develop a supportive process.

Policy 2: **Community and Resources**

The University will support a compact, resource-efficient campus community through endorsement of the Campus Master Plan and its constituent elements.

Policy 3: **Civic Structure**

The existing pattern of quadrangles and open spaces will be preserved, enhanced, and extended along the central axis toward the west. These spaces will be kept free of buildings and surface parking. The anatomy of this landscape sequence is the spine of the campus and will be reinforced and further defined by buildings. To ensure conformance to the intent of the civic structure, the University adopts the Regulating Plan element as illustrated in the Long Range Plan.

Policy 4: **Green Reserve**

The University will protect existing open spaces by adopting a permanent Green Reserve as identified in the Long Range Plan. This Reserve will remain free of major building development.

Policy 5: **Development Densities and Zones**

When locating facilities, the University will abide by the densities and development zone provisions described and illustrated in the Long Range Plan. Building development will be limited to the indicated zones and mandated at the prescribed densities and coverage: an approximate Floor Area Ratio (FAR) of 1.0 and a building coverage of 27 to 35 percent in the central campus area.

Policy 6: **Land Use**

The University will abide by the land use provisions described and illustrated in the Long Range Plan. The land use provisions may be amended from time to time, but must be reviewed and approved by the Design Review Board.

Policy 7: **Circulation**

The University supports the concept of a pedestrian-oriented campus and the gradual reduction of surface parking. Private cars will be limited to the periphery of the campus; and buses, bicycles, and service vehicles will conform to the routes indicated in the Long Range Plan. Central to the concept of vehicular circulation is the loop resulting from the double underpasses.

Policy 8: **Parking**

The University will develop structure parking integral with the building development plan. Where possible, small parking structures should be considered and should be wrapped with functional uses. Ground floors should also be occupied by such uses. The University does not support an increase in the ratio of parking spaces to people.

Policy 9: **Wellborn Road/Railroad**

To unite the east and west parts of the central campus, the University will develop two additional east/west underpasses under Wellborn Road and the Railroad: one north of the main axis (which will remain an on-grade intersection), and one to the south. These will be for buses, bicycles, pedestrians, service vehicles, and possibly private cars. This will permit an inner campus loop connecting the east and west campuses.

Policy 10: **On-campus Housing**

The number of undergraduate students housed on campus is affirmed by the University, but the expansion of housing amenities is encouraged. The University will also address the graduate student housing implications of Vision 2020.

Policy 11: **Assignable Space**

Space management is acknowledged as an issue of major importance on campus. Spatial equity, efficiency, and appropriateness are supported, and the University will develop a management system to ensure this through the recycling, renovation, and addition of space.

Policy 12: **Community Interface and Campus Edges**

Texas A&M and the surrounding community have an interdependent relationship. The University acknowledges the importance of this relationship, and will cooperate in joint initiatives to enhance it. In particular, the University will adopt and support the redevelopment and "traffic calming" concept that is being developed for University Drive.

Policy 13: **Landscape**

The University acknowledges the importance of the campus landscape as a resource, as an element of civic structure, as an ecological system, and as a "teaching laboratory." Toward this end, the university adopts and supports the Landscape Plan, and will develop a proactive landscape development program in conformance with the landscape principles and guidelines of the Campus Master Plan. A landscape strategy that is resource-efficient and regionally consistent will be supported.

Policy 14: **Architecture**

The University acknowledges that the quality of architecture at Texas A&M is a public statement of its aspirations to excellence and a permanent expression of commitment to the quality of the public realm in which education occurs. Therefore, the University adopts and supports the Architectural Plan and will conform to the planning and architectural principles and guidelines of the Campus Master Plan.

Policy 15: **Planning**

The University will seek to establish and nurture a cooperative culture of planning on campus. As part of a revised process and new planning culture, the University will develop specific District Plans from time to time in order to expand the Campus Master Plan and to guide decision making.

Policy 16: **Process**

The University acknowledges that current management systems and processes are not sufficient to implement, monitor, and achieve the Campus Master Plan and its Policies. Therefore, the University will adopt revised processes for implementing and monitoring the Plan. This includes the establishment of a Design Review Board, consideration of a Campus Architect/Planner, and revised procedures for architect selection, project initiation (including site selection and budgeting), and space allocation and utilization.

FIGURE 1
The proposed Campus Civic Structure Plan.

ELEMENTS OF THE LONG RANGE PLAN

A series of nine interrelated elements undergird the Long Range Plan. They are intended as the infrastructure, or the anatomy, of the Plan, and are therefore more important than the particulars of the Plan. The elements can be defined in geographic and sometimes quantitative terms. Together, they form a comprehensive strategy for conservation and development of the campus:

- ***Civic Structure***
- ***Green Reserve***
- ***Density and Development Zones***
- ***Regulating Plan***
- ***Districts***
- ***Land Use***
- ***Circulation***
- ***Infrastructure***
- ***Campus and Community***

The first four of these elements—Civic Structure, Green Reserve, Density and Development Zones, and the Regulating Plan—are intended to be prescriptive and absolute. The last five are intended to be direct, but more subject to interpretation.

Civic Structure

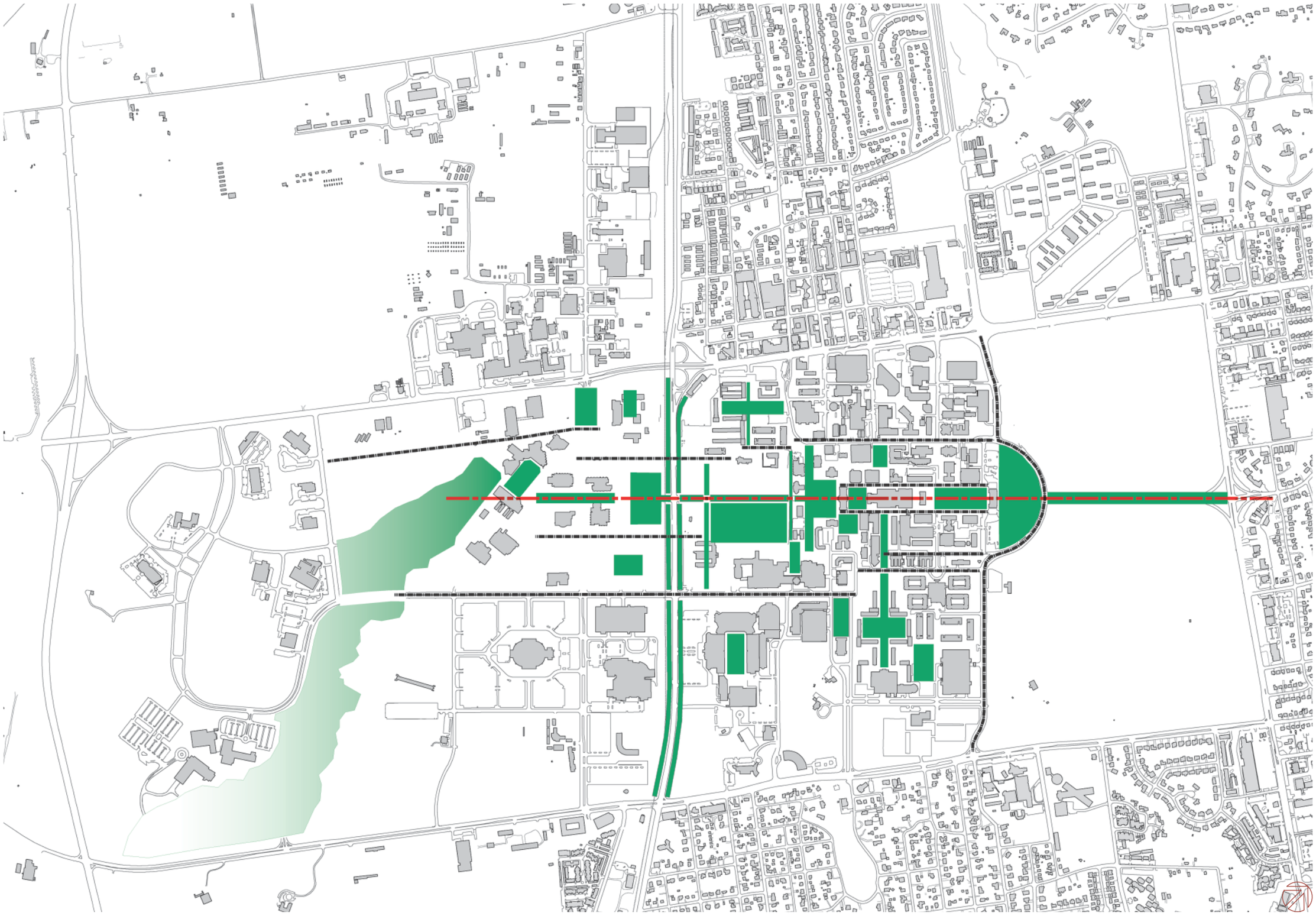
The Civic Structure is the primary sequence of public spaces and buildings that forms the anatomy of the campus. The sequence of outdoor rooms is connected by streets and paths, and both are defined by the surrounding campus fabric. This is probably the most important element of the Plan, as the organization of public space is more important than the particulars of buildings and their functions. It is literally the spine that connects the urban east to the rural west along the central axis of the campus. It is the precision of this sequence that provides its legibility; and it is the legibility that allows for variation and change around it.

In general, buildings define the streets and quadrangles that make up the civic structure, giving life, scale, and dimension to the spaces. Building massing and density are therefore an important aspect of civic structure. Secondary quadrangles, courts, and streets are also important in connecting the various districts to the primary structure and to each other, but these should be developed as part of the district plans since they are conditioned more by local circumstance.

The proposed civic structure is not a new invention. Rather, it is an extension of the existing spatial pattern in the historic core of the campus, which needs to be conserved and enhanced. The proposed structure aims to integrate the campus into a unified whole, from New Main Drive, the Williams Administration Building, and the dense historic core; through the middle campus zone of Simpson Drill Field, Wellborn Road, and the West Campus buildings; to the far West Campus of the Bush School and the Research Park. It is also intended to emphasize the distinct "personalities" of these three areas through variations of landscape and ecological form.

In the eastern part of the campus—from New Main Drive to the YMCA Building—the major quadrangles and streets already exist and are quite beautiful; they need only to be conserved, renovated, and enhanced. In the middle part of the campus some existing spaces such as Simpson Drill Field and Wellborn Road need to be reinterpreted and defined, while other spaces must be created—such as the proposed West Campus Quadrangle. Beyond this, the far West Campus needs to be reinterpreted, emphasized, and connected to the structure of the main campus.

Distinctive buildings also form an inseparable part of the existing civic structure: the Williams Administration Building, the History Building, and the Academic Building, as well as Albritton Tower, are major icons within the historic core. The proposed new quadrangles also need distinctive buildings associated with them. The anticipated Life Sciences Building may provide such an opportunity within the proposed extension of the campus structure.



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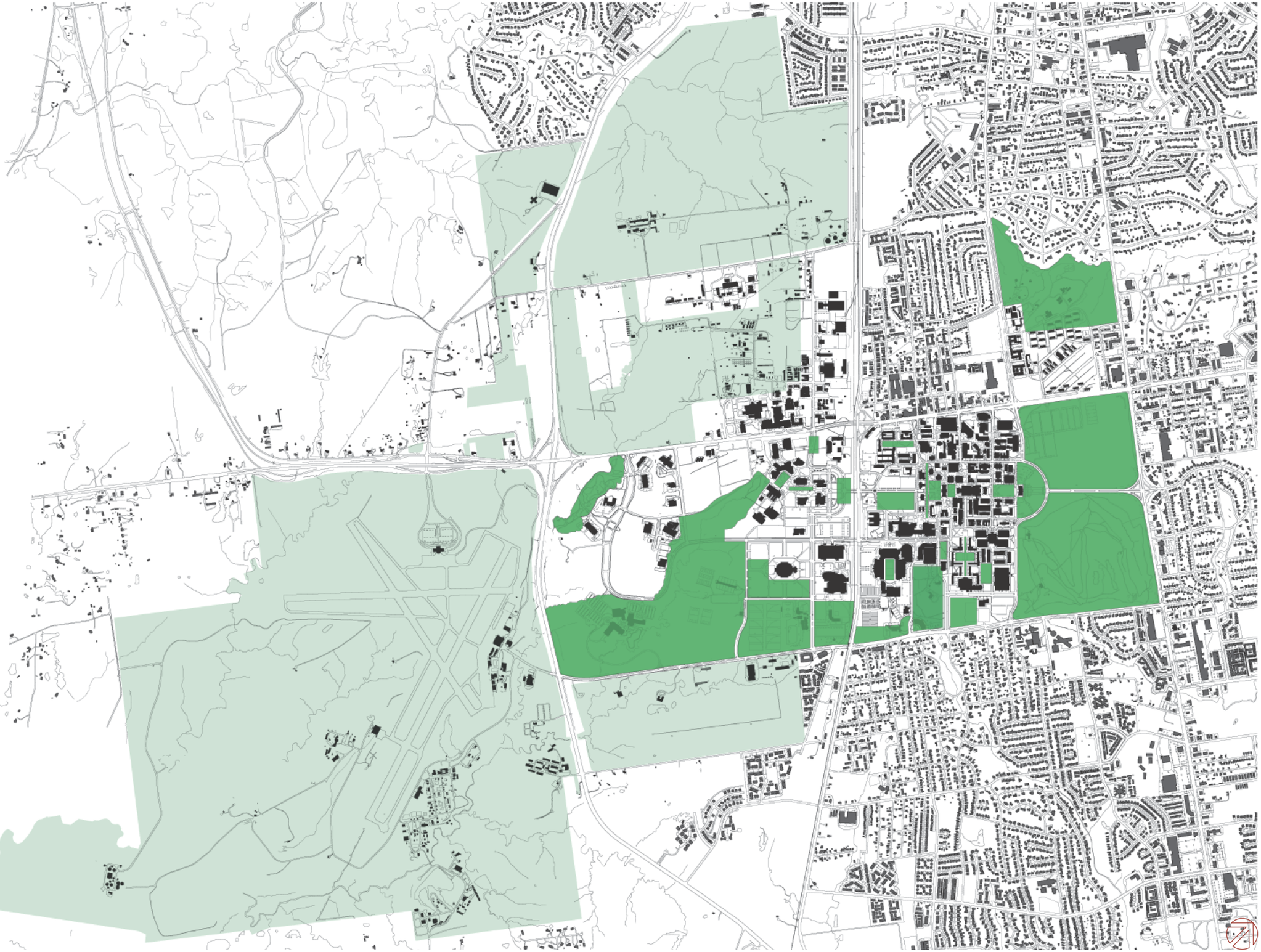

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Green Reserve

The Green Reserve serves two main purposes. One is as a broad extension of the campus's civic structure: i.e., as a system of open spaces that should be preserved indefinitely, and around which the campus will develop. The other is to establish an interconnected ecological system. The Green Reserve includes a variety of open spaces, from highly maintained formal ones in the east part of the campus to natural ones further west.

Conservation of the University's extensive, but finite, land resources is one of the most important elements of the Long Range Plan. Indeed, the university's land holdings are so vast that it is difficult to imagine that they are finite and thus have great value. But without a proactive policy to control growth, the majority of the University's land could be consumed by sprawl within the foreseeable future, and ecological connections could be irreparably broken.

There are four main reasons why the Green Reserve is desirable, and why the open spaces should be linked as a single network:

1. As a resource

Open green space is required for the agricultural, academic, and research missions of the University; it will also become more and more valuable as a relief and contrast to the built-up areas of the campus. If connected as a network, it will permeate and organize all parts of the campus and surroundings.

2. As an organizing structure

The civic structure is the center of campus organization, but it is insufficient to organize the vastness of the entire campus. The green reserve may be thought of as the reciprocal of the built fabric that defines the civic structure; i.e., as a "green fabric" of open space that extends the civic structure core. Connections and sequential vistas are crucial to the perception of coherence and the sense of the campus as a whole. This is very important for a campus as large as Texas A&M.

3. As an ecological laboratory

Interconnectedness is fundamental to effective ecological systems. The University's open space system should be a living laboratory that illustrates the continuity and conjunctions of its landscape and ecosystems; therefore, connectedness is critical.

4. As a limit on sprawl

Though expansive, the University's land is finite. This needs to be acknowledged, and growth limits need to be set in order to prevent sprawl and produce a better built and open space environment. The Green Reserve provides such a limit.

The overall Green Reserve has two zones: the first is the area of the main campus and research areas; the second is the large area of rural land to the north and west.

Zone 1 of the Green Reserve should be considered analogous to Central Park in New York—no buildings may be built in this area except small, pavilion-like structures, and these should be subject to design review board approval.

Zone 2 of the Green Reserve is rural and agricultural in character. Detached farm buildings may be built in this zone, but any large buildings should be subject to design review board approval.

The Green Reserve is an opportunity for the University to develop a proactive program of preservation, planting, and reclamation of the natural environment. The establishment of native plant habitats and processes should be an essential part of the higher learning experience, as well as part of the university's societal responsibility.

FIGURE 1

The plan of the Green Reserve. Zone 1 is shown in dark green; Zone 2 is shown in light green.

Density and Development Zones

The intent of the Density and Development Zones is to support the open space structure of the campus by limiting building development to prescribed areas, or development zones, and at prescribed densities. The reasons for this are to provide for *growth management* and to improve the *quality of the physical environment*. These two issues are central to the Long Range Plan. They are intimately related, but will be discussed in sequence.

Growth

The average rate of facilities *growth*, the *density* at which that growth takes place, and the identification of *development areas* are fundamental to growth management. Growth is historically quantifiable, and historic trends provide valuable parameters for planning for the future. Growth is quantifiable by three factors:

1. ***Amount of building area (gross square feet)***
2. ***Amount of land occupied by the building area (square feet)***
3. ***Period of time in which the building takes place (years)***

Most universities have grown at an average annual rate of about one percent over the last forty years, and many have consumed larger and larger quantities of land in the process.

Growth at Texas A&M

During this same time period, however, the central portion of the Texas A&M campus has grown at three times the typical rate and has consumed vast amounts of land in the process. Between 1962 and 2002, the central campus grew at an average rate of approximately 3 percent per year: from 4,580,388 gross square feet in 1962, to 15,122,529 gross square feet in 2002—an addition of 10,543,141 gross square feet in 40 years. The land area of the built campus tripled during this period, and the number of students rose from 7,000 to 45,000.

Many reasons can be assigned to this explosive growth period, and there is no sound reason to believe that it will be repeated. Nevertheless, since 1920 there has never been a decade in which Texas A&M did not build at least 1,000,000 gross square feet. The Long Range Plan neither advocates nor projects the continuation of this rate of growth, but there are indications that facilities growth could continue at a significant level well into the future.

One plausible way to speculate about future growth is to use the historic trend of an average rate of 1 percent for annual facilities growth. If this rate is applied to the central, academic part of the campus, today's building area of about 15,000,000 gross square feet would increase by approximately 1,600,000 gsf in 10 years, 4,000,000 gsf in 25 years, and nearly 10,000,000 gsf in 50 years. This may or may not happen, but it projects a known historic pattern into the future, gives a snapshot of one plausible scenario, and helps frame the magnitude of the issue.

Another plausible scenario is outlined in a recently completed "Academic Space Needs Analysis," by Paulien & Associates. This study indicates that if the University's increased research objectives are to be achieved, the facilities increase over the next 10 years could be between 3,000,000 and 4,500,000 gross square feet—thus extending the consistent 3 percent per annum growth trend of the last 40 years at Texas A&M.

The possibility of the continuation of this growth pattern has very serious implications for the management of the University's resources and for the physical development of the campus. The Long Range Plan therefore seeks to establish strict parameters and limits within which planned growth may occur.

The problem is that although future growth and change appear inevitable, they are indefinable today. Some of this growth and change will necessitate new state-of-the-art facilities, but some can be accommodated through the reorganization, reconfiguration, and renovation of existing facilities. Therefore, a university process of space management is an integral part of any growth management plan. New growth will occur; thus the density and location of development will have to be rigorously managed if the University's academic mission is to be achieved and maintained.

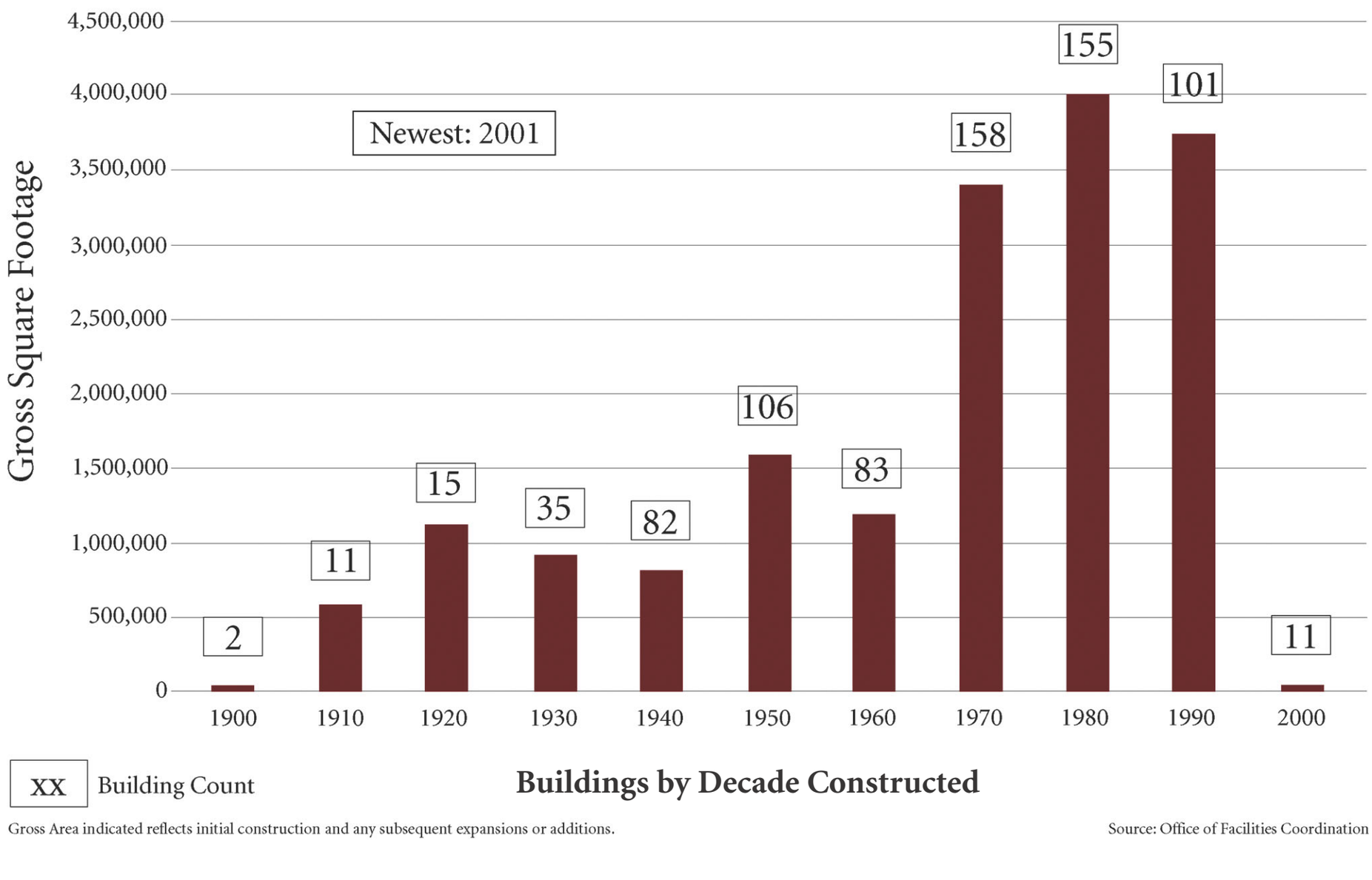

FIGURE 1
Graph illustrating facilities growth at Texas A&M between 1900 and 2001.

Gross Area indicated reflects initial construction and any subsequent expansions or additions.

Source: Office of Facilities Coordination

Density

Another way to speculate about future growth is to begin by asking what the ultimate capacity of the campus might be. Density must be a factor in determining this. The term density refers to the degree of concentration of building development in a given geographic area.

Floor Area Ratio (FAR) is the most common term for measuring density. FAR is the ratio of total building floor area to site area. For example, an FAR of 1.0 means that 100,000 gross square feet of floor area occupy a 100,000-square-foot site. Coverage is another important term. Building height is a major factor in determining coverage: e.g., if the above example is a three-story building, the coverage of building to open space is about 33 percent. While coverage is a useful factor, FAR is the most reliable indicator of development density.

A density analysis of the Texas A&M campus is revealing. There are three basic levels of development density within the central campus:

1. ***an FAR of approximately 1.0, in the historic core of the campus, i.e., from the Williams Administration Building to the YMCA;***

2. ***an FAR of approximately 0.5 in the middle part of the campus, i.e., from the Academic Quad to Wellborn Road; and***

3. ***an FAR of approximately 0.25 in West Campus, i.e., the area containing the science buildings such as the Heep Center.***

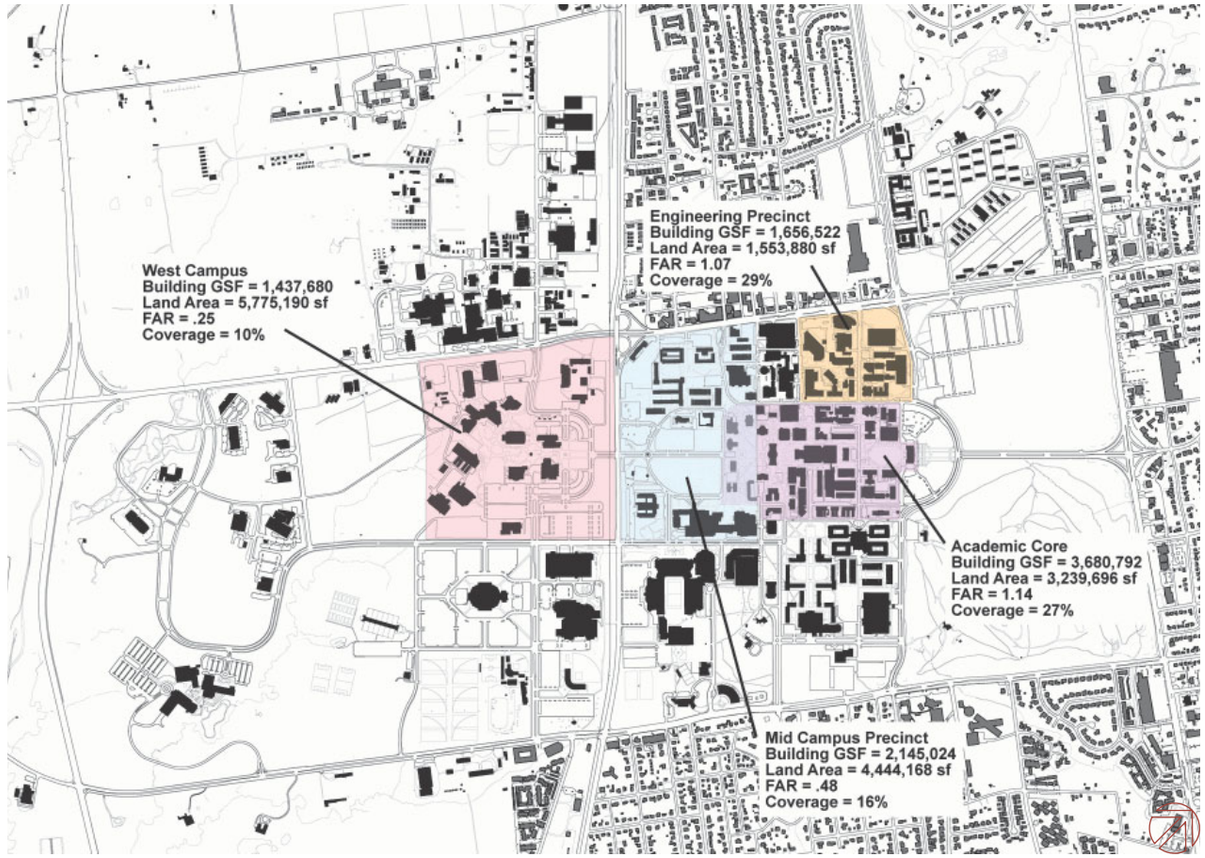

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FIGURE 1
Plan showing existing zones of density and coverage on the central campus.

FIGURE 2
Plan illustrating 10,000,000 gsf of growth (ca. 50 years) at three different densities.

Combining a 50-year growth projection of 10,000,000 square feet with the three densities identified above yields the following land areas required to accommodate the growth:

- FAR 1.00 = 10,000,000 sf, or 230 acres
- FAR 0.50 = 20,000,000 sf, or 460 acres
- FAR 0.25 = 40,000,000 sf, or 920 acres

In comparison, the built area of the campus east of Wellborn Road is about 370 acres, and the area of the whole central campus (between George Bush Drive and University Drive) is about 1,100 acres. Therefore, if 50 years of growth were to be accommodated at the current low density, the land area required would almost double. These areas are indicated graphically on the above plan.

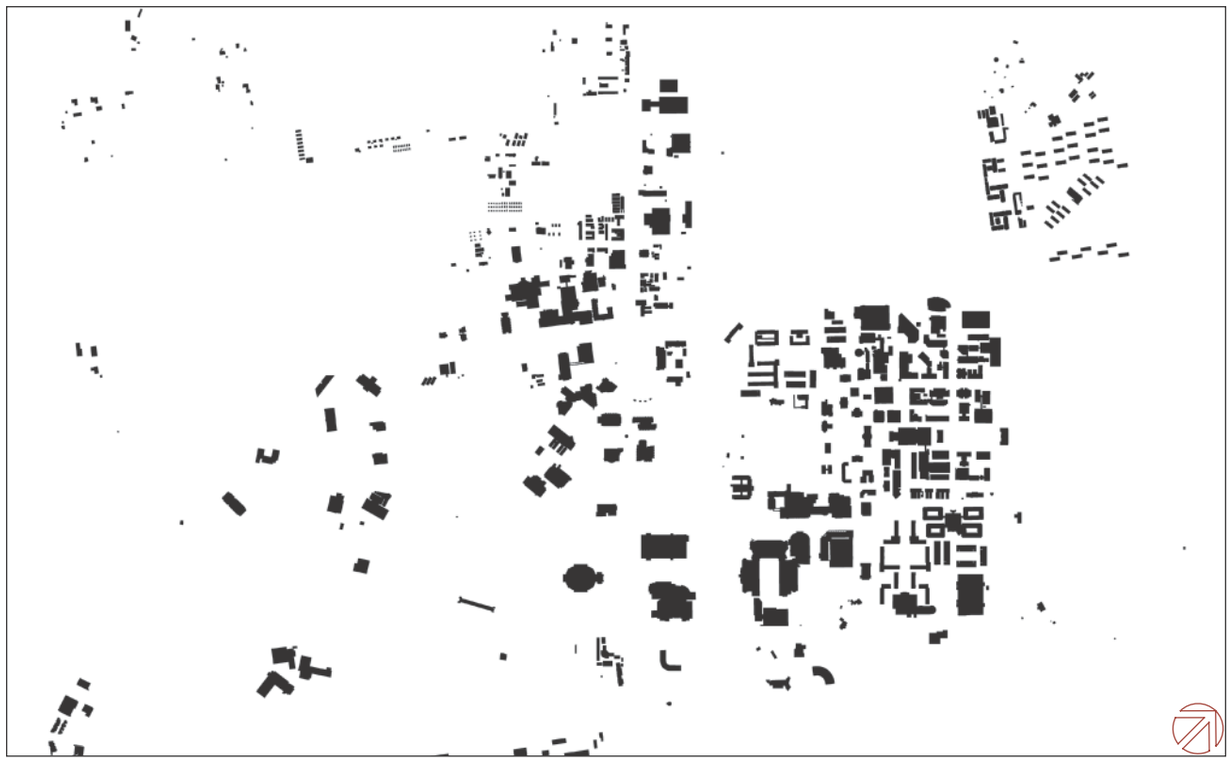
Sprawl

The quality of the physical environment is more difficult to quantify than density and coverage, but there is usually a relationship between the perceived quality of the campus and the statistics of density and coverage. Obviously, other factors such as quality of architecture and landscape play a role as well, but density and coverage set the framework.

Postwar development has tended toward low-density suburban patterns of growth as the University expanded west of Wellborn Road. The radical increase in numbers of students and faculty also meant increased numbers of private automobiles, while the expansion of campus boundaries beyond walkable distances increased the use of private vehicles and therefore necessitated increased surface parking. For example, it takes over forty-five minutes to walk from the eastern edge of the campus to the western edge. This geometrically expanding conundrum is typical of the condition commonly known as sprawl.

The sprawl produced by uncontrolled growth at low density has taken the University to the limits of its contiguous land and degraded the quality of the campus environment. Radical reorientation of campus planning policy must be implemented if growth and density are to be brought under control and the University is to have the required flexibility to respond to future needs.

The hypothetical plan shown here illustrates the extent and chaos that would ensue if present low-density development patterns were to be continued.



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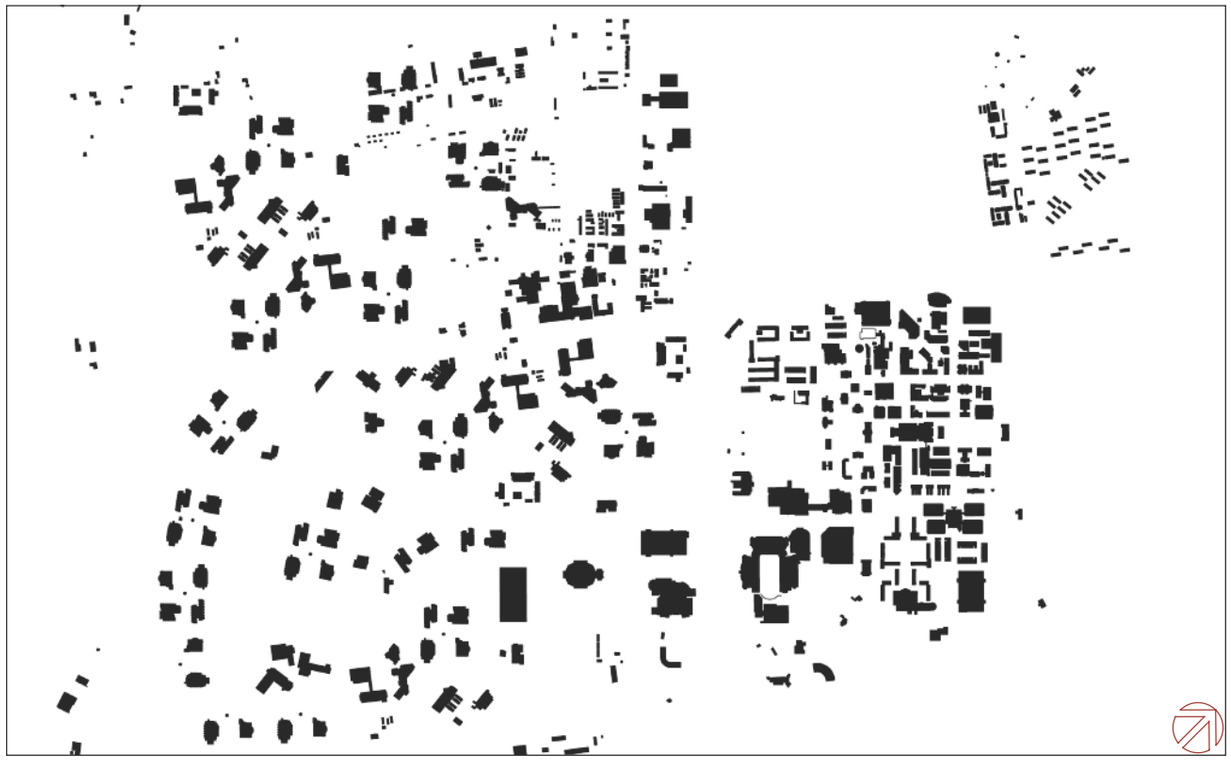

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Environmental Quality

It is clear that the university can no longer afford to have development occur at low "suburban" densities. Rather, future facilities will have to be planned at higher densities and integrated with established areas of the campus. This will at once reinforce the sense of community, facilitate interdisciplinary activity, and improve the quality of the campus environment.

In the beginning of the master planning process, various stakeholder groups were canvassed for their feelings regarding the better and worse parts of the Texas A&M campus. This process included surveying a wide range of administration, faculty, staff, and student groups. Everyone was asked to identify the buildings and spaces they liked best and least. The degree of general consensus was overwhelmingly clear: the most revered parts of the campus were almost entirely within the historic core. This is the most dense and compact part of the campus, with an FAR of about 1.0 and a coverage of about 30 percent. This should not be surprising, as this density and coverage allow for a "community" of buildings and for a coherent, climatically appropriate, pedestrian-scaled open space structure between buildings. The evaluations of these focus groups were also consistent with the evaluations of the master planning team and thus form a qualitative basis for prescriptions of density.

Indeed, the Long Range Plan illustrates that if future growth is limited to the prescribed development areas and accomplished at an FAR of 1.0, then the projection of 10,000,000 square feet—theoretically, 50 years of growth—can be accommodated within the central campus area and will result in an improved campus environment.

FIGURE 1
Plan showing the existing buildings on the Texas A&M campus, ca. 2003.

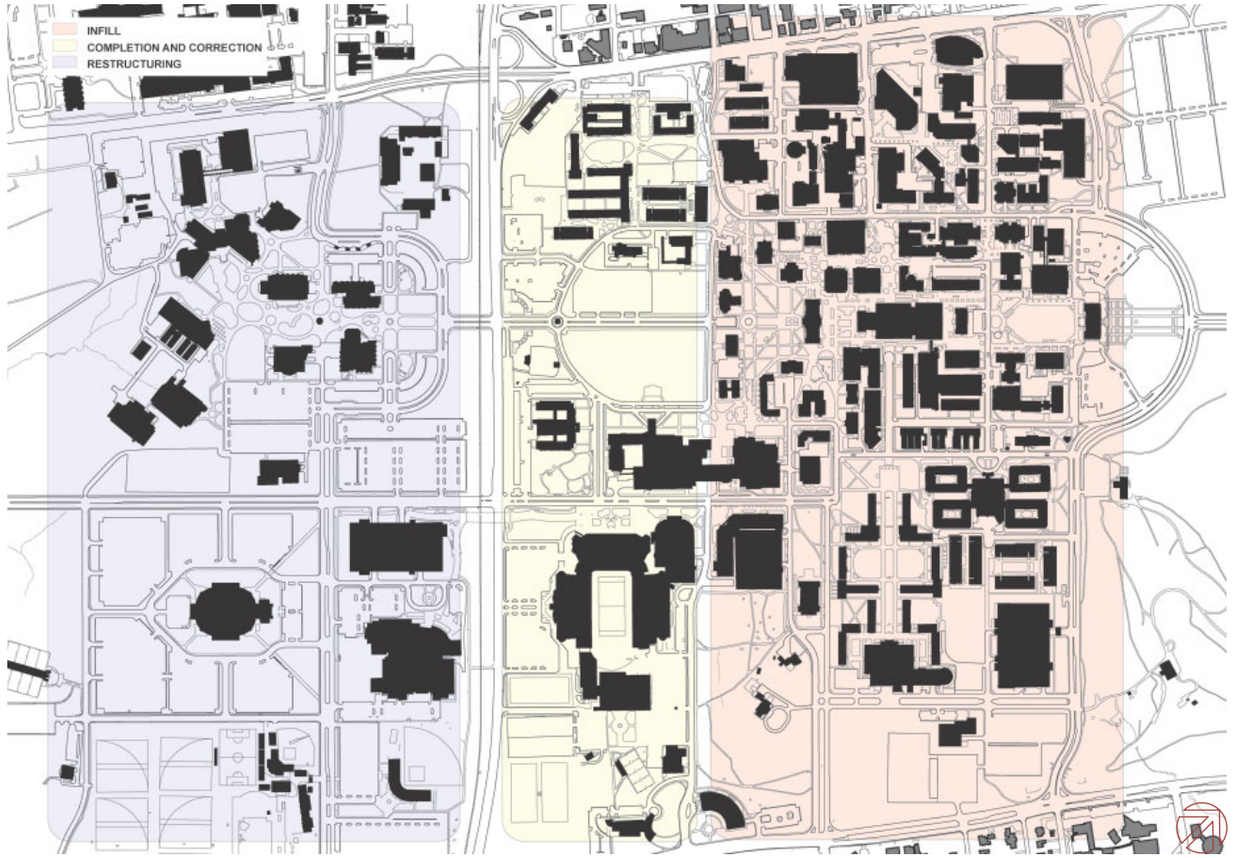
FIGURE 2
Hypothetical plan illustrating the sprawl and consumption of land if 10,000,000 gsf of growth (ca. 50 years) occurred at the suburban density of an FAR of 0.25.

3

FIGURE 3
Proposed Long Range Plan illustrating 10,000,000 gsf of growth (ca. 50 years) at the density of an FAR of 1.0. At this density, the future campus would be more compact and more resource-efficient.

FIGURE 1
Plan showing three different development zones of the central campus.

FIGURE 2
Plan illustrating the different development zones of the whole campus.



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Development Zones

The Long Range Plan prescribes development zones and their densities. Because the existing densities and character of development vary from zone to zone, four radically different development strategies are required:

Infill: In the densest parts of the campus—such as the engineering and science areas—selective demolition, renovation, and careful infill can result in a surprising increase in building capacity and quality.

Completion and correction: In the middle part of the campus—the north-south zone that includes the Drill Field—there is room for significant additional construction, and sufficient need for correction, or restructuring. This zone is crucial to coherent campus development in that it is the central element that connects East Campus with West Campus.

Restructuring: In the low-density environment of West Campus, there are major opportunities for growth, and major reorganizational strategies are required; but this is a problem that is also an opportunity. Proper development of this area will significantly increase the unification of the east and west parts of the campus.

New structure: The existing Research Park already has a development plan, but the proposed new research area north of Raymond Stotzer Boulevard has no development plan or prescribed density. A whole new structure is required for this area, but until a district plan is done, no density is prescribed.

The Development Zones and their Densities form an integral, complementary part of the Civic Structure and Green Reserve elements of the Long Range Plan. These are indicated on the illustration on the next page. They are supplemented and strengthened, however, by the Regulating Plan, and the Policies, Principles, and Guidelines.

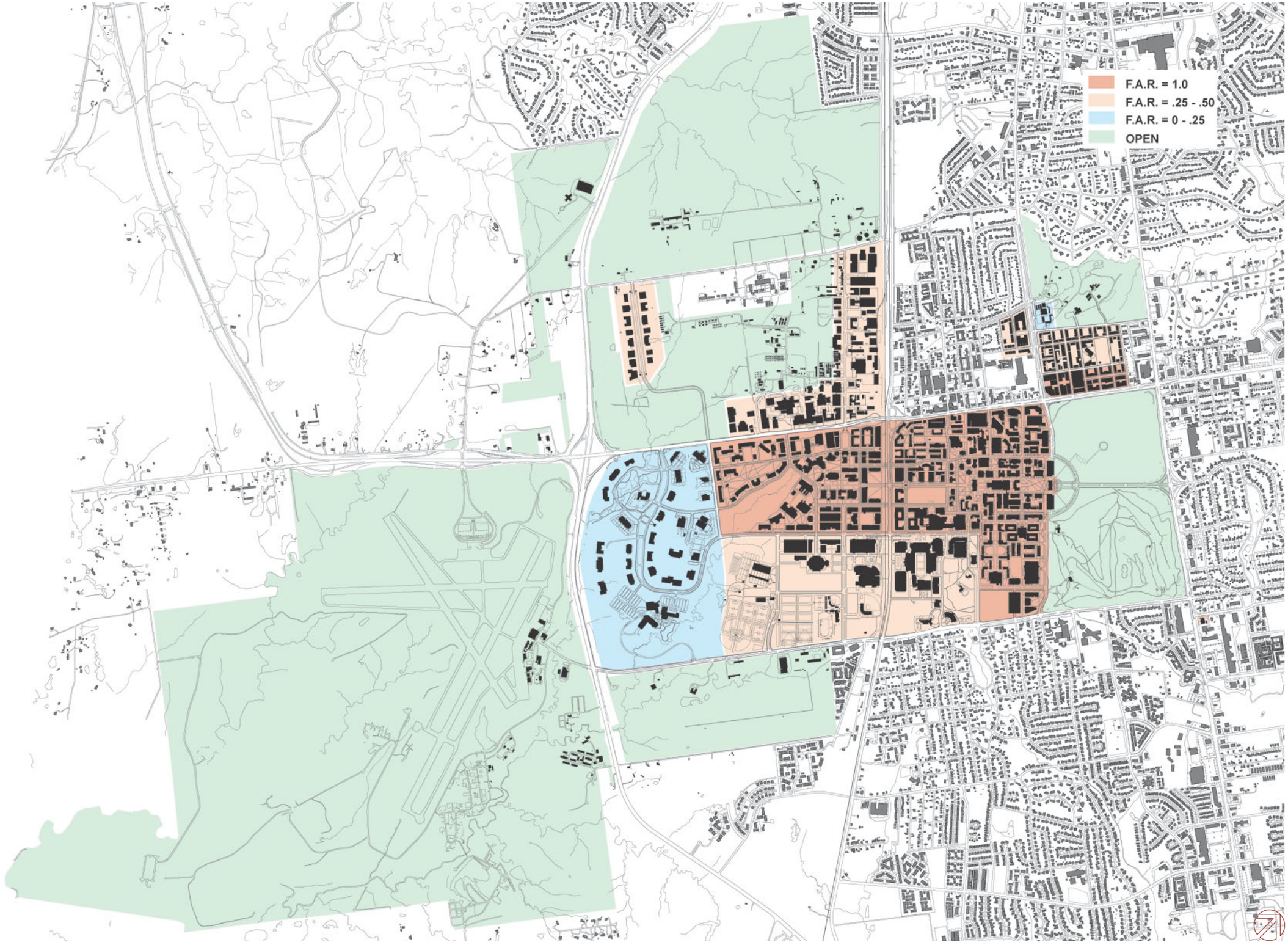

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FIGURE 1
Regulating Plan of the central campus.

1

Regulating Plan

The Regulating Plan is the primary instrument for ensuring the long-range stability and flexibility of the Master Plan and for concretely defining the space of the Civic Structure. It illustrates three things: existing buildings, proposed buildings, and building edges. Of these three things, the configuration of the proposed buildings is least important; and the building edges, or "build-to" lines, are most important. Quadrangles and streets are defined primarily by building mass, and secondarily by trees. Therefore, identification of the principal building edges is the most effective way of ensuring a solid Civic Structure of the campus's public spaces. To emphasize this, pale gray tones have been added between the buildings. Within this gray zone, the functions and configuration of buildings can vary considerably. The size and configuration of the major public spaces also may vary, but less so. For this reason, no exact dimensions are provided, as this falls within the purview of the more detailed district plans.

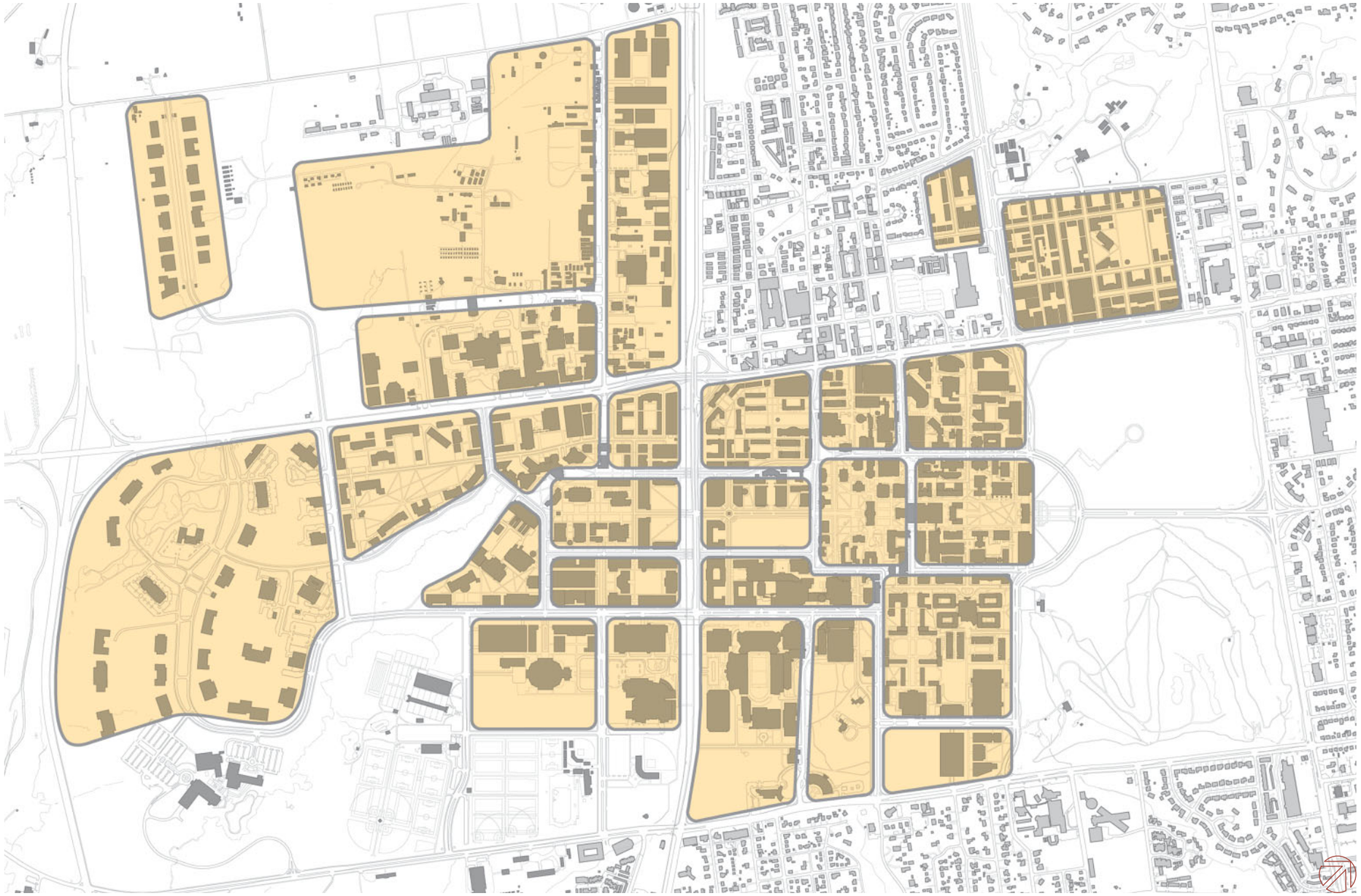


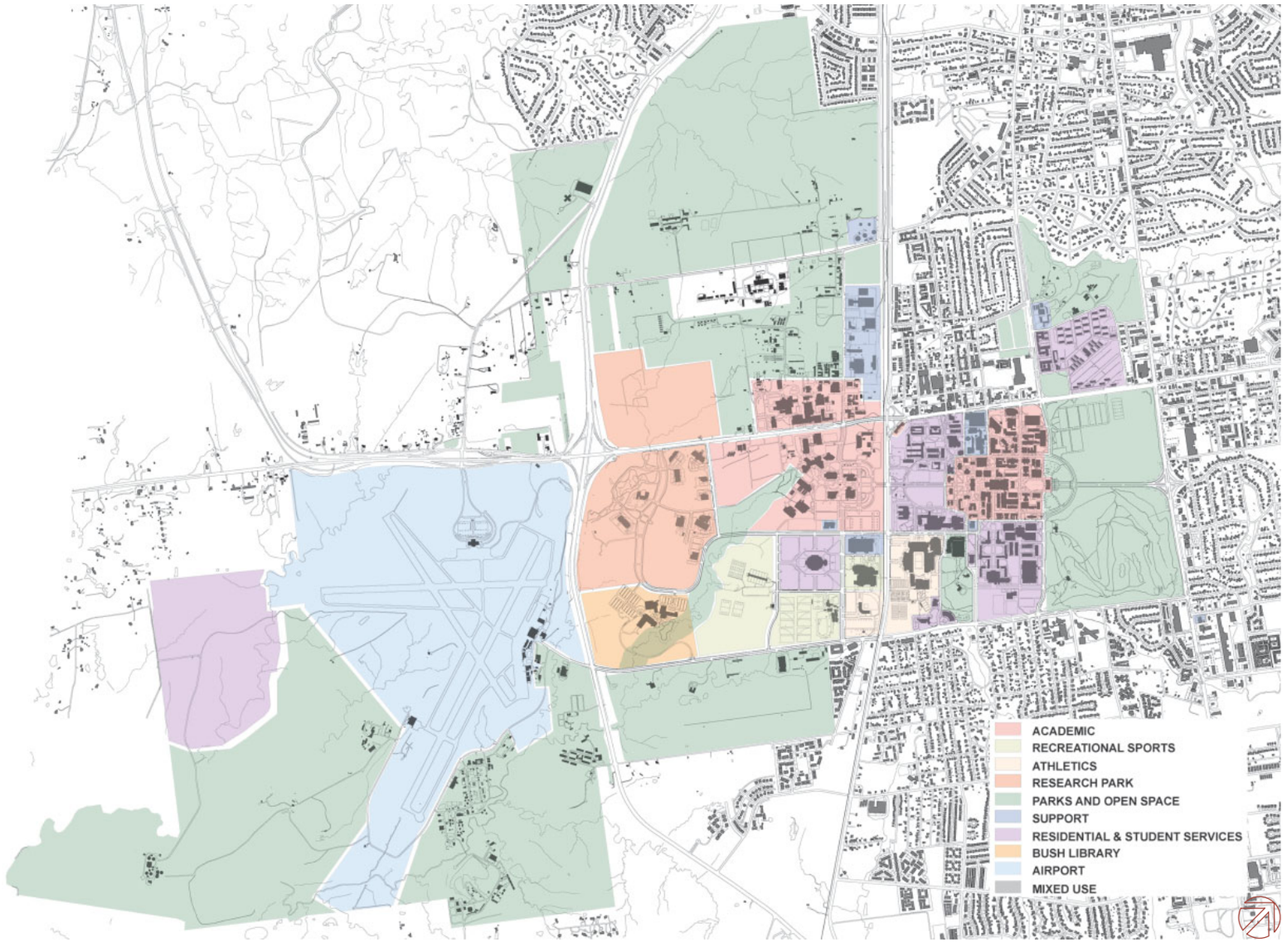
FIGURE 2

Plan of the central campus districts.

2

Districts

Clear centers, legible fabric, and identifiable edges are characteristics of urban districts, but the more open nature of campuses tends to promote overlapping districts with less clear edges. Campus districts are also often multifunctional rather than monofunctional. Nevertheless, for convenience and identification, the built areas of the Long Range Plan have been divided into distinct districts. District Plans are an important tool for the day-to-day management of campus development, because they bridge the gap between the broad issues of the Long Range Plan and the particulars of specific building projects; but future District and Subdistrict Plans need not follow the prescribed division. In fact, in many cases—such as the First Phase Plan—the District Plan should overlap the identified districts. Also, some logical districts may be large enough to be composed of subdistricts. Finally, all District Plans should consider issues beyond their specific boundries. In other words, each District Plan should identify not only its design boundry, but also a larger "area of design consideration."



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Land Use

If the Civic Structure is the most important element of the Long Range Plan, the Land Use element is also important, although broader and more open to flexibility and interpretation.

Land use is a kind of zoning, and functional zoning prescribes areas for monofunctional activities, e.g., the "Cultural Zone," the "Residential Zone," the "Industrial Zone," etc. The problem is that campuses do not work that way; they are composed of mixed-use zones in which functions are various. On campuses, the typical categories of land use tend to be general, e.g., "Academic," "Athletic," "Residential," etc. These categories mask the complexities of use within them, however, and they lose meaning if interpreted too literally or too consistently. Essentially, campus land use designations are large-scale property parcels, since campuses do not have property lines. They lend a level of authority and regulation to a complex situation that would otherwise be potentially chaotic. For example, they ensure that an area set aside for research will not be co-opted by maintenance support buildings, and they ensure that an area set aside for recreational athletic fields will not be usurped by parking garages.

With some exceptions, the Long Range Plan reaffirms the existing patterns of land use on the Texas A&M campus. The Plan reinforces the academic core land use; it confirms the recreational, athletic, and research park uses on West Campus; and it sustains the existing Veterinary School uses north of Stotzer.

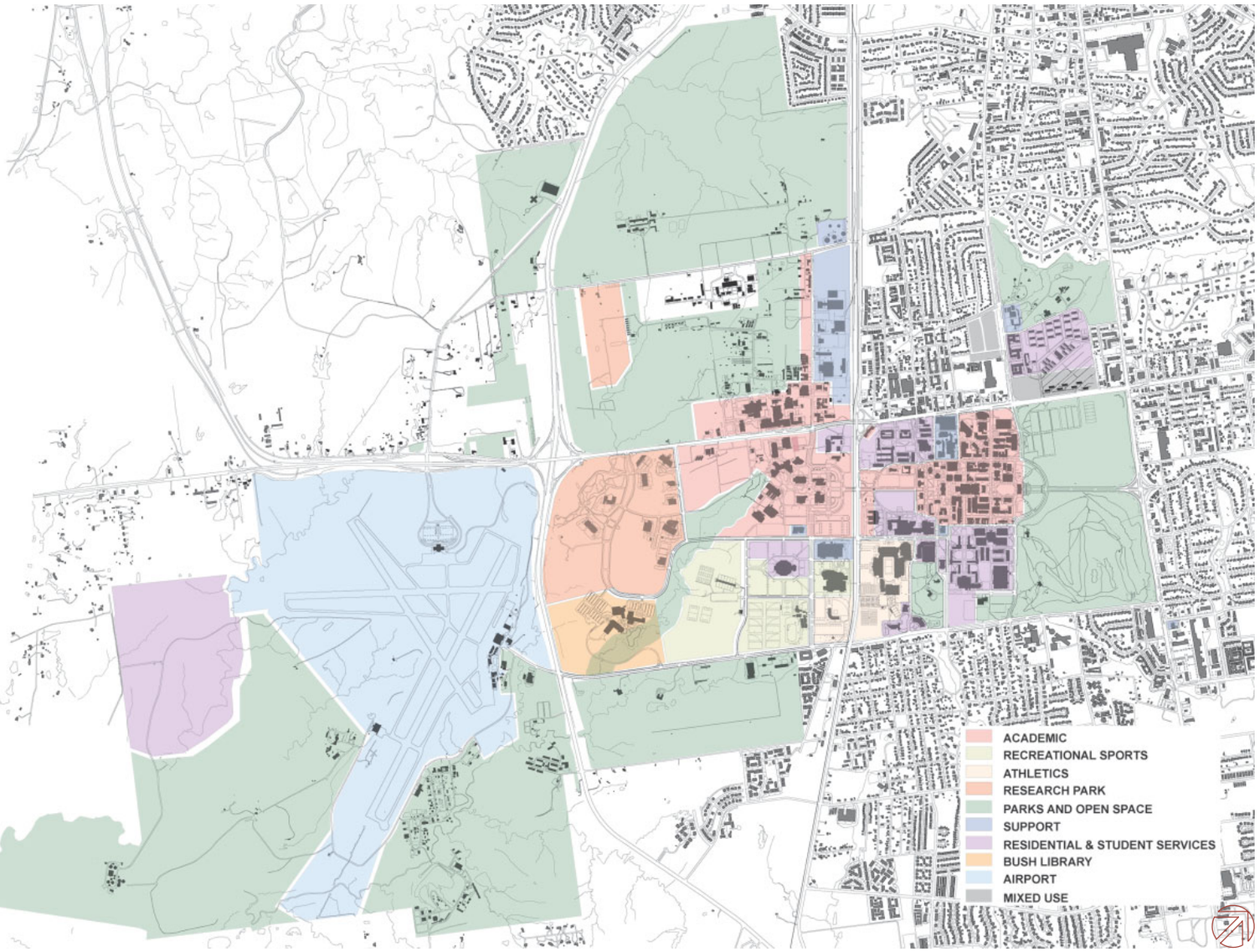


FIGURE 1
Plan showing the existing land use on the Texas A&M campus.

FIGURE 2
Proposed Land Use Plan.

Three notable changes to existing land use are:

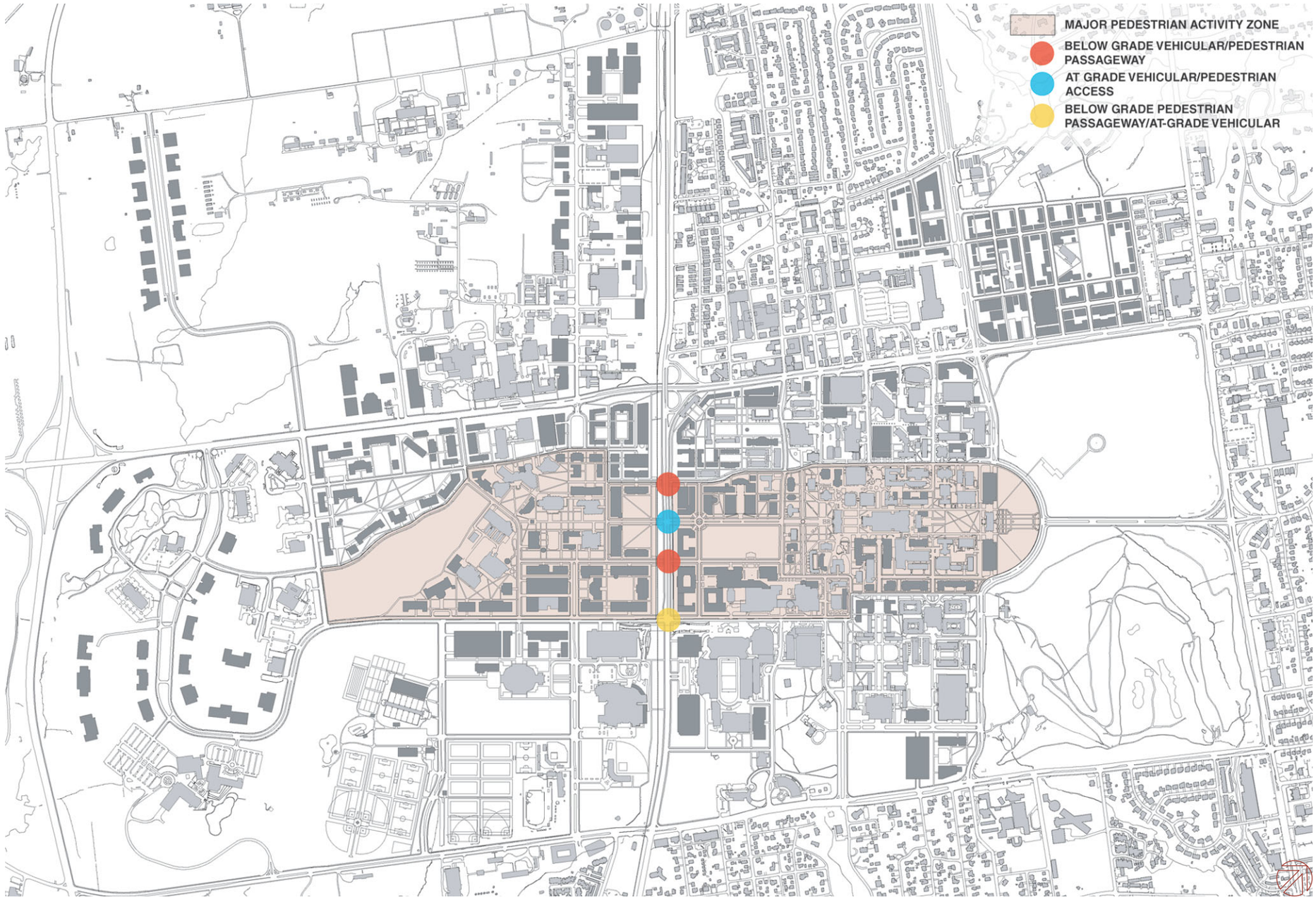
1. ***The academic core land use is extended through Mid-Campus to connect with West Campus;***

2. ***the University Apartment area is modified to have a mixed-use zone along University Drive; and***

3. ***the area north of Raymond Stotzer Boulevard, currently designated as research, is modified to substitute a portion of the Green Reserve and move the research zone further north.***

FIGURE 1

Circulation diagram showing the existing and proposed underpasses at Wellborn Road.



Circulation

Great campuses have places that encourage chance encounters between faculty and students. Chance encounters foster interaction and the exchange of ideas. These encounters can take place within the common areas of a building, but they often occur in the pedestrian circulation structure of the campus.

One of the eight goals stated by the Campus Master Plan Steering Committee was to "establish an accessible, pedestrian-oriented campus," with another being to "establish connectivity." These goals support each other and in turn support Vision 2020. To achieve these goals, limitations must be placed on the movement of vehicles within certain parts of the campus.

Given that it is not practical to eliminate all vehicular movement on campus, and given that establishing connectivity in an effective manner between the portions of campus on either side of Wellborn Road is desired, what is needed is an efficient system of transportation that addresses all modes. Building on many of the recommendations in the Final Report of the Campus Access and Parking Task Force in April 2000 and the goals stated by the Campus Master Plan Steering Committee, the Master Plan attempts to minimize the conflict between those modes.

The recommended expansion of the underpass from one to three is an important component of the proposed circulation system. The recommended additional underpasses at Jones Street/Olsen Boulevard and West Lamar Street/Olsen Boulevard indicated by the red dot on Figure 1 (opposite page) will eliminate a major source of conflict, crossing Wellborn Road and the railroad. It is recommended that the underpasses accommodate all modes of travel and provide accessible routes for persons with special needs.

The Master Plan addresses general strategies for enhancing and integrating the circulation system for all modes of travel. It is recommended that a more detailed transportation plan be considered by the University.

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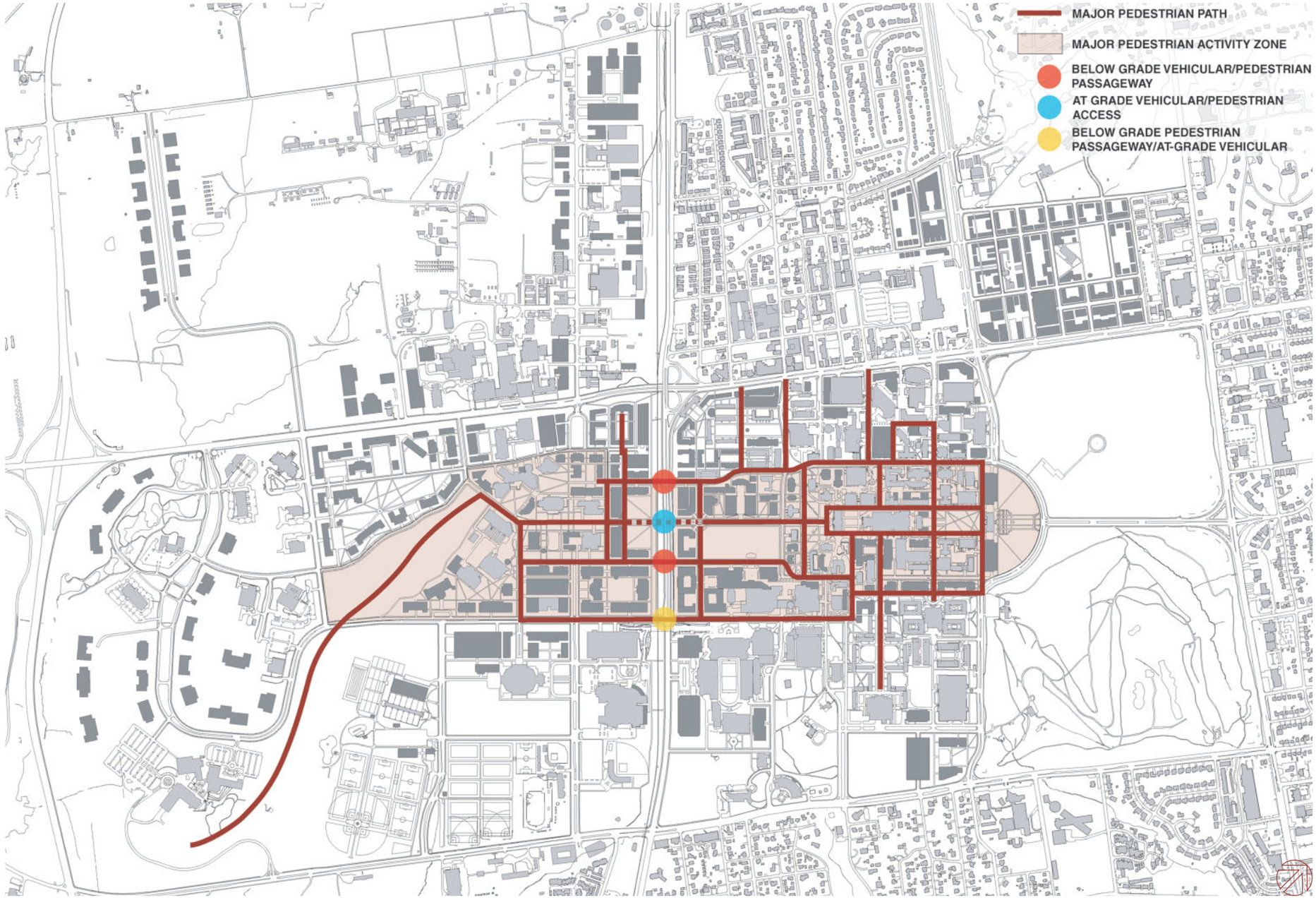
FIGURE 2
The railroad and Wellborn Road are significant barriers to connectivity of East and West Campus.

FIGURE 3
A chance encounter often occurs within the pedestrian circulation structure.

FIGURE 1

Circulation diagram showing the major pedestrian paths on campus.



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Pedestrian

Since the goal is to have a pedestrian-oriented campus, all other modes of travel should be addressed so that they enhance the pedestrian experience. The new geographic center of the campus, the Simpson Drill Field, will be approximately a ten-minute walking radius from the majority of campus. The ten-minute walking radius is meant to allow individuals to walk quickly from the center of campus to the outskirts. Getting from one end of campus to the other will still, of course, take more than ten minutes; however, as the goal of this project is to improve all aspects of multimodal travel, the pedestrian experience would be enhanced. Key to the Plan's success will be limiting private vehicle traffic between Joe Routt/John Kimbrough and Jones, and between Olsen and Bizzell.

Limiting vehicles within this area is not meant to be construed as prohibiting vehicular access, but rather as providing clearly identified paths for each vehicle type, including those that share paths. To minimize conflict with pedestrians, the most significant piece of civic structure—the portion of the campus from Houston Street east to the Administration Building and from Ross Street south to East Lamar—should be kept as vehicle-free as possible.

Walkways should be upgraded to provide pedestrians with adequate shade and consistent paving textures that signify changes in use from solely pedestrian to a mix of pedestrians, bicycles, and shuttle buses. Special consideration should be given to pavement types and textures for other modes of transportation to ensure a TAS/ADA-compliant, barrier-free campus.

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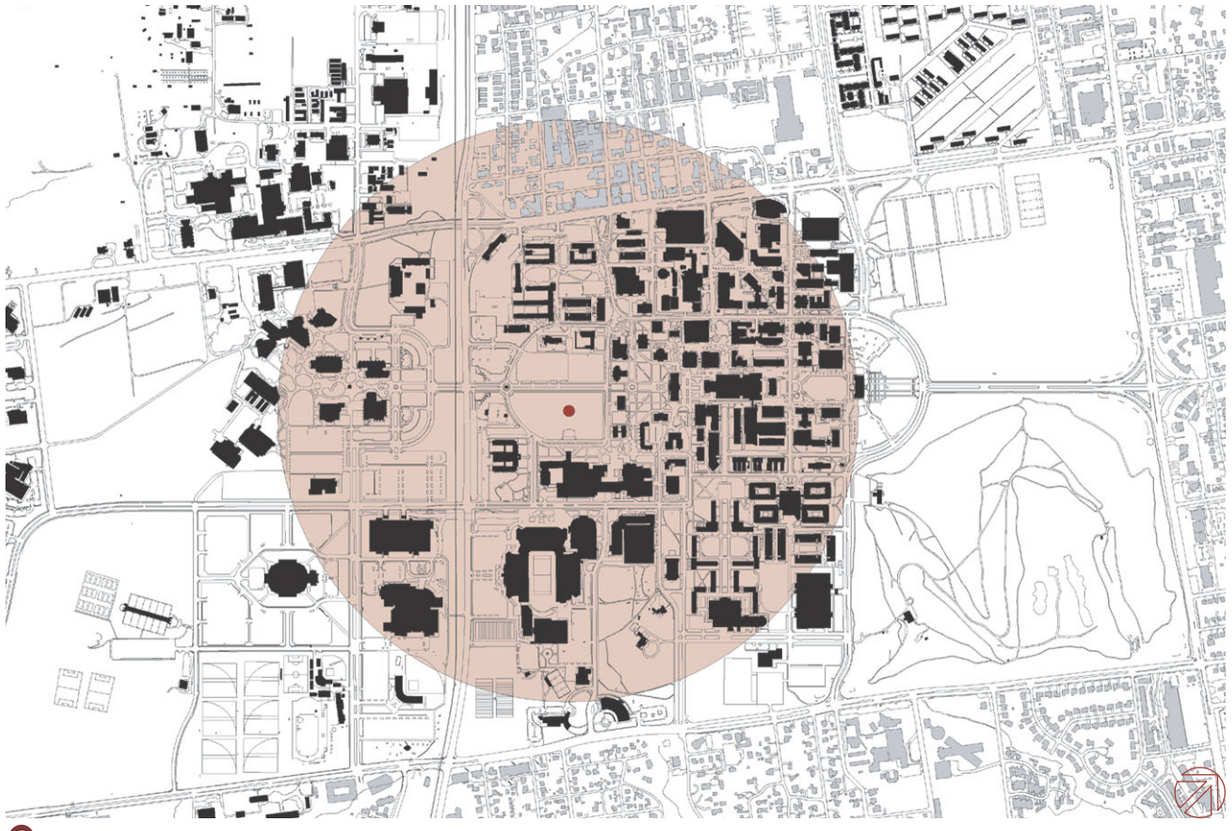

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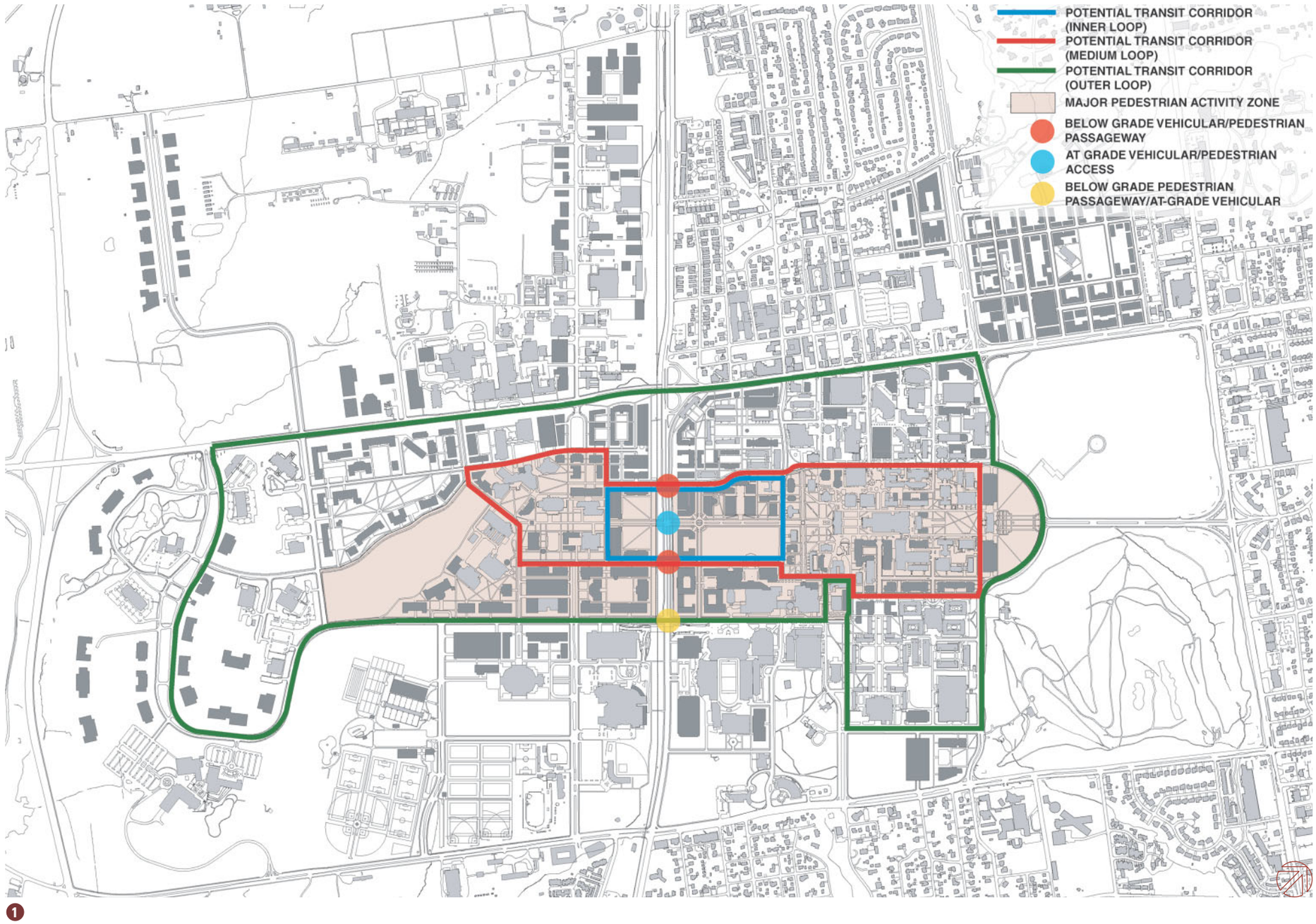
FIGURE 2
Students at Texas A&M between classes.

FIGURE 3
Passageway at Joe Routt Blvd./John Kimbrough Blvd. intended for pedestrians and bicycles completed in 2003.

FIGURE 4
Campus plan in 2003 showing a ten-minute walking radius, centered on the Simpson Drill Field.

FIGURE 1

Circulation diagram showing possible bus transit corridors.



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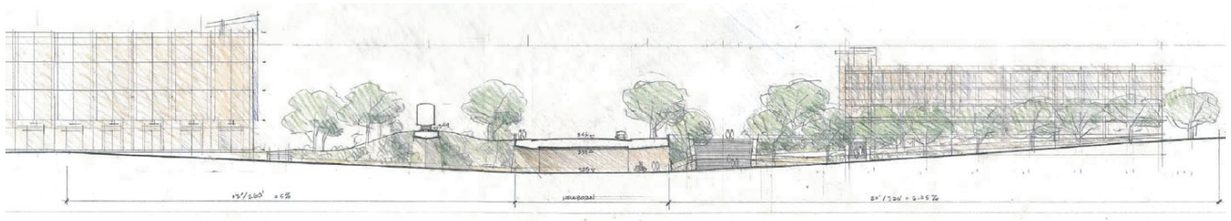
Bus Transit

With only twenty minutes between classes, walking from East to West Campus classroom centers is not feasible. Bus transit is necessary for timely, comfortable transit between classes.

The East Campus classroom centers, from the Zachry Building to the Military Science Building, are all within a ten-minute walking distance. Thus the objective of an on-campus Transit service should be transporting passengers from East Campus to West Campus or walking distances greater than ten minutes. Major barriers to accomplishing this commute in a timely manner are the railroad tracks and Wellborn Road, which divide East Campus from West Campus. The addition of underpasses at Jones/Olsen and West Lamar/Olsen will play an important role in making the transit system efficient.

The twenty-minute class change times also require the consolidation of stops on campus to increase the efficiency of routes. Frequent stops require increased passenger unloading and loading time and drastically reduce the timeliness of bus routes. The creation of bus-only lanes during peak times will further increase efficiency and timeliness of bus routes. These lanes are particularly necessary in the commute from West Campus to East Campus during peak times.

Off-campus transit routes should have stops throughout the classroom centers on campus. This melds on-campus and off-campus service. Benefits of this combination for the University



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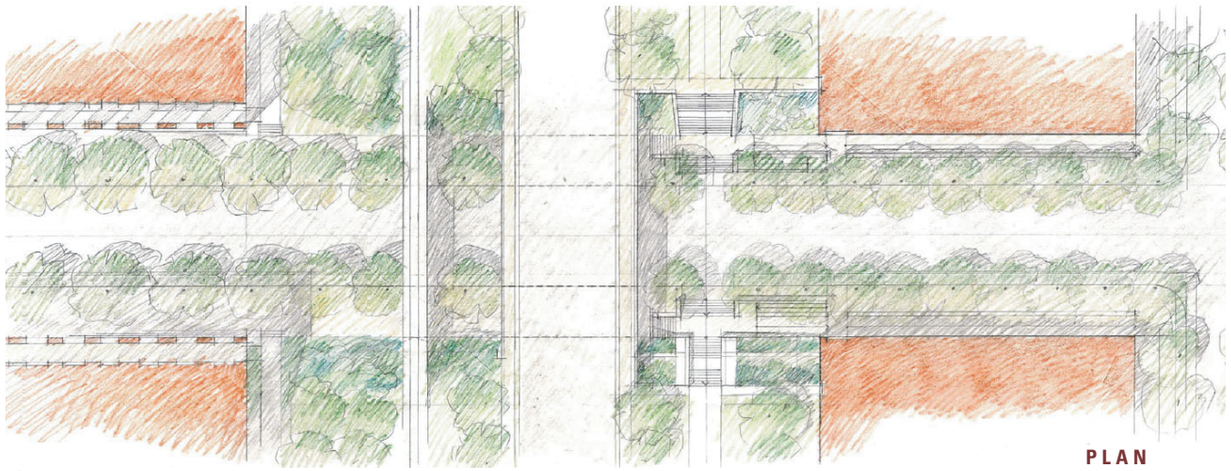

PLAN

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are the following: an elimination of need for off-campus commuters to transfer buses to get to their on-campus destination; a reduction in buses needed to provide on-campus service; and a maximization of bus utilization.

The utilization of transit hubs, "smart" stops, and functional shelters is essential to the proper functioning of the transit system. The transit hubs provide a transition between routes, when necessary. These areas should be well lit, providing a safe environment for the passengers. The use of Automatic Vehicle Locator technology is necessary to provide passengers reliable arrival times. The shelters must be functional, providing security, shelter from the elements, and information on the transit system.

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FIGURE 2

A possible design solution to making a pedestrian-friendly underpass that also incorporates transit loops.

FIGURE 3

Vast distances across campus, in addition to the railroad tracks and Wellborn Road, hinder pedestrian travel.

FIGURE 4

The railroad tracks and Wellborn Road are major barriers to efficient transit between West Campus and East Campus.

FIGURE 1

Circulation diagram showing the possible variety of bike paths and limited access zones.

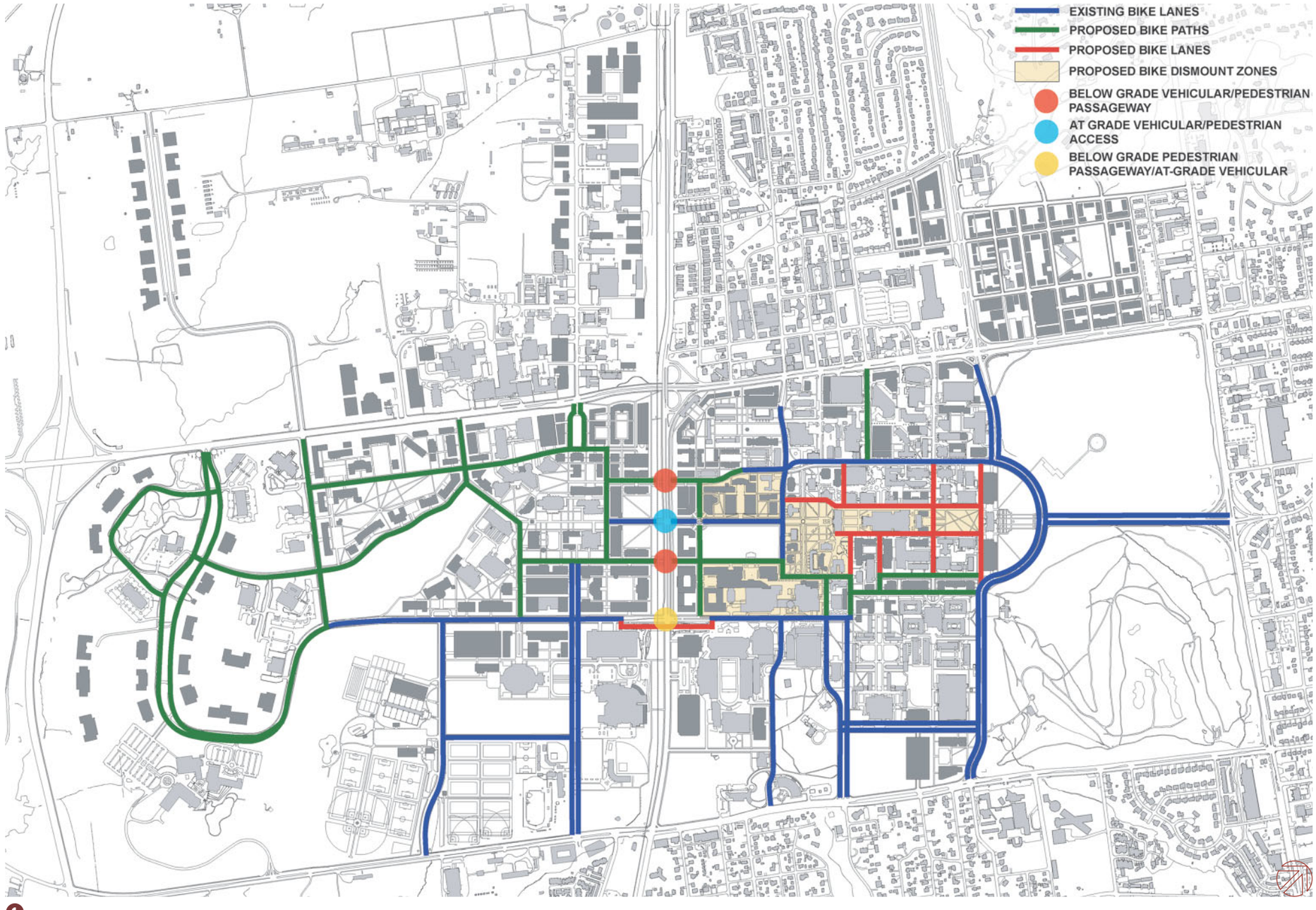

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FIGURE 2
Increased pedestrian loads in the central portion of campus will cause a need to limit bicycle access to designated areas.

FIGURE 3
Location of bicycle racks should consider the needs of the multi-modal user.

Bicycles

The Final Report of the Campus Access and Parking Task Force identified bicycle travel as "an environmentally friendly, inexpensive, yet speedy method of transportation." The report called for a mix of on-street bike lanes and off-street bike paths that can be integrated into the surrounding community.

Currently the bicycle system on campus comprises bike lanes on most campus streets. The bikeway plan included in the report of the Task Force is a 1991 proposal that accompanied a study by Texas Transportation Institute. That plan indicates a number of sidewalks shared by cyclists and pedestrians in the central portion of campus from Spence Street to Houston Street. Based on further development of the campus core and ensuing increased pedestrian loads in that area, the Master Plan recommends the following: limiting east-west bicycle traffic to Jones/Ross and East Lamar/Joe Routt, and utilizing Spence Street as a shared bicycle/pedestrian path. This will allow for the creation of a bicycle dismount zone on East Campus. Where bicycle paths intersect the zone, cyclists will dismount in order to preserve pedestrian safety. Enforcement will be key in the success of any bicycle dismount area.

Cyclists should utilize the outer lanes of all three underpasses (including proposed Jones/Olsen and West Lamar/Olsen underpasses). West Campus beyond Olsen provides ample space for dedicated paths and they are recommended in this area.

Where shared paths are identified, it is recommended that distinct paving be used to identify the partition of the path attributable to each mode. Additional bicycle racks will be necessary to further facilitate the use of the shared paths across campus. When determining placement of these new racks, the convenience to the multimodal user needs to be considered. Enforcement of bicycle regulations (and all transportation modes) is important to the successful integration of all modes of transportation.

Increased funding to subsidize improvements to the bicycle transportation system is especially important where limited infrastructure currently exists. Options for funding include bicycle registration, assigning revenue from parking violations to alternative modes of transportation, and prorating a portion of building construction budgets to transportation infrastructure. This is not to require that building construction budgets be reduced by the amount prorated to infrastructure, but that they be increased to accommodate that share.

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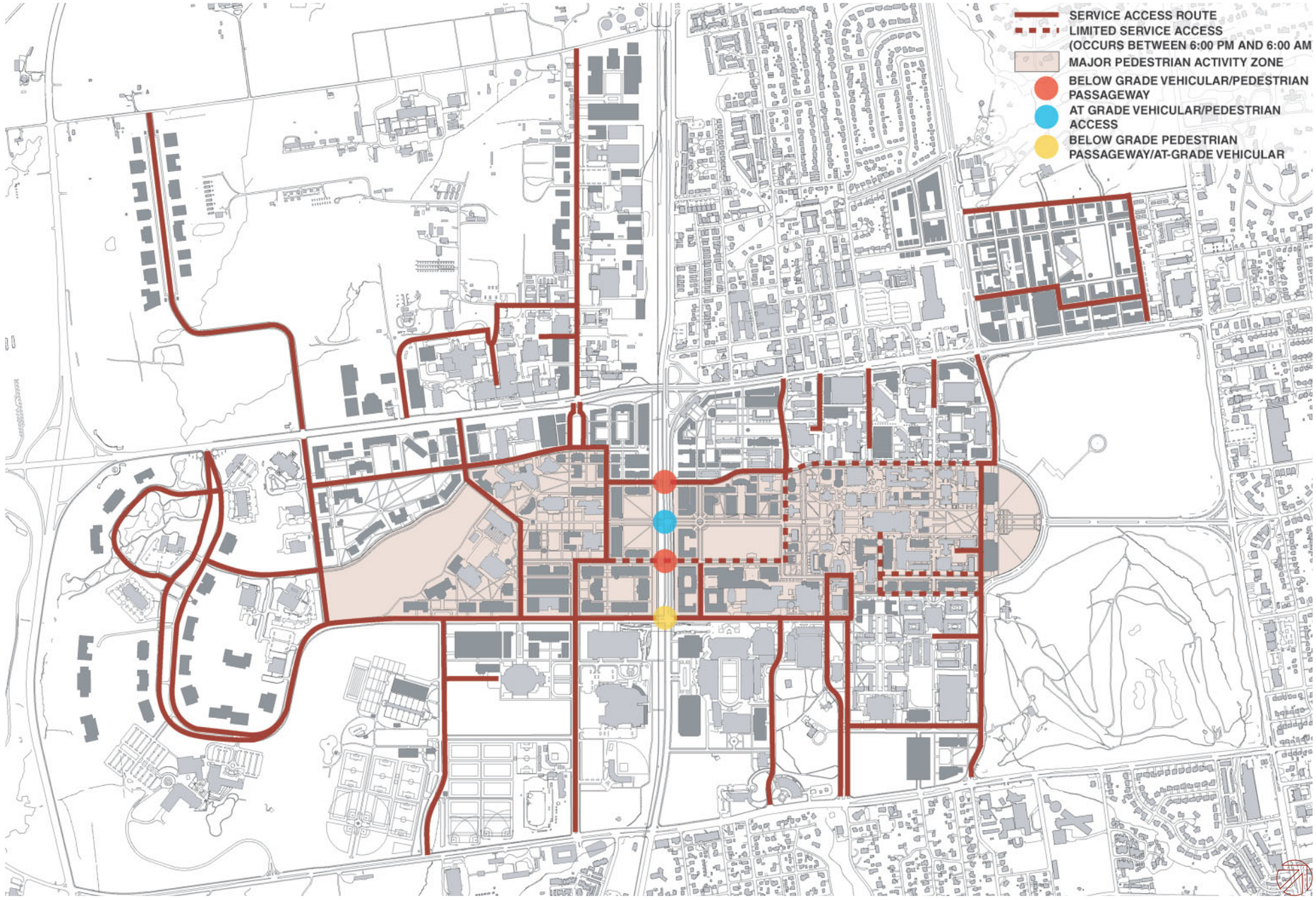
FIGURE 1

Circulation diagram showing suggested service vehicle routes.



Service—Non-Physical Plant

Service vehicles currently use all roadways (and most sidewalks) on campus at any time. To foster a pedestrian campus, conflicts between pedestrians and service vehicles should be minimized by limiting access to certain roads during certain times.

Service vehicles should operate on designated streets at any time and on limited access streets on a minimal basis. Sidewalks ideally should not be used for service access more than is absolutely necessary. There are times when service vehicles need to access sidewalks, particularly in instances where buildings do not have a service entrance or where site infrastructure requires repair. In those instances, the speed of the service vehicle must be lower than that of a pedestrian.

Limited access streets should be open to vehicular use from 6:00 p.m. to 6:00 a.m. Wherever feasible and whenever possible deliveries and trash pickup should be accomplished within those times.

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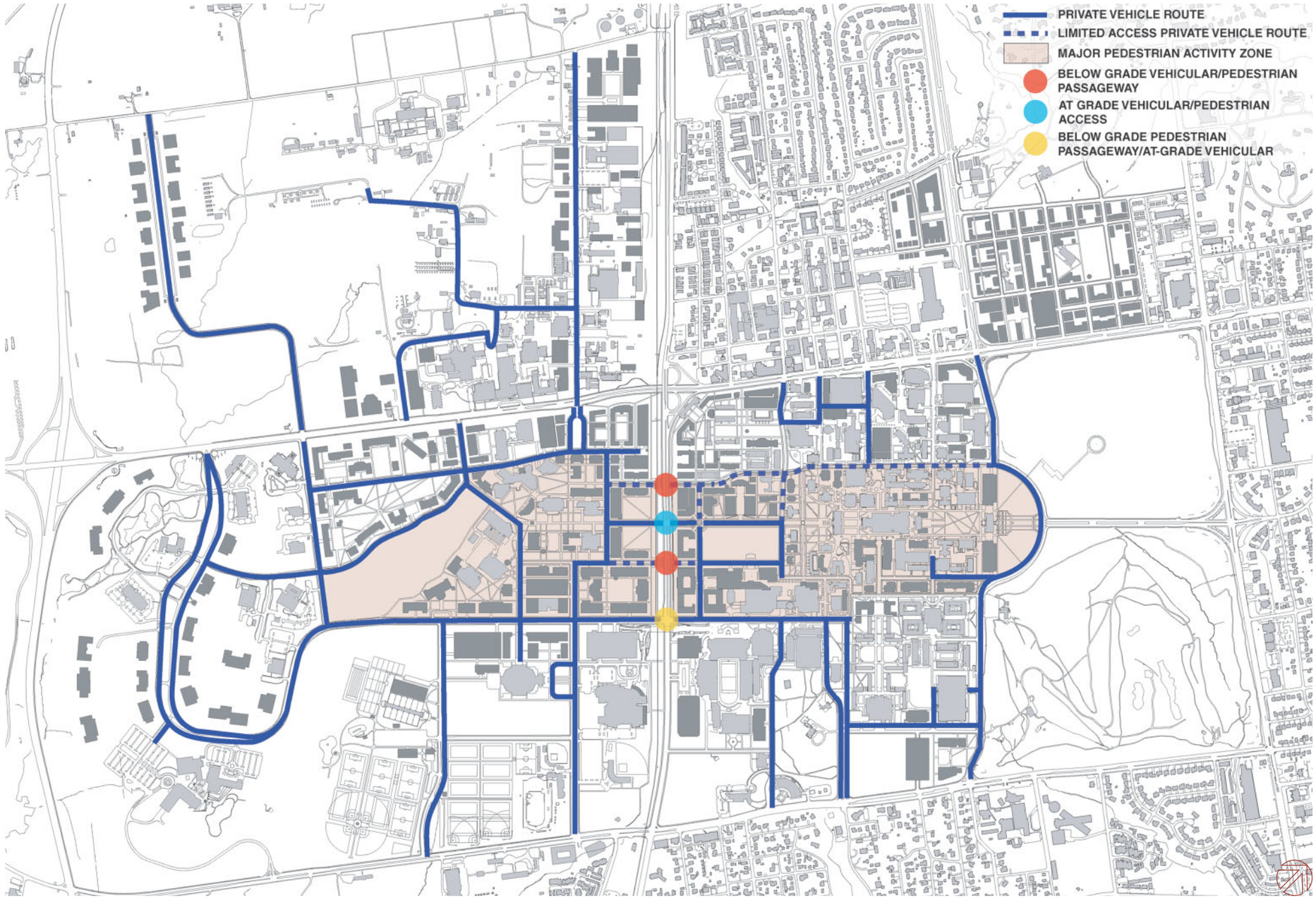
FIGURE 2
A&M service vehicle parked on the sidewalk.

FIGURE 3
A service vehicle traveling down a pedestrian sidewalk. A goal of the Campus Master Plan is to minimize conflicts between pedestrians and vehicles.

FIGURE 4
The Kleberg Center does little to distinguish pedestrian from service areas.

FIGURE 1

Circulation diagram showing suggested private vehicle access routes.



Private Vehicles

Because of the abundance of land at Texas A&M, the need to limit vehicular traffic has traditionally not been an issue. With approximately 45,000 students and over 33,000 parking spaces, Texas A&M has one of the highest car/student ratios in the nation. Clearly this statistic contradicts the goal of providing a pedestrian-oriented campus.

In addition to creating a need to provide parking for an astonishing number of cars, the introduction of so many cars on campus causes conflicts with other modes of transportation. The Master Plan recommends limiting the access of private vehicles to certain paths within normal business hours. Figure 1, opposite, indicates roads proposed for full access and for limited access to private vehicles. In general, private vehicles are not allowed access to the historic core of the campus during business hours. Whenever possible, limited access roads should be paved and signed to distinguish them from general access roads.

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FIGURE 2

A pleasant parking lot, Lot 44 nevertheless represents the pervasive presence of private automobiles occupying important space in the campus core.

FIGURE 3

The ramps at the Academic Building are an excellent example of thoughtful integration of accessibility with a historic structure.

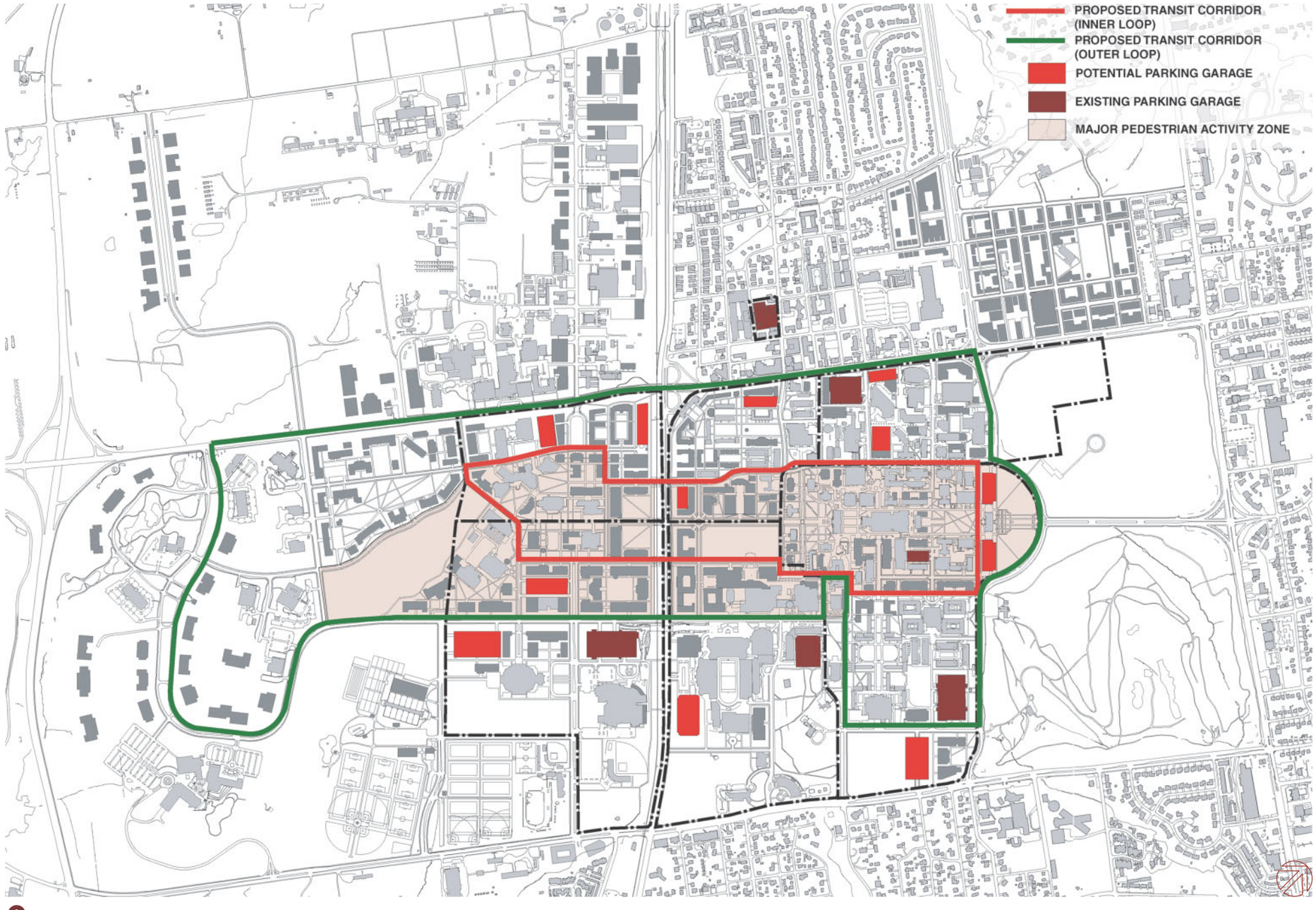
Accessibility

Compliance with Texas Accessibility Standards (TAS) and the Americans with Disabilities Act (ADA) should be a consideration in all elements of circulation. Convenient, barrier-free entrances, legible pavement textures, clear signage, and clear well-lit paths should be considered. Bus routes should incorporate accessible buses.

Care must be used in introducing accessibility to existing historic facilities. The Academic Building should serve as a benchmark for successful integration of accessible features with the building.

FIGURE 1

Potential parking plan showing possible interface with potential transit corridors.



1

Parking

Because the University is so rich in land and relatively remote from other major modes of transportation, the automobile became the predominant means of getting to and from campus (and around campus, in recent years). This, combined with the explosive growth of the campus from the early 1960s to the present, has led to the prevalence of surface parking that describes much of the campus.

Of over 33,000 parking spaces on campus, approximately 23,000 are surface parking. This consumes an enormous amount of land and creates "dead zones" that are contrary to the goals of the Master Plan. To reverse this trend and return the campus to one that is defined by a strong civic structure, and in turn create a pedestrian-oriented environment, reliance on surface parking should be diminished. The proposed underpasses at Wellborn Road will strengthen the role of alternative means of transportation by strengthening the linkages between the East and West Campuses, and by creating routes for efficient mass transportation loops.

Parking that remains should become structure parking with a commitment to creating quality exteriors similar to that which currently exists. Structured parking should be a mix of larger garages on the perimeter of the campus and smaller garages closer to the center of campus. The garages closer to the campus core should follow the precedent established by the University Center Garage, that of structured parking surrounded by occupied space.

The current policy of maintaining the same ratio of parking spaces to students should be reevaluated. As the campus grows, maintaining the same ratio will produce ever more parking spaces, and will limit the success of alternative means of transportation.

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FIGURE 2
Diagram showing existing parking lots and parking structures.

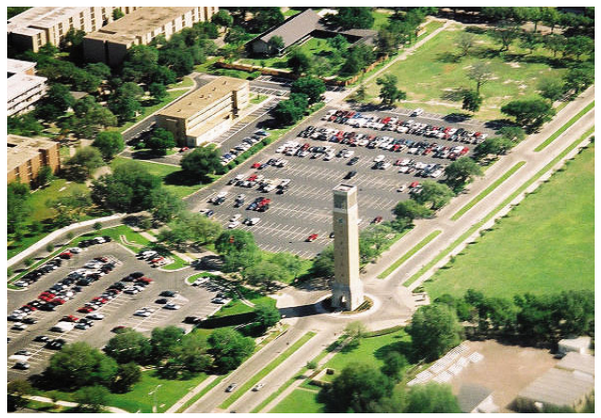

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FIGURE 3
The surface lot at the north side of the Simpson Drill Field near the Albritton Bell Tower does not represent an effective use of land at the core of the campus.

FIGURE 1
Layout of campus utility plants showing existing and proposed plants.

Infrastructure

While utility infrastructure in a campus environment often starts with a strategic vision for efficient implementation and management of the service network, it often resorts to "reactionary" implementation for a variety of reasons. Sprawl or growth that occurs with ever-increasing space between structures, coupled with limited construction funds, sets the stage for utilities to be routed in the most expeditious manner. Cost often weighs in heavily as the deciding factor. The results, in many cases, are utility lines run diagonally across open land that either preclude that land from becoming a building site or force the construction budget for the planned building to bear the cost of utility relocation.

This description fits Texas A&M University in the sense that sprawl has contributed to the need for ever more satellite plants and a large network in order to distribute utilities. This is not a resource-efficient scenario. Parts of East Campus have aging infrastructure that needs updating, both in terms of capacity and distribution. In addition, some existing lines will need to be relocated to accommodate proposed growth. Both scenarios will require careful phasing to ensure that service is maintained throughout construction.

The Master Plan seeks to plan for facilities growth in a logical and compact manner, and to build an infrastructure that supports that growth in a resource-efficient way. In general, major lines should be run under streets in such a manner that strives to "protect" future building sites and existing street trees as much as possible. Distribution lines should anticipate the capacity of the land in given areas using development densities prescribed in the Master Plan.

Thermal Utilities

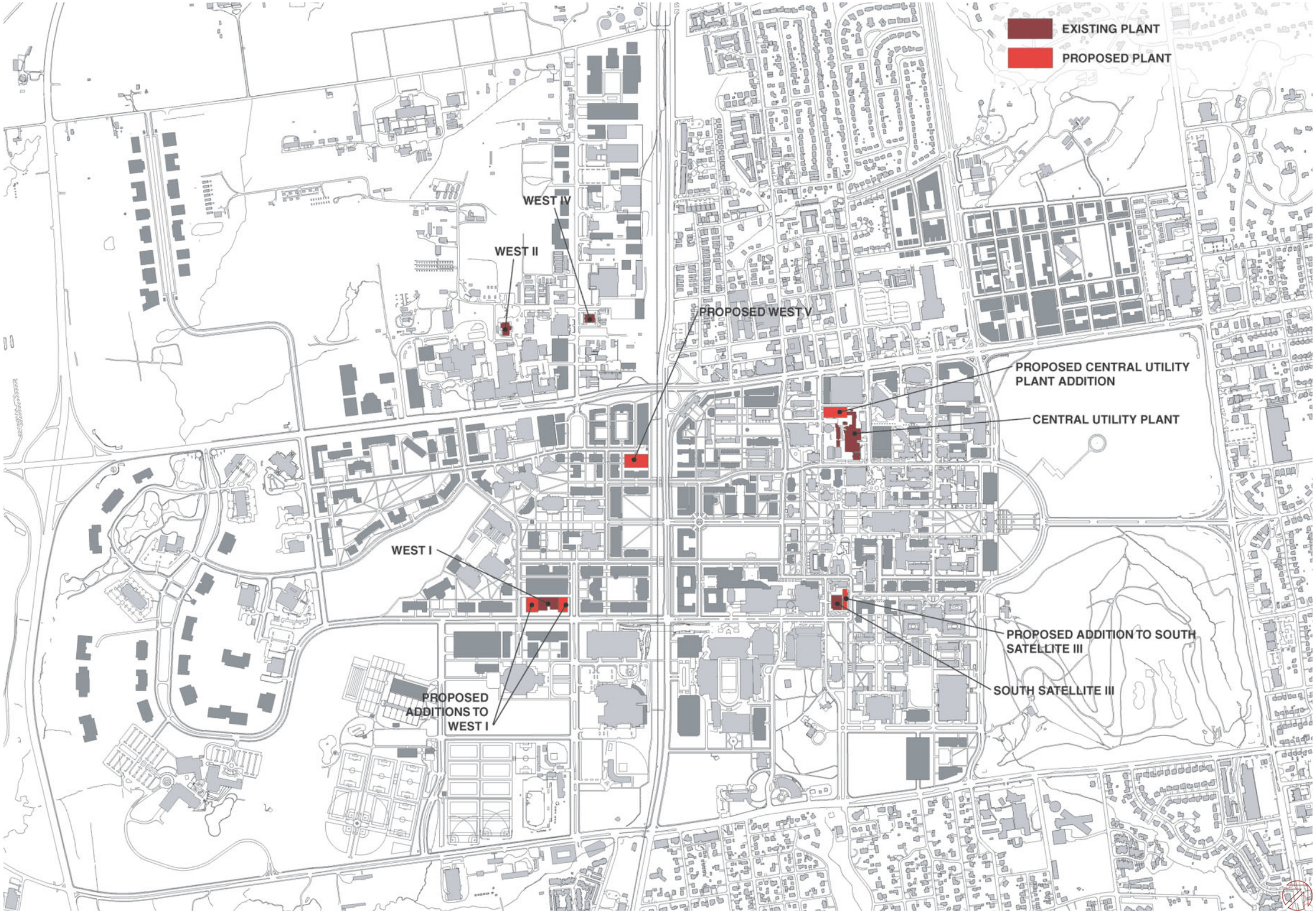
There are currently four plants that provide thermal utilities to the campus. The Central Utility Plant and South Utility Plant 3 serve the East Campus, while West Utility Plant 1 and West Utility Plant 2 serve West Campus, the School of Veterinary Medicine, and the Physical Plant areas. With the projected growth anticipated in the Master Plan, the need for additional production and distribution capacity in the future is clear and is summarized below:

East Campus: Current capacity and ability to deliver hot and chilled water in the East Campus is adequate for the near future, but the Central Utility Plant and South Utility Plant 3 have limited additional production capacity to accommodate planned growth. It is recommended to design and construct an additional Central Plant on the site of the current Mail Service Building in the future to augment the existing Central Utility Plant. A planned additional 1500-ton chiller currently in design (at the time of publication) will add capacity on East Campus but will maximize the existing building envelope at South Utility Plant 3. Additional capacity at South Utility Plant 3 can be gained through construction of an addition to the east of the existing building.

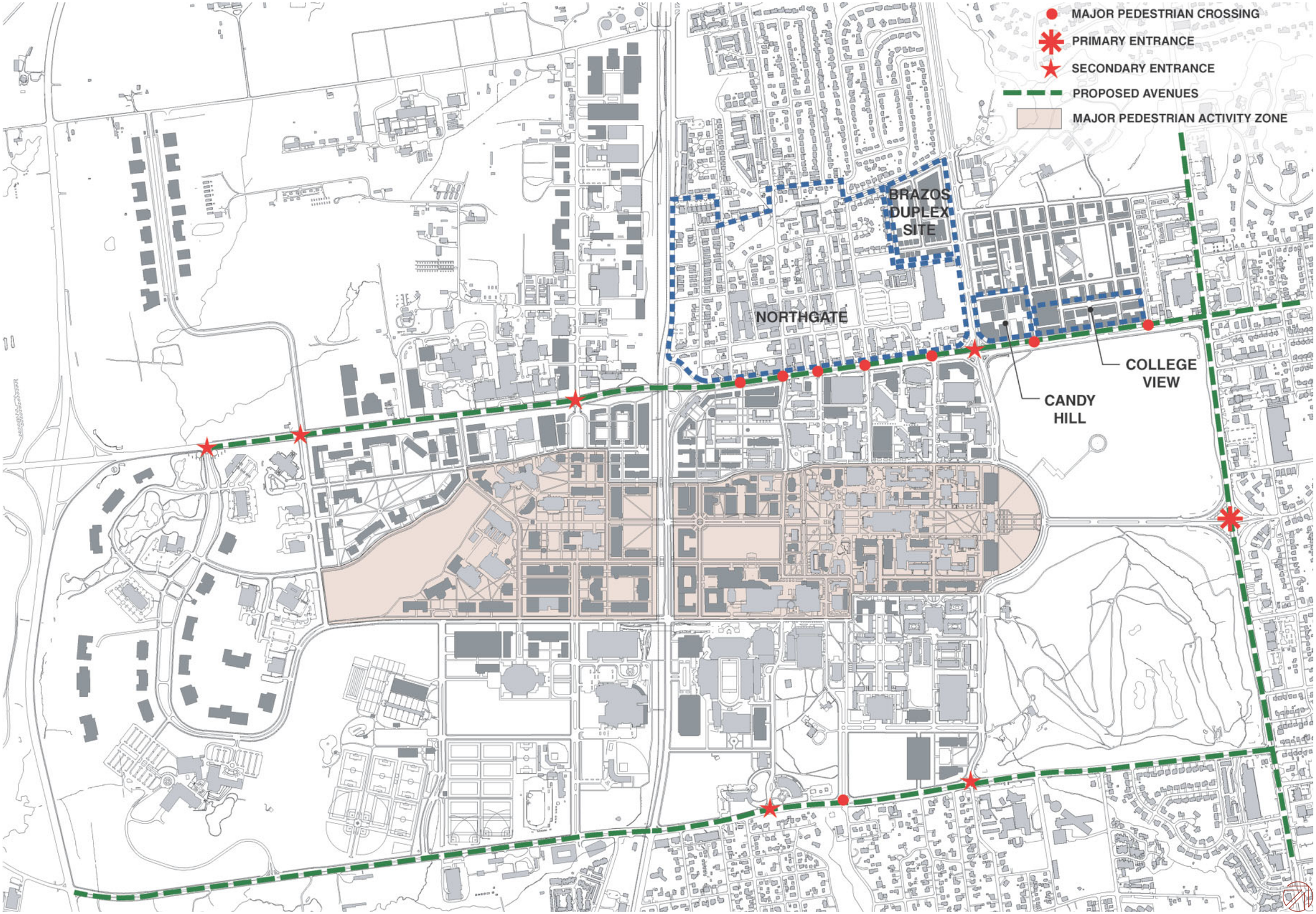
West Campus: While it is possible to construct additions to the West Utility Plant 1 and thereby add capacity, to support the growth in the West and Mid-Campus will require the addition of a new utility plant, preferably in the area north of the Jones underpass. Referred to in Figure 1 as West Utility Plant 5, this plant should be placed along the west side of the railroad tracks to provide a buffer to the railroad from occupied space in West Campus. In addition, this placement will provide the ability to conveniently assist in serving planned development in both Mid-and West Campus. Placement north of the proposed Jones underpass and west of the railroad affords the opportunity to maximize proximity to the new 138kV feeder at Stotzer Drive and Wellborn Road.

Distribution

In anticipation of development in the areas indicated in the Master Plan, supply and return trunk lines for thermal utilities will need to be upgraded. Whenever lines are upgraded, the new design should consider ultimate build-out capacity. New loops should be designed to connect East and West Campuses to provide maximum flexibility with the new West Utility Plant V and proposed additions at other plants. Dividing the campus into quadrants with east-west connections will provide that flexibility. Thermal trunk lines should be placed in tunnels and routed under the street wherever possible in order to preserve building sites and minimize future damage to landscape as a result of utility construction.


EXISTING PLANT
PROPOSED PLANT
WEST IV
WEST II
PROPOSED WEST V
PROPOSED CENTRAL UTILITY PLANT ADDITION
CENTRAL UTILITY PLANT
WEST I
PROPOSED ADDITIONS TO WEST I
PROPOSED ADDITION TO SOUTH SATELLITE III
SOUTH SATELLITE III

1


MAJOR PEDESTRIAN CROSSING
PRIMARY ENTRANCE
SECONDARY ENTRANCE
PROPOSED AVENUES
MAJOR PEDESTRIAN ACTIVITY ZONE
BRAZOS DUPLEX SITE
NORTHGATE
CANDY HILL
COLLEGE VIEW

1

Campus and Community

In the early stages of this Master Plan, the Campus Master Plan Steering Committee established goals for the Plan. Almost half of these goals contained a reference to community, illustrating its importance to the University. While a sense of community is what "Aggieland" is about in an abstract sense, there is little correlation between it and the physical environment on campus or its relationship to Bryan and College Station. It is an unusual situation that, on one hand, there is such reverence for tradition and sense of community, and, on the other, students and faculty typically leave for the weekend to seek entertainment, culture, and a sense of community elsewhere.

To help reverse this trend, opportunities for and facilities to house entertainment and cultural activities on campus should be increased. The University Center, Reed Arena, and the Bush Presidential Library provide venues for important cultural, intellectual, and entertainment activities, but distances between them are vast, diluting the notion of a cultural and entertainment center on campus. In an early workshop session on the Master Plan, students were asked whether, as the campus grows, thought should be given to the idea of a second student center. The students spoke eloquently in opposition to the idea, stating the importance to them and to the sense of community on campus of retaining the Memorial Student Center as the campus living room. The Master Plan proposes opportunities for significant expansion of the University Center complex to accommodate growth in a single facility.

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Much like a city needs a mix of uses to retain a sense of vitality, a university requires a mix of building uses to create a sense of community. This should include not only academic and cultural entertainment facilities, but desirable housing centers that form their own sense of community within the larger campus. With the current trend toward housing that provides more private units, additional care must be taken to ensure that future housing on campus has an appropriate level of public and semipublic spaces to retain a community feel, and that units are grouped in such a way that they form courtyards and quadrangles. As new facilities of any use are planned, adequate portions of the project budget should be dedicated to the public realm, that is, lobbies, entries, facades, and adjacent landscaping. Landscape should foster human interaction and contribute to the pedestrian experience and, where appropriate, extend that experience to the edge of the campus.

Campus Edges

The campus currently maintains a significant open space buffer on three sides (including Easterwood Airport). The fourth side along University Drive is the nearest that Texas A&M has to an urban edge. Most university campuses in the United States that have a strong physical connection to their surrounding community establish that connection through a significant pedestrian

FIGURE 1
Diagram indicating proposed entry hierarchy and major community interface points.

FIGURE 2
University Drive in its current state is an obstacle to establishing a strong pedestrian link between the campus and the community.

FIGURE 3
The Flag Room in the Memorial Student Center typifies the need for more meeting and community spaces as the campus grows.

FIGURE 4
A compact commercial district continues to develop along University Drive, though no significant pedestrian linkages to the campus exist.

FIGURE 1

University Drive existing conditions on the north side of the street. Photo used with permission from Land Design Studio, under contract to the City of College Station.

FIGURE 2

University Drive showing improvements proposed in Northgate Study for the City of College Station. Photo with digital representation of proposed improvements used with permission from Land Design Studio, under contract to the City of College Station.

linkage to a nearby compact commercial district. Harvard Square in Cambridge, Franklin Street in Chapel Hill, and Guadalupe Street in Austin come to mind. University Drive offers the potential to provide a vital link to the community on a pedestrian scale, but to achieve this linkage a number of things need to occur. The university should collaborate with the City of College Station in an effort to tame University Drive. While students frequent the Northgate district immediately north of University Drive primarily for entertainment, the area lacks a strong or even safe pedestrian connection to the campus. In addition, it currently has little community value other than as an entertainment district for students.

In an effort to make Northgate a more viable community, the City of College Station has undertaken a master plan of the area that seeks to revitalize it through encouraging mixed-use developments and enhanced streetscapes. Along University Drive, the Northgate Master Plan has proposed widening the sidewalk on the north side of the street, narrowing the lanes from twelve to eleven feet in width, providing a median with street trees, and introducing crosswalks with bulb outs to reduce the walking distance at intersections. In order to complement these steps, the university should plant a double row of street trees on the south side of University Drive, build new buildings along the street that contribute to the creation of an urban edge, and install additional stoplights to create more pedestrian crossings from the campus to Northgate.

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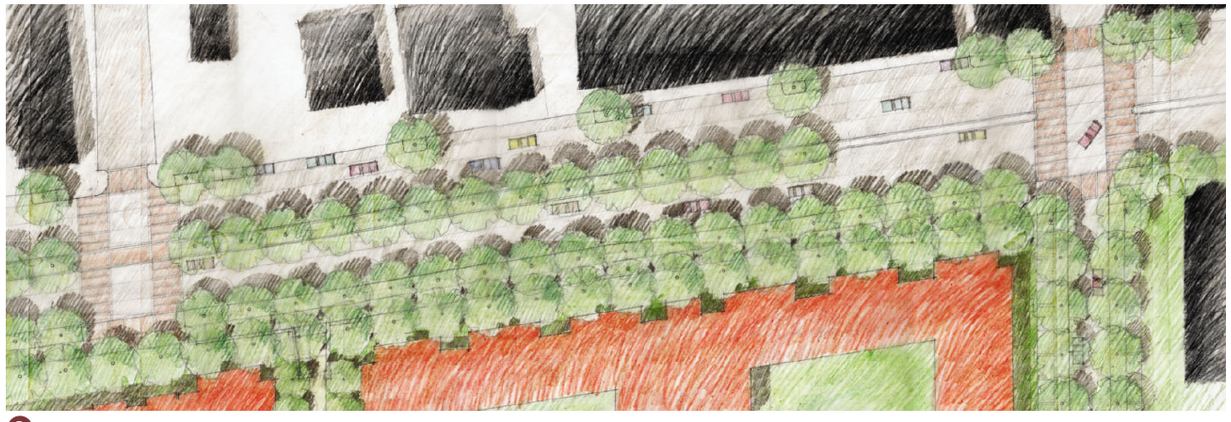

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FIGURE 3
Enlarged plan showing proposed street improvements to the south side of University Drive by Texas A&M University.

The area north of University Drive and east of South College Avenue is predominantly university-owned land, but it does little to enhance the sense of community along this edge of the campus. This is an area that, with careful development through either private/public partnerships or long-term ground leases, could significantly enhance the character of University Drive. The strip along the north side of the street, including Candy Hill and the College View Apartments, should be considered for long-term development as an important mixed-use center containing housing, retail, restaurants, and services. The former Brazos Duplex site should also be developed according to this concept. This site should be developed not as a strip mall, but with a clear urban edge much like those of the existing buildings further west along University Drive. Parking could be a mix of a garage and limited surface parking within the development. Such a development coupled with thoughtful planning of future buildings and open spaces in the University Apartment area would enhance the area, serve a larger community, and make those apartments appeal to a broader population.

The concept of maintaining a green buffer on the other three sides of campus should remain intact. It is a unique characteristic that few universities have, particularly those comparable in size to Texas A&M. It is assumed that for the foreseeable future, Easterwood Airport will remain an active airport and thus predominantly open space. The eastern edge of the campus should remain as undeveloped with the exception of the Bonfire Memorial and the Golf Course. Alternatives such as structured parking in other parts of the campus and alternative forms of transportation should be sought, with one goal being the elimination of the surface lots in the Polo Field area. The southern edge should remain largely open with notable exceptions: the Hagler Center/Texas A&M Foundation Building, the Clayton Williams Alumni Center, and possibly a new complex at the corner of George Bush Drive and Bizzell Street.

The University should seek the city's support to strengthen the notion of George Bush Drive and Texas Avenue as true avenues, incorporating street trees along the edges and in the median, and should support city efforts to utilize both as bicycle routes (off-street bicycle paths). Campus entries should reflect their relative importance in the hierarchy of campus access points and be appropriately signed as entries. The primary entry will remain at Texas Avenue and New Main Drive, with secondary entries at Discovery Drive/Stotzer Boulevard, Olsen Boulevard/Stotzer Boulevard, Bizzell Street/University Drive, Bizzell Street/George Bush Drive, and Houston Street/George Bush Drive.

Finally, universities by nature seek to solve problems in communities and society as a whole. The ability to solve community problems should first be demonstrated by the ability to solve problems on the university level and thus to lead by example. This Master Plan encourages the University to reverse the current pattern of development at low densities, and instead develop a compact, pedestrian-dominant campus. This is important on a community-wide basis because the university is the largest land holder in the Bryan and College Station area. If the desire is to have a community that is compact and pedestrian-friendly in order to attract faculty and students, then the largest landholder in the community must develop in a way that supports that concept. Developing the community in this way will not only be beneficial in the immediate future, but the students who become accustomed to the sense of community gained in a compact campus and community environment will take that concept with them when they leave. This provides the opportunity to spread the concept of a compact, sustainable environment to other communities as well.

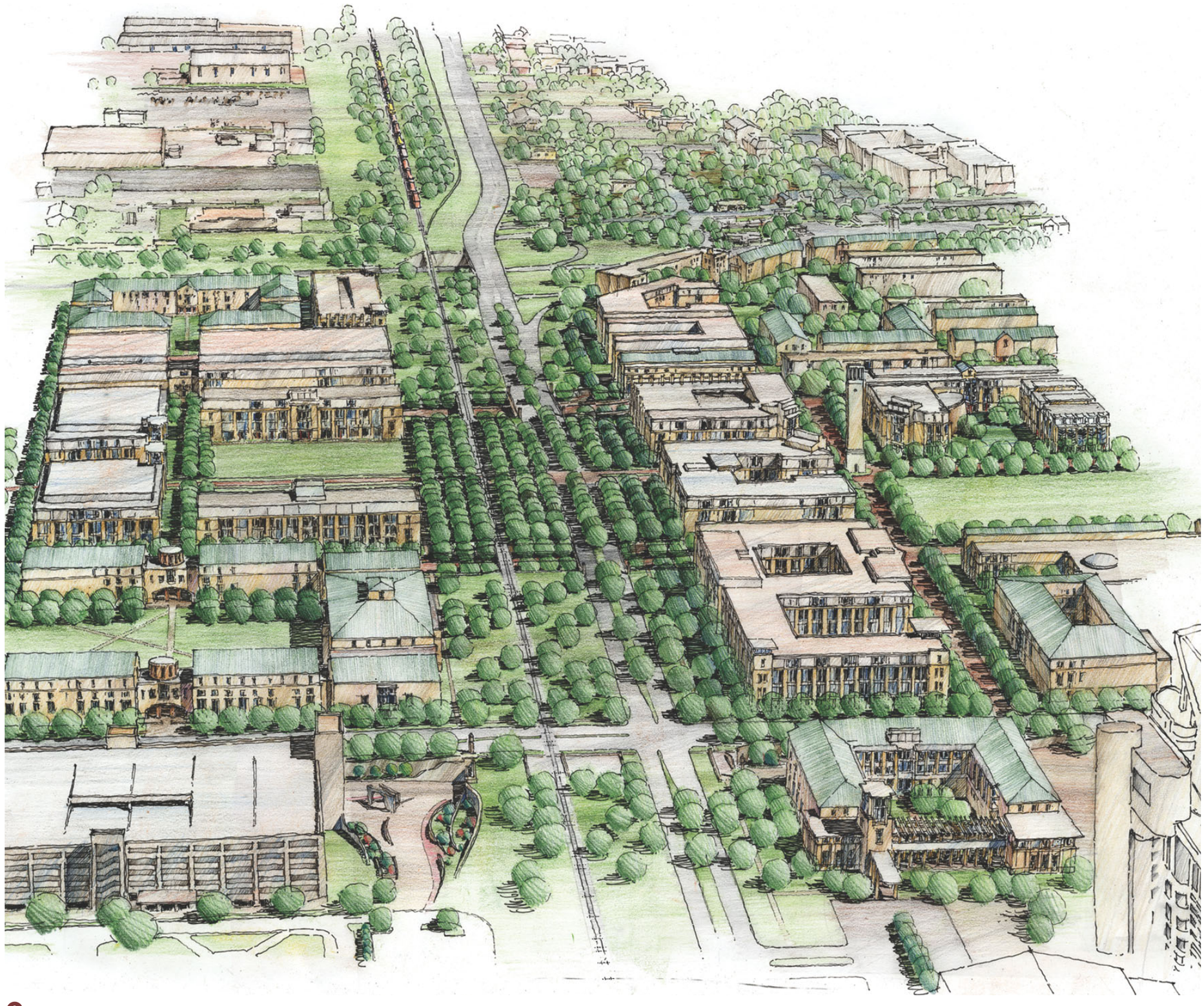


FIGURE 1

Aerial perspective looking north showing proposed improvements to Wellborn Road including the proposed underpasses and the West Quad. Refer to Figure 3 for diagram of proposed underpasses.

FIRST PHASE PLAN

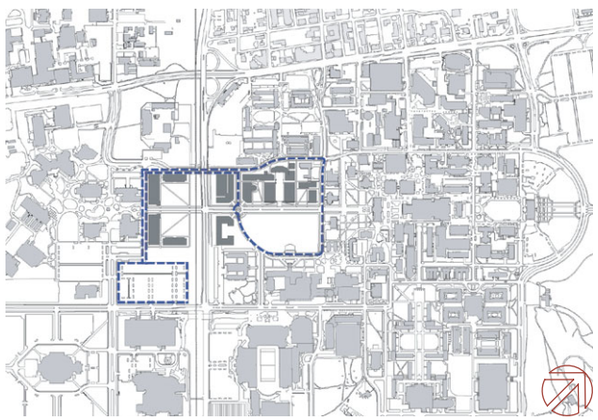
The proposed first phase of this Master Plan attempts to establish the basic concepts addressed in the Long Range Plan. The Master Plan anticipates that the first phase will last approximately ten years and should set the tone and provide a framework around which future phases can be built. It will also be important for people to see immediate progress toward the goals established by the Campus Master Plan Steering Committee, both to show commitment to the Plan and to help them understand the positive impact that the implementation of the plan can have on the campus. If steps mentioned as part of this phase are developed, all of the goals stated by the Campus Master Plan Steering Committee will be addressed.

Goals for the First Phase

Throughout the master planning process at Texas A&M, the question of what constituted the single biggest problem on campus was posed on numerous occasions. The answer was always the same—the railroad. Recognizing this as well as the permanence of the railroad, the Master Plan proposes that at least one, and if at all possible, two additional underpasses under Wellborn Road and the railroad be constructed in the first phase. The Campus Master Plan Steering Committee arrived at a consensus that the first of these should be on the north side of the campus and connect Jones Street on the east side of Wellborn Road with Olsen Boulevard on the west. There was also consensus that both underpasses should be configured to accommodate pedestrians, cars, buses, and service vehicles.

The underpasses under Wellborn Road and the railroad have the potential to make a substantial contribution to the idea of connecting east and west portions of the campus. They open the possibility of an efficient transit system that is not impeded by crossing traffic or the train. Completion of the north underpass will enhance east-west circulation, but without the second underpass it will require a return trip under the railroad along the same route, essentially backtracking. This is a somewhat functional scenario, but not ideal for maximizing the potential linkage between East and West Campus. With the completion of the second new underpass, the concept of a rapid shuttle loop becomes possible, vastly decreasing travel time on campus. Pedestrian travel also becomes much safer and more convenient, but careful planning of the underpasses is required in order to make them not only safe but also inviting for pedestrian use. Buildings adjacent to the underpasses should have at least partial floors that extend to either side of the respective east-west streets on both sides of Wellborn Road. These floors should consist of uses that generate pedestrian traffic and assist in making them a place rather than simply an underpass. Attractive lighting, landscaping, and adjacent structured parking will all serve to enhance their use.

Related to the idea of the circulatory connectivity of the east and west portions of the campus is the concept of revitalizing and extending the existing civic structure westward. This extension serves to further link the two portions of the campus both visually and psychologically. The revitalization and extension could be broken down into a number of distinct pieces that, when correctly joined, form an armature about which the campus buildings are organized. Moving from east to west, along the central spine, major components of the Civic Structure proposed for this phase are shown on the following pages.



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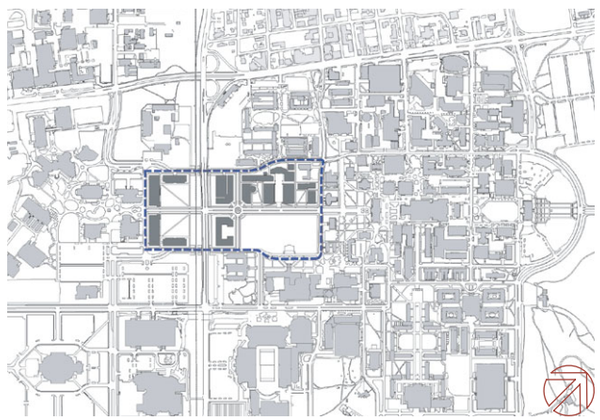

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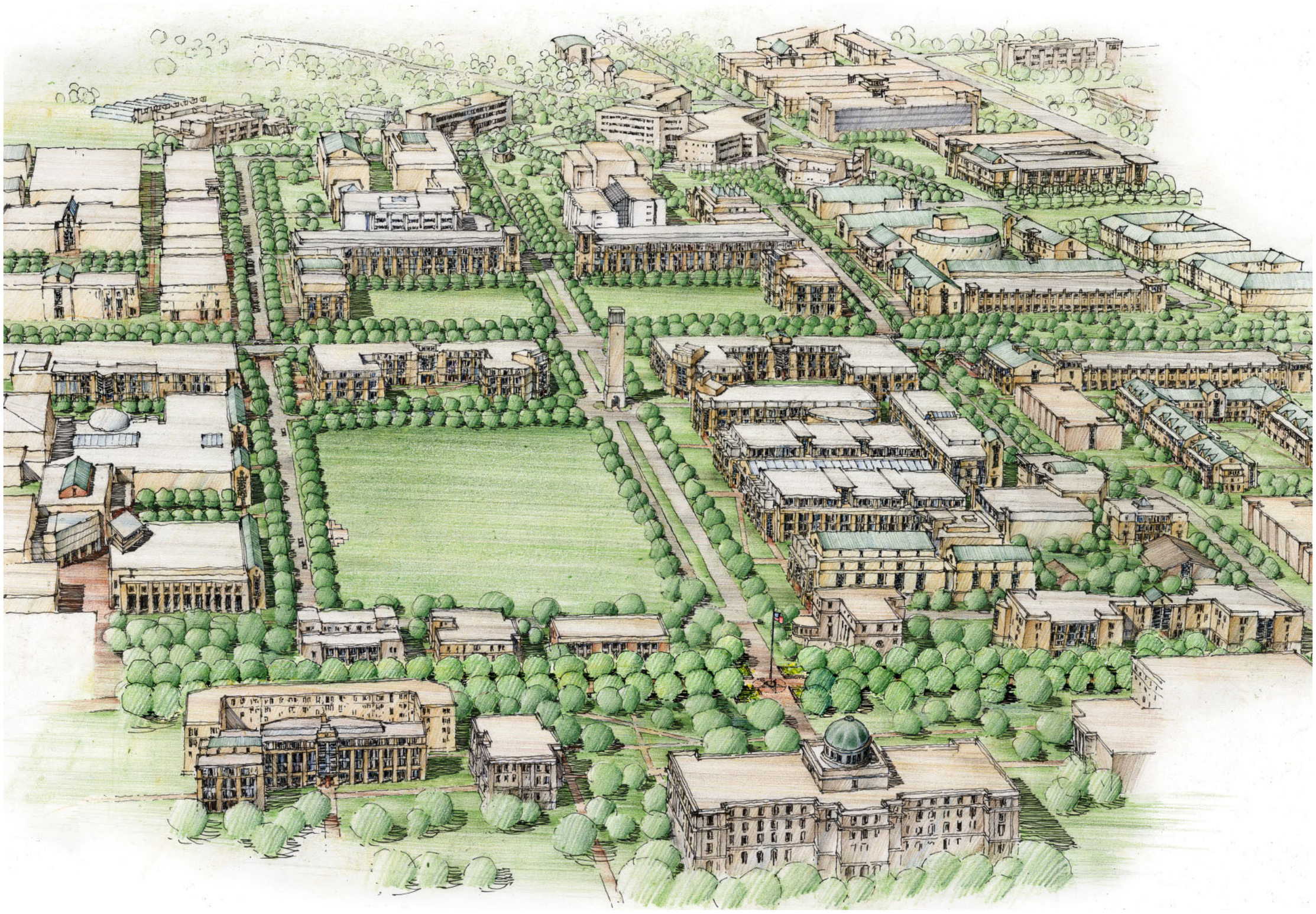
FIGURE 2
Diagram of a potential transit loop in Phase I with only the Jones Street underpass in place.

FIGURE 3
Diagram of a potential transit loop in Phase I with both the Jones Street and the West Lamar underpasses in place.



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Major Recommendations for the First Phase

The recommendations for the First Phase are divided into two categories and require different strategies. One involves selective infill and minor improvements, the other major intervention.

Enhancements to the existing Civic Structure include redevelopment of:

1. ***the Williams Administration Building East Lawn and New Buildings;***
2. ***the East Quad;***
3. ***the East-West Pedestrian Walks;***
4. ***the Library Quad and Diversity Plaza; and***
5. ***the Academic Quad and Military Walk.***

Extending the Civic Structure westward includes development of:

6. ***proposed structures north of Old Main Drive;***
7. ***a reconfigured Simpson Drill Field and strengthening of Old Main Drive;***
8. ***the north (and if possible, south) underpass at Jones and West Lamar Streets;***
9. ***Wellborn Road and the railroad as an avenue from Joe Routt Boulevard to University Drive; and***
10. ***the West Quad and buildings to the west of Wellborn Road between the new underpasses at Jones and West Lamar Streets.***

Although not part of the campus civic structure, the First Phase also includes:

11. ***enhancements to University Drive.***

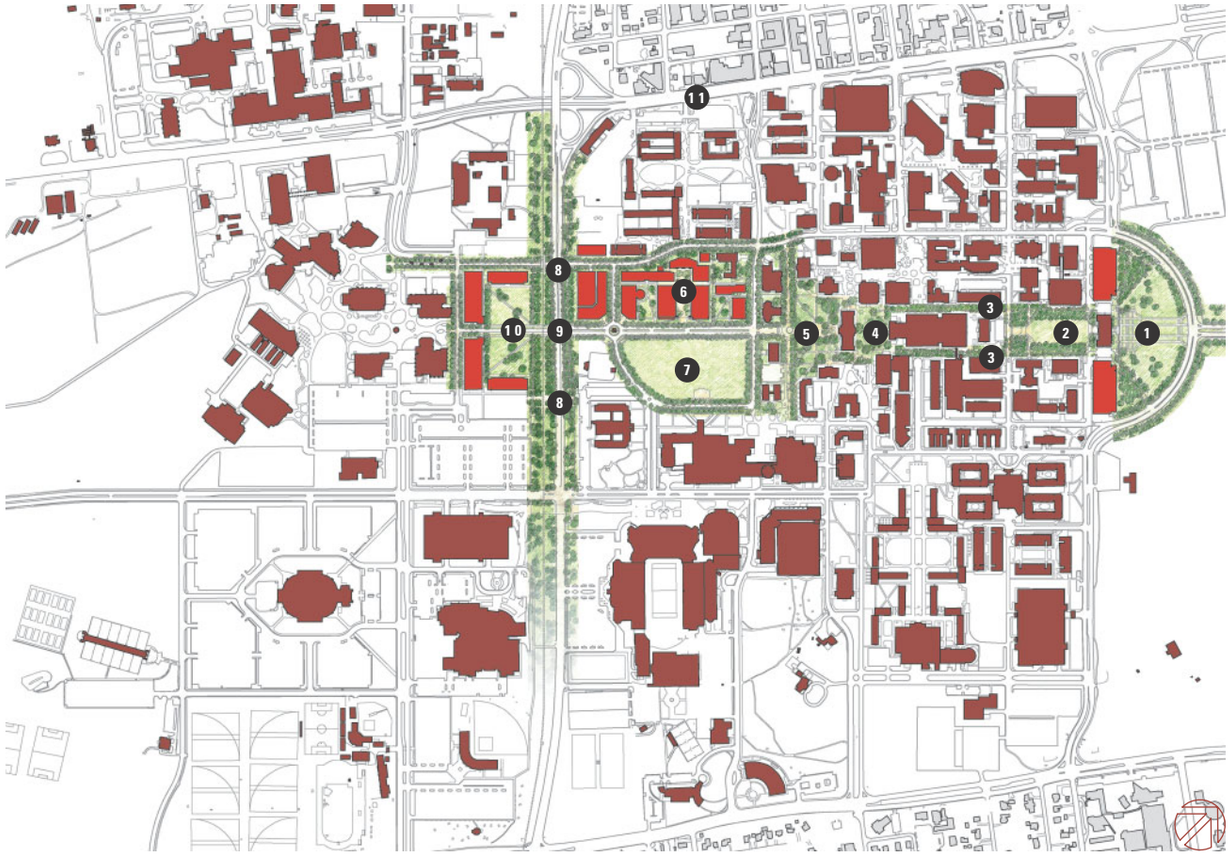

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FIGURE 1

Aerial perspective of proposed improvements to the Simpson Drill Field area, Wellborn Road, proposed underpasses at Jones and West Lamar Streets, and West Campus. Underpasses are located on Figure 2.

FIGURE 2

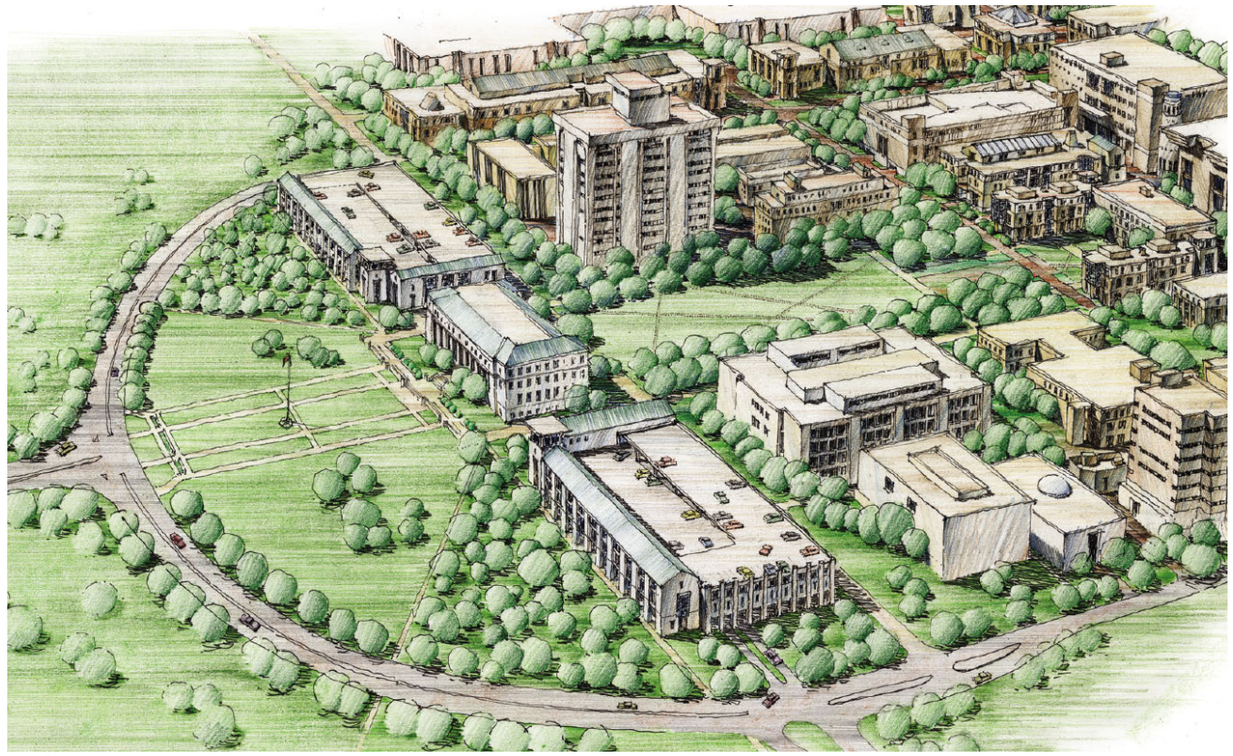
Plan of proposed First Phase showing major components along the spine of the campus. Numerical sequence does not indicate a prioritized order.

FIGURE 3

View of proposed West Quad from the intersection of Wellborn Road and Old Main Drive.

FIGURE 1
Aerial view of proposed improvements to the East Lawn area and the East Quad.

FIGURE 2
Proposed revitalization of Military Walk looking south.



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Enhancements to the Existing Civic Structure

While the extension of the civic structure westward and the connection between east and west portions of the campus are the focus of the First Phase, enhancing existing portions of the civic structure is also a major part of it. The redevelopment of the Administration Building East Lawn area, the reconfiguration of the East Quad, the Pedestrian Walks, the Library Quad and Diversity Plaza, and the Academic Quad and Military Walk should be addressed in this phase also. Some of these enhancements such as the Academic Quad will require very little intervention, while others such as the Administration Building East Lawn will necessitate the construction of new buildings as well.

Extending the Civic Structure Westward

Using historical growth data, which illustrates that since 1920 no decade has contained fewer than 1,000,000 square feet of new construction, the First Phase projects new construction along the spine of between 1,500,000 and 1,800,000 square feet. It is anticipated that some of that new construction will contain a Life Sciences facility. Considering that agriculture occupies considerable space on West Campus and that engineering and science are located on East Campus, construction of a facility with a interdisciplinary academic and research use along this spine will further connect the east and west portions of the campus. New construction along the central spine will displace

significant areas of surface parking, requiring alternative locations for housing those vehicles and may increase the demand on the transit system. The replacement of surface parking with new buildings along the central spine will serve to enhance the pedestrian dominant nature of the spine, and the sense of community around the Simpson Drill Field.

University Drive Enhancements

In an effort to strengthen the physical connection to the surrounding community, the proposed pedestrian improvements along University Drive should also be addressed in the first phase. If the Housing Master Plan currently underway indicates new residence halls that should be constructed during the approximate ten year period of the first phase, first consideration should be given to using them to help define the edge along University Drive and establishing a bridge between Northgate and the campus community.

Process

Finally, for the Master Plan (and the First Phase) to be successful, the university must make a commitment to developing a process for implementation, monitoring, and use of the plan. This includes the establishment of a Design Review Board, hiring of a campus planner, and revised procedures for architect selection, project initiation (including site selection and budgeting), as well as space allocation and utilization. To ensure that the principles and guidelines contained in the plan are followed, this should be addressed in the First Phase. As stated in the introduction, this process may be more important than the plan, because a good process can produce a plan, but no plan can produce a process.

3

FIGURE 3

View looking northwest across Old Main Drive and the Simpson Drill Field showing development north of the Simpson Drill Field.

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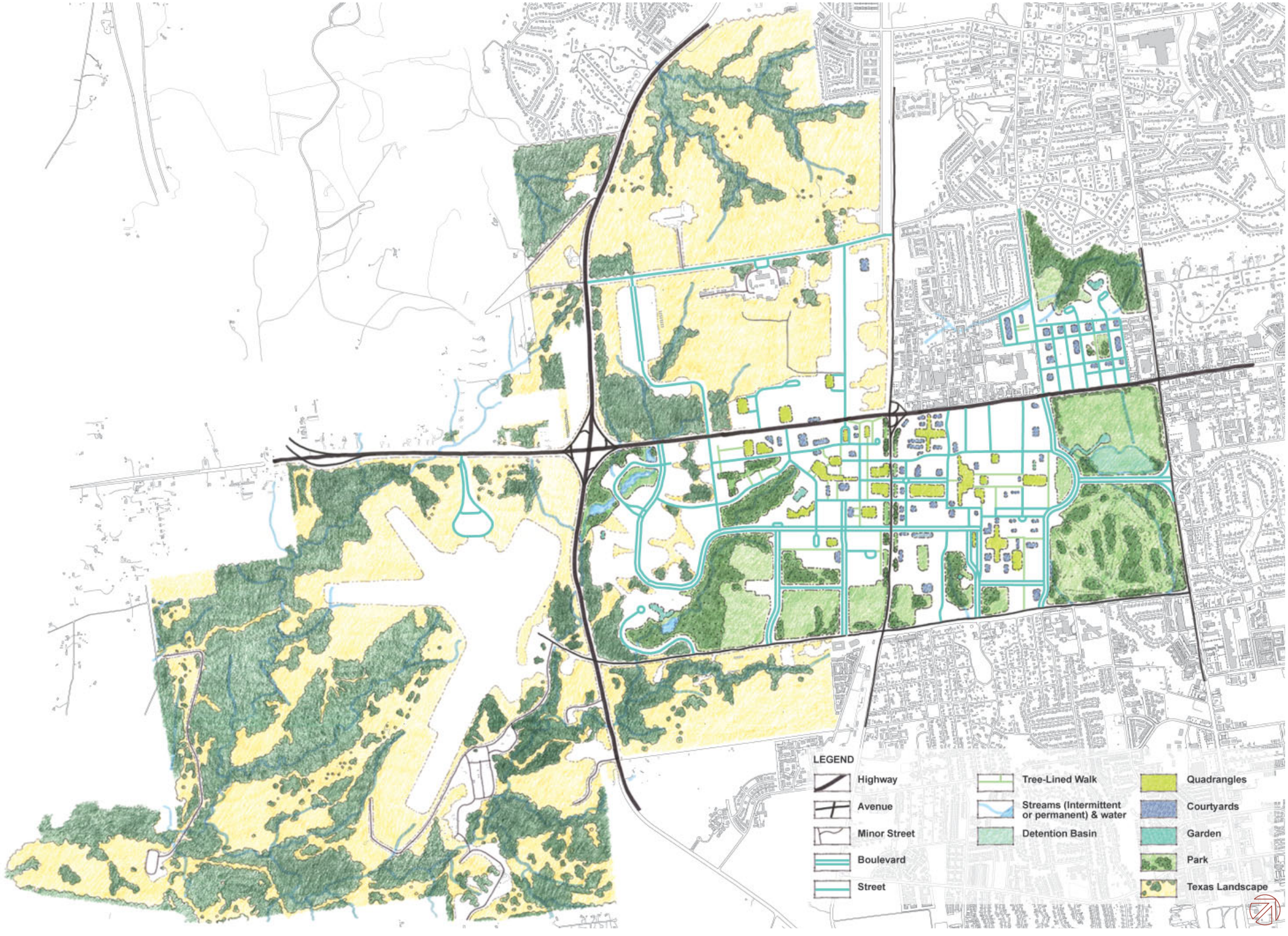
FIGURE 4

Eye-level view looking west along the proposed development on the north side of Old Main Drive between Houston Street and the Albritton Bell Tower.


LEGEND
Highway
Avenue
Minor Street
Boulevard
Street
Tree-Lined Walk
Streams (Intermittent or permanent) & water
Detention Basin
Quadrangles
Courtyards
Garden
Park
Texas Landscape

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V. THE LANDSCAPE PLAN

INTRODUCTION

The Landscape Plan supports the Long Range Plan by providing more detailed guidance regarding the management of landscape and campus open space. It is intended to preserve what is good and transform what is not. This chapter begins with an analysis of the campus landscape, open spaces, and the ecological context. It examines the existing campus, identifying successful and unsuccessful landscape elements and ecological systems. It recommends a resource-efficient landscape that is compatible with its context and a pattern of open spaces that will provide a coherent structure for the next fifty years. The Plan describes both the form and character of this landscape structure. It concludes with Landscape Principles and Guidelines to convey a vision of what the campus landscape should be and provide a framework in which improvements will be made.

The Goals of the Landscape Plan are to:

- ***provide a spatial framework to guide campus growth;***
- ***support and define the public spaces of the campus;***
- ***strengthen the connection of the campus to College Station;***
- ***strengthen the connection of the campus with the surrounding Texas landscape;***
- ***achieve a varied, but cohesive landscape that enhances the character of the Texas A&M campus; and***
- ***ensure a high level of landscape quality.***

LANDSCAPE AND THE PUBLIC REALM

The form and character of a campus derive from its landscape and buildings, and the success with which they work together to create a coherent spatial environment. Landscape and architectural design together define the *civic structure* of the campus—the linked sequence of outdoor public spaces that gives it form and order, organizes its vehicular and pedestrian circulation, and gives memorable structure to one's experience of it. Landscape design complements architecture in creating, framing, and articulating these spaces—the campus's *streets, quadrangles, and courtyards*—strengthening their three-dimensional form, and giving them definition and character. Means include the three-dimensional massing of planting, the choice of plants, the layout and design of paving, and the manipulation of topography.

A campus's public open spaces—its streets, quadrangles, and courtyards—should be like outdoor public rooms. They should be usable, comprehensible, and occupiable. They should be spaces that one can know and love. The massing and facades of the adjoining buildings define these rooms and contribute to their specific character. The patterns of landscape planting and paving reinforce and complement their form, provide shade and shelter, reinforce pedestrian and vehicular circulation routes, and link the campus as a whole to the surrounding landscape.

The mission of the University is enhanced by the sense that the campus environment is fundamentally continuous—that public open spaces and the interiors of buildings are differentiated parts of a larger whole—*the public realm of the campus.* This public realm interconnects disparate functions and fields of endeavor, thereby unifying the institution symbolically and functionally. In this sense, the campus may be conceived as a porous matrix of interconnected spaces of varying size, shape, character, and use. Their interconnectedness ensures that the campus is both literally and symbolically accessible; it is fundamental to the way a campus promotes its institution's academic, social, and cultural missions. On the other hand, the missions and daily activities of individual programs and organizations within the University require spaces that are distinct and identifiable and that promote a sense of place and ownership.

The combination of these two complementary themes—*interconnection* and *differentiation* according to a gradated series of private/public distinctions—gives campus buildings and open spaces much of their experiential richness, and allows them to accommodate and interconnect their various users and meanings.

A differentiated but continuous public realm—one that connects campus open spaces with public spaces inside buildings—has profound implications for landscape design. It affects the overall form of landscape elements and their arrangement as related groups to define outdoor spaces, the design of planting and paving, and the design of building entrances to gracefully accommodate formal and informal meeting and exchange.

FIGURE 1
The proposed Landscape Plan at Texas A&M University.

FIGURE 1
Aerial view of the campus, 1940.

The Landscape Plan creates and reinforces these connections by the following means:

It creates a more intimate relationship to the town of College Station by reinforcing the edge along University Drive, and by taking an active role in enhancing the pedestrian experience of crossing University Drive to the businesses there.

It preserves White Creek, Bee Creek, and Wolf Pen Creek and recommends that their natural vegetation be restored. These riparian zones are both symbolic and actual corridors linking the campus to the Navasota and Brazos rivers.

It supports the proposed improvements to the campus's pedestrian and vehicular circulation system by reinforcing the existing and new routes with tree planting.

It gives specific character to the spaces of the Green Reserve—its parks, quadrangles, and reserved areas of Texas savannah. These range in character from well-tended lawns and gardens to farmland and woodlots. Some offer literal continuity with the surrounding landscape; others offer an idealized reinterpretation of it, adapted for more dense use and with symbolic meaning.

It reinforces the central axis of the campus's plan—the axis running from New Main Drive through the Williams Administration Building, to Albritton Tower, to West Campus, and on to the White Creek Greenway.

ANALYSIS OF THE CAMPUS LANDSCAPE

The following analysis of the campus landscape is divided into two parts. The first is an analysis of the form of existing outdoor spaces on campus and the pattern of their interconnections—*the campus's urban context*. The second is an analysis of the aspects of soils, hydrology, vegetation, and climate that necessarily inform the design of landscape at Texas A&M University—*the campus's ecological context*.

1

The Campus's Urban Context

The Street Grid

The Texas A&M campus began with the establishment of a roughly symmetrical arrangement of streets and blocks, arranged about an axis running from the high ground at the site of the Academic Building to the railroad tracks. These streets and blocks established order on the land, provided building sites, and began the definition of the public realm. This street grid can still be discerned within the campus core. Its role as a primary determinant of campus form ceases in West Campus, where the street pattern wanders and many buildings do not address the streets in a purposeful way.

The division between East and West Campus caused by Wellborn Road and the tracks is aggravated by divergent planning strategies that governed their development. Completely different attitudes were taken regarding the roles of architectural and landscape design, and indeed toward what a campus is. The most normative relationship of *building-landscape-street* is to be found within the historic core: buildings front on streets and spaces that link buildings. West of Wellborn Road, the acknowledgment of the street by architecture and the design of the landscape is at best perfunctory: buildings there have no fronts, and outdoor spaces (some of them paved, some of them underutilized lawns) present a kind of residual no-man's-land between isolated buildings. These divergent attitudes have produced different physical and social environments, and they have increased the perceived distance and disconnection between East and West Campus.

The Urban Block

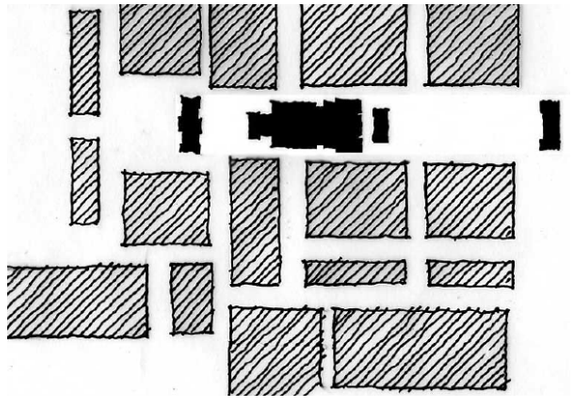
The early plans for the Texas A&M campus were premised on a simple, direct, and harmonious relationship between streets, landscape, and architecture. Buildings were organized on blocks and addressed streets and quadrangles. Quadrangles connected with streets to form an armature of public space.

The most important characteristic of the urban block is the difference between the public nature of its outside (the street) and the private nature of its inside (the garden). Buildings offer the strongest definition of the public perimeter, and in dense urban conditions they may form a literally continuous street wall. Trees, sidewalks, curbs, and other elements can help, however, and on many American campuses and in suburbs they provide even stronger continuity of the public realm than the discontinuous buildings beyond. The benefits of this pattern of streets and blocks at A&M, and the quadrangles that were based on them, are still apparent today. They give form and scale to the campus core. They distinguish public streets and quadrangles from private courtyards and service yards. They define a public realm that knits the historic core of the campus into an interconnected whole.

In those parts of the campus where the pattern of streets (whether vehicular or pedestrian) is less clear—where buildings fail to address the streets, where landscape fails to reinforce the urban pattern of public space, and where sidewalks and curb lines are erased—distinctions become excessively blurred, and buildings appear to float in an undifferentiated landscape. Buildings in these parts of campus seem to be isolated, unrelated to each other and to the surrounding landscape. This isolation is both physical and social, and it is detrimental to the mission of the University. It is a result of street patterns, and it is also a result of architectural form. These problems contribute directly to the feelings of disconnectedness and isolation felt by many members of the University community.

The Master Plan solves these problems by:

- extending the street pattern west from the historic core, across Wellborn Road and the tracks to West Campus; and
- defining a set of principles and guidelines for landscape design premised on creating a positive relationship between buildings, streets, and open spaces.



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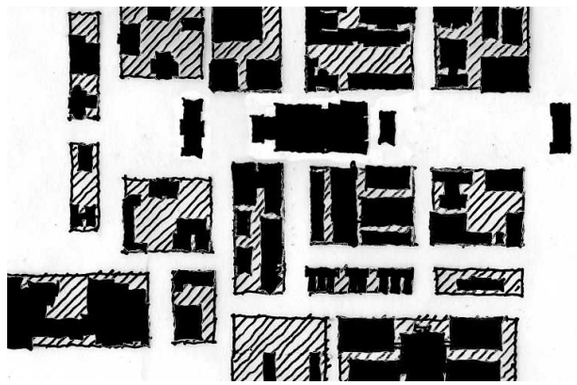

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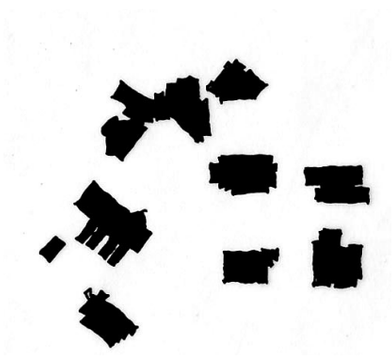

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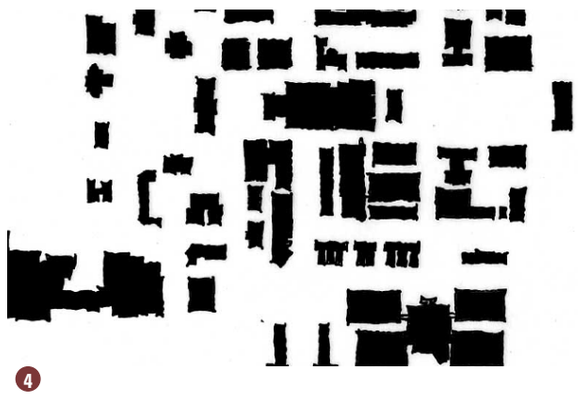

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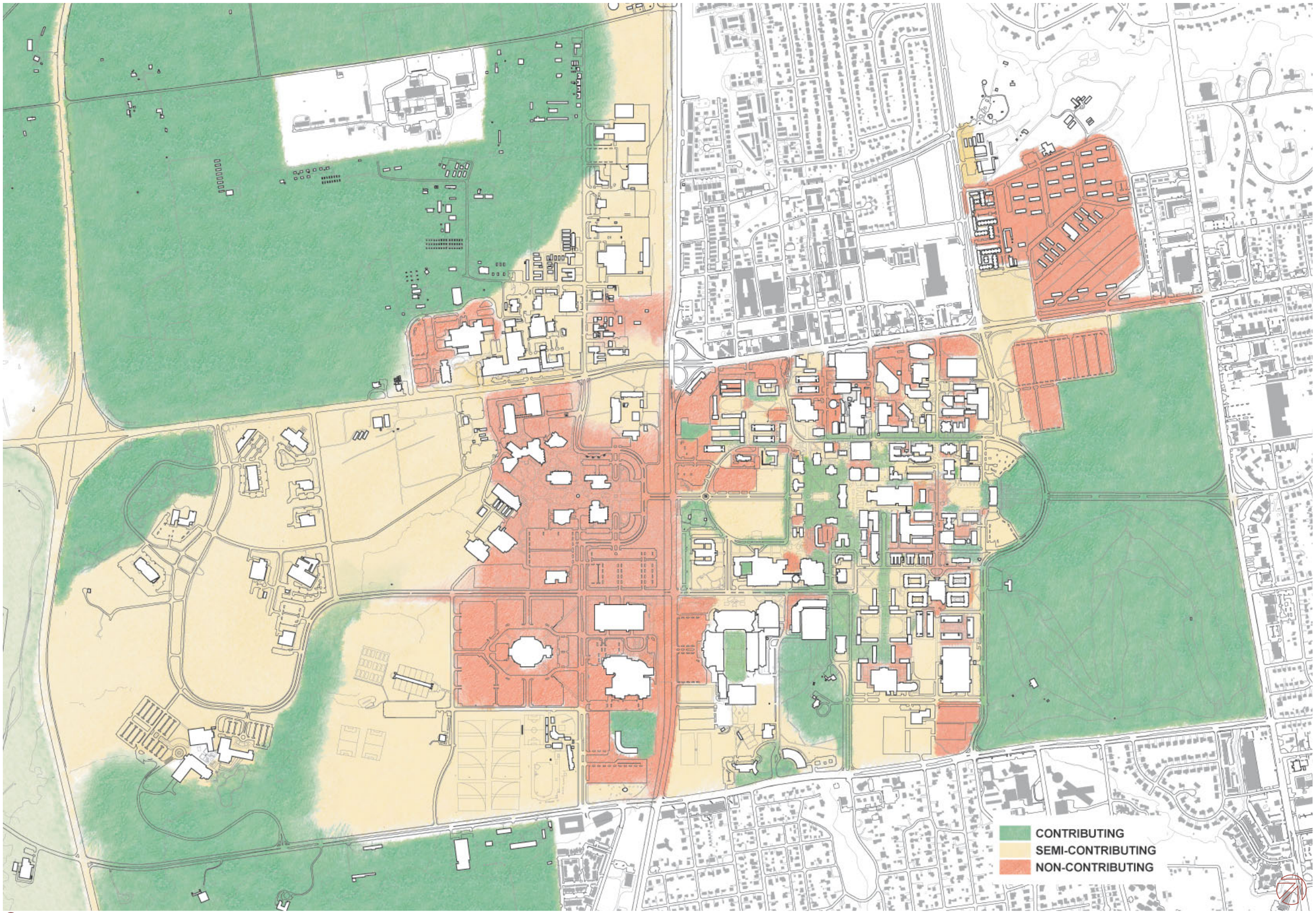
FIGURE 2
Urban blocks in the historic core.

FIGURE 3
Urban buildings in the historic core.

FIGURE 4
Pattern of open spaces defined by urban buildings in the historic core.

FIGURE 5
Pattern of open spaces defined by suburban buildings in West Campus.



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Landscape and Open Space Quality

The Texas A&M campus comprises two distinct systems of planning and open space that are based on different principles.

East Campus—the historic core east of Wellborn Road—is characterized by beautiful quadrangles and streets, and their arrangement gives order to the campus and facilitates circulation. This part of campus is characterized by: a variety of quadrangles and courtyards—large and honorific ones arranged along the central axis of the campus (the East Quad, the Library Quad, the Academic Quad, Simpson Drill Field), and smaller, more intimate ones in the academic and residential areas to the north and south of the central axis; large parks such as the Golf Course to the east, and Spence Park to the south; a mostly clear and functional pattern of streets and paths, which derives from early twentieth-century campus plans; and, some beautiful tree-lined streets of mature live oaks, particularly on Ross Street and Throckmorton and to a lesser degree on Joe Routt, the north side of the Library, and the south side of the East Quad.

In many important ways, however, the quality and health of the landscape has been allowed to deteriorate. Many former tree-lined streets have lost considerable numbers of their trees, paving patterns have become elaborate and diffuse, parking lots proliferate, hillocks and mounds clutter and confuse the ground plane. These changes took place over a long period of time, and the effect has been to lessen the spatial clarity of the campus's quadrangles, paths, and streets, and to weaken the interconnections between them.

West Campus—the area west of Wellborn Road—was laid out according to a quite different set of principles that emphasized irregularly curving roads and paths, buildings located far from each other, and large areas of surface parking and pedestrian plazas. Buildings are not sited to distinguish between pedestrian entries and service entries; nor does the landscape design clarify the difference. Tree planting, such as there is, has provided neither shade nor spatial definition. Enormous areas of pedestrian paving give the area a forlorn, underpopulated feeling. These areas are particularly inhospitable during hot weather.

East and West Campus are divided by Wellborn Road and the railroad tracks. This separation is exacerbated by a paucity of east-west pedestrian and vehicular routes linking the two parts of campus, and by the disjointed relationship between the two strategies—urban vs. suburban—of landscape and architectural design that characterize East and West Campus. There is simply too little spatial continuity between east and west, and too meager a system of streets and paths.

In evaluating the campus landscape, the existing open spaces were assessed according to criteria of spatial definition, environmental amenity, clarity of vehicular and pedestrian circulation patterns, and general intuitive response. Those assessments are categorized based on the overall contribution that each space makes to the campus environment. Three categories of landscape quality—*contributing, semi-contributing,* and *non-contributing*—are indicated on the landscape evaluation plan.

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FIGURE 1
Evaluation plan of the campus's public open spaces.

FIGURE 2
Contributing space: the Corps Quad.

FIGURE 3
Semi-contributing space: Library Quad.

FIGURE 4
Non-contributing space: West Campus

FIGURE 1
Contributing urban landscape.

FIGURE 2
Non-contributing urban landscape.

FIGURE 3
Contributing suburban landscape.

FIGURE 4
Non-contributing suburban landscape.

FIGURE 5
Contributing Texas landscape.

FIGURE 6
Non-contributing Texas landscape.

Urban, Suburban, and "Texas" Landscapes

There are three fundamental landscape types on the Texas A&M campus: *urban, suburban*, and *rural*. There are good and bad—or contributing and non-contributing—examples of each. Normally, suburban landscapes—like suburban buildings—would be inappropriate for a university campus, but given the University's location and the existence of the suburban Research Park, this landscape type is necessary.

Urban landscapes predominate on East Campus. Urban landscapes tend to be more formal compositions characterized by regular tree-lined streets, clearly legible quadrangles, and a complementary relationship with buildings.

Positive, or contributing, campus examples of urban landscapes include Ross Street in front of Halbouty Geosciences Building and parts of Military Walk and the Academic Quad. Much of East Campus is seriously degraded, however, and must be regarded as semi-contributing at best. The East Quad and the Library Quad are examples of semi-contributing urban landscapes. The walks and front of the Harrington Education Center are a non-contributing example.

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Suburban landscapes predominate on West Campus. Suburban landscapes tend to be more informal compositions that grow out of the picturesque—naturalistic—tradition of eighteenth-century French and English romantic landscapes characterized by curvilinear paths and streets, rolling topography, groved arrangements of trees, and a contrasting relationship with isolated buildings.

Spence Park is closest to a positive, or contributing example of a park-like suburban landscape on campus. The Research Park should be a suburban landscape, but currently, it is semi-contributing at best. The science area on West Campus should be an urban landscape, but, instead, is a poor, or non-contributing, suburban landscape.

Rural "Texas" landscapes exist beyond the campus to the west, but only as fragments on campus. The White Creek Greenway is a semi-contributing example that, with renovation and development, could be a positive resource. The stream bed through Spence Park is another potentially positive example. The Texas landscape is discussed more fully later.

The campus's urban, suburban, and Texas landscapes play quite different roles, socially, academically, and environmentally.

As an institution that depends on social interaction among a wide range of users, Texas A&M benefits from urban spaces, i.e., spaces that enhance social cohesion and provide amenity and opportunity: outdoor spaces that support the academic mission and the social environment of the university, that symbolize its identity and traditions, and that give continuity to the experience of its students and alumni.

As an institution that contains a research park composed of isolated buildings and curvilinear drives, Texas A&M needs a developed suburban landscape for this area.

As an educational institution, Texas A&M also has need for natural and rural landscapes, as a resource for study and research.

As a land grant university, one with strong traditions and sense of its history, Texas A&M's connections with the local landscape serve an important symbolic purpose and contribute to the University's identity.

Because of the University's institutional longevity, it has greater exposure to the ongoing deterioration of local ecosystems (for instance, loss of species diversity and the lowering of the water-table) than do more typical landowners, and for the same reason it is able to take a greater role in promoting the ecosystem's long-term health.

The above issues are addressed by the Landscape Plan and by the Landscape Principles and Guidelines later in this chapter. To deal with the issues of the campus's landscape design in an informed way, however, it is necessary first to understand the environmental and ecological context in which the Texas A&M campus is situated.

FIGURE 1
Texas state map.

FIGURE 2
A Texas ecoregion map illustrates the ten distinct regions of Texas (Sally & Andy Wasowski, 1988, Native Texas Plants, Landscaping Region by Region, *p xxii).*

The Campus's Ecological Context

Landscape occurs within the context of a given site's topography, climate, soil types and conditions, and its array of native and adapted plant species. Without an understanding of these factors, it is difficult to understand the landscape and to plan effectively for the future. Together these factors characterize the "ecoregion" in which the site is located. Texas has a diverse landscape made up of ten unique ecoregions defined by specific topographic features, soil, and vegetation.

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Texas A&M University is located within the post oak savannah and blackland prairie ecoregions of Texas. The unique characteristics of soil, vegetation, and climate that distinguish these ecoregions define the natural landscape of the campus.

This analysis is a first step in developing a Landscape Structure and Landscape Maintenance Plans. Without an understanding of the particular conditions present, the Master Plan would not be grounded in the reality of the Texas A&M campus.

Location

Texas A&M University is located in the east central region of the state, approximately one hundred miles east northeast of Austin and eighty-five miles northwest of Houston. The campus lies between the cities of Bryan and College Station to its east, north, and south with rural Texas landscape to the west. It is interconnected with these landscapes by numerous drainage ways, including both permanent and intermittent streams.

The following analysis focuses on the hydrologic, soil, and vegetation systems of the A&M campus, and their connections to the regional context.

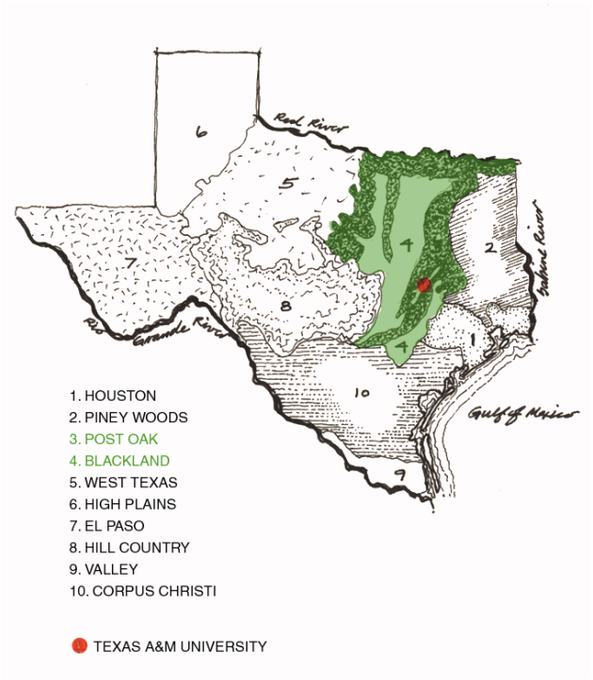
Climate and Geography

Over the last one hundred years, the Texas A&M landscape has shifted from an open tall-grass prairie and agricultural land to a mosaic of mixed-use, dense urban development. To understand how this modification to the landscape affects the campus landscape of today, we must acknowledge the context and history of its evolution.

With the Rocky Mountain foothills in the northwest and the Gulf of Mexico in the southeast, the general hydrologic patterns drain to the southeast from the Hill Country across the Caprock Escarpment, out to the Gulf. Created by the Balcones Fault, the Caprock Escarpment is a predominant north-south geologic formation that delineates the western edge of the coastal plains and is partially responsible for the variation of climates across Texas. In general, the gradation in climate ranges from cool and dry in the northwest to hot and wet in the southeast, with rainfalls ranging from less than eight inches per year in the desert regions of west Texas to over forty-eight inches per year in the forested regions of east Texas. The Gulf of Mexico plays an important role in influencing the Texas climate and is a major catalyst for the dramatic weather conditions that the state experiences throughout the year.

Ecoregions

In response to the harsh climatic conditions and geologic formations, a variety of landscapes have evolved; they are divided into ten distinct ecoregions as described in Sally and Andy Wasowski's *Native Texas Plants, Landscaping Region by Region.* The Bryan and College Station area, the home of Texas A&M University, sits within two of these ecoregions—namely, the post oak savannah and the blackland prairie. This is also consistent with the Brazos County Soil Survey of 1958, the *Landscape Restoration Handbook* by Donald and Kay Harker, and Sherri and Marc Evans, and the USDA Natural Conservation Service.



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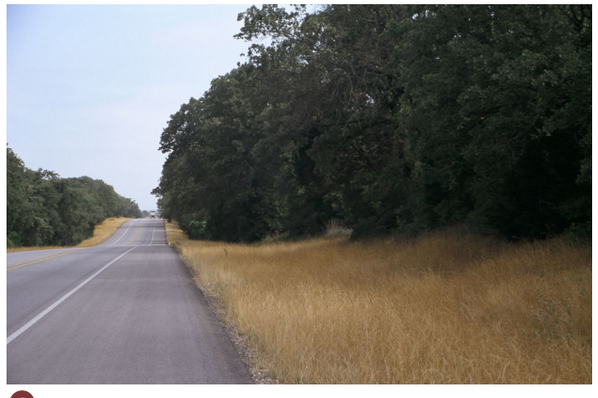

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FIGURES 3 THROUGH 5
Post oak savannah landscape.

The distinction between these ecoregions can be difficult to discern—particularly during presettlement conditions when open savannah/prairie landscapes were dominated by diverse assortments of perennial and annual grasses, bunch grasses, and forbs, with a scattering of clustered trees consisting primarily of oak species on upland topography. Forested areas are restricted to bottomlands along major rivers, streams, and creeks as well as in areas of supporting soil. The major difference between the post oak savannah and the blackland prairie ecoregions is the soil that overlays the clay pan and the vegetation that it supports. Typically post oak savannah soils consist of light sands and sandy loams located predominantly on upland sites, with clay or clay loams associated with the bottomlands. In blackland prairies the soils are those of dark, calcareous clay.

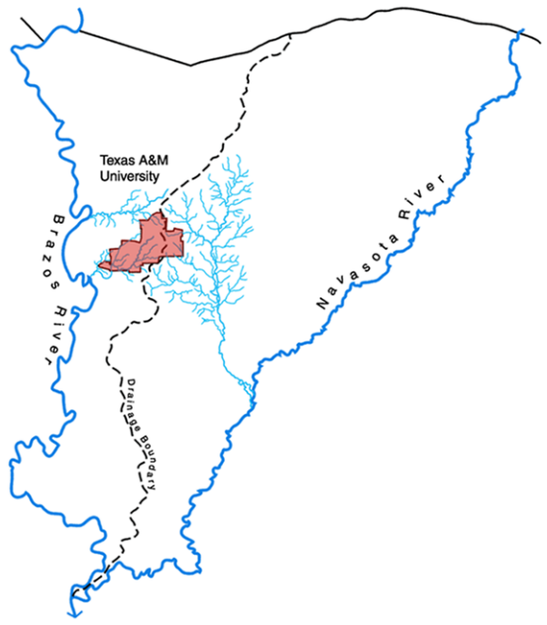
Today, owing to the encroachment of development and exotic species and the suppression of bison grazing and fire, both ecoregions are quickly diminishing. The blackland prairie ecoregion is almost entirely gone. Ninety-eight percent has been converted to cropland or reseeded with nonnative vegetation. The preservation and enhancement of these remaining landscapes is fundamental to the shaping of the future campus. The design of the proposed Campus Plan as reflected in the proposed Landscape Structure and Maintenance Plans illustrates this idea by concentrating larger, contiguous areas of the Texas landscape (the resource-efficient landscape) primarily around stream corridors. This concept follows a goal of the Campus Master Plan Steering Committee of making the campus a more sustainable environment.

Hydrology

The hydrologic patterns, soil types, and vegetation communities have been analyzed closely to understand the site-specific characteristics and needs of the campus and its connection to the region. In terms of hydrology, the University landscape lies relatively flat with the exception of incised stream channels that reach up into the campus. Texas A&M straddles two watershed areas with the majority of the campus drainage traveling southwest through White Creek, Brushy Creek, and Turkey Creek to the Brazos River in the Brazos River Watershed. The remainder of the campus drains southeast through Wolf Pen Creek to Carter Creek in the Navasota River Watershed. Most of these streams function intermittently throughout the year and are responsible for recharging the groundwater table. These groundwater levels drop significantly as the distance from the riparian corridor increases. One stream that does flow year-round is Wolf Pen Creek, draining the University Golf Course. Other streams that once flowed through campus have been rerouted to pipe and ditch stormwater drainage systems that reconnect to the natural systems further downstream.

To address stormwater issues (water quality and quantity, erosion control, groundwater recharge, etc.) the University has recently constructed a new detention facility located on the north side of the campus's main entrance, adjacent to the Polo Fields. In addition, the detention facility is intended to mitigate stormwater impact on the golf course.

FIGURE 1
Regional hydrology map—Brazos County is bound by the Brazos River to the south and the Navasota River to the northeast.



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In general, groundwater levels in the area lie deep below the surface and contain elevated quantities of mineral salts. These saline levels increase dramatically as the summer months progress. This poses a serious problem for the Texas A&M landscape, since most of the irrigation supply is obtained from well water located just north of Bryan.

FIGURE 2
Intermittent stream in Spence Park, Texas A&M.

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FIGURE 3
Texas Stream Corridor.

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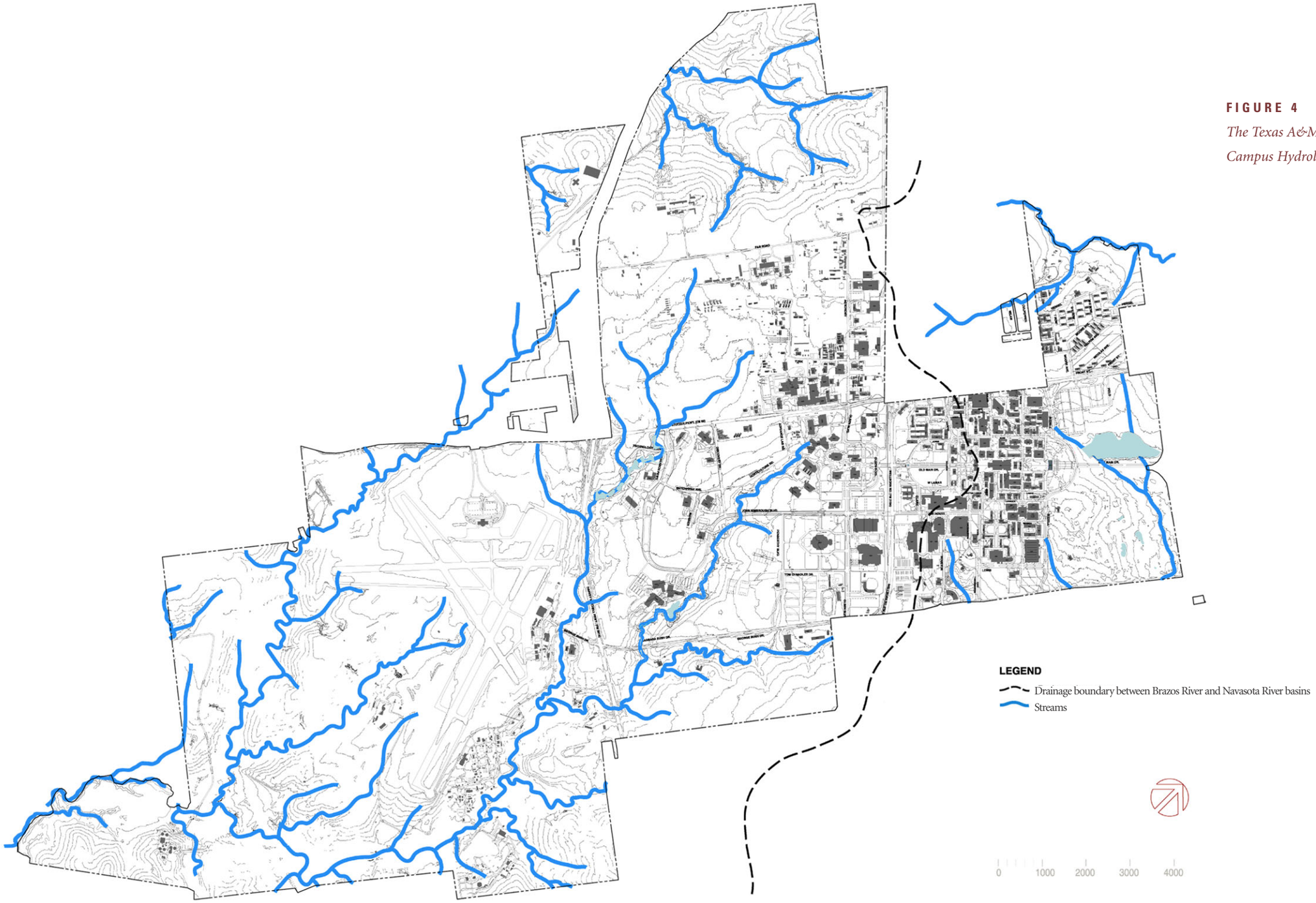


FIGURE 4
The Texas A&M University Campus Hydrology Plan

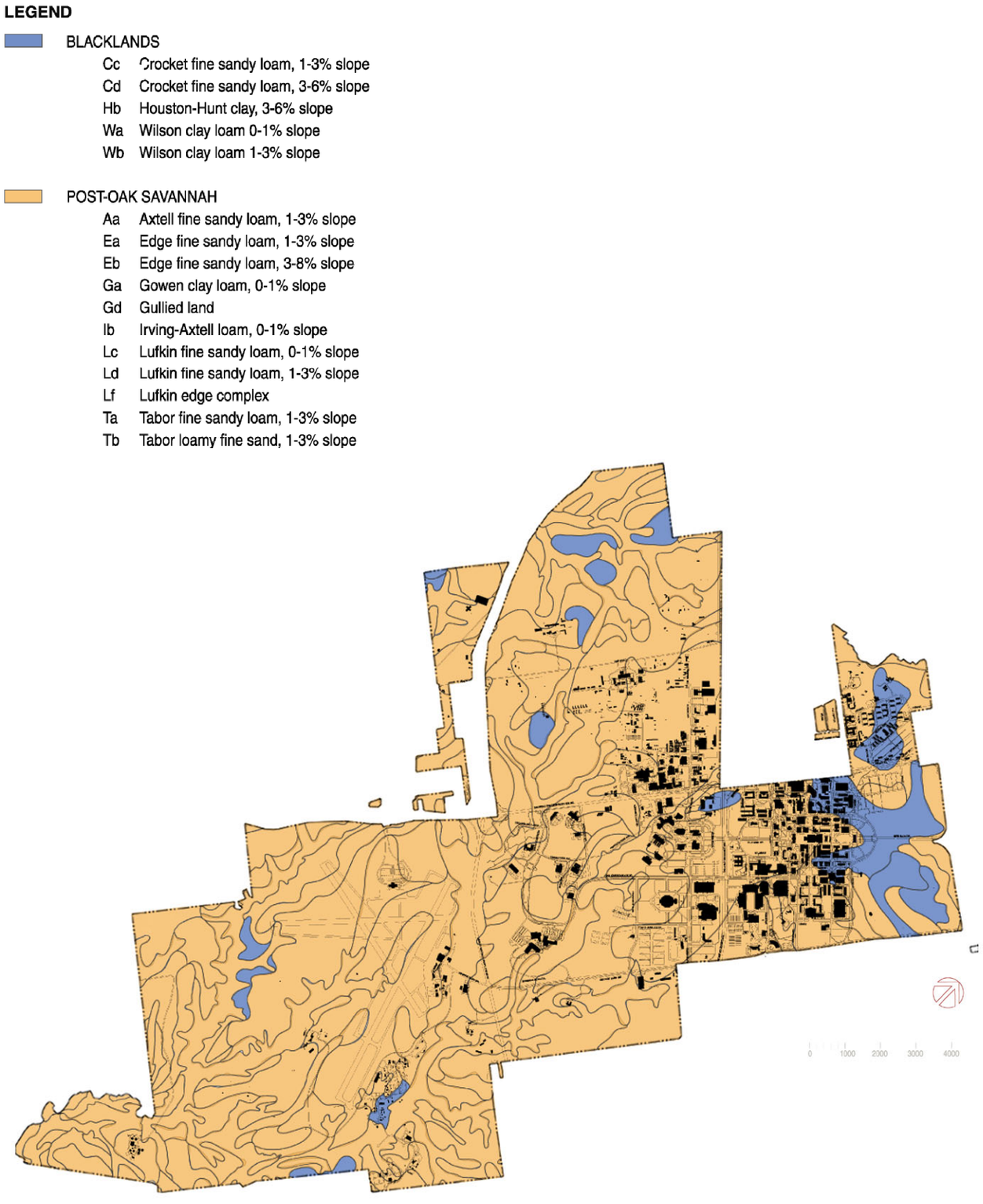
FIGURE 1
Texas A&M University Campus Soils Plan based on ecoregions.

FIGURE 2
Texas A&M University Campus Soils Plan based on USDA Brazos County Soil Survey, June 1958.

Existing Soil

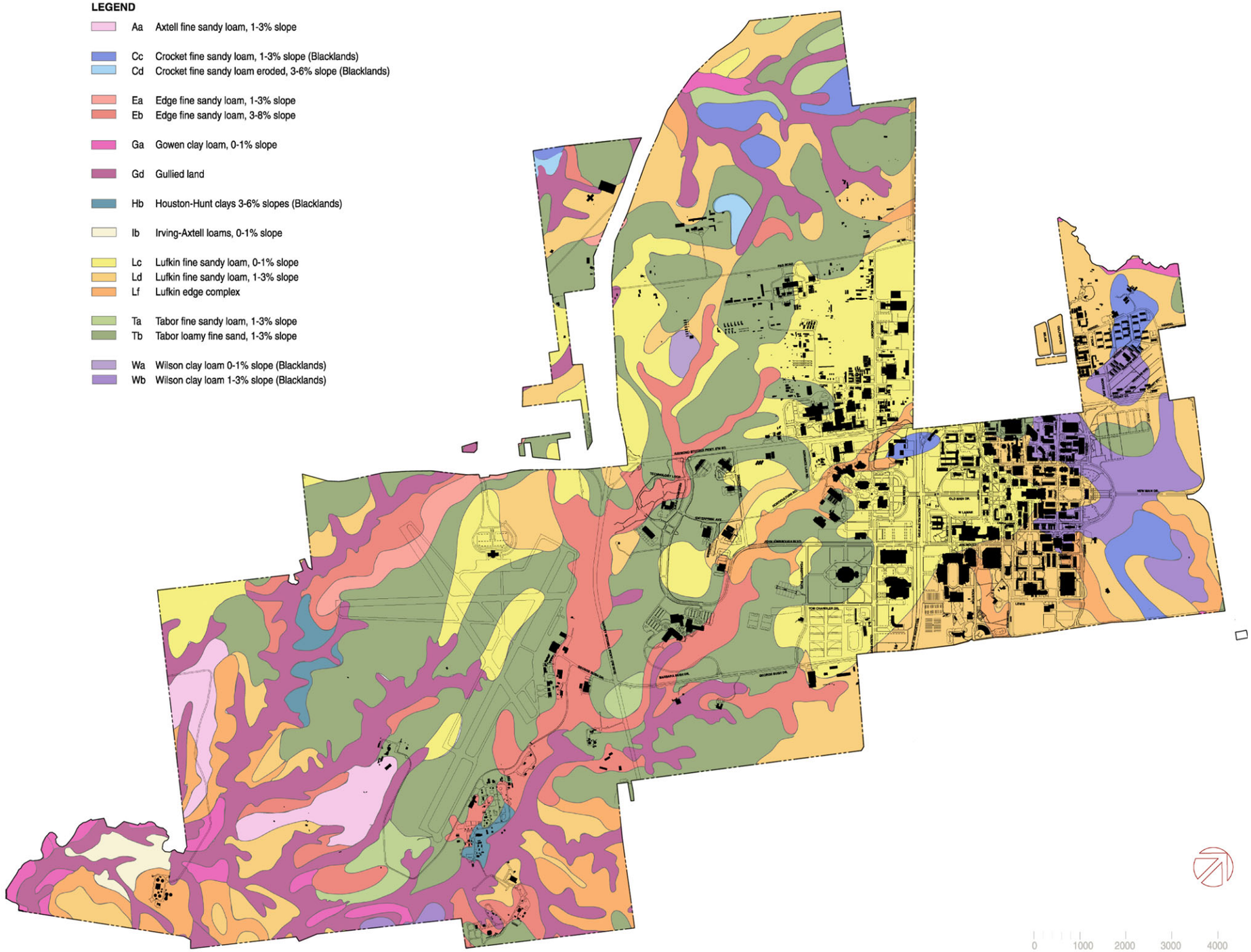
The existing campus-wide soil makes for challenging growing conditions. Shallow topsoil (one to twelve inches deep) underlain by dense clay pan is a common characteristic of most soils identified in the Brazos County Soil Survey. The majority of the campus falls within the post oak savannah ecoregion, which is considered to have fairly unproductive soil types. These soils coupled with saline irrigation water make growing conditions extremely difficult. Only native and adapted plant materials can withstand such conditions, and therefore soil amendment is critical. Some soil amendment is currently taking place on campus, including the addition of organic material, fertilizer, and additional topsoil. This practice should be continued. Increasing the depth of topsoil will improve the health of plants growing on campus and will ultimately contribute to the reduction of stormwater runoff.

Poor construction practices campus-wide are exacerbating the already serious constraint of topsoil conditions. Topsoil should be stockpiled and reused on site. A goal should be to replace six to twelve inches of topsoil on all construction sites. Compaction due to heavy construction equipment reduces the ability of the soil to drain properly because of the clay soils that exist below. Good drainage is especially important to reduce the accumulation of sodium in the soil, which is detrimental to the health of most plant material.



LEGEND

- Aa Axtell fine sandy loam, 1-3% slope
- Cc Crocket fine sandy loam, 1-3% slope (Blacklands)
- Cd Crocket fine sandy loam eroded, 3-6% slope (Blacklands)
- Ea Edge fine sandy loam, 1-3% slope
- Eb Edge fine sandy loam, 3-8% slope
- Ga Gowen clay loam, 0-1% slope
- Gd Gullied land
- Hb Houston-Hunt clays 3-6% slopes (Blacklands)
- Ib Irving-Axtell loams, 0-1% slope
- Lc Lufkin fine sandy loam, 0-1% slope
- Ld Lufkin fine sandy loam, 1-3% slope
- Lf Lufkin edge complex
- Ta Tabor fine sandy loam, 1-3% slope
- Tb Tabor loamy fine sand, 1-3% slope
- Wa Wilson clay loam 0-1% slope (Blacklands)
- Wb Wilson clay loam 1-3% slope (Blacklands)



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Existing Vegetation

The vegetation of the campus can be classified into two major categories: upland vegetation and riparian vegetation including both forested and open land. The diversity of vegetation differs from the westernmost part of West Campus to East Campus. Within West Campus, the vegetation generally consists of a mixture of native, naturalized, and domestic species, while East Campus is planted with more ornate and exotic vegetation.

Forested areas within West Campus and Research Park are generally associated with riparian corridors and a few adjacent upland patch communities. Within East Campus, upland areas consist of a tree canopy that follows the streets. Quadrangles, courtyards, and parks also contain significant tree cover. These trees (predominantly live oaks) provide the main landscape structure of the campus. In many areas, a groundcover layer is planted in addition to the tree canopy layer. The groundcover layer typically consists of exotic turf (Bermuda, St. Augustine, and Zoysia grass) or aggressive groundcover species (Liriope, Jasmine, Lantana, or Euonymus). There are minimal shrub and herbaceous layers.

Oak Wilt

Oak wilt is a serious problem that has recently reached the Texas A&M University campus and is affecting the live oak and red oak species alike. The abundance of mature live oak trees on campus makes the prevalence of oak wilt of great concern. The oak wilt fungus travels from plant to plant via the root system as well as by beetles above ground. Regular maintenance (mowing, trimming, pruning) can result in injuries to the bark that allow for the spread of the fungus. In addition, trees planted close together allow for the intermingling of roots, which plays a role in the spreading of the disease. Trenching between stands of live oak and red oak trees helps curb the spread of oak wilt as does careful maintenance techniques that avoid or treat wounds before the fungus is permitted to spread. Planting a variety of tree species, thereby limiting or isolating the incidence of live oak and red oak trees on campus, is recommended as well.

Campus Urban Forest Management Plan

In 1998, a Campus Urban Forest Management Plan (UFMP) was completed to help guide the University in improving the health, safety, and appearance of the campus vegetation. The plan involved a comprehensive analysis and summary of the current conditions, a mission statement, a list of goals addressing both present and future concerns, and maintenance and management recommendations for the campus's urban forest.

Several UFMP goals support the concepts of the Landscape Plan:

- Improve the health, safety, and beauty of on-campus trees.
- Increase plant diversity of the campus, especially along streets, in parking lots, and in natural areas.
- Preserve the historic landscape character and resources of the campus.
- Improve the composting program.

Continuing to add vegetation to campus and ensuring its health is beneficial on many levels:

- Healthy vegetation shades quadrangles, streets, and paths and gives them spatial definition.
- Healthy vegetation saves the University money by reducing heating and cooling costs (by reducing the heat island effect caused by large areas of pavement and building).
- Healthy vegetation can reduce the cost of stormwater abatement technologies by allowing rainwater to migrate back into the soil, recharging the groundwater, which in turn reduces soil erosion, sedimentation of streams, and flooding potential.
- Healthy vegetation reduces noise pollution, air pollution, and glare and replenishes the atmosphere with oxygen.
- Healthy vegetation positively affects one's perception of the environment and is said to have other physiological benefits to humans.

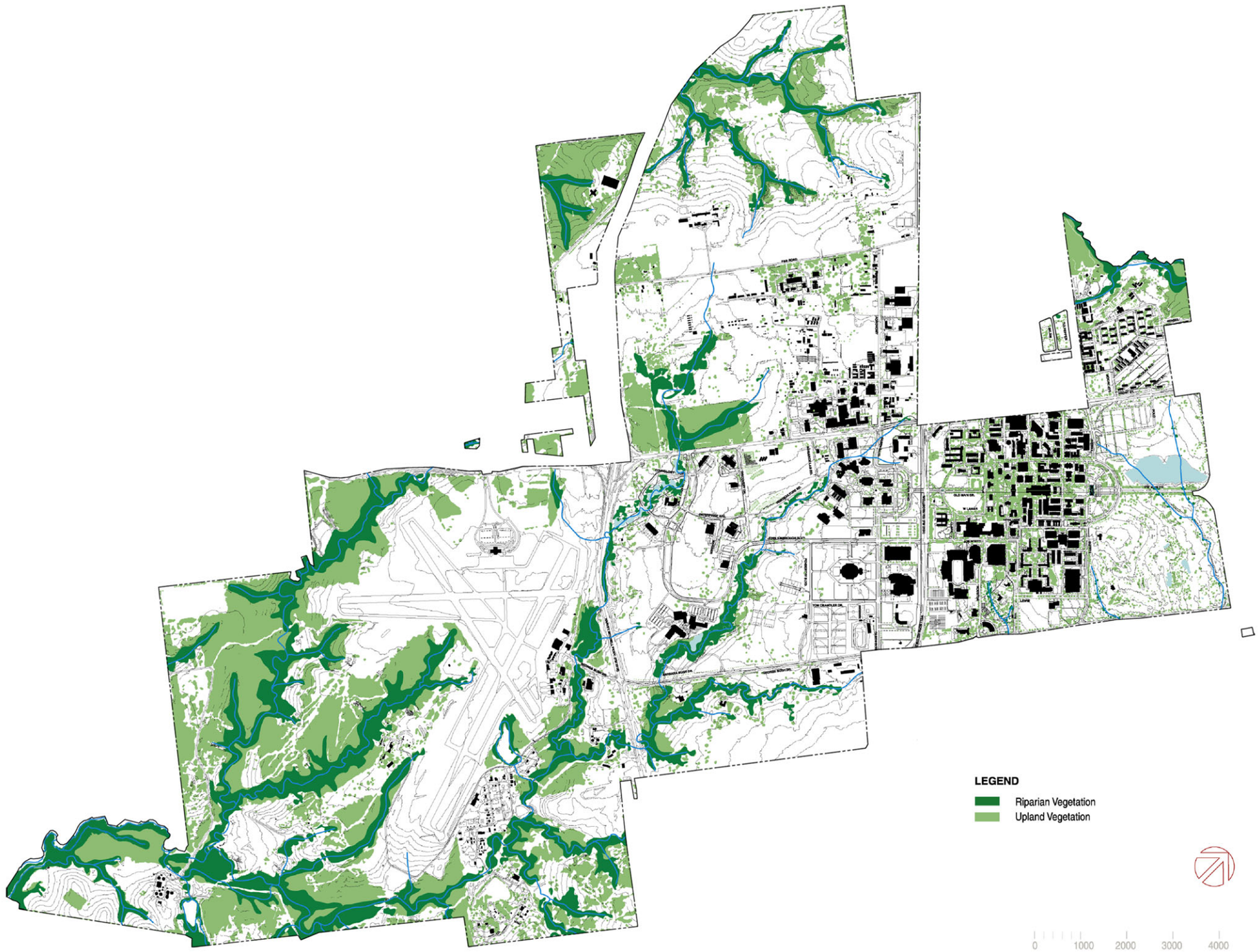

FIGURE 1

Texas A&M Campus Vegetation Plan identifies upland and riparian vegetation types.

THE LANDSCAPE PLAN

The Landscape Plan defines the form and character of the campus landscape and open space. It provides specific parameters for the development of the campus's open space structure, circulation, and environmental character.

The Landscape Plan and the Architectural Plan are intended to be consistent and complementary but there are fundamental differences between them. Because future building uses, sizes, and configurations are impossible to predict, the Architectural Plan relies heavily on principles and guidelines to ensure appropriate architectural development, rather than on specific building recommendations and configurations. In contrast, the Landscape Plan—augmented and extended by principles and guidelines—provides a stable precise configuration within which architecture can vary and change.

Indeed, major parts of the Landscape Plan could be implemented immediately, to be infilled by buildings and developed in more detail over time. In this sense the Landscape Plan is a bridge between the Long Range Plan and the Architectural Plan—at once connected and independent.

The Regional Context

The Texas A&M campus was conceived and executed at the monumental scale of its original open landscape, and its founders' intentions may still be seen in the grandeur and clarity of its street patterns, its buildings, and its public open spaces. The magnitude of Texas A&M's scale and the potential of its institutional role are more evident now that College Station has grown up around the University.

The University is an important component of the regional landscape—the central figure linking and mediating between town and country. This serves the mission of the University by placing education and research at the juncture of "nature" and "culture," and suggests that the academic world partakes of both, seeks to understand the relationships between them, and tries to transform them in the light of knowledge and invention.

The campus itself is heterogeneous, with aspects of both town and country: huge open spaces and woodlots on the one hand, and heavily occupied and built-up areas on the other. This presents the University with a remarkable opportunity.

The Landscape Plan aims to link and mediate between town and country by preserving and strengthening the campus's three landscapes—the *urban*, *suburban*, and *Texas* landscapes. All of the constituent elements to accomplish *connection* and *differentiation* already exist on the campus; they only need to be emphasized and related.

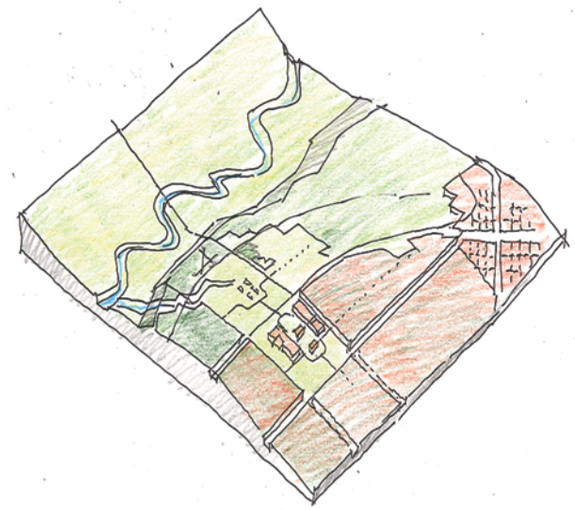

FIGURE 1
Texas A&M University in the regional context: Bryan and College Station to the east, north, south. The rural landscape of farmland and woodland to the west, running down to the Brazos River.

FIGURE 2
Proposed Landscape Plan.

Major Recommendations of the Landscape Plan

The Landscape Plan makes connections, provides continuity, defines open spaces, and complements the architectural form of the campus through the following recommendations:

1. Create a hierarchy of tree-lined streets and pedestrian ways;

2. Expand and improve the pattern of quadrangles;

3. Expand the pattern of courtyards; and

4. Improve and expand the campus's naturalistic park spaces.

Together, these recommendations support the Long Range Plan as well as the specific Landscape Goals.

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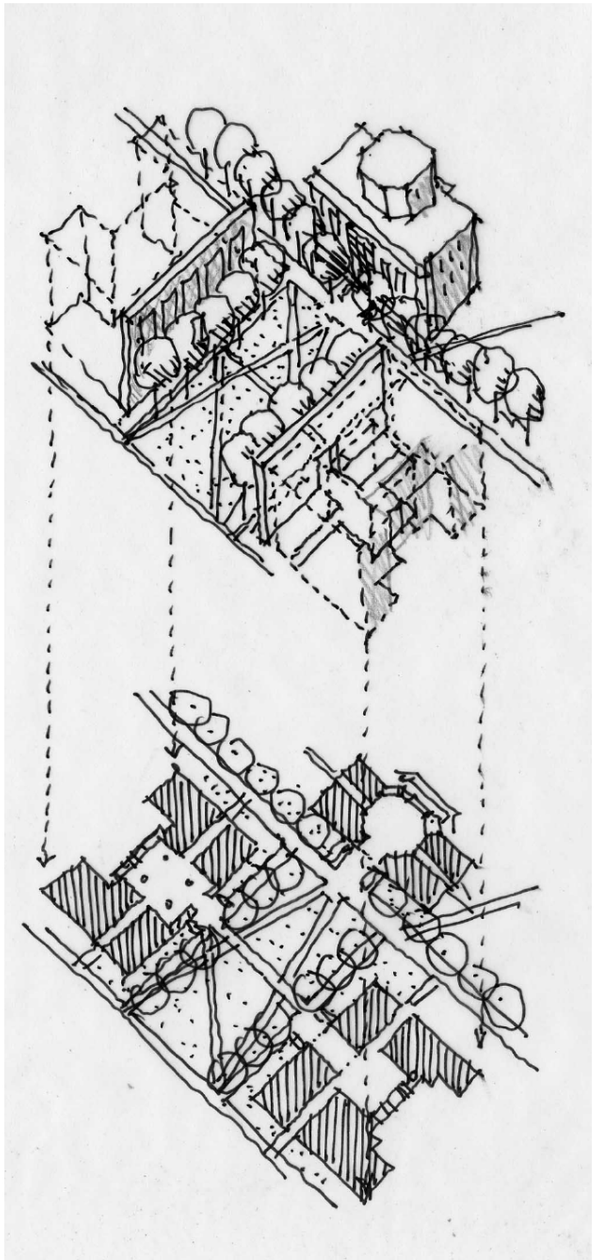
FIGURE 1

Diagram of how a component of the campus works as an interconnected matrix of public spaces, defined by both architecture and landscape.



1

LANDSCAPE PRINCIPLES

Introduction

The Landscape Principles are the guiding ethic underlying the Landscape Plan. The intent of the principles is to produce landscape design that supports the civic structure of the campus by defining outdoor public spaces, i.e., landscape design that complements and reinforces the spatial framework of the Architectural Plan. Adherence to the principles will guide the completion and repair of the pattern of landscape on the campus.

The collegiate experience is enhanced by the sense that the campus environment is fundamentally continuous. Public outdoor spaces and the interiors of buildings are differentiated parts of a larger whole, rather than separate, isolated realms. This feeling of permeability and interconnectedness makes the experience of being on the campus rich and varied, and it encourages social interaction. The campus may be conceived as a porous matrix of interconnected spaces of varying size, shape, character, and use. These interconnections ensure that the campus is both literally and symbolically accessible and are fundamental to the way a campus promotes its institution's academic, social, and cultural missions.

At the same time, a gradated series of legible distinctions between various levels of privacy and publicity promotes a sense of ownership, differentiates the campus into places of varied character, and is necessary for the conduct of daily activities.

It is the combination of these two complementary themes—the theme of interconnectedness and the theme of differentiation according to a gradated series of private/public distinctions—that gives a college campus and its buildings much of their experiential richness and allows them to accommodate so many different users and meanings, linking them together functionally and symbolically.

The goal of a differentiated but more or less continuous fabric of both outdoor and indoor public space has profound implications for the design of campus landscape and buildings. It affects the:

- pattern of pedestrian and vehicular circulation;
- distribution of open spaces at various scales throughout the campus—streets, quadrangles, courtyards, and greens;
- specific landscape design of these spaces;
- overall form of buildings and their arrangement as related groups to define outdoor spaces;
- design of building facades;
- design of interior and exterior spaces to gracefully accommodate formal and informal meeting and exchange; and
- landscape and architectural design of building entrances.

The Landscape Principles

The landscape principles are general. They are expanded in the next section by the more detailed Landscape Guidelines. They should also be augmented in the future in specific District Plans and Site Development Plans. The principles, and the guidelines that flow from them, are intended to promote an extended and gracious public realm of harmonious scale and character, and to reestablish a positive relationship between landscape and architecture. Variants for specific projects may be discussed as part of the design review process, and will be evaluated in terms of their contributions to the project and to the University as a whole.

Landscape Principle 1: Campus Streets

The campus's circulation pattern should be improved by extending the urban grid of tree-lined streets and by creating a hierarchy of tree-lined streets and pedestrian ways. This will strengthen the pedestrian and vehicular interconnections between campus spaces and buildings, and help unite East and West Campuses.

2

Landscape Principle 2: Campus Edges

The connections between the campus and College Station should be reinforced. Texas Avenue and George Bush Drive need little attention but University Drive needs major renovation—from a state highway that is dangerous for pedestrians to a tree-lined boulevard. The transformation of Wellborn Road is especially important.

Landscape Principle 3: Campus Spaces

The campus's civic structure should be enhanced by clarifying and improving the pattern of campus open spaces. Existing quadrangles, courts, parks, and gardens should be conserved and renovated, and new ones should be created. Courtyards should be especially encouraged as there is insufficient tradition of this landscape type on campus.

Landscape Principle 4: Architectural Connections

The landscape structure of streets, courts, and quads should complement and reinforce the spatial intentions of the architecture. In addition to the pattern of major spaces, landscape transitions and connections need to be made to the buildings—especially entrances and ground floor public spaces. The space immediately outside the building entrance is often a significant meeting and socializing place.

Landscape Principle 5: Native Landscape

The connection between the campus and the surrounding regional landscape should be reinforced. This is both a formal transformation—from an urban landscape to a picturesque rural landscape—as well as an ecological transformation—from a highly maintained synthetic landscape to a resource-efficient native one.

Landscape Principle 6: Identity and Variety

The identity of the campus should be reinforced and emphasized by an extensive variety of open spaces, planting, paving, and sculpture. Strong traditions exist on campus, and these should celebrated by the physical manifestation of ceremonial or cultural spaces.

Landscape Principle 7: Ecological Constraints

The constraints of campus soil, vegetation, and hydrology are knowledge that should be incorporated into campus landscape design to improve the environment. Information regarding campus conditions, and approved plant lists are included in the appendix.

Landscape Principle 8: Resource Efficiency

A sustainable, water-and energy-efficient landscape should be promoted by incorporating diverse vegetation with an emphasis on native and well-adapted plants. Approved plant lists are included in the appendix.

Landscape Principle 9: Maintenance

A maintenance strategy should be devised that concentrates resources in the most significant and/or visible locations. See "Landscape Maintenance" later in this chapter.

FIGURE 2

The complementary nature of Landscape and Architectural design. Entry to the Psychology Building.

FIGURE 1
The existing pattern of major landscape elements at Texas A&M University .

FIGURE 2
The proposed pattern of major landscape elements at Texas A&M University.

LANDSCAPE GUIDELINES

There are excellent examples of landscape elements on the Texas A&M campus: beautiful tree-lined streets and walks, gracious connections to buildings, and beautiful quadrangles, courtyards, parks, and gardens. The campus also has a unique ecology and is connected—physically and academically—to a distinctive rural landscape. These elements are intermittent and discontinuous, however, and many are in need of renovation. The Landscape Principles indicate the need for renovation, addition, and connection.

The landscape design of spatial elements as pertains to their fit within the civic structure of the campus and the ecology of the area is concerned with the following interrelated issues:

- the form and continuity of streets, walks, and spaces
- the relationship and connection of landscape and buildings
- the formal arrangement and species of plants
- ecological appropriateness and connections
- maintenance strategies

The Landscape Guidelines augment the intent of the principles by more detailed prescription for the landscape elements. They are organized topically, following the sequence of the Landscape Principles.

Landscape Principle 1: Campus Streets

The campus's circulation pattern should be improved by extending the urban grid of tree-lined streets and by creating a hierarchy of tree-lined streets and pedestrian ways. This will strengthen the pedestrian and vehicular interconnections between campus spaces and buildings, and help unite East and West Campuses.

Landscape Principle 2: Campus Edges

The connections between the campus and College Station should be reinforced. Texas Avenue and George Bush Drive need little attention but University Drive needs major renovation—from a state highway that is dangerous for pedestrians to a tree-lined boulevard. The transformation of Wellborn Road is especially important.

Campus Street and Edge Guidelines

The proposed extension of the hierarchical grid of streets is the fundamental network that binds the campus together.

Originally, the Texas A&M campus was comprised of a few buildings in a grid pattern around a central axis. As the campus grew, the grid of streets was extended—sometimes logically, sometimes haphazardly. The grid pattern was largely abandoned on West Campus, however, and the frequency of streets was also reduced. For these reasons there is now a high degree of discontinuity. In addition to the extended civic structure, the extended street grid will provide a framework for internal development and bind the campus continuously together.

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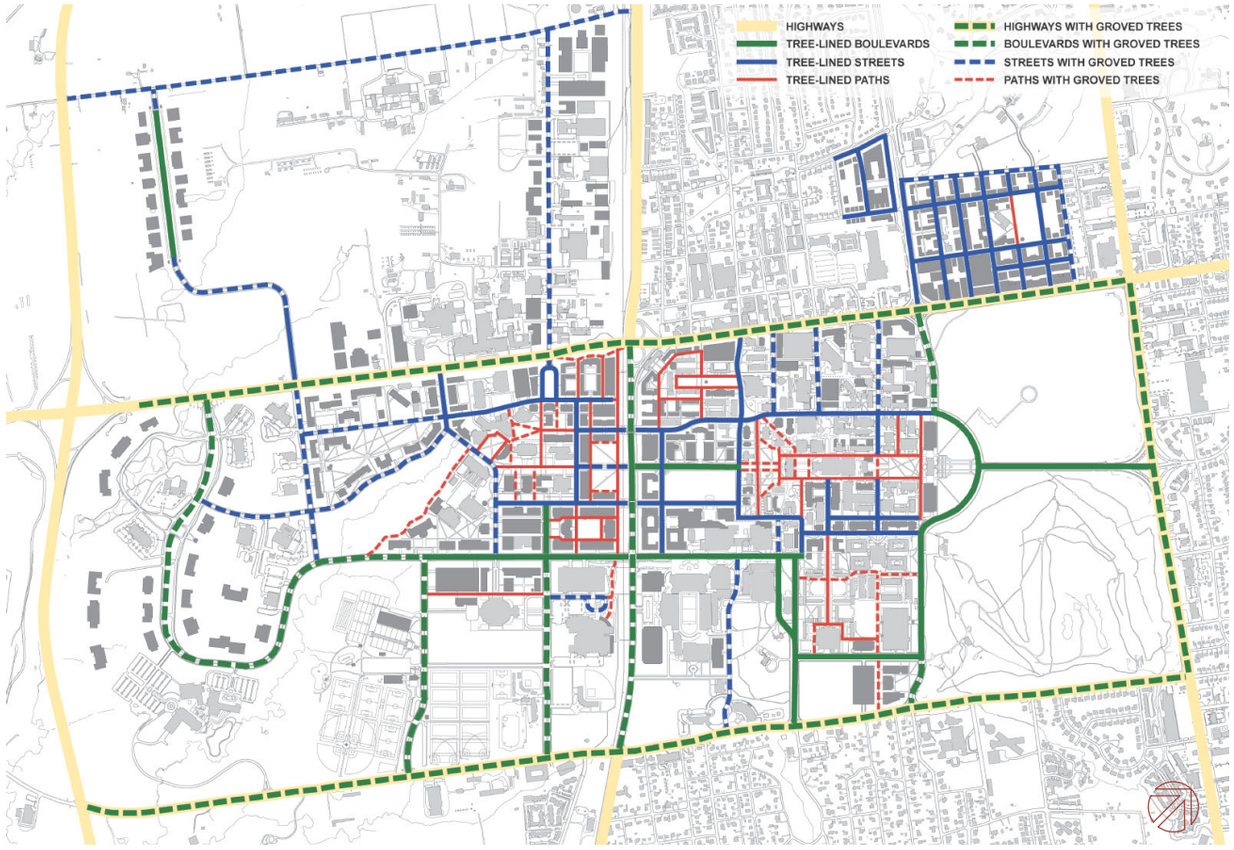

FIGURE 1
The proposed pattern of highways, boulevards, streets, and paths at Texas A&M University.

For simplicity, Campus Street and Campus Edge Guidelines are combined as they both should constitute a coherent, unified circulation network. There is a hierarchical progression of circulation types based on speed (function), size, and scale: from *highways*, to *boulevards*, to *streets*, to *walks*. Texas A&M has excellent examples of each. There may also be primary, secondary, and tertiary versions of each. All should be tree-lined, but the type and arrangement of trees varies.

In general, there are two types of tree-lined streets: those with *regular rows of same, or similar, species*, and those with *irregular, or groved, edges of varied species*. The adjacent diagram illustrates the hierarchy of major circulation types, and whether they are regular, or groved. The language used in these guidelines is independent of the actual street names in order to be clear about the type and intent, regardless of the actual name.

Highways

Technically, the central campus is surrounded, and bisected, by highways. Some should remain the same; others should be transformed.

Harvey Mitchell Parkway (FM 2818): this is the effective western edge of the campus. It should remain an open highway passing through a picturesque suburban and native Texas landscape.

Raymond Stotzer Parkway (FM 60): this bisects West Campus and the Veterinary Medical area. The highway, itself, should remain the same, but should be lined with groved trees on both sides.

1

University Drive (between Bizzell and Texas Avenue), ***Texas Avenue*** (between University Drive and George Bush Drive), and ***George Bush Drive***: these should remain the same, but should be lined with groved trees on the University side.

University Drive (between Wellborn Road and Bizzell): this portion of the highway should be revised as a tree-lined, pedestrian-friendly boulevard. Boulevards have proved successful in providing for traffic flow, reducing accidents, and making more pedestrian-friendly environments. The traffic volume on University Drive is approximately 40,000 cars per day. This is less than half the average volume on Paris streets—such as the Avenue Matignon (83,600 cars).

Driving lanes of this portion of University Drive should be narrowed; a planted tree-lined median should be provided; sidewalks should be widened; and curb extensions should be provided at intersections as proposed by the recent study commissioned by College Station.

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Wellborn Road (FM 2154): the transformation of this highway into a tree-lined boulevard is a crucial factor in uniting East and West Campus. Near the central axis of the campus it should consist of multiple rows of regularly spaced, similar specie trees. Beyond the center it should transform to multiple rows of groved, or irregularly spaced trees.

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FIGURE 2
Proposed improvements to University Drive

FIGURE 3
Existing University Drive.

FIGURE 4
Proposed University Drive.

FIGURE 5
Proposed improvements to Wellborn Road.

FIGURE 1
Joe Routt Boulevard.

FIGURE 2
New Main Drive.

FIGURE 3
Ross Street.

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Boulevards

Boulevards and Avenues are considered to be the same type in this Campus Master Plan, and boulevard will be the commonly used term to designate both. Boulevards have multiple traffic lanes, are tree-lined, and are designed for both pedestrians and cars. New Main Drive and Joe Routt Boulevard are beautiful examples on the Texas A&M campus. Primary boulevards—especially in the denser part of the urban core—should be lined by regular rows of trees; in more open areas they may be lined with less regular rows.

Streets

Three hierarchical levels of streets are identified on the adjacent diagram: *primary*, *secondary*, and *tertiary*. All should be tree-lined—generally with curb-side trees.

Primary streets: these should be lined with regularly spaced, same or similar specie, curb-side street trees. Texas A&M has several very beautiful examples of this kind of street including East Lamar and Ross Street.

Secondary streets: may have less regular trees, but not necessarily.

Tertiary streets: the smaller scale of tertiary streets offers an opportunity for unique varieties and flowering trees.

Tree-lined Walks

Tree-lined walks are an indispensable element of beautiful, pedestrian-friendly campuses. They are often former streets that have been converted to pedestrian use. They are very wide pedestrian pathways with edges defined by buildings, often incorporating curbs and adjacent planted areas. Tree-lined walks give structure and shade, and are especially important for the major pedestrian routes through the campus.

Military Walk is a good example of a tree-lined walk at Texas A&M. It is a culturally significant campus feature that plays an important role in campus traditions. Over time it has been modified so that it no longer is a continuous uninterrupted space. The Campus Master Plan aims to return Military Walk to a processional street for pedestrian use only.

The West Campus extension of Old Main is another tree-lined walk proposed by the plan, as are the east-west walks proposed for the East Quad and Library Quad.

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FIGURE 4
Texas A&M University, Military Walk - existing.

FIGURE 5
Locust Walk, University of Pennsylvania, Philadelphia, Pennsylvania.

FIGURE 6
Tree lined path at Texas A&M.

FIGURE 7
Texas A&M University, Military Walk - proposed pedestrian path.

FIGURE 1
Ross Street - Plan.

FIGURE 2
Ross Street - Perspective.

FIGURE 3
The entrance to the Civil Engineering Building on Ross Street.

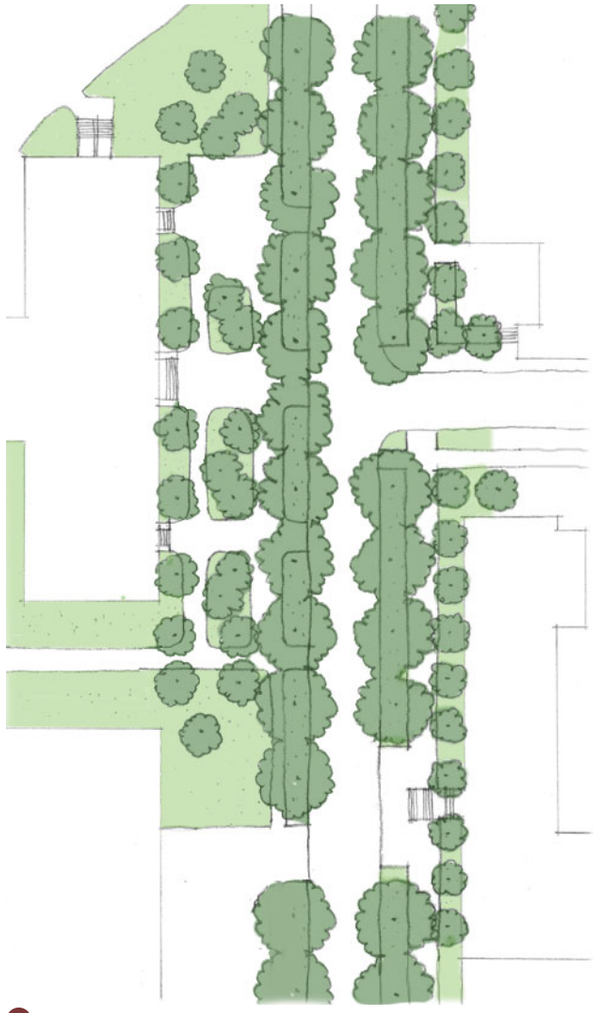
Landscape Principle **4: Architectural Connections**

The landscape structure of streets, courts, and quads should complement and reinforce the spatial intentions of the architecture. In addition to the pattern of major spaces, landscape transitions and connections need to be made to the buildings—especially entrances and ground floor public spaces. The space immediately outside the building entrance is often a significant meeting and socializing place.

Architectural Connection Guidelines

The development of the space between the public realm of the street, or quadrangle, and the private realm of the building is important for connecting the two realms, extending the exterior public space seamlessly into the building, and providing informal gathering and meeting spaces near the building entrance. This may be accomplished with a combination of paving, planting beds, low walls, benches, trees, and steps. These elements usually define a series of layers of space that elaborate the crucial transition between inside and outside. Traditionally, this was called architectural *entourage*. It will never appear in the program for the building, and usually not in the landscape budget.

The connection between Ross Street and Halbouty Geosciences Building is an especially beautiful and sophisticated example on the Texas A&M campus, and should serve as a model for such relationships. The entrance to the Civil Engineering Building is also a good, clear example of the appropriate articulation of this zone. See the adjacent diagram.



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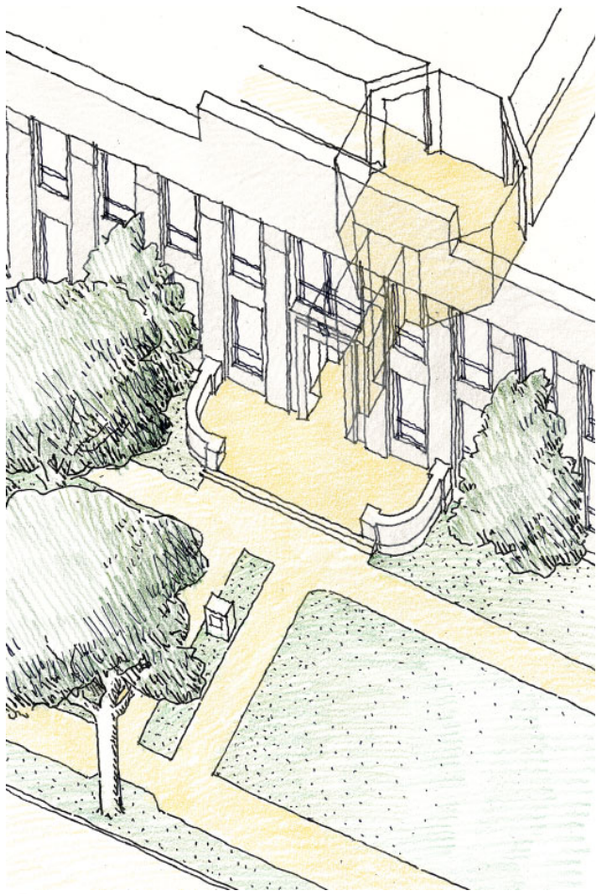

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FIGURE 4

The Ross Street entrance to the Halbouty Geosciences Building, showing the way the paths, trees, planting, benches, and building facade work together to define space and to link the street and building entrance.

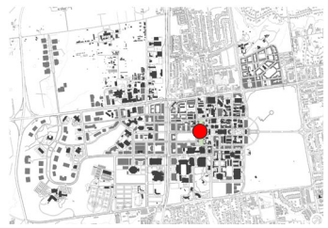

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FIGURE 1
Central Quadrangle, University of Illinois at Urbana-Champaign.

FIGURE 2
Harvard University, Harvard Yard.

FIGURE 3
Cornell University, the Arts Quad.

FIGURE 4
Texas A&M University, Corps of Cadets Quadrangle.

Landscape Principle **3: Campus Spaces**

The campus's civic structure should be enhanced by clarifying and improving the pattern of campus open spaces. Existing quadrangles, courts, parks, and gardens should be conserved and renovated, and new ones should be created. Courtyards should be especially encouraged as there is insufficient tradition of this landscape type on campus.

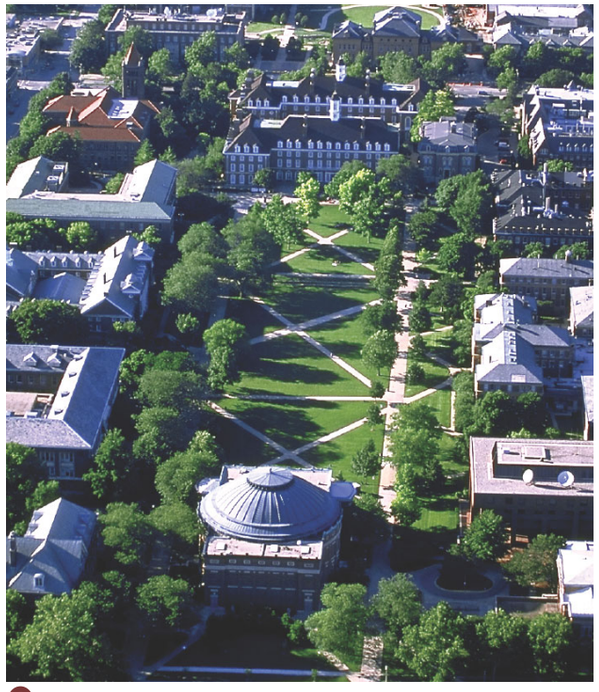
Campus Space Guidelines

The Campus Space Landscape Guidelines pertain primarily to areas of the campus with high visibility: specifically, the historic core of the campus and the extended civic structure including: *quadrangles*, *courtyards*, *parks*, and *gardens*.

Quadrangles

Quadrangles are typically large, rectangular public spaces defined by buildings and landscape. Buildings form the primary spatial definition, but the landscape design should complement the architectural definition, and usually provides the most memorable aspect of the character of the space.

There are three basic landscape types for quadrangles: *a central open space defined by building facades and lines of trees*, *a central open space defined by building facades and containing picturesque groups of trees*, and *an open space filled with a continuous—or nearly continuous—tree canopy throughout*. The Texas A&M campus has examples of each.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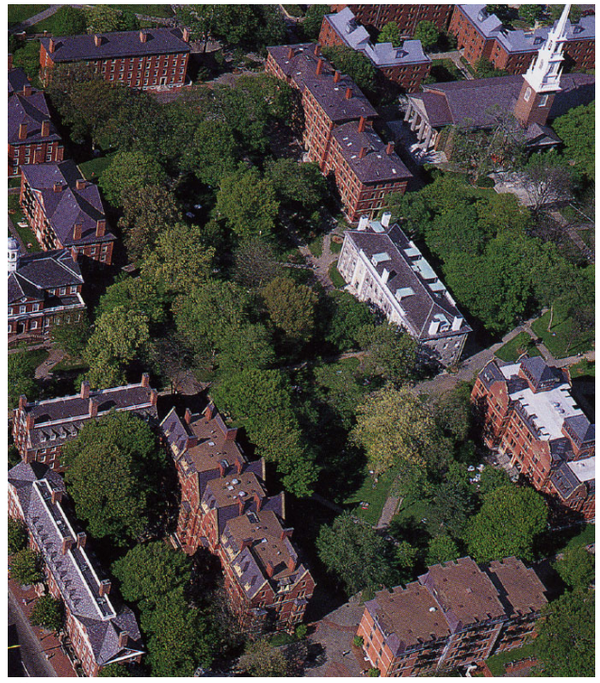
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The East Quadrangle is an example of an open space defined by architecture and rows of trees. Some of the buildings that frame the space are superb, others not. Potentially the East Quad could be a wonderful space, but the landscape needs significant renovation. The following guidelines apply:

Relocate the parking and convert Spence Street to a pedestrian way.

Simplify the topography by replacing the earth mounds with a gently sloping ground plane.

Reduce pavement widths and make continuous east-west walks.

Provide a double row of live oak trees on the north side.

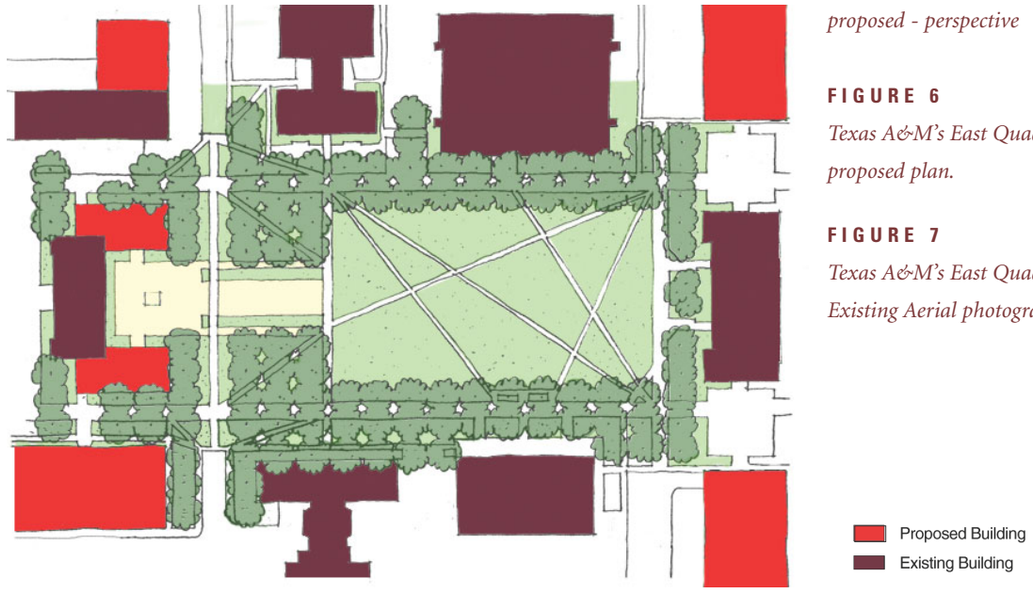

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FIGURE 5
Texas A&M's East Quadrangle, proposed - perspective

FIGURE 6
Texas A&M's East Quadrangle, proposed plan.

FIGURE 7
Texas A&M's East Quadrangle Existing Aerial photograph.

FIGURE 1
Library Quadrangle: Existing aerial view.

FIGURE 2
Library Quadrangle and the Diversity Plaza: Proposed aerial perspective.

FIGURE 3
Academic Quadrangle: Proposed plan.

FIGURE 4
Academic Quadrangle: Existing aerial view.

The Library Quadrangle is an example of an open space with picturesque groups of trees, but it should be reconfigured to have an open space in the center and rows of trees along the north and south sides. This will allow for a stronger relationship between Cushing Library and the Academic Building, and link the space to the East Quad. The following guidelines apply:

As the unhealthy trees that occupy the center of the quad decline, they should be removed and the center become an open lawn.

The double row of trees proposed for the east-west pedestrian walk should be extended to the east face of the Academic Building.

At least one parallel row of trees should be added to the inside of each walk to aid in distinguishing the walks from the space of Library Quad.

The Diversity Plaza should occupy the western one-third of the quad at a maximum, and further enhance the relationship between the Academic Building and Cushing Library.

The Academic Quadrangle has picturesque groups of trees that almost make a continuous canopy. It is a beautiful space that only needs minor landscape repair, but trees could gradually be added to provide a more continuous canopy to emphasize its character. Military Walk should be revised. The following guidelines apply:

Add trees to the main part of the space.

Delete parking lots 28 and 44 and replace with landscaping.

Delete the concrete seating areas at the north and south ends and provide a pedestrian walk down the middle of the double row of trees where Military Walk used to be.

Fill in and complete the double row of trees to connect Sbisa and Rudder Plaza.


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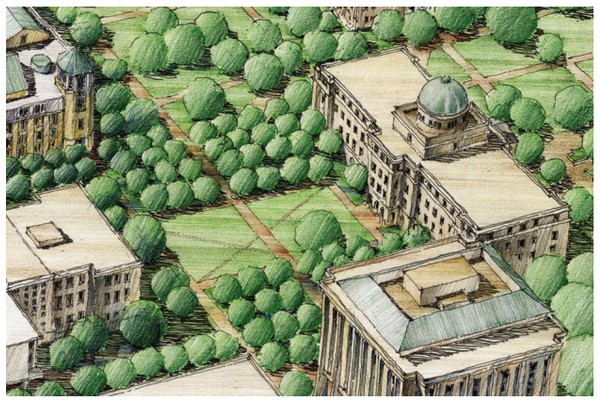
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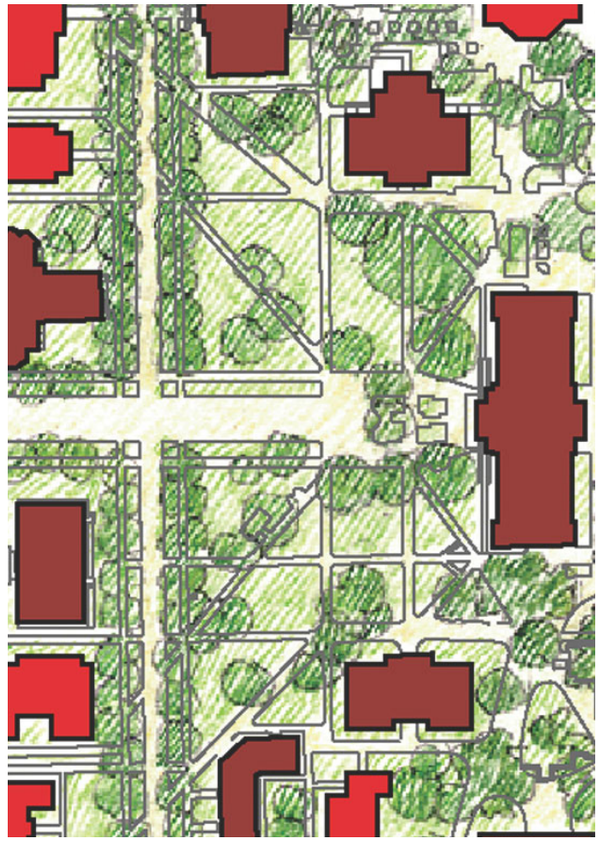
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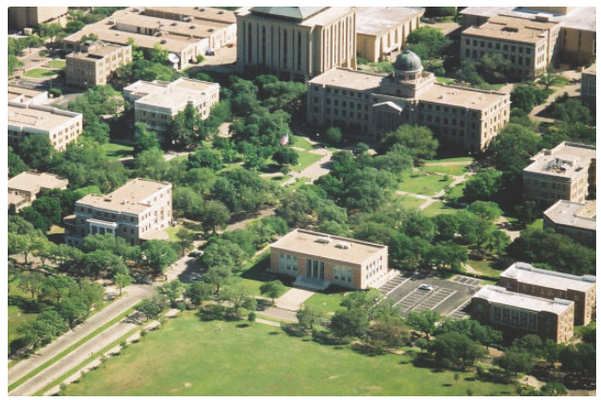
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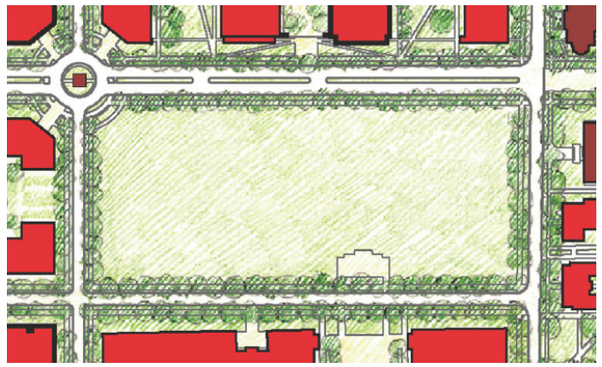

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Simpson Drill Field will eventually become the center of the campus. The Long Range Plan calls for it to be reconfigured into a long rectangular space. The following guidelines apply:

Preserve and replant the memorial trees.

The edges should be continuously lined with trees.

The lawn should be free of paving, except the reviewing area.

Fill in and complete the double row of trees to connect Sbisa and Rudder Plaza.

6

The West Quad should be a rectangular open space lined by buildings and trees, but with picturesque groups of trees in the space. The following guidelines apply:

The edges should be continuously lined with trees.

The center lawn should contain picturesque groups of trees.

The lawn should be crisscrossed by pedestrian walks.

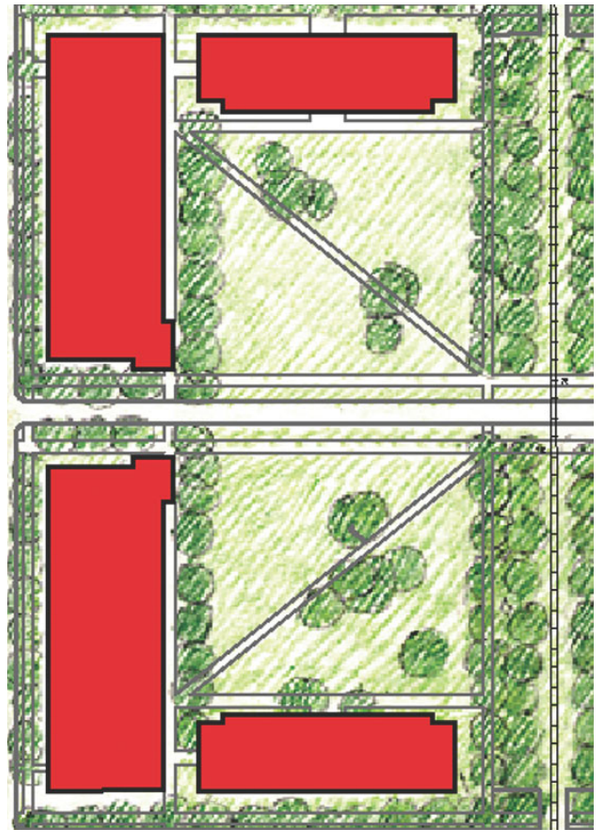

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FIGURE 5
Simpson Drill Field: Proposed plan.

FIGURE 6
Simpson Drill Field: Proposed Aerial perspective.

FIGURE 7
Simpson Drill Field: Existing aerial view.

FIGURE 8
West Quadrangle: Proposed aerial view.

FIGURE 9
West Quadrangle: Proposed plan.

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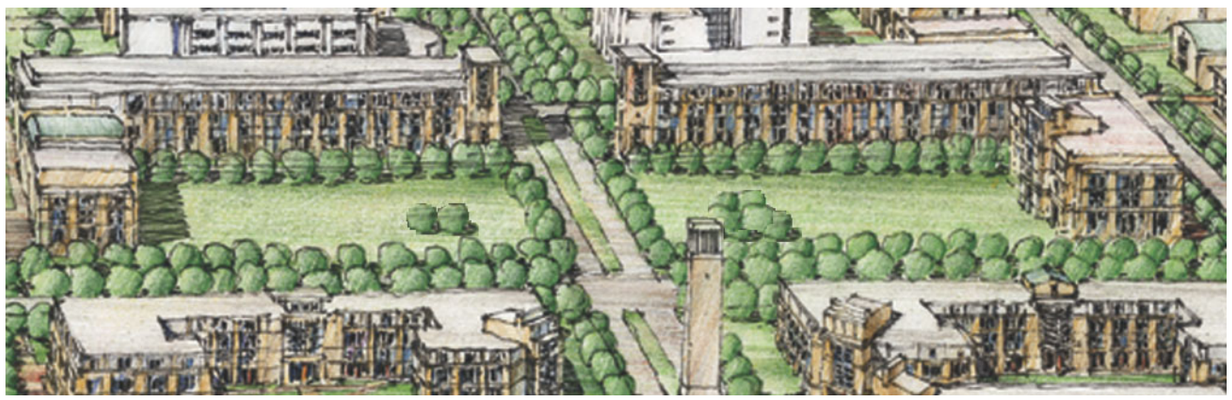

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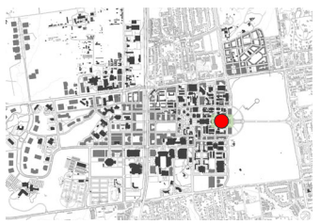


FIGURE 1
Courtyard between the Memorial Student Center and the Regents Wing at Texas A&M.

FIGURES 2&3
Courtyard framed by a single building on three sides and courtyard framed by three separate buildings.

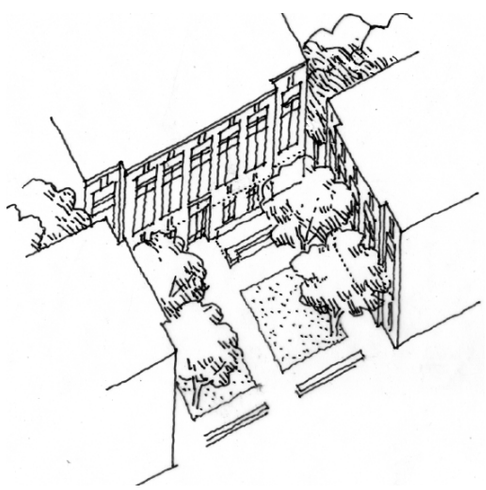
Courtyards

Courtyards are enclosed private or semiprivate open spaces within a building or a semiprivate or public open space within a group of buildings. They may be formal or informal; the edge treatments are varied and include spaces that are completely enclosed by architecture, spaces that are enclosed on three sides by architecture, and spaces partially enclosed by architecture with entrances generally at the corners. The spaces are often paved and feature landscape elements in the center or along the edges. Central features might include a fountain, sculpture, or a grove of trees. Alternatively, vegetation can line two sides of the space or completely surround an open center, or the space can be filled with a continuous canopy of trees. An interior courtyard or atrium is one variation of the many physical forms a courtyard can take.

Courtyards are not common at Texas A&M, but they should be; the Campus Master Plan recommends increased use of this type. The two examples on campus are excellent: the court between the Memorial Student Center and the Regents Wing, and that at All Faiths Chapel. The courtyard of All Faiths Chapel is predominantly lawn and trees; the MSC court is a combination of paving and planting beds. Special care must be taken in the humid climate in which Texas A&M resides to ensure air circulation through the court.

Two of the many possible configurations and interpretations of courtyards are shown in the adjacent diagrams.

1



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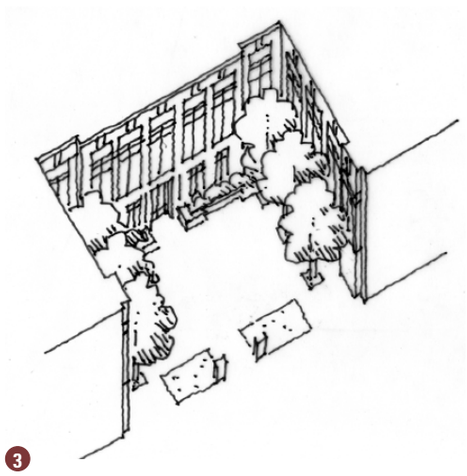

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FIGURE 4
Courtyard at All Faiths Chapel.

As the new geographic center to campus, the new academic buildings proposed for the area north of the Simpson Drill Field and Old Main Drive provide opportunities for public courtyards. An example of an informal courtyard in the area north of the Simpson Drill Field is illustrated as a possibility. This courtyard has a row of trees on the west side intended to strengthen the north-south path through the courtyard. It consists largely of lawn, with crossing paths and building entries being the only paved elements. Exact configuration and layout of the courtyard will be subject to proposed building layout.

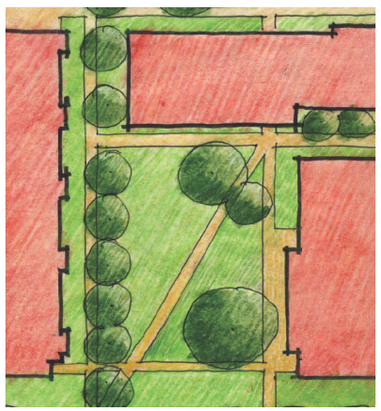

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FIGURE 5
Texas A&M University Proposed Academic Building Courtyard near Simpson Drill Field.

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FIGURE 6
Proposed courtyard on the east side of the existing History Building.

The proposed History Building Courtyard is an example of a formal courtyard formed by adding wings to the north and south sides of the building extending eastward. The inner row of trees in the grove between the History Building and East Quad is extended westward to further define the north and south edges of the courtyard and to extend its perceived domain across Spence Street to the east edge of the East Quad. The courtyard is largely paved and is illustrated with a central focal element of planting, a water feature, or sculpture.

Parks

Parks are large tracts of land that often include lawn, grassland or meadow, and woodlands. They are used for ornament, passive recreation, or active recreation. Passive recreation can take place within upland or riparian landscapes. Oftentimes, ornamental or passive recreational parks are naturalistic in their physical form. Within a campus setting, active recreation takes the form of athletic fields often framed by vegetation within a larger park context, typically in upland landscape areas. See adjacent diagrams.

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FIGURE 1
Park north of the Sanders Corps Center

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FIGURE 2
Spence Park
Texas A&M University.

Spence Park

Spence Park is an example of a passive recreational park located within the upland landscape. It is located west of Throckmorton Road and the President's Residence. Campus buildings and streets surround the Park; some campus buildings even sit within its bounds. Picnic grounds and a perimeter running trail are existing features that should remain. The intermittent stream bisecting the park should be revegetated to restore the stream banks to a more naturalistic state. Some shrubs and groundcover plants should be incorporated, but mostly canopy trees should be added. Keeping the banks vegetated while still allowing for a secure environment is of utmost importance to the design.

Active Recreational Park

An example of an active recreational park is that found west of Penberthy Boulevard. Soccer fields, baseball diamonds, and tennis courts dominate the landscape. Open lawn areas surround the athletic fields with informal drifts of canopy trees and naturalistic woodlands, as well as tree-lined streets and walks forming its periphery.

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FIGURE 3

Texas A&M Upland Passive Recreational Park Example: Spence Park.

FIGURE 4

An expanded recreational sports complex located west of Penberthy Boulevard and south of the Varsity Tennis Center is an example of an Active Recreational Park.

Gardens

A garden is usually bounded, restricted in size, and infused with meaning. The Landscape Plan distinguishes between "garden" and "horticulture." Spaces that are planted with a variety of ornamental groundcover, vines, perennials, annuals, shrubs, and/or trees do not necessarily meet the definition as stated above. For a space to be defined as a "garden" it must include the added layer of "meaning." Gardens can be organized formally or informally, but typically, they are enclosed and often include a focal point within. Gardens may be situated within a larger park.

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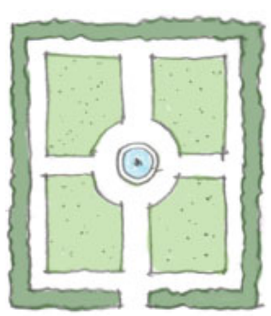

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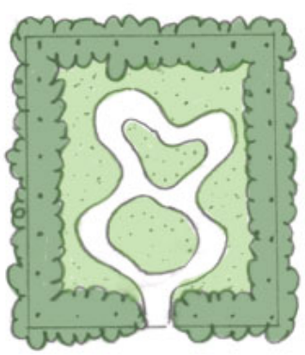

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FIGURE 1
Lady Bird Johnson Wildflower Center, Austin, Texas.

FIGURE 2
The National Arboretum, Washington, D.C.

FIGURE 3
Watergarden at Texas A&M Horticulture Gardens.

FIGURE 4
Typical formal enclosed garden.

FIGURE 5
Typical informal enclosed garden.

FIGURE 6
Typical informal garden within woodland.

FIGURE 7
The Boy and Dog Garden is an example of an informal garden within an urban campus landscape.

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Texas A&M has two excellent informal urban landscape gardens: the Horticulture Gardens, west of Hensel Park, and the "Boy and Dog" Garden, adjacent to the East Quad. The Horticulture Gardens are a real university asset and should remain unchanged. Likewise, the "Boy and Dog" Garden is one of the nicest spaces on campus and should be retained. In contrast to the Horticultural Gardens, it is predominately paved, contained by dwarf yaupon trees and low walls, and serves as a quiet place on campus for study or relaxation. More similar spaces would enrich the campus. They are also attractive donor opportunities.

Gardens within the Riparian Woodlands

The proposed Barbara Bush Botanical Garden is an example of a garden that sits within riparian woodlands. White Creek is north and west of the proposed Garden and should be its major landscape feature and organizing element. Part of the White Creek Greenway, the Barbara Bush Gardens should be consist of a series of gardens where specific plant species might be highlighted based on the particular site conditions present. It is recommended that the proposed Barbara Bush Botanical Garden be developed in conjunction with the White Creek Greenway, and that the two provide distinct but complementary venues for both reflection and activity.

FIGURE 1
Vegetation: Trees, shrubs, and groundcover.

FIGURE 2
Vegetation: Canopy, trees, and lawn.

FIGURE 3
Vegetation: flowering trees and groundcover in planters.

FIGURE 4
Vegetation: annual planting in limited areas.

Campus Element Guidelines

Vegetation

Vegetation for the urban campus landscape will reflect the specific characteristics of the defined urban spaces. The plant palette should include both native and introduced species and consist of trees, shrubs, lawn, perennial, groundcover, and vine planting (see the appendix for an Urban Campus Landscape Plant List). In an effort to focus maintenance resources in an efficient way, annual planting in defined planters or pots can be employed in limited areas. Quadrangles should be planted predominantly with canopy trees and lawn. Parks and courtyards should include a more diverse plant palette and might include canopy trees, some understory trees and shrubs, and perennial, groundcover, and vine planting. Gardens should include a richer combination of the above and might also include some annual planting.

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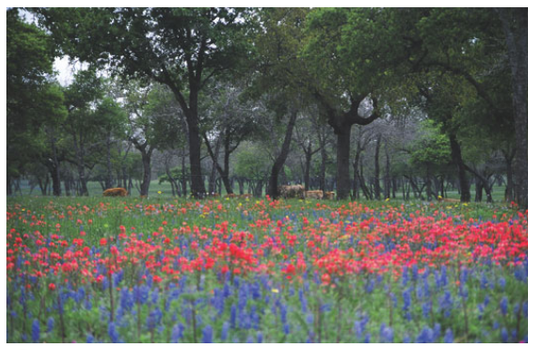

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Vegetation for the Texas Landscape should vary based on the specific location. Vegetation can be arranged formally or informally. The plant palette will include a high percentage of native species with most ornamental varieties and introduced species removed over time and will consist of canopy trees, evergreen trees, understory trees, shrubs, meadow wildflowers/grasses, and perennial planting (see the appendix for a Texas Landscape Plant List).

FIGURE 1
Texas Landscape (blackland prairie), trees, shrubs, and meadow grass.

FIGURE 2
Spring meadow, post oak savannah.

FIGURE 3
Native grasses in the Texas Landscape.

FIGURE 4
Native wildflower meadow in the Texas Landscape.

Grading

The Texas Accessibility Standards and the Americans with Disabilities Act guidelines will be followed in all new construction projects. The existing campus environment should be analyzed for compliance with the above-mentioned standards. All walks and paths should fall below a five percent gradient where possible to avoid the necessity of railings in the landscape; but where slopes are steeper, accessible ramps should be included. The University will be accessible to disabled individuals; ramps and sloped walks will be incorporated such that all buildings and significant landscapes are universally accessible.

A wide variety of slopes will exist in the surrounding natural landscape. Adjacent to stream corridors and in steeply sloped areas, protection against erosion will be required.

Drainage

In the areas immediately adjacent to buildings, the drainage system will consist of a network of catch basins and subsurface drainage in the roadways. In the core of the campus, these will be linked to the newly constructed detention facility on the east side of campus.

In less traveled areas, and in the surrounding natural landscape alternative methods of site drainage should be employed, such as bioretention areas, vegetated swales, and open detention basins. On-site retention of stormwater should be a goal, contributing to improved water quality in both permanent and intermittent streams. Yearly maintenance of all drainage systems will be necessary.

Pavements

In the Urban Campus Landscape, and in areas adjacent to buildings in the Texas Landscape, pedestrian pavements will consist of poured-in-place concrete detailed to withstand occasional vehicular load, such as maintenance and emergency vehicles. The width of tree-lined walks should correspond with a narrow street dimension. Courtyards and gardens may incorporate concrete unit pavers set on a concrete slab where necessary to withstand occasional vehicular load. In limited areas (some courtyards and gardens), stone dust paving, decomposed granite, or even limestone fines may be used.

Vehicular pavements in the Urban Campus Landscape will be asphalt or concrete depending on the result of detailed site-specific geotechnical and soil studies.

In the surrounding Texas Landscape, stone dust paving, limestone fines, wood, or bark mulch may be used for pedestrian pavements in less traveled ways or trails. Universal accessibility should be a priority.

Where ever possible in the Texas Landscape, vehicular pavement should be of porous material such as gravel, crushed stone, or consist of paver systems with open joints to allow water to infiltrate to the soil below.

Curbing

Integral concrete curbs and gutters will continue to be used for avenues and boulevards, drives, and streets in the Urban Campus Landscape. Travelways within the surrounding natural landscape will not be curbed.

Site Furnishings

Site furnishings should be of consistent design throughout the Urban Campus Landscape. Currently, the numerous styles of site furnishings in use contribute to the fragmented impression of the campus landscape. Campus standards will be established or revised to create a consistent palette of site furnishings to help unify the campus environment. Furnishings include but are not limited to benches, seatwalls, trash receptacles, recycling bins, ash urns, bicycle racks, emergency call boxes, public telephones, bollards, fences and gates, light standards, and informational kiosks.

Site Lighting

Proper lighting design provides a level of safety important to students, faculty and staff alike. A metal halide lamp with its superior color rendition is preferred for all campus lighting. The light source should be concealed to reduce glare; the dark sky concept should be adhered to (concentrate light where needed—not allowing it to escape inefficiently into the night sky). Pedestrian lighting should be a consistent height and style with post top cut off luminaries in the quadrangles. A consistent style of lighted bollards could be included in the lighting design for courtyards and gardens. Roadway and parking lighting should be a consistent height and style. In all cases, the University Police Department standards for light levels should be followed.

Lighting in the surrounding natural areas will be kept to a minimum and should be included only in the most highly traveled areas or where the University feels it is needed for security purposes.

Signage

Site signage should be consistent throughout the campus. A site signage program should be initiated or revised that regularizes information on campus. Parking designations, street names, service and loading areas, building names, etc. should be included. Throughout the campus, an identifiable signage system of uniform design should be apparent.

Signage or markers for less traveled ways or trails in the Texas landscape should be included as well as interpretive signage and signage for other culturally or ecologically significant places.

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FIGURES 5 THROUGH 10

Examples of existing site lighting at Texas A&M.

FIGURE 1
Texas Landscape.

FIGURE 2
USDA Riparian Forest Buffer Standard.

Landscape Principle **5: Native Landscape**

The connection between the campus and the surrounding regional landscape should be reinforced. This is both a formal transformation—from an urban landscape to a picturesque rural landscape—as well as an ecological transformation—from a highly maintained synthetic landscape to a resource-efficient native one.

Native Landscape Guidelines

Restoration

The Texas landscape surrounds the University, and in some cases restoration may be desirable. Restoration projects may take on an educational component, which could be initiated by an interested University department or cooperatively among several departments. The *Landscape Restoration Handbook* by Donald Harker, Sherri Evans, Marc Evans, and Kay Harker, stresses the complexity of ecological restoration. In fact, complete ecological restoration may not be possible given a specific site, its surrounding land uses, and adjacent fixed cultural features. Ecological restoration takes time. The first step is to develop a plan with the help of experts in the fields of biology, ecology, horticulture, forestry, engineering, geology, and soil science, among others. The plan should include clear objectives and goals (defined by those initiating the project) that are quantifiable, such as the composition of native and exotic species. Analysis of the site is an important step prior to the development of a detailed site plan. The area will then need to be prepared by grading, if necessary, to restore appropriate gradients, particularly in areas adjacent to stream corridors. Soil amendment, weed control, fertilization, and establishment of temporary irrigation systems should be considered, as well as the preservation and protection of existing vegetation that is to remain. New planting by seed or transplant of native plant materials (vegetative mats, bare root whips, and/or potted nursery plants) will require regular monitoring to control exotic and undesirable species.

Riparian Buffers

To improve on the function and quality of the University's riparian natural areas and improve the ecology of the campus,

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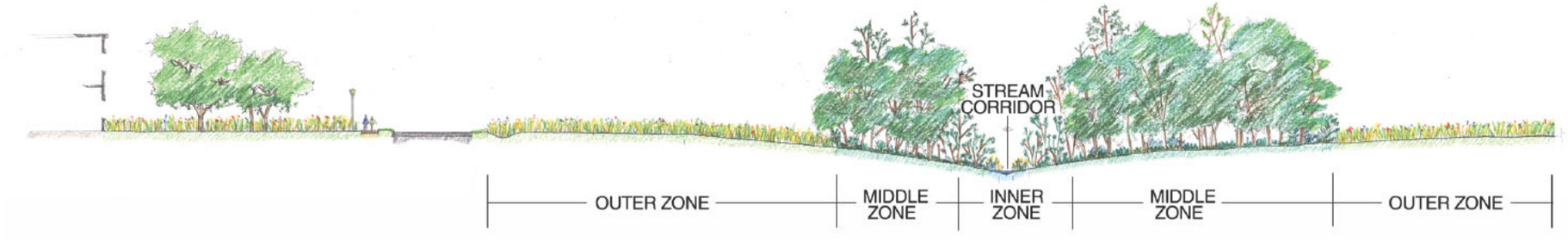

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the implementation of forested riparian corridors, or buffers, is imperative. Establishing a buffer zone will decrease pollutant runoff to neighboring streams and watersheds (in the way of sediments, chemicals, and excess nutrients), reduce stream bank erosion, increase groundwater recharge and ultimately reduce landscape maintenance costs as a result of reduced irrigation and slope stabilization requirements.

The United States Department of Agriculture's Natural Resource Conservation Service has in place conservation practice standards for riparian forest buffers (Document Code 391) for streams located in urban areas of Brazos County, Texas. Three distinct zones are defined and would need to be coordinated with site-specific situations. Floodplain characteristics, such as stream order, valley slope, the one-hundred-year floodplain elevation, associated wetlands, critical flora and fauna habitats, as well as adjacent development, are all important considerations. The three zones are referred to as the Inner, Middle, and Outer Zone and dictate minimum and maximum widths, function, vegetative targets, and allowable uses based on the parameters identified above. Management Zone 1, the Inner Zone, is adjacent to the stream and protects the physical integrity of the stream ecosystem; Management Zone 2, the Middle Zone, provides some distance between neighboring development and streamside areas; Management Zone 3, the Outer Zone, acts as a runoff filter and encroachment deterrent (see adjacent diagram). Buffers of 35 to 150 feet can help reduce sediment, organic matter, nutrients, and pesticides in surface runoff. Buffers of 100 to 150 feet can help to provide protection against erosion. Buffers of 35 to 150 feet can help to restore natural riparian communities (all measurements are taken from the edge of normal stream flow and perpendicular to the shoreline). These buffer dimensions combine all three zones. Specific widths would need to be studied on an individual basis for appropriateness. All buffers should comply with the Texas Forestry Best Management Practices and all other pertinent regulations.

The Texas landscape includes mostly natural areas at the edges of campus and areas outside the high visibility zones. "Parks" are the only defined urban spaces within the Texas landscape.

Parks

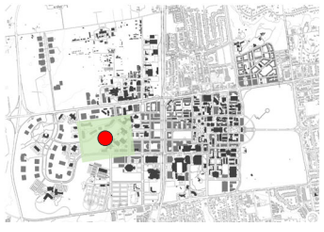
The proposed park space within the White Creek Greenway is an example of a passive recreational park in the Texas landscape situated within the riparian woodlands. The study area is located south of Horticulture Road, east of Discovery Drive, north of John Kimbrough Boulevard, and west of the E. L. Wehner Building. White Creek exists to the west of this cluster of buildings. The Campus Master Plan calls for a new network of roads east and north of the Horticulture/Forest Science Building and additional campus buildings placed adjacent to the roads. Northwest of the existing stream, a new road is proposed that would provide access to a proposed group of campus buildings. Islands of Urban Campus landscape areas will be present immediately adjacent to the buildings themselves and will follow the streets. The stream corridor will be preserved and a Texas landscape should be created within the boundaries listed above. The Texas landscape continues beyond this study area to encompass large areas of the post oak savannah landscape.

The banks of White Creek will be planted with predominantly native trees, shrubs, and groundcovers. Larger, more open grassed areas or meadows will occupy the southernmost portion. Informal trails will wind their way through the park.

FIGURE 3
Pennsylvania State University Arboretum, University Park, Pennsylvania.

FIGURE 1
View of White Creek Greenway area.

FIGURE 2
Texas A&M Riparian Passive Recreational Park Example: White Creek Greenway area.



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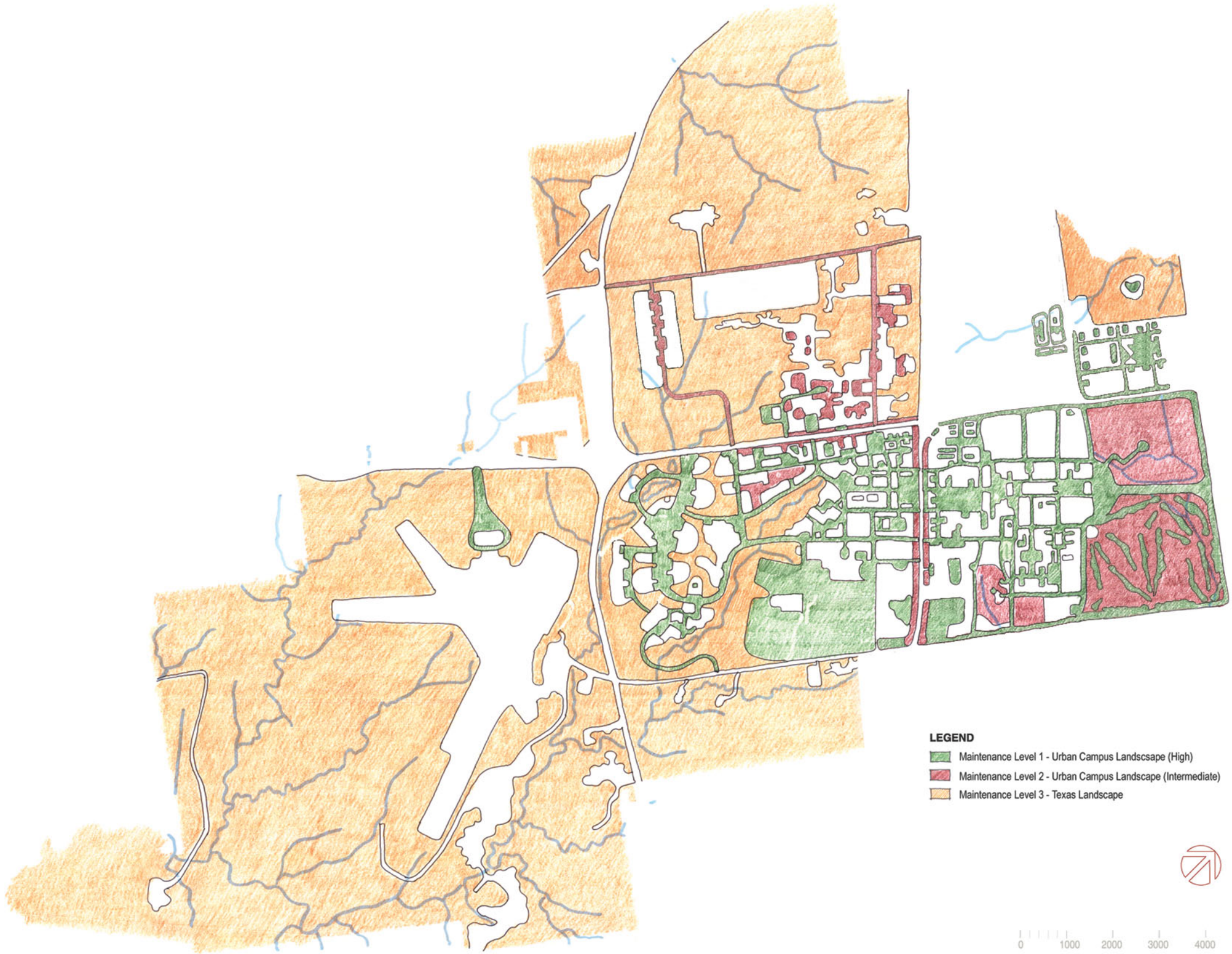
FIGURES 3 THROUGH 7
Views of the existing landscape in the area of the White Creek Greenway.


LEGEND
Maintenance Level 1 - Urban Campus Landscsape (High)
Maintenance Level 2 - Urban Campus Landscape (Intermediate)
Maintenance Level 3 - Texas Landscape
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LANDSCAPE MAINTENANCE

Introduction

The Landscape Maintenance Plan divides the University broadly into two distinct zones with varying maintenance regimes: the Urban Campus landscape and the Texas landscape. The Urban Campus landscape is subdivided into two related but separate categories, Maintenance Level 1 (the highly maintained landscape) and Maintenance Level 2 (the moderately maintained landscape). The Texas landscape is categorized as Maintenance Level 3 (the resource-efficient landscape). Each zone is supported by a set of guidelines and reflects the intensity of use and appropriate resources applicable for that landscape type.

As the ideas of the Master Plan are realized, the landscape will undergo a period of transition. With each construction project, the landscape will be modified and will follow the maintenance regime described below. As parts of the campus landscape reach maturity and require renovation or restoration, the plans put forth in this document can be incorporated. The ideas presented in this Master Plan, then, will be implemented over time.

Maintenance Levels 1, 2, and 3

Maintenance Level 1

Urban Campus Landscape (the Highly Maintained Landscape)
Regular and frequent mowing, pruning, weeding, feeding, pest control, watering, and general cleaning are to be part of the Maintenance Level 1 regime. Every effort should be made to limit the use of fertilizers and pesticides by incorporating native and adapted plant materials. The principles of xeriscape (water conservation through drought-tolerant plant choices, amended soils for improved water retention, limiting the planting of turf to appropriate locations, employing an efficient irrigation system, and mulching) should be incorporated into the regimen. Repair and twice yearly maintenance of irrigation systems should be planned. Seasonal planting in limited areas (courtyards and gardens) can be expected.

Maintenance Level 2

Urban Campus Landscape (the Moderately Maintained Landscape)
Regular but infrequent mowing, pruning, weeding, feeding, pest control, watering, and general cleaning are to be to be part of the regular maintenance regime. Pruning could take place as infrequently as once a year. Maintenance Level 2 should be planted more heavily with native plant species to ensure vegetation vigor; the principles of xeriscape should be followed. Instead of large expanses of manicured turf, the ground plane for Maintenance Level 2 areas should be planted predominantly with drought-tolerant groundcovers, native grasses, or wildflowers.

Maintenance Level 3

The Texas Landscape (the Resource-efficient Landscape)
Once established, the Texas landscape requires the least amount of maintenance of the three levels discussed in this report and can be found generally along the perimeters of the campus. More naturalistic in character, the Texas landscape supplies the University with a green reserve that enhances the cultural, aesthetic, and ecological quality of the campus and surrounding community by providing stormwater mitigation, wildlife habitat restoration, outdoor education, and recreation opportunities.

In restoring the Texas landscape, the use of fertilizers and pesticides should be avoided by incorporating native plant materials. In more remote areas, biannual mowing of wildflower meadows should become part of the standard maintenance regimen—no manicured lawns should exist. The principles of xeriscape should be incorporated into the regime. A temporary irrigation system should be employed only in the first few years of establishing the restored landscape. After establishment, the use of irrigation should be halted. Rainwater harvesting may be appropriate for irrigation and will decrease the amount of well water needed.

FIGURE 1
Landscape Maintenance Plan.

FIGURE 1
Quadrangles with trees in lawn plus shrub and groundcover planting requires Maintenance Level 1. Texas A&M.

FIGURE 2
Most gardens require Maintenance Level 1. Herring Hall Terrace, Rice University, Houston, Texas.

FIGURE 3
Street trees in lawn require Maintenance Level 1. Texas A&M.

FIGURE 4
Less visible space between buildings should be Maintenance Level 2 with modifications to plant selections as required. Texas A&M.

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FIGURE 5

Spence Park should be planted with native and drought plant material for Maintenance Level 2. Texas A&M.

FIGURE 6

Lady Bird Johnson Wildflower Center, Austin, Texas.

FIGURE 7

Native and drought-tolerant species should be planted for Maintenance Level 2. Lady Bird Johnson Wildflower Center, Austin, Texas.

FIGURE 8

Mow meadows biannually for Maintenance Level 3. The Texas Landscape.

FIGURE 9

Once native vegetation is established, irrigation can be eliminated for Maintenance Level 3. Lady Bird Johnson Wildflower Center, Austin, Texas.

FIGURE 10

The spaces between greens and fairways should be planted with native and drought-tolerant species for Maintenance Level 2.

Irrigation

The University's current Irrigation Plan zones shrub and turf areas separately. Further refinement of the system is not possible at this time owing to the time constraints of maintenance personnel. It is possible that the current campus-wide watering regime plays a role in the rise of oak wilt/oak decline that is contributing to the slow die-off of live oaks throughout campus. A detailed Landscape Master Plan and additional research would need to be undertaken to better understand all of the contributing factors leading to the demise of these significant campus trees. It is probable that the presence of poor draining soil exacerbated by compaction due to years of construction, foot traffic, vehicular traffic, and irrigation water that has a high saline content (which becomes higher in the summer when irrigation is needed most) all contribute to the decline in health of many trees on campus.

The proposed Irrigation Plan conforms with the proposed Landscape Plan. It responds to the revised configuration of campus streets and open-spaces, the creation of new recreational athletics playfields in the west campus, and to the conversion of parking lots into green-space.

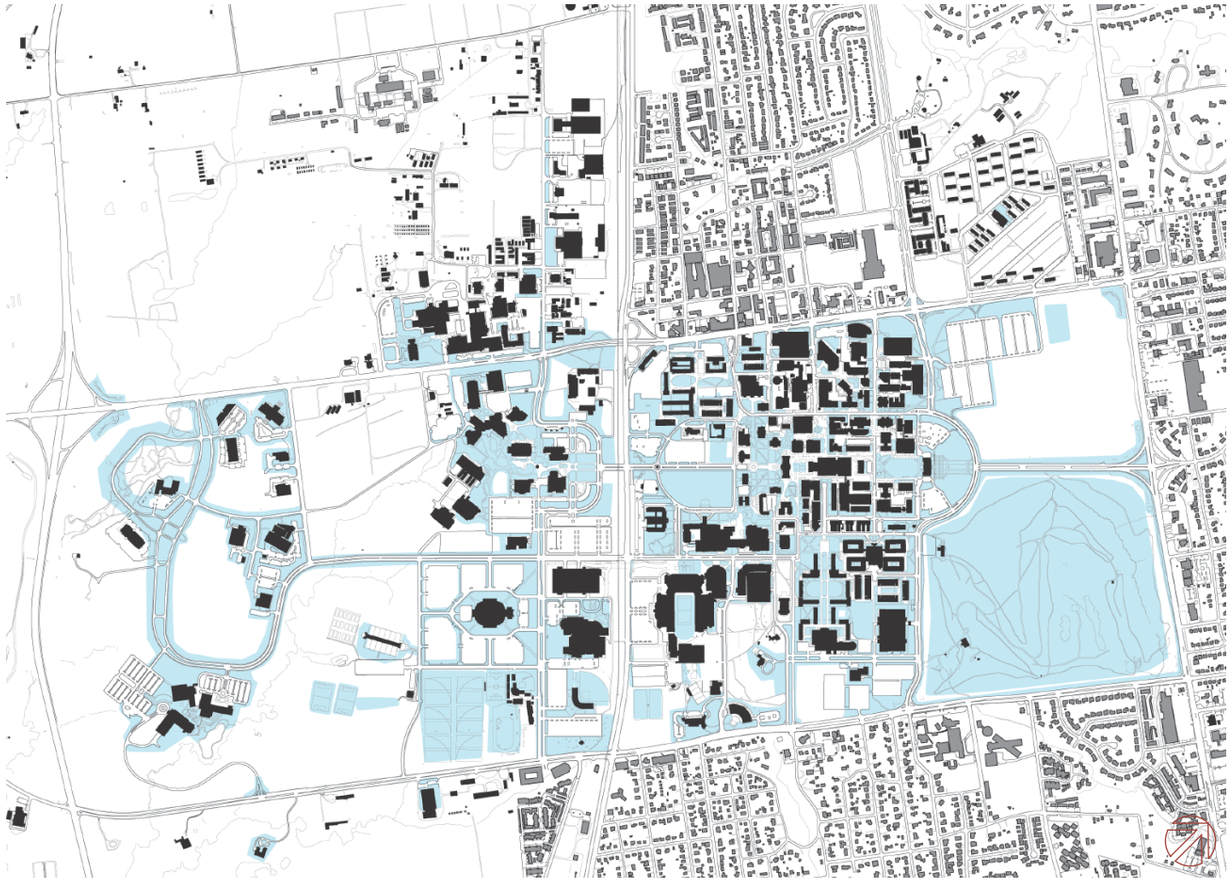

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FIGURE 1
Existing Irrigation Plan. Information supplied by Texas A&M.

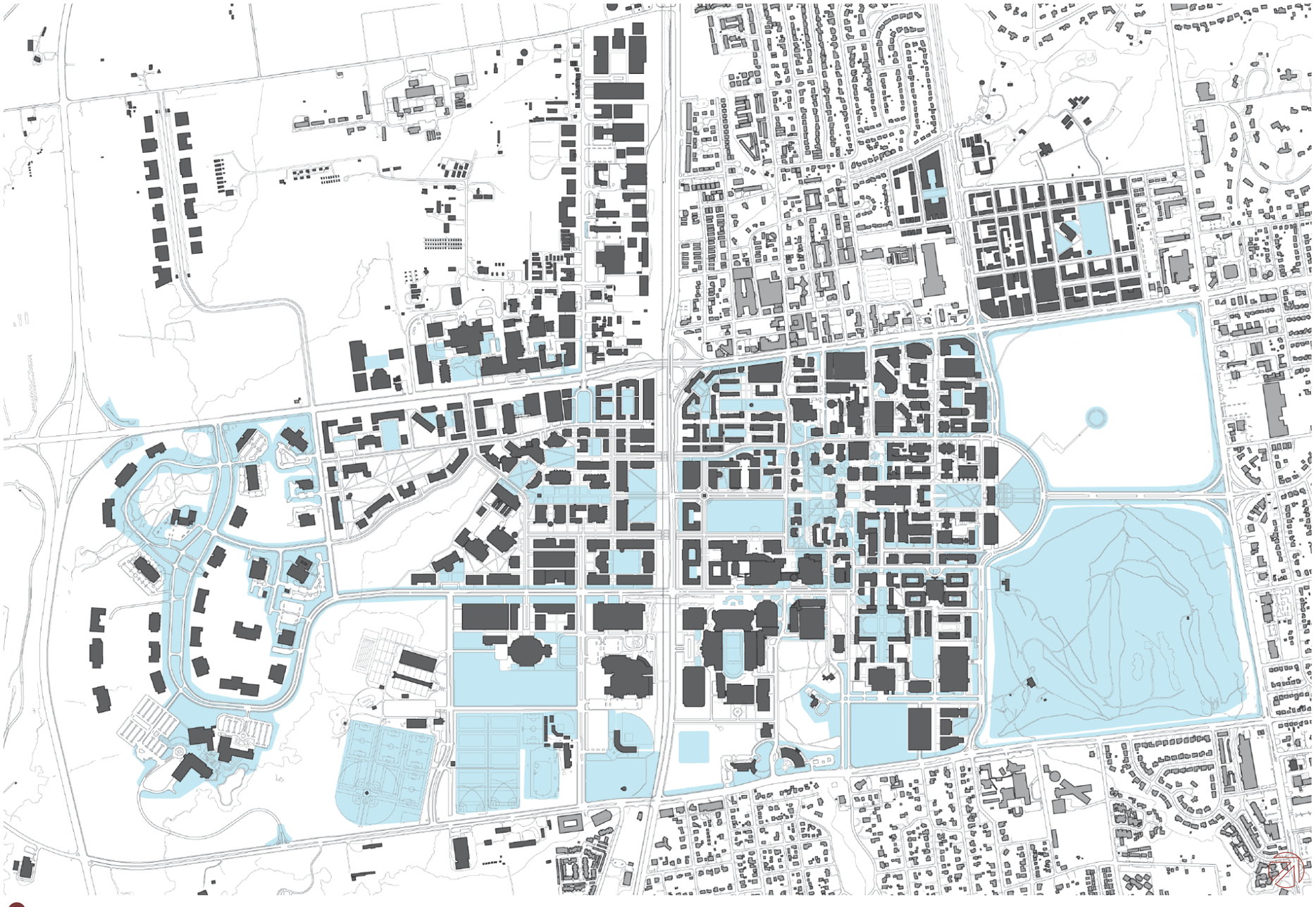


FIGURE 2
Proposed Irrigation Plan..

Soil Management

The soil types that predominate on campus can be problematic. However, with proper care, they can be very productive. A campus-wide plan for the management of soils should be instigated.

Current soil management problems

The campus's current soil management problems can be attributed to four factors: The relatively shallow topsoil, poor practices during building construction, impairment of soil drainage due to construction, and the high sodium content of irrigation water.

The relatively shallow topsoil

Although it is relatively shallow, that does not mean that it does not exist. The topsoil is especially shallow where buildings have been constructed. In these areas it is often reduced to an inch of two. In less disturbed sites on campus, located away from underground utilities and building construction, the topsoil is six to twelve inches deep.

About one half of the volume of loamy topsoil is pore space. This pore space is about half air and half water, though it varies and fluctuates after every rain event. The volume of topsoil can be an effective sink for much of the water that happens during a rain event. Increasing the depth of topsoil would not only reduce the amount of storm water after a rain event, but would also improve the health of plants, increase the variety of plants that can be grown on campus, and increase the potential height of many of the species of trees. This would increase their cooling effect and ability to intercept rain water during a storm.

Poor building construction practices

Current construction practices on campus have led to loss of most of the existing topsoil. For example, when the Biochemistry/Biophysics Building, the Horticulture/Forest Science Building, the Wehner College of Business Building, and the Wehner Addition were being constructed, the topsoil was scraped into a large pile and much of it was hauled off. Subsoil was dug to create the below grade portions of these buildings and this subsoil was piled at the site.

When the Wehner Addition was completed the pile of soil at the site, mostly subsoil, was then graded around the building and the surface of this dense soil was tilled to loosen the top two inches. No true topsoil was returned to the site. The native soil would be relatively productive and much more manageable than the "fill" of subsoil that now exists at or near the surface of much of this site.

When the staging area for equipment and supplies for the Wehner Building Annex was created on the Horticulture Farm, near the Wehner Building, the topsoil at this site was scraped into a large pile and rock and gravel fill was placed on the area. The pile of topsoil was hauled away. The practice of allowing contractors to sell the topsoil must stop.

The impairment of the soil's internal lateral drainage due to construction

The "topsoil" left at the site is very shallow and has heavy clay subsoil just beneath the surface. When buildings are constructed they go deep into the soil and block internal movement of water, especially lateral movement since movement downward is very slow. This also happens when roadways, sidewalks, and mow strips are constructed. Since the topsoil is so very shallow in many areas and relatively shallow in others, these features are set into the dense subsoil. This prevents lateral movement of soil water.

The high sodium content of irrigation water

The local water is high in sodium. Many plants do not grow well when watered with this high-sodium water. Sodium accumulates in the soil; the more local water is used for irrigation, the greater the buildup. Unlike many salts, sodium accumulates in the soil and is difficult to remove. It not only damages plants directly but also leads to dispersion of the soil particles and over time this damages soil structure. Since the topsoil is very shallow, this problem in accentuated.

Recommendations

Do not damage the soil or alter its properties through construction.

Instead use construction as one of the ways to improve the soil. Any construction project should be responsible for returning the soil to that typical of the area by increasing the depth of topsoil to leave a six-to twelve-inch layer of topsoil at the site when construction is completed. Prior to construction the soils at the site should be studied and recommendations made for their restoration as part of the development of the site.

Always put the existing topsoil back in place.

Unless trees are present which would be harmed by increasing the depth of topsoil, use the topsoil removed from the footprint of the building to add to the depth of topsoil for the landscape to be created around the building.

Save and protect the topsoil.

When underground utilities are being constructed the topsoil should first be scraped into a pile sufficiently far from the site to avoid contamination with the subsoil, and then this topsoil should be returned when construction is completed.

Provide drainage.

Sufficient drainage should be established under roadways, sidewalks, and mow strips to allow internal movement of water through the soil and lateral movement of water away from the site and plant beds near it. This is especially important where the topsoil layer cannot be made deeper due to existing trees or where the street bed is to be set so deep that it blocks internal lateral movement of water out of plant beds.

Protect Trees.

During construction of any type the large trees that are located near the site and smaller vegetation in the immediate vicinity of the site should be protected from physical damage to the trunks and other above-ground portions. No piles of soil, construction materials, or equipment should be piled over or parked on the area of the roots of these trees.

Provide extra care for injured trees.

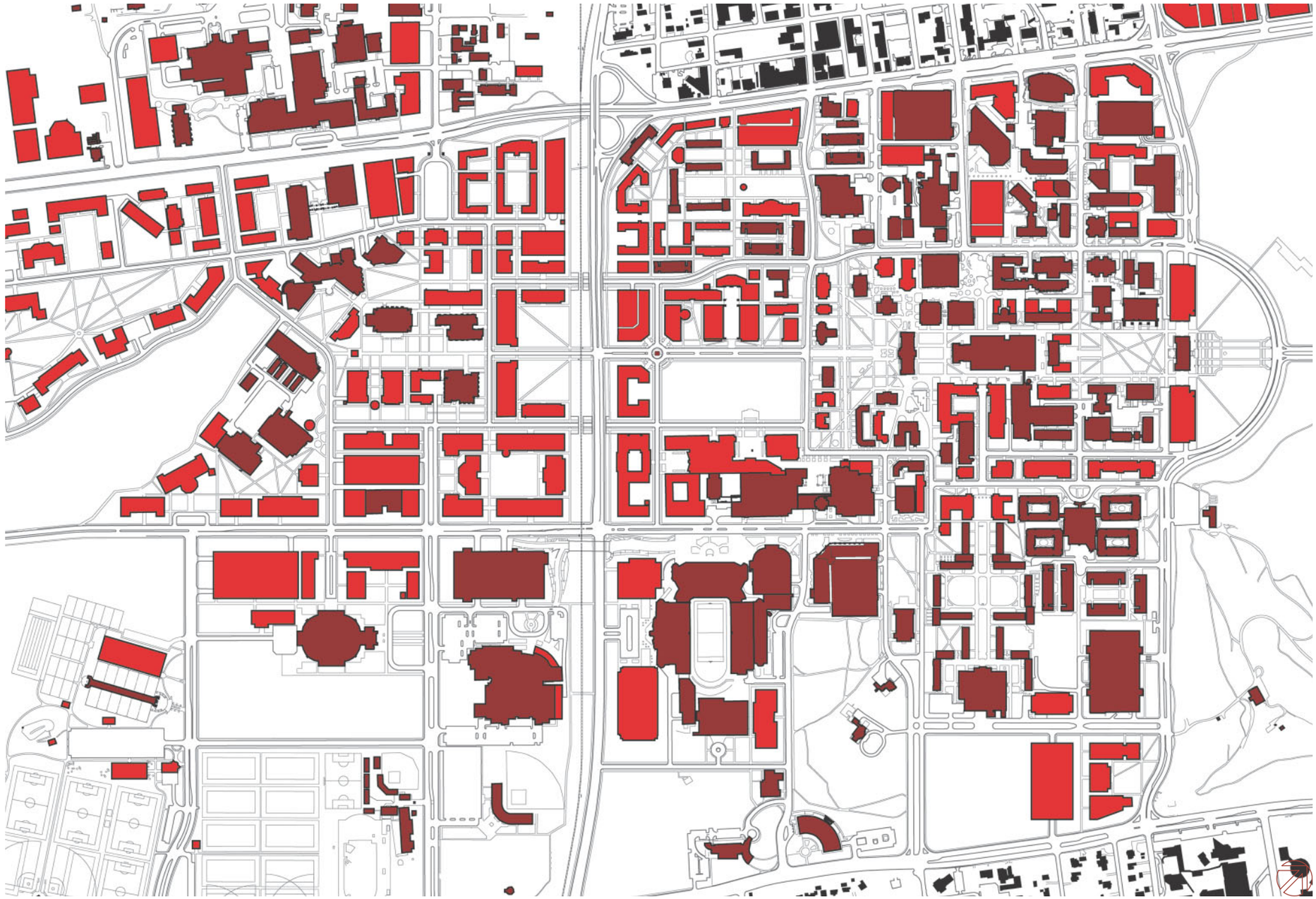
When it is impossible to avoid damage to the roots of trees, these trees and other plants should be given additional water through temporary irrigation systems for a period of duration long enough to enable them to repair their damaged root systems with minimal stress to the tops of the plants. This may be necessary for a period of two or more years for large trees.

FIGURE 1

The Building Development Plan.

Existing buildings

Proposed buildings



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VI. THE ARCHITECTURAL PLAN

INTRODUCTION

The Architectural Plan supports the Long Range Plan by providing more detailed guidance regarding the management of growth and the improvement of the campus environment. It is intended to preserve what is good and transform what is not. This chapter begins with an analysis of strategies of campus planning and building design that have been used at Texas A&M University. It recommends that "urban" strategies guide future growth and infill. It examines the existing campus plan, identifying buildings and spaces to be preserved and sites that present opportunities for future development. The Plan proposes a pattern of buildings, streets, and spaces that will accommodate growth for the next fifty years. It concludes with Architectural Principles and Guidelines to ensure that new buildings make the campus a beautiful and harmonious place in which to live, work, and learn.

The Goals of the Architectural Plan are to:

- ***provide a framework that will guide the physical growth and infill of the campus;***
- ***support and define the public spaces of the campus;***
- ***achieve the optimum building capacity by maximum utilization of available real estate;***
- ***enhance the character of the campus and promote its academic, social and cultural functions;***
- ***achieve a varied, but cohesive architecture that enhances the character of the Texas A&M campus; and***
- ***promote a high level of architectural quality.***

BUILDINGS, SPACES, AND THE PUBLIC REALM

As stated in the Landscape Plan, a campus's buildings and open spaces are mutually complementary aspects of the physical environment. It is the responsibility of architecture to reinforce the spatial pattern of the campus's civic structure. Architecture is to define outdoor spaces, give them scale, dimensional and geometrical order and clarity, and specific architectural character. It is to offer amenities of shade and public welcome, symbolize and characterize the public realm of the campus, and convey a vision of quality and excellence.

The mission of the University is enhanced by the sense that the campus environment is fundamentally continuous—that public open spaces and the interiors of buildings are differentiated parts of a larger whole—*the public realm of the campus*. This public realm interconnects the disparate functions and fields of endeavor that exist on campus, and so unifies the institution both symbolically and functionally. In this sense, the campus may be conceived as a porous matrix of interconnected spaces of varying size, shape, character, and use. Their interconnectedness ensures that the campus is both literally and symbolically accessible; it is fundamental to the way a campus promotes its institution's academic, social, and cultural missions. On the other hand, the missions and daily activities of individual programs and organizations within the University require spaces that are distinct and identifiable and that promote a sense of place and ownership.

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FIGURE 2

Architectural and Landscape design are complementary aspects of the academic environment.

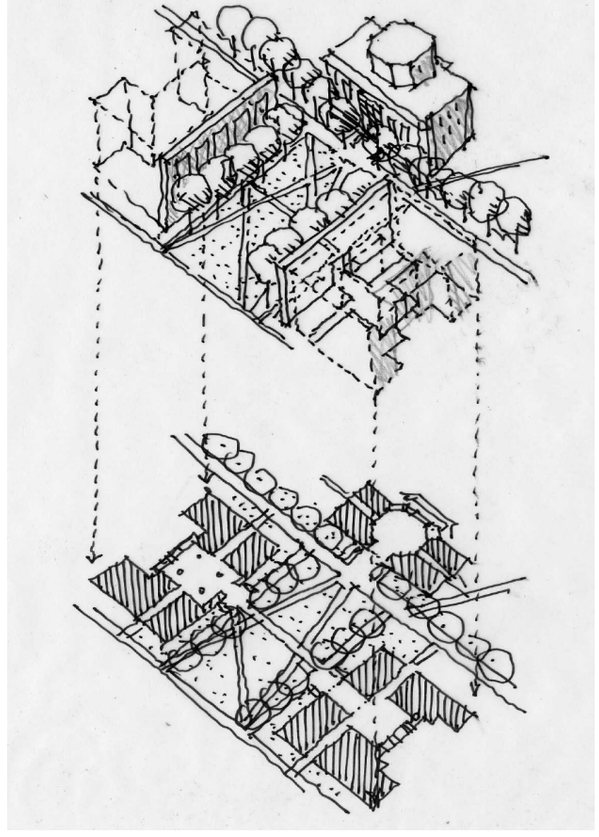

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FIGURE 3

The porous and interconnected campus environment.

FIGURE 1
Aerial photograph of the Texas A&M campus, 1940.

The combination of these two complementary themes—*interconnection* and *differentiation* according to a gradated series of private/public distinctions—gives the buildings and outdoor spaces of a campus much of their experiential richness, and allows them to accommodate and interconnect their various users and meanings.

The goal of a differentiated but more or less continuous public realm—one that connects outdoor campus spaces with primary spaces inside buildings—has profound implications for architectural design. It affects the overall form of buildings and their arrangement as related groups, the design of building facades, and the design of building entrances to gracefully accommodate formal and informal meeting and exchange.

The Architectural Plan addresses these issues in the following analysis of the Texas A&M campus, and in the subsequent principles and guidelines for the design of new buildings.

ANALYSIS OF TEXAS A&M ARCHITECTURE

The following analysis of the campus's architecture is divided into four parts: the campus street and block system, the relationship of buildings to that street and block system, historic campus buildings that should be preserved, and sites that present opportunities for new construction

The Street Grid

The Texas A&M campus began with the establishment of a roughly symmetrical arrangement of streets and blocks, arranged about an axis running from the high ground at the site of the Academic Building to the railroad tracks. These streets and blocks established order on the land, provided building sites, and began the definition of the public realm. This street grid can still be discerned within the campus core. Its role as a primary determinant of campus form ceases in West Campus, where the street pattern wanders and many buildings do not address the streets in a purposeful way.

The problematic division between East and West Campus caused by Wellborn Road and the railroad tracks is aggravated by the divergent planning strategies that governed their development. Completely different attitudes were taken regarding the roles of architectural and landscape design, and indeed toward what a campus is. The most normative relationship of *building-landscape-street* is to be found within the historic core: buildings front onto streets and spaces, and streets and spaces link buildings. West of Wellborn Road, the acknowledgment of the street by architecture and landscape design is at best perfunctory: buildings there have no fronts, and outdoor spaces (some of them paved, some of them underutilized lawns) present a kind of residual no-man's-land between the isolated buildings. These divergent attitudes toward the roles of architecture and landscape have produced not only different physical environments but different social environments, and they have increased the perceived distance and disconnection between East and West Campuses.

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The Urban Block

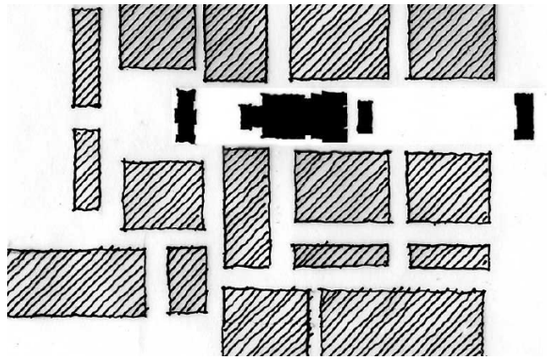
The early plans for the Texas A&M campus were premised on a simple, direct, and harmonious relationship between streets, landscape, and architecture. Buildings were organized on blocks and addressed streets and quadrangles. Quadrangles connected with streets to form an armature of public space.

The most important characteristic of the urban block is the difference between the public nature of its outside (the street) and the private nature of its inside (the garden). Buildings offer the strongest definition of the public perimeter, and in dense urban conditions they may form a literally continuous street wall. Trees, sidewalks, curbs, and other elements can help, however, and on many American campuses and in suburbs they provide even stronger continuity of the public realm than the discontinuous buildings beyond. The benefits of this pattern of streets and blocks at Texas A&M, and of the quadrangles that are based on them, are still apparent today. They give form and scale to the campus core. They distinguish public streets and quadrangles from relatively private courtyards and service yards. They define a public realm that knits the historic core of the campus into an interconnected whole.

In those parts of the campus where the pattern of streets (whether vehicular or pedestrian) is less clear—where buildings fail to address the streets, where landscape fails to reinforce the urban pattern of public space, and where sidewalks and curb lines are erased—distinctions become excessively blurred, and buildings appear to float in an undifferentiated landscape. Buildings in these parts of campus seem to be isolated, unrelated to each other and to their surroundings. This isolation is both physical and social, and it is detrimental to the mission of the University. The pattern of streets and the design of buildings in these parts of campus contribute directly to the feelings of disconnectedness and isolation felt by many members of the University community.

The Master Plan solves these problems by:

- extending the street pattern west from the historic core of campus, across Wellborn Road and the railroad tracks to West Campus; and
- defining a set of principles and guidelines for architectural design premised on creating a positive relationship between buildings, streets, and open spaces.



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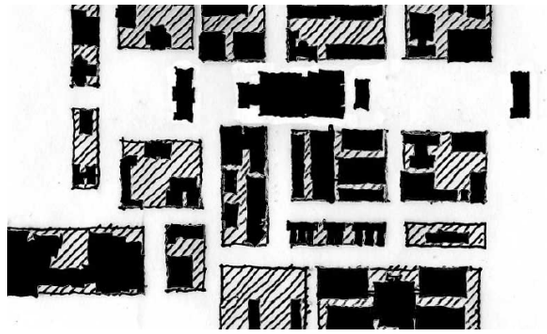

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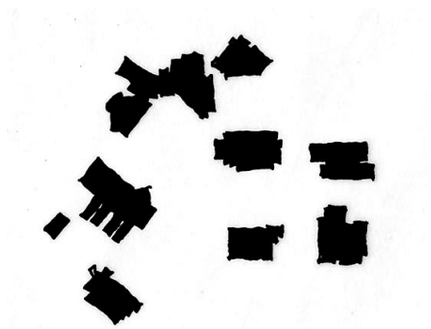

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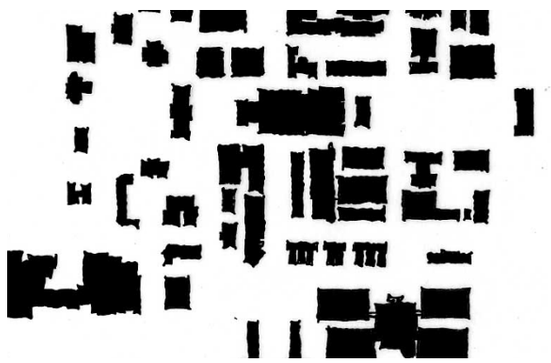

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FIGURE 2
Urban blocks in the historic core.

FIGURE 3
Urban blocks and buildings in the historic core.

FIGURE 4
Urban buildings in the historic core.

FIGURE 5
Suburban buildings in West Campus.

URBAN BUILDINGS ENGAGE AND DEFINE THE PUBLIC REALM

FIGURE 1
Urban buildings define space.

FIGURE 2
The Academic Building and the Academic Quadrangle.

FIGURE 3
Halbouty Geosciences Building and Ross Street.

FIGURE 4
Nagle Hall.

FIGURE 5
Veterinary Medical Sciences.

FIGURE 6
Hart Hall.

FIGURE 7
Academic Building.

FIGURE 8
Williams Administration Building.

FIGURE 9
Francis Hall.

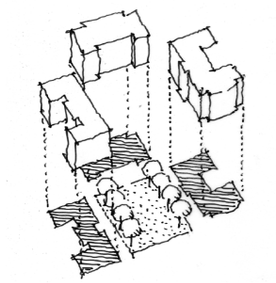
FIGURE 10
Bizzell Hall.

Urban vs. Suburban Buildings

The plan configurations of some building types strongly suggest their ability to define streets and quadrangles, and to cooperate with other buildings in creating blocks; or conversely, their inability to do these things.

In general, buildings referred to as "urban" appear slimmer in plan, have more regular perimeters along the edges of streets and quadrangles, and are lower, whereas buildings of "suburban" type are thicker, have agitated perimeters, no discernible "front" and "back," and are taller. The form characteristics of urban buildings allow them to be positioned more closely together, rather than demanding a surrounding buffer of open space; they are conducive to the formation of urban blocks. This has the benefits of allowing an increased density of construction and also giving stronger definition to streets and open spaces.

Suburban buildings do not align on streets and quadrangles and do not have forms conducive to the definition of legible public space. They tend to assert their individuality and separateness more than their participation in a shared enterprise.



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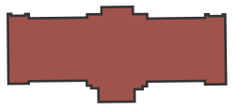

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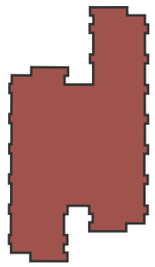

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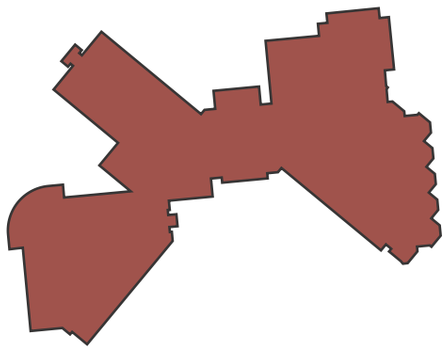

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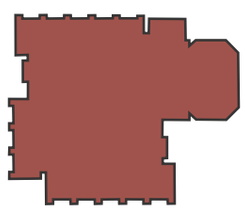

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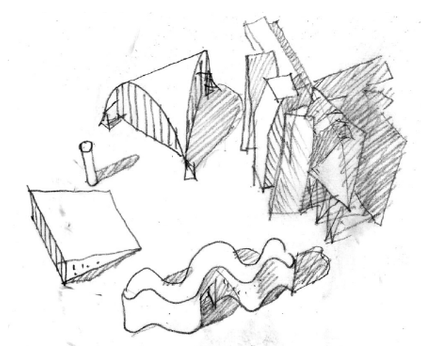
Suburban buildings disengage from neighboring buildings and have a perfunctory relationship to outdoor space. They tend not to have facades, and are not sited so as to frame space. They are often inarticulate buildings—their exterior expression is not one of conceptually clear components organized to create a hierarchy of scales, patterns, and rhythms, but rather of a sprawling or hulking mass, shaped more by expediency than by an intention to address and define the public realm. Their landscape design is generally meager in intent and realization.

At Texas A&M, urban buildings are mostly of the pre–World War II period, and suburban buildings are post–World War II, particularly from the 1960's and after. The visual appearances of urban and suburban buildings generally reinforce the predilections of their plan configurations. Traditional buildings are designed to form a community with their neighbors, and to engage the outdoor space on which they front. Modern or suburban buildings are generally designed to assert their individuality as free-floating forms that place little value on outdoor space.



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SUBURBAN BUILDING TYPES DO NOT ENGAGE AND DEFINE OUTDOOR SPACES

FIGURE 11
West Campus Library Facility

FIGURES 12 AND 13
Heep Center for Soil and Crop Sciences.

FIGURES 14 AND 15
Wehner Building.

FIGURES 16 AND 17
Kleberg Animal and Food Sciences Center.

FIGURE 18
Suburban buildings consume space.

HISTORIC CAMPUS BUILDINGS

Universities are defined not only by their mission, but also by their history. That history is reflected by the campus environment and what remains from various periods in its existence. Significant landscape features, important components of the civic structure, and historic buildings all contribute to the linkage with the past. It is unfortunate that all too often our history is discarded in the name of modernization and progress. As a society, we lose a sense of permanence and community with our predecessors when this happens.

Texas A&M University

The University has a beautiful historic core. Outdoor spaces are defined by buildings that contribute to the campus's identity. The grandest of these buildings, such as the Academic Building and the Williams Administration Building, serve as focal points for the entire campus. They should be preserved at all cost. Others, including Chemistry, Scoates, the YMCA Building, Francis Hall, Sbisa, Halbouty, Civil Engineering, Cushing, History, Psychology, Military Science, Butler, Nagle, and Bolton are more modest in scale and design, but nevertheless contribute to the overall campus fabric at a finer-grained level. Every effort should be made to preserve these buildings as well. Both the grand and modest buildings define the civic structure of the campus and contribute to its memorable character. Many incorporate elegant details that speak to the University and its original mission as a land grant institution.

Other structures contribute to the campus fabric as background buildings, but have a potentially limited life expectancy. Hart, Walton, Bizzell Hall, Leggett Hall, and the Corps Dorms fall into this category. These buildings should not be demolished until a process is in place that will produce buildings that are at least as good in terms of the design and detail of their facades and the definition they give to outdoor space. Any contemplation of replacement of the Corps Dorms, for instance, should give careful consideration to the contribution that these buildings make to the campus's civic structure. The north-south pedestrian mall created by the Corps Dorms is an important link between the southern part of campus and the library area and should be maintained in any replacement scenario.

A long-term strategy should be developed for the buildings mentioned as candidates to be preserved. Some of these buildings may require additions to allow them to better adapt to their changing mission. The Master Plan has made limited recommendations for such additions, the most notable being the History Building and the Memorial Student Center. Additions to these buildings should be complementary in scale, proportion, materials, fenestration, and rhythm, but they need not match the architecture of the original building. Unfortunately, no examples of high-quality, sensitive additions exist on campus (with the possible exception of Sbisa).

The changing nature of teaching and technology, along with soils that have the potential to cause structural damage, make the preservation of historic buildings on this campus difficult. Care should be given to the introduction of new systems, be they mechanical, electrical, information technology, roof, or glazing, to ensure that they do not detract from the original appearance of the building. The replacement of the Academic Building's original windows with bronze anodized aluminum ones is an example of an unfortunate intervention, while the addition of ramps on either side of the Academic Building's west entrance is an example of an approach that preserves the integrity of the original building.

Despite the difficulties and occasional high cost of preservation, the University should make it a priority. These buildings define the character of the campus and convey its history, and they should not be lost in the interest of progress.

It bears noting that few buildings built after World War II are identified for preservation. For the most part, these buildings do not contribute substantially to the campus environment. Buildings such as the Memorial Student Center have great sentimental value and functional utility, but contribute little to the architectural fabric of the campus. While the MSC is scheduled to remain, significant additions are indicated that will alter its character. Other buildings, such as Albritton Bell Tower and the Bush Library will be candidates for preservation in the future. New buildings on the Texas A&M campus in such a way that future generations will want to preserve them.

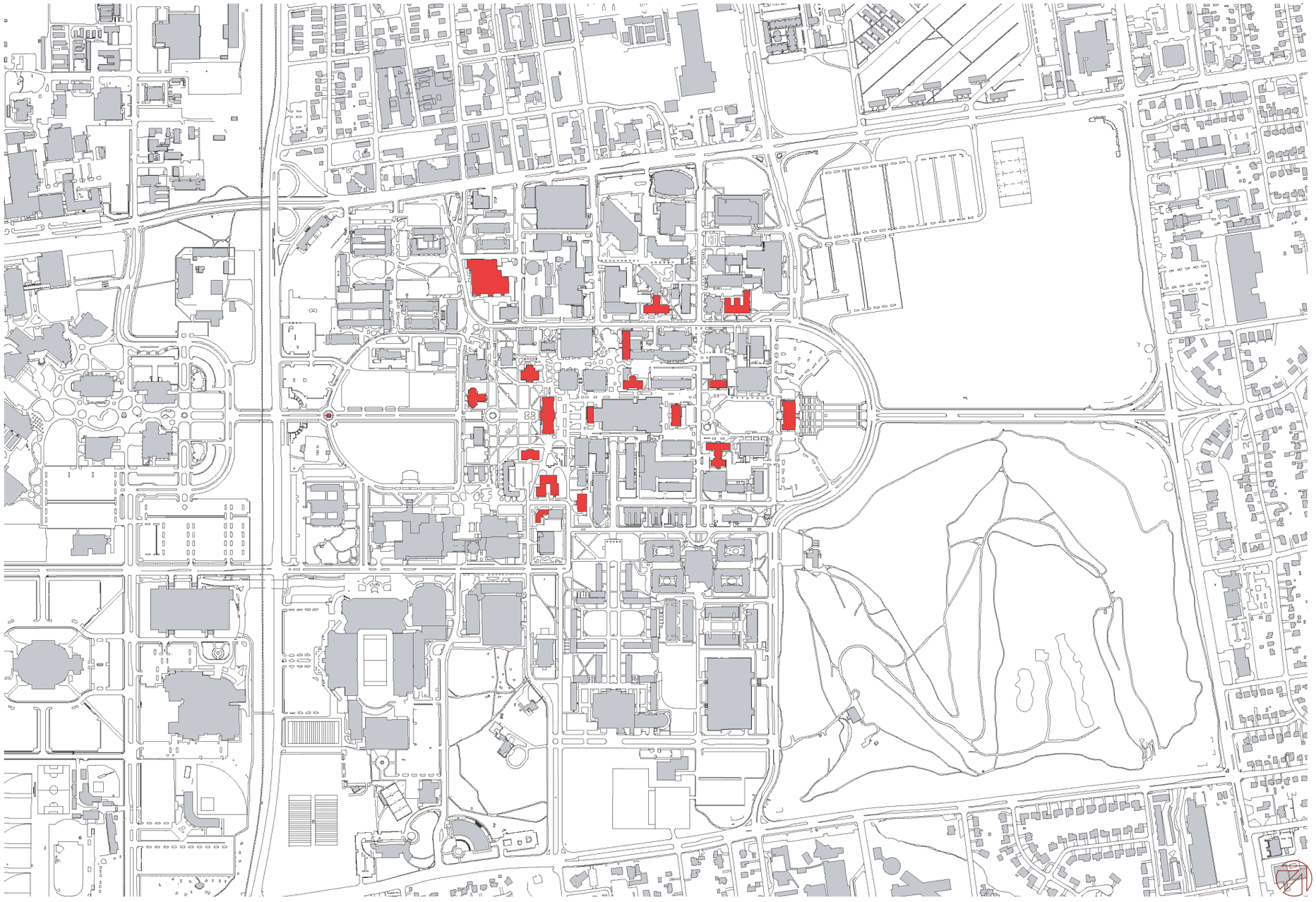

FIGURE 1
Campus diagram indicating historic buildings to be preserved.

HISTORIC BUILDINGS TO BE PRESERVED

FIGURE 1
Williams Administration Building.

FIGURE 2
Academic Building.

FIGURE 3
Nagle Hall.

FIGURE 4
Civil Engineering Building.

FIGURE 5
Psychology Building.

FIGURE 6
Halbouty Geosciences Building.

FIGURE 7
Butler Hall.

FIGURE 8
Sbisa Dining Hall.

FIGURE 9
Cushing Library.


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HISTORIC BUILDINGS TO BE PRESERVED

FIGURE 10
Francis Hall.

FIGURE 11
Animal Industries Building.

FIGURE 12
Animal Industries Building, Annex.

FIGURE 13
YMCA Building.

FIGURE 14
History Building.

FIGURE 15
Scoates Hall.

FIGURE 16
Bolton Hall.

FIGURE 17
Military Science Building.

FIGURE 18
Chemistry Building.

SITE OPPORTUNITIES

The first step in making the proposed architectural plan was to identify short and long-range site development opportunities.

Although there is still a significant amount of open space in East and West Campus, no site is completely unencumbered. Most sites that are currently unbuilt are dedicated to active recreation, to public parks, to research, or to parking. If the dual goals of maximizing building development and optimizing the campus environment are to be achieved, then some uses, such as parking and nonacademic administrative support, will have to be relocated, and inefficient buildings or buildings that underutilize their sites will have to be replaced or altered.

The sequence, strategy, and phasing of these possibilities were not within the scope of this plan. Rather, the goal was to determine which sites could be made available for academic and student services uses.

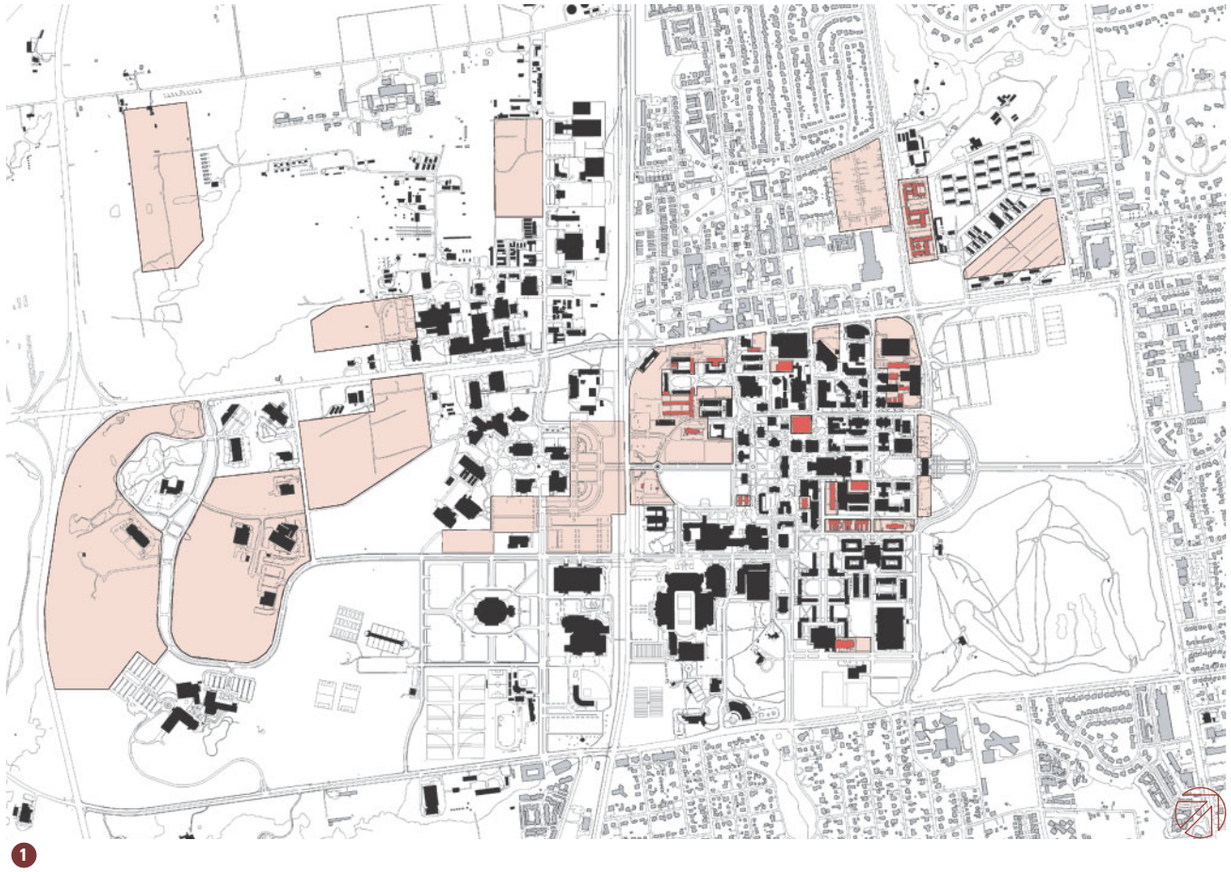

FIGURE 1
Site Opportunities in the one-to-twenty-year time frame.

Site opportunities 1 to 20 years.

Buildings to be demolished 1 to 20 years.

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FIGURE 2

Site Opportunities in the one-to-fifty-year time frame.

Site opportunities 1 to 50 years.

Buildings to be demolished 1 to 50 years.

FIGURE 1

The Architectural Plan.

Existing buildings

Proposed buildings

THE ARCHITECTURAL PLAN

1

The Architectural Plan is one of the three main parts of the Campus Master Plan. It is consistent with the Long Range Plan and supports the Landscape Plan, but for clarity and convenience, it is articulated as a stand-alone element.

The plan illustrates the location, configuration, and urban intentions of future buildings. It increases the functionality, legibility, and beauty of the Texas A&M campus by arranging buildings so as to reinforce the campus's civic structure. The Plan will guide the growth of the campus by establishing its long-range density, coverage, and building capacity.

The Architectural Plan depicts specific shapes for building footprints. However, it is impossible to precisely predict future functional and area needs: the uses and configurations of individual buildings must be able to change without destroying the larger idea of the Plan. In other words, the building shapes are illustrative only. The primary building facades are fixed, however, and must adhere to the build-to lines of the "Regulating Plan" illustrated in the Long Range Plan. This is to help ensure that each building fulfills its public role by defining public space and relating to the larger community of buildings. As buildings are designed, they may deviate in small ways from the plan, but they may not significantly alter the spatial configuration of the civic structure.

The areas of the proposed buildings are implicit, given the plan configurations and an assumed average of three to five floors. This is, of course, approximate. No functional uses have been assigned to individual buildings.

The plan indicates that the building area of the central campus can be increased by approximately 9,000,000 gross square feet: from ca. 15,000,000 gross square feet of existing space to ca. 24,000,000. This additional building area would accommodate about 50 years of growth at an average rate of one percent per year—the average of most universities over the last 40 years.

The plan, and the square footage figures above, are based on the assumption that the new buildings will be in the range of three to five floors in height. Buildings of this height will be compatible with the traditional buildings of the campus core and will generate a similar density. They will produce a better physical environment than would high-rises, an environment that will reflect the mission of the University.

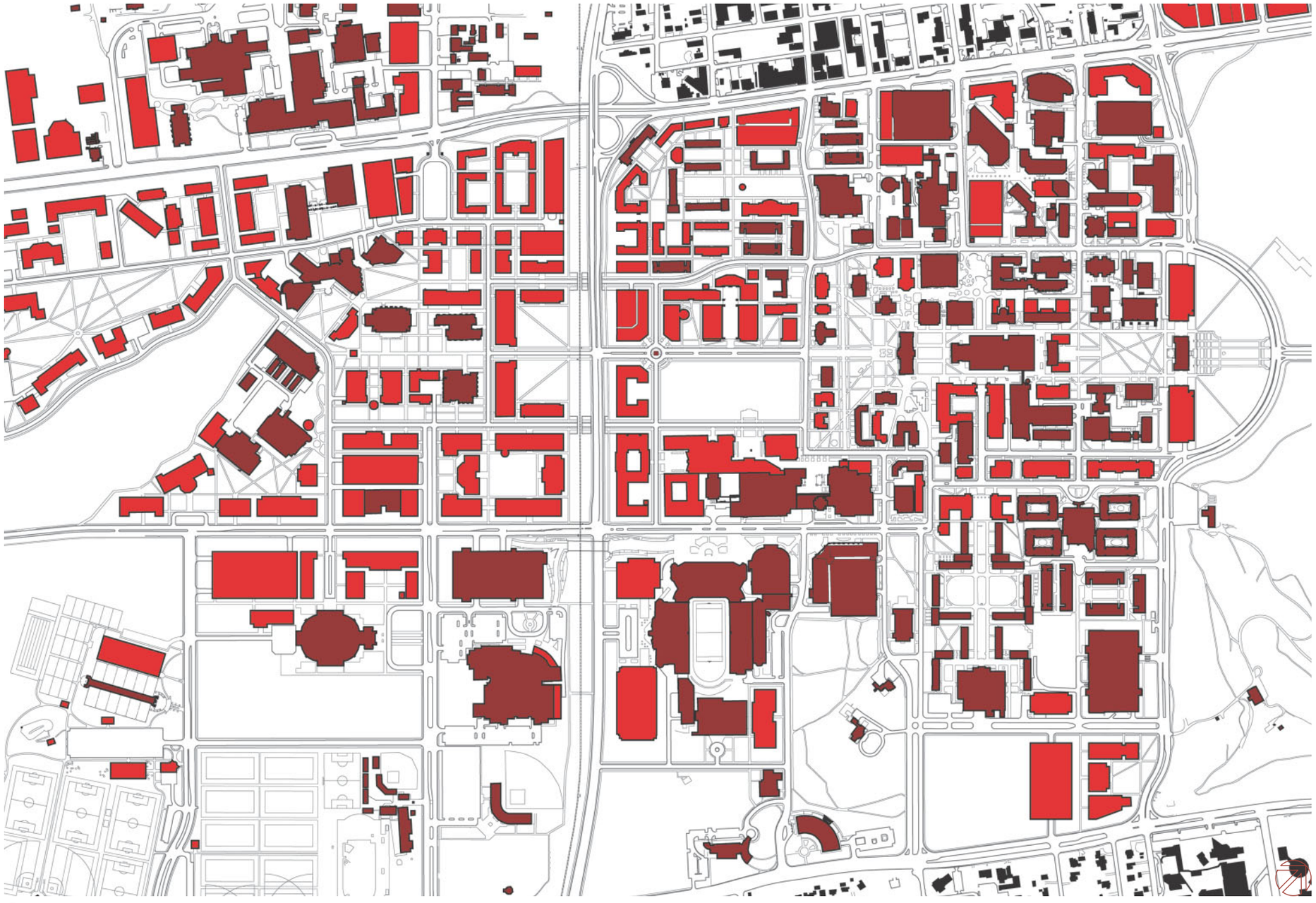

FIGURE 2

Detail of the Architectural Plan.

Existing buildings

Proposed buildings

ARCHITECTURAL PRINCIPLES

Introduction

Campus buildings are formal public statements of Texas A&M University's aspirations to excellence. They are permanent expressions of the University's commitment to the quality of the public realm in which education occurs. They are representations of what that public realm is and ought to be like.

The buildings of the campus core, particularly those by S. C. P. Vosper and Frederick Ernst Giesecke in the early part of the twentieth century, establish a standard of high architectural quality and a vocabulary of architectural elements, and do much to make the campus core a memorable and beautiful place. Their siting and massing, the design of their facades, their materials and colors, and their references to the region's agriculture, landscape, and economy all evoke a sense of community and shared purpose, and place them in a positive relationship with outdoor campus spaces and neighboring buildings. These buildings respond to and contribute to the civic structure of the campus, establishing a connection between architecture and landscape, and in a larger sense between the natural environment and the man-made. The principles underlying their architecture should guide the design of new buildings at Texas A&M University.

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FIGURE 1
The east facade of the Williams Administration Building.

The architectural vocabulary of new buildings should be compatible with that of the buildings of the campus's historic core. The elements of this language include masonry construction, vertical punched windows, and loggias and arcades. Entrances and lobbies are often elaborate and inventive and provide important places for chance meetings. This architectural language is capable of great variety, from historic representation to more abstract modern reinterpretations. The design of new buildings should be inspired by this language, incorporating and reinterpreting its elements.

Each building on the campus should have its own identity, but should also contribute to the larger community by reflecting shared architectural and urban conventions. Architectural style is the least important characteristic of buildings. Architectural type and the compatibility of materials and colors are far more important.

The architectural principles, and the more detailed guidelines that follow them, are not meant so much to limit an architect's invention as to guide it—reminding the architect that buildings have both public and private responsibilities. The best buildings on the Texas A&M campus—whether old or new—illustrate these ideas.

The Architectural Principles

The Architectural Principles are the guiding ethic that underlies the plan. The intent of the principles is to produce buildings that support the civic structure of the campus by defining and engaging outdoor public spaces—buildings that complement and reinforce the spatial framework provided by the Landscape Plan. Adherence to the principles will guide the completion and repair of the pattern of buildings on the campus.

The principles are intended to be general—on the level of the Architectural Plan. They are expanded upon in the next section by the more detailed Architectural Guidelines. These will be augmented in the future by the more detailed guidelines in District Plans and Site Development Plans for specific sites. The principles and the guidelines are intended to give the campus a

harmonious scale and character, to reestablish a positive relationship between its architecture and its landscape design, and to enrich its sense of place.

The first nine of the principles pertain in general to all architecture on campus, but are particularly keyed to academic, administration, and student services buildings. Other building types—parking garages, private research buildings, physical plant support buildings, agricultural buildings, etc.—are addressed in the tenth principle.

The Architectural Principles convey the general intent of the master plan. Possible variations for specific projects on specific sites will be discussed as part the design review process, and will be evaluated in terms of their contributions to the project and to the campus as a whole.

Architectural Principle **1: Urban Buildings**

Buildings are to be "urban buildings," designed in support of the civic structure of the campus. Buildings must engage and define the streets, quadrangles, courtyards, and parks of the campus. This requirement affects the siting, massing, and typology of buildings, the alignment of their facades relative to outdoor spaces and other buildings, the composition of their facades, and the location and form of their entrances. Existing suburban building types—buildings that do not engage and support outdoor space—should be transformed.

Architectural Principle **2: Building Heights**

Buildings are to be compatible in height with the buildings of the historic core of campus. To adequately define the public spaces of the campus, maximize the limited remaining building site opportunities, and preserve the quality of outdoor spaces, buildings should generally be no less than three stories and no more than five stories in height.

Architectural Principle **3: Facades**

Building facades are to be articulated into constituent parts in order to mediate between the pedestrian scale and the scale of the building, provide visual continuity with neighboring buildings, and engage the landscape design of campus open spaces. Buildings should have a base, middle, and top. An articulate ground floor is especially important, as it reinforces the building's connection with the street or quadrangle on which it fronts.

Architectural Principle **4: Building Entrances**

Building entrances are to be places to meet and rest, as well as graceful transitions between outdoors and indoors. They are to be clearly visible and recognizable, and should have a direct relationship to the public open space on which the building fronts. Primary lobby and circulation spaces inside the building should be designed as extensions of the campus spaces outside.

Architectural Principle **5: Identity and Variety**

The identity of the campus, and of individual buildings, should be reinforced by expressive architectural detail.

Architectural Principle **6: Building Materials**

Buildings are to be of masonry construction, with punched windows. Colors of exterior materials are to be compatible with those of the campus's historic core.

Architectural Principle **7: Additions to Buildings**

Additions are to be compatible with good existing buildings, and are to transform buildings that suffer from weak relationships to outdoor public space.

Architectural Principle **8: Building Services**

Mechanical equipment and loading docks are to be hidden from pedestrian view.

Architectural Principle **9: Sustainability**

Buildings are to be designed with environmentally sustainable features to minimize the environmental damage caused by their construction, and to minimize operational energy use.
Qualification for a LEED silver rating should be a goal.

Architectural Principle **10: Nonacademic Buildings**

Nonacademic buildings, such as parking garages, physical plant buildings, private research buildings, etc., are to adhere to these principles and guidelines as appropriate to their function and location on campus.

FIGURES 1, 2, & 3

The Academic Building exemplifies the relationship between architectural form and campus civic structure. Sited on high ground, the building defines quadrangles on all four sides. These quadrangles range in character from grand and ceremonial to intimate and informal. The building's internal circulation system—its entries, hallways, and central rotunda—links the surrounding quadrangles together. The rotunda's dome is a campus-wide landmark. The broad facade of the building faces the view to the west, and its portico engages the axis of Old Main Drive, the original campus entrance.

ARCHITECTURAL GUIDELINES

The best buildings at Texas A& M are well designed and well sited, and do much to create a memorable sense of place. New buildings should achieve the same level of quality.

The design of campus buildings as pertains to their contribution to the campus's civic environment is concerned with six interrelated issues:

- the relationship between buildings and the outdoor spaces of the campus
- the form and massing of buildings
- the design of their exterior walls, particularly the primary facades that address quadrangles, streets, courtyards, and parks
- the design of building entrances
- colors and materials
- architectural expression and detail

The following Architectural Guidelines augment the intent of the principles by more detailed prescriptions for architectural elements. They are organized topically, following the sequence of the architectural principles.

Architectural Principle 1: Urban Buildings

Buildings are to be "urban buildings," designed in support of the civic structure of the campus. Buildings must engage and define the streets, quadrangles, courtyards, and parks of the campus. This requirement affects the siting, massing, and typology of buildings, the alignment of their facades relative to outdoor spaces and other buildings, the composition of their facades, and the location and form of their entrances. Existing suburban building types—buildings that do not engage and support outdoor space—should be transformed.

Urban Building Guidelines

The form and character of a campus derive from its buildings, its landscape, and the success with which architectural and landscape design work together to create a coherent environment. "Urban buildings" are designed to make the outdoor spaces between buildings—the campus's streets, quadrangles, and courtyards—as important as the buildings themselves; to make them the outdoor equivalent of rooms. Architecture is to complement landscape in creating, framing, and articulating these spaces, delineating their three-dimensional form, creating visual reference points, emphasizing spatial axes, and giving spaces specific identity and character.

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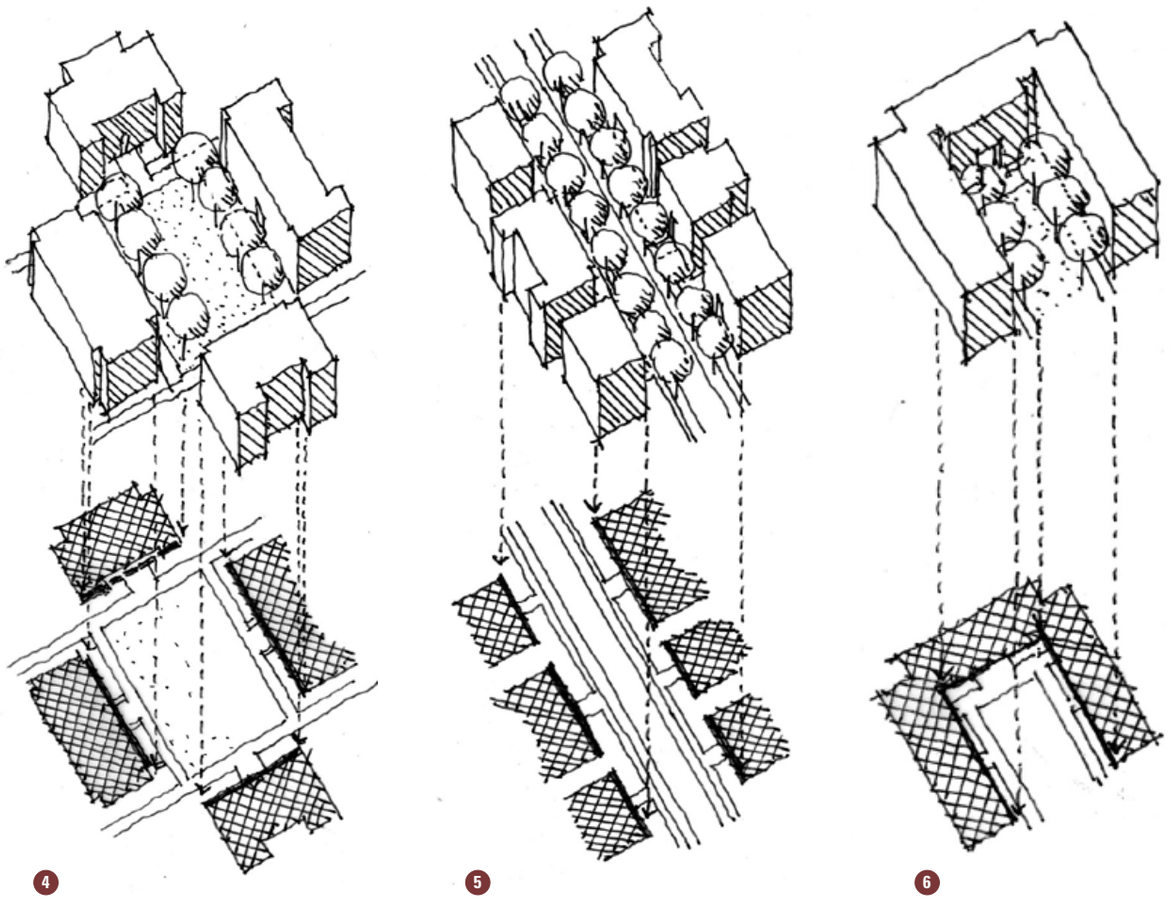

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Buildings should align on the quadrangles, streets, and courtyards of the campus. There must be sufficient continuity of building surface (facade) to give coherent visual definition to outdoor open space. The alignments of facades are given by the build-to lines indicated on the Regulating Plan.

This is a fundamental guideline intended to preserve and extend the existing architectural character of the core of the campus. The most beautiful parts of the campus are formed by buildings that adhere to this guideline. Many of the postwar buildings do not.

FIGURE 4
A quadrangle, defined by buildings, their facades located according to build-to-lines.

FIGURE 5
A street, defined by buildings, their facades located according to build-to-lines.

FIGURE 6
A courtyard, defined by a single building, and indicated by the reguating plan.

FIGURE 7
The History Building engages and defines the space between it and the Evans Library.

FIGURE 8
The buildings on Ross Street align to define the volume of the street.

FIGURE 9
The Memorial Student Center defines an open-sided courtyard.

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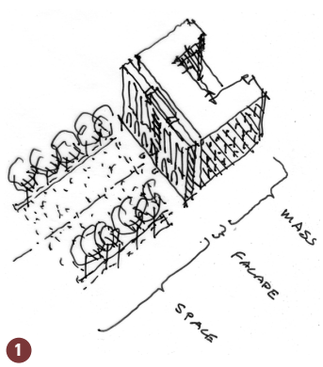
FIGURE 1
A facade addresses and defines outdoor space.

FIGURE 2
The west facade of the Williams Administration Building defines the end of the East Quadrangle.

Every building should have at least one facade. A building's facade is analogous to the human face in that it represents the building to the world, and is the primary means by which the building fulfills its responsibility to the public realm. It delineates the three dimensional volume of outdoor space. Its architectural treatment contributes to the character of space, and gives architectural expression to the building's mass. It mediates the dimensional characteristics of the building's structure and the programmatically driven arrangements of its interior so as to present a more idealized, more generalized vision of what the academic environment represents.

Buildings are to address campus spaces with facades. To establish a clear relationship between the building and the outdoor space before it, a building's facade should generally be nominally rectangular and planar. A building's facade, in conjunction with those of neighboring buildings, and with campus landscaping, defines the volume of outdoor space—a quadrangle, for instance—in analogy to the way the wall of an interior room defines its volume. An example of this at Texas A&M is the way the Williams Administration Building's west facade gives definition, scale, and order to the East Quadrangle.

Facades are to incorporate primary or symbolic building entrances.



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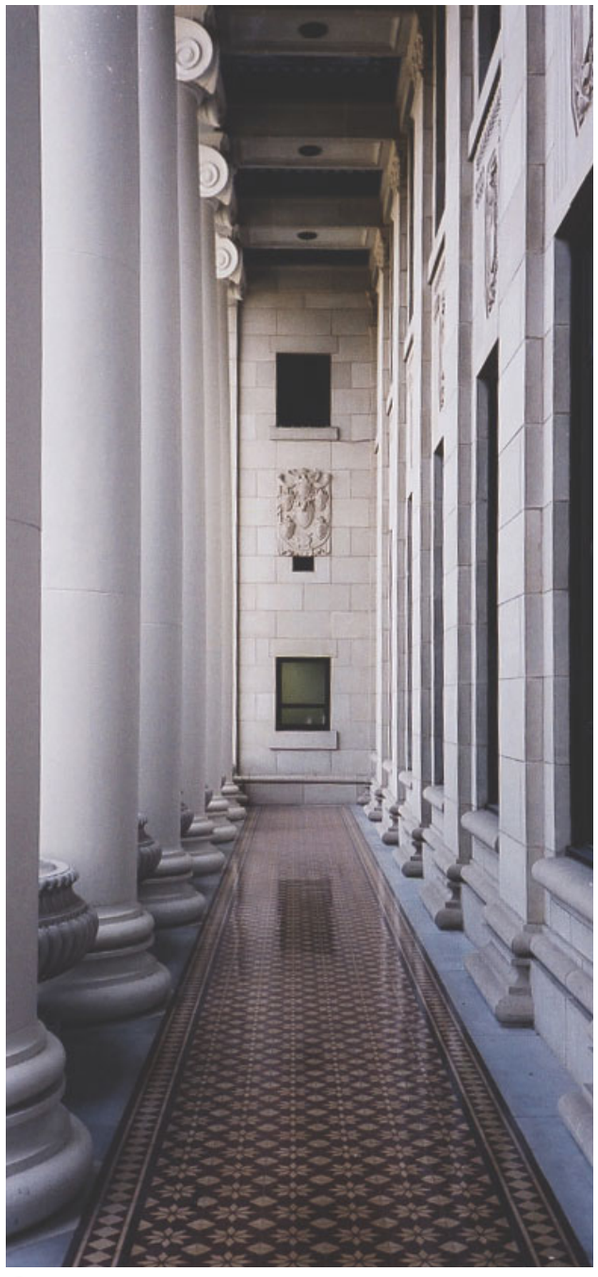
Facades should be distinct from elevations. The facade is more formal and symbolic than the less honorific elevations that occur on secondary and interstitial spaces. The distinction between *facades*, addressing primary spaces, and *elevations*, addressing secondary spaces, adds clarity and hierarchy to the civic structure of the campus.

Secondary and tertiary outdoor spaces should be addressed by elevations. Elevations may be more casual or ad hoc and less honorific than facades, more noticeably conditioned by exigencies of the building's interior arrangements, and may incorporate secondary entrances.



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Buildings are to incorporate loggias, colonnades, and porticoes. In distinction to the enclosed and climate-controlled mass of a building, loggias, colonnades, trellises, porticoes, and pergolas are open and permeable, and are not dedicated to a specific programmatic purpose. They are amenities for the users of the building and campus, and they create a transition between the scale of the campus as a whole and the building interior. They may be integral to the building—either carved into its volume (as is the colonnade on the east facade of the Williams Administration Building), or projected in front of it (as is the west portico of the YMCA Building). They may also be more or less freestanding elements that provide shelter and define space (there are no examples of this at Texas A&M, although the arcades at the north end of the Corps Dorms would come close if they incorporated a roof or trellis).

Loggias may be space-defining elements or pedestrian circulation routes. Often they are both. There are few examples at present at Texas A&M, but they are prominent and beneficial: particularly those at the east face of the Williams Administration Building, and the north face of the Koldus Student Services Building. As circulation elements, loggias provide shelter and celebrate the transition between inside and outside. As facade elements, they create depth and shadow, and are often the most detailed and expressive element of the facade. The figural qualities of their columns and piers humanize the facade and give it scale.

FIGURE 3
The colonnade of the Williams Administration Building.

FIGURE 4
The portico of the YMCA Building.

FIGURE 5
The Arcade at the Corps Dorms.

FIGURE 6
The Loggia of the Koldus Student Services Building.

Where possible, buildings are to enclose courtyards. Courtyards provide shade, create a semipublic/semiprivate communal place for the users of the buildings, and provide an extended transitional space between indoors and outdoors.

Courtyards should be conceived as integral components of the building's circulation system. They are outdoor rooms larger and more generalized in purpose than the rooms inside the building, yet smaller and more intimate than quadrangles. In some cases, courtyards link the street or quadrangle on which the building is sited to the building's actual entrance, and so to the building's interior. In other cases they are more like exterior rooms within the plan of the building, providing light and air to adjoining spaces and serving as destinations.

Courtyards may be defined by buildings and loggias; they may be open on one side, or enclosed on all four sides. Courtyards may be framed by a single building, or they may be framed by a group of buildings that are sited close enough together and are sufficiently related in their form and appearance to define a shared space.

Courtyards should have a height-to-width ratio in the range of 1:1.5 to 1:2.5. If they are taller than 1:1.5, they become more like lightwells than courtyards. If they are wider than 1:2.5, they lose their intimate room-like quality.

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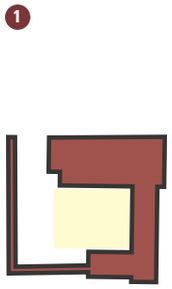

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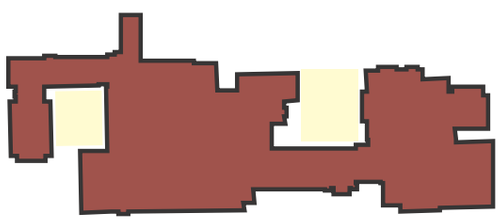

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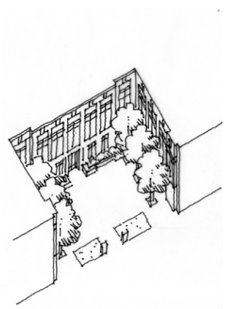

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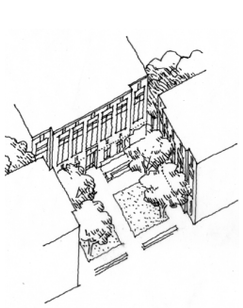

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FIGURE 1
The courtyard within the Memorial Student Center.

FIGURE 2
The courtyard of All Faiths Chapel

FIGURE 3
The Memorial Student Center and the Rudder Complex frame two courtyards.

FIGURE 4
Diagram of a courtyard framed on three sides by a single building

FIGURE 5
Diagram of a courtyard framed on three sides by three separate buildings.

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Existing "suburban" buildings—buildings that as a result of their form and appearance do not have a positive relationship to outdoor space—should be replaced or transformed by architectural and landscape additions. Transformation of these buildings may include the addition of new wings so as to frame or engage outdoor space and mask inarticulate elevations, or the replacement of facades to better address neighboring buildings and spaces; or it may involve the addition of entirely new buildings, designed and positioned to define new and positive spaces around the offending building. In some cases the situation may be improved by the redesign of landscape so as to provide the missing spatial order and definition. Detailed consideration of these options should be undertaken in precinct studies.

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FIGURE 6
The existing view of the suburban buildings of West Campus from Albritton Tower.

FIGURE 7
The proposed buildings framing the new quadrangle west of Wellborn Road both define space and mask the Kleberg Center and the Heep Center when seen from the core of campus.

FIGURE 8
Wehner Building: existing site plan.

FIGURE 9
Wehner Building: proposed remedial landscape and additional buildings.

FIGURE 1
Aerial photograph of the Academic Quadrangle showing the unifying effect of the three-to-four floor building height typical in this part of campus. The dome of the Academic Building, centered on the axis of Old Main Drive, projects above this standard height and serves as a visual focal point.

FIGURE 2
Sketch of a four-floor building whose top floor is set back from the plane of the facade so as to respect a three-floor datum line.

Architectural Principle **2: Building Heights**

Buildings are to be compatible in height with the buildings of the historic core of campus. In order to adequately define the public spaces of the campus, maximize the limited remaining building site opportunities, and preserve the quality of outdoor spaces, buildings should generally be no less than three stories and no more than five stories in height.

Building Height Guidelines

The buildings of the campus core accommodate large and complex programs, but also foster a humane and pleasant environment. This is in part due to the heights of these buildings. Their upper cornices are at a consistent enough level to delineate the volume of the streets and quadrangles upon which they front.

Buildings should in general be three to five floors in height above grade. This "standard" height gives consistency to the campus, fosters relationships between buildings, and creates a rough correspondence between building height and the height of the canopies of shade trees. Buildings in the three-to-five story range can achieve an equal or greater area capacity than taller buildings with large setbacks, and they make for a better campus environment. Slender towers and other picturesque elements may break the height limit, and create a more varied skyline, but high-rise buildings should be avoided.

If greater enclosed volume is needed than can be accommodated in five floors, the additional upper floors should be set back from the building's primary faces, and their facades should be treated as penthouse or roofscape elements, differentiated from the design of the primary facades below.

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Taller exceptional elements—including towers, domes, and other roofscape elements—should be designed and located in response to particular circumstances of the campus's civic structure. These elements serve as points of reference and emphasis in the plan of the campus. They mark axes, articulate corners of buildings, and serve as visual foci for outdoor spaces. In some cases they are freestanding elements, but more typically they are articulated components of a building's massing and form.

There are currently few examples of this kind of civic element at A&M, but the ones that are present perform important roles in clarifying the structure of the campus. Albritton Tower and the dome of the Academic Building define the axis of Old Main Drive and provide points of visual reference throughout Mid and West Campuses. Kyle Stadium may also be thought of as performing this function: its western face is visible for miles and serves as a landmark for the entire campus. The Regulating Plan indicates the locations of the most important of these new points of emphasis.

FIGURE 3
The proposed paired towers framing the western extension of Old Main Drive.

FIGURE 4
The Albritton Bell Tower marks the axis of Old Main Drive and serves as a visual reference point for much of campus.

FIGURE 5
The dome of the Academic Building marks the center of campus. The related projecting bays of the building's facade carry the visual influence of the dome down to the ground. The implicit pavilion thus formed links the arched entrances at ground level with the dome, and creates visual foci for the Library and Academic Quadrangles.

Architectural Principle **3: Facades**

Building facades are to be articulated into constituent parts in order to mediate between the pedestrian scale and the scale of the building, provide visual continuity with neighboring buildings, and engage the landscape design of campus open spaces. Buildings should have a base, middle, and top. An articulate ground floor is especially important, as it reinforces the building's connection with the street or quadrangle on which it fronts.

Guidelines for Facades

To clarify the form and scale of outdoor space, and to strengthen the relationships between neighboring buildings, facades are to be articulated into constituent parts. They should incorporate a base, middle, and top. Repetitive bays establish a relationship between the building as a whole and the large scale of primary campus spaces, while singular facade elements relate to the specifics of circulation routes and details of the campus plan. Building entrances and the ends of facades should be emphasized or differentiated from the typical repetitive bays.

These constituent parts are to be geometrically organized and interrelated so as to present coherent and harmonious compositions. The relative emphasis of these parts, and the means of their synthesis into an architectural whole, are conditioned by the specifics of the building's site and program and depend on the artistic sensibilities of the architect.

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FIGURE 1

The entry facade of the Military Sciences Building exemplifies the complementary nature of landscape and architectural design:

The entry facade addresses the entry plaza directly and frontally.

The trunks of the trees frame the facade.

The canopy of the trees reiterates the height of the facade and creates an implied ceiling for the entry plaza.

The cornice's shade and shadow recalls the shade and shadow of the foliage and branches.

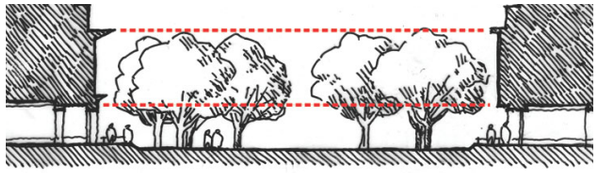
The broad steps and triple arches make the entrance clear and inviting.

The vestibule inside the three arches reiterates, in a more enclosed architectural form, the lacily defined entrance plaza.

The warm color of the brick complements the dark green foliage of the live oaks, and the variegated brick recalls its pattern.

Facades are not restricted to particular styles. In the campus core, buildings of Romanesque, Beaux Arts, Art Deco, and Modern styles are visually compatible and contribute to the collegiate environment. Some are straightforward and unassuming while some are delightfully idiosyncratic, but all define and enrich the public realm.

Facades are to be divided into a base, a middle, and a top. The articulation of facades into base, middle, and top interrelates the scale of the individual and the scale of the campus, creates visual continuity and consistency of scale between neighboring buildings. In conjunction with campus landscaping—particularly canopy trees, but also the paths system and low plantings—the base, middle, and top of a facade define horizontal zones of space. The resulting spatial concordance between the design of the landscape and the design of building facades does much to make outdoor campus spaces feel like occupiable rooms.



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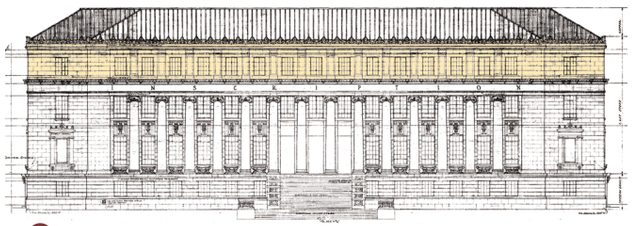
The ***base*** should generally be roughly equivalent to the ground floor of the building and is often more massive in appearance than the zones above.

The ***middle*** generally corresponds to the middle floors of the building, often with repetitive fenestration and facade bays.

The ***top*** typically corresponds to the top floor, but sometimes to the cornice, parapet, and roofscape. Often it is smaller in vertical dimension than the floors below and sometimes is more irregular or fanciful in design.



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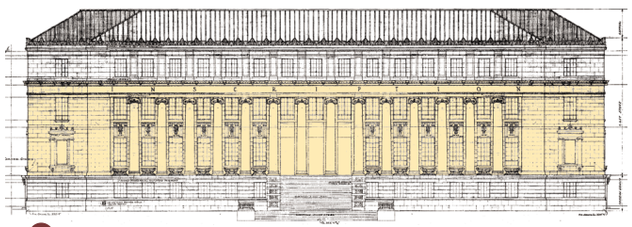

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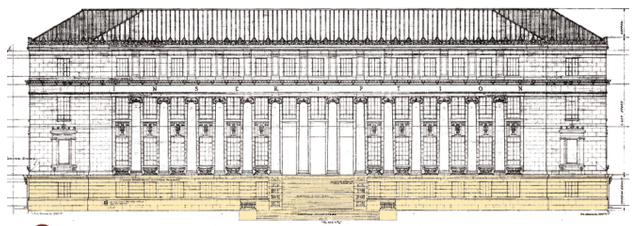

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FIGURE 2
Sketch showing horizontal zones of space that link architecture with canopy trees and give scale to the pedestrian realm.

FIGURE 3
The Williams Administration Building's East Facade - top.

FIGURE 4
The Williams Administration Building's East Facade - middle.

FIGURE 5
The Williams Administration Building's East Facade - base.

FIGURE 6
The strong horizontal projecting stone band at the second-floor level of the Academic Building's facade demarcates the upper bounds of the ground level human-scaled horizontal zone of space. This spatial definition is reinforced by the branches and foliage of the live oaks.

Facades should incorporate repetitive facade bays in accordance with their siting and scale. The specific design of repetitive bays, and the optimum balance between repetitive bays and unique or special elements, is to derive from an analysis both of the building's program and of the characteristics of its site.

The buildings of the Texas A&M campus utilize various strategies for the design of repetitive bays: single windows may be centered in each bay; windows may be grouped in each bay, in pairs or in larger groups; the wall surface may be simple and planar, or it may be articulated by projecting pilasters and horizontal moldings; two floors may be grouped together by the use of pilasters, or by the use of spandrel panels.

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FIGURE 1
The side facade of the YMCA Building. Grand arched windows unite the second and third floors.

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FIGURE 2
The Annex to the Animal Industries Building. The windows are simple squares. The relatively planar wall is articulated into pilasters and implied vertical openings by the relief and pattern of the brick

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FIGURE 3
The Animal Industries Building has an appropriate balance between the repetitive portion of its facade and the special conditions at building corners and entrance.

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FIGURE 4
The Biology Building suffers from too much repetition: the same bay is wrapped continuously around the building, eliminating distinctions between wall and corner; base, middle, and top; and typical bay and entrance bay. The effect is of a self-absorbed building, unengaged with its surroundings.

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Repetitive bays should be vertical in proportion. The facade bays of the pre–World War II buildings are generally narrow, ranging from 7'-9" at Scoates Hall and the Civil Engineering Building to 11'-8" at Cushing Library. There are often several facade bays per single structural bay. The small dimension of the bays and their vertical proportion enhance the building's relationship to the scale of the human body. It is recommended that this strategy be maintained—that facades mediate between the dimensions of the building's structural bays and the smaller human scale.

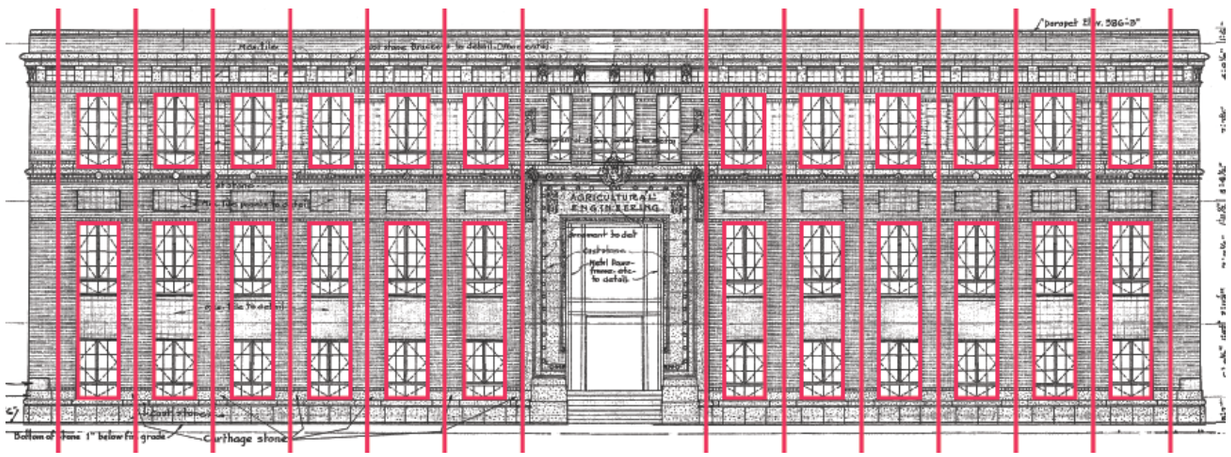

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FIGURE 5
Francis Hall: Paired windows, identical on each floor. The pilasters group the first and second floors together, and distinguish them from the top floor.

FIGURE 6
Scoates Hall: Punched windows in a planar wall, the first and second floors linked by decorative spandrel panels.

FIGURE 7
The Administration Building's West Facade: Ionic pilasters group the second and third floors together.

FIGURE 8
East Facade of the History Building: One window per bay, different on each floor, and visually linked together by the pairs of strong vertical mullions in each window.

FIGURE 9
The repetitive bays of Scoates Hall are 7'-9" in width.

Facades should have differentiated or emphasized ends. Articulated or emphasized ends frame the facade, strengthen the relationship between the building and its neighbors, and embrace the outdoor space before the building. The plane of the facade can be slightly recessed or slightly projected relative to the typical plane of the facade, the ratio between solid wall and window area can be altered, a different pattern of fenestration can be used, etc. The emphasis on the ends of a facade strengthens the definition of outdoor space: the facade embraces the quadrangle in front of the building.

FIGURES 1 & 3
The west facade of the Williams Administration Building: Projecting end bays.

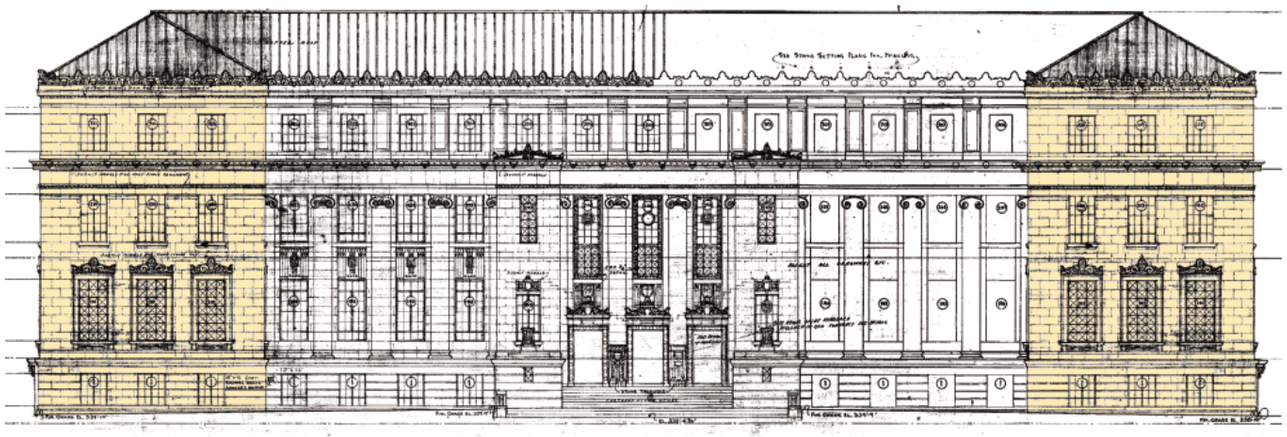

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FIGURE 2
Bizzell Hall: The projecting end bays help define the space between the facade and the trees as an implicit forecourt to the building.

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FIGURE 4
The west facade of the History Building: the projecting end bays of the facade embrace the space between it and Evans Library

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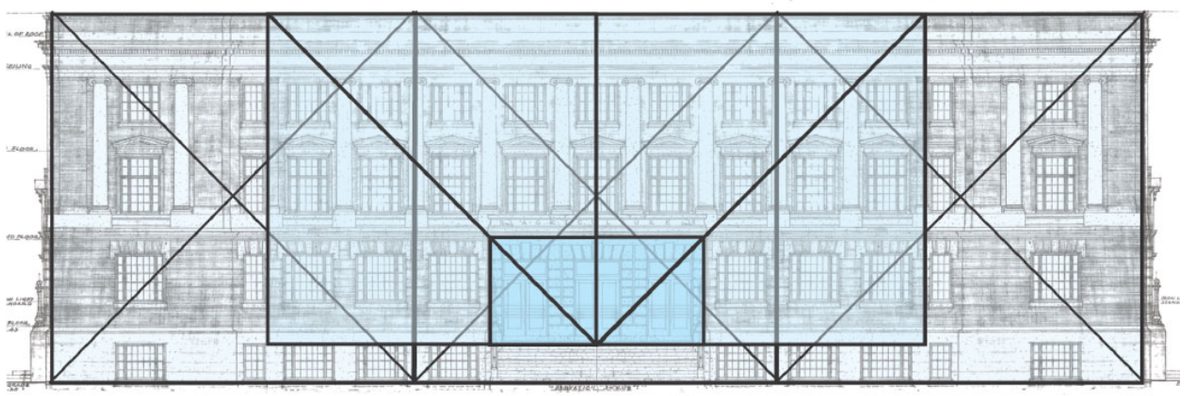

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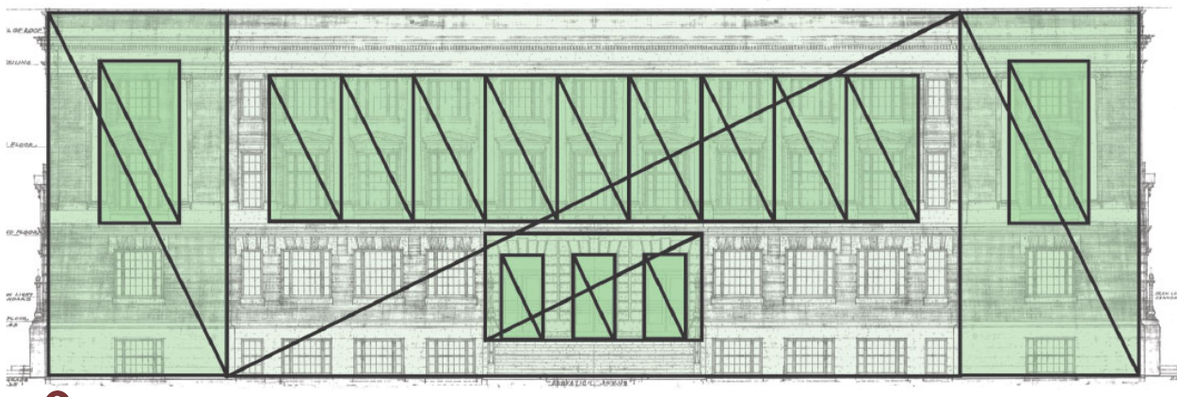

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Facades should be laid out according to regulating lines, which are to be arranged according to proportional systems so as to increase the visual harmony of the facade. Several different proportional systems are generally combined in the design of a facade to create a network of regulating lines. The geometrical relationships between the zones and elements of a facade can both emphasize distinctions between these components and establish connections between them.

Proportional techniques include:

- The reiteration of a certain ratio—at different scales and on different parts of a facade—to give a facade harmony and order.
- The use of certain specific ratios, that through their inherent mathematical properties, create possibilities for harmonious relationships. Of these, the chief is the "Golden Section"—the rectangle whose sides are in such a ratio that when a square is appended to its long side, the sides of the resulting larger rectangle are also in the same ratio. This ratio is 1:$\frac{1+\sqrt{5}}{2}$ or 1:1.61803. Other commonly used ratios include 1:1, 1:$\sqrt{2}$, and 1:2.

FIGURE 5

The History Building's west facade: The entire facade is three squares wide; the central colonnaded portion is two squares wide, measured from the top of the steps to the top of the cornice; and the rusticated triple entrance portal is also two squares wide.

FIGURE 6

The typical columnar bays are 1:2 rectangles, as are the projecting vertical end zones of the entire facade, and the three entry portals. The central portion of the facade is a horizontal 1:2 rectangle.

FIGURE 7

The entire facade, measured from the ground to the main cornice, is two horizontal golden rectangles wide. The projecting ends of the facade, measured from the top of the building's base to the main cornice, are vertical golden rectangles. The central portion of the facade is composed of two golden rectangles, overlapped to define the zone of the central three entrance bays of the facade, which is also a vertical golden rectangle. The typical second floor windows, and the widened columnar bays of the facade's end zones are also golden rectangles.

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FIGURE 1
The Academic Building's west entrance.

Architectural Principle **4: Building Entrances**

Building entrances are to be places to meet and rest, as well as graceful transitions between outdoors and indoors. They are to be clearly visible and recognizable, and should have a direct relationship to the public open space on which the building fronts. Primary lobby and circulation spaces inside the building should be designed as extensions of the campus spaces outside.

Building Entrance Guidelines

A building's entrance consists not only of the doorway or portal itself but also of the larger assemblage of elements that provide environmental and social amenities. These include steps, ramps, railings and balustrades, site walls, benches, sidewalks and paving, planting, lighting, and the architectural elements of the facade that frame and embellish the portal. In the best buildings of the A&M campus, these elements are grouped and arranged to augment the perceived size and importance of the entrance. In some cases, they form a projecting pavilion-like aedicule. In others, the architectural elements of the facade are grouped implicitly to form a symmetrical figure focused on the entrance. In either case, the expanded and emphasized entrance engages the spatial zones and axes of the campus's civic structure.

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Entrances should be clear, prominent, and aligned to the outdoor space upon which the building fronts. A building's entrance is one of the primary ways the building addresses the public realm of the campus. The entrance is a literal and symbolic connection between outdoor space and the building interior and is an important element in the composition of the facade.

The outdoor space before the entrance, the entry portal, and the building lobby are to be parts of a unified pedestrian experience. The building's entrance is more than the literal portal through its exterior wall. In a larger sense, it consists of an extended sequence of spaces: the outdoor space before the portal, the doorway portal itself, and the building's lobby. These should be conceived as constituent parts of an extended single entity, a horizontally connecting figure that links space inside the building with space outside it. It symbolically reiterates that the building is public—that its interior is part of the interconnected network of accessible spaces that make up the campus. It makes the building permeable and open and provides a gracious and commodious public place to meet and talk as one enters or leaves the building.

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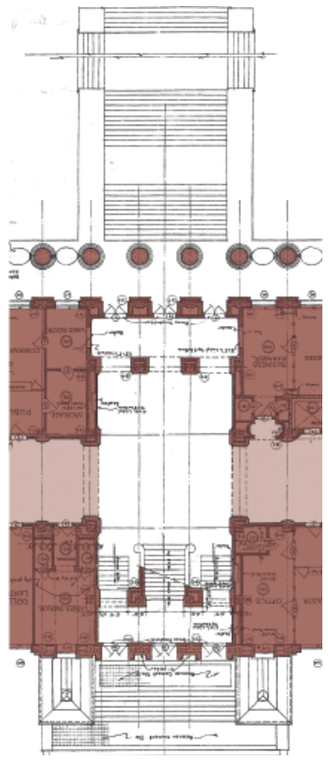
FIGURE 3
The Academic Building's rotunda.

FIGURE 4
The lobby of the Williams Administration Building.

FIGURE 5
The west entrance to the Williams Administration Building.

FIGURE 6
Plan of the Williams Administration Building's lobby and east and west entrances.



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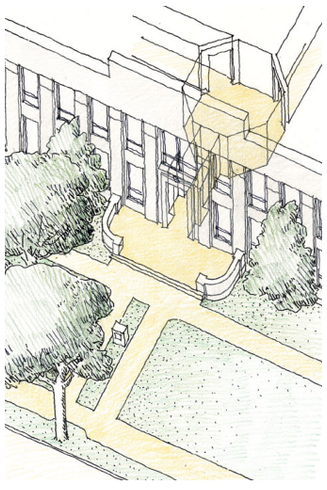
FIGURES 1 AND 2
The entrance to the Civil Engineering Building links the building and the street, and offers a place to stop and talk.

FIGURE 3
The Ross Street entrance to the Reed McDonald Building is forbidding and offers no amenity.

FIGURE 4
The steps of Cushing Library and its entrance portals form a coherent ensemble.

FIGURE 5
The perfunctory entrance to the Kleberg Center.



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The building entrance is both Architecture and Landscape. The outdoor space before the portal is the most elaborate and particularized part of the campus's landscape, and it is the extension of architecture into the landscape. It offers a kind of caesura as one approaches the building—a preparation for entry, a place to pause for a moment and rest, or a place to meet one's colleagues. Design elements include shelter from sun and rain, the entry doors themselves, benches, site walls, plantings, trees, lighting, pavement, paths, stoop, ramps, steps, and so on.

Primary and symbolic entrances should receive particular emphasis and elaboration. The entry portal itself—the doorway and its architectural surround—is one of the most memorable features of many buildings at Texas A&M. The portal itself is often a developed room-like space, a kind of antechamber for the lobby, expressed on the facade. Entry vestibules with double sets of doors to reduce air exchange are a minimal example of this condition, but in more illustrious cases, the portal is developed into a three-dimensional form to enrich the experience of entry.

In most of the older buildings of the campus, the building entrance is visually expanded and integrated into the design of the entire facade. At the Animal Industries and Academic Buildings, the entry is expressed as a projecting pavilion-like aedicule. At the History Building and Nagle Hall, the relatively planar surface of the facade incorporates a subsidiary symmetrical figure of linked and superimposed elements, centered on the entrance and mediating between it and the entire facade. This

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facade-scaled figure reinforces the idea that entering through the doorway is not only a utilitarian act, but also a symbolic one—one of entering the entire building, and so participating in its definition of the outdoor space.

The central figure often gently disrupts the primary horizontal banding of the facade, emphasizing its importance by modifying and displacing the horizontal string courses and bands as it passes through them. In some cases, the central bay of the facade is wider than the others, sometimes slightly and sometimes distinctly, thus subtly altering the repetitive dimensions of the facade's vertical bays.

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FIGURES 6 AND 7

The central figure of the History Building's west facade. The exceptional elements—the white colonnade, the rusticated entrance, and the steps—from a T-shaped figure that contrasts with the typical brick wall of the building.

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FIGURE 8

The pavilion-like entrance to the Animal Industries Building.

FIGURE 9

The grand portal of Scoates Hall.

FIGURE 10

Nagle Hall's north facade. The implicit openness of the three columnar second floor facade bays visually reinforces the importance of the relatively small entrance portal below. The balustrade above the portal is reiterated by the balustrade at the skyline, linking the portal and the columnar bays into a single figure.

FIGURE 11

The entrance to Butler Hall. The steps, portico, and entrance doors visually engage the street. The planting on both sides of the steps visually connects with the foliage of the curbside trees.

Architectural Principle **5: Identity and Variety**

The identity of the campus, and of individual buildings, should be reinforced by expressive architectural detail.

Guidelines for Architectural Identity and Variety

The mullion patterns and framing elements of windows should enrich the reading of the facade. In many of the buildings of the historic core, window mullions are arranged to create a secondary pattern in the design of the facade, a pattern that interlaces with the primary pattern established by the size and position of the window openings.

In these buildings, window mullions occur in a hierarchy of varied widths, visually enriching the facade. The heaviest mullions subdivide the windows into smaller components. As opaque elements, these primary mullions form a visually association with the solid masonry of the wall, and so suggest that the relationship between wall and opening is more than one of simple dichotomy. The thinner mullions further break down the scale of the window and add visual interest. Window-framing elements modulate the solid wall, visually expand the size and importance of the window, and are sometimes designed to be read in association with the major mullions. The patterns created by mullions and frames enhance the repetition of typical facade bays and give the windows a more complex relationship to the solid wall than would be created by minimal rectangular voids of undivided glass.

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FIGURE 1

At the YMCA Building, the mullion pattern reiterates the shape of the opening, and the projecting frame reiterates the dimension of the primary mullions.

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FIGURE 2

At the Psychology Building, the primary mullions are so broad that they form a visual association with the masonry wall.

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FIGURE 3

At the History Building, the vertical mullions of the second floor pedimented window recall the engaged round pilasters that frame the double-height columnar bay, suggesting that the window opening is analogous to the intercolumnar space.

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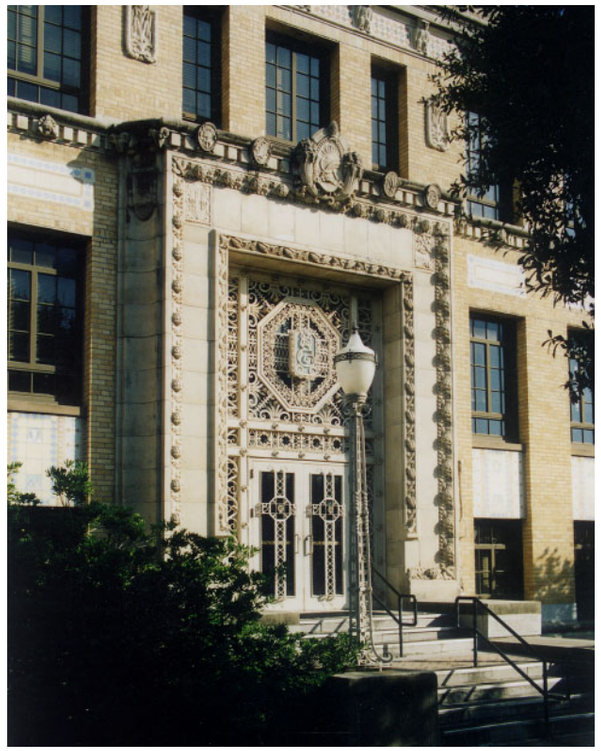

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FIGURE 4
The robust depth of the History Building's west facade.

FIGURE 5
The elegant carved stone detail and rusticated brickwork at the entrance doors of Cushing Library.

FIGURE 6
The taut relief of the Animal Industries Building.

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Facades should be designed with three-dimensional relief. The solid portions of the facade should be designed with appropriate three-dimensional relief. This can range from slight changes in plane of the wall surface to deeply recessed doorways and colonnades. The resulting play of light and shadow adds visual interest, provides a means to articulate the facade, and creates linkages and establishes relationships between its parts. Traditionally, relief has taken the form of pilasters, columns, moldings, capitals, window and door surrounds, raised or recessed panels, relief sculpture, etc., but more abstract treatments can be highly successful.

FIGURE 7
The monumental west facade of the Williams Administration Building.

FIGURE 8
The exuberant entrance to Scoates Hall

Facades should incorporate decorative elements as appropriate to their style and importance. These may include decorative panels, three-dimensional relief and moldings, figural sculpture, inscriptions, colored tile, terracotta, light fixtures, ironwork, stained glass, mosaic inlays, and so on. Much of the iconographic decoration on existing buildings at Texas A&M makes reference to aspects of the Texas economy and landscape, or to education in general. Decorative elements are not merely a means to add visual interest to a wall; they are also a means to reinforce the underlying geometrical structure of the facade.

FIGURE 1
Williams Administration Building: soffit of loggia.

FIGURE 2
Animal Industries Building: cow skulls are substituted for triglyphs in the frieze.

FIGURE 3
Scoates Hall: frieze incorporating owls.

FIGURE 4
The elegant carved stonework of the Chemistry Building.

FIGURE 5
Williams Administration Building: bronze doors and grills.

FIGURE 6
The cow skull pilaster capitals of Cushing Library. The volutes are made of ram's heads.

FIGURE 7
Halbouty Geosciences Building: carved shells.

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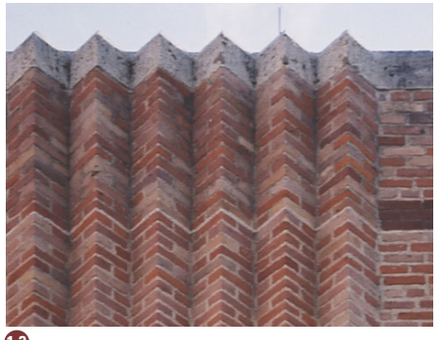

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FIGURE 8
Animal Industries Building: the brick patterns and colored tile panels expand the visual impact of the window and articulate the facade.

FIGURE 9
Scoates Hall: Inscription.

FIGURES 10 & 11
The Williams Administration Building and the Civil Engineering Building: decorative spandrel panels.

FIGURE 12
Academic Building: light fixture.

FIGURE 13
Corps Dorms: decorative brick.

FIGURE 14
Chemistry Building: light fixture.

FIGURE 15
The lion head cornice of the Williams Administration Building.

FIGURE 16
The ionic capitals of the Williams Administration Building.

FIGURE 17
Halbouty Geosciences Building: Mosaic of pebbles.

FIGURE 1
Brick and carved stone at the Chemistry Building.

FIGURE 2
Brick and carved stone at Cushing Library.

FIGURE 3
Windows with operable sashes and a hierarchy of mullion widths in the History Building's East Facade.

FIGURE 4
Brick, stone, painted steel sash windows, and glazed tiles at the Animal Industries building.

FIGURE 5
Brick at the Pavilion.

FIGURE 6
Brick at the Corps Dorms.

Architectural Principle **6: Building Materials**

Buildings are to be of masonry construction, with punched windows. Colors of exterior materials are to be compatible with those of the campus's historic core.

Guidelines for Building Materials

The best buildings on the Texas A&M campus are constructed of a related range of materials and colors and can be recognized as a family. New buildings should maintain this consistency.

Exterior walls are to be primarily of masonry: stone, cast stone, and brick.

Stone is to be of light warm colors: buff/beige/off-white/warm gray.

Brick is to be of a blended mix of colors: buff/beige/yellow/orange/light brown color range. It is not to be of a single homogeneous color. Brick is to be of modular size, not jumbo.

Large inarticulate or uninterrupted areas of precast concrete are not permitted.

Typical windows are to be punched—they are to be individual rectangular openings in the masonry walls.

Typical windows are to be vertical in proportion.

Windows are to be set deep within the thickness of the wall, not flush with its outer surface. The shadows thereby created improve thermal performance by reducing solar gain to the interior, give the facade visual depth, and create a sense not only of solidity and permanence, but also of permeability and openness.

Larger areas of glazing, where they occur, are to consist of grouped windows, not undifferentiated curtain wall, and should be located to express aspects of the building's circulation system—lobbies, stairs, major public rooms, etc.

Total window area is to be in the range of 18 to 50 percent of the wall area of a given facade or elevation.

Glazing is to incorporate operable fenestration.

Glass is to be clear, not noticeably tinted or reflective.

Glazed areas are to be subdivided by true mullions.

Mullions (particularly in larger areas of glazing) are to be in a hierarchical range of widths and depths.

Mullions should be of light colors, as appropriate for the other colors of the building. brown/off-white/gray/gray green.

Roofs may be either sloped or flat.

Sloped roofs are to be of standing seam copper.


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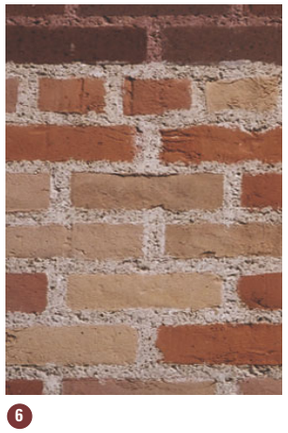
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Architectural Principle **7: Additions to Buildings**

Additions are to be compatible with good existing buildings, and are to transform buildings that suffer from weak relationships to outdoor public space.

Guidelines for Additions to Buildings

Where the original building follows the principles of urban design indicated in the above guidelines, the addition should be compatible with it in height, massing, material, color, etc. It need not be identical.

Where the intent is to visually link with the existing building so as to frame a courtyard, the facades and elevations of the addition should be similar enough in height, massing, material, color, etc. to those of the existing building to create visual cohesion.

Where the existing building is suburban in its form or siting, the addition should be designed so as to ameliorate the situation by masking unsatisfactory facades, framing space, defining site edges, establishing relationships with neighboring buildings, etc.

When appropriate, a specialist in historic preservation should be engaged to ensure proper protection and treatment of historic buildings.

Architectural Principle **8: Building Services**

Mechanical equipment and loading docks are to be hidden from pedestrian view.

Guidelines for Building Services

Mechanical equipment is to be out of sight and hearing. Mechanical equipment should not be located on exterior grade, except in concealed service yards. Where it is located on rooftops, it is to be set far back enough from the roof's perimeter that it cannot be seen from the ground, screened, or incorporated into architectural elements such as penthouses, dormers, towers, etc.

Service entries are to be unobtrusive. Loading docks are to be located in service courtyards or pulled within the volume of the building and concealed by doors.

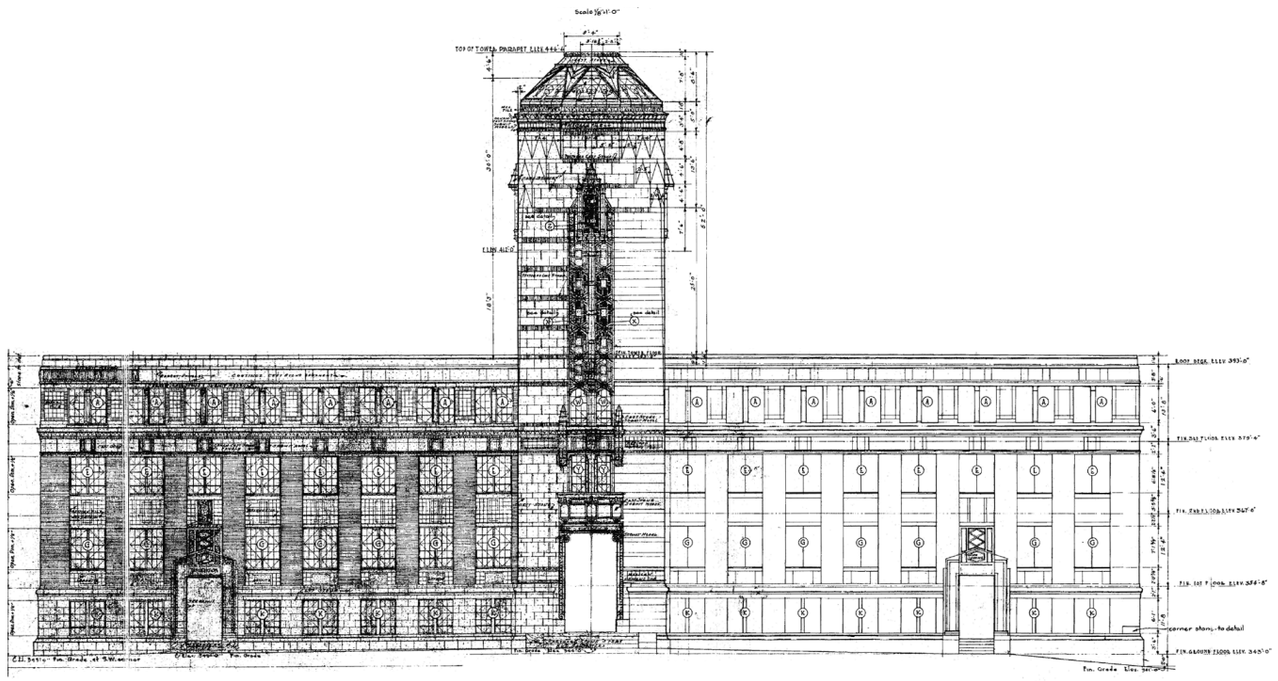

FIGURE 1
The original design of the Halbouty Geosciences Building capitalized on the required water tower by treating it as a decorative tower.

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FIGURE 1
Bizzell Hall.

FIGURE 2
Hart Hall.

FIGURE 3
Walton Hall

Architectural Principle **9: Sustainability**

Buildings are to be designed with environmentally sustainable features to minimize the environmental damage caused by their construction, and to minimize operational energy use.

Qualification for a LEED silver rating should be a goal.

Guidelines for Sustainability

Buildings are to be designed with environmentally sustainable features to minimize the environmental damage caused by their construction, and to minimize operational energy use.

Whenever possible, buildings should be designed to qualify for a LEED Silver Rating. Issues to be considered include adaptive reuse of existing buildings, selection of renewable building materials, selection of nontoxic interior materials, waste recycling, energy reclamation, photovoltaic energy generation, thermal insulation, minimizing light pollution, sun shading, groundwater recharge, wastewater management, etc.

Architectural Principle **10: Nonacademic Buildings**

Nonacademic buildings, such as parking garages, physical plant buildings, private research buildings, etc., are to adhere to these principles and guidelines as appropriate to their function and location on campus.

Guidelines for Nonacademic Buildings

Other building types, such as dormitories, parking garages, physical plant buildings, research park buildings, etc., should adhere to the above principles and guidelines as appropriate to their function and location on campus.

Dormitories should follow the above principles and guidelines regarding facades, entrances, massing, height, articulation, color, material, and aesthetic quality. Dormitories are more private than academic buildings, and their facades should express their domestic scale and function, while recognizing that they are within the institutional context of the University. Where balconies are provided for dormitory rooms on building facades, they should either be relatively small and related to floor-level windows, or be engaged by a unifying outermost wall plane. Continuous balconies and isolated deeply projecting balconies without vertical enclosure should be avoided.

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Parking garages should be designed as buildings and have facades whenever they are visible from a distance. Garages should follow the above principles and guidelines regarding facades, massing, height, articulation, color, material, and aesthetic quality. Parking garages should incorporate office or academic programs on ground floors that face public streets or walks. They should be masked for their full height by a zone of space suitable for office or academic uses where they face larger open spaces. In less prominent locations, screens or louvers should be used to screen cars from view.

Physical plant support buildings located in areas of the campus used by its general population should follow the above principles and guidelines regarding facades, massing, height, articulation, color, material, and aesthetic quality. Physical plant buildings in less-frequented areas may exhibit greater freedom of materials, including metal and transparent screening.

Agricultural support buildings may be simpler in design and material and need not adhere to principles of height and articulation into constituent parts. The elegant simplicity of traditional Texas farm buildings should be a point of reference. Where possible, agricultural buildings should be shaped and sited to define and frame outdoor spaces: they should be grouped around yards, both for the convenience of the users and to preserve open land.

Research Park buildings should follow the above guidelines regarding facade, massing, height articulation, color, material, and aesthetic quality. The buildings in the Research Park south of Raymond Stotzer Parkway are publicly visible and thus should adhere to the above guidelines. Those in the more secluded proposed Research Park north of Raymond Stotzer Parkway may be more perfunctory in their design and of a shorter-lived standard of construction. Metal buildings are allowed. Buildings should aspire to the simplicity of traditional Texas farm buildings.

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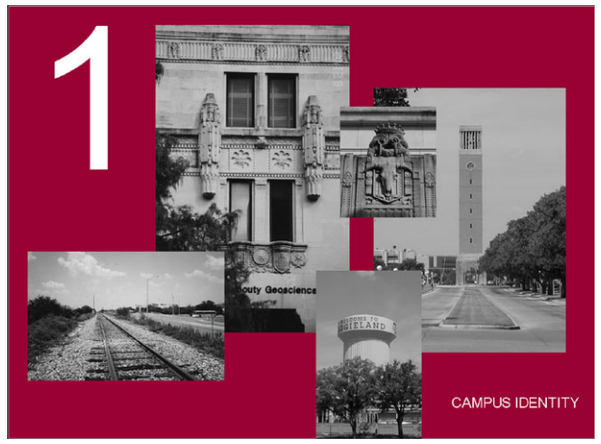
FIGURE 4
The Koldus Building screens the University Center Parking Garage from view from Joe Routt Drive.

FIGURE 5
Texas farm buildings.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CAMPUS IDENTITY


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DISCONNECTION


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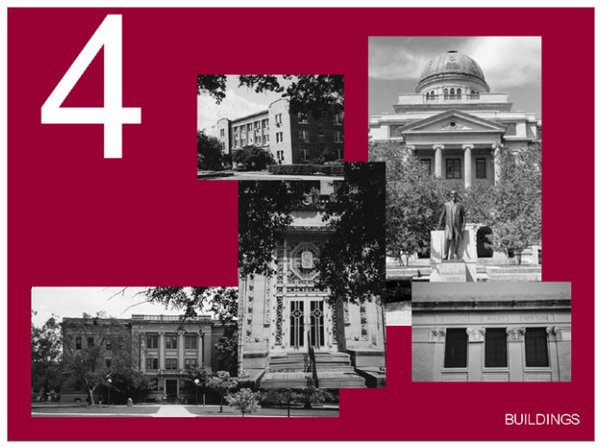
LANDSCAPE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BUILDINGS


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SPACE NEEDS


6
PEDESTRIAN & VEHICULAR CIRCULATION


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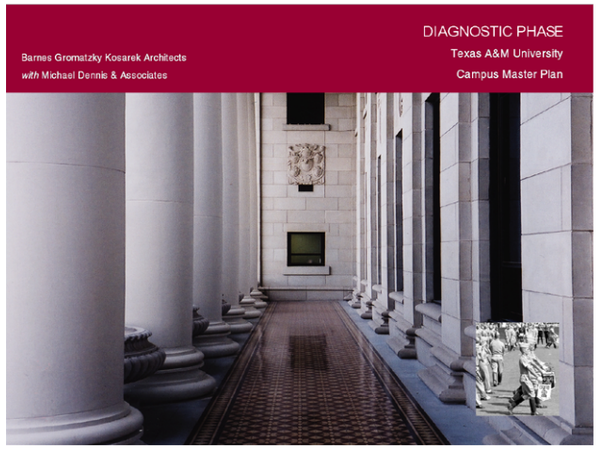
PROCESS


DIAGNOSTIC PHASE
Texas A&M University
Campus Master Plan
Barnes Gromatzky Kosarek Architects
with Michael Dennis & Associates

VII. PROCESS

INTRODUCTION

There is a relationship between the quality of an institution's physical environment and its intellectual mission. The intent of the Texas A&M Campus Master Plan is to bring the campus into alignment with the University's mission through growth management and an improved physical environment. Achievement of this goal will require an enlightened and effective process for campus planning, design, and management. Indeed, it will require a radical augmentation and reorientation of current practice at Texas A&M.

To be effective, any process must address both public and private interests. There was a time when this was a simpler task: a time when there was consensus about what was right, and when two or three central figures had the power and judgment to manage campus development effectively. That world no longer exists. A more comprehensive model is required today, especially for large universities. Most universities need a vision, a plan, a process, and design control as a framework for decisionmaking. A good master plan consists of a plan, guidelines, and a process. This section addresses the process for implementation and management of the Campus Master Plan and presumes the ideal of a long range plan, a series of district plans, and architectural and landscape guidelines.

There are three major process issues: (1) architect selection; (2) project definition and feasibility; and (3) design control.

ARCHITECT SELECTION

Architect selection may be the single most important factor in the successful implementation of the Campus Master Plan. Simply put, better architects (generally) make better buildings, and the best ones make buildings that relate to others to form a community of buildings. Any architect working on the campus should have an acutely developed understanding of both public and private issues. Many architectural firms are "service firms"—firms that are adept at serving the client, but may not be adept at designing buildings and spaces for the public realm. Other firms promote themselves as "specialists" in a particular building type. This has an understandable appeal to users of that building type, and yet such firms may have no credentials at all in the design of buildings in context. Special effort should be made to solicit good architects, and the actual selection should be made by people qualified to evaluate them. This means that user-representatives should play a role in the selection process, but the decision should not be made by them alone. This aspect of the selection process will be discussed below.

The terms of the architect–institution relationship are also crucial to success. Even the best architects cannot produce good work in a failure-prone relationship. The crucial factors are: adequate fees; appropriate budgets and schedules; and a cooperative, supportive process.

PROJECT DEFINITION AND FEASIBILITY

This is the most important phase of any project. The first big step after project initiation, it involves the definition of the proposed facility's program, site, guidelines, budget, and design concept. Project feasibility is determined during this phase.

Because of its fundamental nature, this phase also determines whether the future project will be success prone, or failure prone. As such, it should be careful, considered, and rational. Unfortunately, however, this is often the most arbitrary and ill-considered phase of the project. Time and care should be devoted to this effort.

Programming, site selection, project-specific guidelines, budget/cost estimating, and conceptual design are interrelated activities and should be developed in an integral and cyclical manner, rather than as a linear sequence of independent tasks, in order to achieve a balance of value. Most projects are either "budget driven" or "mission driven." With budget-driven projects, the size and quality of the facility are derived from a fixed amount of money available for the project cost. With mission-driven projects, the project cost is derived from the size and quality of the facility that is required. Most people have heard of mission-driven projects, but few have actually seen one. Therefore, an adequate process should be developed to allow a balance to be achieved between *cost*, *size*, and *value*. The work of this phase may be done "in-house," or by outside consultants.

Site Selection

Each potential site should be studied for its characteristics and capacity before any specific program is identified for it. The major development guidelines may then be identified and made part of whatever program is identified for the site. The specific program can then be developed and tested on the site.

Typically, site-selection criteria include unencumbered availability, lack of underground utility complications, adequate area to accommodate program volume, and proximity to related facilities. Rarely is the potential for the building's contribution to enhancing the public realm a consideration; and rarely does any of the site's potential have an effect on the program.

Site requirements, however, are as important as functional requirements in the development of a facility program if an individual building's contribution to a good physical environment is to be achieved. Indeed, a building's civic role should be a fundamental part of the facility program and should not be reduced in order to enhance private requirements. For each new project, a siting study should be done, not only to determine feasibility, but also to determine the guidelines for the building's civic role that should be written into the building program.

Program

The modern, specialized field of programming has its roots in mid-eighteenth-century France. This was a period in which architectural competitions were held for an expanding array of large institutional buildings, each of which required a functional program of spaces. This period was also the beginning of the quantification of knowledge, of structural calculations, and a radical change in the way architecture was conceived and designed. For the first, time buildings were conceived "from the inside-out," rather than "from the outside-in." The "private" role of the building became dominant over its "public" role and more and more buildings were designed as detached, freestanding objects. This system was continued throughout the nineteenth century under the French architectural education system of the Ecole des Beaux Arts. The most important lesson students learned was that "the most important spaces (the public space of circulation, etc.) are never in the program."

In modern times, programming has become ever more mechanistically and mathematically sophisticated. The typical modern program focuses on the development of a highly particularized and defined schedule of "net assignable functional areas," controlled and maximized by the users of the facility (and sometimes the Dean). The interior public spaces of the building—"the most important spaces"—are now expressed as a mathematical expression of efficiency called the "net-to-gross ratio." In other words, the net areas are totaled and multiplied by a ratio in order to determine the projected gross area of the facility. There is a tendency to maximize the net area and minimize the gross area by making the net-to-gross ratio as low as possible.

For all its positive characteristics, however, this modern notion of program is flawed: too often its emphasis on the private role of the building produces isolated, cheap-looking, bad neighbors, with little or no interior or exterior social space. Indeed, one of the most common and compelling requests from faculty during the early master planning workshops was for more public space that would allow chance encounters between faculty, and between faculty and students. To make matters worse, if cost reductions are required, they are inevitably taken from the exterior and the public spaces—in order to preserve "net assignable square feet." Thus, these kinds of programs address only half of the programmatic issues: the private half. The typical site-selection process is complicit in this conundrum as well.

Budget

If buildings are to fulfill their civic role as described in the Campus Master Plan, both the programming and funding must accommodate this by including landscape and public space requirements in a proposed building's program and budget. Unfortunately, the establishment of a budget for a facility is usually the least rational factor in a project. Often it is completely arbitrary, with no relationship to mission, program, etc. Even when it is derived from the program, it is often failure-prone because it is based on an unrealistically low net-to-gross multiplier to determine gross area, and this area is then multiplied by an inadequately low value of dollars per gross square feet ($/GSF). If site criteria are absent, the projected construction cost is even more inadequate. Finally, an inadequately low ratio of construction cost to project cost may exacerbate the problem.

Cost estimating is a combination of guessing and measuring. In the beginning of a project it is mostly guessing; toward the end of documentation there is more measuring (quantification), but there is still a lot of guessing. Experience helps make better guesses, but contingencies and contingency management are crucial to cost control. Conventional wisdom holds that the first time the construction cost of a building can be predicted accurately is at the end of the preliminary design phase, as this is the first time the project can reasonably be accurately quantified. Before that point, success-prone factors should be used.

Some useful budget projection guidelines during programming include:

Use a generous net-to-gross multiplier to estimate the gross area of the building (1.65 or better).

Use a generous value per gross square foot (indexed to a year of construction) to arrive at the projected building construction cost.

Use a generous allowance for site work.

Use an adequate multiplier for construction-to-project cost (typically about 1.33).

A better system, however, is to include site-development guidelines as part of the program, do a conceptual design, and then do a "take-off" estimate with proper contingencies (20 percent for site work, 15 percent for design). The 15 percent design contingency should be carried in the concept design estimate as well. At the end of preliminary design this can be 10 percent. Toward the end of detailed design the design contingency can be reduced to 5 percent. (N.B.: These design contingencies are separate from any estimating, construction, or owner's reserve contingencies.)

In other words, the best approach is to perform programming, site selection, budgeting, and conceptual design as an integral process. The goal should be to make the best possible campus architecture. This means that the exteriors and public spaces of buildings need to be adequately designed and funded.

Conceptual Design

A conceptual design does several things: it tests the program's ability to perform a civic as well as a private role; it enables more accurate budgeting; and it tests the functional implications of the site.

Without an actual design, the program and budget are simply mathematical constructs, and the site guidelines are simply theoretical constructs. A conceptual design is a useful tool for determining realistic programs and budgets as well as for demonstrating the potential for the building's civic role.

DESIGN CONTROL

Strong design control is required to achieve a high-quality campus environment and implement the intent of the Campus Master Plan. Design authority vested in a University Architect/Campus Planner and a Design Review Board are important elements in achieving this.

To be effective, any process must address both private and public interests. In the recent past, this balance has been difficult to achieve owing to the hegemony of private interests that result from a lack of cohesive plan and design authority. To maintain a balance, active participation and cooperation is required from four institutional entities: the Users, Facilities Planning and Construction (FP&C), a Design Authority, and the Architect. While each of these participants has a more focused role or agenda, each must be involved with all phases and accept responsibility for the implications and effects of their individual agendas. For example, it is not enough for a University Architect and a Design Review Board to make requirements in the early (design) phases of a project and then be absent in the later phases when budget considerations threaten to undermine those requirements.

Users have a largely "private" agenda. They are primarily concerned with getting the most square feet possible and the best functional arrangement. This is especially true of technical facilities as opposed to more symbolic public buildings such as performing arts buildings. Every user group's special requirements must be acknowledged, but their needs must also be put in the context of the larger whole—financially, formally, and socially. For example, the exterior of the building and the site development should be subject to appropriate budgetary attention in order to fulfill the facility's responsibilities to the public realm.

Facilities Planning and Construction also typically has a largely "private" agenda, as they are concerned primarily with budget and schedule. To the degree that they are also a planning authority, they may also be concerned with the long-term viability of the project and with engineering and maintenance. It is in this last sense that they also have a public agenda.

The Design Authority of a university, in contrast to the Users and FP&C, has an almost completely "public" agenda. Like FP&C, the Design Authority is concerned with the long-term viability of a project, but primarily it is concerned with the promotion, development, and maintenance of the quality of the public realm. It thus plays a large role in the development of plans and guidelines, in architect selection, and in the design review of individual projects. Design Authority may be an individual, a group of individuals, or a Design Review Board. Typically, it is composed of a University Architect and a Design Review Board. Its power or authority—and therefore its effectiveness—may be delegated from the top down, or developed from the bottom up. Both are desirable, but without support from the top, the effectiveness of design control is drastically diminished.

The Architect should have an acutely developed understanding of both public and private obligations.

University Architect/Campus Planner

The University Architect/Campus Planner is professionally responsible for the qualitative development of the campus, and for the implementation, monitoring, and evolution of the Campus Master Plan. This requires vested authority by the university, and knowledgeably acute design judgment. The most important duties of the University Architect/Campus Planner are: to sponsor and guide the program/site/budget/conceptual design phase; to participate in, and guide, architect solicitation and selection; and to be a leading member of the Design Review Board.

Design Review Board

The Design Review Board (DRB) reviews project designs on behalf of the university with two primary goals:

1. ***To monitor and ensure that all design projects comply with the intent of the Campus Master Plan; to interpret the plan and guidelines; to grant exceptions when appropriate; and to recommend modification or development of the Campus Master Plan as required.***

2. ***To evaluate projects to ensure that they meet the highest qualitative standards.***

The DRB is the guardian of campus development, and its recommendations to the administration should be taken seriously.

Authority and Membership

To fulfill its mission, the Design Review Board must be granted authority and judgment. The members of the DRB should be appointed by the president of the university, and the DRB should be vested with the authority to review projects on the university's behalf and advise the proper university parties. The president should appoint as chair a person of professional judgment, diplomacy, and conviction. This person could be the University Architect/Campus Planner.

The DRB, typically, should consist of the University Architect/Campus Planner, two faculty from the College of Architecture, two practicing design professionals (who are precluded from university work during their term on the Board), two at-large faculty with an interest in the design of the campus (to be appointed by the Provost), the Vice President for Administration (ex-officio), and the Physical Plant Assistant Vice President (ex-officio). Terms might be for two years, but staggered for continuity. Other members of the university community might attend the deliberations of the board as resources, but as nonvoting members. The University Architect/Campus Planner and one professional member of the Design Review Board should sit on each Architect Selection Committee.

Procedures

The Board should have formal monthly meetings with set procedures and agenda. Projects are presented to the Board by the Project Committee and the Design Team. After every project review, clear instructions from the Board's deliberations should be provided.

The sequence of actions/reviews should include but are not limited to the following:

1. ***review the Campus Master Plan with each design team and provide them with a copy of the relevant parts of the Campus Master Plan;***

2. ***require an initial meeting with the design team to clarify the university's intent;***

3. ***require formal reviews at the level of Program/Concept Design, Preliminary Design, and Detailed Design; and***

4. ***provide a postconstruction project assessment report.***

Project Review Criteria

All major planning, landscape, and architectural projects should be reviewed. Smaller projects should also be considered for review, although the process could be abbreviated. The accumulation of small projects can add up to serious degradation of the physical environment. These projects may also be an opportunity to initiate the transformation of an existing condition. The basic criterion that triggers design review should be whether the project affects or changes the public spaces of the university, including lobbies of buildings.

Administrative Integration

The design review process should be carefully integrated into the existing university administration, especially as it relates to campus development and project initiation. Care must be taken, however, not to counteract or dilute the authority of the campus Design Review Board.

VIII. APPENDIX

FIGURE 1

Campus Plan with the names of streets and spaces.

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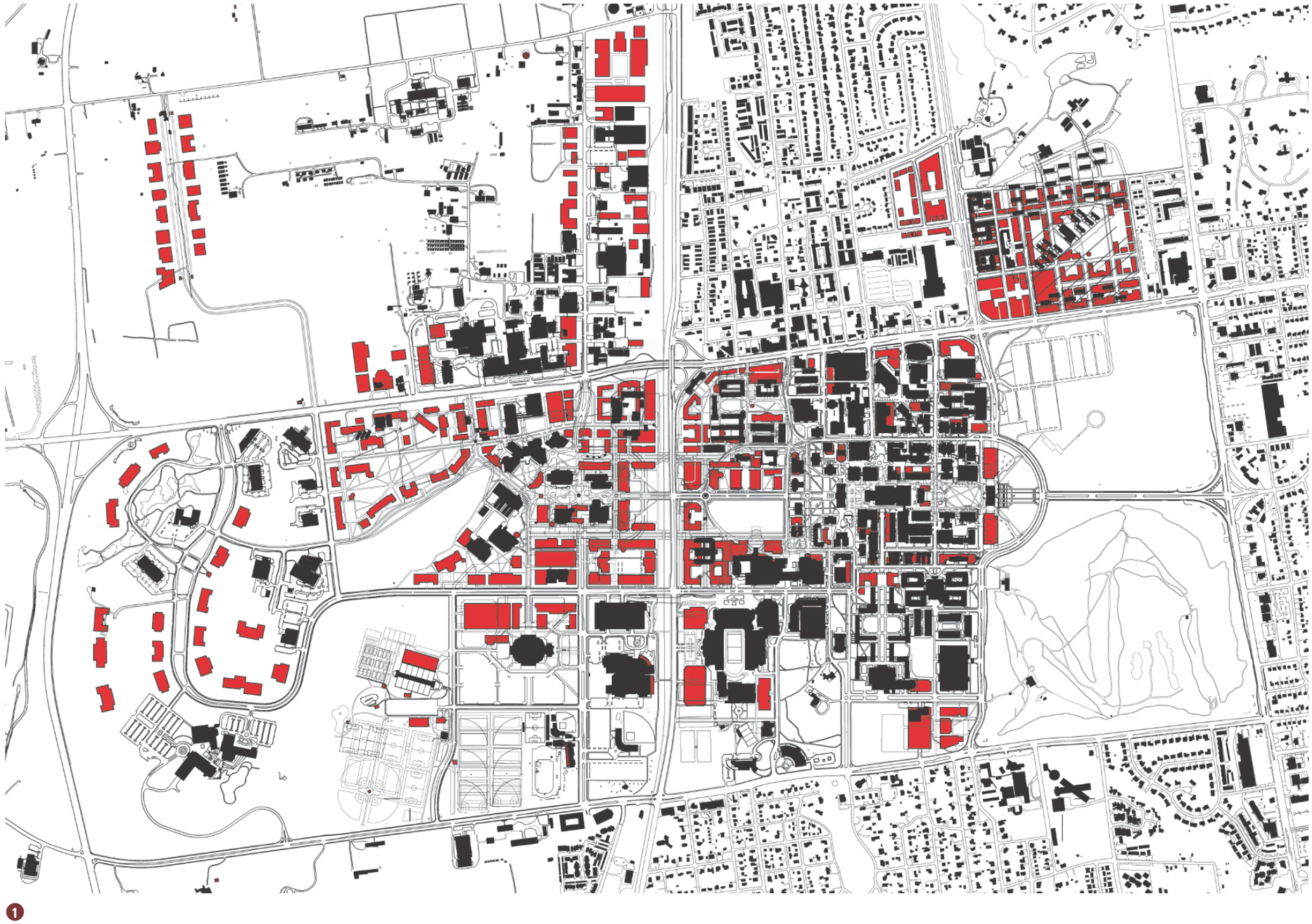
FIGURE 1

Campus Plan showing existing buildings and streets superimposed on the proposed.

Existing buildings

Proposed buildings



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BUILDINGS PROPOSED FOR DEMOLITION

Time Frame (Years)	Building Name	Building #	GSF	Year Built	Rationale
1 through 20	TAES Annex	457	16,364	1933	Inferior building condition. Structural rehabilitation required. MEP systems need major rehabilitation. Roof needs to be replaced. Exterior envelope is not watertight. Not NFPA or ADA code compliant.
1 through 20	Pavilion	471	40,062	1916	Inferior building condition. Structural rehabilitation required. MEP systems need major rehabilitation. Roof needs to be replaced. Exterior envelope is not watertight. Not NFPA or ADA code compliant.
1 through 20	Henderson	425	22,185	1958	Low-density building in high-density area.
1 through 20	Concrete Materials Lab	501	9,600	1932	Structure has outlived its useful life. Inferior building condition. No vapor barrier. Building is cooled with window units and has radiant heating. Exterior envelope is not watertight. Not NFPA or ADA code compliant. No elevator.
1 through 20	McNew Engineering Lab	740	20,904	1968	Low-density building in high-density area.
1 through 20	Hydromechanics Lab	502	27,150	1932	Structure has outlived its useful life. Inferior building condition. Not NFPA or ADA code compliant. No elevator. Requires new roof and windows. Partially air-conditioned.
1 through 20	Hotard	424	18,500	1941	Does not meet criteria for future residence halls.
1 through 20	Schumacher	430	38,957	1966	Does not meet criteria for future residence halls.
1 through 20	McInnis	429	31,184	1966	Does not meet criteria for future residence halls.
1 through 20	Keathley	428	57,696	1966	Does not meet criteria for future residence halls.
1 through 20	Hughes	426	38,957	1966	Does not meet criteria for future residence halls.
1 through 20	Fowler	427	57,696	1966	Does not meet criteria for future residence halls.
1 through 20	Peterson	444	84,831	1963	Future maintenance and renovation costs (over 10 yrs.) make replacement a more viable option.
1 through 20	Adams Band Hall	448	55,248	1967	Inferior building condition.
1 through 20	Heaton	481	13,640	1926	Inferior building condition. Slab on first floor needs to be replaced. Exterior envelope is not watertight. Requires major rehabilitation for ADA.
1 through 20	Floriculture Greenhouse	458	11,456	1954	Inferior building condition. Head Houses cooled with window units and radiant heating. Not NFPA or ADA code compliant. Greenhouse lacks current technology.
1 through 20	Horticulture Greenhouse	459	7,612	1949	Inferior building condition. Head Houses cooled with window units and radiant heating. Not NFPA or ADA code compliant. Greenhouse lacks current technology.

1 through 20	Forest Genetics Greenhouse	460	12,047	1954	Inferior building condition. Head Houses cooled with window units and has radiant heating. Not NFPA or ADA code compliant. Greenhouse lacks current technology.
1 through 20	Bizzell Hall	416	34,004	1918	Inferior building condition. No vapor barrier. Building cooled with window units and has radiant heating. Exterior envelope is not watertight. Not NFPA or ADA code compliant. No elevator.
1 through 20	Mail Services	496	39,494	1940	Structure has outlived its useful life. Inferior building condition. No vapor barrier. Exterior envelope is not watertight. Not NFPA or ADA code compliant. No elevator. MEP systems in need of major rehabilitation.
1 through 20	State Chemist Building	464	20,027	1909	Inferior building condition. Structural rehabilitation required. No vapor barrier. Building cooled with window units and has radiant heating. No domestic hot water. Exterior envelope is not watertight. Not NFPA or ADA code compliant. No elevator.
1 through 20	Thompson	483	81,404	1921	Inferior building condition. Structural rehabilitation required. Future maintenance and repair cost make replacement a more viable option.
1 through 50	Reed McDonald	436	77,435	1967	Demolition of this structure will allow joint development of the Graphics Services / Reed McDonald site. If it is not demolished it will limit the size of what can be developed on the Graphics site (code required separation).
1 through 50	Francis Hall (addition only)	476	36,850	1922	MEP systems need major rehabilitation. Not NFPA or ADA code compliant. No elevator. Removal of addition to north side along the western edge and replacement with larger addition incorporating elevator provides the opportunity to meet ADA requirements without demolition of entire building. Will require MEP/Fire Protection upgrades to original structure.
1 through 50	Beutel Health Center	520	63,318	1974	Does not meet criteria for type of care provided.
1 through 50	Cain Hall	439	92,812	1975	Does not meet criteria for future residence halls.
1 through 50	Biological Sciences Building	449	96,038	1967	Future maintenance and renovation costs (over 30 yrs.) make replacement a more viable option.
1 through 50	Biological Sciences Building - East	467	62,273	1950	Future maintenance and renovation costs (over 30 yrs.) make replacement a more viable option.
1 through 50	University Apts. (College View, College Ave., Hensel)		291,768		Inferior building condition.
1 through 50	Eller O&M	443	180,316	1973	Future maintenance and renovation costs (over 30 yrs.) make replacement a more viable option.
1 through 50	*Graphic Services	499	26,865	1955	Low-density building in a projected high-density area.
1 through 50	*Ag. Engineering Shops	1030	7,136	1960	Low-density building in a projected high-density area.
1 through 50	*Ag. Engineering Power & Machinery Shops	1034	18,269	1963	Low-density building in a projected high-density area.

1 through 50	*Ag. Engineering Research Labs	1508	27,666	1985 Low-density building in a projected high-density area.
1 through 50	*Cater Mattil Hall	1503	27,958	1980 Low-density building in a projected high-density area.
1 through 50	*Rosenthal Meat Center	1505	30,889	1983 Low-density building in a projected high-density area.
1 through 50	*FPC	514	22,134	1960 Low-density building in a projected high-density area.
1 through 50	*Fermier Hall	482	19,074	1919 Low-density building in a projected high-density area.
1 through 50	*Lindsey Building	393	22,666	1983 Identified as a potential site for future facilities that serve a public interface function, such as performing arts.
		Total	**1,842,485**	

* Buildings identified by asterisk represent areas in which long-term growth could occur. Identification on this list does not connote demolition at a given point in time. It does, however, identify areas in which increased density could occur and benefit the overall campus environment. If such facilities do become candidates for demolition, their function would be relocated elsewhere on campus.

TEXAS A&M UNIVERSITY

A BENCHMARKING STUDY OF

PEER AND COMPARATIVE ANALYSIS

prepared by

PAULIEN & ASSOCIATES, INC.

AUGUST 2003

Section 1.0 EXECUTIVE SUMMARY

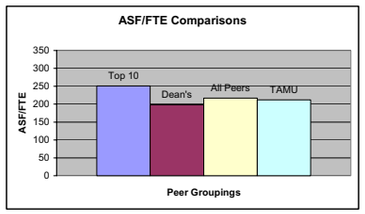
Texas A&M University retained Paulien & Associates, Inc. to conduct a peer and comparative analysis using benchmarking techniques. Comparisons with six "Consensus Top 10" public universities and nine "Dean's Selections" peer institutions formed the sample of this study. In each case, the main or flagship campus, as identified from the *Vision 2020* report, was selected for comparison. This report compared assignable square feet (ASF) at the school and college level in institutions considered Texas A&M University's peers. Student FTE enrollment was used to normalize the space data.

Student FTE enrollment, full time faculty headcount, and detailed physical space data by school and college were secured from each of the peer institutions by an electronic spreadsheet. Each of the fifteen institutions were contacted via email and/or telephone and asked to participate in the study. Fourteen of the peer universities provided information for this study, a response rate of 93%. The following represents the key results of the benchmarking analysis.

CAMPUSWIDE BENCHMARKING RESULTS

- On average, the six Consensus Top 10 peer institutions reported 8,470,168 total campus ASF while the nine Dean's Selection peers reported 7,420,739 total ASF of space. Total campus ASF for TAMU was calculated at 8,163,392 ASF or 4% below the average of Consensus Top 10 peers yet 9% higher than Dean's selection peers.

- The fourteen peers represented a wide diversity with respect to student FTE enrollment. Ranges varied from a high of 49,005 at Ohio State University to a low of 21,707 at Colorado State University. The average student FTE for all 14 peer institutions was 35,450. TAMU, with 38,515 FTE, generated 8% more FTE than all peers combined.



- When total ASF is standardized by student FTE, TAMU's ASF/FTE ratio was 18% lower than the average Top 10 peers (212 vs. 251 ASF/FTE) but 7% higher than the average of Dean's peers (212 vs. 198 ASF/FTE). In direct comparison to all 14 peers, TAMU was 5 ASF/FTE or 2% lower than all peers combined. These results are presented graphically next to this text.

- When total ASF is standardized by full-time faculty, TAMU's ratio was higher than both Top 10 and Dean's Selection peers. TAMU's ASF/Faculty of 4,186 was 6% higher than the Top 10 average of 3,938 ASF/Faculty and 15% higher than the Dean's peer average of 3,571 ASF/Faculty. In total, TAMU had 484 ASF more space per full time faculty than the average of all peers combined.

RESEARCH BENCHMARKING RESULTS

In this comparative analysis, all research laboratory spaces (academic and administrative) were combined and normalized by the number of full-time faculty, creating total research lab ASF per full-time faculty.

- The range of research laboratory ASF per full-time faculty extended from a low of 303 ASF per full time faculty at the University of Texas to a high of 854 at the University of Florida. Overall, TAMU was 156 ASF per full time faculty higher than both Top 10 and Dean's peer groups, designating 755 ASF/Faculty or 21% more research lab ASF per full-time faculty as compared to the average of the other 14 peer institutions.

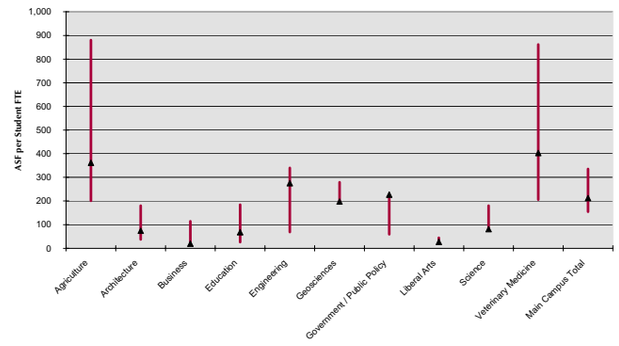
- When total R&D expenditures (FY 2001) were analyzed, the 14 peer institutions, with an average $190,398 of R&D expenditures per full time faculty, are less productive than TAMU's $229,692 in R&D expenditures per faculty.

SCHOOL AND COLLEGE LEVEL RESULTS

Each peer institution provided detailed space data at the school and college level. Since no two universities have the same organizational structure and academic departments, data from more than 60 unique schools and colleges was collected from the 14 universities. Schools and colleges that were not direct comparisons to TAMU's programs are found in Appendices C and D. Each college was analyzed for comparability with TAMU's eight colleges and two schools. This summary provides an overview of the results. Detailed findings are described in the main body of the report.

Chart No.1 illustrates graphically the results of the analysis. Each of ten schools and colleges at TAMU as well as the main campus total are listed across the bottom of the graph. The solid line represents the high and low ASF per student FTE for each program as secured from the peer institutions. The triangle delineates TAMU's ASF for that college or school.

Chart No. 1
Comparative Analysis of School/College Summary by Student FTE



As an example, for the College of Agriculture, the highest point on the vertical line (880 ASF/FTE) was reported by Michigan State University while the lowest point on the vertical line (243 ASF/FTE) was reported by Purdue University. The College of Agriculture within Texas A&M University was calculated at 362 ASF/FTE, as noted by the triangle in Chart No. 1.

Colleges and Schools of agriculture, engineering, and veterinary medicine have the largest variance in ASF per student, suggesting inclusion of other programs and activities within peer colleges. There is also the issue of how on-campus land grant mission functions are incorporated with these colleges. On the other hand, geosciences, liberal arts, and sciences are more tightly clustered.

- The Dwight Look College of Engineering and the Bush School of Government ASF per student were calculated to be above peer averages, at 45% and 69% respectively.

- Total ASF per student FTE for most of TAMU's Schools and Colleges were 10 to 30% below comparable peers. The Colleges of Agriculture (12% below Average) Education (29% less than average), Liberal Arts (32% below average), and Veterinary Medicine (26% below average) were below the average of the square feet per student range when compared to peers.

- TAMU's Colleges of Architecture, (61% below peers), Business (128% below peers), and Geosciences (41% below average) were considered to be at the lower end of the peer average.

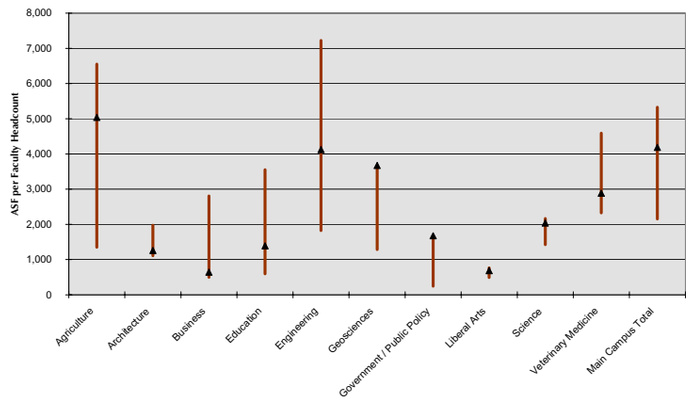
Peer Rankings of TAMU Schools and Colleges
ASF/Student FTE

School/College	Total Number of Institutions In Analysis	Overall Ranking Among Institutions
Agriculture	11	5th
Architecture	6	5th
Business	14	11th
Education	14	9th
Engineering	14	2nd
Geosciences	2	2nd
Government	4	1st
Liberal Arts	5	5th
Sciences	3	3rd
Veterinary Medicine	9	7th

A summary of rankings is provided in the following table. TAMU, along with the other peers in the study, were rank ordered in terms of ASF/FTE. For the College of Agriculture and Life Sciences, a total of eleven institutions (including TAMU) were included in the peer study. TAMU's program ranked fifth among the eleven universities in ASF/FTE.

Detailed comparative analysis by space categories are discussed in the body of the report.

Chart No 2
Comparative Analysis of School/College by Faculty Headcount



When ASF per full time faculty is summarized, the results are mixed:

- TAMU's programs in Geosciences, Government, Liberal Arts, and Science were well above peer averages.

- Schools and Colleges where TAMU is below peer averages with respect to ASF/faculty included Agriculture, Architecture, Business, Education, and Veterinary Medicine. The College of Engineering has approximately the same ASF/faculty as comparable peers.

- The main campus total per full time faculty headcount, listed at the far right of the graph, is above the peer average.

Peer comparisons of campus classrooms and library spaces were also collected and analyzed in this report. Comparative tables are located in Section 4.4 of this report.

Section 2.0 OBJECTIVE

In January of 2003, Texas A&M University (TAMU) retained Paulien & Associates, Inc. to conduct five studies – Space Needs of Research Universities Compared with Non-Research Universities, Benchmarking, Efficiency Measures, Utilization Measures, and Space Needs by School and College. The focal point of this study is Texas A&M University. This report contains peer and comparative analyses using benchmarking techniques with five Consensus Top 10 institutions and nine Dean's Selections institutions to obtain a broader range of values.

The objective of this study is to analyze how Texas A&M University's existing space at the school/college level compares to each of the selected peer institutions.

Texas A&M
UNIVERSITY

Academic Space Needs Analysis

Prepared by
Paulien & Associates, Inc.

November 2003

Introduction

Paulien & Associates, Inc. was contracted to examine the academic space needs for Texas A&M University, College Station. The Texas A&M University System Health Sciences Center was not included. This study is being conducted as part of a campus facility master planning effort headed by Barnes, Gromatzky, Kosarek Architects from Austin, Texas in association with Michael Dennis & Associates from Boston, Massachusetts. The major responsibility of Paulien & Associates, Inc. is to:

- analyze Texas A&M's classroom and teaching laboratory utilization and illustrate different utilization measurements other than its usual assessment of utilization;
- apply appropriate space guidelines to determine current and future space needs;
- conduct a peer analysis of the six consensus Top 10 institutions in Vision 2020 and a list of institutions selected through a survey of the Deans;
- analyze the space needs of interdisciplinary programs;
- review space indicators for other campus functions; and
- study efficiency measures.

Paulien & Associates was provided with facilities, enrollment, course, staffing, and research data from various offices at Texas A&M and the Texas A&M System Office. Meetings were held with the academic deans and the Vice President of Research to become familiar with the unique needs of the colleges' research programs. In addition, tours were given and directed by the deans in order to gain familiarity with campus facilities.

Some of the College Station based functions of the experimental stations and extension programs for Agriculture and Engineering were included in this study under the respective colleges. Facilities and staffing for Texas Agricultural Experiment Station (TAES) and Texas Cooperative Extension (TCE) are included under the College of Agriculture and Life Sciences. The Texas Engineering Experiment Station (TEES) and Texas Transportation Institute (TTI) facilities and staffing are included under the Dwight Look College of Engineering. The Texas Engineering Extension Service (TEEX) was not included in the study.

The University decided that the consultants should assume no student growth but plan for major expansion of its research productivity and plan for the amount of faculty to be hired as a result of the Faculty Reinvestment Plan. During the course of the study each school and college gave a ten-year projection which resulted in a scenario with student growth. In a presentation of preliminary findings, it was determined that only graduate growth as related to the faculty reinvestment would be included in this study. This study analyzes the effect of growing research without increasing student enrollment and growing research with a 23% increase in graduate student growth. Undergraduate student growth is projected to stay level. College–by–college assumptions for graduate student increases are included as well as the Faculty Reinvestment Plan and a strong emphasis on growing research expenditures from about $366,672,500 to $716,562,600; a 95% increase.

Texas A&M
UNIVERSITY

Academic Space Needs Analysis

Prepared by
Paulien & Associates, Inc.

November 2003

Executive Summary

This includes Overview Findings at a Glance for two separately bound benchmarking studies to provide a total picture.

Benchmarking Findings

- In a separately bound four-state benchmarking study, comparing the space per student for flagship Research Extensive universities with other non-research state universities, a pattern of at least 50% more space per student for the flagship universities emerges. This is true in Texas as well as in the benchmark states of California, Minnesota, and North Carolina.

- In a separately bound benchmark study with 14 selected universities, the majority of the schools at Texas A&M University had less space per student than most of the benchmark institutions. The only exceptions are the Bush School of Government & Public Service and the Dwight Look College of Engineering (on-campus engineering land grant space was included). The study was with the six consensus top 10 institutions used in Vision 2020 (five agreed to participate) and with nine universities selected through a survey of the deans for applicability to their colleges (eight of these nine are land grants, UT is the exception). Six of the nine were utilized in previous Vision 2020 benchmarking.

- When the same comparisons are conducted on a square foot per fulltime faculty basis, the TAMU programs in geosciences, government & public service, liberal arts, and science were above the benchmark averages.

- On a campuswide basis, TAMU is approximately 30% below the consensus top 10 peers on space per student and has six percent (6%) less space per student than the average of the deans' selection institutions.

Normative Analysis Findings

- When normative space guidelines are compared to the existing enrollments, staffing, and research at TAMU, a space need of 9% or 526,000 assignable square feet (ASF) was calculated. This translates to about 878,000 gross square feet (GSF).

- For Scenario 1, when the Faculty Reinvestment Plan growth is included along with 10 year research projections made by each college, but no graduate student growth is added in, the normative guidelines produce a need for approximately 2,190,000 ASF or approximately a 37% increase in space, over the approximately 5,960,000 ASF now assigned to the academic programs (includes space in design or under construction). With Scenario 2, which includes graduate student growth projected by the colleges (adding approximately 1,918 graduate

students to the existing numbers), and uses the same research growth projections, the space need increases to approximately 2,277,000 ASF, a 38% increase over the adjusted existing space. It should be noted that ASF normally is approximately two thirds of gross square feet. Therefore the gross square feet deficit for scenario 1 would be approximately 3,660,000 GSF and the gross square feet deficit for scenario 2 would be approximately 3,800,000 GSF.

- TAMU expects significant growth in research. The Vice President for Research hopes research expenditures will triple. The college-by-college increases projected over 10 year period were just under a 100% increase and would take TAMU to over $700,000,000 in research expenditures.

- When the campuswide analysis is summarized by space type at the existing year, the largest deficit was in the teaching laboratories and service category with sizable deficits for assembly and exhibit spaces, classroom and service space, and offices.

- Under both Scenarios, the campuswide space needs were largest for research laboratories and service, academic offices, and teaching laboratories.

- At the base year with the By College analysis, the largest needs for additional space were shown for Engineering, Science, Veterinary Medicine, and Education.

- Following implementation of the research growth under both scenarios, the largest need for additional space are for Engineering, Agriculture and Life Sciences, and Science. All schools and colleges show needs for additional space under either of the scenarios.

- Graduate student academic space needs are being met through the guidelines applied for classroom space, teaching laboratories, office space, research space, other departmental space, and space allocated for field buildings, animal quarters, greenhouses. Residential and student service spaces are not directly addressed in this study.

- The College Station based functions of the Vice Chancellor for Agriculture and Vice Chancellor for Engineering have been included under the respective Colleges of Agriculture and Engineering. For Agriculture this includes the Texas Agricultural Experiment Station (TAES) and Texas Cooperative Extension (TCE). For Engineering only the Texas Engineering Experiment Station (TEES) and the Texas Transportation Institute (TTI) were included. The Texas Engineering Extension Service (TEEX) was excluded.

- Scenario 1 does not project any student growth. However, the Bush School is a new and growing college at TAMU. Under Scenario 2 it projects a 184% graduate student increase. While Scenario 1 does not project any student growth, the Bush School has already grown since Fall 2002 which creates a false surplus at the base year. The “surplus” of space becomes a deficit once the eight (8) additional faculty are hired under the Faculty Reinvestment Plan.

Efficiency Measures

- In a review of efficiency measures, the current classroom and teaching laboratory utilization standards of the Texas Higher Education Coordinating Board are above the average of most jurisdictions which have utilization targets. Only five other states have higher utilization expectations for classrooms and only two have higher utilization expectations for teaching laboratories. The problem is compounded since the THECB numbers have been using an incorrect algorithm which has inflated institutional utilization findings by a fairly significant margin.

TEXAS A&M UNIVERSITY
ACADEMIC SPACE NEEDS ANALYSIS BY SPACE TYPE

SPACE CATEGORY	Fall 2002 Existing ASF	Fall 2002 Guideline ASF	Fall 2002 Surplus/ (Deficit)	Fall 2002 Percent Surplus/ (Deficit)	Scenario 1 • No Student Growth Adjusted Existing ASF	Scenario 1 • No Student Growth Guideline ASF	Scenario 1 • No Student Growth Surplus/ (Deficit)	Scenario 1 • No Student Growth Percent Surplus/ (Deficit)	Scenario 2 • Graduate Growth Adjusted Existing ASF	Scenario 2 • Graduate Growth Guideline ASF	Scenario 2 • Graduate Growth Surplus/ (Deficit)	Scenario 2 • Graduate Growth Percent Surplus/ (Deficit)
	Student FTE = 38,516				*Student FTE = 38,516*				*Student FTE = 40,077*			
Academic Space												
Classroom & Service	315,981	392,442	(76,461)	(24%)	334,289	392,442	(58,153)	(17%)	334,289	400,519	(66,230)	(20%)
Teaching Laboratories & Service	293,728	477,103	(183,375)	(62%)	306,045	478,411	(172,366)	(56%)	306,045	481,119	(175,074)	(57%)
Open Laboratories & Service	277,414	308,135	(30,721)	(11%)	279,161	308,135	(28,974)	(10%)	279,161	320,618	(41,457)	(15%)
Research Laboratories & Service	1,478,377	1,482,094	(3,717)	(0%)	1,507,973	2,939,311	(1,431,338)	(95%)	1,507,973	2,939,311	(1,431,338)	(95%)
Academic Offices & Service	1,711,886	1,757,410	(45,524)	(3%)	1,759,190	2,093,460	(334,270)	(19%)	1,759,190	2,093,460	(334,270)	(19%)
Physical Education	105,221	139,722	(34,501)	(33%)	105,221	139,722	(34,501)	(33%)	105,221	139,722	(34,501)	(33%)
Field Bldgs/Animal Qrtrs/Greenhouses	519,967	540,337	(20,370)	(4%)	539,007	556,087	(17,080)	(3%)	539,007	572,638	(33,631)	(6%)
Other Academic Department Space	445,758	500,709	(54,951)	(12%)	452,561	500,709	(48,148)	(11%)	452,561	521,006	(68,445)	(15%)
Academic Space Subtotal	*5,148,332*	*5,597,952*	*(449,620)*	*(9%)*	*5,283,447*	*7,408,277*	*(2,124,830)*	*(40%)*	*5,283,447*	*7,468,393*	*(2,184,946)*	*(41%)*
Academic Support Space												
Library (Existing ASF as Guideline)	503,388	503,388	0	0%	503,388	503,388	0	0%	503,388	503,388	0	0%
Assembly & Exhibit	53,327	127,102	(73,775)	(138%)	56,254	127,102	(70,848)	(126%)	56,254	136,467	(80,213)	(143%)
Animal Health Care Facilities	108,773	111,436	(2,663)	(2%)	117,279	111,436	5,843	5%	117,279	129,265	(11,986)	(10%)
Academic Support Space Subtotal	*665,488*	*741,926*	*(76,438)*	*(11%)*	*676,921*	*741,926*	*(65,005)*	*(10%)*	*676,921*	*769,120*	*(92,199)*	*(14%)*
ACADEMIC TOTAL	**5,813,820**	**6,339,878**	**(526,058)**	**(9%)**	**5,960,368**	**8,150,203**	**(2,189,835)**	**(37%)**	**5,960,368**	**8,237,513**	**(2,277,145)**	**(38%)**
Inactive/Conversion Space	*0*				*21,595*				*21,595*			

ASF = Assignable Square Feet

TEXAS A&M UNIVERSITY
ACADEMIC SPACE NEEDS ANALYSIS BY COLLEGE/UNIT PLUS CLASSROOMS

COLLEGE / UNIT	Fall 2002 Existing ASF	Fall 2002 Guideline ASF	Fall 2002 Surplus/ (Deficit)	Fall 2002 Percent Surplus/ (Deficit)	Scenario 1 • No Student Growth Adjusted Existing ASF	Scenario 1 • No Student Growth Guideline ASF	Scenario 1 • No Student Growth Surplus/ (Deficit)	Scenario 1 • No Student Growth Percent Surplus/ (Deficit)	Scenario 2 • Graduate Growth Adjusted Existing ASF	Scenario 2 • Graduate Growth Guideline ASF	Scenario 2 • Graduate Growth Surplus/ (Deficit)	Scenario 2 • Graduate Growth Percent Surplus/ (Deficit)
College of Agriculture and Life Sciences	1,593,884	1,598,076	(4,192)	(0%)	1,593,884	2,141,198	(547,314)	(34%)	1,593,884	2,159,343	(565,459)	(35%)
College of Architecture	106,818	160,589	(53,771)	(50%)	106,818	184,055	(77,237)	(72%)	106,818	188,182	(81,364)	(76%)
College of Education and Human Development	222,402	283,019	(60,617)	(27%)	222,402	328,729	(106,327)	(48%)	222,402	329,559	(107,157)	(48%)
College of Geosciences	304,485	298,263	6,222	2%	304,485	361,661	(57,176)	(19%)	304,485	363,870	(59,385)	(20%)
College of Liberal Arts	253,453	313,043	(59,590)	(24%)	253,453	371,545	(118,092)	(47%)	253,453	372,886	(119,433)	(47%)
College of Science	550,189	614,196	(64,007)	(12%)	550,189	915,779	(365,590)	(66%)	550,189	917,675	(367,486)	(67%)
College of Veterinary Medicine	449,609	512,122	(62,513)	(14%)	481,326	664,528	(183,202)	(38%)	481,326	688,253	(206,927)	(43%)
Dwight Look College of Engineering	1,103,973	1,185,788	(81,815)	(7%)	1,172,672	1,738,505	(565,833)	(48%)	1,172,672	1,750,693	(578,021)	(49%)
George Bush School of Government & Public Service	19,156	14,393	4,763	25%	19,156	24,367	(5,211)	(27%)	19,156	24,390	(5,234)	(27%)
Mays Business School	83,755	99,859	(16,104)	(19%)	111,579	116,249	(4,670)	(4%)	111,579	118,330	(6,751)	(6%)
Exec Vice President & Provost	741,613	792,883	(51,270)	(7%)	741,613	813,323	(71,710)	(10%)	741,613	824,548	(82,935)	(11%)
Vice President for Research	68,502	75,205	(6,703)	(10%)	68,502	97,822	(29,320)	(43%)	68,502	99,265	(30,763)	(45%)
Classroom Space	315,981	392,442	(76,461)	(24%)	334,289	392,442	(58,153)	(17%)	334,289	400,519	(66,230)	(20%)
ACADEMIC TOTAL	**5,813,820**	**6,339,878**	**(526,058)**	**(9%)**	**5,960,368**	**8,150,203**	**(2,189,835)**	**(37%)**	**5,960,368**	**8,237,513**	**(2,277,145)**	**(38%)**

ASF = Assignable Square Feet

URBAN CAMPUS LANDSCAPE PLANT LIST

See "Texas Landscape Preliminary Plant List" for information about the Post Oak Savannah/Blackland Prairie Ecoregions.

Note: Some plant species on this list are invasive or somewhat invasive, the assumption being that maintenance regimes will control plant migration and invasiveness.

Sources:

Dirr, Michael A. *Manual of Woody Landscape Plants, Their Identification, Ornamental Characteristics, Culture. Propagation and Uses*, 5th Ed. Stipes Publishing, LLC. Champaign, IL. 1998.

Dirr, Michael A. *Dirr's Hardy Trees and Shrubs, An Illustrated Encyclopedia*. Timber Press, Portland, Oregon. 1997.

"Native American Seed" catalog. 2003.

Russell, Curtis. Texas A&M Landscape Standards. Memo dated April 24, 2003.

"Texas A&M University Campus Urban Forest Management Plan," December 1998.

The staff of the Liberty Hyde Bailey Hortorium. *Hortus Third, A Concise Dictionary of Plants Cultivated in the United States and Canada*. Macmillan, New York. 1976.

Wasowski, Sally and Andy. *Native Texas Plants, Landscaping Region by Region*. Texas Monthly Press, Austin, TX. 1988.

Streets, Quadrangles, and Courtyards/Gardens

Streets

Canopy Trees

Platanus x acerifolia 'Bloodgood'	Bloodgood London Planetree
Quercus muhlenbergii Engelm	Chinkapin Oak
Quercus rubra	Texas Red Oak
Quercus virginiana	Live Oak
Quercus nigra	Water Oak
Ulmus americana	American Elm
Ulmus parvifolia	Chinese Elm

Quadrangles

Canopy Trees

Catalpa bignonioides	Southern Catalpa
Fraxinus pennsylvanica	Green Ash
Liquidambar styraciflua	American Sweetgum
Pistacia chinesis	Chinese Pistache
Quercus macrocarpa	Bur Oak
Quercus muhlenbergii Engelm	Chinkapin Oak
Taxodium ascendens	Pond Cypress
Taxodium distichum	Baldcypress
Ulmus parvifolia	Chinese Elm

Groundcover/Vines

Euonymus	Creeping Euonymus
Hedera algeriensis	Algerian Ivy
Hedera helix	English Ivy
Lantana spp.	Lantana
Liriope spp.	Liriope
Ophiopogon japonicum	Dwarf Lily-turf
Parthenocissus quinquefolia	Virginia Creeper
Sedum spp.	Sedum
Trachelospermum asiaticum	Asiatic Jasmine
Verbena spp.	Verbena

Lawn/Turf

Bouteloua gracilis	Bluegrama Grass
Buchloe dactyloides	Buffalo Grass var. '609' and 'Prairie'
Cynodon spp.	Bermuda Grass
Stenotaphrum secundatum 'raleigh'	Raleigh St. Augustine (also Palmetto)
Zoysia spp.	Zoysia 'Emerald' and 'El Torro'

Courtyard/Garden

Canopy Trees

Gleditsia triacanthus var. Inermes moraine	Honeylocust
Koelreuteria paniculata	Goldenrain Tree
Lagerstroemia indica	Crepe Myrtle varieties: 'Tuscarora' 'Natchez' 'Firebird' 'Jet Stream' 'Cherokee' 'Watermelon Red' 'Country Red' 'Christiana' 'Tonto'
Metasequoia glyptostroboides	Dawn Redwood
Pistacia chinensis	Chinese Pistache
Quercus robur	English Oak
Taxodium distichum	Baldcypress

Understory Trees			
Cercis Canadensis	Eastern Redbud var. texana & var. mexicana	Hedera helix	English Ivy
		Lantana spp.	Lantana
		Liriope spp.	Liriope
Crataegus marshallii	Parsley Hawthorn	Lonicera japonica 'Atropurpurpea'	Honeysuckle
Diosporus texana	Texas Persimmon	Lonicera sempervirens	Coral Honeysuckle
Ilex decidua	Possum Haw Holly	Ophiopogon japonicum	Ophiopogon
Ilex vomitoria	Yaupon Holly	Parthenocissus quinquefolia	Virginia Creeper
Koelreuteria paniculata	Goldenrain Tree	Salvia greggii	Autumn Sage
Malus anugustifolia	Southern Crab Apple	Trachelospermum asiaticum	Asiatic Jasmine
Myrica cerifera	Southern Wax Myrtle		
Parkinsonia aculeata	Jerusalem Thorn (Palo Verde)	**Lawn/Turf**	
		Bouteloua gracilis	Bluegrama Grass
Pyrus 'Aristocrat'	Aristocrat Pear	Buchloe dactyloides	Buffalo Grass var. '609' and 'Prairie'
Pyrus kawakamii	Kawakami (evergreen) Pear	Cynodon spp.	Bermuda Grass
		Stenotaphrum secundatum 'raleigh'	Raleigh St. Augustine
Shrubs		Zoysia spp.	Zoysia 'Emerald' and 'El Torro'
Acacia farnesiana	Sweet Acacia		
Hersperaloe parviflora	Red Yucca		
Ilex cornuta 'burfordii'	Burford Holly		
Ilex cornuta 'burfordii nana'	Dwarf Burford Holly		
Ilex vomitoria 'nana'	Dwarf Yaupon		
Leucophyllum frutescens	Texas Sage		
Ligustrum lucidum	Glossy Privet		
Nerium Oleander	Oleander		
Rhaphiolepis indica	Indian Hawthorne		
Sophora secundiflora	Texas Mountain Laurel		
Viburnum rufidulum	Rusty Blackhaw Viburnum		
Vitex agnus-castus	Chaste Tree		
Groundcover/Vines			
Euonymus	Creeping Euonymus		
Euonymus fortunei 'Coloratus'	Creeping Euonymus 'Coloratus'		
Hedera algeriensis	Algerian Ivy		

TEXAS LANDSCAPE PLANT LIST

Post Oak Savannah and Blackland Prairie Ecoregion

The Texas A&M campus consists of two Texan ecoregions, known as the post oak savannah and the blackland prairie. The majority of the campus falls within the post oak savannah, which is identified by sandy soils separated by swaths of clay. Lufkin, Tabor, and Edge Soil Series (Lc, Ld, Lf, Ta & Eb) are typical soils in this ecoregion. The blackland prairie, on the other hand, consists of dark, waxy, clayey soils underlain by alkaline, limey soils. Wilson and Crocket Soil Series, Wb & Cc, are found in this zone. Identified below is a list of plants that are considered native or naturalized to both ecoregions. These plants will be incorporated into the Texas landscape (and the urban campus landscape when possible) to minimize water consumption and maintenance regimes as well as create diverse landscapes that are both aesthetic and ecologically functional for humans and wildlife.

Sources:

Dirr, Michael A. *Manual of Woody Landscape Plants, Their Identification, Ornamental Characteristics, Culture, Propagation and Uses,* 5th Ed. Stipes Publishing, LLC. Champaign, IL. 1998.

Dirr, Michael A. *Dirr's Hardy Trees and Shrubs, An Illustrated Encyclopedia.* Timber Press, Portland, Oregon. 1997.

"Native American Seed" catalog. 2003.

Russell, Curtis. Texas A&M Landscape Standards. Memo dated April 24, 2003.

"Texas A&M University Campus Urban Forest Management Plan," December 1998.

Texas Parks and Wildlife review.

The staff of the Liberty Hyde Bailey Hortorium. *Hortus Third, A Concise Dictionary of Plants Cultivated in the United States and Canada.* Macmillan, New York. 1976.

Wasowski, Sally and Andy. *Native Texas Plants, Landscaping Region by Region.* Texas Monthly Press, Austin, TX. 1988.

Upland Zone

Canopy Trees	
Carya texana	Black Hickory
Juniperus virginiana	Eastern Redcedar
Platanus mexicana	Mexican Sycamore
Prosopis glandulosa	Honey Mesquite
Quercus macrocarpa	Bur Oak
Quercus marilandica	Blackjack Oak
Quercus muhlenbergii Engelm	Chinkapin Oak
Quercus polymorpha	Monterey Oak
Quercus stellata	Post Oak
Quercus virginiana	Live Oak
Ulmus alata	Winged Elm
Ulmus crassifolia	Cedar Elm
Ulmus parvifolia sermpervirens	Lacebark Elm
Understory Trees	
Cercis canadensis var. mexicana	Mexican Redbud
Cercis canadensis var. texensis	Texas Redbud
Ilex decidua	Possumhaw Holly
Rhus lanceolata	Prairie Flameleaf Sumac
Sophora affinis	Eve's Necklace
Zanthoxylum clava-herculis	Hercules'-club
Shrubs	
Prunus mexicana	Mexican Plum
Rhus glabra	Smooth Sumac
Symphoricarpos orbiculatus	Coralberry
Viburnum rufidulum	Rusty Blackhaw Viburnum
Yucca louisiana	Louisiana Yucca
Yucca pallida	Paleleaf Yucca
Groundcover and Vines	
Parthenocissus quinquefolia	Virginia Creeper
Pteridium aquilinum var. "psuedocaudatum"	Braken Fern
Grasses, Perennials, Wildflowers	
Andropogon gerardii	Big Bluestem
Aphanostephus skirrhobasis	Lazy Daisy
Bouteloua curtipendula	Sideoats Grama
Buchloe dactyloides	Buffalo Grass
Cassia fasciculata	Partridge Pea
Eryngium leavenworthii	Eryngo
Gaillardia pulchella	Indian Blanket
Lupinus texensis	Bluebonnet
Monarda citriodora	Horsemint
Oenothera rhombipetala	Diamond Petal Primrose
Schizachyrium scopariun	Little Bluestem
Sorghastrum nutans	Indian Grass
Stipa leucotricha	Texas Wintergrass

Riparian Zone

Trees	
Betula nigra	River Birch
Carya illinoiensis	Pecan
Diospyros virginiana	Common Persimmon
Fraxinus pennsylvanica	Green Ash
Morus alba	Common Mulberry
Platanus mexicana	Mexican Sycamore

Platanus occidentalis	American Planetree
Quercus macrocarpa	Bur Oak
Quercus nigra	Water Oak
Quercus Shumardii	Shumard Oak
Salix nigra	Black Willow
Taxodium distichum	Bald Cypress
Ulmus americana	American Elm

Shrubs

Cephalanthus occidentalis	Common Buttonbush
Cornus drummundii	Round Leaf Dogwood
Crataegus marshallii	Parsley Hawthorn
Ilex vomitoria	Yaupon Holly
Leucophyllum frutescens	Texas Sage
Sambucus canadensis	American Elderberry
Symphoricarpos orbiculatus	Coralberry
Viburnum prunifolium	Black Haw Viburnum
Viburnum rufidulum	Rusty blackhaw Viburnum

Groundcover and Vines

Athyrium filix-femina var. “asplenioides”	Lady Fern
Thelypteris kunthii	Wood Fern
Viola missouriensis	Missouri Violet

Grasses

Andropogon gerardii	Big Bluestem
Andropogon glomeratus	Bushy Bluestem
Cassia fasciculata	Partridge Pea
Chasmanthium latifolium	Inland Seaoats
Desmanthus illinoensis	Illinois Bundle Flower
Elymus canadensis	Prairie Wildrye
Elymus virginicus	Virginia Wildrye
Erianthus giganteus	Sugarcane Plume Grass
Panicum virgatum	Switch Grass
Schizachyrium scoparium	Little Bluestem
Sporobolus sp.	Dropseed
Tripsacum dactyloides	Eastern Gama Grass

Emergent Species

Eleocharis palustris	Common Spikerush
Iva spp.	Marsh Elder Millets
Polygonum spp.	Smartweed
Typha spp.	Cattail

Perennials/Wildflowers

Aster subulatus	Baby’s Breath Aster
Castilleja indivisa	Indian Paintbrush
Coreopsis tinctoria	Goldenwave
Englemannia pinnatifida	Cutleaf Daisy
Helenium amarum	Bitterweed
Helianthus maximiliani	Maximilian Sunflower
Oenothera speciosa	Pink Evening Primrose
Physostegia intermedia	Pink Spring Obedient
Rudbeckia hirta	Black-eyed Susan
Salvia azurea var. grandiflora	Pitcher Sage

Invasive Species

Remove when possible, replace with native species.

Understory

Ailanthus	
Albizia	Mimosa
Detarium	Tallow
Melia azedarach	Chinaberry
Photinia	

Meadow/Groundcover

Beggar-ticks	
Sandburs	

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