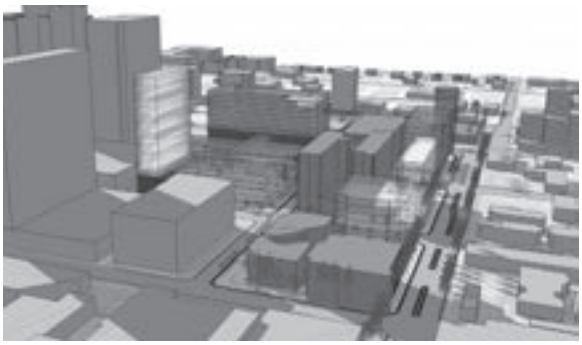
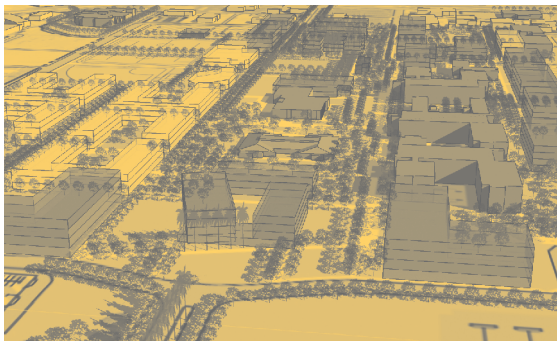
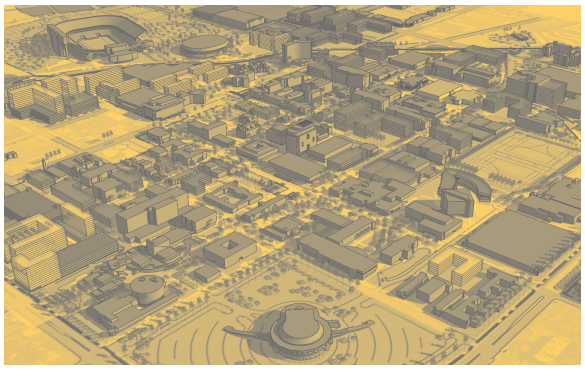
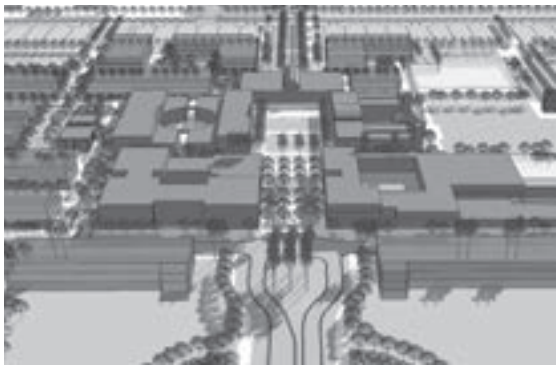
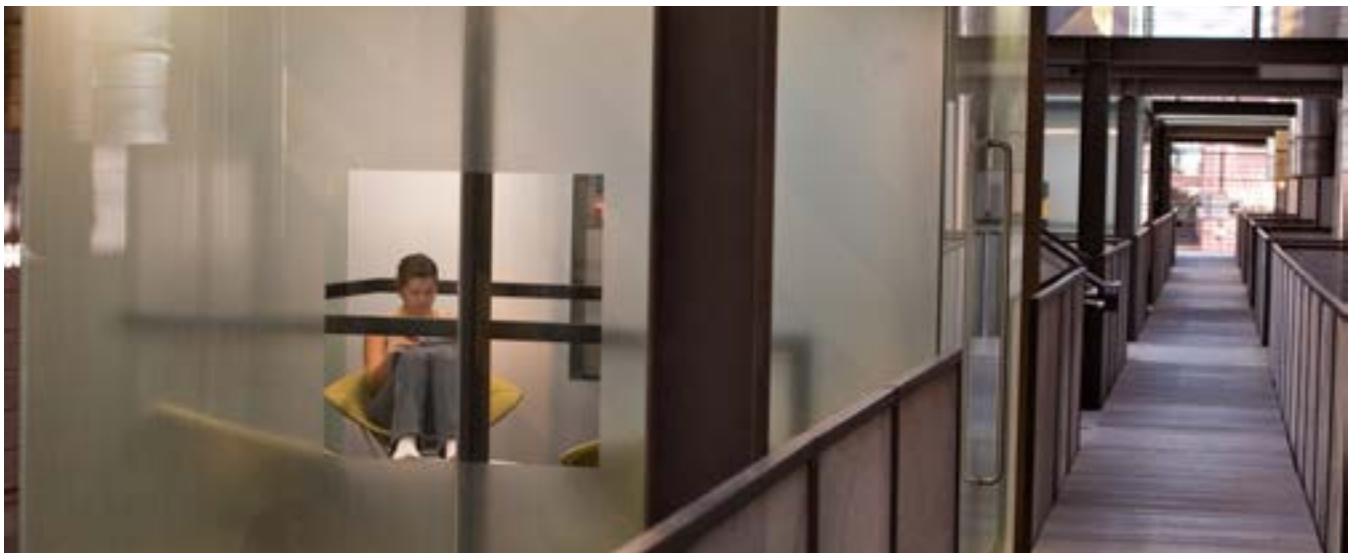





Arizona State University

Master Plan Update

ASU Arizona State University

DECEMBER 2011



“The best way to predict the future is to invent it.”

— Alan Kay

contents

Students walk and bike along Orange Mall on the Tempe campus.

1 executive summary

introduction

Purpose of the Master Plan Update

This report represents the five year Master Plan Update to the 2006 Campus Master Plan for Arizona State University (ASU). The purpose of this planning study is to assess the progress made and changes in projected growth since 2006; update the projected needs assessment; determine each campus's future development capacities and land use patterns; define new projects and priorities; and incorporate ASU's sustainability goals and principles into the master plan. The Master Plan Update provides a framework for future development opportunities, needed infrastructure improvements, and a coordinated set of architectural and landscape guidelines for the Tempe, Downtown Phoenix, Polytechnic, and West campuses.

This update has been influenced by many internal and external challenges and opportunities not present during the previous master planning process in 2005-2006. The current economic climate, ASU's 2010 Strategic Business Plan, and the need to increase research and innovation have led to a re-evaluation of ASU's growth needs and enrollment goals; how it is delivering education; how it is recruiting and graduating students; and how it can enhance the quality of life for each campus.

A commitment to educational excellence, research excellence, workforce and community, and productivity are the overarching goals established by ASU in its 2010 Strategic Business Plan that have helped guide the recommendations of this Master Plan Update. Based on its research success in the past decade, ASU has doubled its research expenditures goal for 2020. The university has also increased its 2020 enrollment target for the Tempe campus from 50,000 to a projected 60,000 students, reflecting ASU's commitment to access and inclusion. While some of this enrollment growth may represent increased on-line study, it is expected that the population on the Tempe campus will increase. Future enrollment targets for the Downtown Phoenix, Polytechnic, and West campuses remain steady at 15,000 students at each location.

Sustainability

ASU continues to be a leader in sustainability. The university's commitment is represented in the establishment of the Global Institute of Sustainability (GIOS), the 2009 *Carbon Neutrality Action Plan*, the 2011 *Strategic Plan for Sustainability Practices and Operations*, and numerous campus initiatives in alternative energy production, increased efficiency, recycling, transportation, campus development, and architectural design. In response, this Master Plan Update has developed 20 sustainable principles to guide future decision-making and campus development in accordance with the university's long-term vision.

Planning Principles

The Master Plan Update is guided by four planning principles that relate to ASU's eight design aspirations for a New American University:

1. **foster change**
2. **connect people**
3. **embody sustainability and resiliency**
4. **inspire commitment**

In keeping with ASU's entrepreneurial spirit, the update must **foster change** to encourage innovation and help transform the campus and society. As physical places, ASU's campuses must **connect people** to conduct research, enable student success, and create knowledge. By **embodying sustainability and resiliency**, ASU can leverage its place, connect with its communities, and engage both locally and globally. And as it **inspires commitment**, ASU can maintain the support it will need to sustain its mission.

Design Aspirations for a New American University

01. Leverage Our Place
ASU embraces its cultural, socioeconomic and physical setting.

02. Transform Society
ASU catalyzes social change by being connected to social needs.

03. Value Entrepreneurship
ASU uses its knowledge and encourages innovation.

04. Conduct Use-Inspired Research
ASU research has purpose and impact.

05. Enable Student Success
ASU is committed to the success of each unique student.

06. Fuse Intellectual Disciplines
ASU creates knowledge by transcending academic disciplines.

07. Be Socially Embedded
ASU connects with communities through mutually beneficial partnerships.

08. Engage Globally
ASU engages with people and issues locally, nationally and internationally.

existing conditions

Tempe Campus

Founded in 1885, the Tempe campus is the original campus of ASU. Today, the campus consists of 634 acres with 15.9 million gross square feet (gsf). As of fall 2011, total enrollment at the Tempe campus was 51,469 students.

The Tempe campus is the most densely populated of the four ASU campuses, located adjacent to downtown Tempe. It is a thriving undergraduate, graduate, and research campus, and home to ASU's arts and athletics venues. As a dense and compact environment, the Tempe campus must identify opportunities for infill and replacement, without sacrificing its quality of life.

Downtown Phoenix Campus

In 1990, ASU moved into the facilities at the Mercado, on 5th Street and Monroe Street. Since that time, the Downtown Phoenix campus (DPC) has expanded to 1.59 million gsf in 14 buildings. As of fall 2011, total enrollment at the DPC was 10,296 students.

Located in the heart of Phoenix, the DPC is within walking distance to multiple concert venues, professional sports arenas, the downtown Phoenix convention center, municipal and federal government buildings, and new urban mixed-use developments. As it continues to grow, the DPC is quickly becoming a social and economic catalyst driving redevelopment in the downtown.

2011 Tempe Campus Metrics:

- **634 acres**
- **51,469 FTE* enrollment**
- **10,432 beds (20%)**
- **15.9 million gsf**
- **18,118 parking spaces**
- **existing campus density: 0.58 FAR****
- **core campus density: 0.90 FAR**

*** FTE= Full Time Equivalent**

**** FAR = Floor Area Ratio**

2011 DPC Campus Metrics:

- **20 acres**
- **10,296 FTE* enrollment**
- **1,225 beds (12%)**
- **1.6 million gsf**
- **1,040 parking spaces**
- **existing campus density: 1.83 FAR****

Note: There are multiple ways to count enrollment but for the purposes of this report it will be calculated based on the full-time equivalent (FTE). FTE has been used because it is the best basis for master planning purposes.

Polytechnic Campus

The Polytechnic campus is ASU's latest campus. Founded in 1996 on a former Air Force base, it serves the rapidly growing southeast valley. Today the campus consists of 2.14 million gsf of buildings located on approximately 613 acres. As of fall 2011, total enrollment at the Polytechnic campus was 4,877 students.

ASU shares the former Air Force base with two community colleges, the Embry-Riddle Aeronautical University, a Veteran's Administration clinic, Air Force research labs, and an Army Reserve Center. Orderly growth, sustainability, and the creation of a unique campus identity are Polytechnic's future challenges and greatest opportunities.

2011 Polytechnic Campus Metrics:

- **613 acres**
- **4,877 FTE* enrollment**
- **1,306 beds (27%)**
- **2.14 million gsf**
- **3,167 parking spaces**
- **existing campus density: 0.08 FAR****
- **core campus density: 0.17 FAR****

West Campus

In 1986, ASU started construction on its West campus. Located in western Maricopa County, the ASU's West campus is comprised of 278 acres. Today the campus has 861,546 gsf in 14 buildings. As of fall 2011, total enrollment at ASU's West campus was 5,916 students.

The West campus is unique in ASU's system. Its physical layout and architecture present a formal campus atmosphere, with lush courtyards, shaded walkways, and a central lawn fronting the Fletcher Library. The West campus has land to expand, but has been slow in its growth, partly due to a lack of on-campus housing and student life facilities.

2011 West Campus Metrics:

- **278 acres**
- **5,916 FTE* enrollment**
- **337 beds (6%)**
- **861,546 million gsf**
- **2,811 parking spaces**
- **existing campus density: 0.07 FAR****
- **core campus density: 0.17 FAR****

projected growth

Tempe Campus

The university has set a 2020 enrollment target of 60,000 students for the Tempe campus. The renovation of labs and existing academic space, coupled with the need to replace aging facilities and accommodate greater research growth, could result in a future demand of up to 1.67 million gross square feet (gsf) of new academic, research, and support functions.

The Tempe campus currently houses approximately 20% of its student population on campus. The ASU Student Affairs Residential Life Department has set a target of housing 25% of its student body on campus. This would equate to 15,000 beds for a future campus population of 60,000 students, adding 4,570 beds to the existing 10,432 on-campus supply.

Downtown Phoenix Campus

The DPC is expected to grow to 15,000 students at full build-out, the same projected enrollment as the 2006 Campus Master Plan. Based on this trajectory, the DPC could see a need ranging from 565,000 to 1.1 million gsf of additional academic, support, and research space.

The DPC houses approximately 12% of its population on campus, with a total of 1,225 beds. The ASU Student Affairs Residential Life Department has set a target of housing 25% of students on campus. This would equate to a total of 3,750 beds, an increase of 2,525 beds. Even at higher residential densities allowed downtown, the DPC may need to partner with third party developers to provide student housing on or near campus to reach this goal. In addition to housing, a new student recreation center is under construction as an expansion of the YMCA.

Polytechnic Campus

The 2020 enrollment target for the Polytechnic campus is projected at 15,000 students, the same as projected in the 2006 Campus Master Plan. This target could result in a future demand of up to 1.49 million gsf of new academic, research, and support functions.

The Polytechnic campus houses 27% of its current student population on campus in 1,306 beds in former military housing, comprised of one-story single-family structures. The ASU Student Affairs Residential Life Department has set a target of housing 25% of students on campus. This would equate to a total of 3,750 beds, for an addition of 2,444 new beds, not including any replacement. A wider variety of student housing types will need to be constructed on the Polytechnic campus. A first phase residence hall with 300 beds, dining, student recreation center, and recreation fields are in design or under construction.

West Campus

The 2020 enrollment target for the West campus is projected at 15,000 students, the same as projected in the 2006 Campus Master Plan. This target could result in a future demand of up to one million gsf of new academic, support, and limited research functions. However, the current supply of under-utilized space on West campus and increased efficiency in the utilization of existing space may lessen the projected demand.

The West campus houses the fewest students in on-campus housing, with 337 beds, for a total of 6% of its existing population. The ASU Student Affairs Residential Life Department has set a target of housing 20% of students on West campus. This would equate to a total of 3,000 beds, an increase of 2,660 beds over current supply. A first phase residence hall, dining, student recreation center, and recreation fields are in design or under construction.

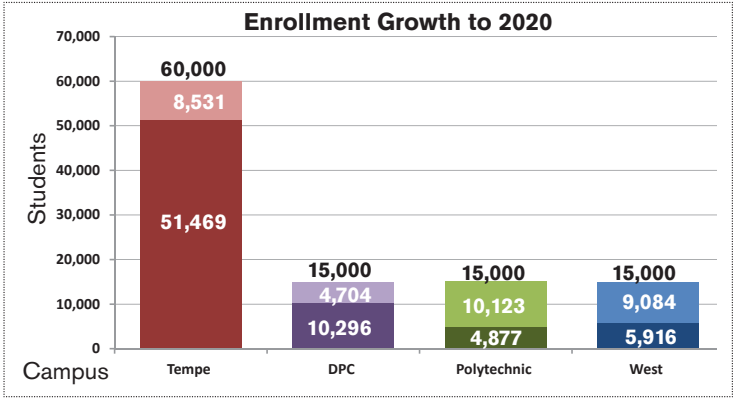


Chart 1.1: Projected Enrollment Growth to 2020 by Campus

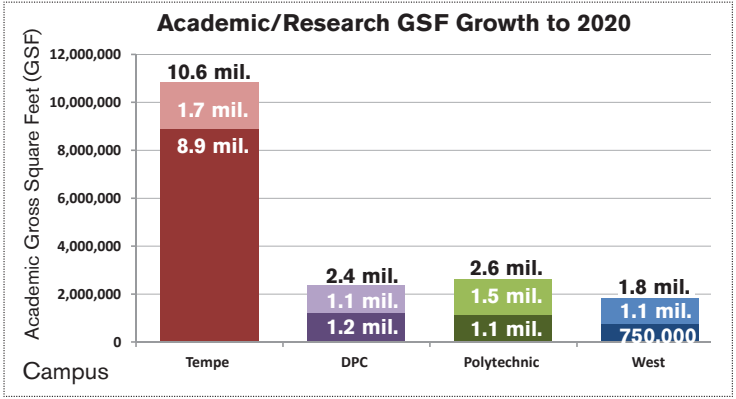


Chart 1.2: Projected Academic/Research GSF Growth to 2020 by Campus

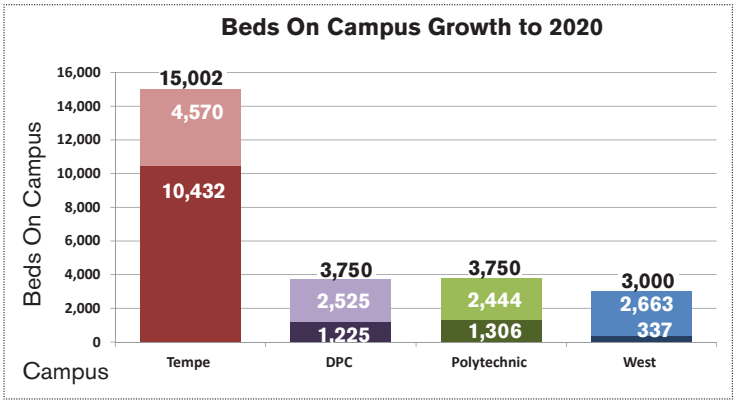


Chart 1.3: Future Growth of On-Campus Housing

planning challenges

Tempe Campus

Availability of land and finding sites for replacement of outdated facilities, new construction, or swing space during building renovation is the single biggest challenge for the ASU Tempe campus. Low scale, one- and two-story buildings in the core of campus are an increasingly inefficient use of valuable land resources. The Memorial Union, Campus Bookstore, and Student Recreation Center, located at the heart of campus, all need expansion space, with little immediate land available nearby. The Central Plant also needs expansion space to serve future growth. The central campus needs more outdoor open space, as places to connect and enliven the campus environment.

Growth opportunities are easier at the edges of central campus. The Tempe Gateway site, a former commercial property at the corner of Mill Avenue and University Boulevard, provides the most significant opportunity for campus expansion and integration with downtown Tempe. The new Valley METRO light rail stations create opportunities to locate higher density residential and mixed-use functions. As part of the long-range planning for the Eco-District and Rio Salado area, future redevelopment of Karsten Golf Course northeast of the central campus will present a significant opportunity to create a new gateway and front door image along Rural Road, allowing for possible campus, research, and/or public/private expansion.

Downtown Phoenix Campus

The DPC is a developing campus in an urban location and is formed by a joint partnership with the City of Phoenix (City) on City-controlled property. Available property for the DPC expansion is limited, so strategic growth patterns and appropriate urban densities must be considered for ASU to realize its enrollment target for the campus. The campus's proximity to the Valley METRO light rail station at Civic Space Park and the Central Station Transit Center help mitigate demand for parking on campus.

Pedestrian and bicyclist traffic outside of Coor Hall on the Tempe campus.

Polytechnic Campus

The creation of an orderly, well-defined collegiate campus out of a former Air Force base and its facilities is the largest challenge for the Polytechnic campus. Creating a coherent vehicular circulation and wayfinding system and establishing a sense of place and identity among so many other institutional users on the 613-acre site is an additional challenge. However, as a new campus, Polytechnic has the greatest opportunity to embrace sustainable development and define what it means to be a college campus in the 21st century.

The Midvale and Germann archeological sites occupy most of the south half of the former base, and pose constraints and challenges to future development.

West Campus

The largest challenge for the West campus is attracting students and growing its enrollment. The lack of a critical mass of on-campus housing and related student life facilities has hampered its growth. Finding the right academic mix, supported by the right physical environment, will be a key challenge and opportunity for the campus.

A student finds respite in a garden on the Polytechnic campus.

recommendations

One University in Many Places

The Campus Master Plan for ASU proposes future development opportunities for robust growth and continued excellence in research, academics, student engagement, and sustainability initiatives. Each of ASU's four campuses will offer a full range of campus experiences, enhanced by each campus's unique location—from a great urban center to ASU's flagship campus, living in a cutting edge sustainable desert community, or studying in a more intimately scaled, residential college-like environment. The following section is a brief summary of the planning recommendations for each campus.

Tempe Campus

The Tempe Campus Master Plan Update proposes sites for the construction of up to 4.4 million gsf of new academic, research, support, and residential development, including over 600,000 gsf of replacement space. Within this total, the plan can accommodate up to 2.4 to 3 million gsf for new construction and/or replacement space for research, academic, and support uses. The range in square footage reflects flexibility in assumptions on density, building height (four to eight stories), and site coverage, depending on future program needs.

The proposed recommendations for the Tempe campus focus on three core ideas:

- the redevelopment and densification of the central campus
- optimizing the development potential of underutilized sites such as the Tempe Gateway
- the future transformation of the Rural Road frontage of the campus and Athletics district

Key Elements of the Tempe Plan

Research expansion, both university and potential private partner development, is proposed as an extension of the emerging research district on the east side of campus, creating a new gateway and image on Rural Road and its intersection with University Drive.

Existing low-scale footprints within the central campus are identified for future higher density development. A few sites provide opportunities for new construction with minor relocation of or disruption to existing programs and facilities. Selectively phased demolition on such sites, followed by new construction and relocation can begin a cycle of reinvestment and higher density in the core of campus. Phased redevelopment of the Engineering Center is proposed that will allow for a new engineering building and campus open space at the crossroads of Palm Walk and Orange Mall. Expansion to the School of Business and the Student Recreation Center will bring much needed academic and recreational program to the southern edge of campus, close to recent housing developments.

Bicycles are a popular mode of transportation on the Tempe campus.

Orange Mall is a key area for redevelopment, with new construction creating a “Main Street of Ideas” along a refurbished pedestrian-oriented mall. Relocation of the bookstore to P.E. West would create a synergy of use with an expanded Memorial Union and open up the former bookstore site for new construction.

Older, low-scale student housing such as Irish Hall and Palo Verde Main are proposed for redevelopment. High-density student housing and apartments are proposed as part of a mixed-use, transit-oriented development on College Avenue near the light rail station, promoting increased ridership. Future development of student housing, retail, a hotel, and a possible conference center on the Tempe Gateway site, will create a vibrant transition to downtown Tempe and Mill Avenue. The future extension of Tyler Mall and pedestrian connections to Mill Avenue will provide a more accessible, porous western boundary to campus.

New parking garages are shown in the plan only to replace existing parking displaced by future construction, with no net gain in parking, in accordance with ASU’s sustainable transportation goal.

Access management of both motorized and non-motorized transportation on the Tempe campus has become an increasingly critical concern. The large amount of foot traffic combined with the vast number of bicycles, skateboards, maintenance vehicles, and electric carts on the primary pedestrian malls during peak use hours has created a safety concern for students, faculty, staff, and visitors. An analysis of all wheeled movement on the Tempe campus has resulted in recommendations to create a pedestrian only zone during specific hours of the day. Separate service routes for maintenance and delivery vehicles and alternative routes for cross-campus bicycle and electric cart traffic have been identified, as well as revisions to campus policy.

Downtown Phoenix Campus

The DPC Master Plan Update proposes sites for the construction of up to 1.7 million gsf of new academic, research, support, and residential development to accommodate future enrollment of 15,000 students. This will double the square footage ASU has on the Downtown Phoenix campus, contributing to the continued economic and social revitalization of the downtown.

Key Elements of the DPC Plan

The DPC will continue to develop on the City-controlled property reserved for ASU growth. Future density will be consistent with the current campus and urban context, with proposed academic building heights ranging from six- to ten-stories, and up to 24 stories for future residential. Retail and commercial uses are proposed for the ground floor to help activate street edges. The plan proposes the continued use of the Mercado district for administrative and academic functions.

An outdoor movie is shown on the lawn at the Civic Center at the Downtown Phoenix campus.

Public/private partnerships will continue to be an important strategy in the development of the DPC, such as ASU's current partnership with the YMCA for housing and a student recreation addition. Due to limited City-owned land area for the campus, the university will need to continue partnering with private developers to build student housing adjacent to campus in order to meet ASU's housing target of 25%.

Increased use of the Valley METRO light rail line and Central Station Transit Center will offset some of the need for future parking. Limited parking is proposed in above- and below-grade structures.

Polytechnic Campus

The Polytechnic Campus Master Plan Update proposes sites for the construction of up to 2.8 million gsf of new academic, research, support, and residential development, including replacement space of 92,000 gsf. Of this total, the plan proposes a net gain of almost 1.8 million gsf for research, academic, and support uses, and almost one million gsf for new student housing, doubling the current residential square footage on campus.

The master plan for the Polytechnic campus envisions the continued development of a cutting edge, contemporary, sustainable campus set within a native desert landscape. The framework for Polytechnic establishes a strong east-west axial organization of pedestrian malls and future buildings framing a central commons that holds the library, student union, student services, and administration.

Key Elements of the Polytechnic Plan

The new Innovation Way ring road currently under construction will create a stronger campus boundary and circulation system for the Polytechnic campus. Proposed east-west pedestrian malls and stormwater arroyos will define the central commons of campus, with space for new administrative and student service functions and an expansion to the Student Union. Within the commons, a central green will provide an oasis-like counterpoint and informal gathering space. New three- to four-story academic and research space creates the physical frame around the commons. Larger research footprints on South Innovation Way may provide opportunities for private or governmental research partnerships.

New north and south residential quads are proposed with pedestrian malls bisecting the commons, keeping the campus walkable. Two gateway sites at the western and eastern edges of the campus provide future opportunities for a signature architectural language and image for the campus. Future solar installations over surface parking will help meet the energy goals of the university. The Midvale and Germann archeological sites south of the central campus are reserved for the long-term needs of the campus.

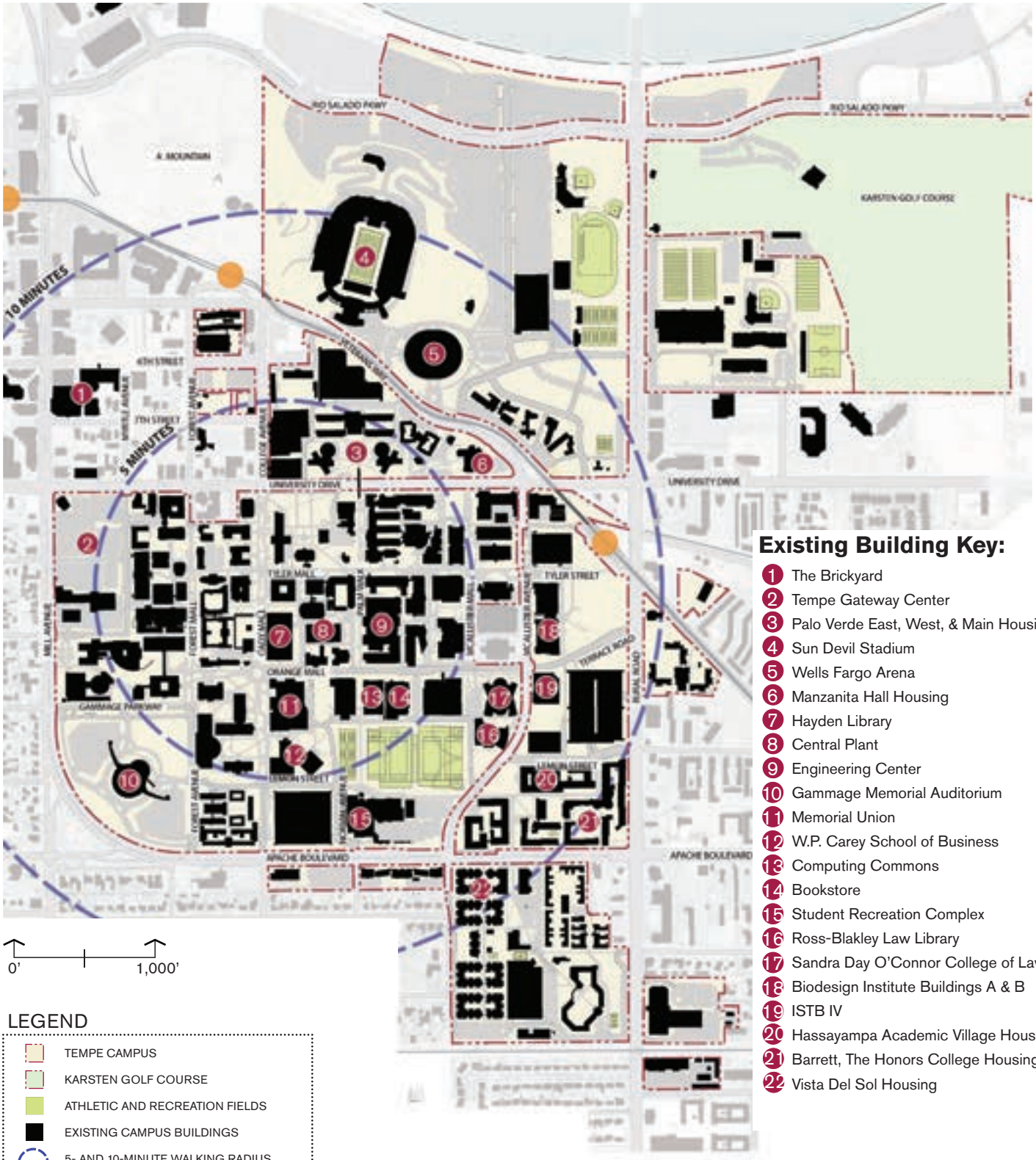
West Campus

The West Campus Master Plan Update proposes sites for the construction of up to 2.1 million gsf of new academic, support, residential, and replacement space to accommodate a long-term build-out for an enrollment of 15,000 students. Of this total, roughly half of the square footage is reserved for future academic and support uses, with one million gsf for new residence halls, greatly expanding student life on campus.

The West campus has seen slow enrollment growth in past decades. The investment in on-campus housing, student recreation, and dining services will provide a much needed boost to the quality of life on campus. Coupled with the campus's intimately scaled courtyards and central lawn, transition from a commuter campus to a residential campus will provide an additional attraction for recruitment.

Key Elements of the West Plan

Completion of the inner campus ring road will provide access to new development sites east and west of the current center of campus. Proposed three- and four-story academic and support buildings reflect the current pattern of tightly defined courtyard buildings along shaded pedestrian walks. Proposed residential development will create a new student neighborhood within easy walking distance of academic functions. Future development is kept compact to the center, with preservation of land holdings to the west, east, and south for solar field installations, surface parking, recreation, and long-term public/private development.



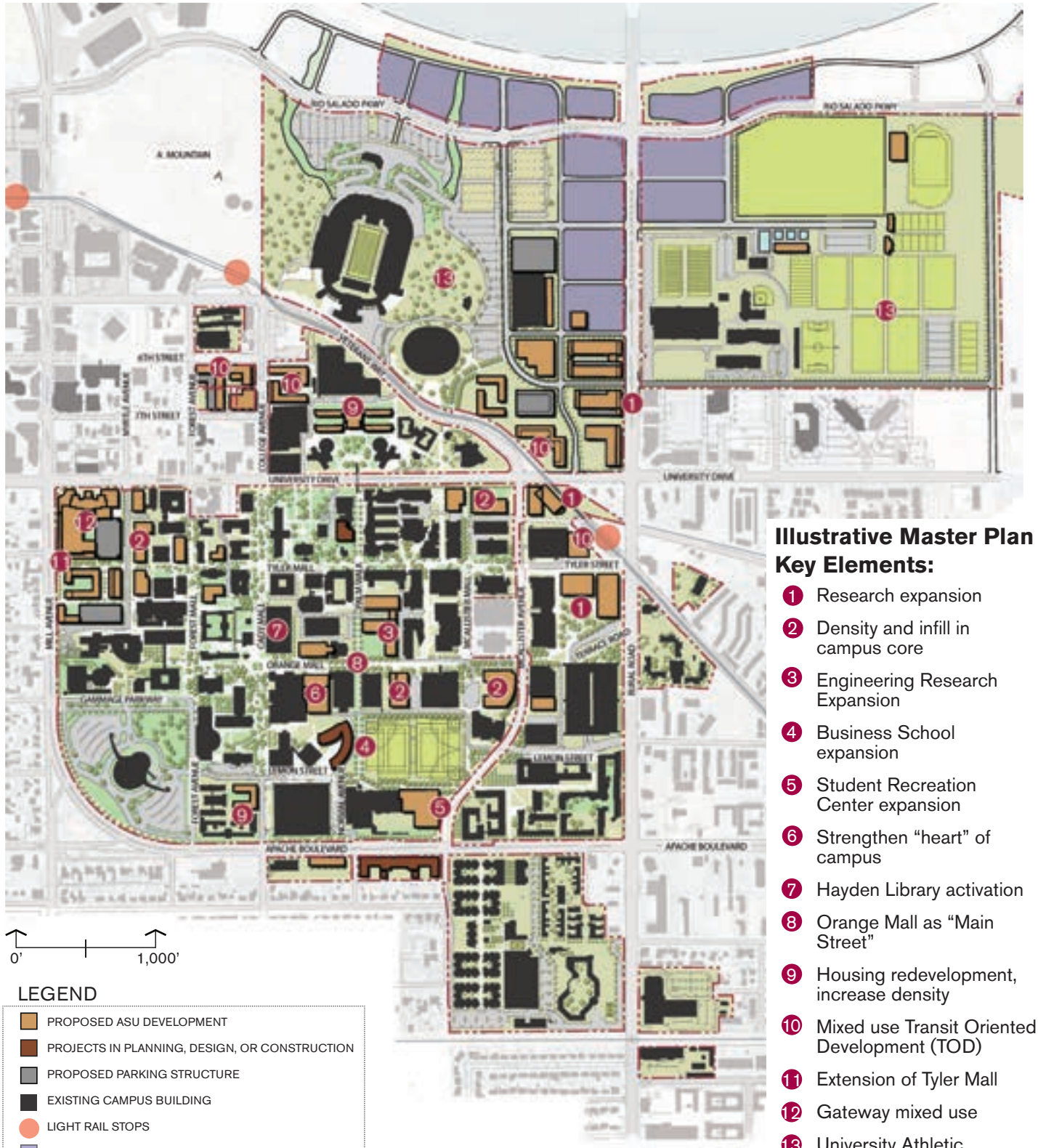
Existing Building Key:

1. The Brickyard
2. Tempe Gateway Center
3. Palo Verde East, West, & Main Housing
4. Sun Devil Stadium
5. Wells Fargo Arena
6. Manzanita Hall Housing
7. Hayden Library
8. Central Plant
9. Engineering Center
10. Gammage Memorial Auditorium
11. Memorial Union
12. W.P. Carey School of Business
13. Computing Commons
14. Bookstore
15. Student Recreation Complex
16. Ross-Blakley Law Library
17. Sandra Day O'Connor College of Law
18. Biodesign Institute Buildings A & B
19. ISTB IV
20. Hassayampa Academic Village Housing
21. Barrett, The Honors College Housing
22. Vista Del Sol Housing

LEGEND

- TEMPE CAMPUS
- KARSTEN GOLF COURSE
- ATHLETIC AND RECREATION FIELDS
- EXISTING CAMPUS BUILDINGS
- 5- AND 10-MINUTE WALKING RADIUS
- LIGHT RAIL STOP

Tempe Campus Existing Conditions Plan



LEGEND

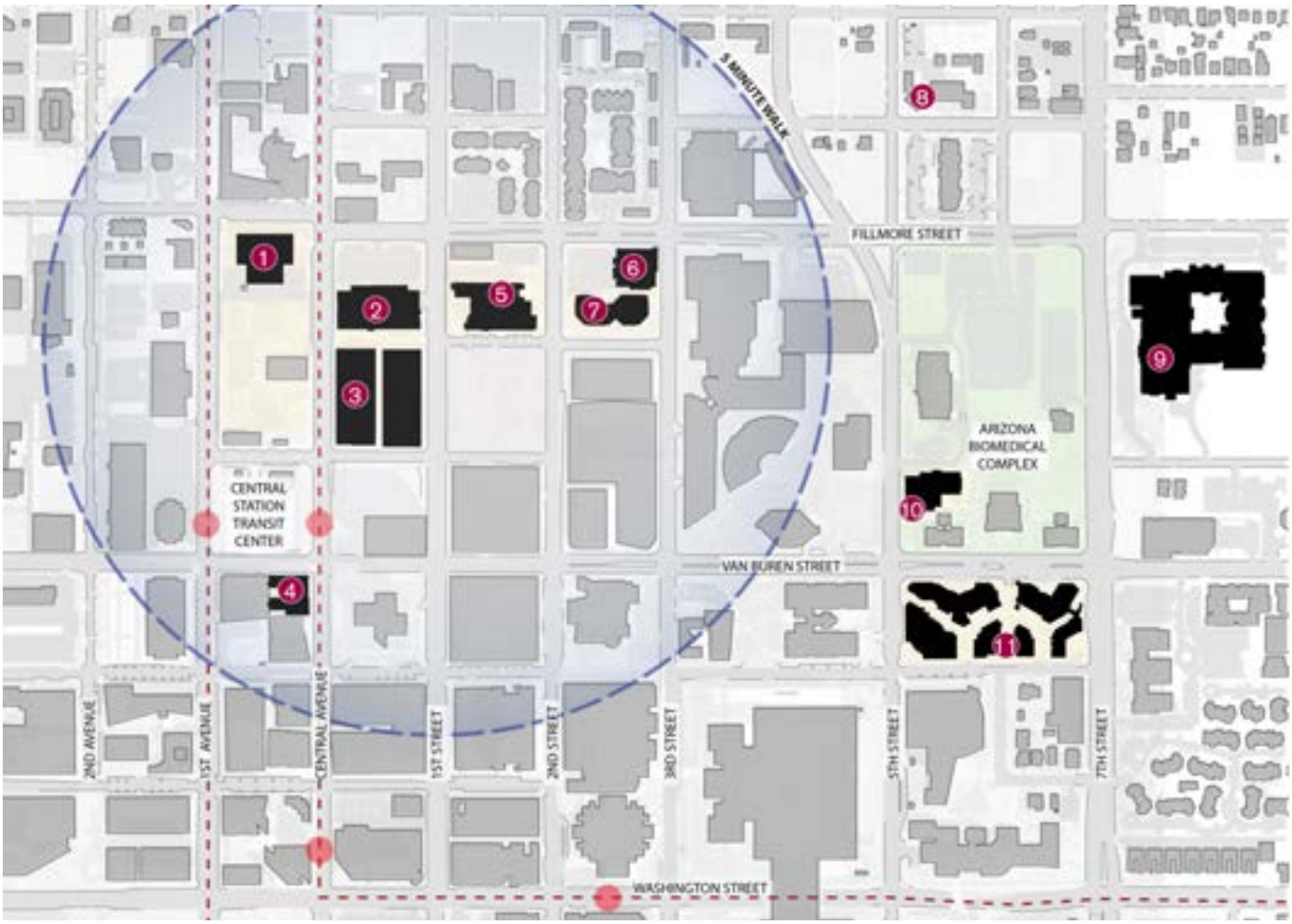
- PROPOSED ASU DEVELOPMENT
- PROJECTS IN PLANNING, DESIGN, OR CONSTRUCTION
- PROPOSED PARKING STRUCTURE
- EXISTING CAMPUS BUILDING
- LIGHT RAIL STOPS
- FUTURE DEVELOPMENT OPPORTUNITIES

* Eco-District plan development shown to 2020.

Illustrative Master Plan Key Elements:

1. Research expansion
2. Density and infill in campus core
3. Engineering Research Expansion
4. Business School expansion
5. Student Recreation Center expansion
6. Strengthen “heart” of campus
7. Hayden Library activation
8. Orange Mall as “Main Street”
9. Housing redevelopment, increase density
10. Mixed use Transit Oriented Development (TOD)
11. Extension of Tyler Mall
12. Gateway mixed use
13. University Athletic Facilities District

Tempe Campus Master Plan



Downtown Phoenix Campus Existing Conditions Plan

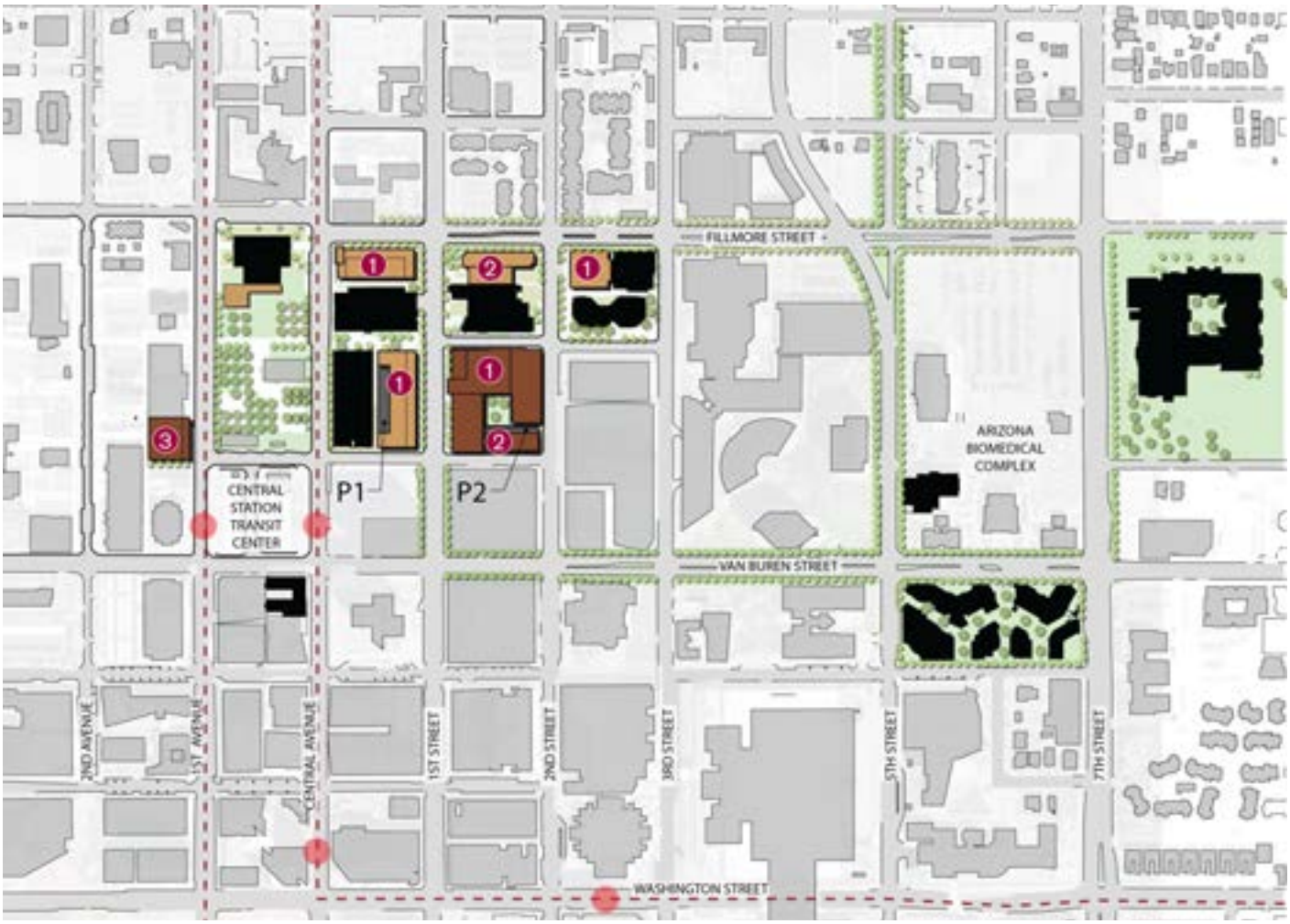
0' 800'

Existing Building Key:

1. Post Office
2. Walter Cronkite School of Journalism and Mass Communication / KAET
3. University Center
4. Phoenix Urban Research Laboratory (PURL)
5. Taylor Place Housing
6. Nursing and Health Innovation II
7. Nursing and Health Innovation I
8. Bioscience High School
9. Phoenix Preparatory Academy
10. Arizona Biomedical Collaborative
11. Mercado

LEGEND:

- ASU DPC CAMPUS
- ARIZONA BIOMEDICAL COMPLEX
- ASU BUILDING
- NON-ASU BUILDING
- LIGHT RAIL STOPS
- 5-MINUTE WALKING RADIUS



Downtown Phoenix Campus Master Plan

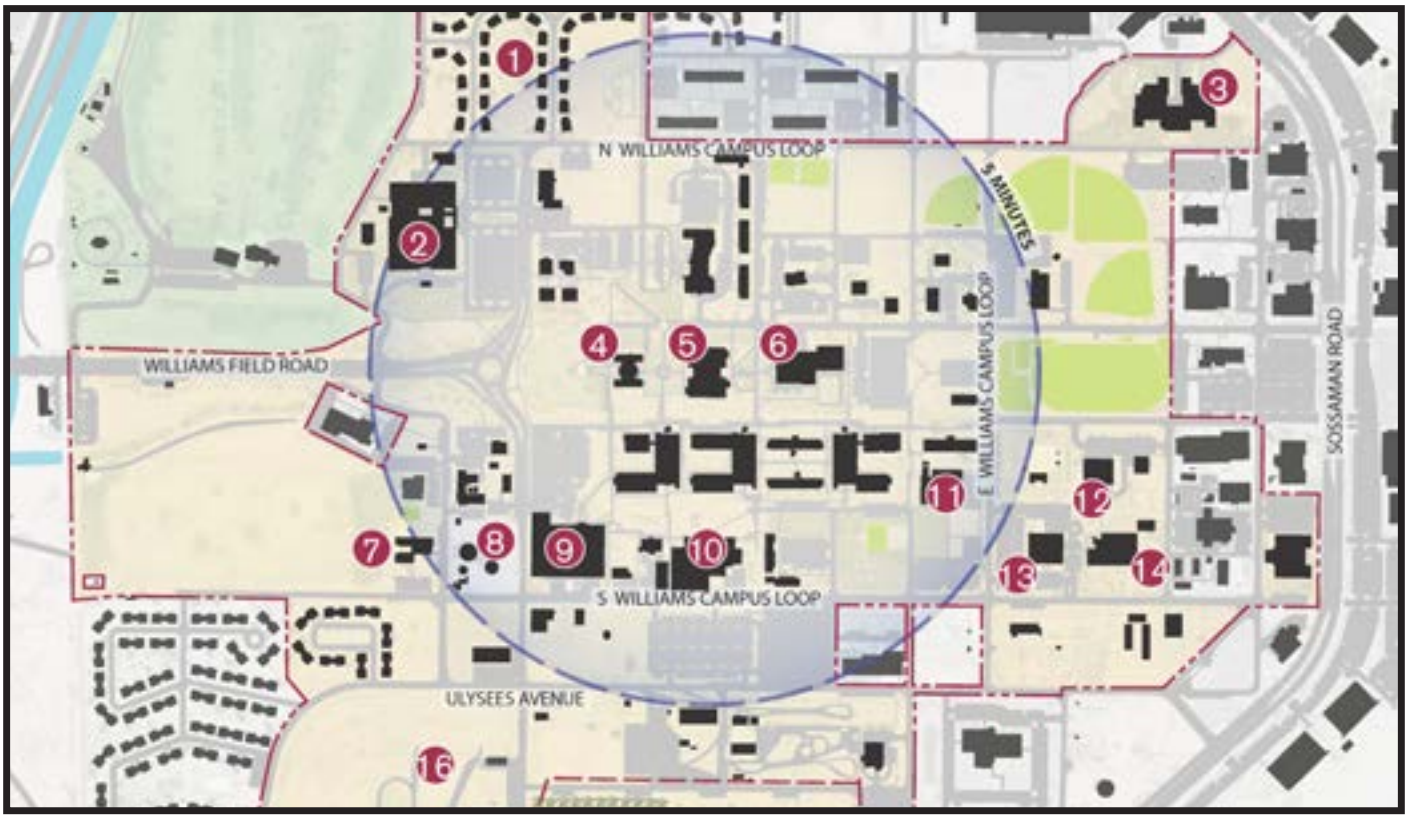
0' 800'

Key Elements:

1. Academic expansion
2. Future residential development
3. Student Recreation Center expansion at the YMCA

LEGEND

- PROPOSED ASU DEVELOPMENT
- PROJECTS IN PLANNING, DESIGN, AND CONSTRUCTION
- PROPOSED PARKING STRUCTURE
- EXISTING CAMPUS BUILDING
- EXISTING NON-CAMPUS BUILDING
- LIGHT RAIL STOPS



Plan Enlargement

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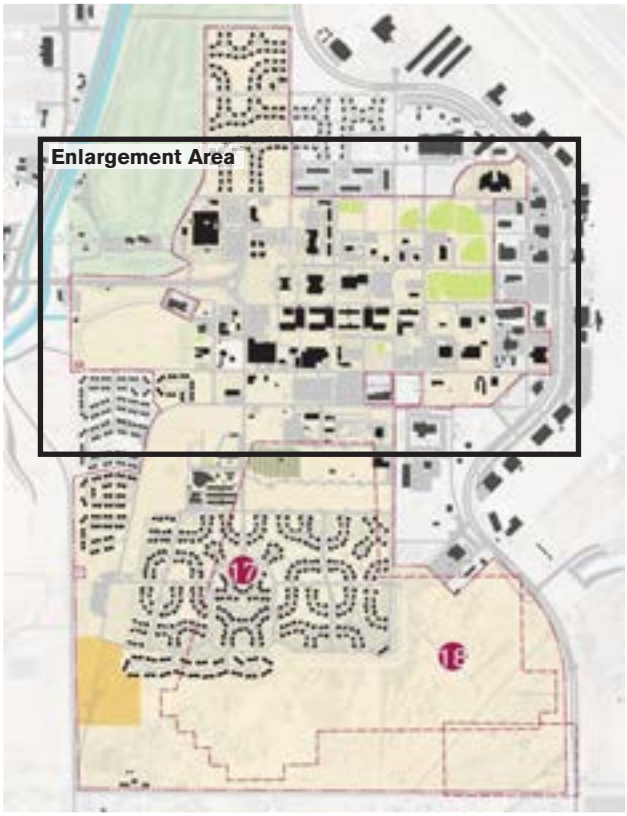


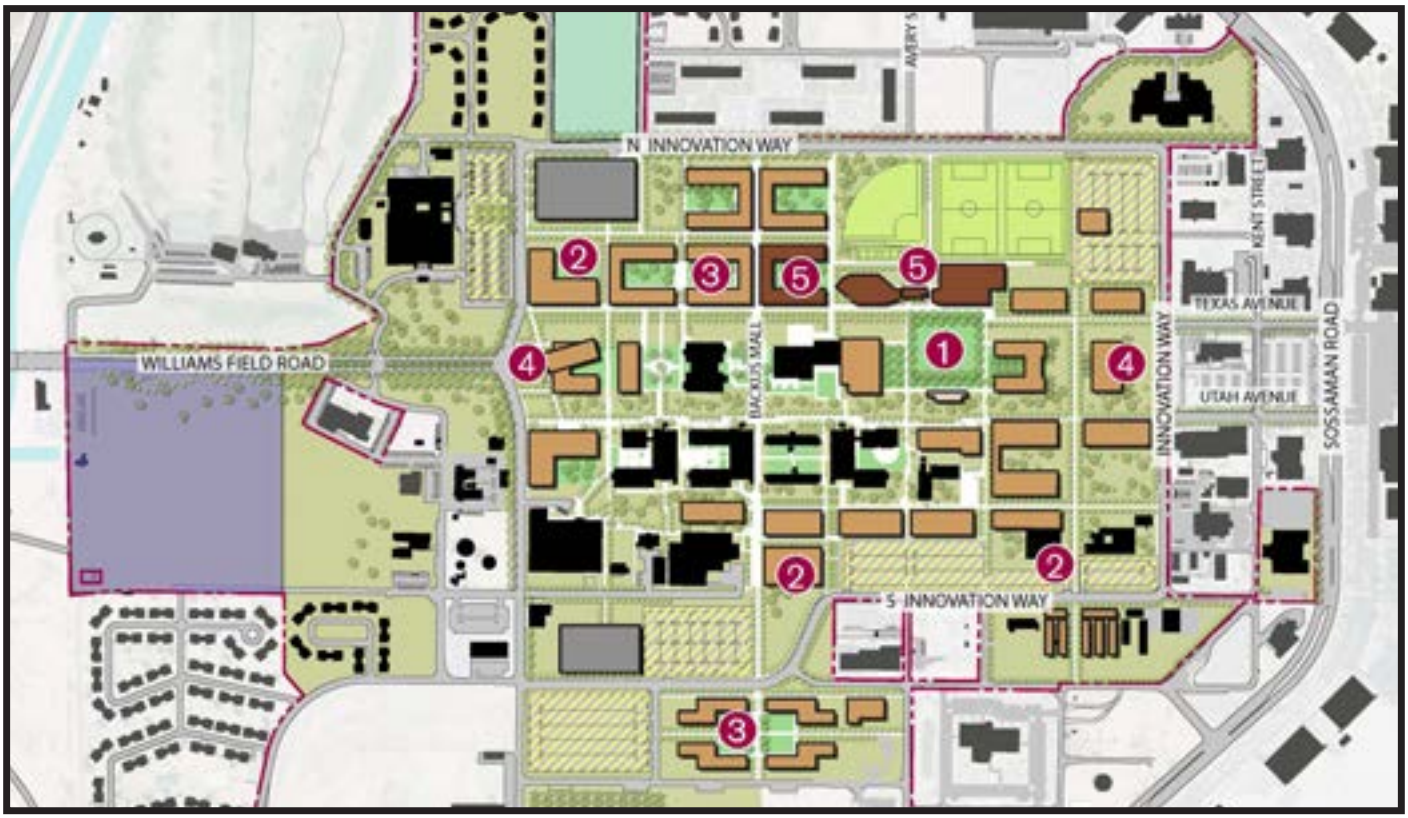
Existing Building Key:

1. North Desert Village Housing
2. Health Sciences Center
3. Simulator Building
4. Administration
5. Academic Center
6. Student Union and Bookstore
7. ASU Preparatory Academy Middle School
8. Water Tower
9. Technology Center
10. Agribusiness Center
11. Palo Blanco Housing
12. Physical Activity Center
13. ASU Preparatory Academy High School
14. ISTB III
15. West Desert Village Housing
16. Williams Community School

LEGEND

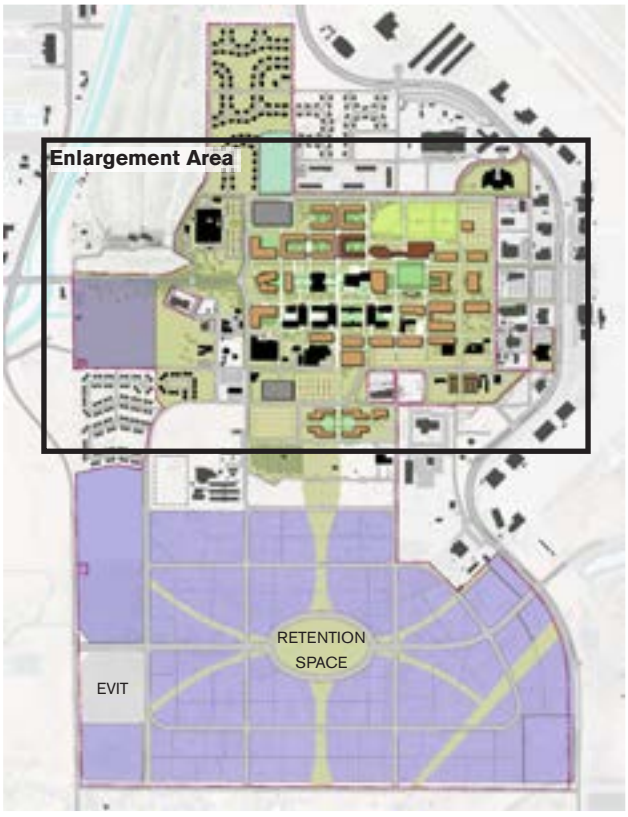
- ASU POLYTECHNIC CAMPUS
- TOKA STICKS GOLF COURSE
- ATHLETIC AND RECREATION FIELDS
- ASU BUILDINGS
- NON-ASU BUILDINGS
- CANAL
- EAST VALLEY INSTITUTE OF TECHNOLOGY (EVIT)
- ARCHEOLOGICAL SITE
- 5-MINUTE WALKING RADIUS

Polytechnic Campus Existing Conditions Plan



Plan Enlargement

0’ 1,000’



Key Elements:

1. Central green
2. Academic and research expansion
3. Future residential development
4. Gateway sites, signature architecture
5. Phase I residential, dining, and student rec center

LEGEND

- PROPOSED DEVELOPMENT
- PROJECTS IN PLANNING, DESIGN, OR CONSTRUCTION
- PAVILION STRUCTURE
- PROPOSED PARKING STRUCTURE
- EXISTING CAMPUS BUILDING
- FAITH-BASED COMMUNITY
- FUTURE DEVELOPMENT OPPORTUNITIES
- PROPERTY LINE

Polytechnic Campus Overall Master Plan

West Campus Existing Conditions Plan

0’ 800’

Existing Building Key:

1. Las Casas Housing
2. Central Service Center
3. Central Plant
4. Welcome Center
5. University Center
6. Faculty Office/Administration
7. FAB Annex
8. Sands Classroom and Lecture Hall
9. Classroom / Lab / Computer Classroom
10. Lecture Hall
11. Fletcher Library
12. Classroom Annex
13. Academic Annex

LEGEND

- ASU WEST CAMPUS
- CITY OF PHOENIX/ASU PARK
- ASU ATHLETIC AND RECREATION FIELDS
- ASU BUILDINGS
- NON-ASU BUILDINGS
- 5-MINUTE WALKING RADIUS

West Campus Master Plan

0’ 800’

Key Elements:

1. Academic expansion
2. Future residential development
3. Solar installations over surface parking
4. Community economic development
5. Phase I residential, dining, and student rec center

LEGEND

- PROPOSED DEVELOPMENT
- PLANNED DEVELOPMENT
- EXISTING CAMPUS BUILDING
- FUTURE DEVELOPMENT OPPORTUNITIES
- SOLAR FIELD
- PROPERTY LINE

architectural guidelines

Architectural Principles

As part of the Master Plan Update, architectural guidelines for each campus have been updated to incorporate sustainable design and give greater guidance on development for the university. All new construction and major renovation work should comply with the Arizona State University Sustainable Design Guidelines and Comprehensive Design Guidelines. Design and construction decisions should adopt an approach of a 100-year horizon to ensure that the quality of buildings constructed on all campuses reflects the long-term horizon of ASU's mission.

One of the primary goals of the guidelines is to help institute greater regularity into the architectural design of ASU's campuses to create a more defined sense of place. The hierarchy of buildings on campus should be determined by the university based on programmatic or planning emphasis and expressed through site and building design. Unless designated otherwise, buildings should seek to integrate into the existing campus fabric, rather than differentiate themselves from other buildings on campus. The scale, materiality, and alignments of adjacent structures are critical influences on the design of new structures.

The contemporary Biodesign Institute Building B on the Tempe campus.

The historic Old Main building on the Tempe campus.

The guidelines established here are architectural principles common to all campuses. Specific guidelines that respond to the unique aspects of each campus are included with the individual campus master plans. Common principles include:

- **Active building edge**

  Include spaces at the ground level that are highly visible and encourage people to engage the building through programmed space, display space, open study lounges, or transparency into teaching spaces/labs.

- **Pedestrian friendly edge**

  Massing should be broken up to acknowledge the pedestrian scale and create a pleasant experience. Provide some transitional articulation of the ground floor that differentiates it from the building above.

- **Reinforce open space**

  The legibility of campus malls and quads are dependent on the form of the surrounding buildings. Buildings should have a relatively vertical edge fronting onto primary malls or designated quads.

- **Reflect neighboring materials**

  New structures should harmonize with existing buildings. A building's context should inform its design, with common elements such as massing, scale, proportion, datum, rhythmic elements, and materiality helping to unify the campus.

- **Porosity at ground level**

  Opening up the ground floor of buildings creates the opportunity for easier circulation, memorable spaces, and cross-pollination of disciplines.

- **Create exterior gathering spaces**

  Providing areas for students to congregate outside of buildings is essential to creating active pedestrian malls and encouraging discussions outside the classroom environment.

- **Central courtyard(s)**

  Courtyards provide a strong organizing element for a building allowing circulation, landscape, daylighting, and passive cooling opportunities.

Tempe Campus

As an institution that has seen development and massive expansion over the past 125 years, the Tempe campus showcases an eclectic palette of architectural styles. Although this architectural diversity has led to a number of excellent buildings, future design on the Tempe campus should focus on establishing a unified feel to the campus and recognition of ASU's commitment to sustainability. The complexity of the Tempe campus negates a single prescriptive approach of defining one architectural style. Rather, the Tempe campus has been organized into five loosely-defined planning districts with common physical attributes and materiality that give further guidance to new development.

Downtown Phoenix Campus

The DPC is unique among the four campuses for being entirely embedded in the existing fabric of downtown Phoenix. Every building of

the DPC exists on the edge condition between civic and university, where exterior conditions are inevitably shared public spaces. As perhaps the most publicly visible of ASU's campuses, it is imperative that the design of buildings for the DPC communicate the mission and vision of the university. Following successful examples built on campus, future massing and materiality should be used to reduce the scale of a large volume, creating a more pedestrian environment on the lower floors with transparency along the street edge.

Polytechnic Campus

The Polytechnic campus is designed on the orthogonal grid established by the Army Air Corps in the 1940s, typified by the dispersed and low-slung character of the former military structures. However the architectural design of new campus buildings exhibits a strong response to the desert climate and to the technology, engineering and research focus of the programs they house. Their articulation and cohesive integration with an environmentally-sensitive desert landscape has created a distinctive, contemporary model for campus design. As the character of the campus transitions into a more defined University setting this newer palette should be reinforced.

West Campus

Campus planning at the West campus follows a classical organization with a primary axis carried from a formal entry through an outdoor mall and terminating at the Fletcher Library. Significant buildings in the campus core are arranged symmetrically to either side of this primary axis. The campus core buildings represent a postmodern style, through their form, density, materiality, and articulation of facades. New development on the West campus should maintain the existing cohesive campus feel while promoting architectural innovation and relief to the general homogeneity of the campus, as befits an institution that promotes creative thought, entrepreneurship, and innovation. Future development should explore contemporary architectural trends while retaining some of the core material and expressive aspects currently utilized by the core buildings.

The Academic Complex on the Polytechnic campus is LEED Gold certified.

Postmodern architecture on the West campus.

The contemporary Taylor Place residence hall on the Downtown Phoenix campus.

landscape guidelines

Landscape Principles

The development and implementation of outdoor spaces is crucial to the character, coherence, and comfort of the ASU campuses. The spaces between the buildings on campus form the common campus environment, and will be the medium that helps to create the identity and sense of place unique to each campus. While the design of outdoor spaces will be specific to each campus, future landscape architectural design on all of the ASU campuses should contribute to the creation of a safe, long lasting and viable campus environment that will accommodate all students and all modes of student transport and traffic. The following section describes landscape design principles common to all campuses. Specific landscape guidelines unique to each campus are included in the individual campus master plans.

Overarching Landscape Principles:

- Demonstrate ASU's commitment to sustainability through best management practices.
- Create a cohesive identity and sense of place throughout the campus by establishing a unified ground plane.
- Landscape architectural design must consider ways to sensitively mitigate and respond to the Sonoran Desert climate for human comfort.

Courtyard sidewalk lined with environmentally-sensitive arid desert plants and low water-use desert adapted trees at the Polytechnic campus.

Turf and shade trees provide comfort and respite in a courtyard that takes advantage of the shadows cast by the surrounding buildings at the West campus.

Weathered metal arbor with Lady Banks Rose vine and concrete bench provide shade and comfort for pedestrians while reflecting the adjacent architectural finishes at the Polytechnic campus.

Water features such as the one above can be sustainably designed to incorporate condensate from an adjacent building's HVAC system.

Recycled concrete retaining wall framing the Applied Arts Pavilion amphitheater at the Polytechnic campus.

Low planter walls made from recycled concrete curbs and gutters display the University's innovation in recycling/reusing construction materials in appropriate settings.

Sustainability

Since the ASU campuses are central components and partners in their respective communities, each is in a position to not only create a sustainable identity for itself, but also to serve as a model of sustainability for the surrounding community and to promote meaningful change. Future design concepts should establish the ASU campuses as venues for living laboratories of sustainable landscape practices that focus on the reduction of energy and resource consumption.

Landscapes should be designed to reduce energy consumption and costs associated with maintenance. Simple things such as selecting the right plant for the right place to avoid having to excessively prune or replace material can greatly reduce costs and resources associated with landscape maintenance.

Sustainability Key Elements

- Specify low water use and low maintenance plants. Allow room in the design for plants to reach their mature size without extensive pruning or removals.
- Locate trees to provide shade and provide natural cooling for buildings.
- Practice/develop techniques for improved tree growth, with use of structural soil and tree planters in or near hardscape edges.
- Where possible, specify vertical landscape systems to create "green facades" for cooling buildings and reducing mechanical costs.
- Design landscape and hardscape spaces to accommodate bicycle dismount zones with ample storage and social programs such as bicycle co-ops and rental programs.

- Investigate techniques for water harvesting, such as collecting condensate from HVAC systems, reusing rainwater runoff, and recycling gray-water.

Cohesive Identity

Future landscape architectural designs for each of the ASU campuses should establish the campus as an exciting destination; connect students, faculty, and staff in a meaningful way; and cater to the individual ASU student. Future design efforts should also strive to establish an aesthetically uniform ground plane within each of the campuses. Defining a consistent palette of paving materials and a simple and consistent palette of trees and understory plantings for all pedestrian routes and streetscape corridors increases campus legibility and continuity and establishes a cohesive campus identity.

The landscape plays a vital role in making ASU a place in which those coming to the campus to learn or work will want to converse, exchange ideas, socialize, and live. A large component of establishing each campus as an exciting destination and an overall great community gathering place comes from careful planning and the integration of academics, research, retail, and living activities all connected in such a way that interaction and communication are easily facilitated. The design of the landscape in which all of these activities exist greatly contributes to the success of these spaces, and the campus character in general. The design of the landscape must address the surrounding architecture and streetscape, and perhaps most importantly, the pedestrian spaces. All diverse activities must be tied together with landscapes that are purposeful, safe, vibrant, and attractive open spaces that invite human interaction.

Flexible open spaces allow for group assembly and encourage social interaction on the Tempe campus.

This notable pedestrian bridge on the Tempe campus also serves as a gateway to motorists and emphasizes the strong identity of the campus.

The consistent palette and pattern of paving materials and formal gardens unify the ground plane at ASU West and contribute to its cohesive identity.

ASU is proud to foster a spirit of individualism that attracts a wide diversity of students. Each student on campus is an individual who possesses unique needs; and so outdoor spaces should be designed to be flexible and able to accommodate a variety of functions and users. Beyond creating comfortable, flexible spaces, the landscape must be designed to accommodate individuals with special needs and concerns, as well. Outdoor spaces must meet Americans with Disabilities Act Accessibility Guideline requirements, and should also be designed to enhance the comfort of those students with visual or auditory impairments. Textural surface treatments along the pedestrian walkways and in locations where pedestrian and vehicular paths intersect should be provided.

While it is important to create a strong campus identity to help students and visitors navigate the grounds, the landscape design must blend the campus boundary into the surrounding urban fabric. Wayfinding should be located at gateways, and pedestrian and vehicular nodes to define particular malls and streetscapes. ASU banners, markers, signs, and identifiable plantings should improve wayfinding on campus without visually or physically separating the campus from the surrounding community

Cohesive Identity Key Elements

- Design landscape and hardscape areas to reinforce and improve campus wayfinding.
- Provide adequate wayfinding at gateways, malls, and pedestrian and vehicular nodes.
- Design flexible and comfortable spaces to allow for small and large group assembly and encourage social interaction.
- Provide ample shade with fixed and flexible seating arrangements.
- Establish a consistent ground plane palette

The primary mall, formal green plantings, and Fletcher Lawn at ASU West tie the campus together spatially. This space helps foster a sense of community by serving as a flexible central space on campus that allows for large groups to gather or host various events and functions.

of paving materials for all pedestrian routes and streetscape corridors.

- Establish a simple and consistent palette of trees and select understory plantings for all pedestrian and streetscape corridors.

Human Comfort

Every aspect of the landscape design must consider ways to respond to the Sonoran Desert climate. First and foremost, the intense desert heat and moderate to mild winters dictate that the designer create ample shade in order to render outdoor spaces usable throughout the year. The provision of shade should be implemented in as many ways as possible; from the canopies of trees arranged in groves or linear allées, to architectural elements such as pergolas, fabric awnings, building entry coverings and portals, and even shadows cast by the buildings themselves.

Human Comfort Key Elements

- Items to consider in this regard are the incorporation of a variety of gathering spaces and gardens, with special emphasis on the microclimates created by buildings and solar orientation.
- Consider sun exposure and orientation when selecting materials to reduce reflected heat and glare.
- Consider a variety of ways to incorporate shade from trees and other vegetation, fabric awnings, and entry coverings.
- Enhance the campus by planting trees in groves in plazas and in linear bosques along walkways. Consistent shading along pedestrian corridors will be essential.

Students on Orange Mall take advantage of the shade provided by trees and contemporary canopies. Movable and fixed seating provide flexible spaces in which to socialize or enjoy food and refreshments available at the nearby concessionaire.

The outdoor dining terrace at Barrett Honors College.

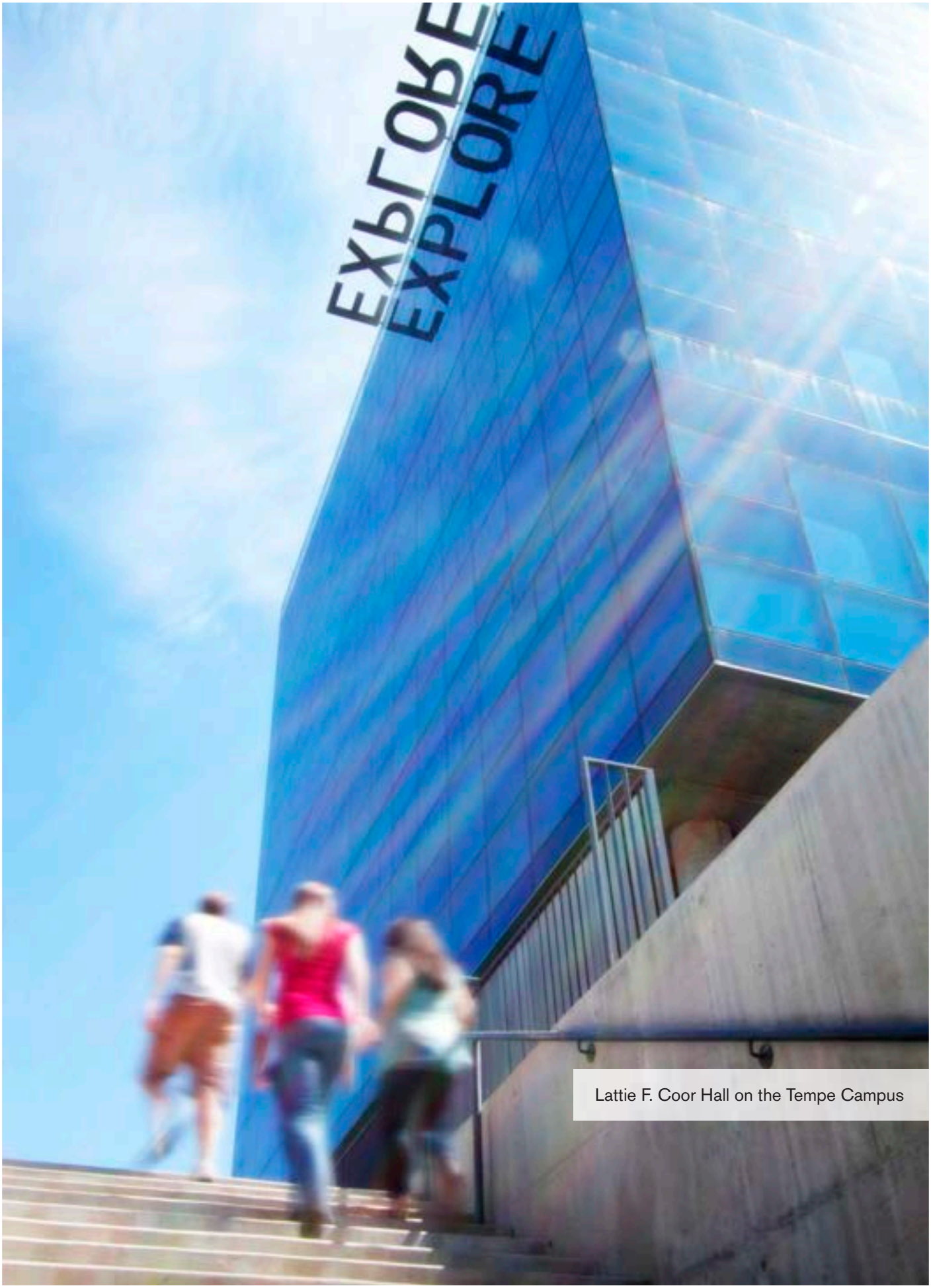
Future design should respect and build upon the varied and unique plant communities at the Polytechnic and Tempe campuses. Both campuses are nationally recognized arboretums.

The Result

For many ASU Alumni and students, there are several sites of memory within the University. It is these fond memories of time spent in the open spaces of each campus, or the particular character of a favorite courtyard, lawn, or plaza, that keeps them tied to the campus in meaningful ways. It is imperative that these spaces and their functions not be lost through neglect, unthoughtful reprogramming, shortsighted new development, or some other unforeseen re-appropriation. Alumni return to campus to visit these locations and revel in the nostalgia and tradition associated with them. There are several iconic landscape features within the University that evoke strong ties, such as the Fan Palms that define Palm Walk at the Tempe campus, and the lawns in front of Fletcher Library at ASU West and Backus Mall at the Polytechnic campus. Efforts should be made to recognize these nuances and to preserve the feeling and tradition associated with these landscapes. The Tempe and Polytechnic campuses are nationally recognized arboretums with growing, varied and unique plant communities with several significant donations from alumni and staff. New landscape design should be mindful of such spaces and the amenities associated with them and should create opportunities to continue the development of the collections.

To ensure responsible stewardship of the University's resources, landscape architectural work should be coordinated with the architectural goals and mission of the University. All new construction and major renovation work should comply with the ASU Office of the University Architect Sustainable Design Guidelines and comprehensive Design Guidelines. These guidelines contain detailed construction guidelines and specifications, and define the expectations involved in doing work for the University.

Palm Walk on the Tempe campus



Lattie F. Coor Hall on the Tempe Campus

introduction

purpose + process

ASU's Mission:

To establish ASU as the model for A New American University, measured not by who we exclude, but rather by who we include; pursuing research and discovery that benefits the public good; assuming major responsibility for the economic, social, and cultural vitality and health and well-being of the community.

"A top-performing state university system, nationally recognized for excellence in academic and research pursuits that support and stimulate a growing vibrant economy and a high quality of life for Arizonans."
– ASU 2020 Vision, Strategic Business Plan

Purpose of the Master Plan Update

In 2006, the Arizona Board of Regents (ABOR) approved the *ASU Comprehensive Development Plan for a New American University* to guide the future growth of its four campuses. This was a comprehensive master planning effort that involved detailed evaluation of space needs, regional transportation, parking demand, land use, circulation, open space, and infrastructure analysis.

The Arizona Board of Regents requires each university in its system to produce a comprehensive Master Plan to define the direction, physical needs, land acquisition and overall approach for a ten-year timeframe, and to conduct plan reviews and updates every five years. This report represents the 2011 Five Year Update to the 2006 Campus Master Plan. As an update, this effort does not replicate the extensive background analyses conducted five years ago. Its purpose is to:

- Assess progress and changes
- Update existing needs assessment
- Determine campus capacities and land use patterns
- Define new projects and priorities
- Incorporate ASU's *Sustainable Design Guidelines*

Planning Process

Directed by ASU's Office of the University Architect (OUA), the Master Plan Update was conducted over a six-month period involving extensive meetings with ASU executives, administrators, staff, and various University departments. Oversight and plan direction was provided by an Executive Committee comprised of:

Morgan R. Olsen, Executive Vice President, Treasurer and CFO

James Rund, Senior Vice President for Educational Outreach and Student Services

Richard Stanley, Senior Vice President and University Planner, Office of the President

Rick Shangraw, Senior Vice President, Office of Knowledge Enterprise Development (OKED)

Sethuraman Panchanathan, University Chief Research Officer, OKED

Ray Jensen, Associate Vice President, University Business Services

David Brixen, Associate Vice President, Facilities Development and Management

Jann Blesener, Interim University Architect and Assistant Vice President

Byron Sampson, Landscape Architect, Office of the University Architect

Steve Nielsen, Assistant Vice President, University Real Estate Development

Phoenix Urban Research Laboratory (PURL) at the Downtown Campus

plan influences

Strategic Goals

In its 2010 Strategic Business Plan, ASU established five overarching goals with specific measurable objectives that relate to ASU's commitment to educational excellence, research excellence, workforce and community, and productivity that will have a bearing on the Campus Master Plan and projections for growth. These goals are:

- Become a National Comprehensive University by 2012
- Provide Access to Quality for All
- Establish National Standing in Quality and Impact of Colleges
- Schools in Every Field
- Enhance Our Local Impact and Social Embeddedness

The specific metrics related to these goals include:

- Increase Bachelor's Degrees Awarded by 47% (to 16,400) by 2020
- Increase Research Expenditures by 100% (to $700 million) by 2020
- Develop Bachelor's and Master's Degrees in Fields Key to Economic Development and Quality of Life
- Reduce Average Real Tuition Price through Structural Innovations

The current economic times, ASU's strategic business goals, and the pressure to innovate continuously and conduct research have caused the University to re-evaluate its enrollment goals; how it is delivering education; how it is attracting, retaining, and graduating students; and how it is enhancing the quality of life on campus. These concerns have a potential impact on the future growth of all campuses.

This re-evaluation has changed certain fundamental assumptions and plan elements from the 2006 Master Plan. The University hit its previous research target for 2020 by the year 2010, and has now doubled its research expenditures goal for 2020. The 2020 enrollment target for the Tempe campus has increased from 50,000 in the 2006 plan to 60,000 or more, reflecting an increased emphasis on access and inclusion. While some of this enrollment growth may represent increased on-line study, it is expected that the population on the Tempe campus will increase. Future enrollment targets for the Downtown Phoenix Campus (DPC), Polytechnic and West Campuses remain steady at 15,000 students at each location.

Research Growth

According to the Office of Knowledge Enterprise Development (OKED), ASU's new research goal to reach $700 million in sponsored research expenditures by the year 2020 will result in a need to achieve more efficiency in existing research

Algal biomass research at ISTB III.

labs and to develop additional research facilities of as much as 800,000 to one million gross square feet. Some of this additional demand for research facilities can be accomplished with the renovation of existing space to increase capacity in underutilized labs. University faculty research efforts and major research initiatives in Biosciences, Sustainability and Renewable Energy, Security Defense Systems, Advanced Materials and Flexible Systems, and Educational/Learning Technology are all expected to grow.

Currently the Tempe Campus hosts the majority of Biosciences research, and will continue to attract biosciences-related research, including the third and fourth phases of the Bio Design Institute. The Polytechnic Campus research growth will focus on expansion of the Biofuels and Renewable Energy program, as well as Security Defense Systems, given the campus's location and adjacency to federal agencies and the Phoenix-Mesa Gateway Airport. Downtown Phoenix Campus will need to accommodate more faculty research, particularly for the Public Programs schools and the Health Sciences. The West Campus is expected to only have modest growth in space needs. Educational/ Learning Technology research is expected to expand at the Skysong business incubator.

sustainability

"While colleges and universities across the United States are only responsible for about three percent of the total greenhouse gas emissions emitted by the United States, we have the opportunity to influence 100 percent of the students who will eventually emerge as our future business, political, and social leaders."

- Michael M. Crow, ASU President

Sustainability Mission

The University's sustainability focus also has advanced since 2006 when President Crow and other college and university executives founded the American College and University Presidents' Climate Commitment (ACUPCC). With the development of the *ASU Carbon Neutrality Action Plan* of 2009, and the *ASU Strategic Plan for Sustainable Practices and Operations* completed in 2011, ASU has set goals for Carbon Neutrality, Zero Solid/Water Waste, Active Engagement, and Principled Practice to the year 2025 and beyond. Additionally, the university is committed to fostering the body of sustainable knowledge through research and education across its various academic programs. Through reduced consumption, increased efficiency, and a rethinking of products and actions to take advantage of new technologies and ideas, ASU seeks to be a worldwide leader in sustainable higher education operations.

ZipCars have designated parking spaces on the Tempe Campus.

ASU students rally for sustinability during the Homecoming Parade.

Sustainable Design Guidelines

ASU has instituted a set of guidelines to foster its continued development as an environmentally and socially responsible institution.

- Sustainability is integral to the design philosophy
- Innovation and creativity to achieve sustainability goals; achieve LEED Silver Certification
- Pursue a Zero Carbon Emission campus
- Design buildings in a climate-responsive manner
- Incorporate solar and renewable energy systems
- Plan for "100-Year Buildings" and flexibility of use
- Minimize building size and footprint to reduce resource consumption
- Use site design to create a "Sense of Place" appropriate to desert climate conditions
- Maximize use of captured water (rainwater and graywater)

Carbon Neutrality Action Plan

Mitigation Strategy 01: Energy

Mitigate 100% of carbon emissions related to energy by 2025, through a 35% reduction in demand-side energy, and 65% reduction in supply-side energy.

Mitigation Strategy 02: Transportation

Mitigate carbon emissions from transportation 100% by 2035.

Mitigation Strategy 03: Other Campus Practices

Reduce all emissions related to agriculture and refrigerants by 100% by 2025.

Mitigation Strategy 04: Recycling and Waste

Reduce carbon emissions from waste-related sources 100% by 2025.

Sustainability Principles of the Master Plan Update:

1. Plan for healthy, sustainable, mixed use, live/learn/work/play environments in context with the desert southwest.
2. Enhance and restore ecosystems and habitat, not just reduce impacts.
3. Use land and resources sparingly: increase overall campus density to minimize environmental impact and maximize efficient use of energy, water, transportation, site, and materials.
4. Increase surface area dedicated to generating on-site renewable energy (solar, biofuels, and other alternatives).
5. Repair/renovate existing infrastructure and innovate with new technology for more efficiency.
6. Re-purpose, renovate and recycle existing campus facilities to the greatest extent possible.
7. Renovate existing campus buildings for better energy and water efficiency and quality of life.
8. Design new construction to exceed a LEED Silver standard, updating design and construction standards to keep current with best practices.
9. Utilize building graywater systems to reduce potable water needs for buildings and landscape.
10. Capture and store rainwater for building and landscape use.
11. Combine green roof design with solar panels to capture energy, absorb stormwater, and reduce heat island effects.
12. Where demolition is necessary, recycle and/or re-use construction debris as construction material for new facilities.
13. Orient development in response to the desert environment.
14. Create Transit Oriented Campuses (more density and mixed use near LRT stations) at Tempe and DPC, and bring alternative fuel-based regional transportation to West and Polytechnic campuses.
15. Increase students living on campus or within an easy walk/bike commute.
16. Redevelop or design new communities to attract faculty and staff to live close to campus.
17. Make campuses safer and more attractive to both pedestrian and bicycle commuter traffic.
18. Create cooling microclimates through shading, water and air circulation for outdoor spaces.
19. Increase use of desert appropriate landscape plants and materials.
20. Use the campuses as living laboratories, making processes and recognition visible.

Faculty and students talk in a rooftop classroom, the Coor Hall roof, where they study its solar panel installation.

While ASU is far from being a producing farm, it does generate a lot of food that has the potential to be sold, used by chefs on campus or donated to worthy causes.

planning principles

Design Aspirations for a New American University

01. Leverage Our Place
ASU embraces its cultural, socioeconomic and physical setting.

02. Transform Society
ASU catalyzes social change by being connected to social needs.

03. Value Entrepreneurship
ASU uses its knowledge and encourages innovation.

04. Conduct Use-Inspired Research
ASU research has purpose and impact.

05. Enable Student Success
ASU is committed to the success of each unique student.

06. Fuse Intellectual Disciplines
ASU creates knowledge by transcending academic disciplines.

07. Be Socially Embedded
ASU connects with communities through mutually beneficial partnerships.

08. Engage Globally
ASU engages with people and issues locally, nationally and internationally.

Design Aspirations

ASU is governed by eight design aspirations that guide the institution's decisions on its wide range of initiatives in research, entrepreneurship, education, and social responsibility. These same aspirations are also used to evaluate ideas and projects for the design of physical facilities, campus infrastructure, and future development. How then does a master plan represent and support these design aspirations?

Planning Principles

At its essence, a campus master plan must foster change to encourage innovation and help transform the campus and society. As a physical place, a campus must connect people to conduct research, enable student success, and create knowledge. As it will embody sustainability and resiliency, ASU can leverage its place, connect with its communities, and engage both locally and globally. And as it inspires commitment, ASU can maintain the support it will need to sustain its mission.

The Master Plan Update expresses these four planning principles as both descriptive statements and in the form of open ended questions, to explore and encourage broader thought and dialogue on the essential nature of campus and its relationship to its institutional mission. By asking "what if?" it is hoped that these principles can remain dynamic and useful, as ASU seeks

new challenges and raises new questions as our society, technology, and the global community evolves.

Foster Change

"We have created a place that inspires risk and reinvention. ASU has created a community that is as porous, open and diverse as the region itself. And ASU has inspired a new standard for teaching and discovery by encouraging us all to work together to achieve change in our world."
-- asuchallenges.com

Campus master plans are often described as "living documents", flexible tools that can adapt and accommodate future change. Nowhere is this more relevant to a university than at ASU where change, experimentation, risk, innovation, and speed in decision-making are key parts of its entrepreneurial culture. How can the campus and physical facilities maintain flexibility to accommodate changing needs?

ASU has innumerable innovative programs, initiatives and challenges to engage every student, faculty, researcher, staff member, the private sector and the wider community. The Office of Knowledge Enterprise Development, Edson Student Entrepreneur Initiative, The Grand Challenges program at the Fulton School of Engineering, and the Eight ASU Challenges are just a few representative offices, programs and initiatives at ASU that are leading change and innovation on campus. Yet campus buildings are often opaque to the passerby, and programs are often dispersed. How can a Campus Master Plan recognize and communicate ASU's exploration, innovation, and creativity? What if ASU was made more visible?

Wind turbines on the roof of the Global Institute of Sustainabilitiy (GIOS).

Orange Mall outside the Memorial Union on the Tempe Campus.

Connect People

Each ASU campus is unique in its physical attributes, and the ways it can connect its population and encourage social interaction. The Tempe Campus's density is a key asset and part of its evolutionary "DNA". During class change, pedestrian traffic on its central malls can rival that of a New York City street. The compactness of the campus and the concentration of its foot traffic provide a unique opportunity to make it a living billboard, to 'make ASU visible'. What if the physical campus became more transparent, porous, and open at the ground level? What if pedestrian malls became "Main Streets of Ideas" where students, faculty and researchers could connect to each other in real time and place?

The new Downtown Phoenix Campus (DPC) has a strategic location between residential neighborhoods and the core commercial business and entertainment districts, right on the Central Station Transfer Center for bus and light rail, adjacent to Civic Space Park, a major public space in downtown Phoenix. It has the potential for lasting economic partnerships and social embeddedness, to increase density and build a thriving downtown daytime and evening population. What if DPC became an urban catalyst for growth?

The West and Polytechnic campuses have not yet evolved into their full potential. West Campus lacks the full range of student life and amenities needed to animate the campus. The Polytechnic campus is young and growing, but if it is not developed at sufficient density and compactness it could squander its spatial and social capital and fail to meet long range growth needs. How can each campus develop with enough critical mass and activity to support a vibrant campus life?

Wind turbines on the Global Institute of Sustainability buidling.

Graduation outside of the Phoenix Convention Center on the Downtown Phoenix Campus.

Embody Sustainability and Resiliency

ASU has been a national leader in sustainable design initiatives for higher education. The university has embarked on an ambitious program to develop solar energy installations at each campus as part of its Carbon Neutrality Action Plan. Sustainable design guidelines for new construction and renovated facilities encourage more energy and water-efficient buildings. However, water management, rainwater harvesting and graywater capture are techniques yet to be explored at a large scale on campus, and most people still commute by single occupancy vehicles. How can each campus be a greater model for sustainable desert development and a positive contribution to the ecosystem?

Inspire Commitment

A campus that exhibits a high degree of care and design quality, enhances the quality of life, and supports a healthier lifestyle can assist in recruitment and retention of top students, faculty and staff. This in turn builds a stronger base of alumni support to provide campus enhancements. Each campus at Arizona State University has unique natural and built features that define its identity, to varying levels of success. How can each campus reinforce its own sense of place? How can ASU inspire greater loyalty and commitment?

Students gathering at the Memorial Union on the first day of class.

tempe
campus

existing conditions + needs assessment

Overview

The Tempe Campus is the original campus of Arizona State University, founded in 1885 as the Territorial Normal School. Today, the campus consists of 634 acres with a total of 15.9 million gross square feet (gsf). The campus dedicates approximately 250 acres to Karsten Golf Course, on the east side of Rural Road. As of fall 2011, total enrollment at the Tempe campus was 51,469 full-time equivalent (FTE) students.

2011 Tempe Campus Metrics:

- **634 acres**
- **51,469 enrollment (FTE*)**
- **10,432 beds (20%)**
- **15.9 Million GSF**
- **18,118 parking spaces**
- **existing campus density: 0.58 FAR****
- **core campus density: 0.90 FAR****

*** FTE= Full Time Equivalent**

**** FAR = Floor Area Ratio**

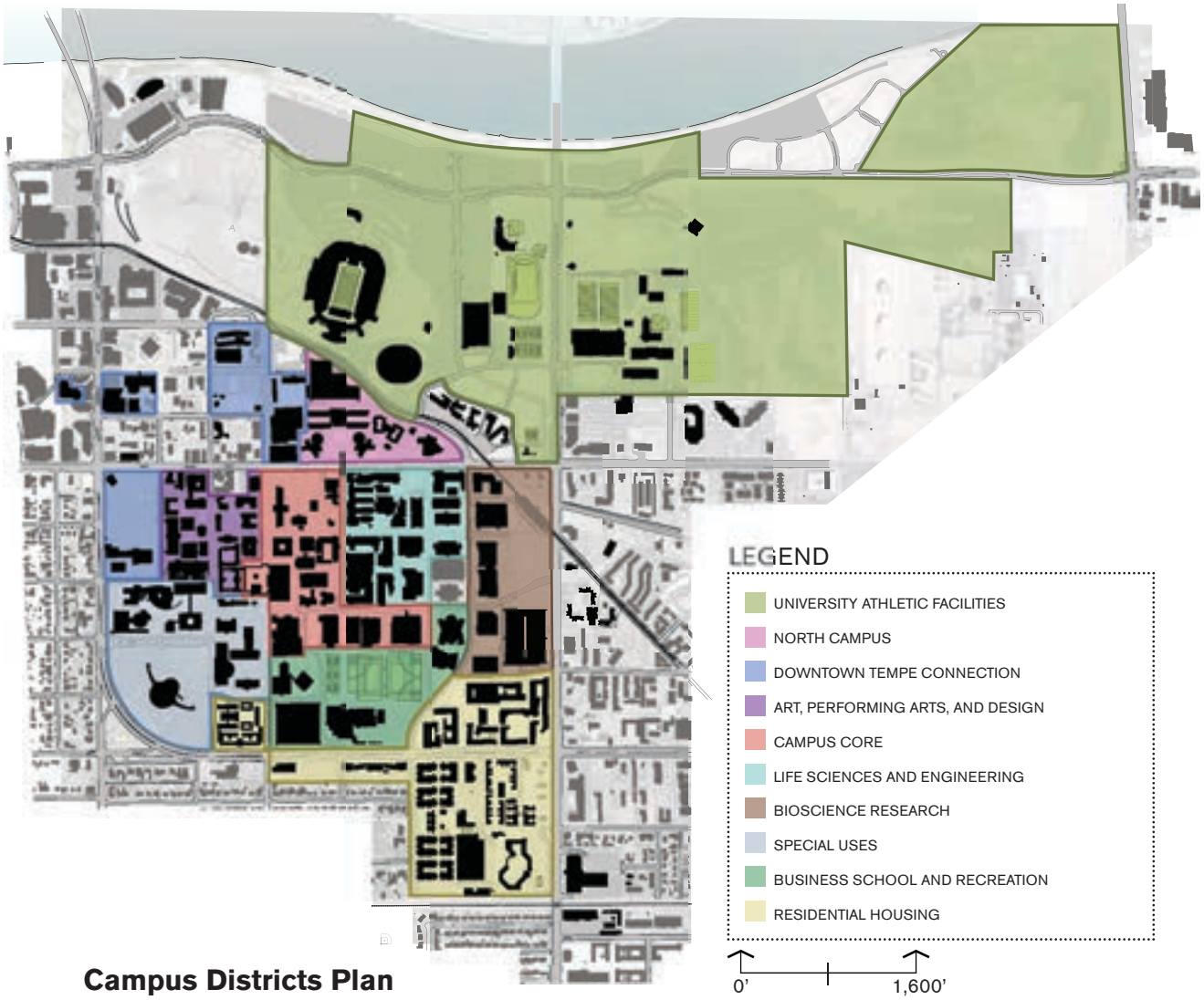
Note: There are multiple ways to count enrollment but for the purposes of this report it will be calculated based on the full-time equivalent (FTE). FTE has been used because it is the best basis for master planning purposes.

Context

The Tempe campus is the oldest and most densely populated of the four ASU campuses, located adjacent to downtown Tempe. The majority of academic and research activity is located in the central campus, bounded by University Drive and Apache Boulevard on the north and south, and Rural Road and Mill Avenue on the east and west. Administrative and residential buildings fill in the area north of University Drive to the light rail transit line along Veterans Way. "A" Mountain and Sun Devil Stadium are campus landmarks that anchor the north athletics district from Veterans Way to Rio Salado Parkway and the Tempe Town Lake. Popular but low-density athletics facilities and Karsten Golf Course line Rural Road, north and east of campus.

Districts

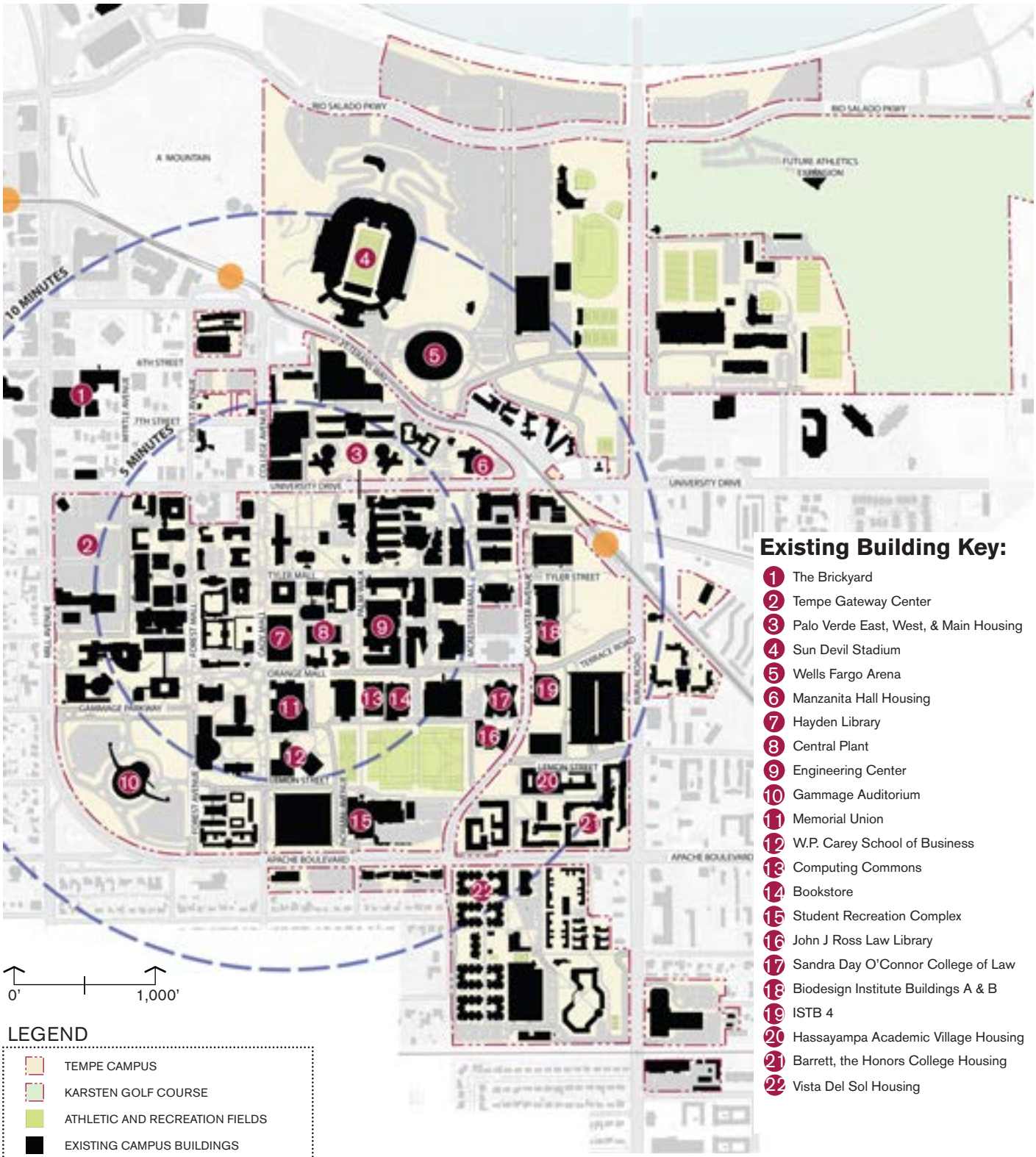
The campus is roughly divided into districts by a clustering of related programs and uses, such as the life sciences and engineering district in the northeast quadrant of central campus; Art, Performing Arts, and Design in the northwest quadrant; special uses such as the Nelson Fine Arts Center and Gammage Auditorium in the southwest quadrant; the W. P. Carey School of Business and Student Recreation Complex on the south; and a growing biosciences research district on the eastern edge of campus. New



Campus Districts Plan

residential development on the southeast corner of central campus has helped transition the university from a commuter campus to a more residential one, in keeping with the university's goal to increase on-campus housing. The Memorial Union and Hayden Library anchor the heart of campus at the busiest place for pedestrian traffic, the intersection of Orange and Cady Malls. The recent acquisition of buildings at the Brickyard and Centerpoint, housing the Ira A. Fulton School of Engineering and various OKED functions, extends the academic and research activity of campus to a front door location on Mill Avenue in downtown Tempe, but could use a better pedestrian connection to campus.

The central campus's built form of low- to mid-rise structures follows the early street and block layout of the town, giving rise to a gridded, orthogonal campus pattern. As the campus has grown, building sites were built out to former street rights-of-way, forming dense urban blocks. Alumni Lawn, Hayden Lawn, and other lawn spaces on campus provide some open space



Existing Building Key:

1. The Brickyard
2. Tempe Gateway Center
3. Palo Verde East, West, & Main Housing
4. Sun Devil Stadium
5. Wells Fargo Arena
6. Manzanita Hall Housing
7. Hayden Library
8. Central Plant
9. Engineering Center
10. Gammage Auditorium
11. Memorial Union
12. W.P. Carey School of Business
13. Computing Commons
14. Bookstore
15. Student Recreation Complex
16. John J Ross Law Library
17. Sandra Day O'Connor College of Law
18. Biodesign Institute Buildings A & B
19. ISTB 4
20. Hassayampa Academic Village Housing
21. Barrett, the Honors College Housing
22. Vista Del Sol Housing

LEGEND

- TEMPE CAMPUS
- KARSTEN GOLF COURSE
- ATHLETIC AND RECREATION FIELDS
- EXISTING CAMPUS BUILDINGS
- 5- AND 10-MINUTE WALKING RADIUS
- LIGHT RAIL STOP

Tempe Campus Existing Conditions Plan

relief, but central campus could use more formal and informal outdoor spaces to encourage social interaction and gathering. City streets that used to traverse campus have been converted to open air pedestrian malls that handle a significant amount of foot traffic, bicycles, carts, and maintenance vehicles that creates conflict, particularly at class change times.

Planning Challenges

The single biggest challenge for the Tempe campus is finding sites for new construction or replacement of outdated facilities on a landlocked campus. The compactness and walkability of central campus creates the demand for more research, academic, and residential facilities in close proximity; however, there are no remaining buildable sites in the core. The popularity of the Memorial Union, Sun Devil Bookstore, and Student Recreation Complex requires expansion of each facility in the core, with little land available to accommodate it. The Central Plant also needs expansion space. Service access requirements to the Memorial Union, the Central Plant, and the Campus Bookstore create an additional layer of complexity. There is also a shortage of swing space or surge space to accommodate short-term occupants during building renovations on campus. Underutilized or very low density, single-story buildings in the core exacerbate the problem. Therefore, it is necessary for all new development to be very efficient in its use of space.

New residential districts such as Hassayampa Village, Barrett Honors College, and Vista Del Sol have added much needed housing on campus, but their locations at the campus perimeter have increased pedestrian-vehicle conflicts across city streets, particularly McAllister Avenue south of Lemon Street, and across Apache Boulevard. The evolution and disjointed development of the north residential district across University Drive has resulted in very different architectural styles over time, fragmented open space, and a missed opportunity to use the University Drive frontage for retail and student amenities.

Additionally, there are substantial deferred maintenance needs on campus that will compete for funding with new development. Failure to perform these needed repairs could lead to facility deterioration, higher costs, health and safety implications, and ultimately impairment or failure. The university must make a continued effort to maintain existing facilities in addition to constructing new development.

Planning Opportunities

The new Valley METRO light rail stations at the Tempe Transportation Center on Veterans Way at Forest Avenue, and on Rural Road at Tyler Street create major opportunities to locate more density and mixed use functions related to transit, in support of the university's sustainable transportation goals. Although located on the western perimeter of campus, the 10-acre Tempe Gateway site, a former commercial property at the corner of Mill Avenue and University Boulevard, provides an opportunity for campus expansion. Similarly, the long range vision for the University Athletic Facilities District and the redevelopment of the Karsten Golf Course opens up hundreds of acres for new growth to serve the campus and the city of Tempe. Relocation of current athletic facilities from west of Rural Road to a consolidated athletics district east of Rural Road brings an

Tempe Center gateway redevelopment site


Hayden Library on Orange Mall opposite the Memorial Union

opportunity to create a new campus gateway on Rural Road at University Avenue, allowing for possible campus, research, or public/private expansion and a new front door image.

Ironically, Tempe's best physical attribute is its least exploited. Many Tempe campus pedestrian malls have all of the exposure, density, and foot traffic of a Greenwich Village street in lower Manhattan, but lack any of that vibrancy and sense of street life. Therefore, many of ASU's innovative programs and initiatives are hidden behind opaque building walls with no visibility or exposure to the campus life outside. This leads to the sense of a nine-to-five environment, with no reason to gather on campus after hours other than the library or functions at the Memorial Union. Finding ways to activate building edges and expose more of the programs and student initiatives to pedestrian passersby would go a long way to enlivening campus. This is particularly true of the original Hayden Library building. The blank façade across from the Memorial Union's main entrance is a missed opportunity to create a linkage and direct access on Orange Mall to the library.

Projected Enrollment

A detailed space needs assessment was conducted for the 2006 Comprehensive Development Plan. This Master Plan Update is driven by future enrollment targets established by the university for the Tempe campus. Unlike the 2006 plan, the 2020 enrollment target for the

Tempe campus has increased from 50,000 to 60,000 or more. Although some of that enrollment growth may be online learning, the Master Plan Update has assumed that number as the future campus population and the basis for growth.

Future Space Needs

To understand an order of magnitude for future space needs to serve a student enrollment of 60,000, the planning team considered the current assignable square feet (asf) and gross square feet (gsf) per student for academic, research, auxiliary, and support uses as a planning benchmark. At current enrollment, the Tempe campus has just under 110 asf/176 gsf of academic, research, and support uses per student. This is below the asf per student target recommended in the 2006 Space Needs Study. However, based on interviews with university staff and planners, it is assumed that the campus has the academic capacity to absorb future enrollment growth with increased efficiency, more online learning, and different models of teaching. Therefore, the 110 asf/176 gsf per student ratio was used to project future space needs for an enrollment of 60,000 students. This results in the need for an additional 1,679,880 gsf of academic, research, and support space. This number does not take into account replacement space for any future demolition.

Existing Facilities by Broad Category:	
Academic/Research/Support Uses	8,880,120 GSF
On-Campus Housing and Support	3,484,390 GSF
Structured Parking	3,564,290 GSF
Total	**15,928,800 GSF**

Table 3.1: Tempe campus existing facilities by broad category

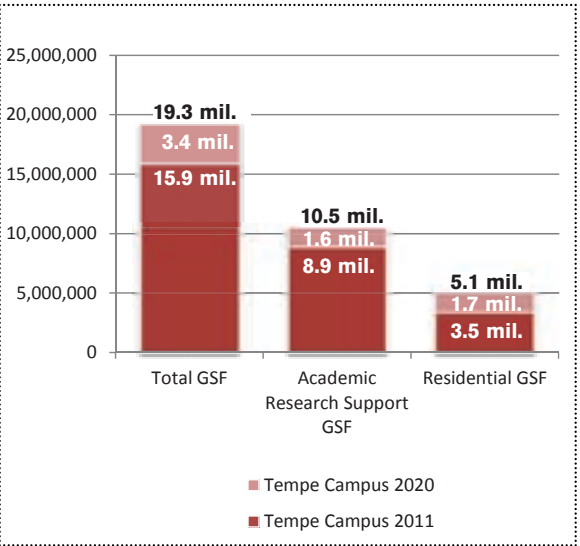


Chart 3.1: Tempe campus future space needs by broad category

Future Space Needs	Total	Academic/Research/Support	Residential
Existing Campus 2011	15,928,800 GSF	8,880,120 GSF	3,484,390 GSF
Future Need 2020	3,370,040 GSF	1,679,880 GSF	1,690,160 GSF
Tempe Campus 2020 Total	**19,298,840 GSF**	**10,560,000 GSF**	**5,174,550 GSF**

Table 3.2: Tempe campus future space needs by broad category.

Residential Program Goals:	2011	2020
Total Enrollment	51,469	60,000
On-Campus Housing	10,432 (20%)	15,000 (25%)

Table 3.3: Tempe campus residential program goals.

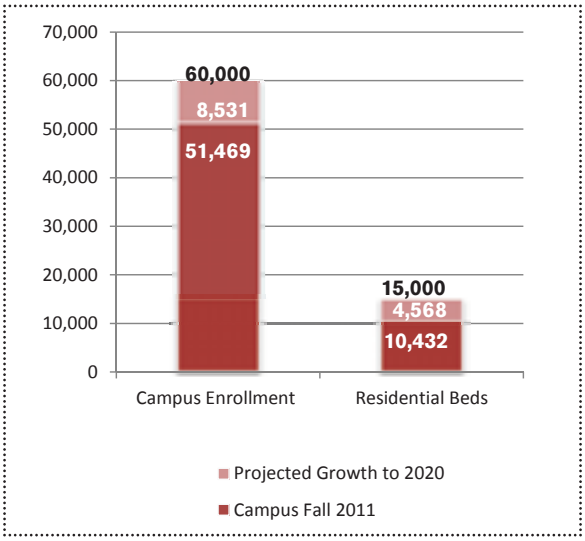


Chart 3.2: Tempe campus projected residential program growth.

On-Campus Housing

The Tempe campus houses approximately 20% of its student population on campus. The university has 10,432 beds and 3.48 million gsf of on-campus housing and support uses. With the recent opening of Hassayampa Village and Vista Del Sol, this is a 50% increase of over 3,600 beds from the fall 2005 total of 6,792 beds on campus. The ASU Office of Student Affairs Department of Residential Life has set a target of housing 25% of the Tempe campus population on campus. At that percentage, a future enrollment of 60,000 students will require 15,000 beds, for an additional 4,570 beds by 2020.

Future residential needs were translated into gsf to support 25% on-campus housing, using the current total gsf of residential facilities divided by the number of beds for a planning ratio average. However, this ratio is low, given that the Tempe campus has the widest range of housing types and age of any of the campuses, with square foot averages ranging from 151 gsf per bed to over 400 gsf per bed in newer housing models. An average of 370 gsf per bed was used to project the future need of 1,690,160 gsf to accommodate 4,570 new beds. This does not include any replacement square footage for demolition or redevelopment of dorms.

Future Facilities

Current projects in planning and design, and interviews with the Office of the President, Executive Vice President and Provost, University Planner, Office of Knowledge Enterprise Development, Office of Business and Finance, Office of Student Affairs, and many others revealed a more qualitative list of facility types to

provide new research, support, and collaborative learning space on campus. These include:

- Research growth – approximately 350,000 gsf for Biodesign Institute phases C and D, and space for long-term growth in or near the biosciences research district.
- A 1,000-seat lecture hall.
- Two 300-seat computer and tutorial labs for mathematics and English.
- A new Engineering Center – replacement space for Engineering Buildings A-F.
- Memorial Union expansion.
- A new School of Construction Management – replacement space for the Urban Systems Engineering Building.
- Planned expansion to the W. P. Carey School of Business.
- Swing space for research labs and classrooms.
- Bookstore expansion – a total need of 70,000 gsf, either as new space on campus or renovation to the existing bookstore and a new location on College Avenue and 7th Street.
- Hayden Library 'activation' and re-purposing of the ground floor of the library.
- Re-use for Armstrong Hall/Law Library.
- Replacement space for Arts Warehouse, Research Support Services, and Tower Center.
- Central Plant expansion or satellite plant locations.
- Possible hotel/conference center on Mill Avenue and University Drive.
- On-campus housing, dining, and related amenities.

Alumni Lawn in front of Old Main

Sun Devil Stadium

The Rio Salado EcoDistrict Master Plan and Sun Devil Stadium

Redevelopment of Karsten Golf Course and the consolidation of athletics facilities east of Rural Road would yield a significant amount of land for future development. This would allow ASU to leverage its real estate holdings in a key location on Tempe Town Lake, open up land for more density and urban infill, and fund renovations of Sun Devil Stadium. A separate master plan has been prepared for this district, assuming a 30 year build out. The Framework Plan for the Tempe campus makes reference to the development and circulation pattern proposed for this district.

Current and Projected Parking

The university manages 18,118 parking spaces in various surface parking lots and 3.56 million gsf in parking garages, generally distributed around the perimeter of campus. Taking into consideration faculty and staff, the total campus population is approximately 60,210. This results in 3.32 people per parking space, a ratio of 3.32:1. When compared to other university campuses within city environments with access to public transportation, that ratio is slightly low. Based on interviews with ASU Parking and Transit Services (PTS) staff, the campus has enough parking to serve its regular needs, although like most campuses, not always in the right location. Since the opening of the light rail system, PTS has not replaced parking lost to recent construction and has raised parking rates and launched programs to encourage use of public transit in order to balance split modes of travel to campus.

The 2006 Campus Master Plan proposed 15,000 parking spaces for a future student enrollment of 50,000. With faculty and staff, this would equate to a parking supply equal to 25% of the total campus population. Currently, the campus parks 30% of the campus population. The new enrollment target of 60,000 students, plus modest increases (2-4%) in faculty and staff, could reach a total campus population of over 71,000. Using the current parking percentage of 30%, this would result in a future supply of 21,440 spaces, for a net gain of 3,324 new parking spaces. If we consider reducing future parking supply to the 25% goal, it would result in a future supply of 17,770 spaces, a loss of 390 spaces from current supply. This does not include replacing any existing spaces displaced by construction.

Future parking projections for parking demand will rely on the continued success of the PTS transportation program. PTS will continue to encourage alternative transportation and public transit use in support of the university's carbon neutral goal for transportation. In the words of President Crow, parking on ASU's Tempe campus "will be scarce and expensive". For the purposes of this Master Plan Update, it is assumed that construction of any future parking will be solely to replace any spaces displaced due to future construction.

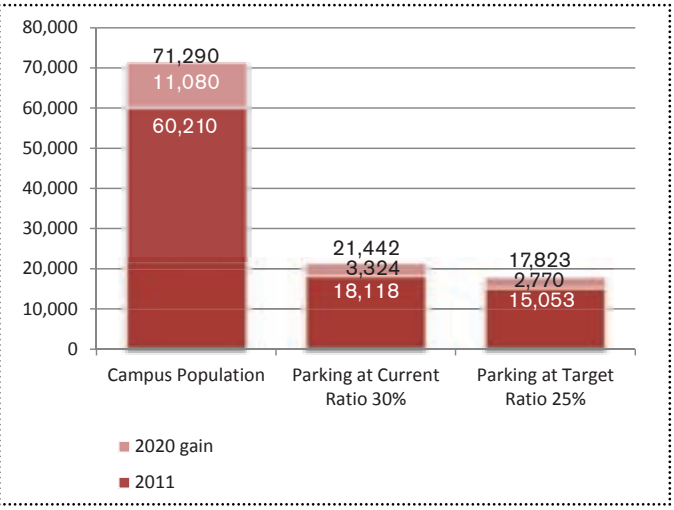


Chart 3.3: Tempe campus projected parking growth at different ratios

Parking Ratio	Current Parking	2020 Parking	Additional Spaces
30% Current Ratio	18,118 spaces	21,440 spaces	3,324 spaces
25% Target Ratio	18,118 spaces	17,823 spaces	0 gain to a 296 net loss (replacement strategy only)

Table 3.4: Tempe campus projected parking growth needs.

framework plan

The Framework Plan is generated to help determine campus capacity for future growth on land owned by the university. It analyzes existing facilities and open space, then outlines sites on campus for future development.

Open Space Framework

The open space framework analyzed the existing open space network on campus and proposed adjustments. The Tempe campus is built out to near-capacity and lacks significant open space. Because competition for space on this land-locked campus is so intense, prime open space opportunities were identified prior to analyzing building opportunities. One such open space opportunity is the former Engineering Complex site along Orange Mall, which provides a much-needed gathering space in the center of campus. Another open space opportunity is extending Tyler Mall all the way west through to Mill Avenue. Competition for space on campus made it very important to identify these open space opportunities prior to looking at sites for development.

Development Framework

After considering open space opportunities, development sites were identified based on discussions with OUA, Real Estate staff, and other guiding committees. Development sites are composed of former commercial sites, surface parking, and redevelopment of occupied space.

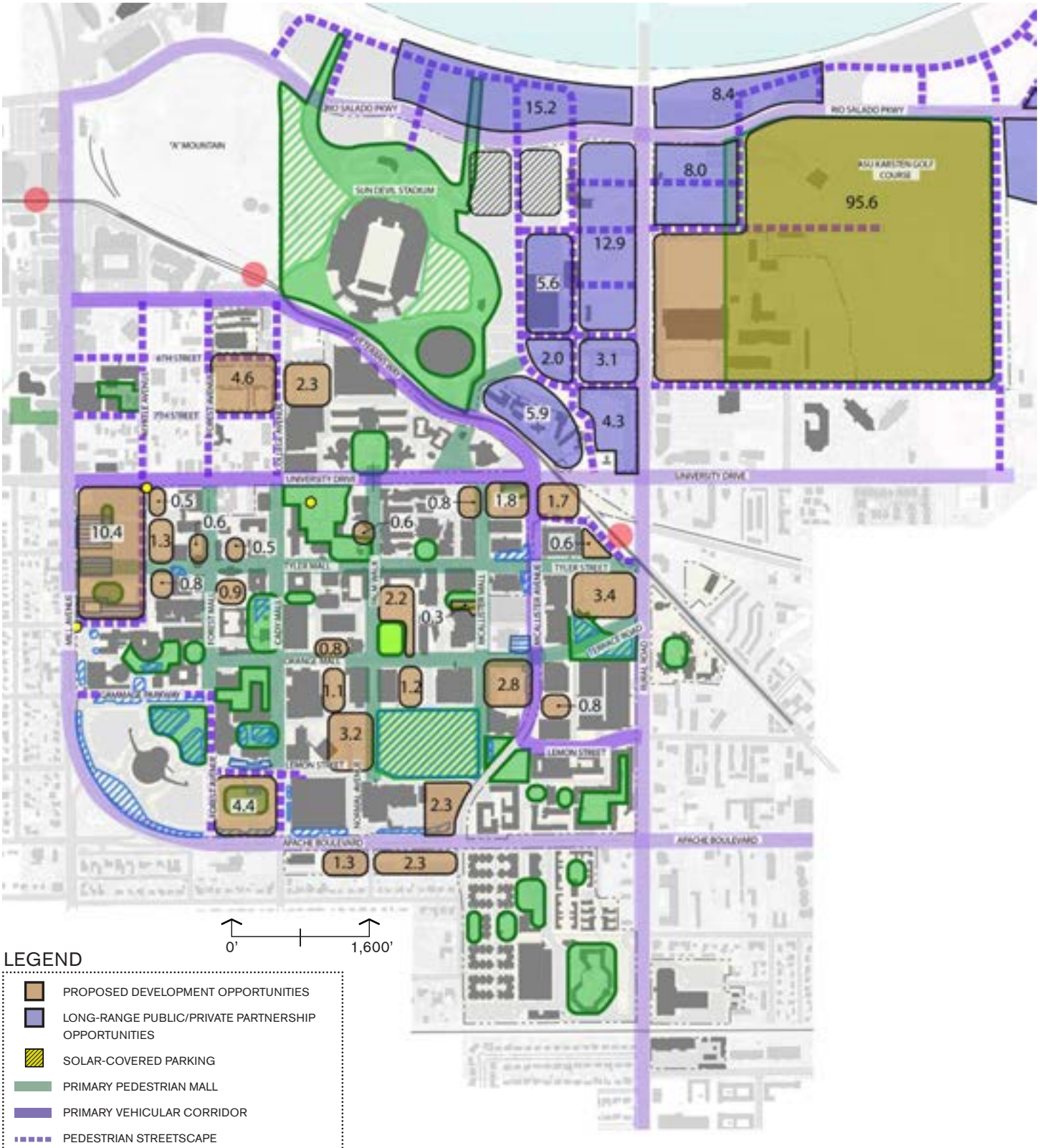
Development sites include:

- The Gateway Site
- Development of Block 12
- Redevelopment of the Art Annex and Mona Plummer Aquatic Complex
- Redevelopment of Tower Center Buildings A and B
- Redevelopment of the Art Warehouse and the 10th Street Parking Structure
- Redevelopment of the Urban Systems Engineering Buildings
- Redevelopment of Research Support Services Buildings' site
- Redevelopment of the Engineering Center
- Redevelopment of Armstrong Hall
- Redevelopment of the Bookstore
- Development of the site between the Memorial Union and Physical Education Building West
- Development of site south of ISTB IV
- Redevelopment of Irish Hall
- Development of Lot 17 (south of Apache Boulevard Parking Structure)

The Engineering Complex is a prime opportunity to insert open space into the center of campus.

An initial campus capacity was established for future growth, based on the acreage of development sites, tested against various density ratios (Floor Area Ratios) that the university wants to achieve per campus. Future development sites for the Tempe Campus were identified based on a number of factors. Sites were chosen because they contain surface parking, are underutilized, are built at too low a density for their surrounding context, or are inadequate for proposed future uses. Redevelopment of many Tempe sites will require careful staging and sequencing of new construction with demolition.

The Framework Plan is intended to guide the location of future development to appropriate sites on campus. As a framework, it does not specify particular building footprints or uses, but defines the zone for new development. An open space framework was also prepared to ensure that successful campus spaces, open space areas, storm water management, and pedestrian and vehicular circulation corridors are preserved as the spatial organization for future growth. The framework also proposes the location of future campus open spaces to ensure that new development will have sufficient areas for pedestrian circulation, outdoor rooms, recreational areas, and places to gather on campus. The Framework Plan forms the basis for the Master Plan, and is intended to remain a flexible tool to accommodate new or unanticipated needs.



LEGEND

- PROPOSED DEVELOPMENT OPPORTUNITIES
- LONG-RANGE PUBLIC/PRIVATE PARTNERSHIP OPPORTUNITIES
- SOLAR-COVERED PARKING
- PRIMARY PEDESTRIAN MALL
- PRIMARY VEHICULAR CORRIDOR
- PEDESTRIAN STREETSCAPE
- OPEN SPACE
- ATHLETICS AND/OR RECREATION
- UN-DEVELOPABLE LAND
- PAVED STORMWATER RETENTION AREA
- STORMWATER RETENTION AREA
- UNDERGROUND STORMWATER VAULT
- LIGHT RAIL STOP
- ASU BUILDINGS
- ASU PROPERTY LINE

Open Space and Development Framework Plan

*Numbers on plan correspond to gross acreage available for development per site, and not building gross square footage.

Students enjoying a moment of respite along Hayden Mall.

master plan recommendations

The Tempe Campus Master Plan Update proposes sites for the construction of 4.4 million gsf of new academic, research, support, and residential development. This includes replacement space for 600,000 gsf. The net gain of new development shown is 3.8 million gsf.

New Academic, Research, and Support Space

The Tempe Campus Master Plan Update will accommodate up to 2.4 to 3 million gsf of new research, academic, and support and replacement space as identified by the university and summarized in the Program Needs. The range in square footage reflects flexibility in assumptions on final density, building height, and coverage, which will be determined by the programmatic needs of future development. The plan identifies sites for future research, academic, faculty office, and support space as higher density infill sites in the campus core, including projects currently in planning, design, or construction, such as the Student Health Services addition and the W. P. Carey School of Business Expansion. With all new development, rooftops and the top level of parking garages should be utilized for solar installations, in support of the University's sustainable energy and carbon reduction goals.

Future research growth can be accommodated with the expansion of the Interdisciplinary Science and Technology Building (ISTB) 4, and the third and fourth phases of construction for the Biodesign Institute. Additional sites for research are proposed at the corner of McAllister Avenue and University Drive, and across University Drive up Rural Road, creating a prominent new eastern gateway for campus. Sites on Rural Road have the potential for partnership with private sector research, attracting companies that want close proximity to the university. Additional research space will be achieved through the renovation of existing lab space to achieve greater efficiency and to support basic faculty research.

Increase Density in the Core

Low-scale, 1- and 2-story buildings in the core of campus is an inefficient use of land. These sites should be considered for redevelopment to higher densities and include a mix of academic, faculty office, and/or research uses, with informal gathering spaces. The current bookstore, undergraduate Student Success Center, Armstrong Hall, and the Engineering complex are such candidates. Relocation of the Bookstore closer to the Union and redevelopment of its site would yield a net gain up to130,000 gsf. Pending the university's decision to relocate the Sandra Day O'Connor College of Law to the Downtown Phoenix campus, Armstrong Hall is a prime site for redevelopment that could yield up to 240,000 gsf,

Tempe Campus Master Plan	2011 Campus	Demolition	Proposed	Net Gain	2020 Campus
Academic/Research/Support Space GSF	8,880,120	495,760	2,446,000	1,950,240	**10,830,360**
Residential GSF	3,484,390	137,282	1,960,900	1,823,618	**5,308,008**
Total GSF without Parking Garages	**12,364,510**	**633,042**	**4,406,900**	**3,773,858**	**16,138,368**
Parking Garage GSF	3,564,290	153,388	823,000	669,612	**4,233,902**
Total GSF with Parking Garages	**15,928,800**	**786,430**	**5,229,900**	**4,443,470**	**20,372,270**
Parking Spaces	18,118	2,440	2,494	54	**18,172**
Rural Road Additional Development					**1,317,000**
Tempe Gateway Additional Development					**471,000**
Alpha Drive Additional Development					**270,000**

Table 3.5: Tempe campus proposed growth and net gain by broad category.

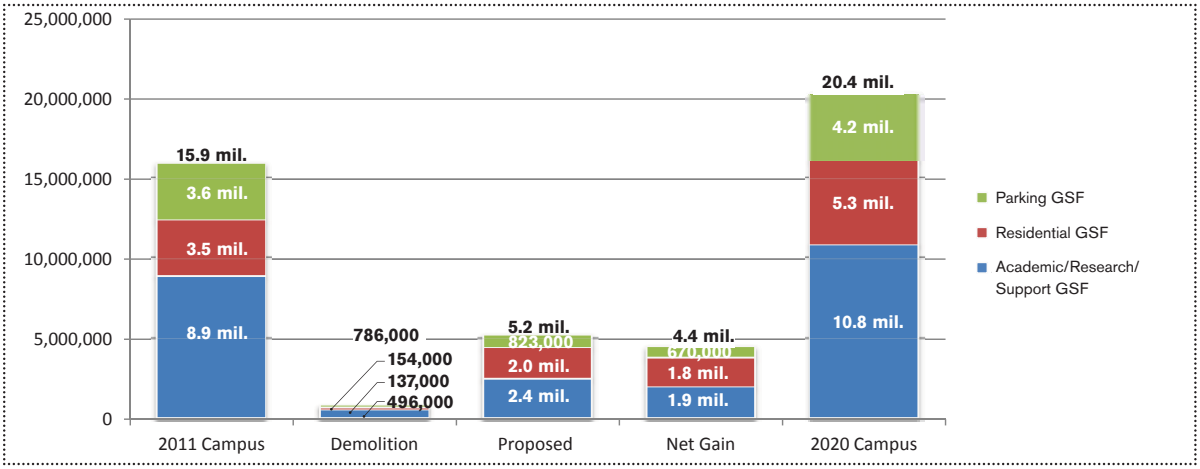
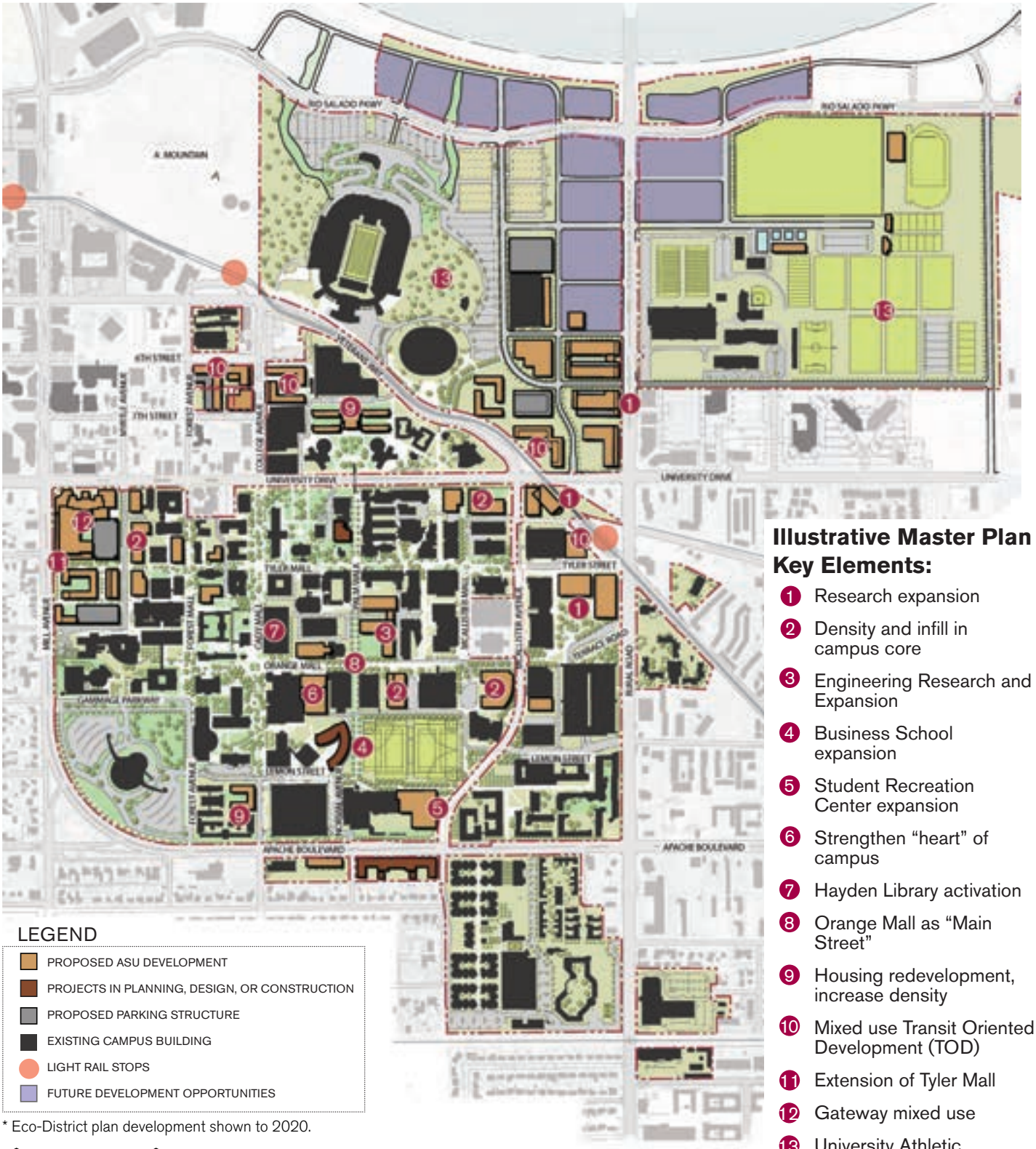


Chart 3.4: Tempe campus proposed growth and net gain by broad category.

a net gain of over 100,000 gsf of new space. The re-use and renovation potential of Armstrong Hall in comparison to the site's capacity should be carefully evaluated.

Phased Infill and Demolition

Due to the landlocked nature of campus, there are a few sites that could provide space for new construction with minor relocation of or disruption to existing programs and facilities. This would in turn allow move in and demolition of the next site, starting a cycle of reinvestment in the core of campus. Sites such as the Arts Warehouse on Myrtle Street, or the Research Support Services buildings on McAllister Avenue at University Drive would require relocation of modest facilities to nearby off-campus locations, but would provide immediate opportunities for new construction and move in for existing academic programs. The open space and detention area on University Drive at McAllister Mall is another immediate opportunity, provided its detention capacity is relocated, possibly to underground storage.



Illustrative Master Plan Key Elements:

1. Research expansion
2. Density and infill in campus core
3. Engineering Research and Expansion
4. Business School expansion
5. Student Recreation Center expansion
6. Strengthen "heart" of campus
7. Hayden Library activation
8. Orange Mall as "Main Street"
9. Housing redevelopment, increase density
10. Mixed use Transit Oriented Development (TOD)
11. Extension of Tyler Mall
12. Gateway mixed use
13. University Athletic Facilities District

Tempe Campus Illustrative Master Plan

* Eco-District plan development shown to 2020.

0' 1,000'

Tempe Campus Building Use Master Plan

Residential Development

In order to house 25% of projected student enrollment in on-campus facilities on land currently owned by ASU, the university must look at higher density development for new sites, and the redevelopment of older, low density halls in existing neighborhoods. Irish Hall, with 99 beds, averages 186 gsf per bed, a very low ratio by today's housing standards. It is a two-story building located across from the W. P. Carey School of Business and campus gateway to Cady Mall. Recent housing infill on the block has increased heights to four stories. The Irish Hall site is proposed for redevelopment into a new six-story dormitory. Hayden Hall is also a low density dorm, with only 151 gsf per bed. Depending on building condition, Hayden Hall may be a candidate for renovation to gain more square footage per bed.

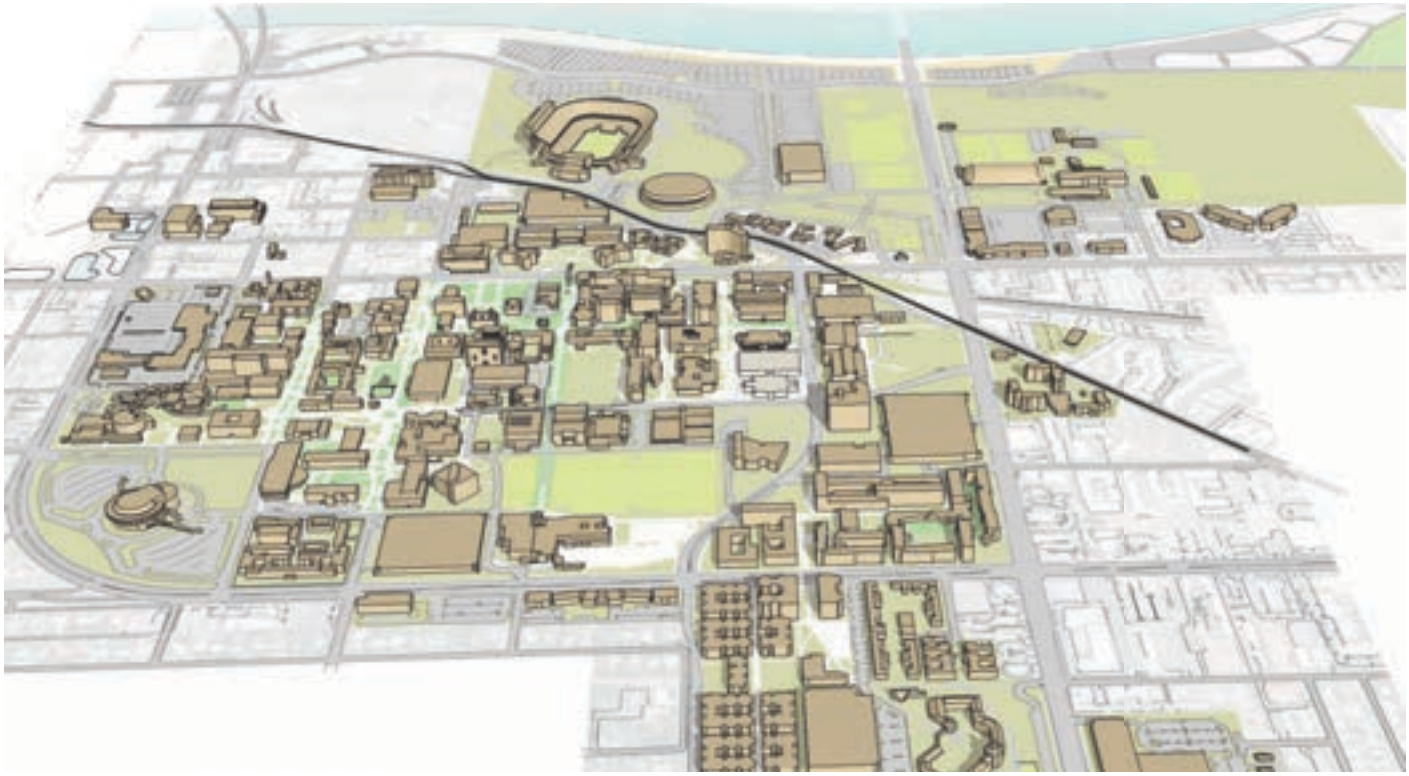
Current planning and design for the Ocotillo housing development south of Apache Boulevard proposes 400 units in four-story buildings. The two-story single-family residential neighborhood south of Apache Boulevard requires some sensitivity in adjacent building height and massing. As a transitional site, university housing development here should maintain a lower height than other sections of campus.

Palo Verde Main is another low scale, underutilized housing site. At three stories, it is out of character with the height and density of Palo Verde East, West and Manzanita Hall. Redevelopment of Palo Verde Main as new six story undergraduate dormitories would allow for modernization, increased square footage per bed, and an increase in the number of beds from 548 to over 800 (assuming 300 gsf per bed). Given the existing layout of the residential wings, construction could be staged in multiple phases.

The 10-acre Tempe Gateway site on Mill Avenue at University Drive provides a great opportunity to create a new, dense mixed use residential neighborhood, bridging campus and town. Twelve-story apartment towers with ground floor retail would bring a student population in close proximity to existing retail on Mill Avenue, helping support downtown businesses while still providing housing within an easy walk to the center of campus.

Increased residential density is more feasible north of University Drive. The verticality with "A" Mountain, Sun Devil Stadium, and the mid- to high-rise towers of Palo Verde East and West, and Manzanita Hall provide an existing visual context that can accommodate greater building height. Proximity to the light rail station and the Tempe Transportation Center on Veterans Way also provides an impetus for greater density to support transit ridership. Redevelopment of Block 12 and the Mona Plummer Aquatic Center on College Avenue can provide up to 1,560 residential units in ten-story buildings, integrated with future academic or administrative mixed use functions and street level retail.

3D Master Plan enlargement



Existing Conditions Model

Proposed Conditions Model

Proposed conditions for Orange Mall.

Orange Mall and the Campus Core

The Master Plan proposes to reinforce Orange Mall as the primary pedestrian experience and social gathering space on campus, particularly between Palm Walk and Cady Mall. The "100% corner" of bustling pedestrian activity at the intersection of Orange and Cady Malls should be reinforced with continued programming and a re-evaluation of its landscape design. The removal of service traffic off of Orange Mall west of the Computing Commons will allow a redesign for more unstructured social interaction, movable seating, shade structures, and events space, expanding the outdoor social space of the Union. New buildings along Orange Mall should create a discernable street wall, an academic and social "Main Street" with an active, porous ground floor plane that creates a transition between indoor and outdoor space, and areas to congregate. A new outdoor room created at the intersection of Palm Walk and Orange Mall can be developed as a secondary gathering space for informal groups, smaller events, and outdoor study.

Pedestrian Malls

Similar to Orange Mall, redevelopment of buildings on major pedestrian malls such as Cady and Forest should include an active, porous ground floor plane that creates a transition between indoor/outdoor space, with areas to congregate. Extending Tyler Mall west to Mill Avenue would open up the west side of campus, increase its porosity, and enhance pedestrian movement. New open space corridors and multi-modal paths from campus to Tempe Town Lake (past Sun Devil Stadium) would link the campus to one of Tempe's most prominent open space features and park space. Additionally, 6th Street between Veteran's Way and Alpha Drive should be converted to a pedestrian mall.

Sites for up to three new garages are shown to replace existing parking lost to new construction, and to serve new development.

Proposed conditions for Tyler Mall.

Campus Gateways

The consolidation of athletics east of Rural Road opens up a significant opportunity for a new gateway on Rural Road and University Drive. Over one million gsf of new office, research, or mixed use development in six to eight story buildings could create a new streetwall and urban presence on Rural Road, allowing ASU to expand its research endeavors, or to attract private sector partners. A redesigned street pattern, ground floor retail, parking garages, and an attractive streetscape design can build an urban district at the edge of Sun Devil Stadium.

Mill Avenue and University Drive provide a second gateway and an opportunity to create a shared campus and community amenity. This is a potential marquee site, where the architecture must engage the corner and activate the streetwall on both thoroughfares. As proposed, this site could be developed with 470,000 gsf of hotel, conferencing, and retail space.

Activate the Campus

Strategic infill sites and programming can create a livelier “24/7” environment at the heart of campus. Previously identified infill sites in the core could include residential units in upper floors, with a base function of academic classrooms or office use.

The Memorial Union is in need of extensive expansion space, and the Bookstore needs updating and possible expansion. Renovation of the vacant PE West building as a new bookstore site and a building addition between PE West and the Union would allow expansion for both the Bookstore and Union, better link their programs, and allow shared use of the loading dock. An addition between the two buildings should front Orange Mall and provide for more student retail, student businesses, organizations and clubs.

Directly across Orange Mall, the ground floor of Hayden Library could be re-purposed as an Information Commons for the campus, providing

Aerial view of campus with recommendations.

Light Rail stops serving the Tempe Campus.

much needed interactive study space, with math and english tutoring labs.

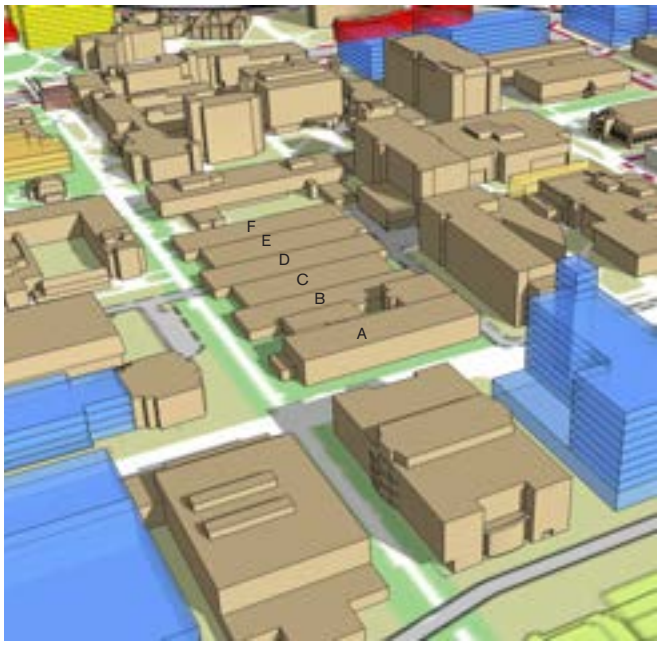
A recently completed feasibility study for additional indoor recreational and fitness space evaluated three sites on campus. The study concluded that an expansion east of the existing Student Recreation Center would provide the greatest square footage for programs, in the closest proximity to existing student housing density.

Proposed Parking

As a walkable, dense urban campus with access to public transit and light rail, the Tempe Campus can pursue a more balanced approach to parking on campus. There are currently 18,118 parking spaces on campus. The proposed plan would displace 2,440 parking spaces, including redevelopment of the Myrtle Avenue parking garage and spaces displaced for future development in the parking lots by Sun Devil Stadium. The master plan shows locations for four new university related parking garages, and a new total parking supply of 18,645 spaces, for a net gain of 527 spaces. This meets the proposed trajectory for future parking to campus population ratio described earlier in the report.

Transit Oriented Campus

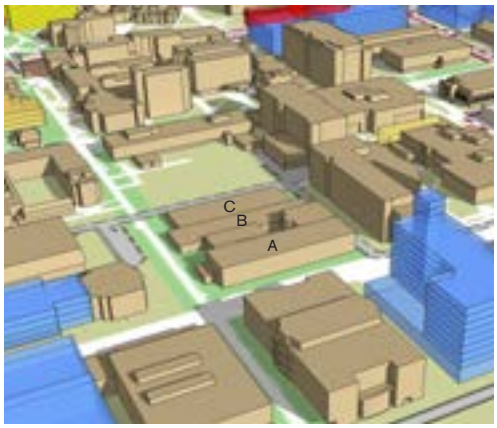
University sites within a five-minute walk from the existing Metro light rail stations on Veterans Way and Terrace Road at Rural Road should be developed to encourage ridership. Higher density mixed use development that includes academic, research, office, and/or residential uses should also include retail and commercial uses on the primary pedestrian routes to and from the stations. Inclusion of bike parking and potential showers for bicyclists within new development would further enhance use of alternative transportation.



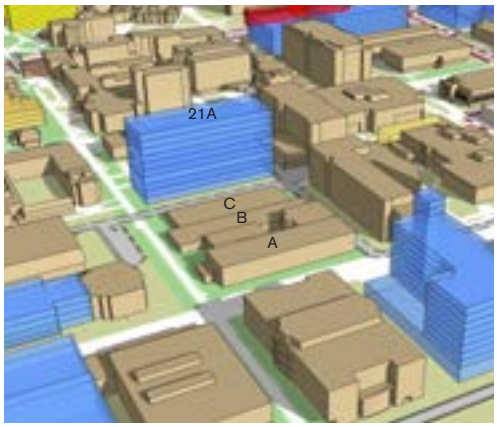
Existing conditions at the Engineering Complex, looking north-east.

Engineering Center Redevelopment

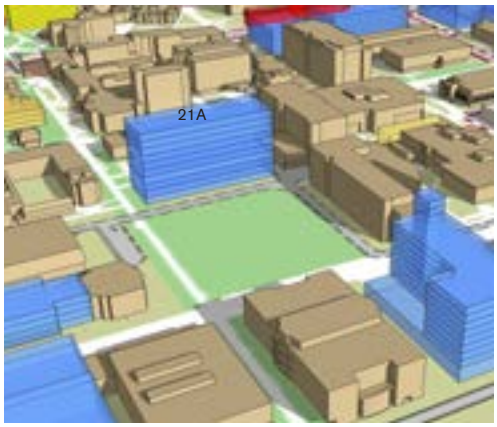
The redevelopment and sequenced construction of Engineering Center Buildings A-F provides a significant opportunity to reinvent the center of campus at the crossroads of Palm Walk and Orange Mall. Selective relocation and demolition of the one-story lab buildings D-F, and relocation of the campus's Hazardous Materials facility would allow construction of an engineering and lab facility of 189,000 gsf, able to accommodate all of the displaced square footage of buildings A-F. Buildings A-C can then be demolished for a second academic or research tower and a new campus open space on Orange Mall. Total redevelopment could reach up to 421,000 gsf, for a net gain of 279,500 gsf.



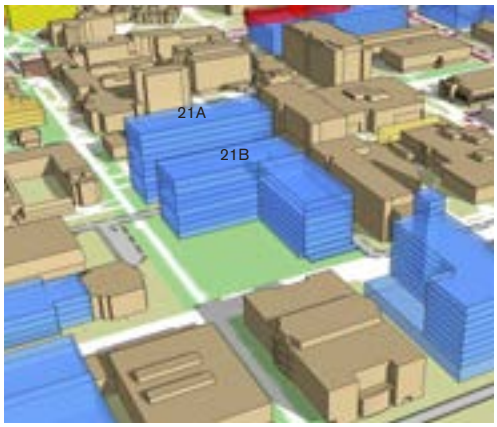
Phase 1: Demolish Engineering Buildings D, E, + F.



Phase 2: Construct New Building 21a, create service drive access.



Phase 3: Demolish Engineering buildings A, B, + C.



Phase 4: Construct New Building 21b.

access management

The Tempe campus is the site of constant movement by pedestrians and wheeled transportation: large and small delivery trucks, ASU fleet pickup trucks and sedans, service and delivery vans, ASU golf carts, bicycles, skateboards, longboards, and rollerblades. While the circulation at the edge of campus works well, it is the conflict between pedestrians and wheels within the core of the campus that is troublesome. Emergency and fire vehicles are not included in this discussion of conflicts, as they need to be able to go wherever they are needed on campus.

Carts in class change traffic in front of MU

Pedestrians may be found on all sidewalks and occasionally within roadways, but it is the pedestrian malls (Forest, Cady, McAllister, Tyler and Orange) that carry the largest portion of pedestrian movement. The biggest potential hazard to pedestrian safety is the sheer volume of non-motorized wheeled traffic that travels the core of campus during class change periods. The number of bicycles, skateboards, and scooters combined with extremely high pedestrian volumes creates a cacophony of movement that can often lead to collisions.

Additionally, people on various modes of transportation are often distracted by text messaging or talking on their cellphones, or are listening to music with headphones on and unaware of their surroundings. The potential danger is increased even further by bicycles and skateboards that are often travelling at speeds much greater than the average pedestrian. With the Tempe campus population projected to increase to 71,290 in 2020, the problem will only get worse unless actions are taken now to address these issues.

There are multiple reasons for pedestrian/vehicular conflicts in the core of campus. There have been ASU regulations specifying that vehicles and golf carts are supposed to be immobile on the malls during class change due to the high volume of pedestrians. However, multiple observations

12:49:20 p.m.

12:49:30 p.m.

12:50:00 p.m.

12:50:20 p.m.

A one minute photo sequence of high volumes of all traffic types on Tyler Mall

confirmed that this regulation is not adhered to by ASU or outside vendor vehicles. Additionally, several buildings do not have loading docks or loading areas; they were built to be serviced through the doors also used by pedestrians. Thus they have no service access that is not on a path used by pedestrians.

Some University functions, such as landscape maintenance, must occur in the core of campus in areas that are not served by roadways, or the nature of their work requires that equipment or materials be close at hand. However, a significant portion of conflict between vehicles and pedestrians is due to the golf carts used for convenience across the campus by departments, individuals, and organizations. These carts complicate pedestrian movement and add to the safety issues already present from the use of bicycles, skateboards, longboards, and rollerblades in pedestrian areas.

Recommendations are offered below for new or reinforced policies, physical improvements, and education of the campus to improve access management and safety for members of the campus community.

Roadways

Tempe is well served by major roadways that form the primary boundaries of campus. These major corridors include University Drive on the north, Rural Road on the east, Apache Boulevard on the south, and Mill Avenue on the west. The Tempe campus has expanded beyond all of these streets except for Mill Avenue. McAllister Avenue runs through campus along the eastern edge and is the only through street that penetrates the campus core. Large parking facilities, whether surface lots or structures, are primarily located at the edges of campus. One exception is the major parking facilities that serve the Stadium and Arena, and act as peripheral commuter lots when events are not underway.

Single-occupancy vehicular traffic on the Tempe campus has been substantially reduced by transforming roadways into pedestrian-only malls. However, there are still locations where vehicles may enter campus and drive on pedestrian walkways, such as the southern entrance to Forest Mall.

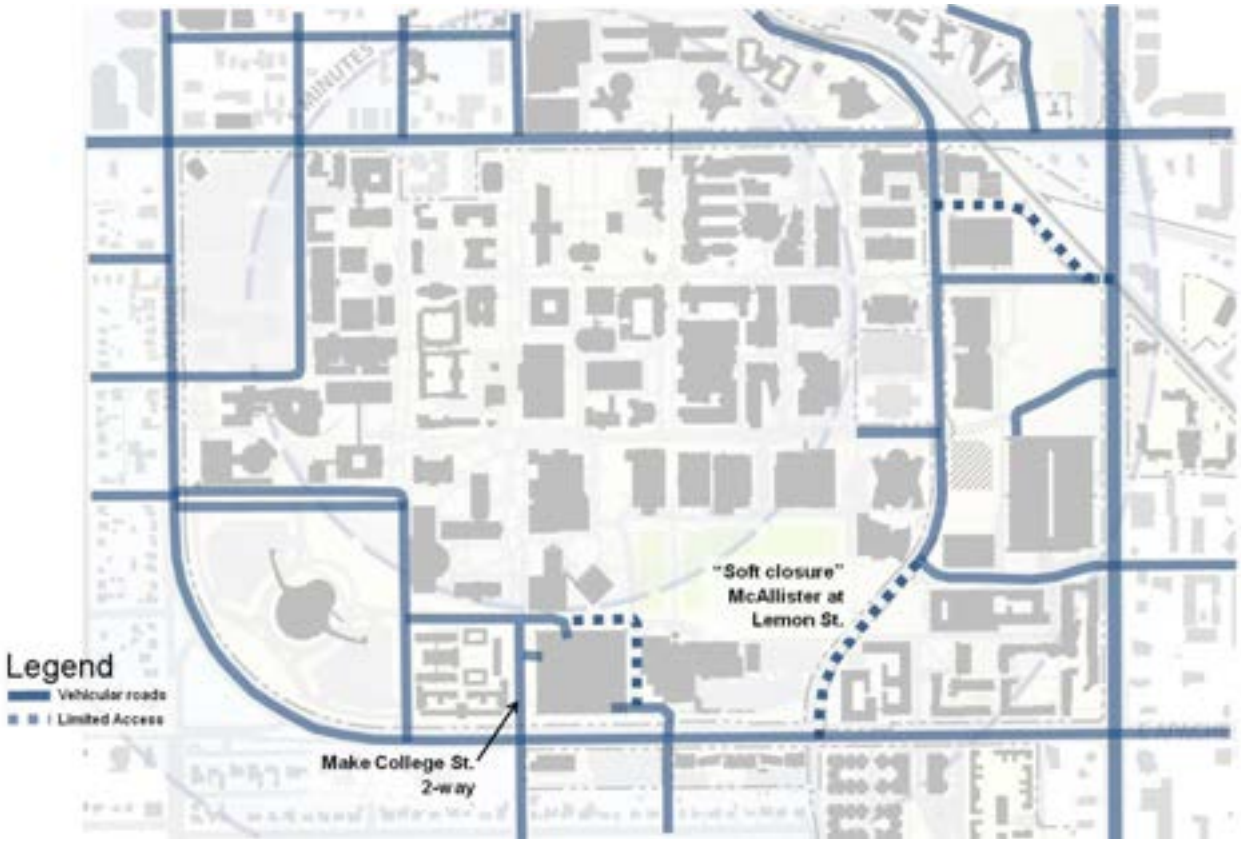
Very few internal parking areas remain on campus. The parking surrounding the Central Plant is a small lot in the heart of campus, requiring that vehicles drive on Orange Mall to reach it. Other small lots may be accessed from major streets, such as University Drive, or require some driving on pedestrian ways to get to the entrance of the lot.

Since the major peripheral streets carry both local and campus traffic, there are pedestrian issues associated with street crossings from ASU facilities on the outside of the main campus. For example, students living in the residence halls north of University Avenue or east of McAllister Avenue must wait for traffic signals to cross safely. University students are not known for their patience or attention to traffic, and thus they may cross inappropriately or in numbers that are not well handled by a typical street crossing system.

Soft Closures

In order to increase pedestrian safety and reduce traffic delays and backups, the University should implement the “soft closure” of three segments of the campus road network. A “soft closure” entails closing a roadway to regular vehicular traffic through a gate or other control device, but leaving the roadway in place to allow for service vehicle use, emergency access, and possible campus bus use.

The soft closing of McAllister Avenue between Lemon Street and Apache Boulevard is critical for pedestrian safety and bicyclist movement to and from campus and the residential areas to the southeast. A tremendous amount of foot and bicycle traffic occurs at this location on a daily basis, but at peak travel times and especially during weekday mornings the conflicts between pedestrians, bicyclists and motorists are inevitable and can have perilous consequences. A soft closure will remove the daily vehicular traffic from the equation, but allow for controlled situations where vehicles can traverse this section of McAllister when warranted (i.e. student move-in and move out, emergency, service vehicle and campus bus access).



Vehicular + Service Corridors

The soft closing of the roadway on the east and north sides of the Apache parking structure to include Normal Avenue (from the southeast parking structure entrance to Lemon Street) and Lemon Street (from Normal Avenue to the western most exit from the north side of the parking structure) will alleviate another major area of conflict between pedestrians, bicyclists, carts and vehicles. It would also remove traffic congestion caused by motorists competing for parking structure entry and exit, on-street service and delivery vehicle parking and "kiss'n'ride" activity. In addition to this soft closure, the University should also modify College Avenue from one-way to two-way traffic in order to provide vehicular access to and from the Apache parking structure on the west side and from Lemon Street. A western entrance and exit should be added to the Apache parking structure along with the conversion to two way traffic. Access on Lemon Street, on the north side of the garage, should be converted to exit only and relocated closer to College Avenue.

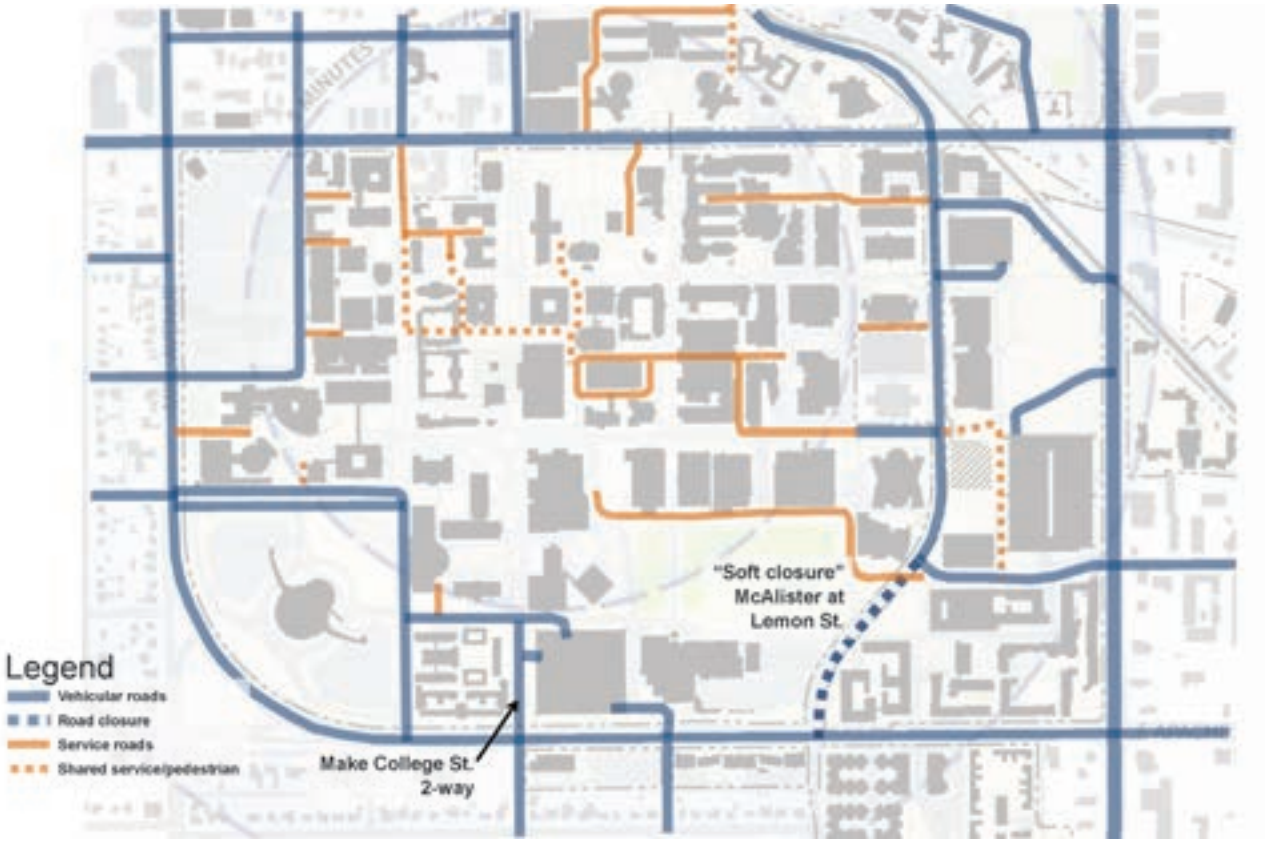
The City of Tempe is considering prohibiting left turn movements onto McAllister Avenue from University Drive, due to left turn back-ups onto the light rail line across University Drive. Should this occur, Tyler Street between McAllister and Rural Road could be re-opened as an alternate route into McAllister. Terrace Road has already been re-designed as an ingress/egress route to the parking garage and does not connect to McAllister.

Service Access

In order to reduce the potential for conflicts among motorized (golf carts), non-motorized (bicycle, skateboard) and pedestrian traffic, a network of service corridors is being recommended to allow service access to as many buildings as possible without requiring vehicular or golf cart travel on malls or sidewalks. In some cases it is simply not possible to provide service access to some buildings without co-mingling of vehicle and pedestrian traffic, as is the case for McClintock Hall, the Matthew Center, and Social and Life Sciences.

Access to the Central Plant is one of the most critical, yet tricky, service issues. The new service corridor would begin on Orange Street at McAllister Mall, with vehicles turning between Engineering Center and ISTB I, then proceeding west, across Palm Walk to the Central Plant. This corridor will remove vehicular traffic from the congested intersection of Palm Walk and Orange Mall while still providing the necessary access to the Central Plant. This new service access can only be implemented with the redevelopment of the Engineering Center.

Further aiding the designation of Orange Mall as primarily pedestrian, the service corridor leading to the Memorial Union will run on the south side of Physical Education Building East, the Bookstore, Computing Commons, and Physical Education Building West. This will reduce the pedestrian conflicts on a longer portion of Orange Mall. Access to this service corridor will come off of Lemon Street at McAllister, then use the service drive east of the recreation fields. As this is still a well-used pedestrian route, the service drive should be designed with sidewalks so that pedestrians can get out of the road when trucks are present.



Service Corridors

Guidelines

1. Consolidate service drives and access to existing buildings where possible.

2. Design future buildings to accommodate service access points, locate internal elevators close to service access, and eliminate the need to drive on pedestrian pathways to service a building.

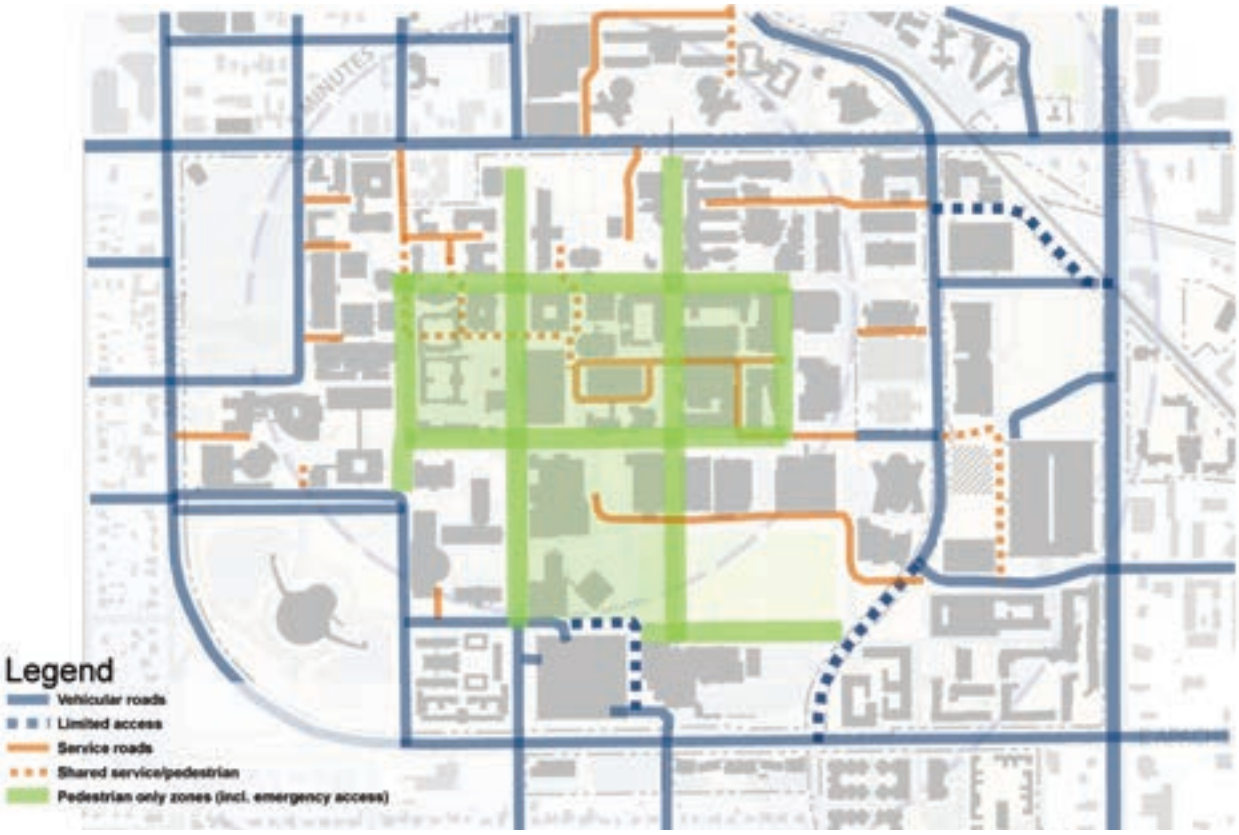
Policies

1. Restrict the acquisition of carts through strict purchasing policies that:

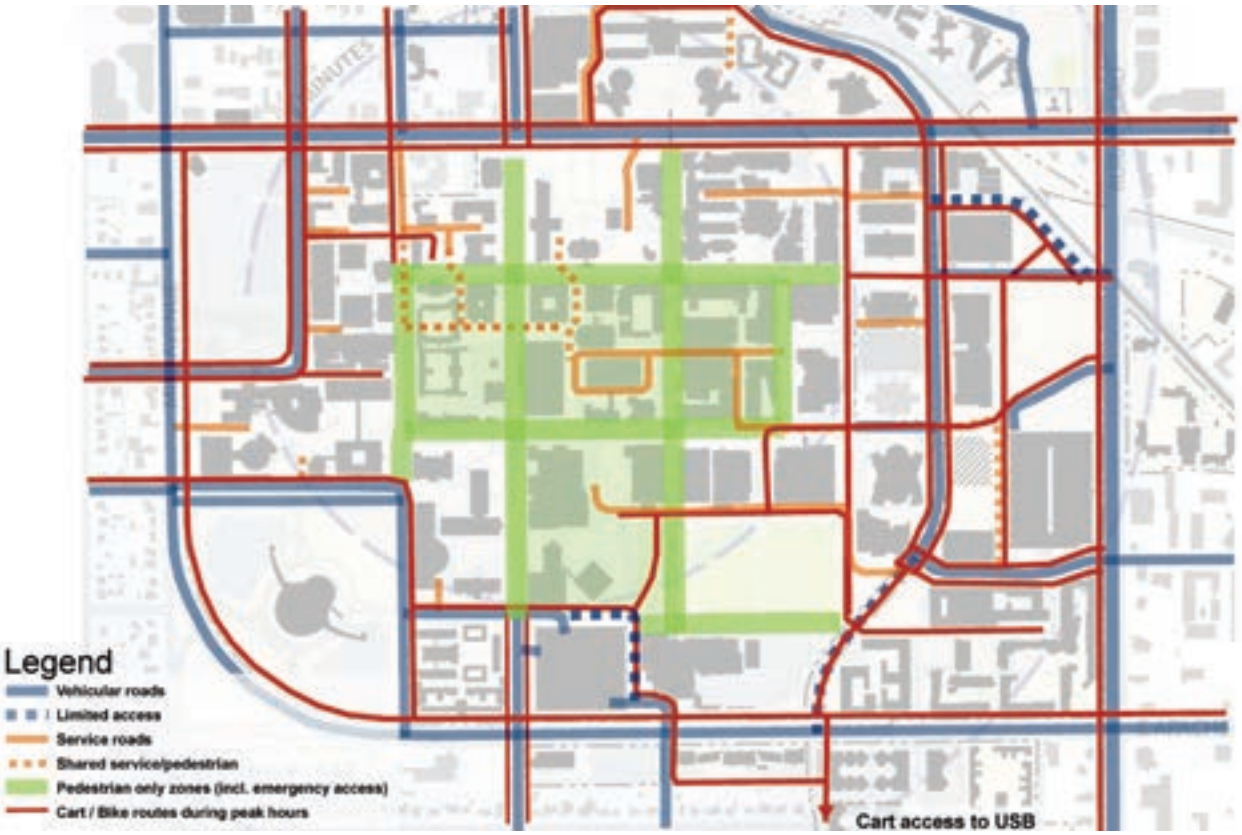
- use the University's buying power by consolidating the purchase process;
- develop an RFP for the acquisition of electric carts with required specifications;
- purchase from a single or select number of vendors.

2. Update existing parking and traffic regulations to include:

- no parking of golf carts within 20 feet of building entrances (in absence of designated loading dock or service area);
- the specific times when wheeled travel can transverse Malls;
- prohibiting the use of headphones or cellular phones while engaging in wheeled travel on campus; and
- provide specifications for charging stations and their proper installation and use.



Pedestrian Safety Zone



Cart and Bike Routes

Pedestrian Safety Zone

1. Establish a campus Pedestrian Safety Zone for high use periods of the day:

- prohibit all wheeled travel (except fire and emergency vehicles) within specific, well-defined physical boundaries
- enforce this dismount policy during the peak daytime class period;

2. Develop clearly defined service access routes to maintain access to all campus buildings and include Access Management instructions for all buildings in the core area.

3. Develop a connected network of bicycle and cart access paths to traverse campus around the core Pedestrian Safety Zone

4. Initiate a campus-wide educational campaign about the Pedestrian Safety Zone and install signs and pavement markings to introduce the Pedestrian Safety Zone concept.

5. Increase enforcement levels for Pedestrian Safety Zone violations by:

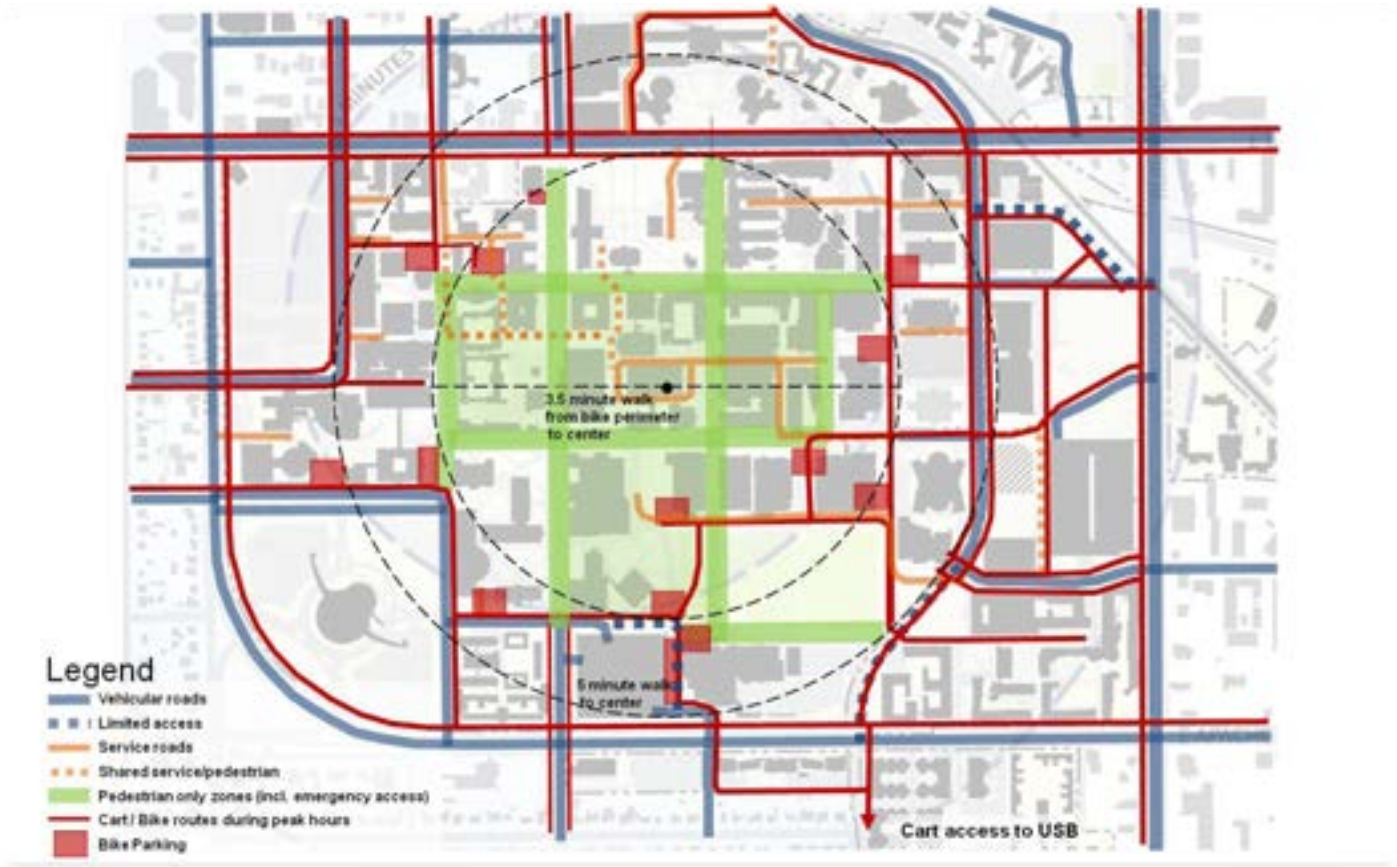
- providing a higher presence of PD officers or PTS enforcement staff;
- revising fine and penalty structures; and
- increasing public awareness of the Pedestrian Safety Zone and the transportation code in general.

Use of Golf Carts

1. Develop a cart database to include ownership, registrations and permits, storage locations, maintenance, safety inspections, fines, and assign the cart data program to a single, responsible party.

2. In the future, move towards a shared “cart pool” management system that would:

- consolidate the purchasing, use and storage of carts;
- establish an online reservation system (thus reducing the number of carts needed on campus); and
- create convenient, organized storage/ charging locations around campus.



Bike Parking

Various high capacity bike parking methods.

Bicycles

1. Consolidate bike racks/storage areas to designated locations at the edge of the Pedestrian Safety Zone and use first floor areas of select parking garages for bike parking where possible.

2. Invest in new bike storage systems for more efficient storage and security, as well as higher capacity.

3. Enforce bike parking in designated areas during Pedestrian Safety hours.

4. Encourage bike registration to reduce theft by providing a registration tag with an integral GPS chip.

5. Continue to investigate participation in a regional or campus-wide bicycle sharing program.

Other Considerations

1. Standardize campus bollard systems for access control to ensure that access control devices and their overall design prevent carts and other wheeled traffic from moving into restricted areas.

2. Bring barrier-free spaces into ADA compliance utilizing approved space design specifications, accessible access pathways, and proper signs.

3. Make improvements to pedestrian crosswalks by reviewing crosswalk locations, hard surface markings, and improving signs.

4. Create specific “kiss-n-ride” drop-off/pick-up areas for vehicles to allow vehicles to pull out of traffic and drop off or pick up passengers at locations where they are doing this at present.

5. Add signs preventing private vehicles from driving into the campus and university vehicles from driving in the core.

6. Develop standard building signs (some buildings have been renamed or there are no addresses for emergency response).

7. Replace or re-organize signs introducing the pedestrian malls.

architectural guidelines

As an institution that has seen development and massive expansion over the past 125 years, the Tempe campus showcases an eclectic patchwork of architectural styles including Queen Anne Victorian, Modern, Brutalist, Postmodern and Deconstructivist buildings. A number of buildings on campus were completed by noted local architect Kemper Goodwin, and there are examples of work by Frank Lloyd Wright and several notable contemporary architects. Although this architectural diversity has led to the erection of a number of excellent buildings, future design on the Tempe Campus should focus on establishing a unified feel to the University and recognizing ASU's commitment to sustainability.

All new construction and major renovation work should comply with the ASU Sustainable Design Guidelines and comprehensive Design Guidelines, which impact the programming, design, and construction of all major ASU projects and define the relationships and expectations involved in doing work for the University. The Design Guidelines also contain an outline specification with detailed construction guidelines ensuring that the quality of buildings constructed on campus reflects the long-term horizon of ASU's mission. Design and construction decisions should reflect this outlook with a 100-year horizon, emphasizing institutional-quality construction and life-cycle maintenance and cost analyses.

Building design should be flexible to allow for adaptations in use, utilizing established construction methods, standardized components, and minimizing custom systems where possible. It is also important to recognize the limited supply of land available to the campus, and to efficiently utilize sites with compact footprints allowing for maximum future development. Along edges where the University abuts commercial or business uses building design should have sufficient flexibility to accommodate an interweaving of program, blurring the boundary between institutional and non-institutional uses (*figure 1*). This could manifest as multi-function zones that have the potential to be incubator office, retail, cafe or exhibition, suiting both student and private entrepreneurs.

Pedestrian traffic density on campus far exceeds that found anywhere else in the Phoenix Metro area and it is the public spaces between buildings (malls, courtyards, quads and gardens) that form the common environment on campus. As such, there is an intrinsic and symbiotic relationship between building, planning and landscape design.

Buildings should take a definitive stance to the mall system, either being pulled up close to the mall to provide definition and shading, or purposefully pulled back to create a programmed pedestrian gathering space (*figure 2*). Large unoccupied setbacks should be discouraged, as they do not efficiently use the site and do not reinforce the pedestrian environment. Individual buildings should make efforts to accommodate impromptu meetings, outdoor study, and other types of gathering with ample space, seating

and shade. These spaces also act as mediators between the rapid pace of mall traffic and a building's entry, providing a necessary transition zone. The potential of these exterior spaces to link together or occur unexpectedly is an exciting opportunity to create memorable moments—hidden courtyards and shaded paseos that give a desirable character to the experience of campus.

Establishing a relationship between the landscape and building should also occur at a more utilitarian level which can still be expressed and celebrated. Opportunities can be explored whereby rain scuppers can feed specific trees, condensate lines can be linked to irrigation systems, and vegetation can become an integral skin shading the building.

The hierarchy of buildings on campus should be determined by the University based on programmatic or planning emphasis and expressed through site and building design. Unless designated otherwise, buildings should seek to homogenize rather than differentiate themselves from other buildings on campus. The design team should consider the scale, materiality and alignments of adjacent structures as critical influences on their design process with the goal of integrating into the existing campus fabric. "Heroic" buildings whose articulation, facade treatments, and/or irregular orientation cause them to stand out from neighboring buildings

figure 1 - Building design and campus planning should encourage a mix of public and private along the campus perimeter that blurs the boundary between the University and the surrounding community.

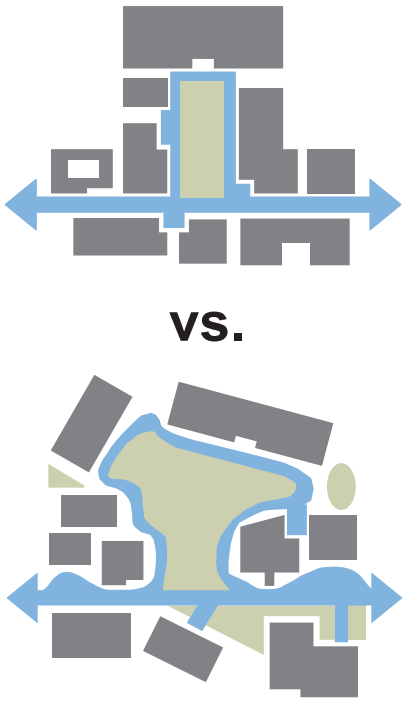


figure 2 - Buildings should respect the established campus grid and reinforce the orthagonal mall structure, with designed moments for quads, courtyards, and other gathering spaces.

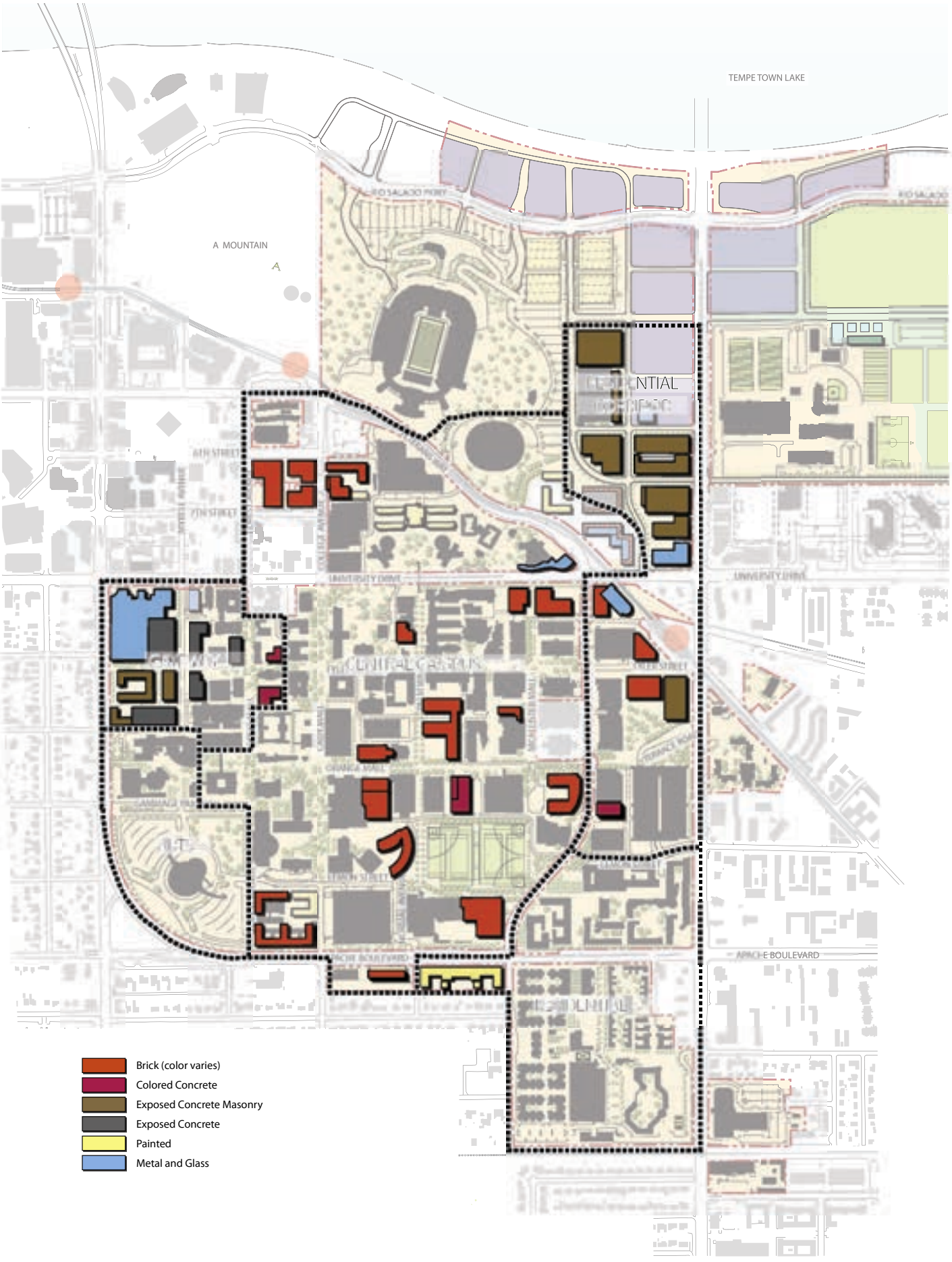


figure 3 - Tempe Campus divided into zones. Proposed future buildings are highlighted and show material palette to incorporate.

on campus are discouraged as they result in a disjointed sense of place and disrupt the clarity of the campus' identity.

The complexity of the Tempe Campus negates a single prescriptive approach of defining an architectural style to be universally implemented. Rather, an analysis of the existing campus suggests subdividing the plan into five loosely-defined planning districts, whose buildings share common physical characteristics (*figure 3*).

Residential Zone

The southeast corner of campus is defined by recently constructed residential buildings, with the Hassayampa Academic Village, Barrett Honors College, Adelphi Commons and Vista Del Sol all built in the early 2000s, alongside the Sonora Center, which was built in 1990. These developments can easily be distinguished from one another by construction type, scale, and materiality, but share a common program. The southeast Residential Zone is essentially built-out.

Arts Zone

On the southwest corner of campus, the University's fine arts facilities form their own unique enclave with the Nelson Fine Arts Center, Gammage Auditorium, and the Music Building sharing a similar palette and form. Given the desire to preserve open space around Gammage, the Arts Zone is also essentially built-out.

Gateway Zone

Directly to the north the buildings fronting Forest Mall form a unique collection of exposed concrete buildings, with Lattie Coor Hall to the south and the Design School at the north end (*figure 4*). Although not a cohesive group these five buildings, spanning four decades, stand apart from

figure 4 - Forest Mall has a unique character defined by concrete building skins and a distinct lack of brick, particularly along the west side.

figure 5 - The BioDesign Institute (top) and ISTB IV (bottom) provide a template for contemporary design while tying into the scale and materiality of the existing campus buildings.

the predominantly brick campus. This change in architecture has implications for the corner parcel bounded by Myrtle Avenue and 10th Street which will be heavily redeveloped.

Acting as a bridge to the community and downtown Tempe buildings in the Gateway Zone should have a mix of uses and address the street edge, both physically and programmatically. Architecturally, incorporating concrete and glass into the design palette would tie the new buildings to the existing campus buildings in the area while setting a contemporary image for the campus from the corner of Mill and University and distinguishing the campus from surrounding commercial development.

Central Campus Zone

Central Campus, roughly between Forest Mall and McAllister Avenue and extending both north of Apache Boulevard and south of University Drive, encompasses the entire range of architectural program found on campus including both the oldest buildings and some of the newest. This area lacks a cohesive identity, and the geometric planning principles that form the basis for the campus' plan break down in several areas. Brick facades are perhaps the one constant in this part of campus although the shade of brick used varies drastically. Although densely built, there are some opportunities for infill or replacement of existing buildings. Any future buildings in this part of the Tempe Campus should incorporate brick, referencing other buildings along the same pedestrian mall to determine an appropriate color selection.

Research Corridor Zone

The northeast corner of campus remains largely underdeveloped to this point providing the opportunity to establish a cohesive language that both relates to the rest of the Tempe Campus while looking forward architecturally and helping to define ASU to the greater community. The initial aesthetic direction for the zone is established by the BioDesign Institute and ISTB 4, both of which integrate a traditional brick palette into a sustainable and contemporary building envelope (*figure 5*).

Development in the Research Corridor also will be responsible for defining the experience of Rural Road. The street section in this area (both on Rural and University) should seek to foster a close relationship between building and sidewalk while creating a buffer zone between sidewalk and street in order to encourage safe pedestrian travel (*figure 6*).

Common to all zones is the need to relate to the major public streets (Apache Boulevard, Rural Road, Mill Avenue, and University Drive) that encircle the campus. Buildings along these edges can communicate and help reinforce the University's brand. This not only involves the pedestrian scale, but also thinking about how traffic passing by at 40 mph might begin to understand or relate to what's happening on campus (*figure 7*).

Building renovations on campus should work towards establishing a more integrated whole. There are obviously limitations based on scope, where some buildings will inherently remain incongruous with their context based on the original constructions. However, renovations should follow the intent of these guidelines unless

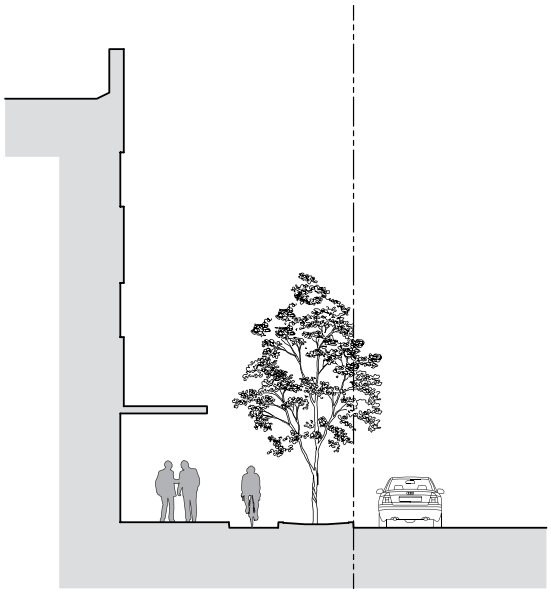


figure 6 - Buildings on Rural Road should cater to the safety and comfort of pedestrians and cyclists while recognizing the importance of the street for vehicular traffic.

figure 7 - The Fulton Center addresses the street edge on University while providing an iconic insight into campus events.

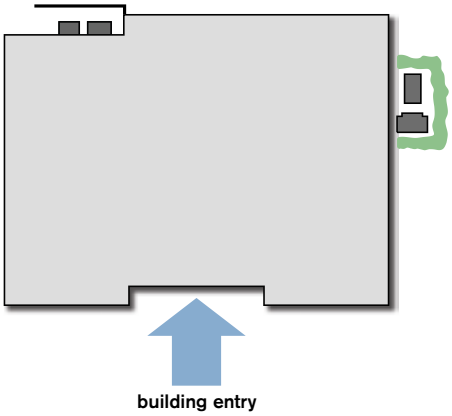


figure 8 - Building Services should occur away from the front entry and be screened from view.

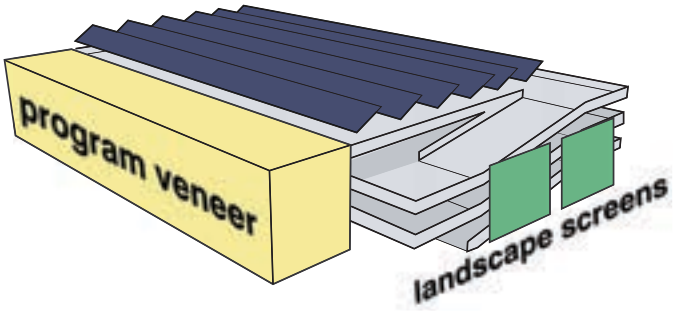


figure 9 - Parking garages have the same responsibilities and opportunities to address environmental, aesthetic, and experiential concerns as other buildings on campus.

that building has specific historical or architectural features which the University deems should be preserved. In cases where renovation work involves historic buildings and the scope of the project extends beyond restoration, any additions should clearly differentiate themselves from the original construction via form and/or materiality. Such work should meet The Secretary of the Interior's Standards for Rehabilitation and the State Historic Preservation Office's goal of being "distinct yet compatible" with the historic materials, features, size, scale, proportion and massing of the original project to protect the integrity of the property.

Dealing with infrastructure and building services in a tightly contained environment poses a challenge to the pedestrian interface and aesthetic integrity of a project. Pragmatic challenges such as the location of backflow preventers, water meters, and refuse enclosures have a significant impact on the overall success of the building and its composition and need to be considered as an integral part of the design in both siting and screening. In general, services should not be located on a primary mall (as defined by the master plan) or be on the same elevation as the building's front entrance. Zones for meters, switchgear, etc. should be schematically designed into the project at an early phase to ensure that they are properly integrated into the site development. All service functions and equipment should be screened from view by either vegetation or site walls (*figure 8*). Large new buildings should have compactors for trash and recycling. Refer to the Landscape Guidelines for screening requirements.

Parking garages are another reality of campus logistics that need to be considered as part of the aesthetic experience of the University. Where a

garage is adjacent to a pedestrian mall it should incorporate a veneer of another program to activate the mall and adhere to the stipulations for "Pedestrian Friendly Edges" set elsewhere in these guidelines. The cladding material on the garage should respond to the finish material of adjacent buildings and landscape or green-screens can be used as further screening (*figure 9*). Parking garages should not be taller than neighboring buildings and should be designed to incorporate photovoltaic panels on the top parking deck.

A number of additional considerations regarding specifics of building design apply based on a project's location on campus (*figure 10*). While all of these elements are potentially beneficial to a building's design it should be decided between the design team and the University Architect which strategies will be pursued.

figure 10 - Identification on the Tempe Campus of "Central Core" and "Gateway Zones" as areas with a particularly important relationship to the pedestrian environment.

Active Building Edge

Allowing for an active building edge has as much to do with architectural and site design as with programming. Although this could include retail areas in certain conditions, it is more broadly considered here as promoting the types of spaces that are highly visible and encourage people to engage the building who would not otherwise do so. This could include gallery and display space, open study lounges, or even transparency into teaching spaces/labs (*figure 11*).

Pedestrian Friendly Edge

Most people on campus will never go into most buildings but they will interact with them by walking past them. Where a building is pushed tight against a mall or quad it should respond to this condition with an appropriate scale and materiality. On the east, south, and west facades exposed metal skins and screens should not meet the ground in order to prevent excessive radiation and reflection of heat.

Massing should be broken up to acknowledge the pedestrian scale and create a pleasant experience. The designer must consider how the building meets the ground and there should be some transitional articulation of the ground floor differentiating this area from the building above. This could include a material transition, step in the facade, or overhang/arcade to help shade the mall (*figure 12*). It is also encouraged to break up the horizontal massing using entries or other articulations to avoid long, continuous stretches of blank wall.

figure 11 - Applied Arts Pavillion at ASU Poly. Display areas, glazing, and study spaces serve to activate mall edges in addition to retail uses.

figure 12 - Fulton Center, ASU Tempe. Shaded walkways and glazing help create a comfortable walking environment along building edges.

figure 13 - Student Services Lawn, ASU Tempe. Formal spaces such as malls and quads should be have a defined edge established by buildings and reinforced with landcaping.

figure 14 - ISTB II on the Tempe Campus is an excellent example of creating a public passageway through the building.

Reinforce Open Space

Looking at the figure/ground relationship of campus the legibility of malls and quads are dependent upon the form of the buildings surrounding them. Buildings should have a minimal setback in relationship to the edge-of-mall that is proportional to their height (i.e. taller buildings may be set back further while still providing adequate spatial definition). In general, buildings should have a relatively vertical edge at least three stories high fronting onto any figural open spaces, such as primary malls or designated quads (*figure 13*).

Reflect Neighboring Materials

One of the primary goals of these guidelines is to help institute regularity into the architectural design of ASU's campuses in order to create a defined sense of place. A major part of this effort is to harmonize the materiality of new structures with existing buildings. This does not imply that new construction should stylistically copy its neighbors but that a building's context should inform its design and that certain common threads (such as massing, scale, proportion, datums, rythmic elements and materiality) should aid in unifying the campus.

Porosity at Ground Level

Opening up the ground floor of buildings creates the opportunity for easier circulation, memorable spaces, and cross-pollination of disciplines *(figure 14)*. Successful examples on ASU's campuses include the CLCC at West, Aravaipa and Santan Halls at Polytechnic, and the Social Sciences Building on the Tempe Campus.

Create Exterior Gathering Spaces

Providing areas for students to congregate outside of buildings is essential to creating active pedestrian malls and encouraging discussions outside the classroom environment. Whereas malls are designed to move people, there should be easily-accessible transition spaces near building entries that both help maintain traffic flow and allow socializing, people watching and studying. Such spaces should have seating, shade, vegetation, and opportunities for refreshment.

Central Courtyard(s)

Courtyards provide a strong organizing element for a building allowing circulation, landscape, daylighting, and passive cooling opportunities (figure 15). They inherently create a gathering space at the ground floor which can be opened onto adjacent pedestrian ways and provide a vertical connection through the section of the building.

figure 15 - The courtyard of the Farmer Education Building creates a pleasant microclimate for outdoor gathering.

Tempe Campus - Key Elements

Pedestrian Friendly Edge	Strongly Recommended
Reflect Neighboring Materials	Strongly Recommended
Reinforce Open Space	Strongly Recommended
Exterior Gathering Spaces	Encouraged
Active Building Edge	Encouraged
Porosity at the Ground Level	Suggested
Central Courtyard	Suggested

landscape guidelines

The landscape character on the Tempe campus can be loosely categorized into the following types: historic oasis, desert edge, community transition, and transitional. All of these areas are connected by malls, nodes, lawns, outdoor/indoor transitional spaces (such as plazas, courtyards, and building entries), and spaces where the campus boundary interfaces with the surrounding community (such as pedestrian and vehicular gateways and streetscapes). Designers should not only address the form of these spaces, but also the way in which users will access them and the experience users will have traveling through them. The development and implementation of these outdoor spaces need to address the unique character of the Sonoran Desert climate, demonstrate ASU's commitment to sustainability, and enhance the sense of place of the Tempe campus.

Landscape character zones at the Tempe campus.

Turf panels and lush foundation plantings reinforce the historic oasis character of the Tempe campus core.

The landscape at the Biodesign Institute exemplifies the "desert edge" character on campus and showcases ASU's commitment to sustainability.

All new construction and major renovation work should comply with the ASU Office of the University Architect Sustainable Design Guidelines and comprehensive Design Guidelines. These guidelines contain detailed construction guidelines and specifications, and define the expectations involved in doing work for the University.

Primary and Secondary Malls

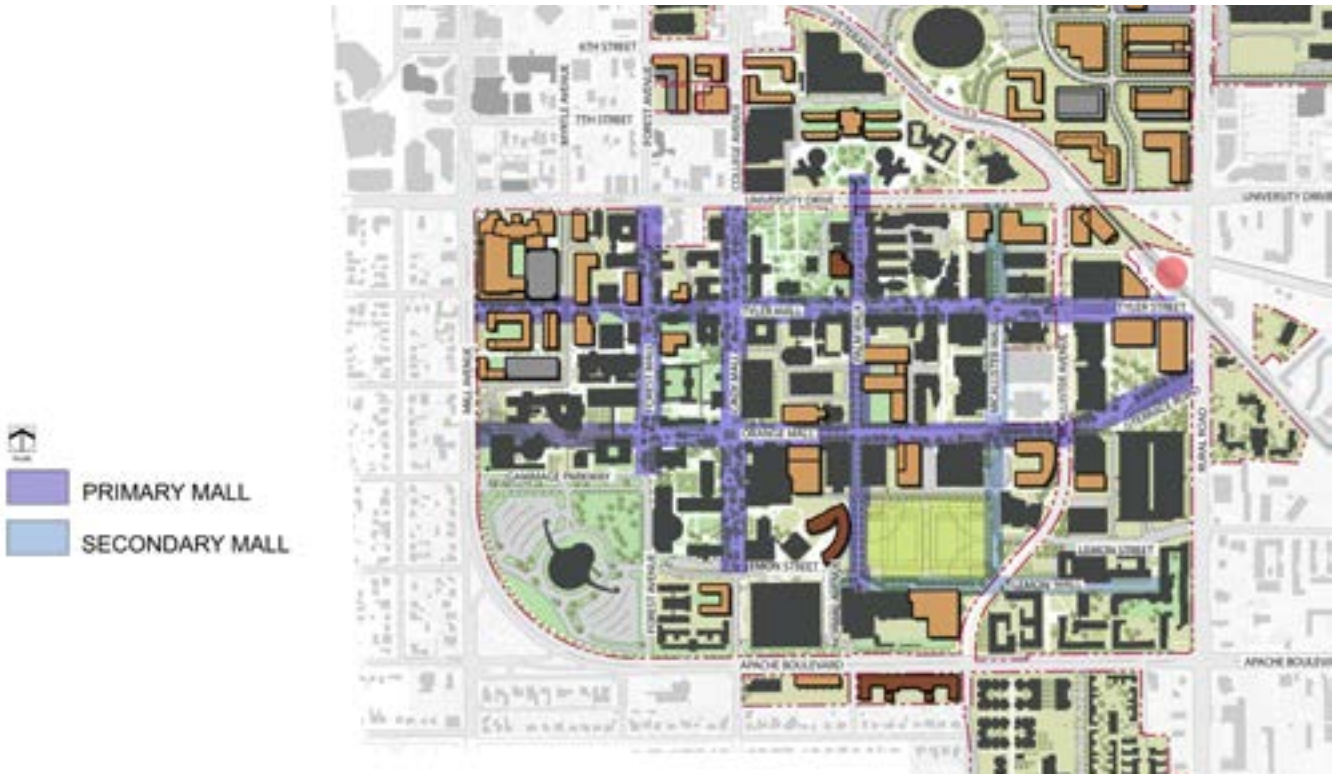
The primary and secondary malls at the Tempe campus are the heart of the campus. The malls act as conduits that circulate students, faculty, and visitors around the campus grounds. In addition to providing access to buildings and facilities, they link open spaces and provide routes to parking areas, bike storage, greenways, natural areas, and sidewalks that lead to points beyond campus. The primary function of the malls should be to facilitate the efficient and uninhibited movement of a large number of people. The malls, where possible, should remain open and broad with ample sight lines for ease of conflicts. Pedestrian routes within the malls should be safe, accessible, and easy to navigate.

Primary malls on the Tempe campus include Forest Mall, Cady Mall, Palm Walk, Orange Mall, and Tyler Mall. Secondary malls include Lemon Mall and McAllister Mall. Located in the heart of the Tempe campus, Cady Mall is a popular travel route for those visiting the campus, often providing the first impression of the ASU campus to prospective faculty, staff, students, and their parents. Special thought must be given to the experience created in this area as it can often serve as the “face” of the University.

Shade structures and movable furniture along Orange Mall allow for gathering, socializing, and people watching without impeding the flow of traffic.

The broad design of Cady Mall facilitates the efficient and uninhibited movement of a large number of people and service vehicles.

Mature shade trees and seating at regular intervals provide comfort and respite for students traveling on this mall during the hot summer.



Primary and secondary malls on the Tempe campus.

Primary and Secondary Mall Key Elements

- Mall design should facilitate the efficient and uninhibited movement of a large number of people.
- Primary and secondary malls should have a unified ground plane with consistent paving materials and site furnishings.
- Incorporate a variety of transitional spaces outside building entries to allow for gathering without impeding traffic flow.
- Malls should be broad, accessible, and easy to navigate.
- Malls should give priority to pedestrians over wheeled traffic.
- Malls should allow access for emergency vehicles and minimal service vehicles.
- Consider the value and location of existing trees during the conceptual design phase.
- Incorporate gardens or landscapes with special emphasis on the microclimates created by buildings.
- Consider sun exposure and orientation when selecting materials to reduce reflected heat and glare.
- Consider a variety of ways to incorporate shade into the space.
- Plant trees in groves in plazas and in linear bosques along walkways.
- Create rainwater harvesting opportunities by grading manipulation of paved surfaces.
- Designate a tree species palette for malls to create consistency and support mall identification and wayfinding.

This successful node at the intersection of Cady and Orange Mall is a popular rendezvous point on campus. The node provides shade, ample seating, and a cooling fountain amenity for students while facilitating directional change and flow in mall traffic.

The Alumni Lawn in the historic campus core serves as a flexible open space able to accommodate a variety of formal functions and impromptu gatherings.

Nodes

Enlarged paved areas, identified as nodes, are placed at the major intersections of pedestrian malls. Because of the density of pedestrian traffic on the Tempe campus, nodes should be designed first and foremost to facilitate traffic flow and directional change. If gathering spaces for students and faculty or for amenities (such as fountains, seating, kiosks, public art, shade structures, and accent plantings) are provided at nodes, they should be organized in a manner that does not impact pedestrian traffic flow or emergency access through the space. As a means of wayfinding, the nodes can be used to designate or signify the history of the space or educational activities in the area.

Node Key Elements

- Provide flexibility in gathering spaces by incorporating a variety of seating such as permanent benches and moveable furniture.
- Integrate directional and wayfinding elements, water features, public art, and/or accent planting appropriate to the significance of the particular gathering space.

Lawns

Lawns provide students with cool, green places to relax and gather with friends. Turf enables the use of space in ways not achievable with other groundcovers or rock mulch. Lawn areas should be kept relatively open, allowing for visual enjoyment as well as recreational and gathering opportunities. They should be designed as flexible, adaptable spaces that can accommodate a number of functions.

While designing to demonstrate a commitment to sustainability is an overarching landscape architectural mandate, thought must be given

The interior courtyard of the Farmer Education Building creates a pleasant gathering space for social interaction.

This plaza outside the Memorial Union provides a shady and flexible outdoor space for gathering, socializing, and people watching.

to the intended function of a space and what materials can best facilitate the varying needs and uses that are programmed for the space. The context and the potential use of the space must be in balance with the overarching goals of the campus and the specific landscape character.

Lawn Key Elements

- Trees should be generally located around the perimeter of lawn areas to create maximum usable space for gathering and recreation.
- Avoid breaking up lawn areas with paving and numerous walkways.
- Provide turf areas that are large enough in size to be usable. Small strips of lawn should be avoided.

Outdoor/Indoor Transitional Spaces

Outdoor/indoor transitional spaces are the spaces between the flow of mall traffic and the interiors of campus buildings. They are crucial to the success of the existing and new development on campus. It is in these spaces that students, faculty and staff connect, gather, and socialize before and after classes. Building courtyards, entries, and plazas play a major role in blurring the line between the indoors and outdoors, and establishing the interdependent relationship between landscape and architecture.

The design of these community gathering areas will be site-specific. However, they should be programmed to be flexible. Large or small, formal or informal, they should be able to accommodate a diverse number of functions and users. Where small plazas are developed, their character should

be intimate and human-scaled, with movable seating options that facilitate conversation or privacy. Incorporating large shaded plazas that serve as central spaces on campus that allow large groups to gather is encouraged. This will help foster a sense of community and tie the campus together spatially.

Whether a contemporary palette of concrete and glass or a traditional palette of stone and brick, planting design in these transitional spaces must address the architecture and ease the transition from cool interior to variable exterior. Courtyards and building entries provide opportunities to use unique specimen plants that thrive in the microclimates created by the architecture and enhance the arboretum collection. These spaces should be shaded, either with the aid of shade structures or trees.

Outdoor/Indoor Transitional Spaces Key Elements

- Planting design should emphasize the building's entrance.
- Consider using unique specimen plantings in appropriate entry locations and microclimates.
- Design paving that leads visitors to building entrances.
- Incorporate shade trees and vegetative screening to reduce building heat-loading attributed to solar exposure.
- Landscaping should be appropriately scaled to the gathering space.
- Doors/entries should be well-lit with no potential hiding places.

This bridge serves as a gateway and visual indicator to those traveling to the campus.

Triangulated tree placement creates filtered shade for pedestrians along Orange Street and East Terrace Road.

Campus streetscapes should be welcoming and identifiable. Spaces should be provided along streetscapes that promote comfort, gathering, and interaction.

- Provide flexibility in gathering spaces and allow for different types of functions by incorporating different types of seating, such as tables with chairs, permanent benches, and moveable furniture.

Pedestrian and Vehicular Portals and Streetscapes

Spaces where the campus boundary interfaces with the City of Tempe include pedestrian and vehicular portals and streetscapes. Campus portals are important visual indicators to those traveling to the campus, and as such should be welcoming and identifiable. Because the Tempe campus is surrounded by urban development on all sides, there is a need to demarcate the pedestrian gateways and create a campus identity without physically or visually separating the campus from the surrounding community context. Pedestrian priority over vehicles should be established at these thresholds by providing differences in paving materials and patterns and/or traffic calming devices. The Tempe campus has miles of urban street frontage, therefore making the presentation of it's campus image along perimeter streetscapes critical to its identity within the urban fabric. The campus image along these corridors should be inviting and accessible. Establishing a unified ground plane of consistent paving materials and a simple and consistent palette of trees and select understory plantings along key streetscapes will help to create a more defined sense of place and cohesive identity.

The “green screen” trellis system on this parking structure provides visual mitigation and a reduction in solar heat loading.

Pedestrian and Vehicular Portals and Streetscape Key Elements

- At prescribed locations on campus, major and minor ASU campus monuments should be added to highlight entry to the campus.
- Where possible within the street right-of-way, create double rows of trees to provide a maximum amount of shade to pedestrians and bicyclists. Consistent shading along pedestrian corridors will be essential.
- Provide colorful, lush plantings that will not interfere with traffic visibility.
- Specify structural soil where possible, to provide adequate soil volume for tree root growth.
- Establish a consistent ground plane palette of paving materials for all pedestrian and streetscape corridors.

Ancillary Spaces

When dealing with the programmatic elements and location of infrastructure, building services, and pedestrian space, the aesthetic quality and pedestrian experience of the “space” can be challenging. Placement and location of ancillary components such as backflow preventers, water meters, refuse enclosures, and transformers can have a significant impact on the function and success of the landscape and its composition. Additional outdoor spaces and amenities that warrant landscape architectural design discretion on the Tempe campus include bicycle storage areas, building and site infrastructure, vehicular parking areas, and water features.

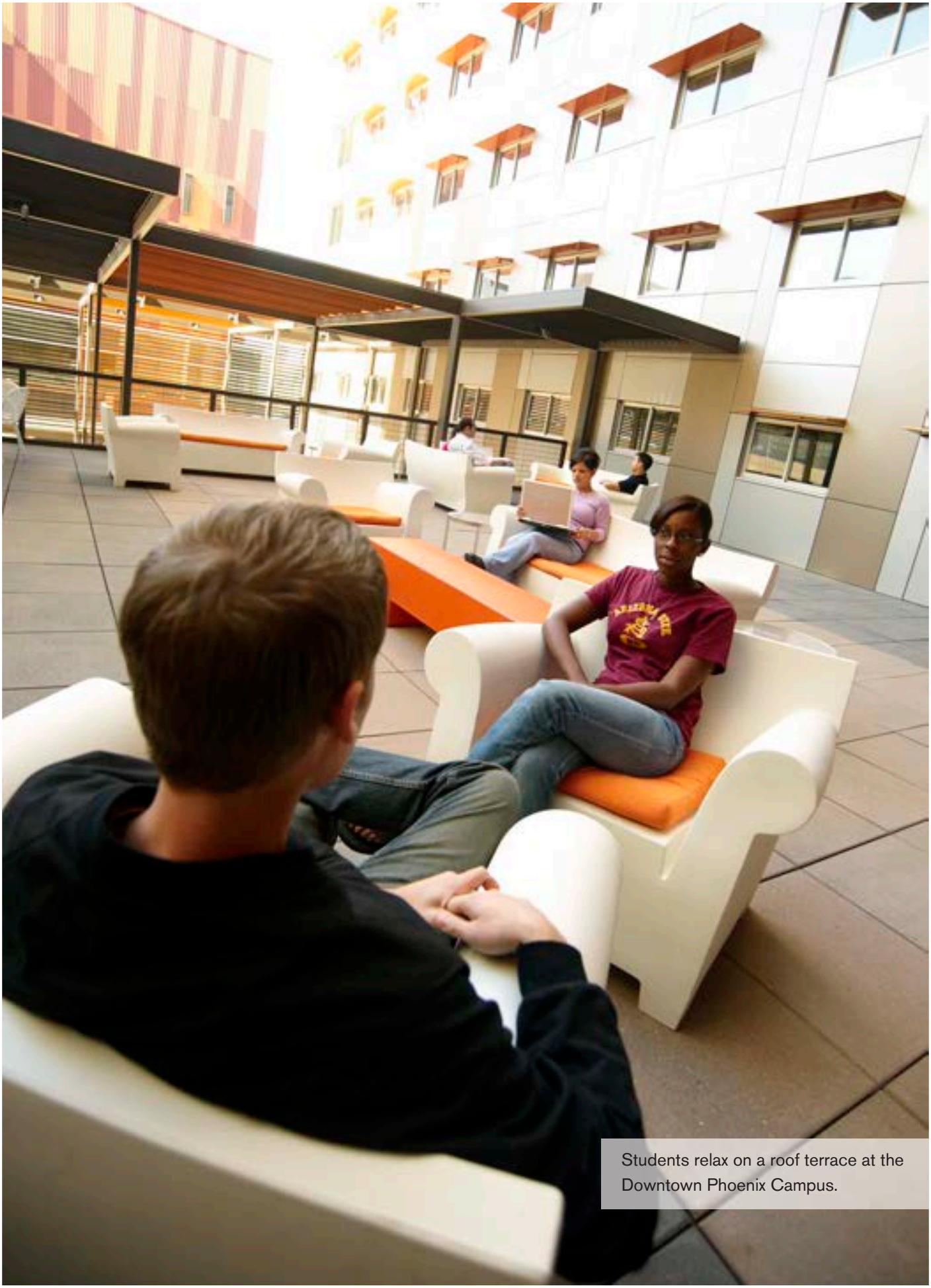
The volume of bicycles at the Tempe campus makes the aesthetic treatment of these ancillary storage areas challenging.

This landscape irrigation seep provides a cooling effect as an ephemeral water feature at the Biodesign Institute.

Ancillary Space Key Elements

- The incorporation of bioswales, water harvesting basins, permeable paving, and structural soils is highly encouraged.
- Storage areas should be well-lit and appropriately screened with landscaping, vegetative fencing facades, or walls that blend with the surrounding architecture. Screening must be designed to not hinder the safety, functionality, or flow of the storage area.
- Bicycle storage placement and location should be coordinated with the campus Access Management Plan, as determined by the University.
- Use landscape screening and/or berms to mitigate undesirable and visual effects of parking from roads and sidewalks on and off campus.
- Incorporate shade trees to reduce heat-loading attributed to solar exposure of parking lot pavement.
- Incorporate shrubs and groundcovers to ease transition from parking to pedestrian space.
- Use sustainable techniques for water feature design whenever possible.
- Screen backflow preventers, transformers, water meters, and refuse enclosures with landscape and building elements.

Vegetation can serve a dual role in the treatment of ancillary spaces by providing aesthetically pleasing screening, and reducing solar heat loading.



Students relax on a roof terrace at the Downtown Phoenix Campus.


4 downtown
campus

existing conditions + needs assessment

Overview

The Downtown Phoenix campus (DPC) began when ASU opened their Downtown Center on the former Phoenix Union High School campus in 1986. In 1990 ASU Downtown Center moved to facilities at the Mercado, on 5th Street and Monroe. At the time of this update, the campus consists of 1.59 million gross square feet in 14 buildings that are located on approximately 20 acres of City of Phoenix property. As of fall 2011, total enrollment at the Tempe campus was 10,296 students.

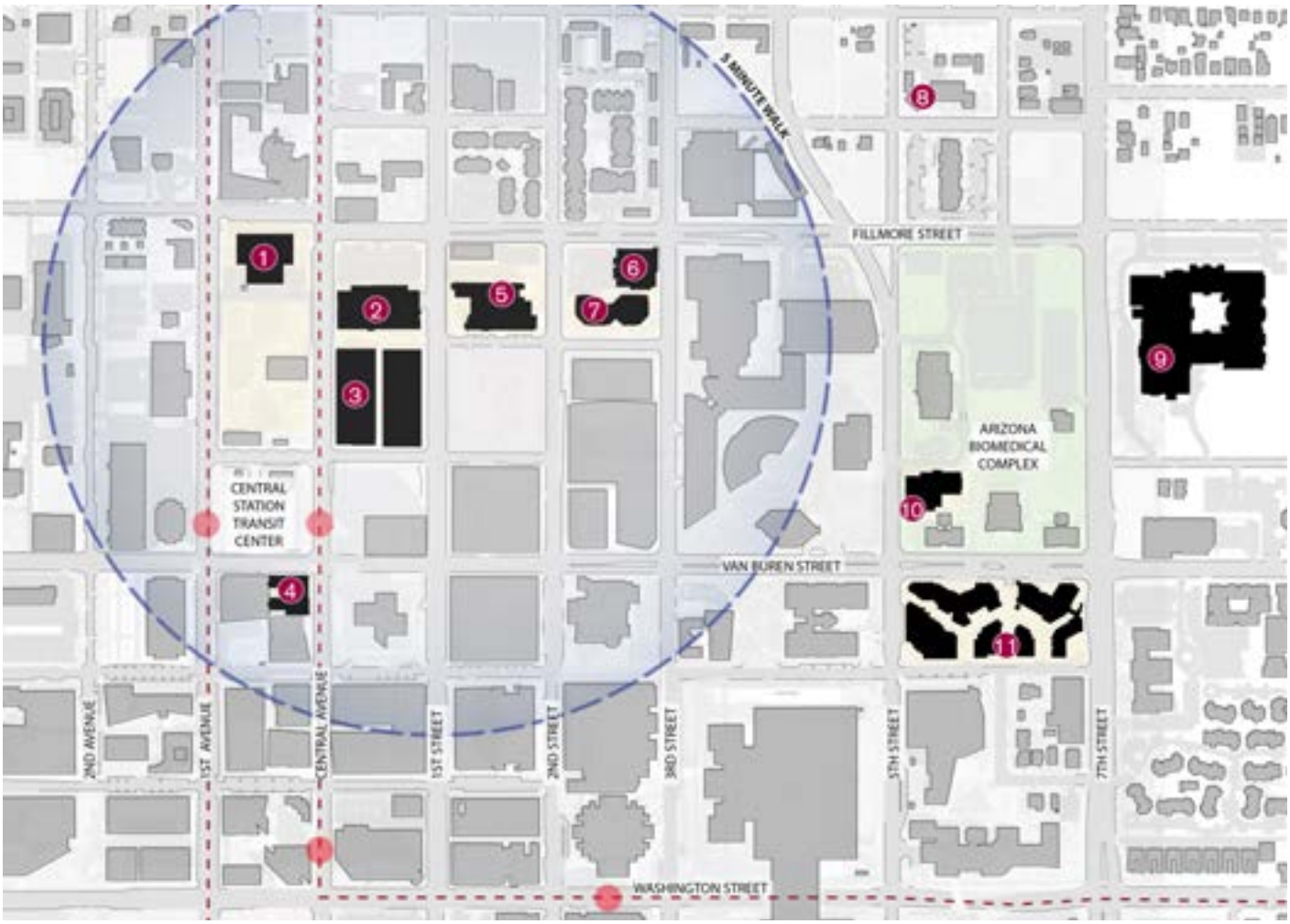
2011 DPC Campus Metrics:

- 20 acres
- 10,296 enrollment
- 1,225 beds (12%)
- 1.6 Million GSF
- 1,040 parking spaces
- existing campus density: 1.83 F.A.R.

Context

Located in the heart of the city, this campus is quickly becoming a social and economic catalyst for downtown. The academic programs at this campus, including Law, Journalism, and Health Sciences, were selected for their strong synergies with downtown industries. The DPC is located slightly north of the urban core of downtown Phoenix. While ASU still occupies the Mercado, the majority of the academic, research, and student services are located between Fillmore Street and Van Buren Street to the north and south, and 1st Avenue and 3rd Street on the east and west. This campus core is within walking distance to multiple concert venues, professional sports arenas, a nationally recognized convention center, city, county, state, and federal buildings, and the newly developed CityScape development. Adjacent to the DPC campus, the new City of Phoenix Civic Space Park is an added amenity not only to downtown Phoenix, but also to ASU. Beyond this campus core, ASU leases space in the TGen building on the Phoenix Biomedical Campus, and also leases the top 2 floors of the Maricopa County Security Building for the Phoenix Urban Research Laboratory (PURL) program.

As the campus develops, public-private partnerships will be a strong driver in the delivery of future residential facilities. An influx of student activity to downtown Phoenix has occurred with



Downtown Phoenix Campus Existing Conditions Plan

0' 600'

Existing Building Key:

1. Post Office
2. Walter Cronkite School of Journalism and Mass Communication / KAET
3. University Center
4. Phoenix Urban Research Laboratory (PURL)
5. Taylor Place Housing
6. Nursing and Health Innovation II
7. Nursing and Health Innovation I
8. Bioscience High School
9. Phoenix Preparatory Academy
10. Arizona Biomedical Collaborative
11. Mercado

LEGEND:

- ASU DPC CAMPUS
- ARIZONA BIOMEDICAL COMPLEX
- ASU BUILDING
- NON-ASU BUILDING
- LIGHT RAIL STOP
- LIGHT RAIL LINE
- 5-MINUTE WALKING RADIUS

View from PURL terrace looking north across Civic Space Park and the transit center.

the recent development of the student residential towers of Taylor Place on East Taylor between North 1st and 2nd Streets. The conversion of East Taylor Street to the Taylor Place Mall between North 1st Street and North Central Avenue has created a unique pedestrian experience that connects the university to the city.

Planning Challenges

DPC is a developing campus in an urban location. Its largest challenge is knitting together the appropriate property to form a cohesive campus. The DPC is formed by a joint partnership with the City of Phoenix, on city controlled property. The partnership is based on the mutual advantage that as the downtown campus grows, it will continue to attract faculty, staff and particularly students to downtown, helping to enliven a city that currently only exists between a nine-to-five work day. Available property in this area is sparse, so strategic growth patterns and densities need to be evaluated to construct buildings that will help to attain ASU's future enrollment goals.

With the recent development of Taylor Place Mall, the backbone for the DPC has been formed. A new Student Recreation Center is currently in its design stage adjacent to the downtown YMCA, providing a western terminus to pedestrian movement along Taylor Place Mall. A safe midblock crossing is needed to connect Taylor Place Mall across First Avenue to the YMCA,

Mercado section of the Downtown Phoenix Campus.

Light Rail is an easy and efficient way to commute between ASU's Downtown Phoenix and Tempe campuses, and around town.

however the design configuration of the newly constructed light rail lines in First Avenue will present a challenge.

Planning Opportunities

Located in the heart of downtown Phoenix, DPC has many planning opportunities to engage the city and evolve into a vibrant urban campus. However, given the availability of land downtown, DPC needs to think strategically about future development, density, and the vertical integration of uses. With land at a premium, ASU should not waste sites. Zoning within the downtown does not have a strict height restriction, which will allow a higher density urban campus, much like New York University or Columbia University. This high-density growth can help support highly visible first-floor retail/commercial space (through public-private partnerships), promoting a more active urban street life, and creating an economic catalyst for downtown Phoenix. Retail space could be an opportunity to increase visibility of ASU downtown and showcase student entrepreneurial talent by including student-operated services, businesses and projects. Developing the campus at higher densities would also keep all major academic buildings within a five-minute walking radius.

Currently, surface parking lots on property adjacent to existing university buildings provide the primary opportunities for new development. The former Ramada Inn block south of Taylor Place provides the most land area and best

opportunity for a future academic and residential mixed development, accommodating the majority of campus growth. Pedestrian streetscape enhancements on East Taylor Street between North 1st and 2nd Streets would allow the extension of Taylor Place Mall character to the east as part of the redevelopment of the Ramada site, creating greater opportunity for campus and city public space. The UCENT garage on North 1st Street and East Polk Street is an underutilized, narrow, and inefficient three-story structure. This site is another opportunity, and could be redesigned with a more efficient garage to park more cars, with retail at the ground floor and academic uses in multiple stories above.

The new valley METRO light rail connects east valley to west valley, and has two stops that directly feed the campus. The stops are located at the Central Station Transit Center south of Civic Space Park, which also has stops for the intercampus shuttle service. This transit rich environment makes the DPC highly accessible. Recently, the City of Phoenix also put in place a new downtown district parking guideline, which permits downtown business entities to develop with no new or additional parking spaces required. This guideline and the multiple transit options strongly support the University's sustainable transportation goals.

Projected Enrollment

A detailed space needs assessment was conducted for the 2006 Comprehensive Development Plan. This Master Plan Update is driven by future enrollment targets established by the University for the DPC. The 2020 enrollment target for DPC remains the same as the 2006 Plan, supporting 15,000 students. Although some of that enrollment growth may be on-line learning, this update has used that number as the future campus population and the basis for growth. When the 2006 Plan was being conducted, there were no residential buildings on the DPC.

Future Space Needs

To understand an order of magnitude for future space needs to serve an enrollment of 15,000 students, the planning team considered the current assignable square footage (asf) and gross square footage (gsf) per student for academic, research, auxiliary and support uses as a planning benchmark. As of Fall 2011, the DPC enrollment is 10,296, up significantly from the Fall 2010 enrollment of 7,783. At current enrollment, DPC has approximately 75 asf/120 gsf per student of academic, research, and support uses per student. This is close to the space needs target recommended in the 2006 Master Plan study for the Downtown Phoenix campus, but significantly lower than the other campus targets. The lack of athletic facilities and other large special use venues planned for the downtown campus accounts for some of this lower ratio.

Assuming the 2006 target of 75 asf/120 gsf per student, the campus would need approximately 565,200 gsf of additional academic, research, auxiliary, and support space for a future enrollment of 15,000 students. However, given the real estate value of urban land, this master plan update explored a range of development densities for future academic growth downtown, in order to maximize the value of urban land, and allow for greater flexibility. As a planning tool, the update used a range from 75 asf/120 gsf (based on Fall

Existing Facilities by Broad Category:	
Academic/Research/Support Uses	1,093,716 GSF
Mercado (Academic/Support)	141,171 GSF
On-Campus Housing and Support	358,754 GSF
Total	1,593,641 GSF

Table 4.1: Downtown Phoenix campus existing facilities by broad category

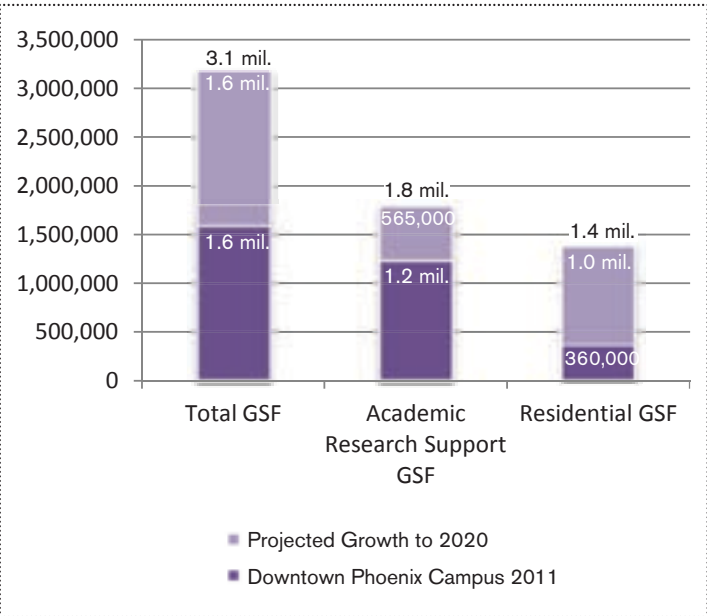


Chart 4.1: Downtown Phoenix campus future space needs by broad category.

Future Space Needs	Total	Academic/Research/Support	Residential
Existing Campus 2011	1,593,641 GSF	1,234,887 GSF	358,754 GSF
Future Need 2020	1,593,946 GSF	565,113 GSF	1,028,746 GSF
DPC Campus 2020 Total	**3,187,600 GSF**	**1,800,000 GSF**	**1,387,500 GSF**

Table 4.2: Downtown Phoenix campus future space needs by broad category.

The Cronkite journalism school is full of high-tech newsrooms and study space.

Taylor Place is the main residence hall for DPC students.

Residential Program Goals:	2011	2020
Total Enrollment	10,296	15,000
On-Campus Housing	1,225 (12%)	3,750 (25%)

Table 4.3: Downtown Phoenix campus Residential Program Goals

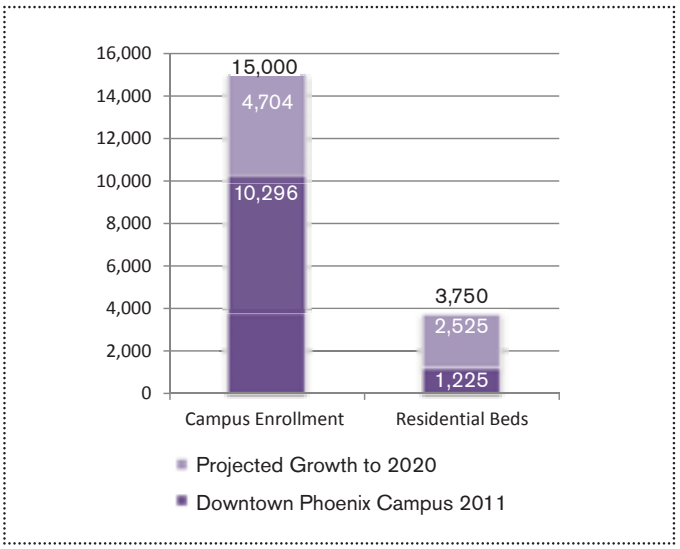


Chart 4.2: Downtown Phoenix campus residential program projected growth

2011 space/student) to 99 asf/158 gsf (based on Fall 2010 space/student). This results in a space needs range of 565,200 to over one million gsf of academic, research, auxiliary, and support space for campus build out. For conservative estimates, this update uses the higher range for projected space needs. A more detailed space needs analysis and programming effort should be conducted for future facilities.

Future Housing

The ASU Office of Student Affairs Department of Residential Life has set a target of housing 25% of the future population on campus. With the recent opening of Taylor Place, the university currently has 1,225 beds in 358,750 gross square feet of residential use, which equates to approximately 16% of its student population.

To reach a 25% target for a future enrollment of 15,000 students, DPC will need 3,750 beds total, an increase of 2,525 beds by 2020.

For the DPC, the planning ratio of gross square footage per bed will be highly dependent on the type of housing provided. There is a wide range in size depending on whether housing will be for undergraduate students or for graduate or professional school students. Taylor Place, the campus's only housing stock at this time, is an average of 295 gsf/bed. A third tower is planned to complete the Taylor Place development, similar to the first two towers. This study assumes that same square footage per bed as the current towers for Taylor Place's build out. Given the nature of the DPC campus programs, future housing types will likely include more apartment style housing requiring a higher space per bed ratio. For planning purposes, a ratio of 370 gsf/

bed has been used to determine future housing square footage beyond the addition to Taylor Place. Additionally, it is possible that some housing may well be met by private development.

Future Facilities

Interviews with the Office of the President, Executive Vice President and Provost, University Planner, Office of Knowledge Enterprise Development, Office of Business and Finance, Office of Student Affairs, and many others identified a more qualitative list of facility types to provide new academic, research, support, and collaborative learning space on campus. These include the following:

- A 500-seat lecture hall
- Two 150-seat computer labs for mathematics/ English instruction and tutoring
- A new Law School
- Nursing School expansion
- A new home for Exercise and Wellness
- A Student Recreation Center as part of YMCA expansion
- Student engagement – Post Office renovation
- On-campus housing, dining, and related amenities

Civic Space Park, host of the iconic “Her Secret is Patience” netting sculpture.

Walter Cronkite School of Journalism and Mass Communication is serviced by lightrail.

ASU Preparatory Academy at DPC

ASU has recognized that the state of Arizona faces many challenges in K-12 education. ASU has committed to bringing its resources, university-wide, to improve pre-Kindergarten education, increasing the high school completion rate for students in Arizona, and increasing the college-going rate and college graduation rate of Arizona students. To achieve these goals, ASU has established and operates the ASU Preparatory Academy as tuition-free K-12 public charter schools, in affiliation with the Phoenix Elementary School District. The mission of the ASU Preparatory Academy is to provide personalized, university embedded academic programs that empower students to complete college, excel in a global society and contribute to their communities.

Each ASU Preparatory Academy is composed of an Elementary, a Middle, and a High School program integrated into a single educational community. The DPC of ASU Preparatory Academy is at Filmore at 7th Street, adjacent to the Arizona Biomedical district and a few blocks from the main campus of DPC. Its proximity is important to both the University and to the Academy, to ensure that the campuses can share resources and services in the future.

Current and Projected Parking

The University manages a combined 1,040 parking spaces in the UCENT garage and various surface parking lots owned by the City of Phoenix, adjacent to campus. Taking into consideration faculty and staff, the total campus population is approximately 11,729. This results in a ratio of 11 people to one parking space. This ratio is high, but comparable to other dense, urban university campuses with access to transit, and does not reflect private parking utilized in the district by ASU students, faculty, staff or visitors. However, the DPC campus is located adjacent to two major light rail stops, and to the Central Station Transit Center. With such a viable public transportation network in place, the City of Phoenix has amended the downtown zoning code to reflect a zero on-site parking requirement in their downtown district.

Based on interviews with ASU Parking and Transit Services (PTS) the DPC has a perceived parking demand, filled by both city and private parking lots and garages in the area. As the campus grows, some future parking should be provided at the same ratio as today. Using a slightly lower, but still aggressive parking ratio of nine people to one parking space, the University would have to build 833 new parking spaces to accommodate the enrollment growth, which would total 1,872 spaces on campus. Continued partnerships with the City of Phoenix and private developers will be needed to develop garages near the campus to meet future demand. PTS will continue to encourage public transit ridership to balance travel mode splits to campus, in support of the University's goal for carbon emission reductions in transportation.

Students working and relaxing in the Phoenix Urban Research Lab (PURL), situated on the two top floors of the historic Security Building.

framework plan

The Framework Plan is generated to help determine campus capacity for future growth on land controlled by the City for university use in downtown Phoenix. It outlines sites on campus for future development. These sites are primarily the surface parking lots next to existing campus facilities, redevelopment of the former Ramada Inn block, and possible redevelopment of the UCENT block garage. The sites were identified based on discussions with OUA, Real Estate staff, and other guiding committees.

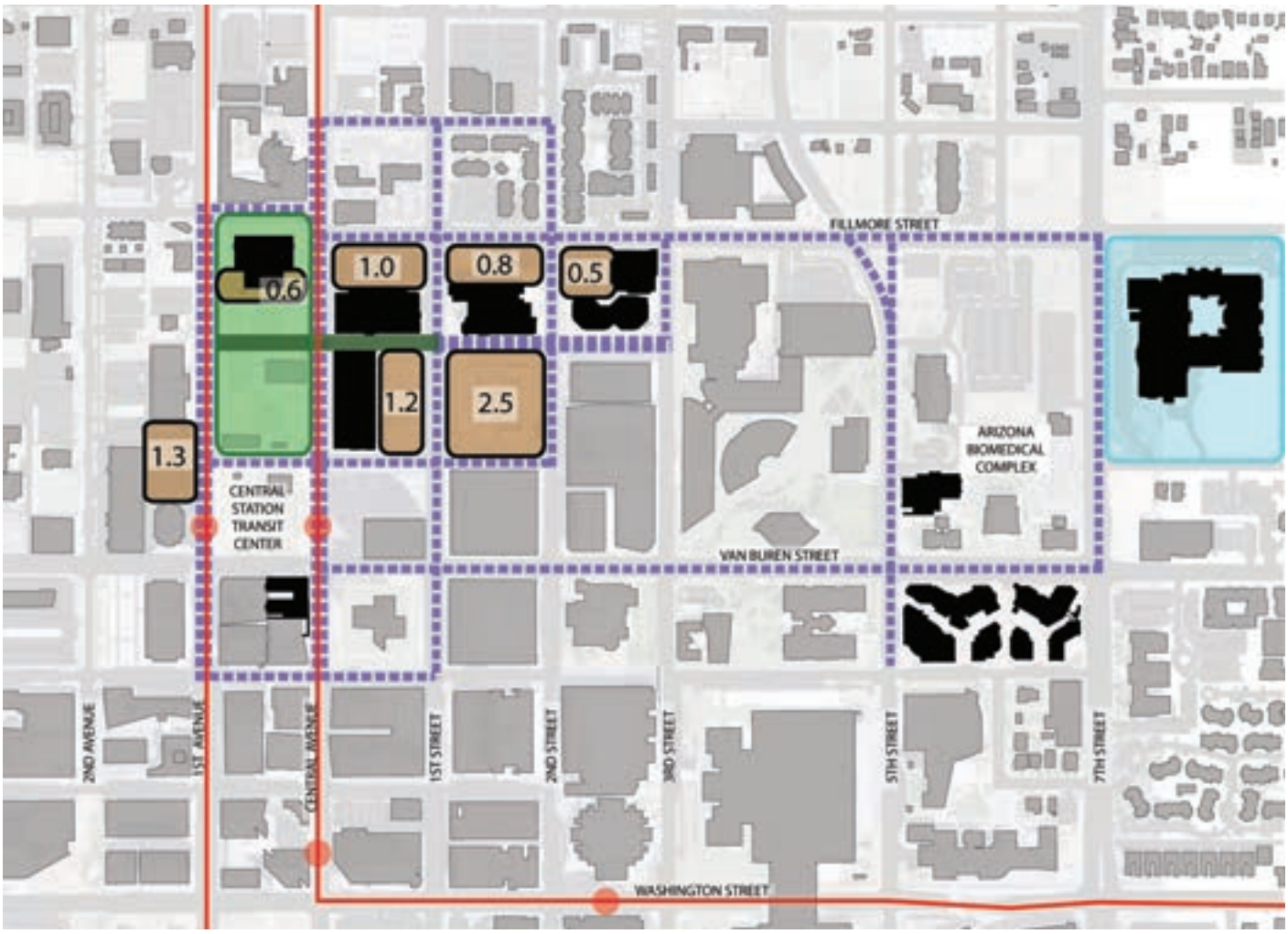
These sites include:

- Development north of the Cronkite Building
- Development north of Taylor Place
- Development west of Nursing and Health Innovation II
- Development of the Ramada Block
- Redevelopment of the UCENT Garage
- Development south of the YMCA
- Development south of the Post Office

An initial campus capacity was established for future growth, based on the acreage of development sites, tested against various density ratios (Floor Area Ratios) that the university wants to achieve per campus. As a campus in downtown Phoenix, the density ratios will be higher than the other campuses, due to the heights that the university will be able to develop. The current campus Floor Area Ratio (FAR) is 1.8 to 2.0. Different density scenarios have been tested out, ranging from an FAR of 1.0 up to 3.0 and over. The limiting factor to how tall and how dense the Downtown Phoenix Campus can become is governed more by the availability of funding at any given time to move forward with a project, rather than height limitations.

Many future development sites are located on existing surface parking lots. Replacement parking opportunities, likely in structured parking garages, will need to be identified by working with the City of Phoenix and private developers.

The Framework Plan is intended to guide the location of future development to appropriate sites on campus. An open space framework was also prepared to ensure that successful campus spaces, pedestrian and vehicular circulation corridors are preserved and extended, as the spatial organization for future growth. The open space framework also proposes the location of future campus spaces to ensure that new development will have sufficient areas for pedestrian circulation, outdoor rooms, and places to gather on campus. The Framework Plan forms the basis for the Master Plan, and is intended to remain a flexible tool to accommodate new or unanticipated needs.



Open Space and Development Framework Plan

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LEGEND

- PROPOSED DEVELOPMENT OPPORTUNITIES
- OPEN SPACE
- ASU PREPARATORY ACADEMY
- PRIMARY PEDESTRIAN MALL
- PEDESTRIAN STREETSCAPE
- LIGHT RAIL LINE
- LIGHT RAIL STOP
- ASU BUILDINGS

*Numbers on plan correspond to gross acreage available for development per site, and not building gross square footage.

Students use Civic Space Park for informal recreation.

master plan recommendations

The Downtown Phoenix Campus Master Plan Update proposes sites for the construction of 1.7 million gross square feet of new academic, research, support, and residential development, including limited retail and commercial uses at the ground floor of certain buildings.

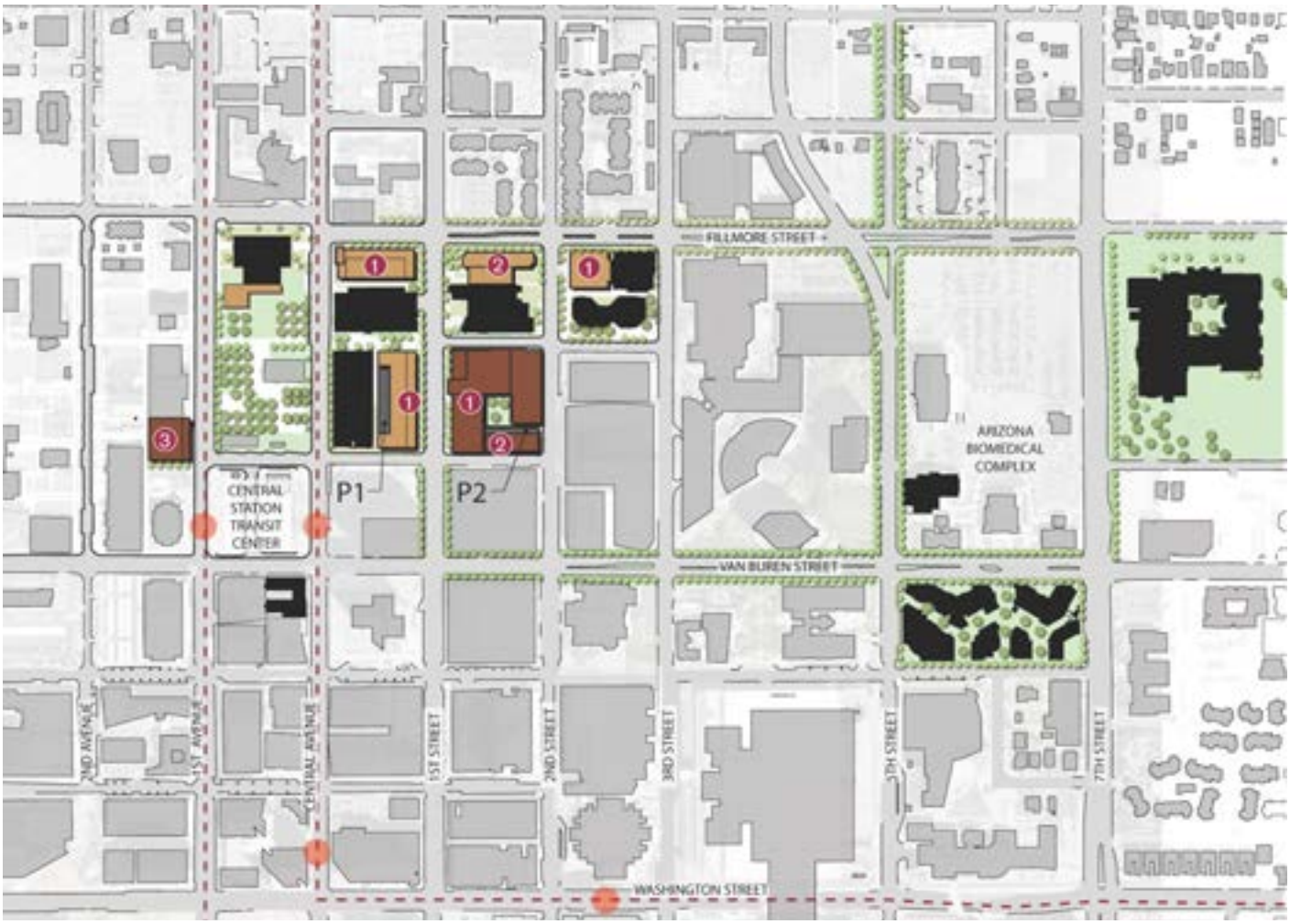
New Academic and Research Buildings

The Downtown Phoenix Campus will continue to develop the city-controlled property reserved for ASU growth. The most significant opportunity is the former Ramada Inn block. With a large, contiguous site footprint, this site can accommodate a full array of academic, residential, commercial and parking components. A recent feasibility study was conducted to determine the site's capacity for a new Sandra Day O'Connor School of Law, moving the existing law program from the Tempe campus to DPC. The feasibility study concluded that this site could add approximately 374,000 gsf of future academic space to the Downtown Phoenix Campus and 268,000 gsf of future residential space, representing 370 graduate student apartments. Approximately 14,000 gsf is proposed for ground floor retail and a café, to enliven the street. On-site parking is proposed in two phases, with two underground levels to serve academic uses, and a second above ground garage to serve residential. Building heights range from six to ten stories for academic use, to 24 floors of residential over a five-story parking garage.

Additional sites for development on the downtown campus include the northwest corner of the block that houses the College of Nursing and Health Innovation, at 2nd Street and Fillmore. Currently a surface parking lot, this parcel has been previously reserved for future expansion of academic and potential research space. This site can provide for an addition of up to 177,000 gsf at ten stories. A second parcel, the surface parking lot north of the Walter Cronkite School of Journalism, is another development opportunity. At ten stories, this site could provide up to 260,000 gsf of future academic, research, support, or even residential use.

Residential Use and Taylor Place Expansion

The expansion of Taylor Place to the north will house approximately 600 additional students, provide additional retail frontage at the streetscape to enliven the community, and will also complete this residential development. The completion of Taylor Place and the additional apartment beds proposed with the Ramada block redevelopment adds 985 beds on campus, bringing the future total to 2,210, falling short of the 3,750 bed



Downtown Phoenix Campus Illustrative Master Plan

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Key Elements:

1. Academic expansion
2. Future residential development
3. Student Recreation Center expansion at the YMCA

LEGEND

- PROPOSED ASU DEVELOPMENT
- PROJECTS IN PLANNING, DESIGN, AND CONSTRUCTION
- PROPOSED PARKING STRUCTURE
- EXISTING CAMPUS BUILDING
- EXISTING NON-CAMPUS BUILDING
- LIGHT RAIL STOPS

target for on-campus housing. In order to meet its goal to house 25% of its student enrollment on campus, the university will need to consider additional public-private development in the area.

University Center (UCENT) Garage Renovation

The University Center Garage, which is located to the east of the University Center building, is an older, narrow, three-story parking structure that underserves the Downtown Phoenix Campus. Reconstruction of this garage will aid in efficiently parking more vehicles on campus. Taking advantage of the City of Phoenix height restrictions, this structure can become part of a downtown high-rise with a higher Floor Area Ratio (F.A.R). This new structure will be composed of four stories of parking, with the first story wrapped with retail space for either public-private opportunities or student entrepreneurial space which will enable student success. This would bring back 482 parking spaces to the site. The top eight floors of this structure will be space for future academic growth.

Ground Floor Retail

As noted above, ground floor retail is proposed for each development site on primary street frontages, adding up to 20-25,000 gsf, beyond the proposed retail with the Ramada site block, to help build a vibrant street presence and to engage pedestrian traffic.

YMCA & the Student Recreation Center

The students enrolled at the Downtown Phoenix Campus have been utilizing the existing YMCA as their Student Recreation Center. The YMCA is a public organization, so the facility and equipment are currently being shared with the university. To further engage the student body at the Downtown Phoenix Campus, a new Student Recreation Center adjacent to the YMCA will be constructed in 2012. This will provide the much needed recreation facility for the growing student body into the future. The YMCA also will partner with ASU to provide student housing in its existing bed tower.

Student Engagement at the Post Office

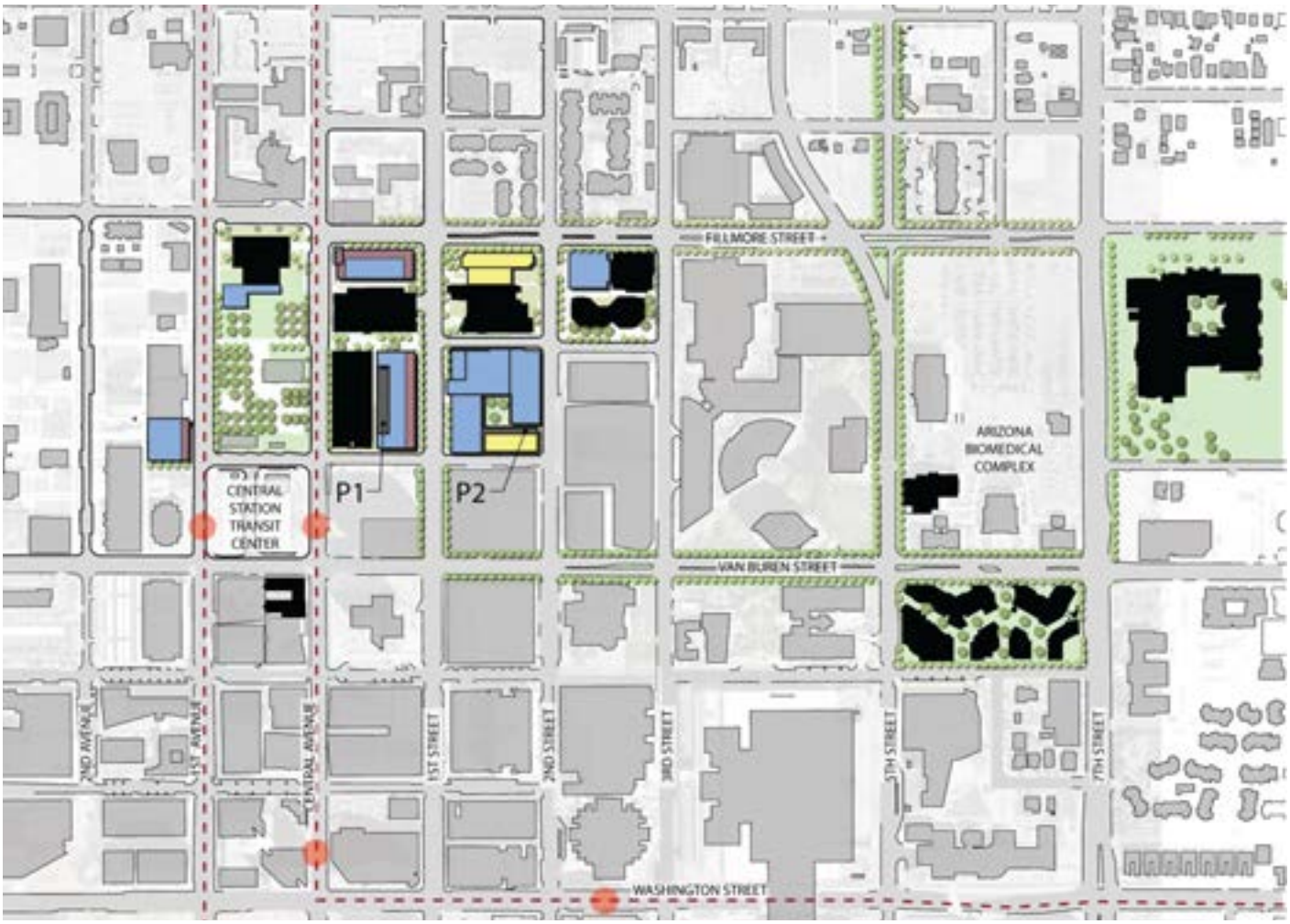
ASU is planning to construct additional space for student engagement activities in conjunction with the renovation of the historic Post Office on the Civic Space Park block. This addition can create an additional attraction to this important civic space downtown.

Taylor Place Mall

With the construction of the Cronkite Building in 2008, ASU strengthened the campus activity by closing Taylor Street to create Taylor Place Mall. This mall has become the backbone of the campus and now links the majority of the campus buildings with Civic Space Park.

Downtown Parking

Complying with the new parking guidelines for downtown, new development will not be required to have associated parking. DPC's location adjacent to the light rail and bus transfer station certainly helps support alternative modes of travel to campus. The proposed plan includes some amount of structured parking for a net gain of 730 spaces.



Downtown Phoenix Campus Building Use Master Plan

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LEGEND

- PROPOSED ACADEMIC
- PROPOSED RESIDENTIAL
- PROPOSED MIXED USE
- PROPOSED COMMERCIAL
- PROPOSED FIRST FLOOR COMMERCIAL
- PROPOSED PARKING STRUCTURE
- EXISTING CAMPUS BUILDING
- NON-IRRIGATED DESERT LANDSCAPE
- IRRIGATED LANDSCAPE
- LIGHT RAIL STOPS
- LIGHT RAIL ROUTE

Existing Conditions Model

Proposed Conditions Model

	2011	Demolition	Proposed	Net Gain	Total 2020
Academic/Research/Support Space GSF	1,234,887	0	1,191,210	1,191,210	**2,426,097**
Residential GSF	358,754	0	471,100	471,100	**829,854**
Retail GSF	0	0	39,000	39,000	**39,000**
Total GSF Without Parking	**1,593,641**	**0**	**1,701,310**	**1,701,310**	**3,294,951**
Garage Parking GSF	128,700	128,700	369,600	240,900	**369,600**
Total GSF with Parking	**1,722,341**	**128,700**	**2,070,910**	**1,942,210**	**3,664,551**

Table 4.4: Downtown campus proposed growth and net gain by broad category.

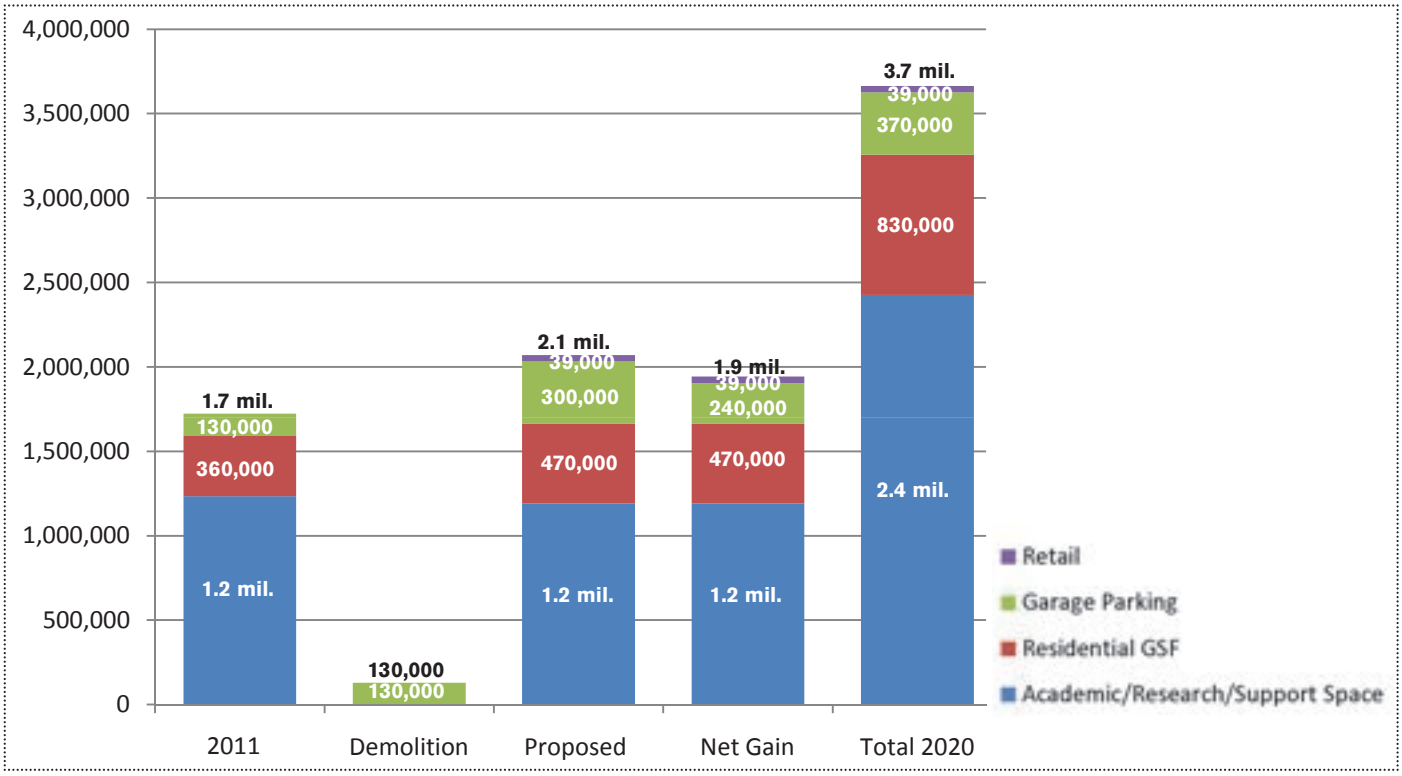

Chart 4.3: Downtown campus proposed growth and net gain by broad category.

Proposed conditions model looking north-east

Proposed conditions model looking south-west

access management

The Downtown Phoenix Campus is located minutes away from the Tempe Campus and is served by Metro Light Rail and has parking in several lots and structures. Unlike the other three ASU campuses, access to the Downtown campus buildings is readily achieved by utilizing city streets and most of the university-owned public spaces and pedestrian pathways, separate from city sidewalks, are cordoned off with bollard poles and don't appear to be used by vehicles. The one exception is The Mercado where golf carts are used on occasion.

Although minimal access issues were observed, the use of bicycles and bicycle racks is prevalent, although to a much lesser degree than on the Tempe Campus. The University should extend any changes made to its bike program to the Downtown Campus, including replacing and strategically locating existing racks in favor of new bike storage systems, encouraging bicycle registration, and enforcing bike policies and regulations.

Cart parked inside The Mercado public space.

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architectural guidelines

The Downtown Phoenix campus is unique among ASU's four campuses for being entirely embedded in the existing fabric of Downtown Phoenix. Every building on the DPC exists on the edge condition between civic and university, where exterior conditions are inevitably shared public spaces, and the building threshold also signifies an entry point to campus. As perhaps the most publicly visible of ASU's campuses it is imperative that the design of buildings on the downtown campus communicate the mission and vision of the University.

All new construction and major renovation work should comply with the Arizona State University *Sustainable Design Guidelines* and comprehensive *Design Guidelines*, which impact the programming, design, and construction of all major ASU projects and define the relationships and expectations involved in working for the University. The Design Guidelines also contain an outline specification with detailed construction guidelines to ensure that the quality of buildings constructed on campus reflects the long-term horizon of ASU's mission. Design and construction decisions should reflect this outlook with a 100-year horizon, emphasizing quality construction and life-cycle maintenance and cost analyses.

From a design perspective, buildings on the DPC need to foster an active street edge while internalizing the concept of a conventional pedestrian mall structure (*figure 1*). The relative density of the campus means that the pedestrian experience is defined by both movement between buildings and movement within buildings. The design of hallways, lobbies, and atria should include ample seating and lighting to accommodate gathering and create an open, social environment that encourages discussion and interaction.

At the same time the vitality of the exterior environment is a contiguous thread through all of ASU's campuses, and the University's investment in Downtown offers an unparalleled opportunity to energize Phoenix and reinforce the relationship between the public and private realms. Translated into architecture this represents a degree of transparency and engagement, particularly at the ground floor, with respect to program, display, communication, and shading (*figure 2*).

Dealing with infrastructure and building services in a tightly contained urban environment poses a challenge to the pedestrian interface and aesthetic integrity of a project. Pragmatic challenges such as the location of backflow preventers, water meters, and refuse enclosures have a significant impact on the overall success of the building and its composition and need to be considered as an integral part of the design. Services should not be located on the building's front entrance elevation and zones for meters, switchgear, etc. should be schematically designed into the project at an early phase to ensure that they are properly integrated into the site development. Such equipment should be screened and landscaped.

The following guidelines should be considered and evaluated by the design team and the University Architect to determine which strategies will be pursued.

Active Building Edge

Allowing for an active building edge has as much to do with architectural and site design as with programming. Although this could include retail areas in certain conditions it is more broadly considered here as promoting the types of spaces that are highly visible and encourage people to engage the building who would not otherwise do so. This could include gallery and display space, open study lounges, or even transparency into teaching spaces and labs (*figure 3*).

Pedestrian Friendly Edge

Where a building is pushed tight against a sidewalk it should respond to this condition with an appropriate scale and materiality. On the east, south, and west facades exposed metal skins and screens should not meet the ground in order to prevent excessive radiation and reflection of heat.

Massing should be broken up to acknowledge the pedestrian scale and create a pleasant experience. The designer must consider how the building meets the ground and there should be some transitional articulation of the ground floor, differentiating this area from the building above. This could include a material transition, step in the facade, or overhang/arcade to help shade the sidewalk. It is also encouraged to break up the horizontal massing, using entries or other articulations to avoid long continuous stretches of blank wall.

figure 1 - The Walter Cronkite School of Journalism and Mass Communication at the ASU Downtown Campus carves out interior social spaces that are also used for academic functions.

figure 2 - The Walter Cronkite School of Journalism and Mass Communication, ASU Downtown Campus. Building massing and materiality reduces the scale of a large volume, creating a more pedestrian volume on the lower floors with transparency along the street edge.

figure 3 - Transparency, program, and site planning make Portland State University's Student Center an active part of the downtown environment.

Reinforce Open Space

Looking at the figure/ground relationship of campus the legibility of courtyards and sidewalks are dependent on the form of the surrounding buildings. Buildings should have a minimal setback in relation to the edge of the street that is proportional to their height (i.e. taller buildings may be set back further while still providing adequate spatial definition). In general, buildings should have a relatively vertical edge at least four stories high fronting on any street frontage.

Reflect Neighboring Materials

One of the primary goals of these guidelines is to help institute a regularity into the architectural design of ASU's campuses in order that they have a more defined sense of place. A major part of this effort is to harmonize the materiality of new structures with existing buildings. This does not imply that new construction should stylistically copy its neighbors but that a building's context should inform its design and that certain commonalities including scale, proportion, datums, materiality and geometry should aid in unifying the campus. This is especially true on the Downtown Campus where the context of the urban fabric and the University's relationship to the urban core are essential components of the design and composition of a building.

Porosity at Ground Level

Opening up the ground floor of buildings creates the opportunity for easier circulation, memorable spaces, and cross-pollination of disciplines.

Create Gathering Spaces

Providing areas for students to congregate outside of buildings is essential to creating an active street and encourage discussions outside the classroom environment. There should be easily-accessible transition spaces near building entries that help maintain a clear sidewalk and allow socializing, people watching, and studying. Such spaces should have seating, shade, and vegetation.

Central Courtyard(s)

Courtyards are a strong organizing element for a building allowing circulation, landscape, daylighting, and passive cooling opportunities (*figure 4*). They inherently create a gathering space at the ground floor which can be opened onto adjacent pedestrian ways and provide a vertical connection through the section of the building.

figure 4 - The configuration of Taylor Place at ASU Downtown creates a shaded courtyard for outdoor eating attached to the complex's dining hall.

Downtown Campus Key Elements

Active Building Edge	Strongly Recommended
Pedestrian Friendly Edge	Strongly Recommended
Reinforce Open Space	Strongly Recommended
Reflect Neighboring Materials	Recommended
Porosity at the Ground Level	Suggested
Exterior Gathering Spaces	Suggested
Central Courtyard	Suggested

landscape guidelines

ASU's campus is woven into the urban fabric of Downtown Phoenix. The campus street edges and pedestrian corridors are shared public spaces and must be carefully designed. With the extreme desert heat enhanced by large expanses of reflective hardscape and dense city traffic, shaded outdoor gathering spaces and protected pedestrian corridors are crucial to the character, coherence, and comfort of the campus. The development and implementation of these spaces needs to address the unique character of the Sonoran Desert climate, demonstrating ASU's commitment to sustainability.

All new construction and major renovation work should comply with the ASU Office of the University Architect *Sustainable Design Guidelines* and comprehensive *Design Guidelines*. These guidelines contain detailed construction guidelines and specifications, and define the expectations involved in doing work for the University.

This bioswale benefits from rainwater runoff harvested from the adjacent pedestrian corridor.

The seating along this street edge/pedestrian corridor provides opportunities for respite and community interaction.

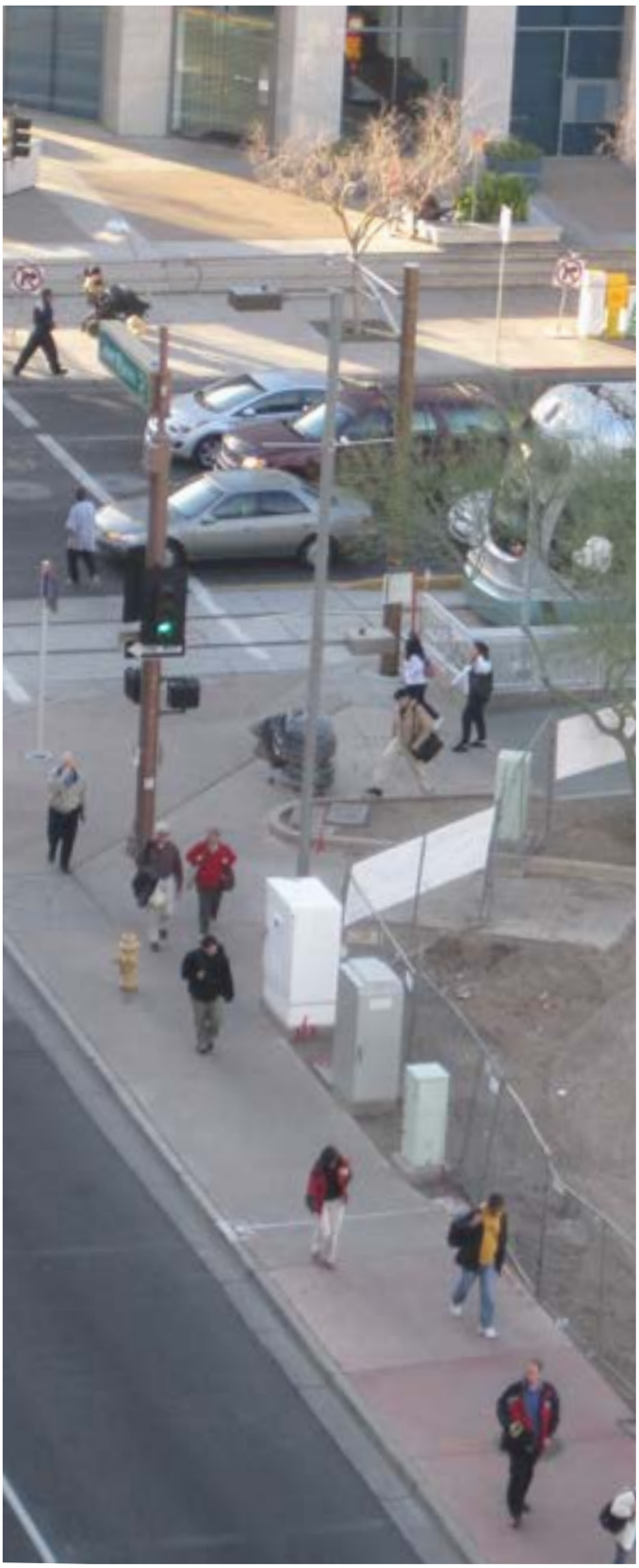
Pedestrian Corridors and Street Edges

In this unique city setting, street edges double as primary pedestrian corridors and need to be designed accordingly. The street edges on the Downtown campus function as conduits that facilitate the quick movement of large numbers of pedestrians around the campus. The street edges also need to provide opportunities for respite,

studying, eating, and/or socializing within outdoor/indoor transitional spaces such as plazas, courtyards, and building entries where possible. Such spaces provide links and opportunities for active engagement between the University and public sector, including citizens from the nearby office buildings and transit center.

Mall and Street Edge Key Elements

- Street edge design should facilitate the efficient and uninhibited movement of a large number of people.
- Pedestrian corridors along street edges should be broad and accessible, with ample sight lines for ease of conflicts.
- Priority should be given to pedestrians over vehicular traffic, and spaces should be set aside to allow pedestrians to gather so that they may cross the street properly and in accordance with Arizona law.
- Street edges should have a unified ground plane with consistent paving materials and site furnishings.
- Incorporate a variety of gathering spaces along street edges with special emphasis on the microclimates created by buildings.
- Consider sun exposure and orientation when selecting materials to reduce reflected heat and glare.
- Where possible and when microclimate development is appropriate, create groves where open space has been provided by the articulation of the architecture.



Street edges on the ASU Downtown Campus double as pedestrian corridors.

This successful transitional space blurs the lines between indoors and outdoors and provides shaded respite for gathering.

This transitional space takes advantage of vegetative screening to provide shade. The metal trellis is integral to the adjacent architecture.

- Plant trees in linear bosques along walkways. Where possible within the streetscape, create double rows of trees to provide a maximum amount of shade to pedestrians and bicyclists. Consistent shading along pedestrian corridors will be essential.
- Create rainwater harvesting opportunities by grading manipulation of paved surfaces and overflow drains from the surrounding buildings.
- Establish a simple and consistent palette of trees and understory plantings to create a cohesive identity and enhance wayfinding.
- Specify structural soils to provide adequate soil volume for tree root growth.

Outdoor/Indoor Transitional Spaces

Outdoor/indoor transitional spaces are the spaces between pedestrian walkways and the interiors of campus buildings. They are crucial to the success of the existing and new development on campus. It is in these spaces that students, faculty, and staff connect, gather, and socialize. Courtyards, building entries, and plazas play a major role in blurring the line between the indoors and outdoors and establishing the interdependent relationship between landscape and architecture on campus. Landscape materials and site furnishings should be integral to the adjacent architectural styles and finishes and relate to the urban condition on the City of Phoenix sidewalks. The interdependent relationship between architecture and landscape should be explored at a more functional level and in ways that showcase the University's commitment to sustainability. Vegetative screens

This fountain at Taylor Place doubles as seating and provides a place off the busy flow of traffic for impromptu gathering.

Site furnishing palettes, such as the raw metal and concrete in the benches shown here, relate well with the surrounding urban condition.

should be used to shade building windows and seating areas, courtyards should take advantage of brimming water features that minimize the evaporation typical of more active fountains, and plant irrigation should be supplemented with the HVAC condensate from adjacent buildings where possible.

The design of these areas should be programmed to be flexible. Large or small, formal or informal, they should be able to accommodate a diverse number of functions and users. These gathering spaces should be shady, either with the aid of shade structures or trees, have plenty of seating, and cooling vegetation. Courtyards and building entries often provide opportunities to use unique specimen plants that thrive in the microclimates created by the architecture.

Site furnishings and wayfinding amenities within these spaces, such as movable and fixed seating, public art, water features, waste and recycling receptacles, and kiosks, should not make it difficult for groups to assemble or prohibit pedestrian flow through the space.

Outdoor/Indoor Transitional Space Key Elements

- Planting design should emphasize building entries and pedestrian gathering.
- Consider using unique specimen plantings in appropriate locations and microclimates.
- Design paving to demarcate building entrances from the urban streetscape.
- Augment the buildings with shade trees and other vegetative screening.
- Landscaping is appropriately scaled to the gathering space.

Landscape elements, such as these shrubs on the north side of the Cronkite Building, can be used to successfully screen utilities.

Decorative fencing with vegetation can be used to successfully screen utilities and visually soften parking lots.

This water feature north of the University Center uses the condensate from adjacent buildings to supplement the landscape irrigation.

- Provide flexibility in gathering spaces and allow for different types of functions by incorporating different types of seating, such as tables with chairs, permanent benches, and moveable furniture.
- Doors/entries are well-lit with no potential hiding places.

Ancillary Spaces

When dealing with the programmatic elements and location of infrastructure, building services, and pedestrian space; the aesthetic quality and pedestrian experience of the “space” can be challenging. Placement and location of ancillary components such as backflow preventers, transformers, refuse enclosures and bike storage areas can have a significant impact on the function and success of the landscape and its composition. The integration of ancillary components into a project should be considered early in the design phase.

Ancillary Space Key Elements

- Screen backflow preventers, transformers, water meters, and refuse enclosures with landscape and building elements.
- Bicycle storage areas should be well-lit and appropriately screened with landscaping, vegetative fencing, or walls that blend with the surrounding architecture. Screening must be designed to not hinder the safety, functionality, or flow of the storage area.
- Incorporation of bioswales, water harvesting basins, permeable paving, and structural soils is encouraged.

Landscape buffers incorporating low water-use plants and native trees enhance the street edges which double as pedestrian corridors downtown.

Student reading at a landscaped courtyard on the Polytechnic Campus.

polytechnic campus

existing conditions + needs assessment

Overview

The Polytechnic campus is ASU's latest campus. Founded in 1996 as ASU East, the Polytechnic campus serves the rapidly growing southeast valley. At the time of this update, the campus consists of 2.14 million gross square feet (gsf) of buildings located on approximately 613 acres. This campus acreage includes two large archeological sites, the Midvale and Germann sites. As of fall 2011, total enrollment at the Polytechnic campus was 4,877 students.

Context

ASU shares approximately 613 acres at Power and Williams Field Roads with Chandler-Gilbert Community College, Mesa Community College, Embry-Riddle Aeronautical University, a United States Air Force research laboratory, a Veteran's Administration clinic, and the Silvestre Herrera Army Reserve Center. These combined entities make up what is known as the Williams Campus. Once a thriving U.S. Air Force base, the Polytechnic campus is the newest ASU campus, and serves the rapidly growing southeast valley with various professional and technical programs, and provides thousands of square feet of research space. The campus is located between Powers Road to the west and Sossaman Road to the east.

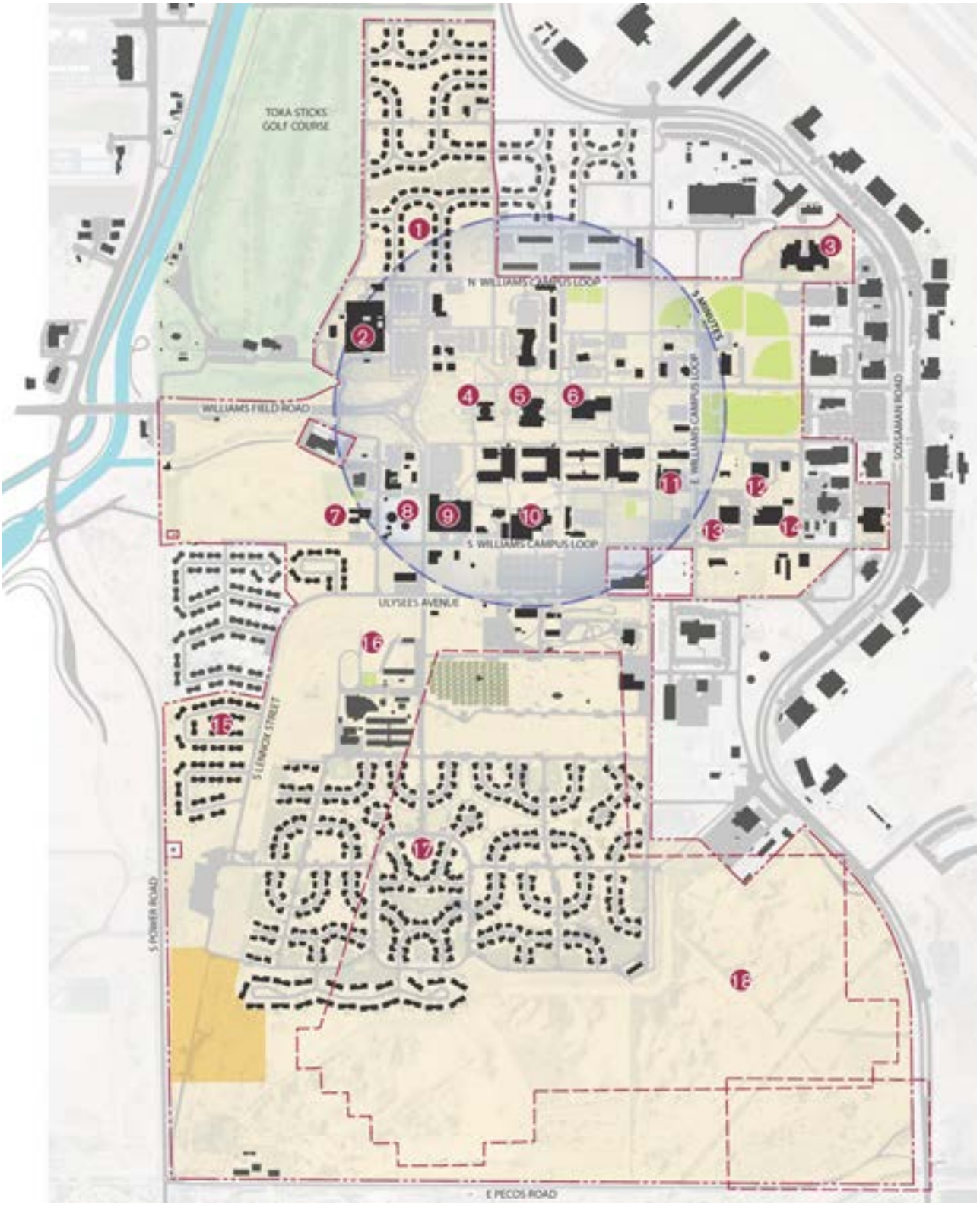
The road network is based off of the existing Air Force roadway grid, which is currently serving

2011 Polytechnic Campus Metrics:

- 613 acres
- 4,877 enrollment
- 1,306 beds (27%)
- 2.14 Million GSF
- 3,167 parking spaces
- existing campus density: 0.08 F.A.R.
- core campus density: 0.17 F.A.R.

Existing Building Key:

1. North Desert Village Housing
2. Health Sciences Center
3. Simulator Building
4. Administration
5. Academic Center
6. Student Union and Bookstore
7. ASU Preparatory Academy Middle School
8. Water Tower
9. Technology Center
10. Agribusiness Center
11. Palo Blanco Housing
12. Physical Activity Center
13. ASU Preparatory Academy High School
14. ISTB III
15. West Desert Village Housing
16. Williams Community School
17. South Desert Village Housing
18. Archeological Site



Polytechnic Campus Existing Conditions Plan

LEGEND

- ASU POLYTECHNIC CAMPUS
- TOKA STICKS GOLF COURSE
- ATHLETIC AND RECREATION FIELDS
- ASU BUILDINGS
- NON-ASU BUILDINGS
- CANAL
- EAST VALLEY INSTITUTE OF TECHNOLOGY (EVIT)
- ARCHEOLOGICAL SITE
- 5-MINUTE WALKING RADIUS

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as the backbone to the university's development. There is little presence of the campus when entering on Williams Field Road from the west off Powers Road. The open space and parking lots for the Toka Sticks Golf Course on the north and the ASU driving range on the south provide little sense of campus arrival. The large vehicular roundabout marks the actual entrance to the campus; however, scattered low-density buildings give little definition of arriving at a major public research university. There are various streets that connect to the campus from the east and north off of Sossaman Road. However, the university lacks facilities or any presence fronting Sossaman Road that can create an eastern gateway from the adjacent Williams-Gateway Airport. This airport is quickly becoming the East Valley's primary airfield.

The previous character of the former Air Force base is still in evidence around the campus. Mid-20th century one- to three-story military buildings are scattered throughout the site, and are being renovated or demolished to meet the needs of the campus. A Department of Veterans Affairs hospital is located just west of the campus core, and is currently at the latter part of its lease with plans to relocate off campus. The existing single-family housing in North and South Desert Village is remnant Air Force base housing, and is the only housing model of this kind in the ASU system. A portion of the single-family housing is owned by the House of Refuge, a transitional housing organization.

The first phase of new buildings on the Polytechnic campus has established a central core and has set a precedent for the future of the campus. Sustainable desert architecture and a campus landscape designed as a desert botanical garden has created a more forward looking and sustainable identity for the campus. A more traditional campus landscape surrounds the existing library, administration, and student union at the center, and will be maintained for its social value. The existing Engineering Technology and Agribusiness buildings and greenhouses create a nucleus of research activity on the southern edge of the central core. South of campus, a unique date palm grove is harvested for ASU menus. Further south, a clay cap has been established as mitigation over a former shooting range, a remnant of the site's military training function.

The Midvale and Germann archeological sites are on the National Registry of Historic Places and cover the majority of the southern region of the campus. These two sites are known to have prehistoric artifacts of the Hohokam Indians. Further investigation is needed to clarify archeologically significant locations within the boundaries of the two sites.

Planning Challenges

The largest challenge at ASU's Polytechnic campus is to create an orderly, well-organized collegiate campus out of a former Air Force base. The existing low-scale structures are utilitarian and laid out in a singular, somewhat isolated pattern, with no sense of campus or community. Some buildings will be renovated for ASU use; however, many will be strategically demolished for the future needs of the campus. Given the amount of land area, the temptation will be to develop a very low density campus, so as the campus builds out it is important to practice restraint and follow its framework for development, retaining land for long-term academic needs by developing more density at the core.

Sustainable desert landscape at the Polytechnic Campus.

Coupled with the lack of clarity in building location and hierarchy, site roads and circulation also lack an order and hierarchy. Both pedestrian and vehicular circulation is unclear, making navigation around campus difficult. The undefined arrival drive on Williams Field Road does not help to identify the campus. The intended gateway to the campus is a large vehicular roundabout that is not pedestrian friendly or inviting, and does not focus the driver. The different entities that share the base, including Chandler-Gilbert Community College, Mesa Community College, Embry-Riddle Aeronautical University, and a United States Air Force research laboratory create many undefined edges, leading to confusion over what is and is not ASU's campus. Once on campus, there is a need to add density and continue growing student life facilities in order to create a sense of vibrancy that will attract students, top faculty, and staff to this campus.

The Midvale and Germann archeological sites consume the majority of land in the south half of the site. These sites will need to be investigated further prior to any construction taking place within their boundaries. For the timeframe of this Master Plan Update, no significant development or disturbance is proposed within the currently defined boundary, beyond the use for surface parking and potential solar field installations.

Outdoor seating at the Student Union creates an energetic atmosphere.

The architecture on the Polytechnic campus has many open-air walkways.

Existing Facilities by Broad Category:	
Academic/Research/Support Uses	1,147,676 GSF
On-Campus Housing and Support	913,838 GSF
Total	2,148,737 GSF

Table 5.1: Polytechnic campus existing facilities by broad category

Planning Opportunities

Some of the Polytechnic campus's biggest challenges are also its strengths. This campus, more than any other, has the opportunity to almost start from scratch and define what it means to be a college campus in the 21st century. The first phase of development has set a strong precedent for future architectural and landscape character in keeping with the sustainability goals of ASU. There is tremendous potential for the Polytechnic campus to demonstrate a new vision for more sustainable development in the desert southwest.

In response to its lack of enough student life facilities and activities, the university has started to build a student life program, with new student housing, dining, a student recreation center, and recreation fields under design at the time of this update. The City of Mesa is constructing a new loop road around campus that will define a boundary around the campus core. This will aid in wayfinding and defining campus edges, allowing the Polytechnic campus to focus on academic and research expansion within the core. This will also allow ASU to relocate surface parking to the campus perimeter and build a more pedestrian-centric core.

Future land swaps with neighboring entities such as Chandler-Gilbert Community College could be beneficial to both, allowing ASU to gain and renovate facilities such as the former barracks into new student housing close to the center of campus. In the long term, acquisition of frontage property on Sossaman Road east of campus would create a much needed eastern gateway, a better connection to the Williams-Gateway Airport, and strengthen the university's presence along Sossaman Road.

In the future, and as the constraints of the Midvale and Germann archeological sites are understood, the amount of potentially available property and connection to the airport provide an opportunity for the Polytechnic campus to create a distinctive engineering and manufacturing research park partnership focused on ASU's research strengths in security defense systems, sustainability and renewable energy, and advanced materials and flexible systems.

Projected Enrollment

A detailed space needs assessment was conducted for the 2006 Comprehensive Development Plan. This Master Plan Update is driven by future enrollment targets established by the university for the Polytechnic campus. The 2020 enrollment target for the Polytechnic campus remains the same as the 2006 plan, supporting 15,000 students. Although some of that enrollment growth may be online learning, this update has used that number as the future campus population and the basis for growth.

Future Space Needs

To understand an order of magnitude for future space needs to serve a student enrollment of 15,000, the planning team considered the current assignable square feet (asf) and gsf per student for academic, research, auxiliary, and support uses as a planning benchmark. However, as an emerging campus on a converted military base, the current 147 asf/235 gsf is too high a ratio to use for projection of future space needs. This ratio reflects the use of inefficient former Air Force buildings, not designed to higher education standards. A target ratio of 110 asf/176 gsf per

student, similar to the existing Tempe campus ratio, was therefore used to project future needs at the Polytechnic campus. This ratio results in up to 1,492,324 gsf projected for new academic, research, and support space on campus.

On-Campus Housing

The Polytechnic campus houses approximately 27% of its student population on campus, although in underutilized military housing such as the shared housing in the Desert Villages, the repurposed barracks, and the recently renovated Palo Blanco Hall. Overall, these housing types equate to 913,840 gsf of residential use and 1,306 beds on campus.

The ASU Office of Student Affairs Department of Residential Life has set a target of housing 25% of the future population on campus. With expected growth to 15,000 students, the Polytechnic campus will need 3,750 beds on campus, adding over 2,400 beds to reach its goal.

Future residential needs were translated into gsf to support 25% on-campus housing. Given that the housing on the Polytechnic campus consists of small, single-family units, future beds on campus must be developed as more student-oriented housing models. Based on the average SF/bed used in the *Polytechnic Housing Master Plan Report* conducted for the Polytechnic campus, an average of 370 gsf per bed was used to project a future need of 904,280 gsf of residential development to accommodate 2,444 new beds. This does not include any replacement square footage for demolition or replacement of existing units.

Future Facilities

Current projects in planning and design, and interviews with the Office of the President, Executive Vice President and Provost, University Planner, Office of Knowledge Enterprise Development, Office of Business and Finance, Office of Student Affairs, and many others identified a more qualitative list of facility types to provide new academic, research, support, and collaborative learning space on campus. These include the following:

- Research space for Sustainable Energy, Aerospace & Defense, bio fuels, and greenhouse expansions.
- Two 150-seat computer labs for mathematics/English instruction and tutoring.
- Student union expansion.
- Future academic growth.
- On-campus housing, dining, and related amenities. (Phase I is currently under way)
- Student recreation center and recreation fields.
- Student health center.
- Solar fields.

Residential Program Goals:	2011	2020
Total Enrollment	4,877	15,000
On-Campus Housing	1,306 (27%)	3,750 (25%)

Table 5.2: Polytechnic campus residential pgrogram goals.

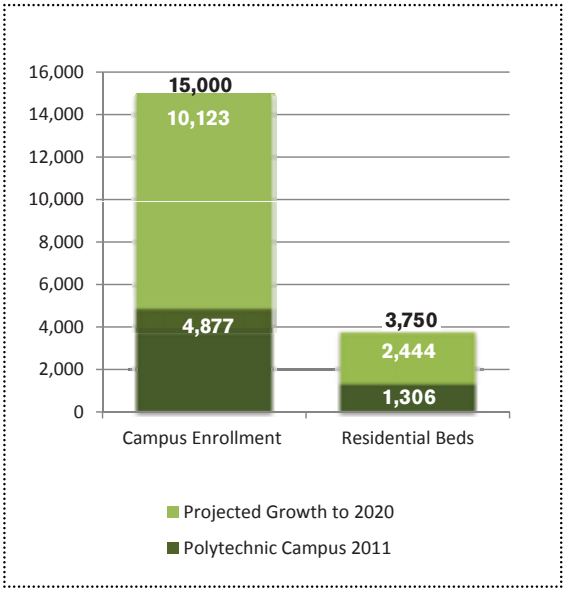


Chart 5.1: Polytechnic campus residential program projected growth.

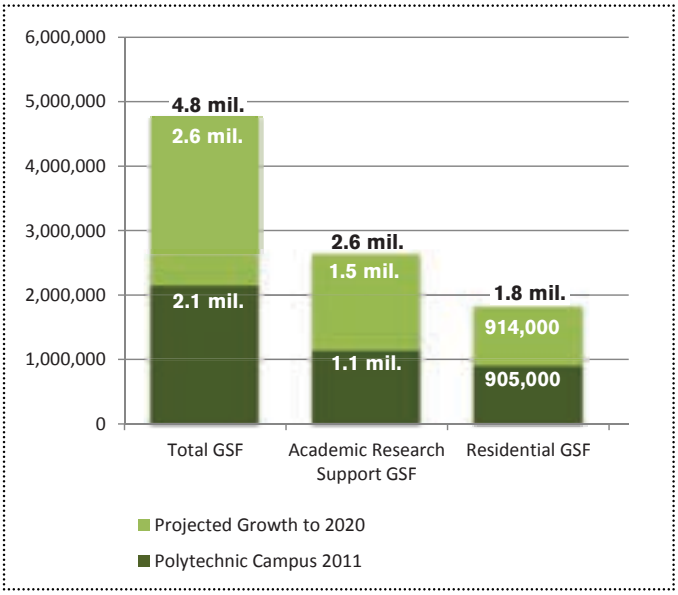


Chart 5.2: Polytechnic campus future space needs by broad category.

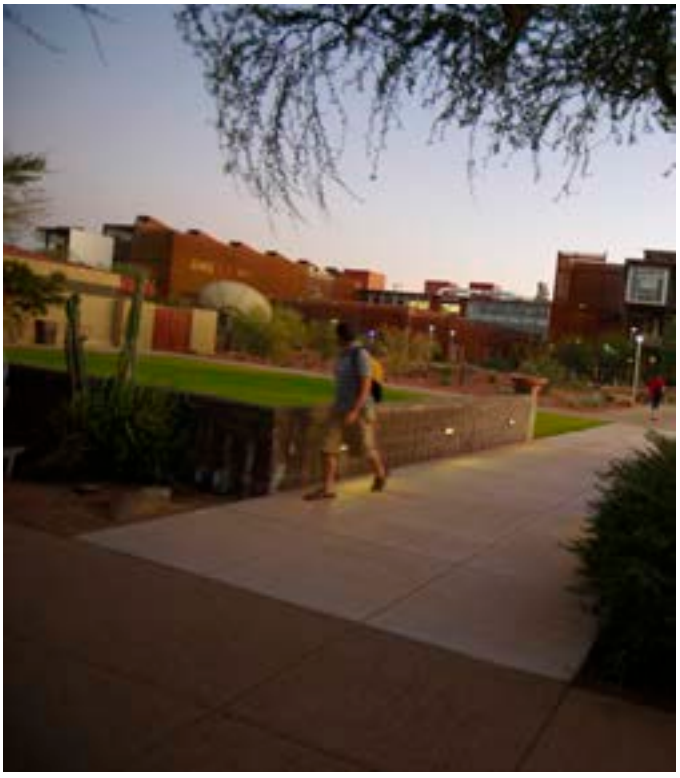
Future Space Needs	Total	Academic/Research/Support	Residential
Existing Campus 2011	2,148,737 GSF	1,147,676 GSF	913,838 GSF
Future Need 2020	2,396,604 GSF	1,492,324 GSF	904,280 GSF
Polytechnic 2020 Total	**4,545,341 GSF**	**2,640,000 GSF**	**1,818,118 GSF**

Table 5.3: Polytechnic campus future space needs by broad category.

ASU Preparatory Academy at Polytechnic.

ASU Preparatory Academy at Polytechnic

ASU has recognized that the state of Arizona faces many challenges in K-12 education. ASU has committed to bringing its resources, university-wide, to improve pre-K-12 education, increase the high school completion rate for students in Arizona, and increase the college-going rate and college graduation rate of Arizona students. To achieve these goals, ASU has established and operates the ASU Preparatory Academy as tuition-free K-12 public charter schools, managed by University Public Schools. The mission of the ASU Preparatory Academy is to provide personalized, university embedded academic programs that empower students to complete college, excel in a global society, and contribute to their communities.


Polytehnic Campus at Dusk.

Each ASU Preparatory Academy is composed of an elementary, a middle, and a high school program integrated into a single educational community. The ASU Preparatory Academy at the Polytechnic campus is a free public charter school currently enrolling kindergarten through 9th grade, and expanding to 12th grade by 2014. The middle school is located on the western edge of the Polytechnic campus, south of the Williams Field Road entrance drive. In an innovative move, a new ASU Preparatory Academy high school is opening in the fall of 2011 on the east side of campus, in the former Exercise and Wellness Center. Its location on the campus is important to both the university and the academy, to ensure that ASU resources can be made more readily available to the academy.

Current and Projected Parking

The university manages 3,167 parking spaces located in various surface parking lots distributed

throughout the campus. Taking into consideration faculty and staff, the total campus population is approximately 5,208. This results in 1.64 people to 1 parking space (1.64:1) ratio, a very low number when compared to other low density suburban university campuses in the country. This is attributed to the inheritance of a military base and its existing parking, rather than meeting current demand. As the Polytechnic campus develops, interior surface parking lots should be consolidated and relocated to the perimeter.

The Polytechnic campus is located in a remote area that lacks basic public transportation service. However, ASU Parking and Transit Services (PTS) should consider working with local municipalities to encourage public or alternative transportation to regional shopping and destinations, in support of the university's carbon neutral goal for transportation. For commuter students and faculty that have classes or live near one of the other campuses, the intercampus shuttle is a good option.

Future projections for parking demand rely on the continued success of PTS's transportation program. Raising the parking ratio similar to the West campus, another suburban campus with very limited public transportation, would provide a better standard for the Polytechnic campus and help support the university's sustainable transportation goals. Using a ratio of 2.6:1 people per parking space, the university would need to provide 5,980 spaces to accommodate the build out of the Polytechnic campus, a net increase of 2,810 spaces, not including the replacement of spaces displaced by construction. While this is a planning assumption, a more detailed parking utilization study should be conducted to determine the actual current and future parking need.

The Polytechnic campus has preserved native landscape around a recreation field.

framework plan

The Framework Plan is generated to help determine campus capacity for future growth on land owned by the university. It outlines sites on campus for future development. These sites are composed of undeveloped land, surface parking, and redevelopment of occupied space. These development sites were identified based on discussions with OUA, Real Estate staff, and other guiding committees.

These sites include:

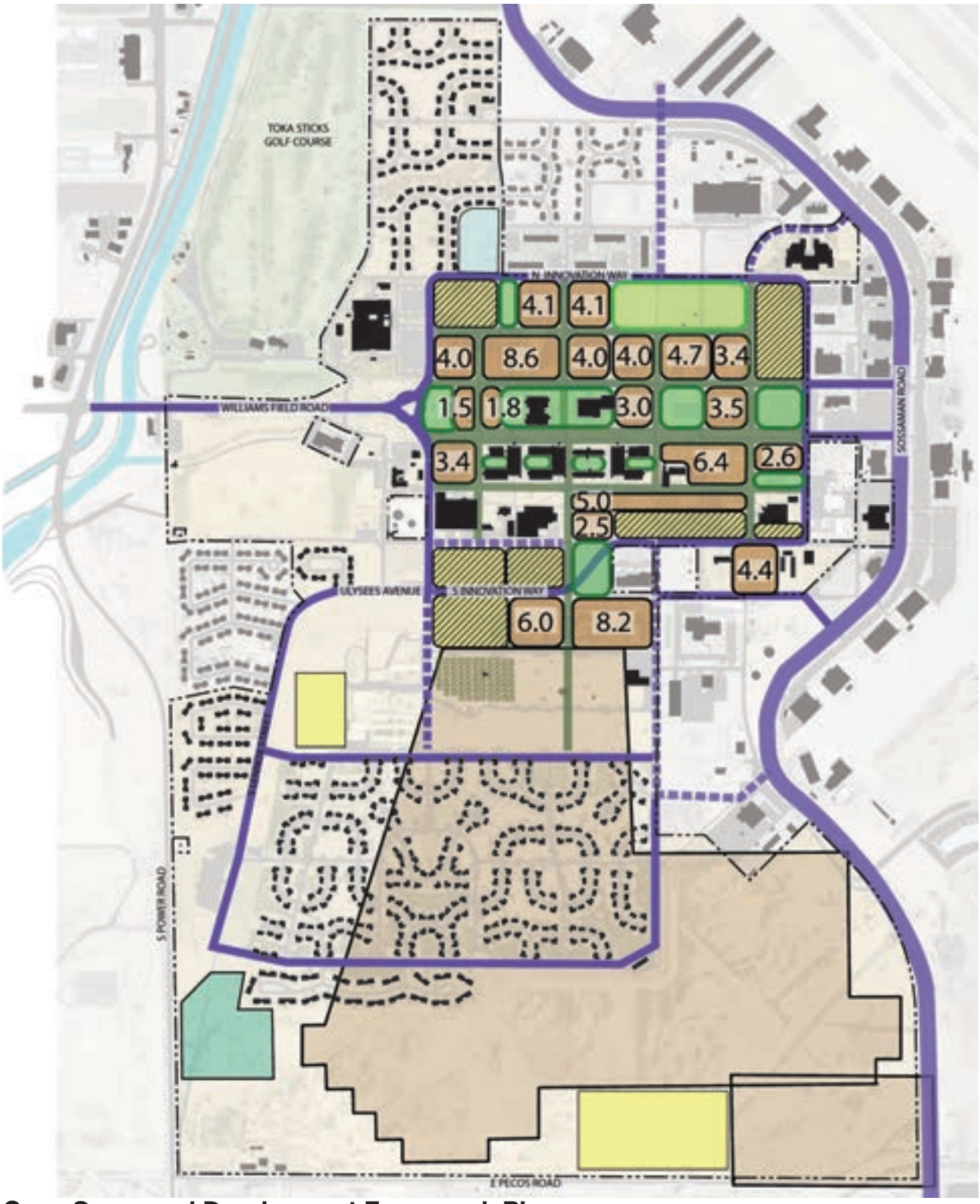
- Development of sites east of Palo Blanco Hall
- Sites east of the Classroom/Lab/ Computer Classroom Building (CLCC)
- Development of many sites north of the Administration Building, Academic Center, and student Union
- Redevelopment of the ball fields and track area

Long term redevelopment potential was identified for the ASU driving range and the VA Hospital/ Health Sciences Center site. However, the projected space needs do not create a demand for development of this land area at this time.

An initial campus capacity was established for future growth, based on the acreage of development sites, tested against various density ratios (Floor Area Ratios or FAR) that the university wants to achieve per campus. Many future development sites are located on existing surface parking lots, which will be relocated to perimeter areas, and/or consolidated into parking garages.

The Framework Plan is intended to guide the location of future development to appropriate sites on campus. Many of the development sites on the Polytechnic Campus are currently surface parking lots, undeveloped land, and the redevelopment of existing base buildings. Additionally, the Midvale and Germann archeological sites cover a large area of the south part of campus, and have unique restrictions for development and land use. Therefore, until more research is done this land will be reserved for long term needs.

An open space framework was also prepared to ensure that successful campus spaces, open space areas, storm water management, and pedestrian and vehicular circulation corridors are preserved, as the spatial organization for future growth. The open space framework also proposes the location of future campus spaces to ensure that new development will have sufficient areas for pedestrian circulation, outdoor rooms, recreational areas, and places to gather on campus. The Framework Plan forms the basis for the Master Plan, and is intended to remain a flexible tool to accommodate new or unanticipated needs.



Open Space and Development Framework Plan

*Numbers on plan correspond to gross acerage available for development per site, and not building gross square footage.

0’ 1,000’

LEGEND

- PRIMARY PEDESTRIAN MALL
- PRIMARY VEHICULAR CORRIDOR
- PEDESTRIAN STREETSCAPE
- OPEN SPACE
- ATHLETICS AND/OR RECREATION
- FAITH-BASED COMMUNITY
- ARCHEOLOGICAL SITE
- EAST VALLEY INSTITUTE OF TECHNOLOGY (EVIT)
- SOLAR FIELD
- ASU BUILDINGS
- ASU PROPERTY LINE
- PROPOSED DEVELOPMENT OPPORTUNITIES
- SOLAR-COVERED PARKING

master plan recommendations

The Polytechnic Campus Master Plan Update proposes sites for the construction of 2.84 million gsf of new academic, research, support, and residential development. This includes replacement space for 92,390 gsf. The net gain of new development is 2.7 million gsf, not including parking garages.

New Academic and Research Buildings

Future academic and research buildings will be primarily located within the loop road. The majority of academic buildings will be located within the center of campus, while the research growth will continue to anchor the southeastern corner of campus. All future buildings will be laid out to efficiently maximize the solar orientation and to frame the central green, courtyards, and open space. Iconic building sites will be located on the western and eastern edges of the central green, which will provide a terminus view from the Williams Field Road and Sossaman Road entries.

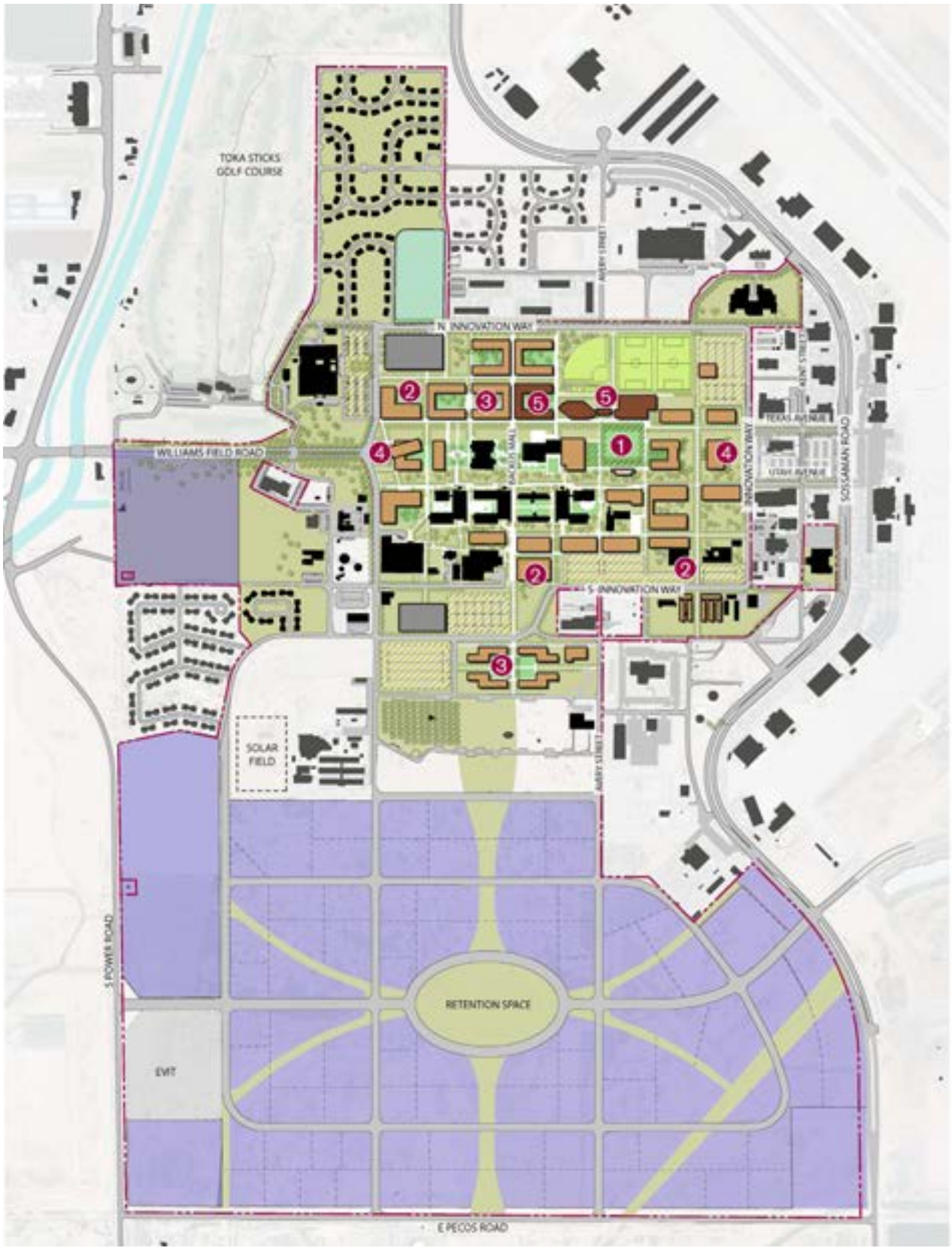
North and South Residential Districts

To accomplish the university's goal of housing 25% of enrolled students on campus, two key residential districts will be created on the Polytechnic campus. The north residential district will be located north of the Student Union and administration buildings, and south of the loop road. This district will anchor the northwest corner of the heart of campus, and is in close proximity to the academic buildings, the dining facility, and the newly designed Student Recreation Center. The north residential district will provide approximately 1,773 beds on campus.

The south residential district will be located north of the Midvale archeological site and south of the loop road. This district anchors the southern edge of the campus core and is being developed as the link to long-term development to the south. The south residential district will also be highly accessible to the existing academic buildings, and the future research and lab growth located at the southeastern corner of campus. This district will provide approximately 760 beds on campus.

Key Elements:

1. Central green
2. Academic and research expansion
3. Future residential development
4. Gateway sites; signature architecture
5. Phase I residential, dining, and student rec center



Polytechnic Campus
Illustrative Master Plan

LEGEND

- PROPOSED DEVELOPMENT
- PLANNED DEVELOPMENT
- PAVILION STRUCTURE
- PROPOSED PARKING STRUCTURE
- EXISTING CAMPUS BUILDING
- NON-IRRIGATED DESERT LANDSCAPE
- IRRIGATED LANDSCAPE
- RECREATIONAL FIELD
- SOLAR-COVERED PARKING
- FAITH-BASED COMMUNITY
- FUTURE DEVELOPMENT OPPORTUNITIES
- ARCHEOLOGICAL SITE
- PROPERTY LINE

0’ 1,000’

Campus Gateways

As a former air force base, the Polytechnic campus was not designed with gateways in mind. Well-defined arrival areas and a stronger presence are needed on the western and eastern edges of campus. The future development of this gateway will create a more straightforward entrance to campus, focusing views directly into the campus core, and improve pedestrian movement, allowing campus users to access facilities and parking outside of the loop road. The redefinition of this gateway will also create an opportunity to bring future buildings sites closer to the roadway, helping to structure and organize the spatial character of this entrance to campus.

The university also needs a more defined gateway from the east along Sossaman Road. However, commercial properties and Chandler-Gilbert Community College run the entire length of the eastern edge of campus, preventing an ASU street presence on Sossaman Road. In the future, an eastern edge gateway could be created off of Texas Avenue, between Sossaman Road and Innovation Way, helping to identify the campus and improve its visibility toward the airport. This will allow easy vehicular access to the core of campus and directly link Sossaman Road to the loop road. This gateway will also provide a connection to the airport for travel, aerospace research, and other future public/private partnership opportunities.

Vehicular and Pedestrian Circulation

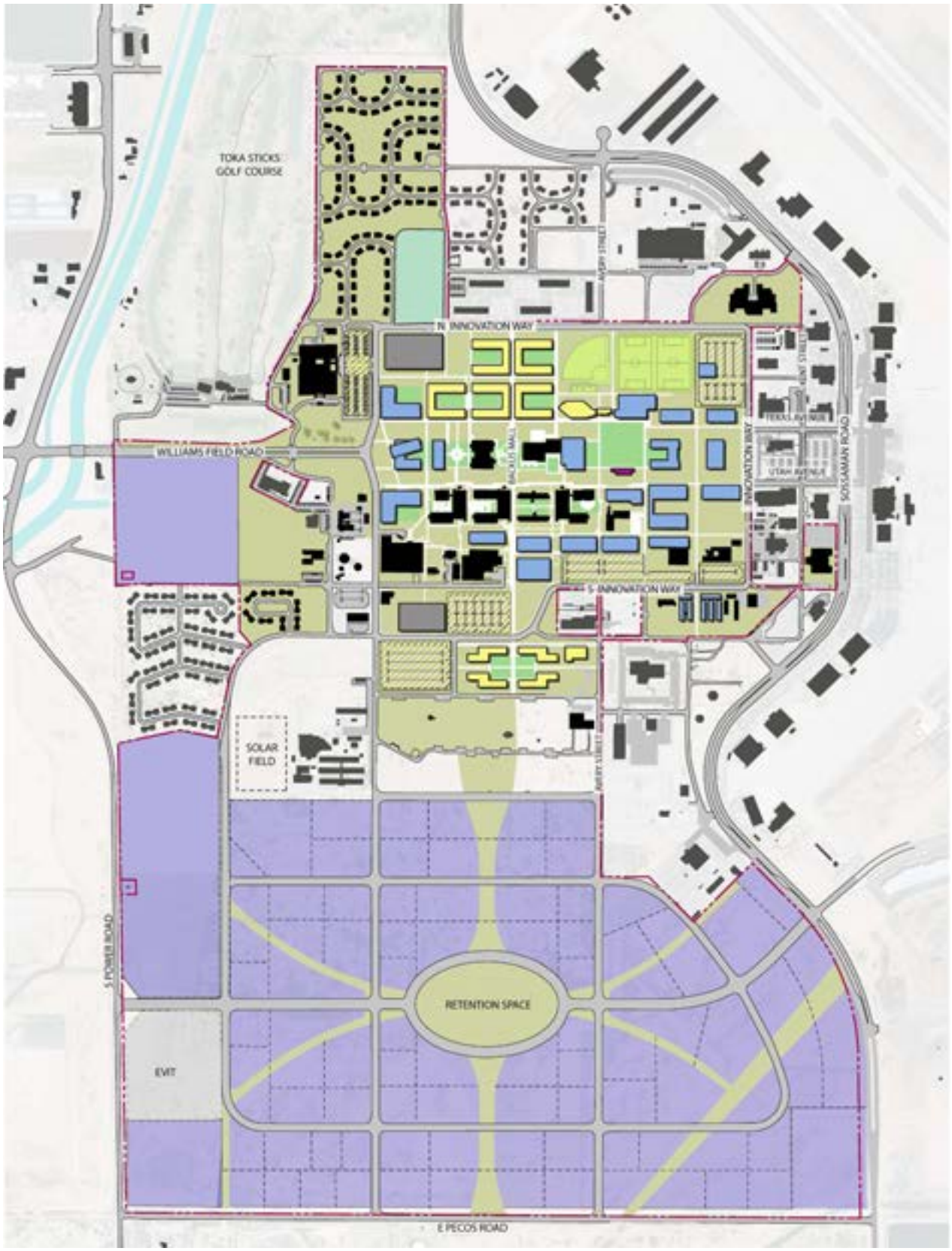
The newly developed loop road will become the major vehicular circulation corridor on campus, defining the boundary of the campus core. Parking will be located around the perimeter and all entry drives and streets will provide a link to the loop road. The majority of motorists come from Power Road at the western edge of campus and primarily enter campus using Williams Field Road. Motorists coming from the north on Sossaman Road will primarily utilize Avery Street to enter into campus. A new eastern edge gateway will become the major eastern entry to campus.

Central Green

A formal green space stretches from the western edge to the eastern edge of the property. This central green area will be retained as a functional respite from the desert environment, framed by design arroyos and existing and future buildings.

Pedestrian Malls

Currently, the primary pedestrian mall stretches east and west, and is located north of newly constructed buildings (Picacho Hall, Aravapai Auditorium, Sutton Hall). This mall is planted with low water-use native plants and has a man-made arroyo that runs parallel to it. The arroyo is landscaped with native plant material and serves as one of the major drainage corridors on campus. A future mall will be located north of the central green, parallel to the existing mall, and will connect the proposed dining facility, Student Recreation Center, and north residential district. The buildings along this mall should have architectural cantilevered structures overhanging the mall to provide shade. A future north-south extension to Backus Mall will support pedestrian movement between the north residential district and the south residential district, cutting through the core of campus. Secondary pedestrian malls will intersect campus walks and malls in a gridded layout, based on the existing grid of the historic Williams Air Force Base.



Polytechnic Campus
Building Use Master PLan

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LEGEND

- PROPOSED ACADEMIC
- PROPOSED RESIDENTIAL
- PROPOSED PAVILION
- PROPOSED PARKING STRUCTURE
- EXISTING CAMPUS BUILDING
- EXISTING NON-CAMPUS BUILDING
- FAITH-BASED COMMUNITY
- NON-IRRIGATED DESERT LANDSCAPE
- IRRIGATED LANDSCAPE
- RECREATIONAL FIELD
- SOLAR-COVERED PARKING
- PROPERTY LINE

Proposed Parking

The Polytechnic campus has a large amount of commuter students, which gives this campus a low parking ratio. This is primarily due to the low amount of residential beds on campus. Its current ratio of people to parking space is 1.64 to 1. A target was set to raise that to 2.6 to 1, similar to West Campus. In order to accommodate future development on campus, some surface parking lots will be displaced by construction. There are currently 3,167 surface parking spaces on campus and the proposed plan would displace 2,124 spaces. The plan shows future surface parking and garage parking for 4,440 spaces, a net gain of 2,316. This would bring the total to 5,483 spaces, raising the parking ratio to 2.8 to 1 for the projected campus population and enrollment target of 15,000 students.

The installation of solar covered shade canopies to cover the expansive parking lots and the top floor of the parking structures will create the opportunity to gain additional clean power without utilizing vacant land on the Polytechnic campus. The solar canopies will aid the university in its net zero carbon goals, provide users with shaded parking, reduce the heat island effect, and make the university's sustainable vision visible to the community.

Public/Private Partnership

The Polytechnic campus has a great amount of vacant land south of the campus core. Some of the southern property could be utilized for future public/private research or manufacturing development. A mixed use public/private partnership development at the future western gateway would enliven student activity and create an economic driver for the community and campus.

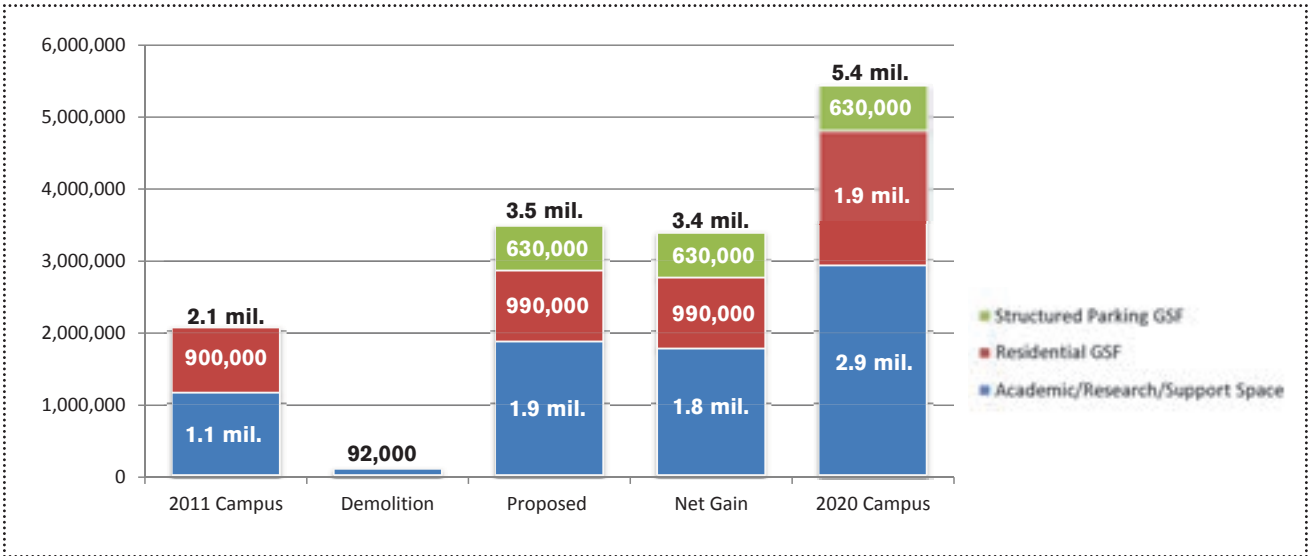


Chart 5.3: Polytechnic campus proposed growth and net gain by broad category.

Existing Conditions Model

Proposed Conditions Model

Polytechnic Campus Master Plan	2010 Campus	Demolition	Proposed	Net Gain	2020 Campus
Academic/Research/Support Space GSF	1,147,676	92,389	1,861,000	1,768,611	**2,916,287**
Residential GSF	913,838	0	985,000	985,000	**1,898,838**
Total GSF without Parking	**2,061,514**	**92,389**	**2,846,000**	**2,753,611**	**4,815,125**
Structured Parking GSF	0	0	627,000	627,000	**627,000**
Total GSF with Parking Garages	**2,061,514**	**92,389**	**3,473,000**	**3,380,611**	**5,442,125**
Parking Spaces	3,167	2,124	4,440	2,316	**5,483**

Table 5.4: Polytechnic campus proposed growth and net gain by broad category.

Core Campus Illustrative Concept


PROPOSED
PROPOSED
PROPOSED
PROPOSED
PROPOSED
PROPOSED
PROPOSED
PROPOSED
PROPOSED
PAVILION
INNOVATION WAY
APPLIED ARTS
PAVILION
SANTA
CATALINA
HALL
PROPOSED
PROPOSED
PROPOSED

access management

The Polytechnic Campus is situated on a former U.S. Air Force base and includes both new construction and remnant military buildings, multiple constituents, and shared uses which provide some unique access management challenges.

One of the primary access management considerations on the Polytechnic campus is the development of proper and effective service access to campus buildings in order to eliminate the need to drive on pedestrian pathways. The development of the Williams Campus Loop will provide for more direct and manageable traffic flow within the campus, but the current design and use of the large concrete and gravel pathways around the core campus buildings appears to not function well (i.e. loose gravel migrates onto concrete portions of walkways and into buildings, longer-term deterioration of concrete where gravel and concrete sections adjoin) and introduces pedestrian and vehicular conflicts.

Combined service access and pedestrian pathway.

As with the Tempe campus, the development of access management instructions for all buildings coupled with established standard service access procedures will help to ensure that vehicular access to buildings does not adversely affect the movement and access of pedestrians. Design parameters for future buildings should give service access more consideration and provide for adequate internal amenities such as service corridors, storage space and secondary elevators, and dedicated vehicular access to a building loading dock or service area exclusive of pedestrian pathways.

The number of bicycles on the Polytechnic campus is growing and creating an increasing need for more bike parking locations and better regulations. Bike racks and storage areas should be consolidated away from building entrances, shaded breezeways and external stair towers and located in safe and convenient locations off the major pedestrian pathways. The University will also need to enforce bike parking in designated areas only and strongly discourage locking bikes to railings, trees, and other objects outside of the designated storage areas. Bike policies, regulations, registration and other related programs that are initiated by the University should be adopted on the Polytechnic campus.

As new buildings and amenities are added to the Polytechnic campus the implementation of

a “Pedestrian Safety Zone” similar to what has been proposed on the Tempe Campus may be necessary. In addition to clearly defined service access routes, the university will need to develop bicycle and cart access paths to keep non-motorized wheeled travel off the primary pedestrian pathway network.

The University will also need to extend any educational campaign that is initiated on the Tempe Campus to the Polytechnic Campus and add signs, pavement markings, and other similar items to maintain the integrity of pedestrian walkways and delineate authorized access routes or paths for wheeled travel and vehicles.

To maintain continuity and a sense of “One University in Many Places”, the same physical planning guidelines, governing University policies and regulations, regular and consistent enforcement practices, and all other physical access management improvements adopted by ASU should be implemented on the Polytechnic Campus.

Discourage bike parking in non-designated areas.

architectural guidelines

The Polytechnic campus' southeast valley location is primarily accessed by car and intercampus shuttle, with limited connections to mass transportation systems. The Williams Field Road entrance off Power Road handles most vehicular traffic and is the most direct way to access the Innovation Way Loop Road, with secondary access and a potential future campus gateway from Sossaman Road. There is one large surface parking lot south of the campus core with several smaller lots spread around campus, most of which are also directly accessed from the loop road. Within the loop (especially the southern half) vehicular circulation is limited and buildings are accessed via pedestrian malls.

The Polytechnic Campus is designed on the orthogonal grid established by the Army Air Corps in the 1940s, although the Williams Field Road entrance and traffic circle that connect to the Innovation Way Loop Road were reconfigured in the late 1990s. Additionally, several paved roads were eliminated in the center of campus when the core academic buildings were constructed along the main east/west mall in 2008, although the overall grid relationship is still apparent through pedestrian mall alignments and building placement.

The core buildings (Picacho, Peralta, Santan and Santa Catalina Halls, Aravaipa Auditorium and the Applied Arts Pavilion) are a significant deviation from the dispersed and low-slung character of the former military structures. These contemporary buildings exhibit a strong response to the desert climate and to the technology, engineering and research focus of the programs they house. Their articulation and cohesive integration with environmentally-sensitive desert landscape has created a distinctive, contemporary model for campus design.

All new construction and major renovation work should comply with the Arizona State University Sustainable Design Guidelines and comprehensive Design Guidelines which impact the programming, design, and construction of all major ASU projects and define the relationships and expectations involved in doing work for the University. The Design Guidelines also contain an outline specification with detailed construction guidelines, ensuring that the quality of buildings constructed on campus reflects the long-term horizon of ASU's mission. Design and construction decisions should reflect this outlook with a 100-year horizon, emphasizing institutional quality construction and life-cycle maintenance and cost analyses.

Buildings should be designed to be as flexible as possible to allow for adaptations in use by utilizing established construction methods, standardizing components, and minimizing custom systems. It is important to recognize the limited supply of land available to the University and to efficiently utilize space with compact footprints that allow for maximizing future development.

As a primarily pedestrian campus it is the public spaces in between buildings—malls, courtyards, quads and gardens—that form the common environment. As such, there is an intrinsic and symbiotic relationship between building, planning and landscape design. Buildings should take a definitive stance to the mall system, either being pulled up close to the mall to provide definition and shading, or purposefully pulled back to create a programmed pedestrian gathering space (*figure 1*).

Large unoccupied setbacks should be discouraged, as they do not efficiently use the site and do not reinforce the pedestrian environment. Design of individual buildings should recognize this and make efforts to accommodate impromptu meetings, outdoor study, and other types of gathering with ample space, seating and shade. These spaces mediate between the rapid pace of mall traffic and a building's entry providing a necessary transition zone. The potential of these exterior spaces to link together or occur unexpectedly is an exciting opportunity to create memorable moments; hidden courtyards and shaded paseos give a desirable character to the experience of campus.

Exterior circulation can move through the buildings with landscape areas defined by building envelopes rather than acting as a peripheral garden around object buildings. New buildings should follow this example, emphasizing semi-enclosed courtyard spaces that let out onto

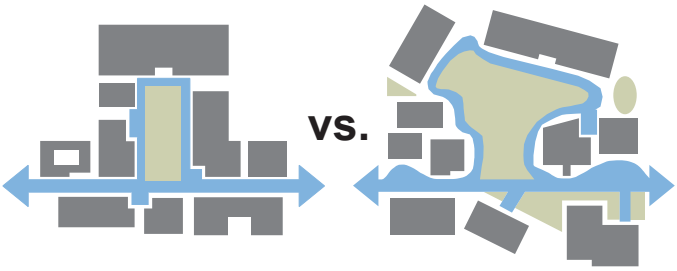


figure 1 - Buildings should respect the established campus grid and reinforce the orthagonal mall structure, with designed moments for quads, courtyards, and other gathering spaces.

figure 2 - Peralta Hall, ASU Polytechnic Campus. Open hallways pass through buildings creating shaded passages and study spaces.

figure 3 - Courtyard at Santan Hall, ASU Polytechnic Campus. Channels in site furnishings and landscape areas direct rainfall to specific trees, expressing and celebrating the hydrology of the site.

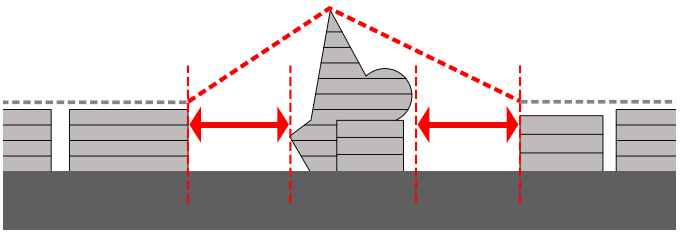


figure 4 - "Heroic" buildings are discouraged except where specified by the Campus Master Plan.

circulation routes, blurring the boundary between mall, courtyard, and exterior hallway (*figure 2*).

Establishing a relationship between landscape and architecture should also occur at a more utilitarian level, which can still be expressed and celebrated (*figure 3*). Rain scuppers can feed specific trees, condensate lines can be linked to irrigation systems, and vegetation can become an integral skin shading the building. These details should be deliberately expressed in the architecture and landscape architecture of the Polytechnic Campus.

The desired hierarchy of buildings on campus should be determined by the University based on programmatic or planning emphasis and is expressed as a product of site and building design. Unless designated otherwise, buildings should seek to homogenize rather than differentiate themselves from other buildings on campus. The design team should consider the scale, materiality and alignments of adjacent structures as critical influences on their design process, with the goal of integrating into the existing campus fabric. Specific sites for "heroic" or iconic buildings, whose articulation and orientation cause them to stand out from neighboring buildings, are identified on the Campus Master Plan but are otherwise discouraged (*figure 4*).

The ambitious planning goals established for the Polytechnic campus along with recently-completed projects suggest maintaining a distinction between old and new buildings as a way of acknowledging the site's history while recognizing its current and future use as a cutting-edge research facility. The existing palette on campus can be divided into the former base's low, horizontal structures with painted stucco exteriors and the newer,

purpose-built facilities which are mostly raw finishes: exposed concrete and concrete masonry, metal panels (both rusted and painted), and extensive glazing (*figure 5*). As the character of the campus transitions into a more defined University setting, this newer palette should be reinforced. The dominant architectural language on campus is differentiated volumes defined by a series of screens and other planar elements. Structural materials are generally exposed and transparent and semi-transparent planes are used to create a sense of depth to the building facade (*figure 5*).

New construction should respect this established additive approach to composition, incorporating elements such as, but not limited to, fabric or metal shading devices, photovoltaic screens, and greenscreens. Such devices should be integral to the design of the building and serve to shade windows, pedestrian walks, and gathering spaces.

As an undergraduate and research institution focused largely on the sciences, buildings should physically express their component systems. This could include the structural frame, mechanical systems, and sustainable systems such as rainwater harvesting or electrical generation.

In response to climate, and as a reflection of the overall shape of the campus plan, buildings on this campus should tend towards a dominant east-west axis, minimizing these harsh exposures in favor of easier to shade south elevations and more protected northern faces. Each facade should have a visually perceptible response to its unique orientation.

Renovations should follow this aesthetic trend and meet The Secretary of the Interior's Standards and the State Historic Preservation Office's

figure 5 - Semi-transparent planar elements serve to establish an architectural rhythm and provide solar control on Picacho Hall.

figure 6 - A stairway addition to Wanner Residence Hall creates a distinctly contemporary wing while relating to the original construction.

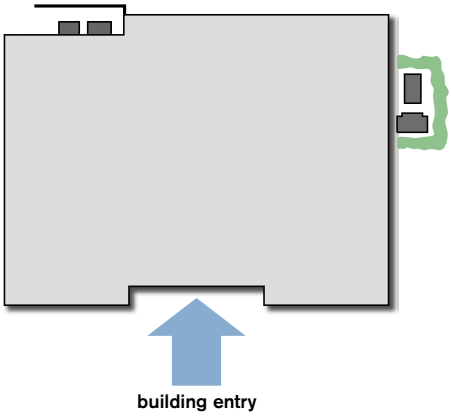


figure 7 - Building Services should occur away from the front entry and be screened from view.

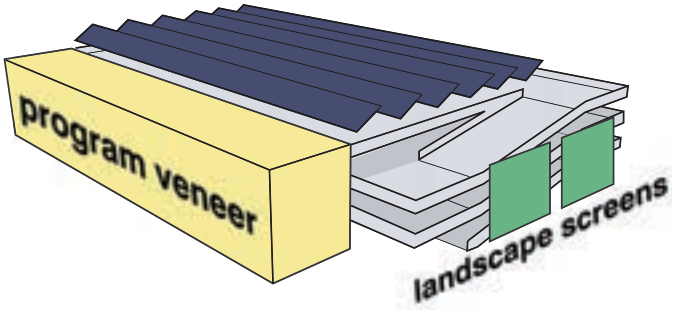


figure 8 - Parking garages have the same responsibilities and opportunities to address environmental, aesthetic, and experiential concerns as other buildings on campus.

goals of being "distinct yet compatible" with the historic materials, features, size, scale, proportion and massing of the original project to protect the integrity of the property (*figure 6*).

Dealing with infrastructure and building services in a tightly-contained environment is an aesthetic challenge to the campus. Pragmatic challenges such as the location of backflow preventers, water meters, and refuse enclosures have a significant impact on the overall success of the building and its composition, and need to be considered as in integral part of the design. Services should not be located on a primary mall (as defined by the master plan) or be on the building's front facade. Zones for meters, switchgear, etc. should be schematically designed into the project at an early phase to ensure that they are properly integrated into the site development (*figure 7*). These areas may be exposed where they are in keeping with an overall architectural expression, however their aesthetic impact should be carefully considered. Refuse collection should be screened and landscaped in all cases.

Parking garages are another reality of campus logistics that need to be considered as part of the aesthetic experience of the University. Where a garage is adjacent to a pedestrian mall it should adhere to the stipulations for "Pedestrian Friendly Edges" set elsewhere in these guidelines. The cladding material on the garage should respond to the finish material of adjacent buildings, and landscape or greenscreens can be used as further screening (*figure 8*). Due to their massive nature, parking garages should generally be shorter than adjacent construction. Where this is not feasible, measures should be taken to mitigate the scale of the parking garage, potentially with a programmed veneer or stepping the profile of the garage. The top parking deck should be designed to incorporate photovoltaic panels.

A number of additional considerations regarding specifics of building design apply based on a project's location on campus (*figure 9*). While all of these elements are potentially beneficial to a building's design, it should be decided between the design team and the University Architect which strategies will be pursued on a given project.

Active Building Edge

Allowing for an active building edge has as much to do with architectural and site design as with programming. Although this could include retail areas in certain conditions, it is more broadly considered here as promoting the types of spaces that are highly visible and encourage people to engage the building who would not otherwise do so (figure 10). This could include gallery and display space, open study/lounges, or even transparency into teaching spaces/labs.

Pedestrian Friendly Edge

Most people on campus will never go into most buildings but they will still interact with them by walking past them. Where a building is pushed tight against a mall or quad it should respond to this condition with an appropriate scale and materiality. On the east, south, and west facades exposed metal skins and screens should not meet the ground in order to prevent excessive radiation and reflection of heat.

Massing should be broken up to acknowledge the pedestrian scale and create a pleasant experience (figure 9). The designer must consider how the building meets the ground with a distinct transition differentiating this area from the above building. This could include a material transition, step in the facade, or overhang/arcade to help shade the mall. It is also encouraged to break up the horizontal massing, using entries or other articulations to avoid long, continuous stretches of blank wall.

figure 9 - Identification on the Polytechnic Campus of "Central Core" (brown) as an area with a particularly important relationship to the pedestrian environment.

figure 10 - Applied Arts Pavillion at ASU Poly. Display areas, glazing, and study spaces serve to activate mall edges in addition to retail uses.

figure 11 - The Student Center is lined by a shaded outdoor space with roll-up doors to engage the building interior.

figure 12 - ISTB II on the Tempe Campus creates an exterior passage that brings the buildings' users together in a semi-conditioned, welcoming space.

Reinforce Open Space

Looking at the figure/ground relationship of campus, the legibility of malls and quads are dependent upon the form of the buildings surrounding them. Buildings should have a minimal setback in relationship to the edge of malls, that is proportional to their height (i.e. taller buildings may be set back further while still providing adequate spatial definition). In general, buildings should have a relatively vertical edge at least three stories high fronting onto any figural open spaces, such as primary malls or designated quads.

Reflect Neighboring Materials

One of the primary goals of these guidelines is to help institute a regularity into the architectural design of ASU's campuses in order that they have a more defined sense of place. A major part of this effort is to harmonize the materiality of new structures with existing buildings. This does not imply that new construction should stylistically copy its neighbors, but that a building's context should inform its design and that certain common threads (such as massing, scale, proportion, datums, rythmic elements and materiality) should aid in unifying the campus.

Porosity at Ground Level

Opening up the ground floor of buildings creates the opportunity for easier circulation, memorable spaces, and cross-pollination of disciplines (figure 12). Successful examples on ASU's campuses include Aravaipa and Santan Halls at the Polytechnic Campus, and the Social Sciences on the Tempe Campus.

Create Exterior Gathering Spaces

Providing areas for students to congregate outside of buildings is essential to creating active

pedestrian malls and engendering discussions outside the classroom environment. Whereas malls themselves are designed to move people, there should be easily accessible transition spaces near building entries that both help maintain traffic flow and allow socializing/people watching/studying. Such spaces should have seating, shade, and vegetation (figure 13). Where possible, these are also opportunities for dining and refreshment.

Central Courtyard(s)

Courtyards provide a strong organizing element for a building, allowing circulation, landscape, daylighting, and passive cooling opportunities (figure 14). They inherently create a gathering space at the ground floor which can be opened onto adjacent pedestrian ways and provide a vertical connection through the section of the building.

figure 13 - Break-out spaces along circulation spines provide shaded seating areas for studying between classes, shown here at Peralta Hall.

Polytechnic Campus Key Elements

Reflect Neighboring Materials	Strongly Recommended
Pedestrian Friendly Edge	Strongly Recommended
Exterior Gathering Spaces	Strongly Recommended
Porosity at the Ground Level	Encouraged
Reinforce Open Space	Encouraged
Active Building Edge	Suggested
Central Courtyard	Suggested

figure 14 - The courtyard at ISTB 3 provides a quiet contemplative area linked to the building interior through a glazed facade.

landscape guidelines

The landscape character on the Polytechnic campus can be categorized as a desert arboretum. The campus is in fact a nationally recognized arboretum and its plant collection can be found throughout the entire campus. Future design work should respect and build upon the native Sonoran Desert plant community in addition to introducing more non-native arid desert specimens. The landscaped areas are connected by malls, nodes, lawns, outdoor/indoor transitional spaces (such as plazas, courtyards, and building entries), and spaces where the campus boundary interfaces with surrounding facilities and neighboring residential communities (such as vehicular gateways and streetscapes). Designers should not only address the form of these spaces, but also the way in which users will access them and the experience users will have traveling through them. The development and implementation of these outdoor spaces need to address the unique character of the Sonoran Desert climate, demonstrate ASU's commitment to sustainability, and enhance the unique sense of place of the Polytechnic campus. Care should be taken to create spaces that emulate the existing landscape and site detailing that exists within the campus core.

All new construction and major renovation work should comply with the ASU Office of the University Architect *Sustainable Design Guidelines* and comprehensive *Design Guidelines*. These guidelines contain detailed

Consistent paving and planting materials in malls unify the ground plane and create a distinctive campus environment.

The landscape and site furnishing materials in the malls reinforce the raw finishes of the adjacent architecture.

construction guidelines and specifications, and define the expectations involved in doing work for the University.

Primary and Secondary Malls

The primary and secondary malls at the Polytechnic campus act as conduits that circulate students, faculty, and visitors around the campus grounds. In addition to providing access to core buildings and facilities, they provide routes to parking areas, bike storage, and sidewalks that lead to points beyond the campus core. The primary function of the malls should be to facilitate the efficient and uninhibited movement of large numbers of people. The malls, where possible, should be broad with ample sight lines for ease of conflicts. Pedestrian routes within the malls should be safe, accessible, and easy to navigate. Primary malls on the Polytechnic campus include Backus Mall, Sonoran Arroyo Mall, Desert Mall, and Vermont Mall. The secondary malls include Terripin Mall, Sterling Mall, Amulet Mall, and Avery Mall.

The malls at the Polytechnic campus are inextricably tied to the architecture through form and materials. The layout of the buildings gives the malls their orthogonal form, and the building envelopes define the landscape areas associated with the pedestrian corridors. Comprised of raw materials such as stabilized decomposed granite, recycled concrete, and rusted metal accents; the landscape materials in the malls reinforce the raw finishes of the adjacent architecture. The malls and contemporary core buildings are further integrated through the use of an environmentally-sensitive arid desert plant palette. The interdependent relationship between architecture and landscape, and the unified ground plane of consistent paving,

Site furnishings such as the concrete bench and study table above, help to integrate architecture with landscape.

The connections between malls, exterior hallways, and semi-enclosed courtyards serve to meld the lines between indoors and outdoors.

Primary and secondary malls at the Polytechnic campus.

planting, and finish materials create a distinctive campus environment and should be continued and reinforced in future design work.

Primary and Secondary Mall Key Elements

- Mall design should facilitate the efficient and uninhibited movement of a large number of people.
- Primary and secondary malls should have a unified ground plane with consistent paving materials and site furnishings that are integral to the design of the architecture.
- Landscape character should exhibit an environmentally-sensitive arid desert plant palette.
- Incorporate a variety of transitional spaces outside building entries to allow for gathering without impeding traffic flow.
- Incorporate gardens with special emphasis on the microclimates created by buildings.
- Consider sun exposure and orientation when selecting materials to reduce reflected heat and glare.
- Consider a variety of ways to incorporate shade into the space.
- Create rainwater harvesting opportunities by grading manipulation of paved surfaces.
- Malls should give priority to pedestrians over wheeled traffic.
- Malls should allow access for emergency and some service vehicles.
- Utilize designated tree species palettes for malls to create consistency, and enhance mall identification and wayfinding.

This node/plaza is conveniently located off the busy flow of mall traffic. Its design incorporates raw materials that relate directly to the adjacent architecture and takes advantage of the shade provided by the metal pergola and adjacent trees

Looking east on Desert Mall, a low wall directs traffic north onto Backus Mall. The gathering space at this node provides seating without hindering the flow of traffic and showcases the innovative use of recycled materials under the shade of desert trees.

Nodes

At the major intersections of pedestrian malls are enlarged paved areas identified as nodes. Nodes should be designed to facilitate traffic flow and directional change. If gathering spaces for students and faculty or amenities (such as seating, kiosks, public art, shade structures, and accent plantings) are provided at nodes, they should be organized in a manner that does not impact pedestrian traffic flow or emergency access through the space.

The established nodes within the campus core are comprised of simple paving materials such as stabilized decomposed granite and sandblasted concrete. Some nodes provide amenities such as recycled concrete benches, and rusted metal shade structures appropriately located outside the main flow of mall traffic to allow socializing and people watching. The hardscape materials and low water-use desert plant palette exhibited at these nodes complements the raw finishes of the adjacent contemporary architecture and showcases the campus's commitment to sustainability. Future design work should reinforce this distinctive established character.

Node Key Elements

- Nodes should be designed to facilitate traffic flow and directional change. If gathering spaces are provided, they should not impact traffic flow.
- Provide flexibility in gathering spaces at nodes and allow for different types of functions by incorporating different types of seating, such as tables with chairs, permanent benches, and moveable furniture.
- Integrate directional kiosks, water features, public art, and/or accent planting appropriate to the significance of the particular gathering space.

A lawn panel near the brimming fountain at the Union provides students with a cool relaxing place to sit and socialize.

Lawn panels with cast-in-place “study tables”.

- Nodes should have consistent paving materials and site furnishings that are complementary to the design of the architecture.
- Landscape character should exhibit an environmentally-sensitive arid desert plant palette.

Lawns

Lawns provide students with cool, green places to relax and gather with friends. While not overly abundant on the Polytechnic campus, turf enables the use of a space in ways not achievable with other groundcovers or rock mulch. Lawn areas should be kept relatively open, allowing for visual enjoyment as well as recreational and gathering opportunities. They should be designed as flexible, adaptable spaces that can accommodate a number of functions.

While demonstrating a commitment to sustainability is an overarching design mandate, thought must be given to the intended function of a space and what materials can best facilitate the varying needs and uses that are programmed. The context and potential use of the space must be in balance with the overarching goals of the campus.

As the Polytechnic campus is developed, there will be central lawns in key spots to enhance the character of the university setting. Turf should not be the prevailing groundcover throughout the campus. Lawns should be strategically located, and aside from key campus gathering spots should be minimized in favor of desert-adapted xeric vegetation.

Lawn Key Elements

- Trees should be generally located around the perimeter of lawn areas to maximize usable space for gathering and recreation.
- Avoid breaking up lawn areas with paving and numerous walkways.
- Provide turf areas that are large enough in size to be useful. Small strips of lawn should be avoided.

Outdoor/Indoor Transitional Spaces

Outdoor/indoor transitional spaces are the gathering spaces between mall traffic and the interiors of campus buildings. They are crucial to the success of existing and new development on campus. It is in these spaces that students, faculty, and staff gather and socialize before and after classes. Courtyards, building entries, and plazas play a major role in blurring the line between the indoors and outdoors, and establishing the interdependent relationship between landscape and architecture on the Polytechnic campus. The success of this integration can be partially attributed to the reflection of the contemporary, raw building materials into the landscape. This relationship is fostered at a more functional level as well. Vegetative screens are currently being used to shade buildings, and courtyards are taking advantage of water features that integrate irrigation and water harvesting.

The design of these community gathering areas will be site-specific. However, they should be programmed for flexibility. Large or small, formal or informal, they should be able to accommodate a diverse number of functions and users. Where small plazas are developed, their character should

This rusted metal arbor and cast-in-place benches reflect the raw material finishes of the adjacent architecture.

Once established on the metal trellis, this Carolina Creeper vine will help shade and cool the building.

These irrigation runnels direct rainfall and supplemental irrigation to shade trees showcasing the functional relationship of landscape and architecture. .

be intimate, human-scaled, and with movable seating options that facilitate conversation or privacy. Incorporating large plazas to serve as campus gathering spaces is encouraged. This will help foster a sense of community and tie the campus together spatially.

Planting design in these transitional spaces must address the distinctive, contemporary architecture and continue to showcase the environmentally sensitive desert landscape. Courtyards and building entries should incorporate shade structures or trees to ease the transition from indoor to outdoor spaces and provide areas of respite along pedestrian circulation routes.

Outdoor/Indoor Transitional Space Key Elements

- Incorporate transitional spaces outside building entries to allow for socializing or studying without impeding traffic flow.
- Establish a unified ground plane with consistent paving materials, site furnishing materials, and arid desert plantings that complement/reinforce the raw finishes and materials of the adjacent core buildings.
- Landscape design should be complementary to the design of the architecture and help to shade windows, pedestrian corridors and gathering spaces.
- Augment the building's shade with trees or vegetative screening.
- Showcase ASU's commitment to sustainability by investigating techniques for water harvesting, such as collecting condensate from HVAC systems, reusing/redirecting rainwater runoff and recycling gray-water.
- Consider using unique specimen plantings in appropriate entry locations and microclimates.

This successful semi-enclosed courtyard provides a shady respite for pedestrians walking along the adjacent mall.

- Landscaping should be appropriately scaled to the gathering space.
- Provide flexibility in gathering spaces and allow for different types of functions by incorporating different types of seating, such as tables with chairs, permanent benches, and moveable furniture.
- Doors/entries should be well-lit with no potential hiding places.

Vehicular Gateways and Streetscapes

Spaces where the campus boundary interfaces with the surrounding community are limited and should be reinforced due to the various land uses surrounding the campus. Because the Polytechnic campus is primarily accessed by car and intercampus shuttle, vehicular portals and streetscapes are important visual indicators to those traveling to the campus, and as such should be welcoming and identifiable.

Surrounded by diverse uses (residential, agricultural, and commercial development), there is a need to demarcate vehicular gateways and streetscapes to create a campus identity with a clearly defined boundary and to provide context. Currently, landscape character is being established along Innovation Way Loop Road which forms the perimeter street edges of the central campus core. The presentation of the campus along these key streetscapes is critical to its identity as a special place within the surrounding fabric. A unified ground plane of consistent paving materials and a simple and consistent palette of trees and understory plantings for these streetscapes will help to create a more defined sense of place and cohesive identity. Special attention should also be given to

Normally mundane site infrastructure such as storm drain headwalls can be designed in such a way as to contribute to the cohesive campus identity.

This cable trellis system and creeping vine will provide a “green screen” that will reduce solar heat loading as well as screen unsightly utilities.

the Williams Field Road entrance off Power Road, as this vehicular entry represents the arrival onto the campus proper and will be the touchstone for wayfinding and identity.

Vehicular Gateways and Streetscapes Key Elements

- Create a unified ground plane of consistent paving and site furnishing materials along key streetscapes to help create a more defined sense of place and cohesive identity for the campus.
- Establish a simple palette of trees and understory plantings for all streetscape corridors.
- Provide colorful, environmentally-sensitive desert plantings that will not interfere with traffic visibility.
- Position ASU wayfinding and mall identification markers at major pedestrian portals.
- Specify structural soil in high volume areas to provide adequate soil volume for tree root growth.
- Pedestrian priority over vehicles should be established at campus gateways, by providing differences in paving materials and patterns and/or traffic calming devices.

Ancillary Spaces

When dealing with the programmatic elements and location of infrastructure, building services, and pedestrian space; the aesthetic quality and pedestrian experience of the “space” can be challenging. Placement and location of ancillary components such as backflow preventers, transformers, and refuse enclosures can have a significant impact on the function and success of the landscape and its composition. The integration of ancillary components into a project

Cast-in-place concrete water features can incorporate building condensate from HVAC systems or be used to showcase irrigation as a water feature.

This brimming fountain at the Student Union loses less water to evaporation than typical active fountains.

should be considered early in the design phase. Additional outdoor spaces and amenities that warrant landscape architectural design discretion on the Polytechnic campus include bicycle storage areas, building and site infrastructure, vehicular parking areas, and water features.

Ancillary Space Key Elements

- Screen backflow preventers, transformers, water meters, and refuse enclosures with landscape and building elements.
- Bicycle storage areas should be well-lit and screened with landscaping, vegetative fencing facades, or walls that blend with the surrounding architecture. Screening must be designed to not hinder the safety, functionality, or flow of the storage area.
- Bicycle storage placement and location should be coordinated with the campus Access Management Plan, as determined by the University.
- Utilize landscape screening and/or berms to mitigate undesirable visual effects of parking lots from roads and sidewalks on and off campus.
- Incorporate shade trees to reduce heat-loading attributed to solar exposure of parking lot pavement, and incorporate shrubs and groundcovers to ease the transition from parking to pedestrian space.
- The incorporation of bioswales, water harvesting basins, permeable paving, and structural soils is encouraged.
- Use sustainable techniques for water feature design whenever possible.

Fletcher Library

west
campus

existing conditions + needs assessment

Overview

In 1986, ASU started construction on its West campus. Located in western Maricopa County, the ASU's West campus is comprised of 278 acres. At the time of this update, the campus has 861,546 gross square feet (gsf) of space in 14 buildings. The campus includes 62 acres along the east edge, which is reserved for future public/private partnership, and 50 acres that is a dedicated City of Phoenix community park at the southwest corner. As of fall 2011, total enrollment at ASU's West campus was 5,916 students.

2011 West Campus Metrics:

- 278 acres
- 5,916 enrollment
- 337 beds (6%)
- 861,546 GSF
- 2,811 parking spaces
- existing campus density: .07 F.A.R.
- core campus density: 0.17 F.A.R.

Context

The West campus is unique in ASU's system from its inception and implementation as a fully master planned campus. The physical layout and architecture, consisting of brick academic buildings, present a formal campus atmosphere. The framed open spaces, lush courtyards, shaded walkways, formal entry drive, streetscape, and symmetry also define this almost corporate campus-like atmosphere. Located on the western edge of the Phoenix city limits, the entire campus property is bounded by Thunderbird Road to the north, Sweetwater Avenue to the south, and 51st Avenue and 43rd Avenue to the west and east. All of the academic, administration, and research activity on the campus is centrally located. Existing community commercial development is located to the north and west of the campus, and single-family residential is located to the east and south. The main entrance to the campus is centrally located and approaches from Thunderbird Road. This gateway is prominent and immediately gives a sense of arrival to the ASU West campus. The view corridor from the entry leads over the formal courtyard open space terminating on the façade of Fletcher Library.

The only existing student housing is the residential development of Las Casas, located on the western edge of campus. At the time of the Master Plan Update, new student housing construction is

West Campus Existing Conditions Plan

LEGEND

- ASU WEST CAMPUS
- CITY OF PHOENIX/ASU PARK
- ASU ATHLETIC AND RECREATION FIELDS
- ASU BUILDINGS
- NON-ASU BUILDINGS
- 5-MINUTE WALKING RADIUS

0' 800'

Existing Building Key:

1. Las Casas Housing
2. Central Service Center
3. Central Plant
4. Welcome Center
5. University Center
6. Faculty Office/Administration
7. FAB Annex
8. Sands Classroom and Lecture Hall
9. Classroom / Lab / Computer Classroom
10. Lecture Hall
11. Fletcher Library
12. Classroom Annex
13. Academic Annex

View across the formal central axis of Fletcher Lawn towards Fletcher Library.

beginning between Las Casas and the campus core, along with a new dining facility and student recreation center on the western edge of campus. These new developments are intended as a catalyst for student life, which will aid in the future growth of the campus. Located at the southwestern corner of the property is the City of Phoenix/ASU West Community Park. This is a highly active park that ASU is utilizing for intramural activities, with the recent incorporation of three recreation fields.

Planning Challenges

Currently, the ASU West campus's largest challenge is to attract students and grow its enrollment. The lack of a critical mass of on-campus housing and related student life facilities is one factor that has hampered its growth. Finding the right academic mix, supported by the right physical environment and facilities is the biggest challenge facing West campus. To grow the current enrollment to 15,000 students by 2020, the West campus needs to grow its academic variety, which will aid in offering western Maricopa County much needed higher education.

The West campus has a high volume of commuter traffic, which requires a significant number of parking spaces. As the campus grows, this will require an even greater amount of surface parking lots, and possibly a parking structure. The lack of student housing on and off campus, the lack of public transit in the area, and the lack of student centered retail and commercial services, forces students to rely on driving and single-occupancy vehicles, reinforcing it's identity as a commuter campus.

Since the initial development of the West campus, much of the land remains vacant. A large open space area at the eastern edge of the campus is being reserved for future public/private partnership development. However, the current economic status of the region will stall demand for development on the eastern half of campus for the foreseeable future.

Planning Opportunities

The biggest assets and strongest planning opportunity of the West campus is its land holdings, its spatial organization, and the quality

Students enjoy working next to the Fletcher Library reflecting pool.

Water features offer respite for studetns in the warm climate.

of its facilities. The West campus has sufficient land to meet the enrollment goals of 2020 through efficiently utilizing existing buildings, as well as constructing new buildings. The layout of the campus is centrally located, and will be bounded by the completion of the proposed loop road, forming a compact central core. While the current draw to the West campus is academics, the recent plans to build more student housing, a student recreation center, and dining facilities will strengthen a sense of student life on campus. As more students are encouraged to reside on campus, the West campus could evolve into a more traditional residential liberal arts college and become an educational anchor for western Maricopa County.

The present architecture and layout of the campus gives the West campus a strong sense of place. This rich campus character and its architecturally strong visual axis can be easily extended to create an organizational framework for future campus expansion. The original grounds were developed as a lush water intensive landscape. In support of the university's sustainability goals, the campus can strategically transition to a low-water use regional landscape at its edges, while embracing the original intent of the formal landscape design at its core.

The high amount of surface parking lots has provided an opportunity to build shade structures with photovoltaic systems, generating solar energy and covering parking stalls. This system and the newly installed solar field on the west edge of campus will help to generate 25% of the university's power. More opportunities for solar tracking systems can be incorporated in the future.

Opportunities to engage the surrounding community at West campus include the potential for public/private development of the east end of campus for future housing and commercial mixed use, helping to support economic development in the region. A second community opportunity is the inclusion of an ASU preparatory academy on campus to meet the growing demand for high level K-12 public education in this district. The joint ASU and City of Phoenix community park at the southwestern corner of the campus provides recreation fields and student intramural activities, as well as much needed open space for the community, students, faculty, and staff.

Existing Facilities by Broad Category:	
Academic/Research/Support Uses	750,176 GSF
On-Campus Housing and Support	111,370 GSF
Total	**861,546 GSF**

Table 6.1: West campus existing facilities by broad category

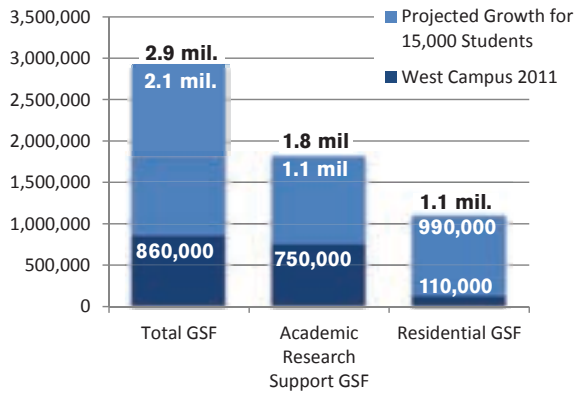


Chart 6.2: West campus future space needs by broad categroy.

Future Space Needs	Total	Academic/Research/Support	Residential
Existing Campus 2011	861,546 GSF	750,176 GSF	111,370 GSF
Future Need 2020	2,059,130 GSF	1,073,820 GSF	985,310 GSF
2020 Total	**2,920,680 GSF**	**1,824,000 GSF**	**1,096,680 GSF**

Table 6.2: West campus future space needs by broad category

Projected Enrollment

A detailed space needs assessment was conducted for the 2006 Comprehensive Development Plan. This Master Plan Update is driven by future enrollment targets established by the university for the West campus. Aligning with the 2006 plan, the 2020 enrollment target for the West campus has remained at 15,000. Although some of that enrollment growth may be online learning, the update has assumed that number as the future campus population and the basis for growth.

Future Space Needs

To understand an order of magnitude for future space needs to serve a student enrollment of 15,000, the planning team considered the current assignable square feet (asf) and gross square feet (gsf) per student for academic, research, auxiliary, and support uses as a planning benchmark. The West campus has an average ratio of 76 asf/122 gsf per student over the last few years of enrollment. This is close to comparable planning ratios and has been utilized to project the future space needs on campus. This ratio results in up to 1,073,800 gsf projected for new academic, faculty research, and support space on campus. It should be noted, however, that there is a significant amount of underutilized space on campus. A space utilization review should be conducted to refine total future demand.

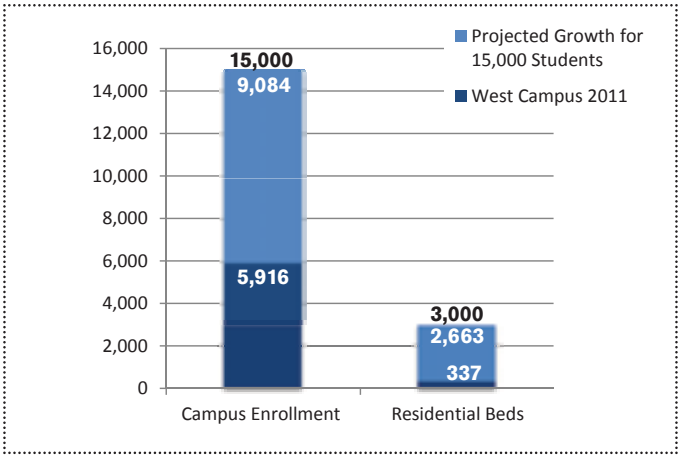


Chart 6.3: West campus residential program projected growth.

Residential Program Goals:	2011	2020
Total Enrollment	5,916	15,000
On-Campus Housing (Beds)	337	3,000 (20%)

Table 6.3: West campus residential program goals.

The Fletcher Library reflecting pool provides a place of respite on campus.

On-Campus Housing

In 2003, ASU opened the doors to its first phase of housing on the West campus. Las Casas contains 337 beds, is three-stories, and is the only residential facility on campus. With this facility, the university has 111,370 gsf of residential use on campus, housing approximately 6% of its student population.

The ASU Office of Student Affairs Department of Residential Life has set a target of housing 20% of the future population on campus. With expected growth to 15,000 students, the West campus would need 3,000 beds on campus, adding over 2,660 beds to reach its goal.

Future residential needs were translated into gross square feet to support 20% on-campus housing. Las Casas was the first housing model on campus, and the calculated square foot average would be 330 gsf per bed, which is lower than the national average. An assumption of 370 gsf per bed was used to accommodate 2,660 new beds. This does not include any replacement square footage for demolition or redevelopment of existing units.

Future Facilities

Current projects in planning and design, and interviews with the Office of the President, Executive Vice President and Provost, University Planner, Office of Knowledge Enterprise Development, Office of Business and Finance, Office of Student Affairs, and many others identified a more qualitative list of facility types to

provide new academic, support, and collaborative learning space on campus. These include the following:

- A 500-seat lecture hall.
- Two 150-seat computer labs for Mathematics/English instruction and tutoring.
- Future academic growth.
- On-campus housing, dining, and related amenities.
- Student recreation center and recreation fields.
- Central Plant expansion.
- Student health center.
- Solar fields.

Current and Projected Parking

The university manages 2,811 parking spaces located in several surface parking lots generally distributed around the perimeter of the campus core. Taking into consideration faculty and staff, the total campus population is approximately 6,988. This results in 2.5 people per parking space, a 2.5:1 parking ratio. That ratio is average when compared to other suburban university campuses across the country with limited access to public transportation and transit. To help achieve the university's sustainable transportation goals, ASU should look to partnerships with western Maricopa County and local municipalities to improve transit service to campus.

The West campus has sufficient parking to serve its current needs, and sufficient land to serve future growth with predominantly surface parking. Using a modest gain in parking ratio of 3.0:1 people to parking space, the university would need to provide 5,460 spaces to accommodate the build out of the West campus, a net increase of 3,550 spaces, not including the replacement of spaces displaced by construction. While this is a planning assumption, a more detailed parking utilization study should be conducted to determine the actual current and future parking need.

Students relaxing in the University Center Courtyard.

framework plan

The Framework Plan is generated to help determine campus capacity for future growth on land owned by the university. It outlines sites on campus for future development. These sites are composed of undeveloped land, surface parking, and redevelopment of occupied space. The sites were identified based on discussions with OUA, Real Estate staff, and other guiding committees.

These sites include:

- Sites east and west of the main entrance
- Sites west of the University Center Building (UCB)
- Sites east of the Faculty Office/ Administration Building (FAB)
- Sites east of the Classroom/Lab/ Computer Classroom Building (CLCC)
- Development on Lot 20
- Sites north of Lot 1 and Lot 2
- Site west of the Central Plant/ Police Office
- Infill sites adjacent to Las Casas housing complex

An initial campus capacity was established for future growth, based on the acreage of development sites, tested against various density ratios (Floor Area Ratios) that the university wants to achieve per campus. Many future development sites are located on existing surface parking lots, which will be relocated to perimeter areas, and/or consolidated into parking garages.

The Framework Plan is intended to guide the location of future development to appropriate sites on campus. Many of the development sites on the West Campus are either undeveloped land or surface parking lots. An open space framework was also prepared to ensure that successful campus spaces, open space areas, storm water management, and pedestrian and vehicular circulation corridors are preserved, as the spatial organization for future growth. The open space framework also proposes the location of future campus spaces to ensure that new development will have sufficient areas for pedestrian circulation, outdoor rooms, recreational areas, and places to gather on campus. The Framework Plan forms the basis for the Master Plan, and is intended to remain a flexible tool to accommodate new or unanticipated needs.

Open Space and Development Framework Plan

0’ 800’

*Numbers on plan correspond to gross acreage available for development per site, and not building gross square footage.

LEGEND

- PRIMARY PEDESTRIAN MALL
- OPEN SPACE
- ATHLETICS AND/OR RECREATION
- PAVED STORMWATER RETENTION AREA
- STORMWATER RETENTION AREA
- PROPOSED DEVELOPMENT OPPORTUNITIES
- LONG-RANGE PUBLIC/PRIVATE PARTNERSHIP OPPORTUNITIES
- SOLAR-COVERED PARKING
- ASU BUILDINGS
- ASU PROPERTY LINE

Trees provide shade along a pedestrian mall.

Covered walkways provide shade for pedestrians in this arid climate.

master plan recommendations

The West Campus Master Plan Update proposes sites for the construction of up to 2.18 million gsf of new academic, research, support, and residential development. This includes replacement space for 20,880 gsf. The net gain of new development is up to 2.16 million gsf.

New Academic, Research, and Support Space

New academic, administrative and support space is proposed in three- to four-story buildings primarily located within the campus loop road. Future buildings form a roughly concentric circle around the existing core of buildings, playing off of the formal axial walks and views established in the original plan. Two iconic buildings are proposed at the main entrance to the campus, bringing the presence of the university closer to Thunderbird Road and to the surrounding community. The scale and architecture of these gateway buildings is intended to complement the formal landscape design and palm grove of the entry boulevard. All future buildings will be laid out to efficiently maximize solar orientation and frame the central green, courtyards, and open space. Specific programs and uses are not identified, and building footprints are kept general, to allow for future modification and refinement as programs are identified.

Residential Districts

To accomplish the university's goal of housing 20% of enrolled students on campus, the West Campus master plan proposes the creation of a new student neighborhood on the west side, as infill next to the existing Las Casas housing and new construction between the academic core and the west edge of campus.

This would equate to a total of 3,000 beds, an increase of 2,660 beds over current supply. A first phase residence hall, dining, student recreation center, and recreation fields are currently in design or under construction. Three additional residential buildings will be developed adjacent to this first phase. New residential infill west and south of Las Casas helps define a new western entrance, creating a forecourt of housing and student activity space.

Student Recreation

New recreation fields are located within the shared community park south of campus. A new Student Recreation Center is currently in design for the campus, creating a more active student life zone off of the central campus green. Existing outdoor courts and volleyball will be relocated to the new recreation center.

West Campus Illustrative Master Plan

LEGEND

- PROPOSED DEVELOPMENT
- PLANNED DEVELOPMENT
- PROPOSED PARKING STRUCTURE
- EXISTING CAMPUS BUILDING
- FUTURE DEVELOPMENT OPPORTUNITIES
- NON-IRRIGATED DESERT LANDSCAPE
- IRRIGATED LANDSCAPE
- RECREATIONAL FIELD
- SOLAR FIELD
- SOLAR-COVERED PARKING
- PROPERTY LINE

Key Elements:

1. Academic expansion
2. Future residential development
3. Solar installations over surface parking
4. Community economic development
5. Phase I residential, dining, and student rec center

Vehicular Circulation

The design, landscape and character of the existing main entrance serves the campus well as its primary front door. The existing internal campus roadway will be completed to form a continuous loop road surrounding the campus. A new western entrance road off of 51st Avenue is proposed to enter campus and intersect the loop road along one of the pedestrian malls and visual axis that leads to the central campus green. Future parking, located at the perimeter of campus will be easily accessed off of the new loop road.

Campus Green

The existing recreation field west of the Kiva and Sands Building is proposed as a central campus green located between proposed residential buildings, the academic core of campus, proposed

student dining and the recreation center. This space will provide a commons and gathering space for on-campus students, commuter students, faculty and staff. It is scaled as a large enough space to continue its use for informal recreation and events. An icon such as a campus tower or campanile is proposed at the edge of this green, on the visual axis from the western entrance.

Pedestrian Malls

A strong network of pedestrian malls has been incorporated into the proposed development of the West Campus. Proposed pedestrian malls expand the campus character to the east, west, and south, continuing the tradition of shaded, tree-lined walks and arcades. The major north-south axis from the entry procession across Fletcher Lawn and terminating at Fletcher Library will continue on the south side of the library, carrying this axis through the entire campus. This will serve as the central spine to future campus development. While generally located on a straightforward grid, some malls are interrupted by the placement of future buildings to terminate a view and enclose a space. Malls and walks are extended to provide convenient pedestrian access through surface parking lots and to the recreation fields located in the City of Phoenix/ASU West Community Park.

Proposed Parking

The West Campus has a large amount of commuter students, which gives this campus a low parking ratio. This is primarily due to the low amount of residential beds on campus. Its current ratio of people to parking space is 2.5 to 1. This is comparable to other suburban universities in other regions. In order to accommodate future development on campus, some surface parking lots will be displaced by construction. There are currently 2,811 surface parking spaces on campus. The proposed plan shows future surface parking for 4,610 spaces, a net gain of close to 1,800 spaces. This would raise the parking ratio to 3.5 people per parking space for the projected campus population based on an enrollment target of 15,000 students. This ratio may be too aggressive for a campus that lacks access to reliable public transit. Additional surface parking could be constructed on the land reserved for future public/private development to the east of the ring road, until demand for the land displaces parking. At that time, the university may need to consider building a parking structure for West Campus.

The installation of solar covered shade canopies to cover proposed surface parking lots will create the opportunity to gain additional clean power without tying up vacant land reserved for future development. The solar canopies will aid the university in its net zero carbon goals, provide users with shaded parking, reduce the heat island effect, and make the university's sustainable vision visible to the community.

Public/Private Partnership

In previous master plans for the West Campus, the majority of the eastern edge was allocated for public/private partnership opportunities, which will stimulate economic growth in western Maricopa County, and activate the campus as well as the surrounding neighborhood. The loop road will delineate the property's boundary adjacent to campus.

West Campus Building Use Plan

0' 800'

LEGEND

- FUTURE DEVELOPMENT OPPORTUNITIES
- PROPOSED ACADEMIC / SUPPORT
- PROPOSED RESIDENTIAL
- PROPOSED TOWER / LANDMARK
- EXISTING CAMPUS BUILDING
- EXISTING NON-CAMPUS BUILDING
- NON-IRRIGATED DESERT LANDSCAPE
- IRRIGATED LANDSCAPE
- RECREATIONAL FIELD
- SOLAR-COVERED PARKING
- PROPERTY LINE

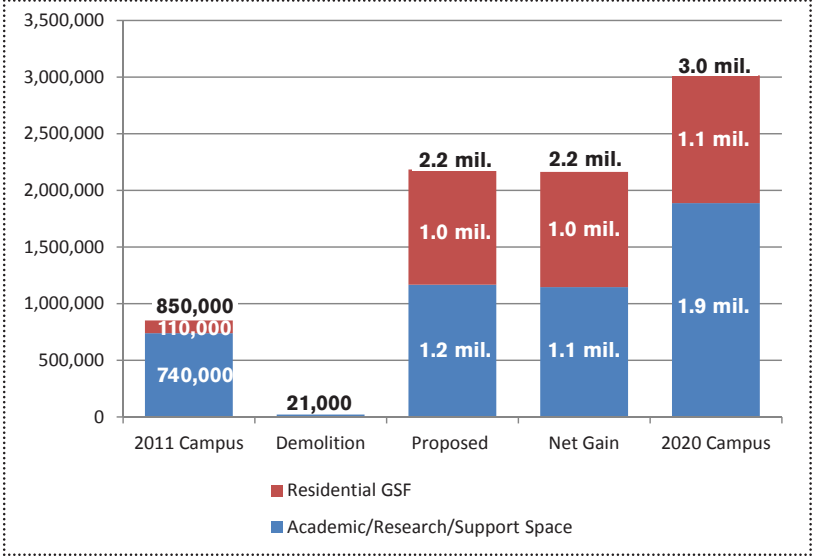


Chart 4.4: West campus proposed growth and net gain by broad category.

West Campus Master Plan	2011 Campus	Demolition	Proposed	Net Gain	2020 Campus
Academic/Research/Support Space GSF	740,176	20,881	1,168,000	1,147,119	**1,887,295**
Residential GSF	111,370	0	1,016,000	1,016,000	**1,127,370**
Total GSF	**851,546**	**20,881**	**2,184,000**	**2,163,119**	**3,014,665**
Parking Spaces	2,811	N/A	4,610	1,799	**4,610**

Table 4.4: West campus proposed growth and net gain by broad category.

Existing Conditions Model

Proposed Conditions Model

access management

West Campus is located on a large, rectangular parcel of land with several access roads leading to an internal loop road (University Way North & South). The core academic and administrative buildings are grouped together inside the loop road and there is more than adequate surface parking located on the north and south perimeter, away from the internal network or connecting pedestrian pathways. There remains substantial undeveloped land on the parcel allowing for the future growth and expansion of the campus and amenities.

West Campus isn't currently experiencing the same degree of access management issues and conflicts that are prevalent on the Tempe Campus; but some observations were made that suggest as the West Campus is furthered developed and the numbers of students, faculty and staff increase, many of the same conflicts with pedestrians, vehicles, carts, and bicycles may arise.

Although the implementation of a "Pedestrian Safety Zone" may never be necessary on the West Campus, the University will need to develop clearly defined service access routes to maintain access to all campus buildings and accommodate the daily access needs and necessary services, and bicycle and cart access paths to traverse campus to keep these types of wheeled travel (including vehicles) off the internal network of connecting pathways and shaded breezeways.

Analogous to the other ASU campuses any educational campaign that is initiated should be extended to the West Campus; and physical improvements should be made including signs, pavement markings, and other similar items to maintain the integrity of pedestrian walkways and delineate authorized access routes or paths for wheeled travel and vehicles.

The same campus planning guidelines, governing University policies and regulations, regular and consistent enforcement practices, and all other relevant physical access management improvements proposed at the Tempe Campus should be extended to the West Campus.

Internal pathways dedicated to pedestrian movement on West Campus.

architectural guidelines

Campus Planning at ASU West follows a classical organization with a primary axis extending along the ceremonial main entrance on Thunderbird Road off 47th Avenue. This axis continues through an outdoor mall and Fletcher Lawn, terminating at Fletcher Library. Significant buildings in the campus core are arranged symmetrically to either side of this primary axis, with surface parking lots creating a cross axis in wide bands to the north and south of the core buildings.

The campus core buildings create a distinct environment through their form, density, and circulation diagram. Representative of the postmodern era in which they were designed, the building forms have strong classical references and can be interpreted as reductive or subtractive efforts applied to solid, monolithic masses. Walls and columns are expressed as thick elements, primarily articulated with masonry veneer and repetitive concrete banding, arch, and base details. Deeply-set punched windows predominate, with ground-level shallow-arch details breaking the otherwise orthogonal nature of most buildings. The relatively rigid grid is broken at distinct intervals, such as the thick, planar arcade walls at the campus entry, the circular plan of the Classroom/Lab/Computer Classroom (CLCC) building courtyard, and the protruding semicircular mass on the south facade of the Fletcher Library. The pedestrian experience is generally defined by open colonnades that are intermittently open to the sky.

All new construction and major renovation work should comply with the ASU *Sustainable Design Guidelines* and comprehensive *Design Guidelines*, which impact the programming, design, and construction of all major ASU projects and define the relationships and expectations involved in doing work for the University. The Design Guidelines also contain an outline specification with detailed construction guidelines, ensuring that the quality of buildings constructed on campus reflects the long-term horizon of ASU's mission. Design and construction decisions should reflect this outlook with a 100-year horizon, emphasizing institutional quality construction and life-cycle maintenance and cost analyses.

Building design should be flexible to allow for adaptations in use, utilizing established construction methods, standardized components, and minimizing custom systems. It is also important to recognize the limited supply of land available to the University, and to efficiently utilize sites with compact footprints allowing for maximum future development.

As a primarily pedestrian campus it is the public spaces in between buildings—malls, courtyards, quads and gardens—that form the common environment. As such, there is an intrinsic and symbiotic relationship between architecture, planning, and landscape design. Buildings should take a definitive stance to the mall system, either being pulled up close to the mall to provide definition and shading, or purposefully

pulled back to create a programmed pedestrian gathering space. Large unoccupied setbacks are discouraged since they do not efficiently use the site and do not reinforce the pedestrian environment. Design of individual buildings should recognize this and make efforts to accommodate impromptu meetings, outdoor study, and other types of gathering with ample space, seating, and shade. These spaces also act as mediators between the rapid pace of mall traffic and a building's entry, providing a necessary transition zone (*figure 1*). The potential of these exterior spaces to link together or occur unexpectedly is an exciting opportunity to create memorable moments; hidden courtyards and shaded paseos give a desirable character to the experience of campus (*figure 2*). Exterior circulation can move through the buildings with landscape areas being defined by building envelopes rather than acting as a peripheral garden around object buildings. New buildings should follow this example, emphasizing semi-enclosed courtyard spaces that let out onto circulation routes, blurring the boundary between mall, courtyard, and exterior hallway.

Establishing a relationship between landscape and architecture should also occur at a utilitarian level which can still be expressed and celebrated. Rain scuppers can feed specific trees, condensate lines can be linked to irrigation systems, and vegetation can become an integral skin shading the building. These details should be expressed in a more formal or restrained way that is in keeping with the architectural expression of the campus.

figure 1 - Building Entry, West Campus. Special attention should be given to creating shade and seating around building entries.

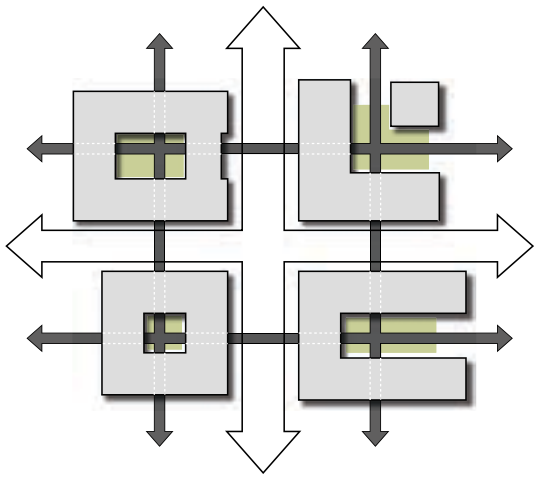


figure 2 - The existing campus core can be described as a series of interconnected courtyard spaces that provide a secondary layer of

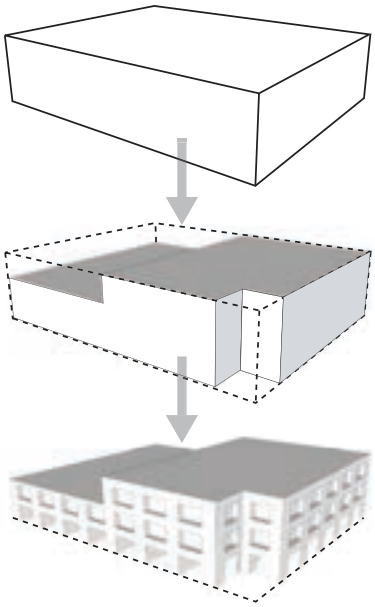


figure 3 - Building geometry is extracted from a planimetric extrusion with entries, windows, and other features removed.

figure 4 - West Campus. A detached wall reads as a geometric volume rather than a planar element in the landscape.

The key focus of development on the West Campus is to maintain the existing cohesive campus feel while promoting architectural innovation and relief to the general homogeneity of the campus, as befits an institution that promotes creative thought, entrepreneurship, and innovation. Although the campus can currently be categorized as mostly post-modern, future development should explore contemporary architectural trends while retaining some of the core material and expressive aspects currently utilized by the core buildings.

Geometrically, the grain of the campus grid corresponds closely with the scale of buildings resulting in buildings that form entire blocks unto themselves. Rather than a single primary elevation buildings front on to three or four pedestrian malls. Services should be consolidated and screened between buildings on secondary or tertiary walkways with main entrances off of the designated primary malls.

As a formal methodology, massing should be realized as a subtractive process, starting from the extruded block defined by the edges of adjacent malls, with courtyards, apertures, and details “carved out” of the initial volume. Think of windows, entrances, and walkways as recesses rather than planes or objects (*figure 3*). This approach solves solar control issues, with self-shading openings and the allowance for well-insulated exterior walls. Where legible as planar or singular elements (columns, for example) the designer should consider emphasizing the mass of the feature (*figure 4*), although trellis elements may be used as infill and to enhance shading.

The campus’ material language is rather limited and has the potential to be expanded with other types of masonry and concrete construction. These materials reinforce the massiveness of

existing buildings and can be integrally colored to coordinate with the existing duo-tone palette of the campus. New buildings should also respond to the ubiquitous horizontal banding with masonry details (as on the existing buildings) or with other architectural elements.

Dealing with infrastructure and building services in a tightly contained environment poses a challenge to the pedestrian interface and aesthetic integrity of a project. Pragmatic challenges such as the location of backflow preventers, water meters, and refuse enclosures have a significant impact on the overall success of the building and its composition, and need to be considered as an integral part of the design. Whenever possible, services should not be located on a primary mall (as defined by the master plan) or be on the same elevation as the building's front entrance. Zones for meters, switchgear, etc. should be designed into the project at an early phase to ensure that they are properly integrated into the site development (*figure 5*). All service functions and equipment should be screened from view by either vegetation or site walls.

Parking garages, if introduced on the campus, need to be considered as part of the aesthetic experience of the University. Where a garage is adjacent to a pedestrian mall it should incorporate a programmatic veneer to help activate the mall and adhere to the goal of "Pedestrian Friendly Edges" set elsewhere in these guidelines. The cladding material on the garage should respond to the finish material of the adjacent buildings and landscape or greenscreens can be used as further screening (*figure 6*). Parking garages should not be taller than neighboring buildings, and should be designed to incorporate photovoltaic panels on the top parking deck.

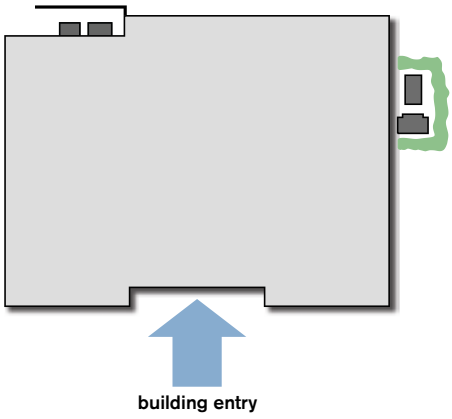


figure 5 - Building Services should occur away from the front entry and be screened from view.

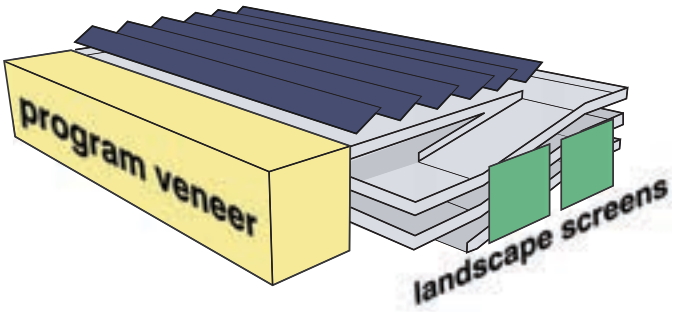


figure 6 - Parking garages have the same responsibilities and opportunities to address environmental, aesthetic, and experiential concerns as other buildings on campus.

figure 7 - Campus map highlighting the West Campus' "Central Core" (brown), an area where there is a particularly important relationship to the pedestrian environment.

A number of additional considerations regarding specifics of building design apply based on a project's location on campus (*figure 7*). While all of these elements are potentially beneficial to a building's design, it should be decided between the design team and the University Architect which strategies will be pursued.

Active Building Edge

Allowing for an active building edge has as much to do with architectural and site design as with programming. Although this could include retail areas in certain conditions it is more broadly considered here as promoting the types of spaces that are highly visible and encourage people to engage the building who would not otherwise do so. This could include gallery and display space, open study lounges, or even transparency into teaching spaces and labs (*figure 8*).

Pedestrian Friendly Edge

Most people on campus will never go into most buildings but they will still interact with them by walking past them. Where a building is pushed tight against a mall or quad it should respond to this condition with an appropriate scale and materiality. On the east, south, and west facades exposed metal skins and screens should not meet the ground in order to prevent excessive radiation and reflection of heat.

Massing should be broken up to acknowledge the pedestrian scale and create a pleasant experience (*figure 9*). The designer must consider how the building meets the ground and there should be some transitional articulation differentiating this area from the building above. This could include a material transition, step in the facade, or overhang/arcade to help shade the mall.

figure 8 - CGCC Ironwood Hall. Display areas, glazing, and study spaces serve to activate mall edges in addition to retail uses.

figure 9 - Fulton Center, Tempe Campus. Shaded walkways and glazing help create a comfortable walking environment along building edges.

figure 10 - ISTB II on the Tempe Campus is an excellent example of creating a public passageway through the building.

figure 11 - Polytechnic Campus. Break-out spaces along circulation spines provide shaded seating areas for studying between classes.

It is also encouraged to break up the horizontal massing, using entries or other articulations to avoid long, continuous stretches of blank wall.

Reinforce Open Space

Looking at the figure/ground relationship of campus the legibility of malls and quads are dependent on the form of the buildings surrounding them. Buildings should have a minimal setback in relationship to the edge-of-mall that is proportional to their height (i.e. taller buildings may be set back further while still providing adequate spatial definition). In general buildings should have a relatively vertical edge at least three stories high fronting onto any figural open spaces, such as primary malls or designated quads.

Reflect Neighboring Materials

One of the primary goals of these guidelines is to help institute a regularity into the architectural design of ASU's campuses in order that they have a more defined sense of place. A major part of this effort is to harmonize the materiality of new structures with existing buildings. This does not imply that new construction should stylistically copy its neighbors but that a building's context should inform its design and that certain common threads (such as massing, scale, proportion, datums, rhythmic elements and materiality) should aid in unifying the campus.

Porosity at Ground Level

Opening up the ground floor of buildings creates easier circulation on campus and the opportunity for shared outdoor spaces accessible to the whole University community (*figure 10*).

Create Exterior Gathering Spaces

Providing areas for students to congregate outside of buildings is essential to creating active pedestrian malls and encouraging discussions outside the classroom environment. Whereas malls are designed to move people there should be easily-accessible transition spaces near building entries that both help maintain traffic flow and allow socializing, people watching, and studying. Such spaces should have seating, shade, vegetation, and opportunities for dining and refreshment (*figure 11*).

Central Courtyard(s)

Courtyards provide a strong organizing element for a building, allowing circulation, landscape, daylighting, and passive cooling opportunities. They inherently create a gathering space at the ground floor which can be opened onto adjacent pedestrian ways and provide a vertical connection through the section of the building (*figure 12*).

figure 12 - A shaded courtyard and fountain create a pleasant gathering space at Delph Courtyard on ASU West.

West Campus Key Elements

Pedestrian Friendly Edge	Strongly Recommended
Reinforce Open Space	Strongly Recommended
Reflect Neighboring Materials	Encouraged
Exterior Gathering Spaces	Encouraged
Central Courtyard	Encouraged
Porosity at the Ground Level	Encouraged
Active Building Edge	Suggested

landscape guidelines

From the lush plantings framed with mature Elm trees at the main entrance off Thunderbird Road, to the formal gardens, shady Fig tree allées, and the expansive Fletcher Lawn at the campus core; ASU West is truly a "formal green" in the desert. The campus exemplifies the use of shade trees, and the formal gardens with manicured hedges are integral to the classical campus composition and the formality of the architecture. There is also a very successful established landscape character exhibiting native and desert adapted plant materials along the perimeter of the entire campus. The campus edge serves as the transitional area that links the formal campus to the surrounding diverse landscape of North Phoenix and East Glendale.

All new construction and major renovation work should comply with the ASU Office of the University Architect *Sustainable Design Guidelines* and comprehensive *Design Guidelines*. These guidelines contain detailed construction guidelines and specifications, and define the expectations involved in doing work for the University.

A Fig tree allée provides dense, continuous shade along this pedestrian mall.

The primary mall and Fletcher Lawn tie the campus together spatially.

Malls

The primary axis through campus begins at the main vehicular entrance at Thunderbird Road, transitions through the main pedestrian mall and Fletcher Lawn, and terminates at Fletcher Library. The primary mall and lawn not only facilitate

This primary mall reinforces the symmetrical campus composition while complementing the adjacent architectural finishes at the ASU West campus.

The ground plane at ASU West is unified through consistent paving materials and patterns that are complementary to the architecture.

the efficient and uninhibited movement of large numbers of people; they also foster a sense of community and tie the campus together spatially.

Landscape architectural design within primary malls should continue to reinforce the cohesive pedestrian environment and the symmetrical arrangement of the campus architecture. The established materials palette at ASU West is fairly limited, however the consistent palette contributes to the cohesive campus identity. Future work on campus should preserve the consistency of design choices across the campus to unify the grounds through materials, paving patterns and site amenities. New hardscape and site furnishing materials should compliment the postmodern architecture, and paving materials should conform to the existing brick and aggregate banding and concrete fields.

Mall Key Elements

- Mall design should facilitate the efficient and uninhibited movement of a large number of people.
- Malls should have a unified ground plane with consistent paving materials and site furnishings that are complementary to the architecture and conform with existing paving patterns and materials.
- Consider the value and location of existing shade trees during the conceptual design phase. The preservation of existing shade trees and successful formal gardens is strongly encouraged.
- Incorporate a variety of gathering spaces and gardens, with special emphasis on the microclimates created by buildings along major pedestrian routes.

The University Center courtyard provides a flexible place to gather with ample shade, movable furniture, and a cooling water feature.

Shaded seating areas along pedestrian routes and near building entries provide essential gathering spaces and respite from the hot desert climate.

- Consider sun exposure and orientation when selecting materials to reduce heat and glare.
- Malls should give priority to pedestrians over wheeled traffic.
- Use a simple and consistent palette of tree species in malls that will provide ample shade, create consistency and mall identification, and enhance wayfinding.

Outdoor/Indoor Transitional Spaces

Outdoor/indoor transitional spaces are the necessary transition zones between the rapid pace of mall traffic and the interiors of campus buildings. They are crucial to the success of the existing and new development on campus. It is in these spaces that students, faculty, and staff connect, gather, and socialize. Building courtyards, entries, and plazas play a major role in blurring the line between the indoors and outdoors, and establishing the interdependent relationship between landscape and architecture. The existing campus exemplifies the use of formal open colonnades and shady arcades. Coupled with numerous semi-enclosed courtyards these spaces create a series of repetitive and exciting pedestrian connections and areas for respite.

Future design of these community gathering areas will be site-specific. However, they should be programmed to be flexible. Large or small, they should be able to accommodate a diverse number of functions and users. Where small plazas are developed, their character should be intimate and human-scaled, with movable seating options that facilitate conversation or privacy. Courtyards and building entries often provide opportunities to use unique specimen plants that thrive in the

Fletcher Lawn provides a large flexible gathering space for students to gather and host events.

Locating trees around the perimeter of lawn areas creates maximum usable space for gathering and passive recreation.

Lawn areas at the main vehicular entry are welcoming cues for visitors to the “formal green” interior of the campus.

microclimates created by the architecture. These spaces should be shady either with the aid of shade structures or trees and are ideal places for cooling water features.

Outdoor/Indoor Transitional Space Key Elements

- Planting design should emphasize the building’s entrance and reinforce the formal campus composition and architecture.
- Consider using unique specimen plantings in appropriate entry locations and microclimates.
- Design paving that leads visitors to building entrances.
- Landscaping should be appropriately scaled to the gathering space.
- Provide flexibility in gathering spaces and allow for different types of functions by incorporating different types of seating, such as tables with chairs, permanent benches, and moveable furniture.
- Consider a variety of ways to incorporate shade into transitional spaces from trees and vegetation screens, to fabric awnings and entry coverings. Do so in a way that respects the formal architectural expression of the campus.
- Implement inventive water reuse strategies such as rainwater harvesting, HVAC condensate collection and gray-water recycling, that display ASU’s commitment to sustainability where possible and appropriate.

Lawns

The ASU West campus owes much of its existing character to formal elegant lawn spaces in the heart of the campus, which should be preserved. Lawns enable the use of a space in ways not achievable with other groundcovers or rock mulch. Lawns provide students with cool, green places to relax and gather with friends. Fletcher Lawn not only ties the campus together spatially, but as a large central space on campus that allows for large groups to gather or host various events and functions, it serves to foster a sense of community. Lawn areas should be kept relatively open, allowing for visual enjoyment as well as providing recreational and gathering opportunities. They should be designed as flexible, adaptable spaces that can accommodate a number of uses. The context and potential use of the space must be in balance with the overarching goals of the campus.

In addition to the lawn areas in the pedestrian core, there are two large turf detention basins on either side of the primary vehicular entrance off Thunderbird Road. These lawn areas provide a strong green presence visible from outside the campus boundary and are a welcoming cue for visitors to the “formal green” interior of the campus.

Lawn Key Elements

- Trees should be generally located around the perimeter of lawn areas to create maximum usable space for gathering and recreation.
- Avoid breaking up lawn areas with paving and numerous walkways.
- Provide turf areas that are large enough in size to be useful. Small strips of lawn should be avoided.

These large bronze entry gates serve as a recognizable pedestrian portal on the ASU West campus.

Pedestrian and Vehicular Portals and Streetscapes

Spaces where the campus boundary interfaces with the surrounding community include limited pedestrian and vehicular portals and streetscapes. Campus portals, both for vehicular and pedestrian users, are important visual indicators to those traveling to the campus, and as such should be welcoming and identifiable. The ASU West campus is surrounded by mixed-use commercial and residential development on all sides, and so there is a need to demarcate the gateways and reinforce the campus identity. The established landscape character on the campus edges, particularly along the Thunderbird streetscape, is very successful. Desert trees coupled with colorful native and desert adapted plants shade the pedestrian and bicycle paths and form a strong but pleasant edge to the campus. This perimeter walk along the primary streetscapes is a potential link to the community and amenity for local residents.

Pedestrian and Vehicular Portals and Streetscape Key Elements

- Position ASU wayfinding and mall identification markers at major pedestrian portals.
- Where possible within the street right-of-way or on campus, create formal double rows of trees to provide a maximum amount of shade to pedestrians and bicyclists. Consistent shading along pedestrian corridors will be essential.
- Specify structural soil where necessary to provide adequate soil volume for tree root growth.
- Establish a consistent ground plane palette of paving materials for all pedestrian and streetscape corridors.
- Establish a simple palette of trees and understory plantings for all pedestrian and streetscape corridors.

This shaded bicycle/pedestrian path forms a pleasant campus edge.

Colorful plantings demarcate the campus's primary vehicular gateway.

Ancillary Spaces

When dealing with the programmatic elements and location of infrastructure, building services, and pedestrian space; the aesthetic quality and pedestrian experience of the “space” can be challenging. Placement and location of ancillary components such as backflow preventers, refuse enclosures, and transformers can have a significant impact on the function and success of the landscape and its composition. The integration of ancillary components into a project should be considered early in the design phase. Additional outdoor spaces and amenities that warrant landscape architectural design discretion at ASU West include bicycle storage areas, building and site infrastructure, vehicular parking areas, and water features.

Ancillary Space Key Elements

- Screen backflow preventers, transformers, water meters, and refuse enclosures with landscape and building elements.
- Bicycle storage areas should be well-lit and appropriately screened with landscaping, vegetative fencing, or walls that blend with the surrounding architecture. Screening must be designed to not hinder the safety, functionality, or flow of the storage area.
- Use landscape screening to mitigate undesirable visual effects of parking lots from roads and sidewalks on and off campus.
- Incorporate shade trees to reduce heat-loading attributed to solar exposure of parking lot pavement, and incorporate shrubs and groundcovers to ease the transition from parking to pedestrian space.
- Use sustainable techniques for water feature design whenever possible.

Vegetative screening can be used to reduce solar heat loading.

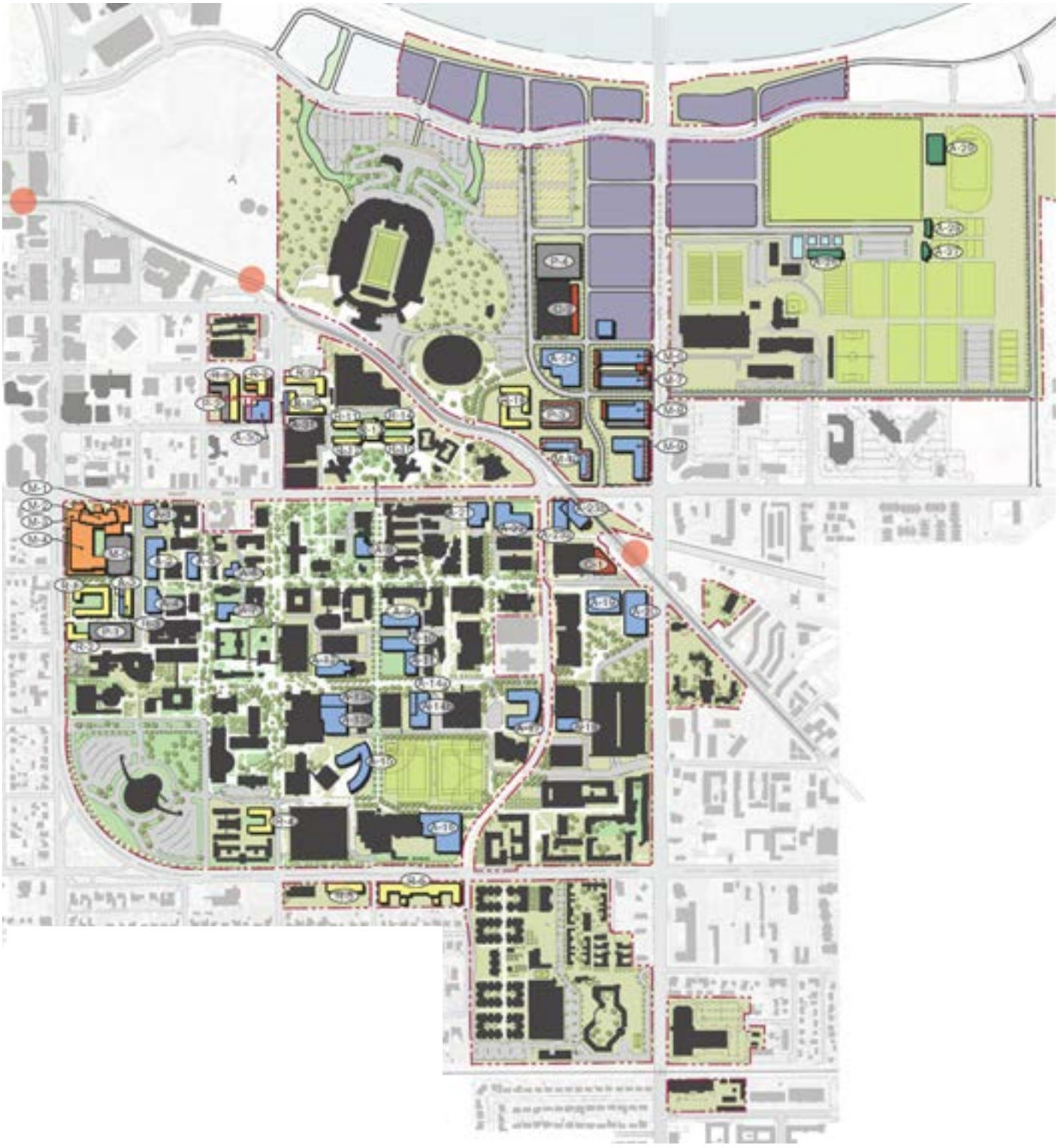
Courtyard trees create shade and reduce reflected heat from buildings.

Space trees to avoid conflicts with utilities (such as lighting).

Hedges screen bicycle storage areas without hindering safety or functionality, and reinforce the formal campus character.

Landscape at the Barrett Honors College on the Tempe Campus.

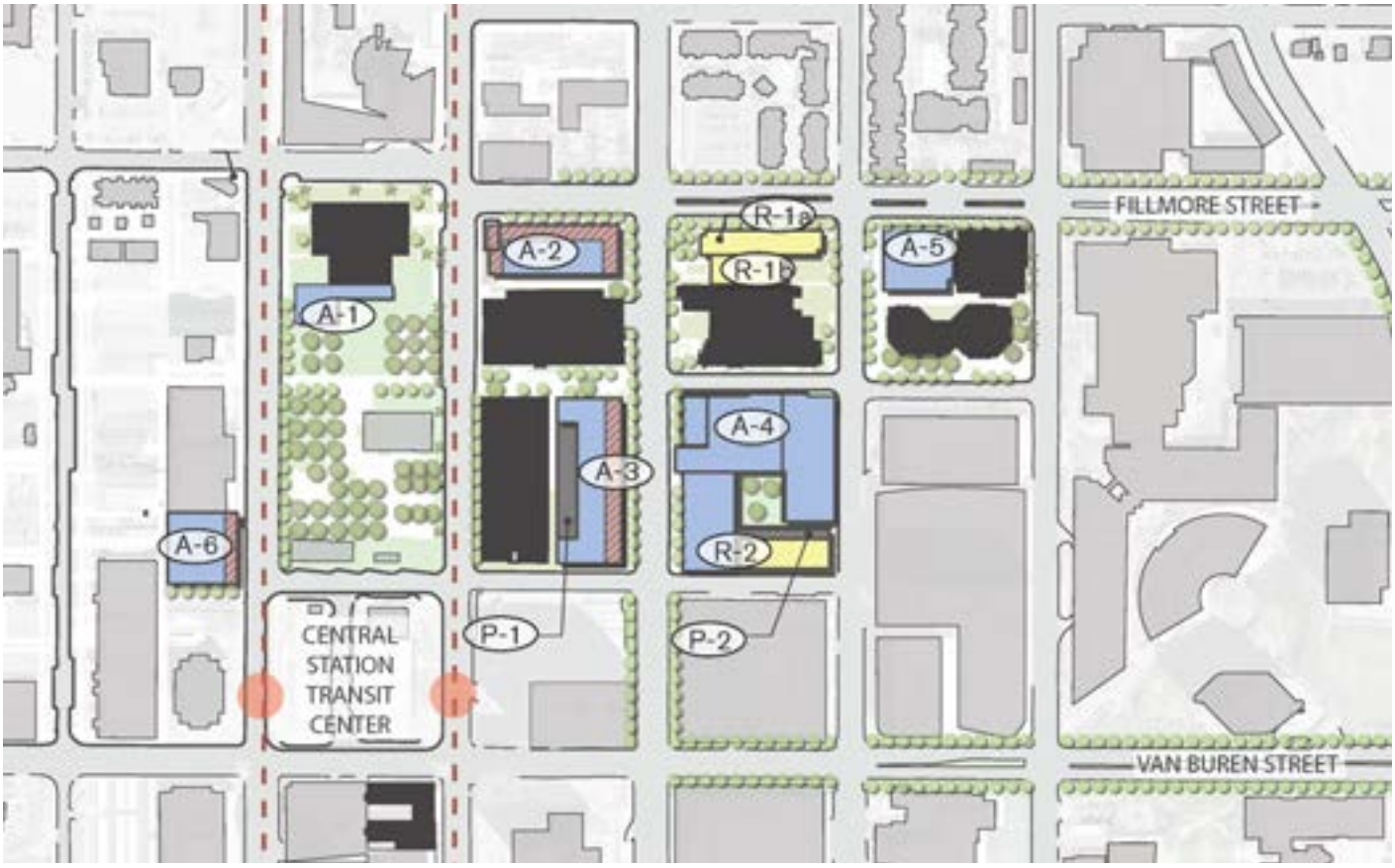
proposed development metrics



Tempe Campus
Master Plan Building Key Plan

Tempe Campus Proposed Building Key

Building number	Footprint (sf)	Number of Floors	Total GSF	Academic, Research, + Support Floors	Academic, Research, + Support GSF	Mixed Use Floors	Mixed Use GSF	Residential floors	Residential GSF	Beds	Parking Floors	Parking GSF	Spaces
ACADEMIC, RESEARCH, + SUPPORT													
A-1	12,000	4	48,000	4	48,000								
A-2	25,000	4	100,000	4	100,000								
A-3	15,000	2	30,000	2	30,000								
A-4	15,000	4	60,000	4	60,000								
A-5	14,000	4	56,000	4	56,000								
A-6	9,000	4	36,000	4	36,000								
A-7	12,000	4	48,000	4	48,000								
A-8	12,000	3	36,000	3	36,000								
A-9	23,500	6	141,000	6	141,000								
A-10	22,000	5	110,000	5	110,000								
A-11	16,000	5	80,000	5	80,000								
A-12	15,000	4	60,000	4	60,000								
A-13A	15,000	4	60,000	4	60,000								
A-13B	28,000	2	56,000	2	56,000								
A-14a	30,000	1	30,000	1	30,000								
A-14b	20,000	4	80,000	4	80,000								
A-15	32,500	5	163,000	5	163,000								
A-16	70,000	1	70,000	1	70,000								
A-17	35,000	4	140,000	4	140,000								
A-18	24,000	7	168,000	7	168,000								
A-19	34,000	5	170,000	5	170,000	1	4,600						
A-20	40,000	5	200,000	5	200,000	1	9,400						
A-21	20,000	4	80,000	4	80,000								
A-22	30,000	4	120,000	4	120,000								
A-23a	20,000	4	80,000	4	80,000								
A-23b	20,000	4	80,000	3	60,000	1	6,000						
A-24	41,000	1	41,000	1	41,000								
A-25	12,000	4	48,000	3.5	42,000	0.5	6,000						
A-26	27,000	4	108,000	3	81,000	1	27,000						
TOTAL			**2,499,000**		**2,446,000**		**53,000**						
RESIDENTIAL													
R-1	32,500	12	390,000			1	14,800	12	375,200	1,014			
R-2	11,100	12	133,000			1	6,000	12	127,200	344			
R-3	10,200	9	92,000					9	91,800	248			
R-4	20,500	6	123,000					6	123,000	332			
R-5	15,000	4	60,000					4	60,000	162			
R-6	44,500	4	185,100					4	185,100	400			
R-7	23,000	10	230,000					10	230,000	622			
R-8	13,900	10	139,000					10	139,000	376			
R-9	14,000	10	140,000					10	140,000	378			
R-10	11,300	6	68,000					6	68,000	184			
R-11	10,100	6	61,000					6	61,000	203			
R-12	10,100	6	61,000					6	61,000	203			
R-13	16,300	2	32,600					2	32,600				
R-14	10,100	6	61,000					6	61,000	203			
R-15	10,100	6	61,000					6	61,000	203			
R-16	15,000	10	155,000			1	10,000	10	145,000	392			
TOTAL			**1,991,700**				**30,800**		**1,960,900**	**5,265**			
COMMERCIAL													
C-1	19,200	1	19,000			1	19,000						
C-2	21,200	1	21,000			1	21,200						
TOTAL			**40,000**				**40,200**						
PARKING													
P-1	36,000	5	180,000								5	180,000	546
P-2	47,000	4	188,000								4	188,000	570
P-3	36,000	4	144,000								4	144,000	436
P-4	77,800	4	311,000								4	311,000	942
TOTAL			**823,000**								**17**	**823,000**	**2,494**
MIXED USE													
M-1	12,500	2	25,000			2	25,000						
M-2	20,900	11	230,000			11	230,000						
M-3	28,100	2	56,000			2	56,000						
M-4	80,000	2	160,000			2	160,000						
M-5	51,300	6	308,000								6	308,000	933
M-6	33,000	6	198,000			6	198,000						
M-6	2,500	2	5,000			1	2,500						
M-6	33,100	4	132,000			4	132,000						
M-7	39,600	4	158,000			1	9,500				4	148,900	451
M-7	34,600	4	138,000			1	34,600						
M-7	54,100	4	216,000								4	216,400	656
M-8	12,300	1	12,000			1	12,300						
M-9	43,400	6	260,000	6	252500	1	7,500						
M-10	45,000	6	270,000				270,000						
TOTAL			**2,168,000**		**252,500**		**867,400**		**0**	**0**			
GRAND TOTAL			**5,022,700**		**2,698,500**		**991,400**		**1,960,900**	**5,265**			



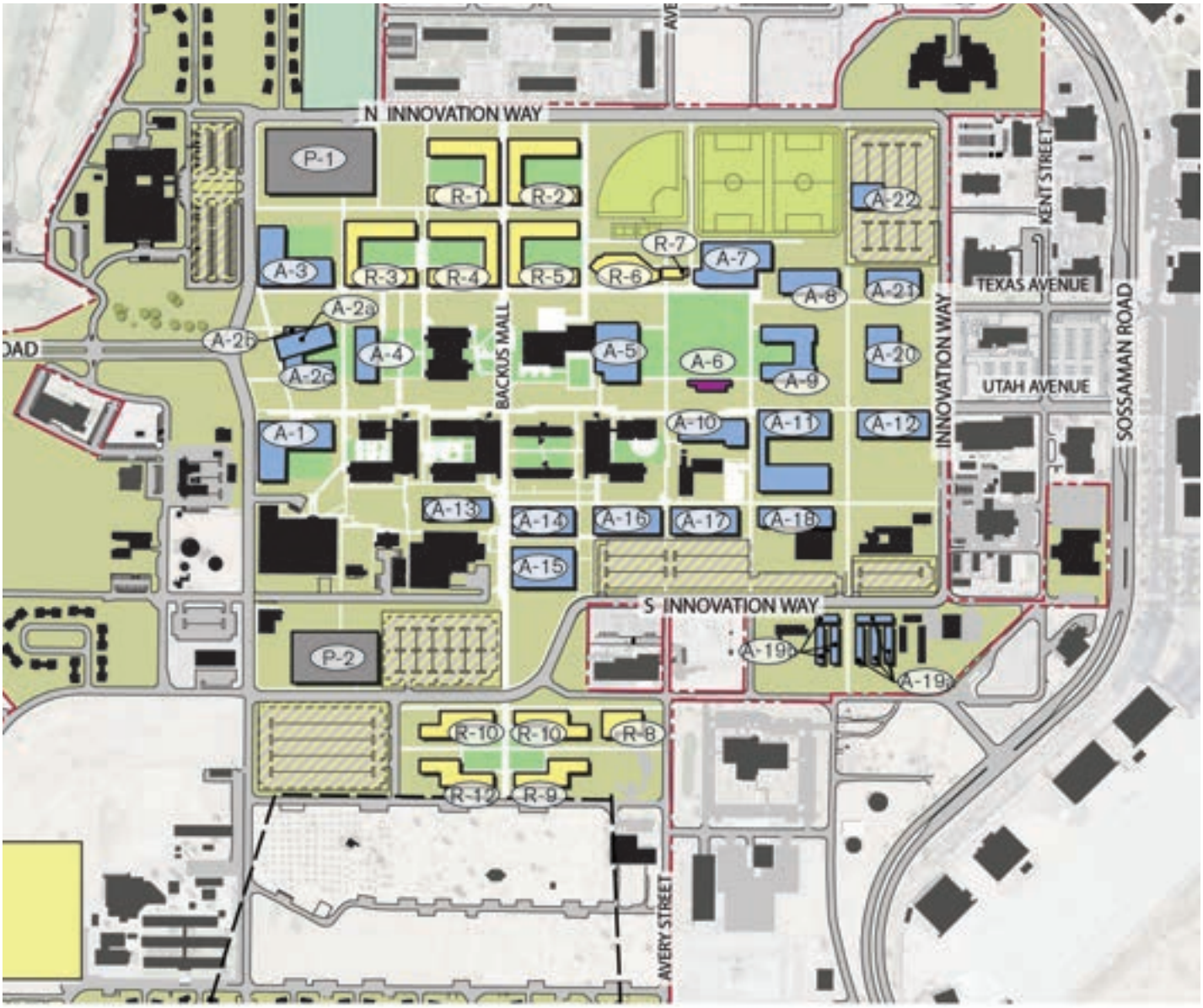
Downtown Phoenix Campus

Master Plan Building Key

0’ 600’

DPC Proposed Building Key

Building number	Footprint (sf)	Number of Floors	Total GSF	Academic, Research, + Support Floors	Academic, Research, + Support GSF	Commercial Floors	Commercial GSF	Residential Floors	Residential GSF	Beds	Parking Floors	Parking GSF	Parking Spaces
ACADEMIC, RESEARCH, + SUPPORT													
A-1	14,650	2	25,100	2	25,100								
A-2	26,000	10	260,000	9.75	253,500	0.25	6,500						
A-3	33,900	8	271,000	8	271,200								
A-4	62,335	6	374,010	6	359,910		14,100						
A-5	17,700	10	177,000	10	177,000								
A-6	27,500	4	110,000	3.80	104,500	0.20	5,500						
TOTAL			**1,217,110**	**40**	**1,191,210**		**26,100**						
RESIDENTIAL													
R-1A	12,600	14	176,000					14	176,400	615			
R-1b	8,900	3	27,000					3	26,700				
R-2	11,167	24	268,000					24	268,000	370			
TOTAL			**471,000**					**41**	**471,100**	**985**			
PARKING													
P-1	43,000	4	172,000			0.30	12,900				3.7	159,100	482
P-2	26,000	5	130,000								5	130,000	370
P-2	underground		80,500									80,500	230
TOTAL			**382,500**				**12,900**				**9**	**369,600**	**1082**
TOTAL			2,070,610		1,191,210		39,000		471,100			369,600	

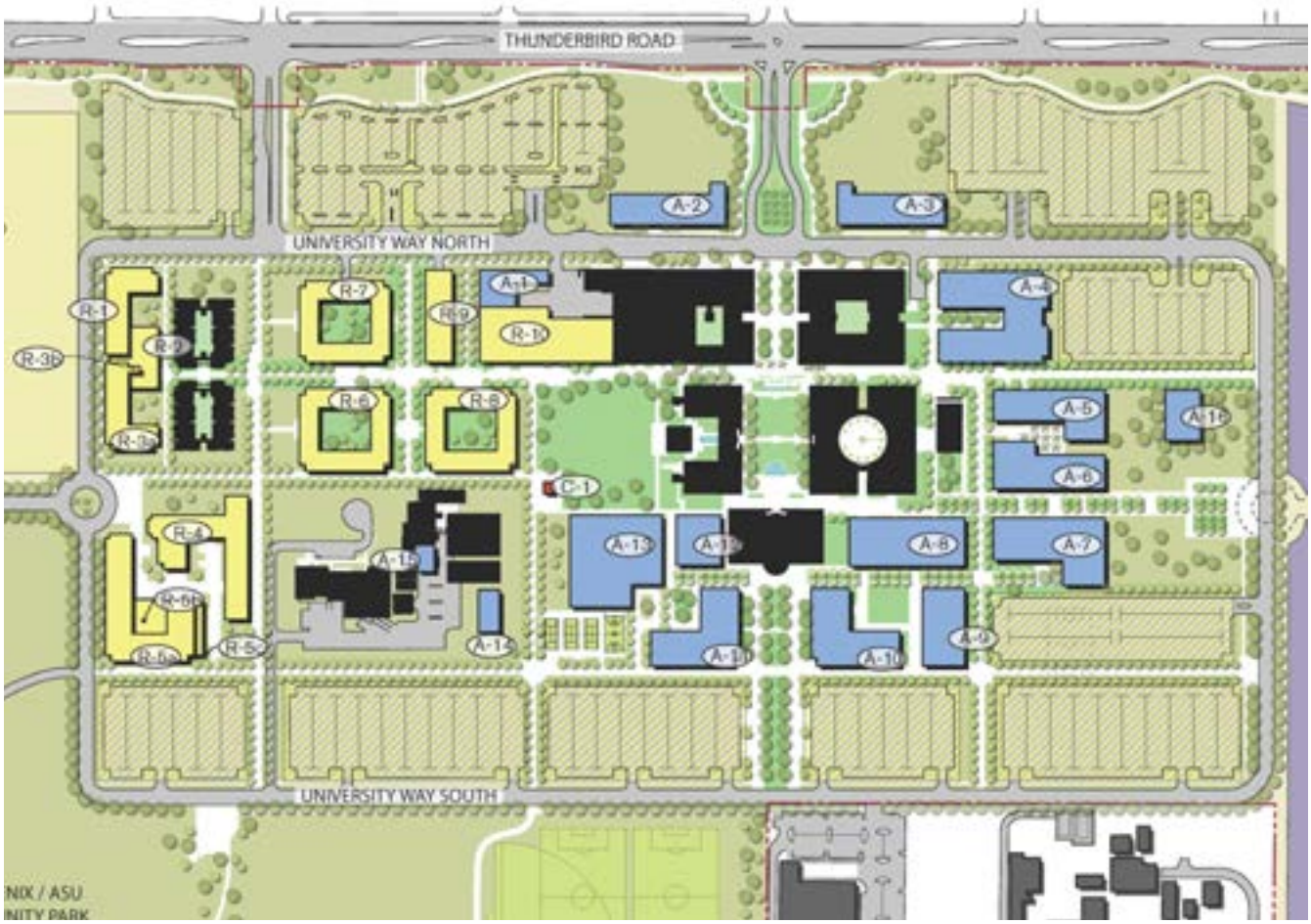


Polytechnic Campus

Master Plan Building Key Plan

Polytechnic Campus Proposed Building Key

Polytechnic Campus											
Building Number	Footprint (sf)	Number of Floors	Total GSF	Academic, Research, + Support GSF	Commercial GSF	Dining GSF	Housing GSF	Number of Beds	Levels of Parking	Parking GSF	Parking Spaces
ACADEMIC, RESEARCH, + SUPPORT											
A-1	43,100	4	172,000	172,000							
A-2a	16,800	4	67,000	67,000							
A-2b	28,300	1	28,000	28,000							
A-2c	12,600	3	38,000	38,000							
A-3	39,600	4	158,000	158,000							
A-4	16,000	3	48,000	48,000							
A-5	34,100	2	68,000	68,000							
A-6	5,400	1	5,000	5,000							
A-7	55,000	2	110,000	110,000							
A-8	22,900	4	92,000	92,000							
A-9	29,600	4	118,000	118,000							
A-10	21,600	4	86,000	86,000							
A-11	53,000	4	212,000	212,000							
A-12	26,500	4	106,000	106,000							
A-13	20,000	4	80,000	80,000							
A-14	22,500	4	90,000	90,000							
A-15	33,700	2	67,000	67,000							
A-16	24,800	4	99,000	99,000							
A-17	24,800	4	99,000	99,000							
A-18	21,200	4	85,000	85,000							
A-19a	17,300	1	17,000	17,000							
A-19b	11,300	1	11,000	11,000							
A-20	24,000	4	96,000	96,000							
A-21	17,000	4	68,000	68,000							
A-22	12,000	1	12,000	12,000							
TOTAL			**1,856,000**	**1,856,000**							
RESIDENTIAL											
R-1	38,500	4	154,000				154,000	416			
R-2	38,500	4	154,000				154,000	416			
R-3	38,500	3	116,000				116,000	314			
R-4	38,500	3	116,000				116,000	314			
R-5	38,500	3	116,000				116,000	314			
R-6	22,700	1	23,000				23,000				
R-7	3,800	1	3,800								
R-8	13,000	2	26,000				26,000				
R--9	17,500	4	70,000				70,000	189			
R-10	17,500	4	70,000				70,000	189			
R-11	17,500	4	70,000				70,000	189			
R-12	17,500	4	70,000				70,000	189			
TOTAL			**985,000**				**985,000**	**2,530**			
ASU Preparatory Academy High School											
A-18	21,200	4	85,000								
PARKING											
P-1	96,000	4	384,000						4	384,000	1,164
P-2	60,800	4	243,000						4	243,000	736
TOTAL			**627,000**							**627,000**	**1,900**
TOTAL			**3,471,800**	**1,856,000**			**985,000**	**2,530**		**627,000**	**1,900**



West Campus

Master Plan Building Key

West Campus Proposed Building Key

Building number	Footprint (sf)	Number of Floors	Total GSF	Academic, Research, + Support GSF	Commercial GSF	Housing GSF	Beds
ACADEMIC, RESEARCH, + SUPPORT							
A-1	12,000	3	36,000	36,000			
A-2	25,200	3	76,000	76,000			
A-3	23,500	3	71,000	71,000			
A-4	56,500	3	170,000	170,000			
A-5	28,500	3	86,000	86,000			
A-6	28,500	3	86,000	86,000			
A-7	39,000	3	117,000	117,000			
A-8	37,100	3	111,000	111,000			
A-9	22,000	3	66,000	66,000			
A-10	31,400	3	94,000	94,000			
A-11	31,400	3	94,000	94,000			
A-12	15,000	3	45,000	45,000			
A-13	55,000	2	110,000	110,000			
A-14	6,100	1	6,000	6,000			
A-15	4,000	1	4,000	4,000			
A-16	11,000	1	11,000	11,000			
TOTAL			**1,168,000**	**1,168,000**			
RESIDENTIAL							
R-1	19,500	5	98,000			98,000	265
R-2	17,800	1	18,000			18000	
R-3a	19,000	5	95,000			95,000	257
R-3b	1,000	6	6,000				
R-4	36,300	5	182,000			182,000	492
R-5a	40,000	5	200,000			200,000	541
R-5b	8,100	1	8,000			8000	
R-5c	3,300	1	3,000			3000	
R-6	33,100	3	99,000			99,000	268
R-7	31,000	3	93,000			99,000	268
R-8	33,100	3	93,000			93,000	365
R-9	16700	5	84000			84,000	227
R-10	n/a		37,000			37,000	
TOTAL			**1,016,000**			**1,016,000**	**2,681**
COMMERCIAL							
C-1	700	5	4,000		4,000		
TOTAL			**4,000**		**4,000**		
TOTAL			**2,188,000**	**1,168,000**	**4,000**	**1,016,000**	**2,681**

acknowledgements

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