ASU at the West Campus
Creative Excellence

a. Themes, Objectives, Strategic Plan
b. Observations
c. Planning Principles and Concept Plan
d. Comprehensive Plan and Elements
e. Implementation: Phasing by Time and Use
f. Design Guidelines
g. Appendices
   i. Campus History
   ii. Plan Precedents
   iii. Space Needs Analysis
   iv. Infrastructure Report
   v. Workshops, Meetings, Presentations
ASU at the West Campus: “Creative Excellence”

A comprehensive campus that balances the traditions of a liberal arts education with responsiveness to the dynamics of workforce requirements, ASU at the West campus is committed to teaching and research that is innovative, interdisciplinary, collaborative, and problem-based. The West campus currently offers students a rich learning environment focused on both undergraduate and graduate academic programs in four colleges and schools, and has been the recipient of national recognition for its community service. Through partnerships with local not-for-profits, governmental agencies, and industry groups, West campus students learn by working on problems that focus on societal and community issues.

The campus recently observed its twentieth anniversary, and serves a diverse body of more than 7,500 students. At full build-out in 2020 the campus will accommodate 15,000 students. The emphasis will continue to be on undergraduate and master’s level education. Selected doctoral programs will be developed as needed to serve the needs of Arizona and the constituencies of the West campus utilizing an “expand on demand” paradigm.

Observations from the early stages of the Comprehensive Development Plan process indicate certain existing strengths, including a compact core of academic buildings and logical framework of outdoor spaces conceived with an overall sensitivity to the desert environment. However, these aspects do not extend to the perimeter of the campus, and the architectural conception has perhaps been too rigid. There are few educational or cultural centers nearby, and the limited on-campus housing is remote and lacks the quality of the original campus.

The Comprehensive Development Plan seeks to:

- Build on the existing strengths of the campus;
- Create a living/learning/working village with academic buildings, cultural amenities, commercial space, athletic and recreational facilities, student housing, and market-rate housing for the faculty, staff, and retirees;
- Landscape campus perimeters to provide an elegant transition to surrounding neighborhoods, and a sense of a “formal green” in the Sonoran desert;
- Establish a gateway along Thunderbird Road;
- Use courtyards, arcades, and promenades to link the entire campus to the Fletcher Library, which is the focal point;
- Provide housing that connects to the academic core.
The Comprehensive Development Plan will take its point of departure from the quality of the current built and natural environments, and facilitate the evolution of the campus while ensuring that it becomes a leading destination in the West Valley.

ASU at The West Campus - Colleges and Schools
- New College of Interdisciplinary Arts and Sciences
- College of Human Services
- College of Teacher Education and Leadership
- School of Global Management and Leadership
- Division Of Collaborative Programs

Campus Data and Projections
Fall 2005
- Student Head Count: 7,734
- Undergraduate: 6,620
- Graduate: 1,114

- Faculty (FTE): 271
- Acres: 248
- Residential Beds: 414
- Parking Spaces: 3,424
- Gross Square Feet Built Space: 736,951

Projections For 2020
- Student Head Count: 15,000
- Faculty (FTE): 700
- Acres: 248
- Residential Beds: 3,700
- Parking Spaces: 6,100
- Gross Square Feet Built Space: 2,882,000

Academic And Student Support:
1,318,000 GSF
 Auxiliary: 351,000 Gsf
Housing (3,700 Beds): 1,213,000 GSF
Total: 2,882,000 GSF†

† 2004 GSF calculations (Paulien and Associates)
Comprehensive Development Plan

Although a single and unified institution, ASU is “One University in Many Places,” spatially distributed across metropolitan Phoenix.

Phasing

2005
Student enrollment: 7,734
On-campus housing (beds): 414

Phase I
Student capacity: 10,000
On-campus housing (beds): 2,500
- Develop the east-west spine
- Establish the entry along Thunderbird Road
- Introduce commercial opportunities

Phase II
Student capacity: 15,000
On-campus housing (beds): 3,700
- Complete east-west spine connecting campus core to commercial center and hotel
- Enrich campus perimeter with performing arts facility and athletic venues
- Introduce market and assisted-living housing

Phase III
Student capacity: 15,000
On-campus housing (beds): 5,600
- Build out the park perimeter
- Establish the northwest ASU corner
- Introduce structured parking
- Upgrade the elementary school

The proposed phasing is a result of analysis at three levels:
- Currently planned projects
- Prioritized needs as per the university or as a function of growth
- Interdependency of project phasing to allow a site to be created or the migration of use as needed to allow for efficient growth
Summary of Observations, Planning Principles, and Concept Plan

The Comprehensive Development Plan ("master plan") process for the university is presented in the introductory chapter of this report. The summary of observations, planning principles, and concept plan that follow refer to the West campus.

The observations phase of the process collected physical and programmatic information about the West campus. Meetings were held with students, faculty, staff, administrators, and neighbors, as well as the cities of Phoenix and Glendale. This input was valuable in terms of understanding the issues facing the area and the campus in particular. Physical data was collected and summarized in the analysis diagrams included in this section.

Recently Completed Projects or Projects Under Construction
- Las Casas Living Learning Village
- Student Housing Phase 1
- Classroom Lab/Computer Classroom
- Lecture Hall
- Southwest Park and Recreation Complex Phase I

Currently Planned Projects
- Southwest Park and Recreation Complex Phase II

Projects Currently in Feasibility Studies
- Las Casas Student Housing Phase 2
- Student Recreation Center
- Student Union Expansion
- Classroom Building Expansions
- Library Expansion
- New West Entrance Road

The campus was conceived with a compact academic core and single-use buildings

The original campus master plan conceived the campus with a compact academic core with mixed use on the eastern periphery of the campus surrounded by surface parking lots. The buildings were arranged around quads, courtyards, malls, and alleys with shaded arcades on each building. This framework has served the campus well and makes it pleasant and comfortable year round.

The original buildings were designed with single use in mind such as classrooms, faculty offices, science labs, a student union, and meeting spaces. While this is an efficient way to conceive buildings, it has not led to convenient interaction between students and faculty. In addition,
as the student population grows, and additional departments are added, it is difficult to extend the model to a larger student population.

**The qualities and principles of the compact academic core should be extended throughout the campus to its perimeters**

The most successful campuses in the world have a compact academic core with strong connections to student life, recreation, and residential areas. These uses are overlapping as student schedules become more flexible, learning occurs in a variety of venues (not just the classroom), and campuses become active year round. Developing these overlaps and connections improves the quality of the living/learning environment.

**The campus is an island**

The campus is situated on 300 acres and as of fall semester 2005 had an enrollment of approximately 7,700 students. While the campus is compact, it is set back from the perimeter streets and feels something like an island within the site. Much of the perimeter land is undeveloped desert, creating a greater impression of separation from the surrounding community.

The main entrance off Thunderbird Road is nicely landscaped, and features an entrance arcade and signage. Other entrances are planned but have not been built except for an entrance road on the east side which does not share the same level of entrance treatment as the main entrance.

The planned park and recreation fields in the southwest corner of the site will contribute to a sense of connection to the surrounding residential community and provide a buffer to the adjacent single-family homes.

**The campus has a strong framework and variety of outdoor spaces**

The original master plan conceived the campus around a strong framework of outdoor spaces. The plan was followed, resulting in a very coherent and connected campus with a highly sophisticated series of outdoor spaces and quality architecture which should be extended to the perimeter of campus as it is developed over the long term.

As one of the largest formal spaces, the library quad forms the heart of the campus. The east-west mall provides a shady plank across the campus and is the main pedestrian arterial.
Although a single and unified institution, ASU is “One University in Many Places”, spatially distributed across metropolitan Phoenix. Groups of buildings are arranged surrounding landscaped courtyards. Most courtyards have a water feature that adds humidity, cools the air, and introduces white noise within the space. Each courtyard is landscaped in a different fashion, creating a great variety of spatial experiences across the campus.

**Building and landscape design is consistent with the desert climate**

The campus is located in the Sonoran Desert, with summer temperature extremes reaching up to 120°F and very little humidity. The campus has been carefully designed around landscaped quads, courtyards, and arcaded walkways that make the campus comfortable year round. The relationship of building height to the width of the open space has been carefully calculated to provide shade during the hot summer months.

The courtyards are designed with openings in the perimeter buildings that allow cool air to flow into the courtyards, rise, and exhaust away. Most courtyards have a water feature that provides evaporative cooling and works in conjunction with the thermal chimneys to cool the spaces naturally.

The campus walkways are layered as open spaces, arcaded walkways, and courtyards. Some of the open space is paved which allows service and emergency vehicle access across campus. These paved walkways are flanked by landscape edges and arcaded walkways that provide protection from the sun.

**Architecture is detailed in a consistent manner, but is somewhat rigid**

The original intent of the master plan was to have a highly consistent architectural character in the core that would evolve as building uses changed. Most of the buildings on campus are designed in a very consistent manner. They all share similar materials, proportions, design elements, massing, and arcades. This high level of sophistication and consistency has created a campus that is very coherent and comprehensible.

The horizontal banding of the stone and brick is repeated on nearly every building. While this has created a very consistent look, it lacks a richness of variety. The new lecture hall begins to break from this surface treatment and explore compatible but different approaches to the look of the campus.

**Building use and hierarchy are difficult to discern**

The high level of architectural consistency on campus has created a unique visual brand for the campus. Design elements...
are pronounced and lend to the campus an elegant well-proportioned sense. However, it is difficult to discern the different functions of the various buildings due to this high level of consistency. For example, it is difficult to identify the library apart from the fact that it is on the main axis of the entrance. The library looks very similar to the faculty office building and the classroom building that flank it. As new buildings are built, their unique functions should be expressed.

Arcades and courtyard could benefit from active uses
The arcades and courtyards provide relief from the hot desert sun and should be used extensively across campus. However, many of the existing arcades and courtyards front blank brick walls and do not have active first floor uses. Providing windows (at the very least), entrances into buildings, or storefront uses such as copy shops, computer labs, food service, classrooms, or other active uses would improve the quality of the indoor and outdoor spaces.

Newer buildings lack the quality and durability of the original campus buildings
The original campus buildings serve primarily academic, administrative, or student life functions. All were built with durable materials and were intended to serve for many years. Some of these buildings are approaching twenty years and are in excellent condition.

The new residence halls are wood frame with EIFS and some brick veneer. These buildings break from the architectural style, material choices, massing, and articulation of the original buildings. These buildings are built of less durable materials and will show signs of wear much sooner due to their intensive use. While these buildings were built through an alternative delivery method, the university has the capacity to specify the quality of construction on every building.

Transitional uses should connect the campus with adjacent residential communities
The perimeters of the campus should be welcoming and porous along the Thunderbird Road frontage and sheltering along the other frontages to minimize the impact of the campus on the surrounding single-family neighborhoods. The campus currently has a thin landscaped edge around most of its perimeter. This landscape treatment could be extended to tie into streetscape as well as the core campus.
Mixed-use centers with unique functions should provide a transition from the academic core to the Thunderbird Corridor

ASU at the West campus was established in response to a request from the West Valley for an institution of higher education and a social and cultural center. There are few institutions in the West Valley with a comparably strong public mission, and few that offer facilities and spaces suitable for formal and informal social interaction. The original master plan indicated a mixed-use center in conjunction with the university that was conceived as a new town center for the West Valley, bringing together a diverse population in a variety of venues. The West campus has the opportunity to develop a place for people to gather, stroll, recreate, reside as well as pursue education and culture.

The simple internal street grid successfully establishes a comprehensible campus

The orthogonal grid of the city is reflected in the grid of the campus. The strong simple geometry creates an order that is immediately comprehensible to visitors and convenient for daily use.

The network of open space successfully forms a hierarchy of spaces, edges, centers, and connections

Part of the strength of the campus is the framework of outdoor spaces that easily ties together the core and makes the campus comprehensible. The sophistication of the landscape, shaped outdoor rooms, and the built environment add up to a campus that is doing many things well. The framework has been established and needs to be extended to the edges. To connect the campus a simple internal street grid is proposed.

Buildings should serve to establish hierarchy and function as landmarks

Just as open space has a variety of scales and articulation, so should the buildings. The grid of the campus, malls, quads, and courtyards can be utilized by connecting these plan elements with the buildings to express their importance, function, and order.

The campus should serve as the principal cultural, educational, and living center for the West Valley

With its interlinked educational, cultural, commercial, residential, recreational, and natural dimensions, the various elements of the campus itself must be leveraged to become a strong mixed-use center for the West Valley.
Planning Principles and Concept Plan
Planning Principles

- Create an intellectually stimulating living/learning environment that expresses the university’s role as the leading educational, intellectual, and cultural center in the West Valley
- Create a vibrant 24/7 community
- Continue to address climate, sense of place, and sustainable development principles
- Connect and encourage interaction with the diverse communities of the greater West Valley
- Utilize the grid of the campus, malls, quads, and courtyards to connect these plan elements with buildings to express their importance, function, and order
- Extend the qualities and principles of the compact academic core throughout the campus to its perimeters
- Extend the framework of highly sophisticated outdoor spaces to the perimeter of campus as it is developed over the long term
- Maintain the integrity of the simple internal street grid because it creates an order that is comprehensible and convenient for daily use
- Modify the blank brick walls fronting existing arcades and courtyards with doors and windows to encourage active first floor uses
- Design new buildings to express their functions
- Vary the materials, proportions, design elements, massing, and arcades of new buildings to create a richer visual vocabulary
- Develop the mixed-use center of the original master plan to establish a new town center for the West Valley
- Develop a welcoming and porous campus perimeter along the Thunderbird Road frontage and sheltering perimeter along the other frontages to minimize the impact of the campus on the surrounding single-family neighborhoods
Building edges define malls and courtyards.

Axes are terminated with entrances.

Quads and courtyards are linked by landscaped malls.

Linked Buildings and Open Spaces
Comprehensive Plan and Elements
Comprehensive Development Plan

Although a single and unified institution, ASU is “One University in Many Places”, spatially distributed across metropolitan Phoenix.

Framework and Gateways

- Malls
- Greens / Lawns / Quads
- Plazas
- Courtyards
- Nodes

Regional Aerial Photo 2003

Proposed Open Space Network

Proposed Figure Ground
Circulation And Transportation

ASU at the West campus is located in northern Phoenix, in an area bordered by Thunderbird Road on the north, Sweetwater Avenue on the south, 43rd Avenue on the east, and 51st Avenue on the west. While the campus is entirely within the City of Phoenix, it borders the eastern edge of Glendale (51st Avenue). Decisions by Glendale will affect transportation services to the campus.

REGIONAL CONDITIONS AND PLANS

Existing Conditions

The four ASU campuses are situated within Maricopa County, an area of 9,223 square miles containing 24 incorporated cities and towns, five Indian communities, and a large area of unincorporated land. Maricopa County contains approximately 60 percent of the population in Arizona. For the past several decades, the region has been one of the fastest growing metropolitan areas in the United States, increasing 44 percent in the decade from 1990 to 2000 to a population of just over 3 million.

The region's transportation system has struggled to keep pace with the travel demands of the growing population. While the region has a well-developed highway system consisting of freeways and grid patterns of major arterials, traffic is increasing at a dramatic rate as a result of rapid growth and regional development patterns that have favored sustained residential growth on the fringes of the urbanized area. In addition, improvements to transit service have not kept pace with the population growth.

Initiatives and the Regional Transportation Plan

Regional transportation issues, priorities and initiatives, affect and provide a framework for transportation decisions at the local level, including the ASU campuses. The Regional Transportation Plan (adopted November 25, 2003), prepared by the Maricopa Association of Governments (MAG), is a comprehensive, multi-modal and coordinated plan that provides a blueprint for future transportation investments in the region for the next several decades.

The report warns that the region faces significant challenges in meeting the growth and mobility demands anticipated during the next thirty years. The region's population is projected to double over the next 30 years, resulting in significant increases in congestion on the region's major road system as vehicle-miles of travel continue to increase at a faster rate than population growth. A variety of transportation approaches will be necessary to respond to the different types of development occurring in the region, and must include increases in highway capacity, expanded mass transit service and alternative modes.
The plan is multi-modal, including freeways, highways, streets, high occupancy vehicle (HOV) lanes, bus service, high capacity transit, and other transit services, as well as modes such as airports, bicycles, pedestrians and freight. Despite major investment in new and improved roads over the next few decades (more than $10 billion), congestion is projected to worsen.

**Transit**

Current transit services in the region comprise on-street bus systems planned and operated by local cities (including Phoenix, Tempe, Mesa, and Glendale). Regional connections are provided by Valley Metro. While much of the region is served, the level of convenience offered (i.e., frequency of service, travel times, etc.) does not make it an attractive alternative to many travelers who have an automobile available to them.

The Regional Public Transportation Authority (RPTA) has developed a regional transit plan, including a new light rail system. The plan is a component of the MAG Regional Transportation Plan. The plan is a phased implementation plan with the horizon year of 2030, and is designed to serve all needs for transit service in the Valley.

**Key features of the plan:**

- A total of 57.5 miles of light rail transit (LRT)
- A regional bus plan known as a “supergrid.” The supergrid concept includes new or enhanced service on 30 routes, plus the creation of 10 new routes
- Improvements to express/bus rapid transit (BRT) service, including enhancements to 16 existing routes and the creation of 14 new routes

The regional LRT system will ultimately provide a vital connection between the four ASU campuses (though not directly connecting the West and Polytechnic campuses, which will require shuttle buses at the LRT terminal stations). It will improve access to the campuses, in particular the Downtown Phoenix and Tempe campuses, which will be directly served by LRT, and will have the potential to reduce long-term parking needs and traffic.

The initial section from Bethany Home Road in northern Phoenix to east of the Tempe campus is scheduled to open in 2008.

**Trip Reduction Measures**

Transportation Demand Management (TDM) programs promote the use of alternative modes of travel, including carpooling, vanpooling, riding transit, walking, bicycling, alternative work schedules that reduce trips, and telecommuting and
compressed work schedules. According to the MAG Regional Transportation Plan, 37 percent of people use alternative commute modes or work schedules one or more days a week.

State and local legislations mandate that employers with 50 or more employees prepare and implement travel reduction plans to reduce the rates of single-occupancy vehicle (SOV) trips or vehicle miles traveled. To date only a small percentage of employment sites have reached their targets, but currently there are no penalties for not reaching trip reduction targets.

Valley Metro Rideshare provides a variety of TDM services, including a free carpool/vanpool on-line ride matching service, the promotion of SOV alternatives, assistance to Transportation Management Networks and employers in the County’s Trip Reduction Program, administration of the Vanpool Program and promotion of the telecommuting program. Valley Metro also coordinates a system of publicly and privately owned park-and-ride lots throughout the metropolitan area. The Arizona Department of Administration Travel Reduction Program offers carpool matching and other rideshare services to all state employees located in the county.

LOCAL CONDITIONS AND PLANS

The City of Phoenix General Plan provides comprehensive direction for the physical growth of the city. The circulation element of the plan stresses reducing congestion, which is growing faster than population, by integrating land use and transportation planning, promoting alternatives to driving alone, and decreasing the number and length of trips. Maintaining a reasonable level of automobile mobility will require a shift of 15 to 25 percent of automobile trips to transit.

Improvements or additions to the highway system will be limited. A specific goal of the plan is to encourage greater use of transit to reduce congestion, increase the person carrying capacity of the transportation system, provide better transportation options for those who choose to or cannot drive, improve air quality and reduce energy consumption. The planned Light Rail Transit (LRT) system that will open in 2008 will enhance accessibility, and extensive improvements to bus services also are planned.
The City of Glendale passed a one-half cent sales tax in November 2001 for transportation improvements. This will fund several transit improvements, including new routes and increased service on Route 138 and other routes, as identified in the Glendale Transportation Plan. The Plan also stresses connections and integration with regional services.

**Streets**

The major access points to the campus are on Thunderbird Road at 47th and 49th Avenues. These roads do not continue through the campus. Only the 47th Avenue intersection is signalized. There also are access points on 43rd and 51st Avenues. Both of these are unsignalized, reportedly making left turns from campus onto the seven-lane roads difficult and dangerous. In addition, the 49th Avenue entrance on Thunderbird Road is a major exit from the parking area and may benefit from a traffic signal.

In the longer term, as the campus expands, an additional access point is proposed on Thunderbird Road at 45th Avenue (the eastern portion of the campus).

Both 43rd Avenue and 51st Avenue have seven lanes and 45 mph speed limits. Thunderbird Road has six lanes with a median and a 45 mph speed limit. Sweetwater Road has three lanes with bike lanes and a 40 mph speed limit.

With the exception of the traffic signal at 47th Avenue, there are no formal pedestrian crossings elsewhere on Thunderbird Road (even the 47th Avenue crossing requires pedestrians to cross a minimum of seven lanes of traffic). This is a matter of concern as students cross the road to reach nearby commercial facilities, including restaurants on the north side of Thunderbird Road.
The figure below shows the internal streets. University Way, the main east-west street through the campus north of the core, is becoming increasingly congested with traffic and pedestrians. The street is wide, even though it operates as a two-lane road only, and speeding is a problem for pedestrian safety.

Transit
The campus currently is served directly by two transit routes:

- Route 138, which runs along Thunderbird Road between Paradise Valley Mall in Phoenix (at Tatum Boulevard) and just west of 67th Avenue in Glendale.

- Route 51, which runs along 51st Avenue, commencing just south of I-10 and terminating on the campus.

This route, initiated in October 2003, was included in the City of Glendale Transportation Plan (December 2001) and now carries over 800 riders a day. This fills a gap in the region’s grid transit system, as included in the region’s Long Range Transportation Plan.

The transit system of the City of Glendale is less developed than systems in Phoenix and Tempe, but now has funding to improve its system.

Until recently, the “Professor Gus” service operated between the West campus, Glendale Community College, and the American Graduate School of International Management. However, the service was dropped because of a lack of funding.

A shuttle service operates between the West campus and the Tempe campus every 40 minutes in the morning peak period and every two hours at other times. The shuttle is funded by Tempe Campus Parking and Transit Services. The service carried an average of 1,400 riders in a typical week in 2003-04.

The light rail transit (LRT) will terminate at Bethany Home and 19th Avenue (actually Montecito Ave.). This is approximately seven miles from the West campus. The general rule for the LRT is to deviate routes within one mile of station to serve the station. Some I-17 routes will be terminated at the LRT terminus. The West campus shuttle should be used to provide a connection to the LRT, and would be eligible to use the I-17 HOV lanes.
Parking
At the time of the study, there were approximately 2,500 parking spaces on the campus. Staff members report that this satisfies everyday needs (at peak times the lots are about 93 percent full, which is close to the practical capacity of a parking facility). However, the parking supply is inadequate to accommodate parking for events that bring participants to campus during the week. Increasing numbers of campus-related events are being held during class hours and are creating serious parking issues.

In addition, class change points, during which students arrive on campus for the next session before students from the previous session have moved their vehicles, create a congestion problem as students circle to find parking spaces closer to buildings even though there are usually sufficient spaces farther out in the lot.

Parking decals and fees were introduced in 2003. The number of decals sold (as of fall 2003) was 5,700 to students, and 963 to faculty and staff. However, not everyone purchases a decal and parks legally.

As a consequence of the introduction of paid parking, some individuals choose to park off campus in residential neighborhoods and shopping centers (e.g., along Sweetwater Road and local streets in that area) rather than purchasing a decal. In addition, based on citations issued for parking without a valid decal, it appears that there are between 400-500 people who continue to park on campus without a decal. It is also estimated that about 100 people park on the campus and ride the shuttle to the Tempe campus (some of whom have Tempe campus decals).
Bicycles
The campus has 23 racks with a total of 116 bike stalls/spaces. Bicycle usage is expected to become more common as increasing numbers of students who correspond to a more traditional profile are attracted to the campus.

A number of roads in the vicinity of the campus are designated bike routes. These include Thunderbird Road, Sweetwater Avenue, 43rd Avenue, and 47th Avenue. The City of Phoenix general plan shows bicycle routes on 38th Avenue east of the campus and Acoma Road (to the north, between Thunderbird Road and Greenway Road).

Within Glendale, several bicycle routes currently feed into a shared use path along the canal within Glendale. The City of Glendale Transportation Plan includes bicycle improvement projects throughout the city. Closest to the campus, bicycle/pedestrian grade-separations are proposed for the canal path at the intersections of 51st Avenue and Cactus Road, and 43rd Avenue and Peoria Avenue.

Transportation Principles
The following principles were developed to guide transportation recommendations for the campus:

Improve accessibility to campus by all modes
- Support bus service expansion plans
- Support long-range rail and bus rapid transit plans
- Connect Tempe campus shuttle to LRT terminal station
- Work with the cities of Phoenix, Glendale, Mesa and Gilbert to implement planned bicycle improvements
- Promote and offer incentives for using alternatives modes
- Continue free unlimited transit passes
- Improve pedestrian safety for crossing Thunderbird Road

Enhance on-campus circulation
- Improve operations and pedestrian safety on University Way North
- Reduce traffic on University Way North in campus core
- Reduce congestion at parking lot access points

Minimize future parking needs and impacts
- Provide adequate, convenient parking for visitors
- Locate new parking in parking structures on the periphery of campus to minimize impacts on pedestrians
- Reduce parking needs for employees and commuting students over time by promoting alternative modes
TRANSPORTATION RECOMMENDATIONS
The following improvements are recommended for the West campus:

Streets
- Create additional access points to the campus on 43rd Avenue and 51st Avenue, as shown on the master plan.
- Signalize the following intersections to improve pedestrian safety and enhance traffic access:
  - Thunderbird Road and 45th Avenue and 49th Avenue (with the exception of the traffic signal at 47th, there are no formal pedestrian crossings elsewhere on Thunderbird Road, a concern as students cross the 7-lane road to reach nearby commercial facilities on the north side of Thunderbird Road).
  - University Way and 43rd Avenue (located mid-block between Thunderbird Road and Sweetwater Avenue).
  - The proposed new access on 49th Avenue (also located mid-block between Thunderbird Road and Sweetwater Avenue).

Bicycle and Pedestrian Circulation
- Work with Cities of Phoenix and Glendale to implement planned bicycle improvements.

Trip Reduction
- Introduce incentives for using alternative commute modes (preferential parking for car and vanpools, occasional parking vouchers for transit users, cyclists, and car/vanpoolers).

Parking
- Provide a total of 6,100 parking spaces for the academic functions of the campus for the projected 15,000 student enrollment (determined by applying the current ratios of parking to persons, and assuming no changes in current travel habits).

Service Routes
- Service must be maintained to specific areas of the campus and separated from pedestrian flow. Various levels of service are needed across campus, each with specific requirements:
  - Daily and occasional deliveries
  - Service and maintenance access
  - Trash service
  - Emergency vehicle access
  - Move-in and move-out
- Daily and occasional deliveries such as mail, library deliveries, overnight package deliveries, etc. are handled in specific ways. The plan allows for vehicular access within the core of campus providing access to the library, central plant, food service, the union and future facilities such as theaters and museums on service access roads with restricted access. Overnight delivery vehicles may use these roads with permission from the university.
- Service and maintenance vehicles such as trucks and vans will be limited to the service drives during the weekdays. These vehicles may use the malls during the evening and weekend hours. Small electric vehicles may use the malls and park in designated areas during weekday hours when classes are in session.
- Trash will be collected and consolidated in two locations accessible from the service drives.
- Emergency vehicle access is allowed on the service roads and most malls. Refer to the transportation guidelines and the design guidelines for further information regarding emergency vehicle access requirements.
- Move-in and move-out occurs at the beginning and end of each academic year. The service drives, parking lots, and malls will be opened up for limited vehicle access.
Deferred Maintenance

The university strives to maintain its facilities to the best of its ability and available funding. Most of the buildings on campus are less than twenty years old and for the most part are in excellent condition. However, some interior modifications and reorganization of space will be needed to accommodate growth in the population of students, faculty, and staff.

Use and Capacity

Spatial organization of ASU at the West campus

The campus is organized along a east-west mall which connects the Las Casas Housing to the proposed Town Center. North-south malls, courtyards, and quads are organized off of this spine.

The academic core is centered on the Library Quad with the sciences on the east and other disciplines on the west.

As the campus expands, the academic core should remain as compact as possible. Buildings should be added adjacent to the core with a mix of academic office, classrooms, etc.

On-campus housing summary

One of the goals of the master plan is to increase on-campus student housing, especially undergraduate lower-division housing. The projected housing population by division is as follows:

- Freshmen - 75%
- Upperclassmen - 34%
- Graduate/Family - 5%

It is anticipated that freshmen will live in more communal living arrangements such as suites and semi-suites while upperclassmen will live in more private accommodations such as suites and apartments. As students transition to apartments with full kitchens, access to retail groceries or prepared food will become an opportunity for services on or adjacent to campus.

Student life needs

As the daytime, evening, and residential populations grow, students, faculty, and staff will need support services including additional facilities for dining, meeting spaces, retail facilities, banking, office space for student groups, and lounges. It has been proposed that these functions will be met by expanding the existing student union and providing tenant opportunities in the Town Center development. Between the existing student services center and the Las Casas housing units, student housing will be mixed with academic and student life spaces.

As enrollment increases, recreation and athletics needs will continue to grow. It has been proposed that these functions should be sited along the western perimeter of the campus adjacent to the majority of undergraduate housing and the public park.
Integration with the surrounding community

One of the goals of the master plan is to develop a clear sense of identity for the campus while retaining an inviting presence. Because ASU is a socially embedded institution, visitors should feel welcome, yet be aware of being “on campus.” Although perimeters are to be defined, the boundaries of campus will remain porous. Visitor parking and gateways should be clearly marked and convenient to destinations. The campus should be an extension of the community with free access to the campus grounds where appropriate and safe.

The northern perimeter of the campus is perceived as the principal point of entry to both the campus and mixed-use facilities. Secondary entrances are planned for the east and west sides of the campus as well.

Where the university is adjacent to existing neighborhoods, it should be sensitive to the scale of the buildings and locate facilities in such a way to minimize their impact on the viability of the neighboring properties.

The southern perimeter of campus is perceived as a transition zone between single-family neighborhoods and the campus. As a consequence, a shared use public park is planned for the southwest corner of the campus as well as open space on the southeast corner. The elementary school and school district warehouse facility are seen as links with the community.
## Comprehensive Development Plan

Although a single and unified institution, ASU is “One University in Many Places”, spatially distributed across metropolitan Phoenix.

### Arizona State University

#### Campus Master Plan

#### West Campus Phasing

1/23/2006

<table>
<thead>
<tr>
<th>Project</th>
<th>Bldg Number</th>
<th>Number of Stories</th>
<th>Use</th>
<th>Demolish Area</th>
<th>Footprint Area</th>
<th>Area or Quantity</th>
<th>Parking</th>
<th>Beds</th>
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<tbody>
<tr>
<td>Recreation Center</td>
<td>16</td>
<td>2</td>
<td>Gyms, locker rooms, outdoor pool</td>
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<td>Softball, Baseball, Soccer, Football</td>
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<tr>
<td>Academic/Residence Hall</td>
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<tr>
<td>Civic/Meeting Space</td>
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<td>23</td>
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<td>16,831</td>
<td>33,682 GSF</td>
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</table>

<table>
<thead>
<tr>
<th>PHASE 1 - 6.600 to 8.000 Students</th>
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<table>
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<tr>
<td>Net Academic Space</td>
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<td></td>
</tr>
<tr>
<td>Renovated Academic Space</td>
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<tr>
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<tr>
<td>Net Auxiliary Space</td>
<td>653,251 GSF</td>
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<table>
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<td>66</td>
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<td>Double Bedroom, Semi-Suites</td>
<td>93,526</td>
<td>280,578 GSF</td>
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<td>877</td>
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<tr>
<td>Library Expansion</td>
<td>40</td>
<td>4</td>
<td></td>
<td>15,000</td>
<td>60,000 GSF</td>
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<tr>
<td>Preforming Arts Center</td>
<td>55</td>
<td>3</td>
<td></td>
<td>32,000</td>
<td>96,000 GSF</td>
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<td>Support Services</td>
<td>23</td>
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<td>Surface Lots</td>
<td>40,000</td>
<td>600 Spaces</td>
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<tr>
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<td>16</td>
<td>4</td>
<td>Parking Structure</td>
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<table>
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<tbody>
<tr>
<td>Academic Space Removed</td>
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<td>Net Academic Space</td>
<td>492,062 GSF</td>
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<td>Previous Phase</td>
<td>331,119 GSF</td>
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<td>Current Net Academic Space</td>
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<td>Auxiliary Space Added</td>
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<tr>
<td>Net Auxiliary Space</td>
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<td>Previous Phase</td>
<td>653,251 GSF</td>
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</tbody>
</table>
### Arizona State University
#### Campus Master Plan
##### West Campus Phasing
1/23/2006

<table>
<thead>
<tr>
<th>Project</th>
<th>Bldg Number</th>
<th>Number of Stories</th>
<th>Use</th>
<th>Demolish Area</th>
<th>Footprint Area</th>
<th>Area or Quantity</th>
<th>Parking</th>
<th>Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHASE 3 - 10,000 to 15,000 Students</td>
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</tr>
<tr>
<td>A Academic Buildings</td>
<td>58, 62, 65, 67</td>
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<td>Classrooms and Offices</td>
<td>78,667</td>
<td>236,001 GSF</td>
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<tr>
<td>B Research Facilities</td>
<td>50</td>
<td>3</td>
<td>Wet and Dry Labs</td>
<td>15,000</td>
<td>45,000 GSF</td>
<td></td>
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</tr>
<tr>
<td>C Residence Halls</td>
<td>42, 44, 45, 53, 54</td>
<td>3</td>
<td>Double Bedroom Semi-Suites</td>
<td>93,526</td>
<td>280,578 GSF</td>
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<td></td>
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</tr>
<tr>
<td>Union Expansion 3</td>
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<td>88,153 GSF</td>
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<td>35,000 GSF</td>
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<tr>
<td>Support Services</td>
<td>23</td>
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<td></td>
<td>16,831</td>
<td>33,862 GSF</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>D Central Plant Expansion</td>
<td>1</td>
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<td></td>
<td>5,000</td>
<td>5,000 GSF</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>E Parking Structure</td>
<td>15, 17a, 17b, 43a, 43b, 52a, 52b</td>
<td>4</td>
<td>Concrete with Brick Veneer and Housing</td>
<td>3,311 Spaces</td>
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<tr>
<td>Parking Removed</td>
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<td>1,500 Spaces</td>
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<td><strong>SUMMARY PHASE 3</strong></td>
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<td>723,394</td>
<td>1,811</td>
<td>877</td>
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</tbody>
</table>

| SUMMARIZED PHASE 4 | Academic Space Removed | 0 GSF | Beds Removed | 0 |
| SUMMARIZED PHASE 4 | Academic Space Added | 364,663 GSF | Beds Added | 877 |
| SUMMARIZED PHASE 4 | Net Academic Space | 364,663 GSF | Net Added Beds | 877 |
| SUMMARIZED PHASE 4 | Previous Phase | 823,181 GSF | Previous Phase | 2,275 |
| SUMMARIZED PHASE 4 | Current Net Academic Space | 1,177,844 GSF | Current Net Beds | 3,152 |
| SUMMARIZED PHASE 4 | Renovated Academic Space | 0 GSF | Renovated Beds | 0 |
| SUMMARIZED PHASE 4 | Auxiliary Space Removed | 0 GSF | Parking Removed | 1,500 |
| SUMMARIZED PHASE 4 | Auxiliary Space Added | 368,731 GSF | New Parking | 3,311 |
| SUMMARIZED PHASE 4 | Net Auxiliary Space | 368,731 GSF | Net Added Parking | 1,811 |
| SUMMARIZED PHASE 4 | Previous Phase | 971,890 GSF | Previous Phase | 350 |
| SUMMARIZED PHASE 4 | Current Net Auxiliary Space | 1,340,621 GSF | Current Net Parking | 2,161 |
| SUMMARIZED PHASE 4 | Renovated Auxiliary Space | 0 GSF |                  |         |      |
| **TOTAL PHASE 3 SPACE ADDED** | 723,394 GSF |                  |         |      |
Although a single and unified institution, ASU is “One University in Many Places”, spatially distributed across metropolitan Phoenix.

Notes:
1. All conceptual project costs were developed in consultation with ASU in April 2005.
2. All conceptual pricing is in 2005 dollars. As project schedules are defined, adjustments for inflation will be needed to bring the estimates to current dollars.
3. Unless indicated otherwise, site development costs are included in each project.
4. The estimates provide order of magnitude costs only. Detailed estimates will need to be developed for each project.

<table>
<thead>
<tr>
<th>SUMMARY</th>
<th>ACADEMIC SPACE</th>
<th>AUXILLARY SPACE</th>
<th>TOTAL SPACE</th>
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</thead>
<tbody>
<tr>
<td>Space Removed</td>
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<td>0 GSF</td>
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<tr>
<td>Space Added</td>
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<td>1,768,670 GSF</td>
<td>3,486,513 GSF</td>
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<tr>
<td>Net Added Space</td>
<td>1,717,844 GSF</td>
<td>1,768,670 GSF</td>
<td>3,486,513 GSF</td>
</tr>
<tr>
<td>Space Renovated</td>
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<td>0 GSF</td>
<td>0 GSF</td>
</tr>
<tr>
<td>Existing Space</td>
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<td>223,000 GSF</td>
<td>790,000 GSF</td>
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<td>TOTAL CAMPUS GSF</td>
<td>2,284,844 GSF</td>
<td>1,991,670 GSF</td>
<td>4,276,513 GSF</td>
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TOTAL NEW SPACE PROPOSED GSF 3,486,513

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<tr>
<th>RESIDENCE HALLS</th>
<th>PARKING</th>
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<tr>
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<tr>
<td>Beds Added</td>
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<td>Net Added Beds</td>
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<td>Renovated beds</td>
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<td>Existing Beds</td>
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</tr>
<tr>
<td>Proposed Beds</td>
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</table>

36% Percent of FTE students living on campus
A New American University

Master Plan

- Existing ASU Buildings
- Proposed ASU Buildings
- Proposed ASU Parking Structure
- Mixed Use
Comprehensive Development Plan

Although a single and unified institution, ASU is “One University in Many Places”, spatially distributed across metropolitan Phoenix.

The attached matrix assigns projects to phases one through four. The phasing is suggested based on the above analysis, but allows for flexibility in the development of the projects based on available funding and available sites.

Within each phase is a letter code that denotes interdependency on other projects that share the same letter code. The matrix also identifies the location of the building with a numerical designation as referenced on the attached plan.

The projected footprint size, number of stories, and overall gross square footage for each building is included as a suggested capacity for the site. In most cases, the overall project size was determined by programmatic need. For example, the library addition size is based on the projected needs for a campus of 15,000 students. In other cases, the project gross square footage is based on the number of stories that projected use could sustain. For example, general academic classroom buildings need to be limited to five stories or less while research buildings or residential uses could be as tall as eight stories. In some cases, a mix of uses is suggested for a site. If this is the case, the matrix identifies the number of stories by use and provides an overall project square footage.

Detailed programming and design will need to be developed for each project. The matrix also includes order of magnitude total project cost in 2005 dollars. Due to petitions of specific information and project timing, these cost figures will need to be inflated and confirmed once the project parameters are identified.
Design
Guidelines
Guiding Principles

Urban: respect and reinforce the civic nature of the campus
Desert: climate, comfort, and shade
Modern: contemporary buildings with contextural materials

The best campuses in the world are memorable not necessarily because of the buildings, but because of the spaces between the buildings. The civic realm of the campus is an important element to the organization, shape, and identity of the campus. At the Arizona State University campuses, the civic realm will define how the campuses develop.

The importance of climate-responsive design, shade, integration with the natural environment, human scale, memorably shaped outdoor spaces, active streets and walkways, a clear hierarchy of buildings, treating the campus as a whole as opposed to a collection of moments (or monuments), and developing palettes of desert-appropriate materials and details cannot be overstated.

Each new building on the campus needs to be LEED certified with a silver rating or better. Working with the environment will be critical to the success of the campus. Phoenix’s summers are severe with rainless days reaching temperatures of over 115 degrees Fahrenheit. The fall, winter, and spring months have sunny warm days that provide an opportunity to link indoor and outdoor spaces for active use. The built environment does not need to be hermetically sealed but should take advantage of the climate with spaces that can keep the heat out in summer, allow the sun to flow in during winter, and take advantage of pleasant weather whenever possible.

When it does rain, it comes in short downpours that tend to seal the clay rich earth and cause spot flooding. Storm water management is a key issue. Developing bio-detention swales and collection near the source throughout the campus will assist in reducing the impact of storms.

The goal of the West campus is to build on the hierarchy of shaped outdoor spaces defined by buildings with a variety of uses creating a true collegiate community. New buildings should maintain the existing primary materials palette, interconnected courtyards, and continuous loggias but should strive to provide active uses on the ground floor opening into the loggias, malls, and courts.
Open Space Types

- Primary Open Space
- Secondary Open Space
- Tertiary Open Space
- Recreational Space
- Pedestrian Paths
- Roads
Guidelines

Urban: respect and reinforce the civic nature of the campus

Most buildings should be parallel or perpendicular to the spaces they abut such that they define malls, quads, courtyards, and streets.

1. Civic Space
   Shaped civic spaces form building footprints that are defined by build-to lines that create edges of malls, quads, courtyards, streets and pedestrian ways.

   Preserve view corridors and terminate with heroic-scaled buildings.

   Address civic spaces with composed facades and primary entrances.

   Service areas should be sited away from this public front or, if necessary, they should be screened from view.

2. Campus Edges
   New buildings should provide a welcoming front to the university where a well defined but porous edge should be maintained.

   Develop edges at perimeter of campus along property lines.

3. Climate Sensitive Design
   Shade and sun determine building and open space form.

   Orient buildings in East-West direction where possible for maximum day lighting potential and controlling solar gains.

   Design sunny and shady outdoor spaces for year-round use; Link sunny outdoor spaces to shaded interiors with partly shaded transitions; Use building elements and mass to provide shade at pedestrian areas.
Axes and Terminus Points

Loggia locations and alignments
Architectural hierarchy

The successful composition of a college campus requires that buildings work in concert with one another.

1. “Hero buildings” take on significance by nature of their function and mark a gateway or terminate a visual axis. These buildings may display a more heroic architectural character and could become an object in space. These buildings should be few in number and suggest an intuitive sense of order and legibility to the campus.

   Hero buildings should be limited to those building types which embody and relate the most universal and lofty aspirations of the institution – libraries, places of assembly, museums, performing arts venues, main administration, historic iconic buildings, etc.

2. The majority of campus buildings should act as good soldiers that form a backdrop to open spaces and defer to hero buildings.

3. Striking a balance between “heroes” and “soldiers” is critical to creating a legible and hierarchical campus setting.

Uses

1. Districts, Neighborhoods, and Centers

   The campus is organized in districts which are defined by primary uses with a mix of academic, residential, public venues, retail / food service, open space, and connection to the transportation network. Each of these districts are intended to be lively 24/7 neighborhoods which together build a connection to the university and to the surrounding community.

   The location of specific uses needs to be carefully controlled due to such factors as retail viability, life safety issues related to specific uses, security of residential areas, and access to academic functions.

2. Functional Building Heights

   The following functional height limitations need to be followed depending on site specific conditions (see campus use matrix for specific sites):
   - All buildings should be a minimum of three stories.
   - General classrooms, academic offices, and open labs: 3 to 4 stories (may have other uses above the 4th floor).
Proposed Mixed-use Town Center

- Research and office space: up to 8 stories on specific sites (may be located above general academic space). Scientific Lab space with specific ventilation requirements should be located such that exhaust does not interfere with other adjacent uses.

- Residential: 4 stories, preferred, up to 8 stories on specific sites (may have academic, retail, food service, office, recreational, meeting or other student life space under residential uses)

- Retail and food service: preferred 1 story up to 2 stories adjacent to major nodes of activity such as libraries, academic centers, residential, public venues, meeting space, etc.

- Public venues such as museums, performing arts, galleries, libraries, etc. need ground level contact but may be part of a multi-story mixed use building.

**Desert: climate, comfort, and shade**

Indoor and outdoor relationships

1. With the relatively comfortable climate during the academic year, it is possible to create useful outdoor spaces as an extension of the built environment.

2. Buildings should be connected together and articulated at their base with loggias, colonnades, and shade structures. These provide a shaded place to walk and create a temperate transition zone from outside to inside.

3. Courtyard buildings can create shady cool outdoor spaces that can be a focal point within a building. Care must be taken to allow ventilation low into the courtyard and through the top to create a thermal chimney.

**Building orientation and massing**

1. The massing of a building can be defined as the overall geometry (length, width, and height) of its perceived form.
Massing is one of the more significant factors that contribute to establishing the “character” of a specific building.

Of particular importance in defining the massing of a building is the overall height of the form (actual and perceived) as well as the geometry of its roof.

2. A low rise, high density approach to massing is recommended for ASU.
   - Maximize limited land resources
   - Building mass creates shade
   - Create interlocking indoor and outdoor space

3. Stair step buildings away from the open space to preserve light and views.

4. Relate height to width of space:
   - Primary space width approximately six to eight times the height;
   - Secondary space width approximately four times the height;
   - Tertiary space width approximately two times the height.

5. Step building mass down toward lower scale residential areas. – generally 3 levels maximum at the edge.

6. Buildings should maintain appropriate massing relative to the width of the street.

7. Consistent massing along each edge of campus is preferred.

8. Avoid massing that presents the image of an impenetrable campus wall at the edge of campus.

9. Break down the mass of large footprint buildings into appropriately scaled parts.

10. Massing for important public buildings may include grander civic elements that announce campus gateways and building use.

**Shade**

Due to the intense sunlight the area receives, shade should be a prime determinant of buildings and open space design. Sunlight, if controlled, may be used to increase day-lighting in buildings and reduce the dependence on artificial light during the day.

1. Shading strategies for exterior building surfaces are exposure specific and can vary on each building;
• Southern exposure: horizontal shelves, louvers, or screens, brise soleil, exterior walkways, etc. (Large expanses of unshaded south facing glass are not allowed)

• East and West exposure: vertical or brise soleil to reduce low and high angle solar angles

• North exposure: primarily vertical to reduce low angle solar gain

• Roof: light colored surface and/or horizontal shade structure to reflect heat

2. Day-lighting can be taken advantage of by incorporating light shelves into the building envelope which allows natural light to penetrate deep into a building by reflecting light off the ceiling.

3. Light may be bounced off of a south-facing wall into a north facing exposure; however, care must be taken to reduce highly reflective surfaces which can cause glare. Mirrored glass is not allowed.

Ventilation
During the summer, Phoenix is extremely hot and arid while most of the academic year the weather is quite pleasant. Buildings should be designed to take advantage of natural ventilation through operable openings, courtyards, and thermal chimneys.

Technology to improve performance of the building
1. Building systems such as heating, ventilation, air-conditioning, electrical, lighting, plumbing, waste water management, energy generation, etc. should be designed to be monitored and to optimize building performance.

2. Buildings should be designed to be easily maintained and repaired.

3. Buildings are required to meet the requirements of the current applicable building code, Americans with Disabilities Act, and other appropriate regulations determined by the State of Arizona.

4. All new buildings and renovations should attain a LEED certification of Silver or better.
Modern: contemporary buildings with contextual materials

Composition and scale

1. The role of scale and proportion in defining architectural character is a very significant one. Not only do they relate a building’s parts to its whole, and dictate how buildings relate to the human body, they also govern the relationship between groups of buildings and the outdoor “rooms” they create. In other words, scale and proportion influence not only the character of architecture, but the places that they define as well.

2. Building scale should be modulated by façades that follow a tripartite composition: base, middle and top.

3. Vertical rhythms of façade hierarchy (bay system), shade-giving structures and fenestration also modulate scale.

4. A series of humanly-scaled architectural elements will enable even today’s large footprint buildings to exhibit pleasing proportions.

5. Humanly scaled elements should be used especially at gateways and pedestrian entries into campus.

6. Porches, porticos and colonnades provide well-scaled transitions between the landscape zone and building entry.

7. Façade elements such as window size and building units should reflect the scale of similar elements used in neighboring structures.

Architectural expression and details

1. Porticos, gables, cornices, columns, and dormers are not style-dependent architectural elements. Rather, they act as a kit of parts that can be used to help define the character of buildings and grounds by regulating scale, massing, and façade rhythm.

2. Elements such as gates, water features, signage and sculpture may be used in conjunction with building elements in order to highlight campus gateways and entries penetrating the campus edge.

Precedents from Stanford University
3. Elements such as sidewalk paving patterns, low walls and colonnades used in tandem with landscaping create a subtle, graceful and identifiable transition zone between campus and community.

4. Architectural elements should be appropriate to the scale and hierarchy of the edge on which they front.

**Colors and Materials**

1. Appropriate materials for building construction on campus are very consistent. Brick with pre-cast concrete or stone trim is the historic material of choice and should remain as the primary building material. Traditional stucco or cement plaster or metal could be used as secondary materials. Metal accents and ornaments juxtapose well with monolithic masonry construction.

2. Glass entries, windows, and accents should be carefully considered given the overheated climate and in all cases should employ shade devices. Large unbroken scaleless expanses of glass are not allowed. Punched openings are preferred and should relate to the campus established patterns.

3. Sloped roofs should use material appropriate to sustainable design in the desert environment such as light colored metal or incorporating photovoltaic technology.

4. Materials
   - Masonry: Burgundy modular brick similar to existing
   - Trim, lintels, sills, columns, belt courses: pre-cast concrete or cast stone
   - Glass (shaded or screened depending on solar orientation). Mirrored or highly reflective glass is not allowed due to its potential to create glare.
   - Metal: copper
   - Traditional stucco or cement plaster

5. Colors
   - Desert: burgundy, tan, terracotta
   - Whites: warm grey, off-white

**Process**

*Under development by ASU*
Arizona State University at the West Campus
Landscape Architecture Design Guidelines

ASU at the West Campus: A Formal Green in the Desert

Introduction
ASU at the West campus is a formal green in the desert - a lush pedestrian environment that transitions at the edges to more xeric Sonoran Desert planting. The outdoor spaces are crucial to the character, coherence and comfort of the campus. The protection of existing successful spaces, the judicious renovation of existing less-successful spaces and development of new exemplary spaces will be encouraged. The existing successful formal gardens, outdoor courtyards and existing hardscape detailing will continue to be the unifying elements that help to create the unique campus identity and sense of place.

While people from around the country are drawn to Arizona for mild winters, the intense heat of the summer is brutal. Every aspect of the design must consider ways to mitigate the climate which can be uncomfortably warm. The Sonoran Desert climate dictates that designers create ample shade, reduce glare and heat reflection, and choose appropriate materials for seating and amenities. Luckily, the existing campus already exemplifies the use of trees and shade structures for shade and appropriate site furniture.

These guidelines set forth the basic considerations that must accompany future development and renovations on the ASU West Campus. They have been created to facilitate design on the campus that is cohesive, safe, easily-navigable and comfortable for all users. Therefore, designers must address the following general guidelines, which apply to all aspects of the campus:

• Build on the “formal green in the desert” theme for the campus
• Provide plenty of shade for outdoor areas, in the form of trees, vegetation, and shade structures.
• Consider sun exposure and orientation when selecting materials to reduce reflected heat, glare and hot metal surfaces.
• Incorporate a variety of gathering spaces and gardens, with special emphasis on the microclimates created by buildings and solar orientation.
Contents

I. Human Comfort of Body and Spirit

II. Strong Campus Identity

III. Campus Places
   A. Primary and Secondary Malls
   B. Pedestrian Plazas and Nodes
   C. Vehicular Gateways
   D. Pedestrian Portals
   E. Campus Edges/Streetscape
   F. Bike Lanes and Bike Storage
   G. Courtyards/Building Entries/Mall Nodes
   H. Water Features
   I. Lawns
   J. Parking
   K. Variety of Spaces

IV. Design Specifics
   A. Coherent Wayfinding
   B. Pedestrian Paving
   C. Comfortable Site Furniture
      1. Benches
      2. Tables
      3. Trash, Recycling and Ash Receptacles
      4. Lighting
      5. Additional Site Amenities
   D. Safety
      1. CPTED
      2. Fire Access
   E. Sustainable Measures
   F. The Campus Plant Walk
   G. Universal Access
   H. Planting

V. Appendices
   Oasis Garden Plant List
   Xeric/Arid Garden Plant List
I. Human Comfort of Body and Spirit

The biggest factor that influences design in the Sonoran Desert is climate modification for human comfort. The principles of the guidelines are further enhanced by directly making reference to the formal green campus concept – a place for respite and shelter from the extremes of our Sonoran Desert setting. The successful enjoyment of the campus will be directly related to providing human comfort of both body and spirit in outdoor environs.

Shade is precious and every opportunity to provide it is welcomed on all of the ASU campuses. The *formal green in the desert* character of the West campus must provide environmental respite through the creation of accessible shade. The provision of shade should be developed in as many ways as possible – using tree canopies, fabric awnings, building portales and entry coverings, shadows cast by building masses and brise-soleil, etc. to name a few.

Walkways should be developed with generous adjacent planting areas to provide tree establishment, longevity of growth, and vitality. Emphasis should be placed on integrating groves and linear gardens of canopy trees into paved walkways, courtyards, patios, seating areas and other gathering places. Particular emphasis is placed on providing shade at gathering areas and transitions from interior to exterior spaces. Building entries and seating areas should be the primary focus for providing shade when new campus developments are considered.

- Consider a variety of ways to incorporate shade, from trees and other vegetation to fabric awnings and entry coverings. Shade from trees is preferred over shade from structures.
- Include ample planting areas next to walkways and paved areas to allow for the growth of shade trees.
- Pay particular attention to building entries as these are important areas that often require extra shade to make the transition from inside to outside easier on pedestrians.
- Specify comfortable furniture with a variety of options, moveable and fixed.
- Develop building entry zones that accommodate inviting gathering, sitting and eating.
- Plant trees in groves in plazas and in linear bosques along walkways.
- Take advantage of microclimates created by buildings to create shaded gardens.
- Avoid creating areas extensive hard surfaces.
- Create special nodes that use judicious water features for psychological cooling.

*Existing shade on campus*

*Ample planters next to walks allow for large, healthy trees that provide much-needed shade to mall and building.*
Providing shade and preserving existing greenery is crucial to the success of outdoor spaces developed on the ASU West Campus.
Investigate shade in many forms to create comfortable gathering places.

- trees
- vertical “green screen”
- tensile structures
- wire mesh
- architectural shade
II. Strong Campus Identity

Because the campus is located within the urban fabric of Phoenix, it is important to create a strong campus identity that helps students and visitors navigate the grounds. This incorporates everything from gateway markers at pedestrian and vehicular entries to specific plant choices that help define a mall. ASU Signature banners, markers and signs, as well as enhanced and identifiable plantings, will emphasize the edges. Consistency of design choices across the campus will unify the grounds through materials, paving patterns and site amenities. The existing character and history of the campus, that of formal green in the desert, will be maintained.

- Place identity markers at key intersections.
- Plan gateways at campus pedestrian entry points.
- Design consistency in plant material on major campus streets.
- Create consistency in hardscape materials throughout the campus for unity.
- Incorporate the selected site furnishings and lighting to match the rest of the campus.
- Simplify the palette of materials for these important markers.

The main entry from Thunderbird Road provides a strong face to the campus. This approach, although not as grand scaled, shall reinforce the remaining campus entry points.

Campus identity markers at key locations act as landmarks and navigational tools.
III. Campus Places

Open spaces on the campus take a variety of forms. In this section, the guidelines address these spaces individually and provide design examples and sketches.

In addition, there is a hierarchy of gateways, entry points, and malls that will influence design factors. Not only must the form of the open space be considered, designers must also take into account the way in which users will access the space and how they will travel through it.
A. Primary & Secondary Malls

The pedestrian malls on campus help to move a large number of students quickly around campus. In addition, they serve as access for emergency and service vehicles. Fire truck access to the campus without interference must be considered. As the major passageways of the campus, new malls shall be broad and straight, match paving patterns of existing malls, and have ample shading with plenty of places to sit and rest. Certain species of trees will be added to the existing malls to create more consistency and identification to each mall. This ceremonial hierarchy contributes to their recognition for wayfinding and importance. Paving and signage will encourage universal access and ease of wayfinding. Amenities shall be matched and grouped together in the formation of “outdoor rooms” to delineate and organize the space without prohibiting movement. When designing pedestrian malls:

- Refer to the tree species plan for designated tree varieties on each mall and campus edge.
- Gather benches, lighting, signage and other site amenities to make them easily accessible without disrupting pedestrian traffic flows.
- Provide shaded seating at regular intervals
- Use existing brick and concrete paving patterns for new pedestrian malls.

Location of existing and future malls on the West campus

Tree Species Concept Plan
Section at pedestrian mall node

Section at primary mall

Section at secondary mall
B. Pedestrian Plazas and Nodes

At the major intersections and along the edges of pedestrian malls are enlarged paved areas we identify as plazas and nodes. Plazas and nodes serve the dual purposes of facilitating traffic flow and directional change, and providing gathering spaces for students. They are natural places for social activities and are the logical choice for amenities like fountains and kiosks. Design considerations should include paving and lighting that allow for easy wayfinding, and site furnishings that create comfortable spaces for gathering, resting, reading, studying, and formally assembling. Attention to placement of site furnishings, shade and accessibility is essential for this space to function. Nodes created at the mall intersections can provide visual cues for wayfinding and mall identity. These landmark spaces should be developed with public art, fountains, shade structures and planting.

Design of pedestrian plazas and nodes must:

· Incorporate different types of seating, such as tables with chairs, permanent benches and moveable seating, to allow for many types of uses. See the Site Amenities section of these guidelines for materials and finishes.
· Address the conflicting needs of users wishing to pass through the site uninterrupted and the desires of those coming to the plaza as a gathering space
· Integrate directional kiosks and water features appropriate to the significance of the particular plaza.
· See the Paving section for patterns and materials.

As focal points of the campus, pedestrian plazas and nodes should be well shaded and comfortable for gathering. They are also ideal places for public art installations, water features and cafes.

This plaza in downtown Phoenix makes use of a mesquite grove to create a comfortable, shady place to spend time.
C. Vehicular Gateways

Campus gateways are very important to visitors and motorists as visual indicators that they are entering the campus precinct. These thresholds to the campus shall be emphasized with unique markers/luminaries as well as low, simple sign walls that mark the campus corners and vehicular entries. Formal rows of drought tolerant trees will mark the transition from city street to urban campus. Special paving will indicate the entry points and plant massing will speak of the garden oasis. The main vehicular entrance to the West campus, on Thunderbird Road, is a successful gateway, but the other entry points still need emphasis befitting their importance.

- Place campus markers and simple sign walls at vehicular entry points.
- Create formal alleés with desert-adapted trees to provide shade and provide a formal recognition of the campus threshold.
- Incorporate mass plantings of colorful desert shrubs to have a big impact on visitors passing through in a vehicle.
- Begin banners at furthermost points to lead in to campus.

The existing vehicular entry at 48th Avenue does not convey the importance of the campus threshold.

Sign walls, campus markers and banners signal the importance of campus gateways.

Map of gateways to the campus
D. Pedestrian Portals
Because the ASU campus is surrounded by urban and residential development on all sides, there is a need to demarcate the pedestrian gateways and form a strong campus identity at the boundaries. These pedestrian portals should be welcoming and identifiable. Plant material at entry locations should be low and colorful to entice visitors and emphasize the garden oasis in the desert. Design work at entry points must mark a clear entry into the campus, and create a shady respite for meeting and gathering. Elements of the pedestrian portal shall include sizable ASU signature column markers and low seatwall/sign walls that identify the name of the mall. Shaded seating in conjunction with these seatwalls will form the basis of the gathering spaces. These areas must be well lit, and free from clutter to allow for visual access into the campus as well as pedestrian entry.

- Position ASU signature column markers and low seat wall identification markers with mall name at major pedestrian portals to create strong gateways.
- Provide shaded seating with well-spaced benches.
- Refer to the Plant Species list for colorful, desert adapted plant choices.
- Organize newspaper racks in a system similar to the one in the photograph below to eliminate clutter at these important entries.

A good portion of the existing pedestrian traffic comes from nearby city bus stops, so designers must be mindful of this connection.

Elevation of a pedestrian portal with dense planting and sign wall to indicate the campus location

Organization of newspaper boxes and other site amenities makes for a welcoming entry that is free from clutter.

Sketch of the mass tree planting and campus marker that help to define a pedestrian portal
E. Campus Edges/Streetscape

There is a very successful established landscape character on the northern campus edge along Thunderbird Road. This garden character should be continued along the other three perimeter street edges of the campus - 43rd Avenue, 51st Avenue and Sweetwater Avenue, but should allow more visibility than the existing Thunderbird Road planting. Desert trees, coupled with low, colorful plantings, will shade the pedestrian and bicycle paths and form a strong but pleasant edge of the campus.

The goal for the edge modification is to create a special garden environment of tree-shaded detached sidewalks, seating opportunities and pedestrian safety. In addition, the West Campus has the potential to form a strong link to the community through its perimeter walking trail which will attract local residents who enjoy the desert vegetation and peaceful setting. These campus edges will be the transitional areas that link the formal campus to the regional Sonoran garden landscape. The strong, green presence visible in the interior of the campus will welcome visitors, invite activity in the commercial centers and help to establish the campus as a destination in the West Valley.

The detached pedestrian walks are separated from the travel lanes by a continuous planting bed along the curb edge. The planting bed must be sufficient in width to provide a viable medium for robust tree growth and longevity. Use of structural soil in these harsh urban conditions is encouraged to facilitate aeration of tree roots. Low, colorful plantings will entice visitors without impairing visual access to traffic and lush shrubs emphasize the garden oasis in the desert.

- Create formal double rows of trees in a triangulated pattern on streetscapes to provide a maximum amount of shade to pedestrians and bicyclists.
- Designate detached sidewalks and allow for wide planters between sidewalks and traffic lanes. Minimum 8’ wide planters should be incorporated to encourage large, healthy trees.
- Refer to the City of Phoenix’s Street Tree planting guidelines to select tree species that match the City’s designated street trees.
- Specify structural soil where possible to provide adequate soil volume for tree root growth. This will not only encourage larger trees, it will also increase their life-spans.
- Provide for colorful, lush plantings that will not interfere with traffic and pedestrian visibility.
- Incorporate the University’s signature banners and lighting to celebrate edges.

Map of campus edge and key streetscapes
F. Bike Lanes and Bike Storage

The major design considerations for bike lanes are safety and climate modification. Bike storage areas will be divided into several types, including large areas for storage of 60 to 100 bikes, and smaller stations that hold 10 to 15. They should be convenient to bike paths and located close to building entrances. They will be well-lit and designed with appropriate screening, such as planting or green fencing, that helps blend them into the surrounding landscape without compromising the safety of users when locking up their bikes.

- Use low plantings around bike storage areas to blend them into the surroundings without blocking visual access.
- Incorporate lighting to illuminate bike storage racks.
- Position bike storage racks as close as possible to building entries.
G. Courtyards/Building Entries/Mall Nodes

These are the spaces between the Mall edges and the entries to campus buildings. They are crucial to the success of the existing and new architecture on campus because it is also in these spaces that students and professors potentially gather, meet and socialize more informally before and after classes. Building courtyards, entries and patios play a major role in blurring the line between indoors and outdoors. In the desert, they serve as important transitions between the blazing heat and the cool darkness of the interior. They are perfect places for unique and specimen plants and often provide opportunities to use plants that thrive in the microclimates created by the buildings. These spaces shall be shady either with the aid of shade structures or groves of trees. Comfortable seating with trash receptacles are other elements to be included. Paving patterns here should indicate the importance of the building’s entrance.

- Design planting plans that emphasize the building’s entrance.
- Consider using unique specimen plantings in appropriate entry locations.
- Augment the building’s shade with trees or vegetative screening as needed
- Position trash and ash receptacles close to building entrances.
- Include ample seating in the form of benches and seat walls.
- Design paving that leads visitors to building entrances.
This plan incorporates paving patterns to indicate the building’s entry and a seating node that takes advantage of the microclimate near the building.

Shaded entries help visitors make the transition from bright sunlight to darkened interior.
H. Water Features

Water in the desert southwest is precious and its use for psychological cooling is important, however it must be done with restraint. Water’s soothing effect is needed on campus and it is recommended that water be present at major gathering areas on campus – where the masses can enjoy it. Fountains are also encouraged in small gathering areas and cooling microclimates of courtyards and outdoor rooms. All fountains’ mechanical systems to include high quality pumps and filters and these systems shall be designed by fountain mechanical engineers.

The designer is encouraged to be more open as to what a water feature can be in the Sonoran desert. The campuses of institutions like ASU have a special opportunity to provide a living-laboratory of using waste water such as storm water and condensate in the urban landscape. There are a variety of sustainable water feature systems that can be developed on campus in addition to the traditional methods of using potable water for fountains. These include harvesting and reuse of storm water runoff, HVAC condensate, gray-water recycling and other resources. These resources can then be used in fountains and water features that not only provide enhancements of visual quality, sound quality, and cooling but create demonstration gardens that scrub the water of impurities, augment the landscape irrigation systems, and potentially recharge the local water table.

- Locate fountains at important campus locations where they will have the biggest impact.
- Use water features in courtyards and outdoor rooms where appropriate to create cooling microclimates for protected gathering spaces.
- Incorporate sustainable practices into water feature design by considering rainwater harvesting and reuse, collection of air conditioner condensate and gray-water recycling.
- Consider small or subdued, brimming fountains to provide a cooling, soothing effect while minimizing evaporation.
- Use high quality pumps and filters.

Although this fountain is in a pedestrian plaza, it is not as effective as it could be because it is not placed to take advantage of breezes for cooling purposes, and visually it blends in with the steps.

These existing fountains on campus are quite effective as focal points that also create pleasant places to spend time.
An elegant, brimming fountain minimizes the evaporation that occurs with more active fountains.

This fountain creates a cooling effect in a courtyard cafe and adds the pleasant sound of trickling water.

Small fountains can be effective in small places.

This design features irrigation as a fountain.

This is a rainwater harvesting garden which doubles as a unique water feature at the Biodesign Institute at ASU.

Irrigation seep provides the cooling effect as an ephemeral water source at the Biodesign Institute at ASU.
I. Lawns
The West Campus owes much of its existing character to the formal lawn spaces in the heart of the campus. These elegant spaces should be preserved as they provide students with a cool, green place to relax and gather with friends. These areas should be kept relatively open, allowing for visual enjoyment as well as recreational and gathering space.

- Balance tree planting in lawn to create maximum usable space for gatherings and recreation.
- Trees should be generally located around the perimeter.
- Provide benches and seatwalls at lawn edges to take advantage of shade for seating.
- Avoid breaking up lawn areas with paving and numerous walkways.

*Existing lawn areas on campus should be preserved.*
J. Parking
As with any college campus, surface parking at the West campus of ASU takes up a good percentage of land. Careful design considerations, however, can help blend parking lots into the landscape so they appear less dominant than they tend to be. Located at the perimeter of the campus, the majority of parking falls in the desert landscape zone. (See the section on Landscape Zones and the Xeric/Arid Garden Plant List in the appendix for more information.) An abundance of trees for shade keeps the temperature down and ample groundcovers and shrubs can ease the transition from parking to landscape. Permeable paving softens the visual impact of parking lots while allowing for better drainage, aquifer recharge and natural basins.

Permeable paving in a parking lot creates a space that is cooler and less reflective than asphalt, and helps manage storm water runoff.

K. Variety of Spaces
The existing campus has a special quality because of the garden spaces that are interwoven throughout. Particular attention should be paid to microclimates created by building juxtapositions and solar orientation. Include a variety of different space types to provide interesting gathering areas and more secluded locations for quiet study.

- Integrate more private/surprise gardens all over campus and in new developments.
- Create shaded seating opportunities around sports fields and recreation areas for spectators – activate the edges.
- Provide places along malls and near buildings for groups to study together in comfort.
- Protect existing lawn gathering spaces
IV. Design Specifics

A. Coherent Wayfinding

Wayfinding provides campus visitors, faculty, students and staff the opportunity to recognize their location and easily navigate the campus. This is most often accomplished with signage and environmental graphic systems, focal point elements, paving systems, landscape themes and other visual cues to aid in recall. These arrangements allow people on campus the ability to associate key elements and environmental treatments specifically to certain areas of the campus.

- Follow the University’s accepted styles for all signage and identity markers.
- Locate navigational aids at all major pedestrian nodes, key intersections and campus entries.
- Refer to the map of Pedestrian Mall Tree Species to adhere to the chosen species for each mall. This will help visitors orient themselves on campus.
- Create unique focal points such as fountains and sculpture at mall intersections.
- Design mall plantings to create defined, identifiable, unique malls.
- Create monuments and strong gateway character at campus perimeter.
B. Pedestrian Paving
Cost effective, non-reflective paving materials must be matched with aesthetically pleasing accents to identify primary circulation systems from secondary & tertiary walkways. Special consideration shall be made to define a consistent surface treatment that provides a detectable edge for the visually impaired. All future hardscape for the campus shall meld with the existing brick bands and concrete fields that exist today.

The pedestrian malls on the West campus which provide principal access for students, faculty and staff must include methods to guide visually impaired users. A band of brick as seen below at the existing campus on the outward edge of all paving would be felt and heard by the walking canes of the visually impaired, making it easier and safer to navigate the campus.

The concept for using a textured edge treatment is sound, but its execution should be standardized. An alternative method for treating the edge of pavement condition may include use of a raised curbing along the outside edge of the pavement. If the curb alternative is used, regularly placed scuppers or weep apertures should be located in the curbing to allow storm water runoff from the walkways to be diverted to adjacent landscape planting areas. Also it may be advantageous to use a field of the smaller 3/8” exposed aggregate material with smooth, light sandblasting on the edges as a contrast to reduce the immense glare from smooth concrete. The exposed aggregate at this size is also easier to walk on than the 3/4” that is currently in use.

- Incorporate surface finishes to reduce the glare from reflective, smooth paving.
- Design patterns that do not conflict with the pavement edge warning.
- Choose light integral color paving over darker colors to reduce heat absorption.

Brick banding at the edge is good for visually impaired students’ navigation of malls.

The existing brick banding and concrete shall be used consistently on future malls and walkways.
C. Comfortable Site Furniture

Great care and thought must be taken when selecting site furniture (seating, benches, tables, trash receptacles, etc.) for environments in the desert southwest. The intense heat and powerful solar rays are brutal on materials and their longevity, and no one wants to sit on an overheated metal bench in the summer. In addition, users can be destructive to the materials and elements selected, (through skating, boarding, biking, and general abuse). Site furniture should be simple and blend in to the landscape so the furniture that has been selected is light, airy and visually simple. Plazas and gathering spaces should have plenty of shaded tables with moveable chairs so that users can make themselves comfortable for eating, studying, or visiting with friends.

The existing site furniture on the West campus is appropriate for the climate and very attractive. The series of recommended site furnishings provided below matches the other ASU campuses and would be acceptable for future projects. The elements have been selected for their proven durability, sustainable use of materials and relative simplicity (lessening the probability that the style becomes dated). These same principles should be taken into consideration when identifying site elements not found in these guidelines.

1. Benches
Vendor: LandscapeForms

Product Data

- Benches are available backed or backless surface mount style or freestanding (should include wear-resistant non-marring glides).
- All metal is polyester powdercoat, a hard yet flexible finish to resist rusting, chipping, peeling and fading.
- Benches should meet BIFMA performance and safety standards.
- Optional seat divider is a contoured cast aluminum component that fits across the seat from back to front – to provide personal space and discourage sleepers and skateboarders.
- Benches shown here have a minimum of 69% recycled content and are 100% recyclable.
- Landscape Forms’ Panguard II® Powdercoat finish contains no heavy metals, is HAPS-free and has extremely low VOCs.

Lighter benches were chosen to update the look of the campus.
2. Tables & Café Seating

Vendor: Landscape Forms, Carousel

Product Data

- Metal grid seats stays cool in the sun; dry quickly after rain
- 3, 4, 5 or 6 seat styles offered, 3-seat and 5-seat are spaced to allow one open seat for wheelchair accessible.
- Surface mount or freestanding with glides
- Metal grid or perforated metal seats; backed or backless
- Table tops may be Marneaux, Catena (powdercoated metal or random finish stainless steel), Steelhead (solid or perforated top), Fiberglass
- Tables can be selected with optional umbrella hole, which cannot be added later, and the built-in umbrella holder and mounting bolts for umbrella pole.
- Metal parts finished with Panguard II® powdercoat available in standard colors (Catena with stainless steel table top is not powdercoated.)
- Carousel table with grid seats has a recycled material content of 90% or higher and is 100% recyclable.
- Landscape Forms Panguard II (R)Powdercoat finish contains no heavy metals, is HAPS-free and has extremely low VOCs.
3. Trash, Recycling, and Ash Receptacles

Vendor: LandscapeForms Petoskey Litter Receptacles

Product Data

- Receptacles can be freestanding or surface mount.
- They have a heavy, stable cast iron base and are perforated at the bottom for ventilation.
- All metal is finished with polyester powdercoat, a hard yet flexible finish that resists rusting, chipping, peeling and fading.
- Petoskey Litter Receptacle has a recycled material content of 86% or greater. The post consumer content is 56% or greater and the post industrial content is 30% or greater. The Petoskey Ash Urn has a recycled content of 90% or greater. The post consumer content of the ash is 59% or greater and the post industrial content is 31% or greater. Both styles are 100% recyclable.
- Landscape Forms Panguard II® Powdercoat finish contains no heavy metals, is HAPS-free and has extremely low VOCs.

“Petoskey” receptacles
4. Lighting

Selection of site lighting must address safety and follow a consistent and logical family of fixtures, materials and aesthetics. The following models have been chosen to provide a clean, consistent look on campus.

Vendor: Architectural Area Lighting
Model: ‘Largent’ for pedestrian mall lighting; powder coat finish

With the rise of Dark Sky ordinances throughout the US, AAL has created several product lines that meet the International Dark Sky Seal of Approval for IES Full-Cutoff luminaries.
5. Additional Site Amenities

Other pieces chosen for the campus should follow the look of being clean, modern and exciting. When exact models are not specified, keep to the character described in these guidelines.

D. Safety

1. CPTED

The ASU campuses should always exhibit and ensure a safe and comfortable environment for all throughout the 24 hour day. In order to promote this goal, it is recommended that all developments on campus follow the rules and guidelines set forth in the Crime Prevention Through Environmental Design (CPTED) guidelines. CPTED guidelines follow the principle that “The proper design and effective use of the built environment can lead to a reduction in the fear and incidence of crime, and an improvement of the quality of life.”

There are three relevant overlapping CPTED strategies:

Natural Surveillance
A design concept directed primarily at keeping intruders easily observable. Promoted by features that maximize visibility of people, parking areas and building entrances: doors and windows that look out on to streets and parking areas; pedestrian-friendly sidewalks and streets; adequate nighttime lighting.

Territorial Reinforcement
Physical design can create or extend a sphere of influence. Users then develop a sense of territorial control while potential offenders, perceiving this control, are discouraged. Promoted by features that define property lines and distinguish private spaces from public spaces using landscape plantings, pavement designs, gateway treatments, and ‘CPTED” fences.
Natural Access Control
A design concept directed primarily at decreasing crime opportunity by denying access to crime targets and creating in offenders a perception of risk. Gained by designing streets, sidewalks, building entrances and neighborhood gateways to clearly indicate public routes and discouraging access to private areas with structural elements.

Designers and planners may reference the International CPTED organization website at http://www.cpted.net

2. Fire and Safety Access
Fire and safety access on a campus is a critical factor that must be successful at every level. The West Campus of ASU has its fire protection provided by the City of Phoenix. Therefore the campus and all of its susceptible areas must be accessible by the City’s fire and emergency vehicles. The basic criteria for emergency and fire truck use on campus are as follows:

This firelane on campus shows an attractive way to provide access for emergency vehicles.

Campus malls should be free from obstructions to allow access for service and delivery vehicles.
• Incorporate a minimum 20’ wide path on all malls to allow for emergency access.
• Do not locate objects in the mall that would conflict with a fire truck’s 25’ inner turning radius and 50’ outer turning radius or impede their ability to turn from one mall onto another.
• Provide space for fire trucks to get within 150’ of a building.
• Allow fire truck access to at least 3 sides of building, or all 4 sides if there is an entrance on all sides.
• Provide ample space for fire trucks to continue through without having to reverse if the access path to a building entry is more than 150’.
• Design malls that can support the required 55,000 lb load.

This is not an all-inclusive list. Prior to designing and planning more technical information and detail should be acquired from the University Architect and the City of Phoenix Fire Department.

E. Sustainable Measures

ASU at the West campus is a unique learning environment, providing a virtual design laboratory within its campus. One of the wonderful opportunities available in this setting is the development of sustainable measures for cities and urban spaces.

In the arid climate of the Sonoran Desert, water is precious. The landscape development guidelines include working models for rainwater harvesting on the campus. These models should investigate both low-tech and innovative methods, such as stormwater reuse, gray-water recycling and collection of air conditioner condensate for water features and irrigation systems. These can be as simple as manipulating paved surfaces to direct runoff to planters or as involved as collaborating with a design team to plan for a condensate collection system on new building construction. In addition, designers can implement proven practices to encourage vigorous tree growth, such as using structural soil and creating ample planter space. Techniques like these will encourage healthy trees with long life spans, helping improve air quality and environmental quality for pedestrians. As a university, we have a unique opportunity to showcase best practices and be a model for sustainable design.

Therefore:

• Investigate techniques for water harvesting, such as collecting condensate from HVAC systems, reusing rainwater runoff, and recycling gray-water.
• Specify low water use plants. Refer to the Plant Materials section of these guidelines.
• Specify low maintenance plants. Allow room on planting plans for plants to reach their mature size without extensive pruning.
• Use irrigation techniques known to save water, such as installing drip irrigation systems and watering in the early morning.
• Practice/develop techniques for improved tree growth, with use of structural soil and tree planting trenches near hardscape elements.
• Focus runoff towards planting and tree beds.
• Use furnishings that have recycled and post-consumer recyclable materials.
• Use permeable paving.
• Locate shade trees to block the sun and provide natural cooling for buildings.
• Specify long-lived trees.
• Incorporate ample shade in parking lots to shade cars thereby reducing harmful VOC emissions.
• Use recycled and recyclable materials.
• Specify material from local sources.
Studies of simple water harvesting techniques

Detail of structural soil

Porous paving in parking lots

Gabions

Wall made of recycled concrete sidewalks

Recycled broken concrete paving
Designers are encouraged to find more graceful ways than this existing solution (above) to let storm water enter the landscape, as seen below.

This bio-sponge treats stormwater runoff before it enters the aquifer.

Retention as urban wildlife habitat

Stormwater enters ground through a bubbler box in reinforced concrete pipe.

Low water use plants can be colorful and beautiful.
F. The Campus Plant Walk

The West campus has the potential to be a real community draw with its Plant Walk. This is a great way to introduce the community to the beauty and variety of plants that thrive here in the Sonoran Desert. In addition, there are many established trees on the campus that should be preserved. No existing mature trees will be cut down or damaged in any way without permission from the Facilities Director. Boundaries of the shaded garden zone will be maintained as shown in the accompanying diagram. Existing and newer desert zones will be created around the perimeter developments of campus to demonstrate our beautiful Sonoran Desert plant communities and transition to the desert landscapes beyond the campus.

- Do not remove existing trees without permission from the Facilities Director.
- Refer to the map of planting zones for the campus, and find plants for each zone on the Plant Materials list.
- Build on the formal green in the desert theme by adhering to the planting zones described above.
- Use more xeric and native plants at new projects on outer edges of campus.

xeric/arid garden

oasis garden
G. Universal Access

All new and renovated constructions are required by law to adhere to the standards set forth in the Americans with Disabilities Act (As published in the Title III regulations (28 CFR Part 36, revised July 1, 1994) issued by the Department of Justice. The ADA Standards for Accessible Design).

More stringent standards than those established by ADA will be required for all new construction and renovation projects on ASU campuses. The standards proposed, to ensure universal accessibility to all users of all areas of the campuses, are as follows:

- All points of development for active exterior use shall be universally accessible (e.g., lawns, quads, walks, ramps, courtyards, patios, recreation fields, malls, and entryways)
- Sloped walks shall not exceed 5% and may not maintain a continuous slope for more than 30’ (thirty linear feet) without providing a 60” x 60” min. landing interval. The landing area may not exceed 1% slope in any direction.
- No walkway, ramp, or inclined access shall have a cross slope exceeding 2% maximum.
- All sloped entry ramps 4% or greater shall have a minimum 5 foot landing for every 30’ of run.
- All walks with a slope greater than 5% are considered ramps and shall have a handrail that meets the requirements of the ADA.
- Reduce use of overly coarse textured paving surfaces.
- Stairs shall have uniform and comfortable riser to tread relationship.
- All pedestrian street interfaces should incorporate tactile paving and audible cross walk signal.

Existing ramp on campus
H. Planting

The plant palette for the “Formal Green in the Desert” theme of this campus differs from the other campuses. A variety of desert-adapted trees and plants should be used, but on this campus designs can also take advantage of oasis trees that are not native to the Sonoran Desert. See the plant lists in the appendix for the suggested plant palette.

Ash
Aleppo Pines
existing Pear Trees
Chilean Mesquite
Date Palms
Ficus Allée

Chilean Mesquite
Date Palms
Ficus Allée
ASU Xeric/Arid Garden Plant list

Trees:
Acacia smallii  Sweet Acacia
Acacia stenophylla  Shoestring Acacia
Acacia willardiana  Palo Blanco
Bauhinia lunarioides  Chihuahuan Orchid Shrub
Bauhinia macranthera  Chihuahuan Orchid Tree
Celtis reticulata  Canyon Hackberry
Chilopsis linearis ‘Lucretia Hamilton’ Desert Willow
Chitalpa tashkinensis hybrid  Chitalpa
Olnya tesota  Ironwood
Parkinsonia ‘Desert Museum’  Hybrid Palo Verde
Parkinsonia floridum  Blue Palo Verde
Parkinsonia microphyllum  Foothills Palo Verde
Parkinsonia praeccox  Palo Brea
Bouteloua gracilis  Texas Ebony
Bouteloua curtipendula  Cottonwood
Prosopis alba  Argentine Mesquite
Prosopis chilensis  Chilean Mesquite
Prosopis velutina  Velvet Mesquite
Sophora secundiflora  Texas Mountain Laurel
Chiliopsis linearis ‘Lucretia Hamilton’ Desert Willow

Shrubs: (cont’d.)
Calliandra californica  Red Fairy Duster
Calliandra eriophylla  Native Fairy Duster
Celtis pallida  Desert Hackberry
Chrysactinia mexicana  Damiana
Cordia parvifolia  Littleleaf Olive
Cordia boissierii  Texas Olive
Dalea frutescens  Black Dalea
Dalea pulchra  Indigo Bush
Dodonaea viscosa  Hopbush
Encelia farinosa  Brittlebush
Ericameria laricifolia  Turpentine Bush
Eriogonum spp.  Buckwheat sp.
Euphorbia biglandulosa  Gopher Plant
Justicia californica  Chuparosa
Justicia ovata  Mexican Honeysuckle
Justicia speiegera  Creosote
Larrea tridentata  Chihuahuan Sage
Leucophyllum laevigatum  Texas Sage species
Leucophyllum pruinosis  Wolfberry
Leucophyllum pulcherrima  Paperflower
Leucophyllum marrubifolia  Baja Ruellia
Leucophyllum lunarioides  Scarlet Sage
Leucophyllum holly ‘Orange Jubilee’  Autumn Sage
Ocotillo  Mexican Bush Sage
Ocotillo pulchra  Mexican Elderberry
Ruellia carthae  Jojoba
Ruellia brittoniana  Betony
Ruellia pedunculata  Mt. Lemon Marigold
Ruellia pulchella  Orange Tecoma Stans
Ruellia brittoniana  Yellow Tecoma Stans
Ruellia gilliesii  Trixis
Ruellia peninsularis  Goldeneye

Perennials and Groundcovers:
Baileya multiradiata  Desert Marigold
Dysdias acerosa  Shrubby Dogwood
Dyssoxia pentacheta  Globemallow
Sphaeralcea ambiqia  Lantana spp.
Lantana spp.  Penstemon spp.
Verbena gooddingii  Verbena gooddingii
Verbena pulchella  Verbena pulchella
Zephyranthes candida  Sandpaper Verbena

Grasses:
Bouteloua curtipendula  White Rain Lilly
Bouteloua gracilis  Sideoats Grama
Mexican Bush Sage  Blue Grama
Muhlenbergia spp.  Beargrass
Nolina spp.  Beargrass
### ASU Oasis Garden Plant List

#### Trees:
- Bauhinia congesta (Orchid Tree)
- Bauhinia blakeana (Hong Kong Orchid)
- Bauhinia purpurea (Purple Orchid)
- Butia capitata (Pindo Palm)
- Callistemon citrinus (Bottlebrush)
- Callistemon viminalis (Weeping Bottlebrush)
- Cercis canadensis (Redbud)
- Citrus spp. (Citrus)
- Chorisia speciosa (Saguaro)
- Cupressus arizonica (Arizona Cypress)
- Cupressus sempervirens (Japanese Cypress)
- Dalbergia sissoo (Indian Ebony)
- Ficus carica (Edible Fig)
- Ficus nitida (Ficus sp.)
- Ficus rubiginosa (Rustleaf Fig)
- Fraxinus spp. (Ash Tree)
- Jacaranda (Crape Myrtle)
- Lagerstroemia indica (Sweet Bay)
- Laurus nobilis (Sweet Olive)
- Olea europaea ‘Swan Hill’ (Swan Hill Olive)
- Phoenix canariensis (Canary Island Date Palm)
- Phoenix dactylifera (Date Palm)
- Pinus halepensis (Aleppo Pine)
- Pistacia chinenis (Texas Ebony)
- Pistacia flexicaulis (Evergreen Pear)
- Pyrus calleryana ‘Bradfordii’ (Bradford Pear)
- Pyrus kawakamii (Evergreen Pearl)
- Quercus virginiana (Live Oak)
- Schinus terebinthifolius (Brazilian Pepper)
- Sophora japonica (Texas Mountain Laurel)
- Tachigalia peruviana (Yellow Oleander)
- Tipuana Tipu (Tipu)
- Ulmus parvifolia (Evengreen Elm)
- Vitex agnus castus (Chaste Tree)
- Washingtonia filifera (California Fan Palm)
- Washingtonia robusta (Mexican Fan Palm)
- Xylosma congestum (XYLOLSMA CONGESTUM)

#### Shrubs:
- Alyogyne helgelli ‘Monk’ (Blue Hibiscus)
- Asparagus densiflorus ‘Myers’ (Foxtail Fern)
- Aspidistra elatior (Cast Iron Plant)
- Aucuba japonica (Aucuba)
- Aucuba japonica (Bamboo species)
- Callistemon citrinus (Dwarf Bottlebrush)
- Carissa sp. (Natal Plum)
- Cercis mexicana (Mexican Redbud)
- Clivia miniata (Flame Kaffir Lily)
- Cocculus spp. (Sago Palm)
- Cycas revoluta (Purple Hop Bush)
- Dodonea viscosa ‘Purpurea’ (Green Hop Bush)
- Euonymous spp. (Japanese Aralia)
- Fatsia japonica (Queens Wreath)
- Xylosma congestum (Queens Wreath)

#### Shrubs (cont’d.):
- Gaura lindheimeri ‘Siskiyou Pink’
- Hibiscus rosa-sinensis
- Ilex vomitoria
- Jasminum nitida
- Jasminum sambac
- Jasminum sambac ‘Grand Duke’
- Justicia brandegiana
- Justicia spicigera
- Lavandula spp.
- Ligustrum japonicum
- Myrtus communis
- Myrtus communis ‘compacta’
- Nandina domestica
- Nerium oleander
- Osmanthus fragrans
- Pennisetum setaceum ‘rubrum’
- Perovskia atriplicifolia
- Photinia fraserii
- Pittosporum toboira
- Plumbago auriculata
- Podocarpus gracilior
- Punica granatum
- Rosmarinus officinalis
- Raphiolepis spp.
- Ruellia peninsularis
- Russelia equisetiformis
- Salvia spp.
- Strelitzia reginae
- Tecoma capensis
- Trachelospermum jasminoides
- Xylosma congestum

#### Perennials:
- Canna x generalis (Garden Canna)
- Hemerocallis hybrids (Daylilies)
- Echinacea purpurea (Coneflower)
- Hymenoxys acaulis (Angelia Daisy)
- Phlomis lanata (Jerusalem Sage)
- Washingtonia filifera (Mexican Hat)

#### Vines:
- Antigonon leptopus (Queens Wreath)
- Bougainvillea spp. (Bougainvillea)
- Campsis radicans (Trumpet Vine)
- Feijoa sellowiana (Pineapple Guava)
- Ficus pumila (Creeping Fig)
- Gelsemium sempervirens (Carolina Jessamine)
- Hardenbergia violacea (Vine Lilac)
- Hedera helix (English Ivy)
- Macfadyena unguis-cati (Carolina Jessamine)
- Parthenocissus quinquefolia (Creeping Fig)
- Podranea ricasoliana (Boston Ivy)
- Pyracantha spp. (Pink Trumpet Vine)
- Rosa banksiae (Pyracanthia)
- Vigna caracalla (Lady Banks Rose)
- Snail Vine
<table>
<thead>
<tr>
<th>Groundcovers</th>
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<tbody>
<tr>
<td>Setcreasea pallida</td>
<td>Purple Heart</td>
</tr>
<tr>
<td>Lantana camara ‘New Gold’</td>
<td>New Gold Lantana</td>
</tr>
<tr>
<td>Lantana montevidensis</td>
<td>Purple Lantana</td>
</tr>
<tr>
<td>Lantana camara ‘Radiation’</td>
<td>Red/Yellow Shrub Lantana</td>
</tr>
<tr>
<td>Liriope muscari</td>
<td>Lily turf</td>
</tr>
<tr>
<td>Portulacaria afra</td>
<td>Elephant Food</td>
</tr>
<tr>
<td>Ruellia brittoniana ‘Katie’</td>
<td>Katie Ruellia</td>
</tr>
<tr>
<td>Weidelia trilobata</td>
<td>Yellow Dot</td>
</tr>
<tr>
<td>Vinca major</td>
<td>Vinca</td>
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<tr>
<td>Zephyranthes candida</td>
<td>White Rain Lily</td>
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<table>
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<tr>
<th>Accents</th>
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<tbody>
<tr>
<td>Aloe spp.</td>
<td>Mediterranean Fan Palm</td>
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<tr>
<td>Agave spp.</td>
<td>Cut Leaf Philodendron</td>
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<tr>
<td>Chamaerops humilis</td>
<td>Horsetail Reed</td>
</tr>
<tr>
<td>Cycas spp.</td>
<td>Pygmy Date Palm</td>
</tr>
<tr>
<td>Equisetum hyemale</td>
<td>Spanish Bayonet</td>
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<tr>
<td>Philodendron x xanadu</td>
<td>Soft Leaf Yucca</td>
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<tr>
<td>Phoenix roebellini</td>
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<tr>
<td>Yucca aloifolia</td>
<td></td>
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<tr>
<td>Yucca recurvifolia</td>
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</tbody>
</table>
Comprehensive Development Plan

Although a single and unified institution, ASU is “One University in Many Places” spatially distributed across metropolitan Phoenix.

History of ASU at the West Campus

In February 1986 members of several western Maricopa County communities, legislators, and the Arizona Board of Regents (ABOR) joined in the groundbreaking ceremony for ASU’s West campus. The groundbreaking culminated over 10 years of intensive effort by numerous citizens’ groups working to establish educational facilities in western Maricopa County. This grass-roots effort began in 1972 with the formation of the West Side Citizens’ Committee for Higher Education. Citizens and legislators in western Maricopa County worked with officials at ASU and ABOR to demonstrate the need for higher education facilities beyond those offered by the community colleges.

The Arizona State Legislature initiated a review of university level educational opportunities in western Maricopa County in 1976. The resulting Whiteman Report was submitted to the Legislature in February 1977. It noted a shortage of higher educational facilities in western Maricopa County and urged that ASU begin to serve unmet needs by the 1980 fall semester. In response, ASU initiated courses at the Metrocenter shopping mall in 1978 and at Alhambra Elementary School in 1980. The state legislature appropriated funds in 1979-80 to ABOR for the purpose of planning a permanent campus site in western Maricopa County. In 1982 the legislature provided an exchange of 171.66 acres of general revenue lands for “approximately 300 acres of state trust land located in Maricopa County.” These 300 acres constitute the permanent site of ASU at the West campus.

The campus’ direction was set in the ABOR’s first edition of the Arizona University System Mission and Scope Statements, published in July of 1982. This document supported “the development of a modified, upper-level, primarily non-residential, branch institution of Arizona State University.” In support of the Whiteman findings and the Board’s direction, the 36th Legislature enacted Senate Bill 1245. Signed on April 18, 1984, this bill
amended Section 15-1601 of the Arizona Revised Statutes and directed ABOR to “maintain an Arizona State University campus in western Maricopa County designated as Arizona State University West Campus.” During that session, the legislature approved a separate state appropriation for the campus.

The first permanent building, Fletcher Library, opened in March of 1988 and the first classroom building, Sands Classroom Building, opened in 1989 for Spring semester classes. Shortly thereafter, the 38th Legislature enacted Senate Bill 1123 authorizing a lease purchase agreement to fund construction of additional buildings. This legislation, which provided funding to complete the “first phase” of the campus’ building program, was signed by the Governor on March 3, 1988, and approved by ABOR on March 31, 1989. The first phase, consisting of seven buildings and 600,000 gross square feet, opened fully in the spring of 1991.

ASU at the West campus received its initial accreditation from North Central Association of Colleges and Secondary Schools (NCA) in August of 1992 and held its first commencement in Spring of 1993. The campus recently observed its twentieth anniversary, and serves a diverse body of more than 7,300 students, with the capacity to grow to an enrollment of 15,000 to 20,000. In the fall of 2001, the West campus admitted its inaugural freshman class, evolving from its original two-year upper division designation into a four-year institution.

Source: http://www.west.asu.edu/aboutasu/w/
ASU at the West campus was laid out in a formal, classical manner reminiscent of classic campus plans such as:

- Johns Hopkins University, Homewood Campus, Baltimore, Maryland
- University of Virginia, Charlottesville, Virginia
- Stanford University, Stanford, California
- Portland State University, Portland, Oregon

The historic cores of these campuses were master planned around a series of strong outdoor rooms that were shaped by the buildings around them. The buildings for the most part are not objects in the landscape, but have a clear hierarchy in terms of the architecture and open space. In addition, the open space and the buildings are linked in a symbiotic relationship in which one cannot survive without the other. Arcades link buildings, frame openings, and define large and small scale spaces. The landscape responds to the local conditions and provides shade or sun as appropriate.

These precedents are less successful where this pattern language of open spaces, architecture, and landscape is disconnected, buildings become objects in the landscape, and outdoor rooms are poorly defined.
SPACE NEEDS ANALYSIS

In support of
Comprehensive Facilities Master Planning
for
Arizona State University

May 2004
SPACE NEEDS ANALYSIS

In support of
Comprehensive Facilities Master Planning
for
Arizona State University

Prepared by
Paulien & Associates, Inc.

June 2004

INTRODUCTION ........................................................................................................1
EXECUTIVE SUMMARY ..............................................................................................3
Purpose.......................................................................................................................... 3
Observations.................................................................................................................. 3
Key Space Determinants............................................................................................. 4
Space Needs Planning ............................................................................................... 5
Conclusion.................................................................................................................... 7
FUTURE ASSUMPTIONS ..............................................................................................8
Enrollment Assumptions............................................................................................. 8
Faculty and Staff Assumptions.................................................................................... 8
Research Assumptions ............................................................................................... 10
Facilities Assumptions............................................................................................... 10
Construction Projects Completed at the Target Year............................................... 10
New Construction ..................................................................................................... 10
Permanent Buildings Scheduled for Demolition...................................................... 10
Temporary Buildings ............................................................................................... 10
SPACE NEEDS ANALYSIS ..........................................................................................11
Process......................................................................................................................... 11
Guideline Assumptions and Application.................................................................... 11
SPACE NEEDS ANALYSIS – SUMMARY FINDINGS ................................................12
Fall 2002 Base Year...................................................................................................... 13
Horizon C – Enrollment of 12,000 Students............................................................... 15
Horizon A & B Summary............................................................................................ 17
SPACE NEEDS ANALYSIS – GUIDELINE APPLICATION .......................................18
Classroom Analysis.................................................................................................... 18
Teaching Laboratory Analysis..................................................................................... 19
Open Laboratory Analysis.......................................................................................... 19
Research Laboratory Analysis.................................................................................... 20
Office Space Analysis.................................................................................................. 20
Physical Education and Recreation Space Analysis................................................ 22
Athletic Space Needs.................................................................................................. 22
Other Academic Space Analysis................................................................................ 22
Library Analysis........................................................................................................... 23
Assembly & Exhibit Space Analysis.......................................................................... 24
INTRODUCTION

Paulien & Associates, Inc. was contracted as part of the comprehensive master plan team, to examine the space needs at Arizona State University at each of their four campus locations. These included the Main campus, recently renamed the Tempe Campus, ASU-West campus, the Polytechnic Campus, formerly called the East Campus, and the Capital Center Campus in downtown Phoenix. This report focuses solely on ASU’s West Campus. The other campuses are included under separate report titles and dates. This study is being conducted as part of a comprehensive campus facility master planning effort headed by Ayers/Saint/Gross Architects from Baltimore. The major responsibility of Paulien & Associates, Inc. was to:

- apply appropriate space guidelines to determine current and future space needs; and
- compare projected space needs to the existing and future facilities.

Space guidelines were generated for three planning horizons. Horizons A through C included enrollments of 8,000, 10,000 and 12,000 headcount students respectively. The study was conducted using Fall 2002 as the base year.

Paulien & Associates was provided with facilities, enrollment, course, staffing, and research data by The Arizona State University. Meetings were held with the executive vice provost, vice provost, associate vice provost, academic deans, and facilities personnel on the campus to become familiar with the unique needs of the colleges and administrative units. In addition, visits were made to various spaces throughout the campus to gain familiarity with campus facilities.

ASU-West serves the needs of students in the northwest Phoenix area. The campus was established in 1984 and graduated its first class in spring of 1993. The College offers undergraduate and graduate-level courses in 38 degree programs, plus professional certificates. Current academic units include the College of Arts & Sciences, College of Education, College of Human Services, School of Management, and the Division of Collaborative Programs.

The ASU-West campus provides a strong liberal arts core with a focus on an interdisciplinary, community-centered approach. Until recently, the focus of the Campus was upper division undergraduate and graduate level instruction. During the last two years, freshmen have been admitted to the College and enrollment is expected to increase steadily over the planning period.
ASU-West is a full-service campus and includes all of the facilities normally found in a university of 6,000-7,000 students. Facilities include a library, cafeteria, health center, fitness center, theater, lounges, bookstore, and meeting rooms. Fletcher Library, the first structure on campus, was completed in March 1988 with the Sands Classroom Building following shortly after in 1989. The remaining facilities, consisting of seven buildings of 600,000 gross square feet opened in the spring of 1991. Residential housing was completed in the fall of 2003.

Under the leadership of President Michael Crow, ASU-West is anticipating an exciting future. In November 2002, President Crow outlined a new model for ASU in the 21st Century. His inaugural address, entitled *A New American University: The New Gold Standard*, set the stage for the “New College” at ASU-West. In April 2004, additional information was made available in a White Paper entitled *One University in Many Places, Transitional Design to Twenty-First Century Excellence*. The object of the paper is the re-conceptualization of ASU based on the University Design Team Report. The Report includes the projected number of students and various academic programs that could be located to the West Campus over the next several years. Since the final details of these programs were still in the discussion stages, they are not reflected in this study.

Since all ASU campuses were in the midst of wide-scale strategic planning, detailed enrollment, staffing and research expenditure data at the school and college level was not available. As a result, the consultants maintained an campuswide approach to the space needs analysis.

There are four sections in this report along with the Executive Summary. Section 1 describes enrollment, staffing, research expenditure, and facilities assumptions. Section 2 is an analysis of each space type that includes a description of the space type as well as a description of the guideline(s) applied for that space type. Section 3 contains observations from work sessions with deans and other administrative units regarding space specific issues, and Section 4 is an analysis of peer institutions comparable to ASU-West enrollment levels at Horizon C.
SPACE NEEDS ANALYSIS
In support of Comprehensive Facilities Master Planning
For Arizona State University

Prepared by
Paulien & Associates, Inc.

June 2002

EXECUTIVE SUMMARY

PURPOSE
Arizona State University is striving to re-conceptualize itself as a comprehensive metropolitan research university that offers the combination of academic excellence and a firm commitment to its social, economic, cultural and environmental setting. To that end, the institution has embarked on a comprehensive planning process that includes physical planning at each of its four campus locations. The space needs analysis, contracted to Paulien & Associates, Inc. of Denver, Colorado, is part of the overall campus planning effort. The space master plan looks from the inside out and translates the academic mission of each campus into space, using several enrollment scenarios. The ASU-West campus is the focus of this report.

OBSERVATIONS
After assimilation of data elements including a comprehensive facilities inventory, staffing file, and the Fall 2002 course file, work sessions were held with both academic and administrative constituent groups on campus. Some critical observations following the campus work sessions and review of the existing facilities are as follows:

- There will be a need for additional general classrooms since the College of Arts and Sciences could be adding 20-22 additional programs with more mathematics, English, languages, applied computing, etc. The CLCC II was not completed at the time of the work sessions and impacts the need for classroom space.

- There will be a need for several hundred additional full-time faculty in the next ten years, necessitating the need for additional office space.

- Several College representatives believed that classrooms and offices should be more integrated. Because of the layout of the office/classroom buildings, where offices are in one building and teaching space in another, faculty express concern of seldom seeing students.

- The Child Development Center, at capacity with 64 students, needs more space for additional clientele. It is used heavily by the College of Education as a teaching facility.

- There are currently no research labs in the College of Human Services and the School of Management. In addition, there are no offices to house future
There is a need for computational labs for research and space for research staff who manage grants.

- A future student union should not be located close to the library as has happened on the Tempe Campus. The noise with bands, assemblies, and student events at the student union is very disruptive in the library.

- The physical plant facilities as well as public safety, shops, and mail service spaces were designed to serve 5000 student. Campus is now at 7000 students with no increase in space. The only central storage is a storage shed of approximately 10,000 square feet behind the facilities building.

- The Health Center is undersized and will need to be placed elsewhere on campus. Could focus more on the wellness aspects of health.

- Parking services is outgrowing space in the Visitor’s center. Parking will grow substantially with enrollment expansion in the future.

- The Fitness Center has outgrown its capacity and poorly located in the basement of the UCB. In addition, there is no recreation space, either outdoor or indoor on the campus.

- There is a tremendous need on the ASU-West campus for rooms of quality furnishings and quality architecture for presentations by alumni affairs and development staff.

- Overall, the campus needs sophisticated video conferencing facilities in all of its conference rooms.

- The bookstore is far too small and needs to be more like a university bookstore than a community college bookstore.

- The present buildings on campus lack social spaces. There is no space in the building for casual contact. It is hard to get commuter students to stay on campus with no gathering spaces.

These are some of the major observations. Many other observations were made by the consultants and have been brought to the attention of ASU administration and the master planning team.

**Key Space Determinants**

As part of the comprehensive realignment of enrollments between the four campuses, Three iterations of space needs were used to projected growth from the fall 2002 level of 6,630 headcount student or 5,053 FTE. Enrollment horizons included 8,000, 10,000 and 12,000 headcount students. The time period for reaching these enrollment levels is not a factor in this analysis. This report provides detailed analysis for each of the enrollment horizon levels but focuses on the 12,000 enrollment level. Built into enrollment numbers is the assumption of increasing the freshman class from its current level, a process that has already begun at the ASU-West campus.
SPACE NEEDS PLANNING

The Arizona Board of Regents (ABOR) as well as other national guidelines appropriate to the ASU-West campus mission and pedagogy was used to quantify space needs. Horizon enrollments A through C were generated in relation to existing space using Fall 2002 as the baseline. The guidelines were applied using key space determinants of the target enrollment mix, faculty and staff assumptions. Research space was generated using the number of tenured/tenure track faculty.

The space needs analysis was performed by classifying existing space categories on campus into three areas: Academic Space that includes classrooms, laboratories, offices, physical educational and recreation; Academic Support Space that includes assembly and exhibit, library, and physical plant space; and Auxiliary Space that includes categories such as student union and health care facilities. Residence life space is reported separately.

In the Academic Space classification categories at the base year, ASU-West campus operates with less space in certain space categories than ABOR and other normative space guidelines would recommend. These categories include teaching and research laboratories as well as physical education and recreation.

<table>
<thead>
<tr>
<th>SPACE CATEGORY</th>
<th>Base Year</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing</td>
<td>Guideline</td>
<td>Surplus/</td>
<td>Percent</td>
<td>Existing</td>
<td>Guideline</td>
<td>Surplus/</td>
<td>Percent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ASF</td>
<td>ASF</td>
<td>(Deficit)</td>
<td>Surplus/</td>
<td>ASF</td>
<td>ASF</td>
<td>(Deficit)</td>
<td>Surplus/</td>
<td></td>
</tr>
<tr>
<td>Academic Space</td>
<td>239,402</td>
<td>280,089</td>
<td>(41,487)</td>
<td>(17%)</td>
<td>286,048</td>
<td>523,347</td>
<td>(237,299)</td>
<td>(83%)</td>
<td></td>
</tr>
<tr>
<td>Classroom &amp; Service</td>
<td>54,529</td>
<td>48,281</td>
<td>6,248</td>
<td>11%</td>
<td>84,349</td>
<td>81,695</td>
<td>2,654</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Teaching Laboratories &amp; Service</td>
<td>17,661</td>
<td>33,762</td>
<td>(16,101)</td>
<td>(91%)</td>
<td>27,161</td>
<td>62,009</td>
<td>(34,848)</td>
<td>(128%)</td>
<td></td>
</tr>
<tr>
<td>Open Laboratories &amp; Service</td>
<td>12,585</td>
<td>11,908</td>
<td>678</td>
<td>5%</td>
<td>13,785</td>
<td>21,870</td>
<td>(8,085)</td>
<td>(59%)</td>
<td></td>
</tr>
<tr>
<td>Research Laboratories &amp; Service</td>
<td>11,246</td>
<td>21,025</td>
<td>(9,779)</td>
<td>(87%)</td>
<td>11,246</td>
<td>51,399</td>
<td>(40,153)</td>
<td>(357%)</td>
<td></td>
</tr>
<tr>
<td>Offices &amp; Service</td>
<td>126,394</td>
<td>103,475</td>
<td>22,919</td>
<td>18%</td>
<td>132,520</td>
<td>205,130</td>
<td>(72,610)</td>
<td>(55%)</td>
<td></td>
</tr>
<tr>
<td>Physical Education &amp; Recreation</td>
<td>6,704</td>
<td>48,150</td>
<td>(41,446)</td>
<td>(618%)</td>
<td>6,704</td>
<td>75,000</td>
<td>(68,296)</td>
<td>(1,019%)</td>
<td></td>
</tr>
<tr>
<td>Other Academic Space</td>
<td>10,283</td>
<td>14,289</td>
<td>(4,006)</td>
<td>(39%)</td>
<td>10,283</td>
<td>26,244</td>
<td>(15,961)</td>
<td>(155%)</td>
<td></td>
</tr>
</tbody>
</table>

At Horizon C, the guideline generated substantial space increases in offices, physical education and recreation, and research laboratory and service classifications. Academic Offices and Other Academic Space, which support some of the office functions, show the largest deficit of space much of which is attributable to the achieving a 28:1 ratio of student to full-time faculty and the growth of staff needed at the 12,000 student headcount level.

When comparing existing space to guideline generated space needs for Academic Support Space, once again, ASU-West is operating with less space than guidelines would recommend in each of the four categories. Each space type under the Academic Support Space classification shows the increase in deficits at Horizon C.
The Library deficit is primarily due to modest growth in volumes and a larger quantity of reader station space. The Assembly and Exhibit category generated a 31,196 ASF deficit as the existing “black box” theater is undersized for anticipated student enrollment levels. Physical Plant and Other Administrative Space categories are reactions to the overall space deficit in other areas and will need to be considered as new construction occurs to offset the deficits in all the space classifications.

The guidelines applied to Student Union and Health Care Facilities space at the master plan level in the Auxiliary Space Category produced a need for 83,800 ASF of total space at Horizon C. A deficit of 312% when compared to existing ASF in those classifications.

Additional student union space will be needed in conjunction with short term enrollment growth, especially as the campus shifts to more of an undergraduate residential student population. The current student health care facility is undersized for the campus population. Again, student demographic shifts will require larger facilities in this category.

The deficit in residence life is based on adding an additional 1,100 beds and a small dining facility to the campus by planning Horizon C.
At Horizon C, ASU-West campus will need an additional 431,542 assignable square feet of academic, academic support, and auxiliary space on campus. The guidelines applied in this space master plan model would suggest that, in total, approximately 1,246,140 ASF of space will be required to accurately meet the academic mission and enrollment goals of the institution. This is a 732,242 ASF deficit over existing space on campus. Sub-classifications of Inactive and Conversion space presently held by ASU-West campus in their facilities inventory (CLCC-II unfinished area) would be available for use in reducing the Horizon C space deficit.

**CONCLUSION**

ASU-West, with a strong public liberal arts focus, is continuing to develop transdisciplinary programs, with plans of adding new programs based on the One University In many Places – Transitional Design to Twenty-First Century Excellence White Paper, as published from the Office of the President. Such widespread changes will require that the space master plan be a dynamic document, closely aligned with the academic mission and aspirations of Arizona State University. This plan expresses the commitment of ASU to provide the facilities needed, to enhance the comprehensive educational needs of its students and to support the social, economic and cultural responsibilities within the Phoenix metropolitan region. The space master plan provides ASU with a vision for an improved physical environment that will assist in achieving the gold standard of the new American University.
FUTURE ASSUMPTIONS

ENROLLMENT ASSUMPTIONS

As a result of President Crow's inaugural address, ASU engaged in extensive enrollment planning to implement the goals and strategies stated in his report. Enrollment and staffing data for this report were provided from several source documents. These include ASU's Pathway to 2020, Enrollment Planning for the New American University, and ASU Enrollment and Employee Projections, 2002-2020, as provided by the University Office of Institutional Analysis, dated November 24, 2003.

The ASU-West campus has grown dramatically over the last 20 years. Between 1984 and 1994, Student FTE growth increase by 386%, while growth between 1994 and 2004 is expected to increase 100% to 5,990 FTE by fall 2004. The campus anticipates growth in faculty, staff, student enrollment, and research levels over the three planning horizons. The consultants discussed assumptions for growth with the Executive Vice Provost and the Vice Provost for Planning and Budget.

In analyzing the growth of the campus, the overall assumption of growth in enrollment was from a Fall 2002 headcount of 6,630 students to projected student headcounts of 8,000, 10,000 and 12,000 students. Since final recommendations from the University Design Team were not available during the assembly of this report, the enrollment assumptions do not assume specific time periods, thus allowing the flexibility in reaching enrollment goals. Full-time equivalent student (FTE) was analyzed by assumptions of future FTE/Headcount ratios as noted in the following table.

<table>
<thead>
<tr>
<th>Enrollment FTE &amp; Headcount</th>
<th>Base Year</th>
<th>Horizon A</th>
<th>Horizon B</th>
<th>Horizon C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headcount</td>
<td>6,630</td>
<td>8,000</td>
<td>10,000</td>
<td>12,000</td>
</tr>
<tr>
<td>FTE/HC Ratio</td>
<td>0.72</td>
<td>0.79</td>
<td>0.81</td>
<td></td>
</tr>
<tr>
<td>Total FTE</td>
<td>5,053</td>
<td>5,760</td>
<td>7,900</td>
<td>9,720</td>
</tr>
<tr>
<td>% on Campus</td>
<td>0.90</td>
<td>0.90</td>
<td>0.90</td>
<td></td>
</tr>
<tr>
<td>Total On Campus FTE</td>
<td>4,763</td>
<td>5,184</td>
<td>7,110</td>
<td>8,748</td>
</tr>
<tr>
<td>Total On Campus HC</td>
<td>6,232</td>
<td>7,200</td>
<td>9,000</td>
<td>10,800</td>
</tr>
<tr>
<td>Total Undergraduate FTE (80%)</td>
<td>4,008</td>
<td>4,147</td>
<td>5,688</td>
<td>6,998</td>
</tr>
<tr>
<td>Total Undergraduate HC (75%)</td>
<td>4,931</td>
<td>5,400</td>
<td>6,750</td>
<td>8,100</td>
</tr>
</tbody>
</table>

Notes:
Base Year reflects actual campus data and excludes Extended Education FTE
FTE projections for target years from Office of the President
Ratios and percentages from the University Office of Institutional Analysis

The Fall 2002 term excludes FTE generated by the College of Extended Education since the FTE was generated off of the ASU-West campus. Undergraduate full-time equivalent students totaled 4,008. The on campus FTE enrollment is expected to increase to 8,748 at Horizon C. The ratio of undergraduate students to graduate students is expected to remain steady over the three planning periods.

FACULTY AND STAFF ASSUMPTIONS

For this study, the faculty and staff assumptions were provided by the University Office of Institutional Analysis. Student workers, Graduate Teaching Assistants and Graduate Research
Assistants were estimated by the consultant based on historic trends. From staffing data provided by the ASU Office of Human Resources, each graduate student accounted for 0.30 FTE. The data are presented in the table.

Since faculty and staff support extended education programs, the total FTE was used in the analysis of staffing assumptions. Tenured/tenure track (T/TT) faculty and part-time faculty are reported separately in this analysis. For Horizon C, human resources include 470 faculty FTE, 704 staff FTE, and 85 student worker/TE/GRA FTE.

### ASU West Comprehensive Master Plan Assumptions

#### Staffing

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Base Year</th>
<th>Horizon A</th>
<th>Horizon B</th>
<th>Horizon C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall 2002</td>
<td>Horizon A</td>
<td>Horizon B</td>
<td>Horizon C</td>
</tr>
<tr>
<td>Total Student FTE</td>
<td>5,053</td>
<td>5,760</td>
<td>7,900</td>
<td>9,720</td>
</tr>
<tr>
<td>T/TT &amp; Fac. Assoc. Ratio student FTE/Fac. FTE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T/TT Faculty FTE</td>
<td>241</td>
<td>276</td>
<td>380</td>
<td>470</td>
</tr>
<tr>
<td>Ratio of staff per Faculty</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Ratio Staff FTE to Staff Hdct</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Total Staff FTE</td>
<td>373</td>
<td>413</td>
<td>570</td>
<td>704</td>
</tr>
<tr>
<td>Total Staff Headcount</td>
<td>448</td>
<td>496</td>
<td>684</td>
<td>845</td>
</tr>
<tr>
<td>Total T/TT Faculty &amp; Staff FTE</td>
<td>515</td>
<td>619</td>
<td>852</td>
<td>1051</td>
</tr>
<tr>
<td>Student Workers, TA's &amp; GRA's</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio Student Worker to Fac. &amp; Staff</td>
<td>0.19</td>
<td>0.22</td>
<td>0.25</td>
<td>0.27</td>
</tr>
<tr>
<td>Student Worker, TA's &amp; GRA's Headcount</td>
<td>98</td>
<td>136</td>
<td>213</td>
<td>284</td>
</tr>
<tr>
<td>Student Worker, TA's &amp; GRA's FTE</td>
<td>29</td>
<td>41</td>
<td>64</td>
<td>85</td>
</tr>
</tbody>
</table>

#### Contractual Staff

<table>
<thead>
<tr>
<th>Facultty</th>
<th>Base Year</th>
<th>Horizon A</th>
<th>Horizon B</th>
<th>Horizon C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Student FTE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T/TT &amp; Fac. Assoc. Ratio student FTE/Fac. FTE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T/TT Faculty FTE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio of staff per Faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio Staff FTE to Staff Hdct</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Staff FTE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Staff Headcount</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Student Workers, TA's & GRA's

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Base Year</th>
<th>Horizon A</th>
<th>Horizon B</th>
<th>Horizon C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio Student Worker to Fac. &amp; Staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Worker, TA's &amp; GRA's Headcount</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Worker, TA's &amp; GRA's FTE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
RESEARCH ASSUMPTIONS

The consultant requested that the University make assumptions of anticipated levels of research expenditures over the three horizons. Since the planning horizons were not attached to specific years, the projection of research expenditures was not feasible. Actual expenditures for Fiscal Year 2002 for ASU-West were $2,744,000. As an alternative approach, the consultant used current and projected tenured/tenure track faculty to develop the space needs analysis for this category. This methodology is further defined under the research space needs guideline in the Space Needs Analysis section of the report.

FACILITIES ASSUMPTIONS

Construction Projects Completed at the Target Year

The existing space for each of the three planning horizons was calculated using the Fall 2002 facilities inventory and adding projects in planning, design, or construction. Estimated space amounts were made available to the consultants for these projects from the ASU Department of Facilities Planning.

New Construction

Starting with the spring semester 2004, the Classroom Lab/Computer Classroom- Phase II (CLCC II) building, with 59,266 ASF, was completed. The facilities inventory included 10,000 ASF of shell space that can be finished into instructional or faculty office space to address needs beyond the base-level plan. The building program is included in existing space classifications in target enrollment planning horizons A through C.

Permanent Buildings Scheduled for Demolition

There are no buildings on the ASU-West campus that are scheduled for demolition over the planning period. Hence, no space has been removed from the facilities inventory.

Temporary Buildings

The ASU-West campus owns two buildings that could be classified as temporary: the Interdisciplinary Arts Annex and the Classroom Annex. Both buildings are modular construction and could be moved from their present location without demolition. While these buildings have been classified as temporary, they have been included in the space calculations for this analysis.
SPACE NEEDS ANALYSIS

PROCESS

Arizona State University provided the consultants with background information including room-by-room facilities inventory, Fall 2002 course data, and staffing information for Fall 2002. The facilities inventory provided building, square footage, room use, and departmental information on a room-by-room basis. This information can be found in the appendices of this report. The course data contains the course number and description, enrollment, start and stop times, meeting location, and program on a section-by-section basis. The staffing data contains the headcount and full-time equivalent (FTE) by EEO categories on a departmental basis. This data provides a snapshot of the activities for the Fall 2002 semester which is used as the master planning base year.

In conducting the space needs analysis, the consultant’s worked closely with Ayers/Saint/Gross, Architects (ASG) and other members of the Facilities Master Planning Team, located on the Tempe campus. On-site work sessions and interviews were conducted the week of December 2, 2003 with ASU-West campus administration, deans, librarian and planning staff to become familiar with the unique needs of the schools and colleges located on the West Campus. These work sessions included discussions of space deficiencies as well as verification of existing course, staffing and enrollment data.

During the consultant’s time on site, visits were made to various buildings, grounds and spaces throughout the campus to gain familiarity and assess the overall reliability of the facilities inventory. In addition, visits were made to specialized spaces on the campus.

As information was obtained from the University design team, the Provost’s Office, the Office of Institutional Research, and other sources, several iterations of space needs analysis at various target enrollment assumptions were completed. The space needs outcomes at each of these iterations were shared with ASG and the rest of the campus master planning team to inform the physical planning process as it developed through the spring of 2004. This space needs analysis report is the outcome of the final iteration and assumptions available at the time of the completion of the data analysis.

GUIDELINE ASSUMPTIONS AND APPLICATION

The consultants used the Arizona Board of Regents Guidelines which were prepared in 1997, revised in 1999, and implemented in 2000 as the primary source of guideline formulas for determining the University’s space needs. The operating assumption is to provide Arizona State University – West campus with a reasonable amount of space to conduct its current and projected activities.

For some space categories, alternative guideline models were used as deemed appropriate by the consultants and Arizona State University planners. One source is The Council of Educational Facility Planners, International (CEFPI), a leader in this field for over 50 years. CEFPI published “Space Planning Guidelines For Institutions of Higher Education” in 1985. The CEFPI Space Planning Guidelines are the basis for the ABOR Guidelines. The sections below specify which guideline system was applied for each space category and provides an explanation of the guideline application.
SPACE NEEDS ANALYSIS – SUMMARY FINDINGS

The enrollment projections are the foundation for all projected classroom and laboratory space needs and any other space needs based upon total number of student headcount or FTE’s. The space needs analysis found the ASU-West campus to have an overall space deficit of 85,134 assignable square feet (ASF) at the base year when comparing guidelines to actual space. When buildings in planning, design, or construction are added to the facilities inventory and the revised square footage are compared to Horizon C guidelines with 12,000 students, the guideline generated a total need for 1,246,140 ASF of space, including 412,500 ASF of residence life space.

ASU-West operates with less space in certain space categories than normative space guidelines would recommend. The consultants lowered the guidelines in some categories to reflect numbers closer to the actual needs and mission of ASU-West. These areas include physical plant space and physical education and recreation space.
**FALL 2002 BASE YEAR**

At Fall 2002 enrollment and staffing levels ASU-West showed an overall need for an additional 85,134 ASF of space. This is an 18% deficit in square footage when comparing guideline assignable square feet to existing assignable square feet on campus. Assignable square footage is defined as the usable space inside classrooms, laboratories, offices, etc. It does not include circulation and building service space or the thickness of walls. For most types of space, gross square footage is 30% to 40% more than assignable square feet.

- The Academic space categories show a deficit of 41,487 ASF over existing space with the largest deficit in the Physical Education & Recreation category (41,446 ASF) and the largest surplus in the Offices & Service Category (22,919 ASF).
- Academic support space categories show a deficit of 22,633 ASF at the base year. The largest deficit was generated in the Assembly & Exhibit category with a total need of 13,471 ASF.
- Auxiliary space shows a deficit of 21,015 ASF, predominately in the Student Union category.

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**Existing Space by Category**

[Pie chart showing existing space by category]
Space Needs Analysis - Base Year

<table>
<thead>
<tr>
<th>SPACE CATEGORY</th>
<th>Existing ASF</th>
<th>Guideline ASF</th>
<th>Surplus/ (Deficit)</th>
<th>Percent Surplus/ (Deficit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom &amp; Service</td>
<td>54,529</td>
<td>48,281</td>
<td>6,248</td>
<td>11%</td>
</tr>
<tr>
<td>Teaching Laboratories &amp; Service</td>
<td>17,661</td>
<td>33,762</td>
<td>(16,101)</td>
<td>(91%)</td>
</tr>
<tr>
<td>Open Laboratories &amp; Service</td>
<td>12,585</td>
<td>11,908</td>
<td>678</td>
<td>5%</td>
</tr>
<tr>
<td>Research Laboratories &amp; Service</td>
<td>11,246</td>
<td>21,025</td>
<td>(9,779)</td>
<td>(87%)</td>
</tr>
<tr>
<td>Offices &amp; Service</td>
<td>126,394</td>
<td>103,475</td>
<td>22,919</td>
<td>18%</td>
</tr>
<tr>
<td>Physical Education &amp; Recreation</td>
<td>6,704</td>
<td>48,150</td>
<td>(41,446)</td>
<td>(618%)</td>
</tr>
<tr>
<td>Other Academic Space</td>
<td>10,283</td>
<td>14,289</td>
<td>(4,006)</td>
<td>(39%)</td>
</tr>
<tr>
<td><strong>Academic Space Subtotal</strong></td>
<td><strong>239,402</strong></td>
<td><strong>280,889</strong></td>
<td><strong>(41,487)</strong></td>
<td><strong>(17%)</strong></td>
</tr>
<tr>
<td>Academic Support Space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td>50,592</td>
<td>54,140</td>
<td>(3,548)</td>
<td>(7%)</td>
</tr>
<tr>
<td>Assembly &amp; Exhibit</td>
<td>13,742</td>
<td>27,213</td>
<td>(13,471)</td>
<td>(98%)</td>
</tr>
<tr>
<td>Physical Plant</td>
<td>15,610</td>
<td>20,980</td>
<td>(5,370)</td>
<td>(34%)</td>
</tr>
<tr>
<td>Other Administrative Space</td>
<td>9,282</td>
<td>9,526</td>
<td>(244)</td>
<td>(3%)</td>
</tr>
<tr>
<td><strong>Academic Support Space Subtotal</strong></td>
<td><strong>89,226</strong></td>
<td><strong>111,859</strong></td>
<td><strong>(22,633)</strong></td>
<td><strong>(25%)</strong></td>
</tr>
<tr>
<td>Auxiliary Space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Union</td>
<td>26,240</td>
<td>46,410</td>
<td>(20,170)</td>
<td>(77%)</td>
</tr>
<tr>
<td>Health Care Facilities</td>
<td>584</td>
<td>1,429</td>
<td>(845)</td>
<td>(145%)</td>
</tr>
<tr>
<td><strong>Auxiliary Space Subtotal</strong></td>
<td><strong>26,824</strong></td>
<td><strong>47,839</strong></td>
<td><strong>(21,015)</strong></td>
<td><strong>(78%)</strong></td>
</tr>
<tr>
<td>TOTAL (w/o residence life)</td>
<td><strong>355,452</strong></td>
<td><strong>440,586</strong></td>
<td><strong>(85,134)</strong></td>
<td><strong>(24%)</strong></td>
</tr>
<tr>
<td>Residence Life Space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residence Life</td>
<td>111,800</td>
<td>111,800</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>INSTITUTION TOTAL</strong></td>
<td><strong>467,252</strong></td>
<td><strong>552,386</strong></td>
<td><strong>(85,134)</strong></td>
<td><strong>(18%)</strong></td>
</tr>
</tbody>
</table>

**ASF = Assignable Square Feet**

Overall, the space categories with the greatest space needs at the Base Year (Fall 2002) include:
- Physical Education & Recreation with a deficit of 41,446 ASF
- Student Union with a deficit of 20,170 ASF
- Teaching Laboratories & Service with a deficit of 16,101 ASF
- Assembly and Exhibit Space with a deficit of 13,471 ASF

The Space Needs Analysis for the base year is presented in the table above.
HORIZON C – ENROLLMENT OF 12,000 STUDENTS

At Horizon C enrollment and staffing levels, ASU-West campus shows a campuswide need for 1,246,140 ASF. This is a 142% increase over the amount of projected existing space at this planning horizon. Without the Residence Life category, the guideline generated 833,640 ASF of space. Existing space at Horizon C includes the CLCC II Building.

- The Academic space categories show a deficit of 237,299 ASF over existing space with the largest deficit in the Offices & Service category (72,610 ASF) while the Classroom & Service category generated a 2,654 surplus of space.
- Academic support space categories show a deficit of 110,443 ASF at the Horizon C enrollment level. The largest deficit was generated in the Library category with a total deficit of 57,204 ASF.
- Auxiliary space shows a deficit of 83,800 ASF, predominately in the Student Union category.

Space Needs Analysis - Enrollment Horizon C

<table>
<thead>
<tr>
<th>SPACE CATEGORY</th>
<th>Existing ASF</th>
<th>Guideline ASF</th>
<th>Surplus/ (Deficit)</th>
<th>Percent Surplus/ (Deficit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom &amp; Service</td>
<td>84,349</td>
<td>81,695</td>
<td>2,654</td>
<td>3%</td>
</tr>
<tr>
<td>Teaching Laboratories &amp; Service</td>
<td>27,161</td>
<td>62,009</td>
<td>(34,848)</td>
<td>(128%)</td>
</tr>
<tr>
<td>Open Laboratories &amp; Service</td>
<td>13,785</td>
<td>21,870</td>
<td>(8,085)</td>
<td>(59%)</td>
</tr>
<tr>
<td>Research Laboratories &amp; Service</td>
<td>11,246</td>
<td>51,399</td>
<td>(40,153)</td>
<td>(357%)</td>
</tr>
<tr>
<td>Offices &amp; Service</td>
<td>132,520</td>
<td>205,130</td>
<td>(72,610)</td>
<td>(55%)</td>
</tr>
<tr>
<td>Physical Education &amp; Recreation</td>
<td>6,704</td>
<td>75,000</td>
<td>(68,296)</td>
<td>(1,019%)</td>
</tr>
<tr>
<td>Other Academic Space</td>
<td>10,283</td>
<td>26,244</td>
<td>(15,961)</td>
<td>(155%)</td>
</tr>
<tr>
<td><strong>Academic Space Subtotal</strong></td>
<td><strong>286,048</strong></td>
<td><strong>523,347</strong></td>
<td>(237,299)</td>
<td>(83%)</td>
</tr>
<tr>
<td>Academic Support Space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td>50,592</td>
<td>107,796</td>
<td>(57,204)</td>
<td>(113%)</td>
</tr>
<tr>
<td>Assembly &amp; Exhibit</td>
<td>13,742</td>
<td>44,938</td>
<td>(31,196)</td>
<td>(227%)</td>
</tr>
<tr>
<td>Physical Plant</td>
<td>15,610</td>
<td>32,063</td>
<td>(16,453)</td>
<td>(105%)</td>
</tr>
<tr>
<td>Other Administrative Space</td>
<td>9,282</td>
<td>14,872</td>
<td>(5,590)</td>
<td>(60%)</td>
</tr>
<tr>
<td><strong>Academic Support Space Subtotal</strong></td>
<td><strong>89,226</strong></td>
<td><strong>199,669</strong></td>
<td>(110,443)</td>
<td>(124%)</td>
</tr>
<tr>
<td>Auxiliary Space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Union</td>
<td>26,240</td>
<td>108,000</td>
<td>(81,760)</td>
<td>(312%)</td>
</tr>
<tr>
<td>Health Care Facilities</td>
<td>584</td>
<td>2,624</td>
<td>(2,040)</td>
<td>(349%)</td>
</tr>
<tr>
<td><strong>Auxiliary Space Subtotal</strong></td>
<td><strong>26,824</strong></td>
<td><strong>110,624</strong></td>
<td>(83,800)</td>
<td>(312%)</td>
</tr>
<tr>
<td>TOTAL (w/o residence life)</td>
<td><strong>402,098</strong></td>
<td><strong>833,640</strong></td>
<td><strong>(431,542)</strong></td>
<td><strong>(107%)</strong></td>
</tr>
<tr>
<td>Residence Life Space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residence Life</td>
<td>111,800</td>
<td>412,500</td>
<td>(300,700)</td>
<td>(269%)</td>
</tr>
<tr>
<td><strong>INSTITUTION TOTAL</strong></td>
<td><strong>513,898</strong></td>
<td><strong>1,246,140</strong></td>
<td><strong>(732,242)</strong></td>
<td><strong>(142%)</strong></td>
</tr>
</tbody>
</table>

ASF = Assignable Square Feet
The space categories with the greatest space needs at the Horizon C enrollment levels include:

- Residence Life - 300,700 ASF
- Student Union - 81,760 ASF
- Teaching Laboratories & Service - 74,732 ASF
- Offices & Service – 72,610 ASF
- Library – 57,204 ASF
- Research Laboratories & Service – 40,153 ASF
HORIZON A & B SUMMARY

Since enrollments are unlikely to grow from base year to Horizon C levels over a short period of time, there was a need to provide additional enrollment intervals. Horizons A, at 8,000 headcount students and Horizon B, with 10,000 headcount students provides a way to look at the overall phasing implementation of the master plan. Spaces such as libraries, student unions, and physical education facilities are normally constructed based on the future student capacity, in this case enrollment Horizon C. These facilities allow for future growth of the student population. However, spaces that include classrooms, laboratories, offices, and physical plant are constructed as needed, often adding facilities at selected target enrollment levels. The space needs analysis for Horizon A & B are presented in the following table.

Space Needs Analysis - Enrollment Horizon A and B

<table>
<thead>
<tr>
<th>SPACE CATEGORY</th>
<th>Existing ASF</th>
<th>Guideline ASF</th>
<th>Surplus/ (Deficit)</th>
<th>Percent Surplus/ (Deficit)</th>
<th>Existing ASF</th>
<th>Guideline ASF</th>
<th>Surplus/ (Deficit)</th>
<th>Percent Surplus/ (Deficit)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Space</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom &amp; Service</td>
<td>84,349</td>
<td>48,412</td>
<td>35,937</td>
<td>43%</td>
<td>84,349</td>
<td>66,398</td>
<td>17,951</td>
<td>21%</td>
</tr>
<tr>
<td>Teaching Laboratories &amp; Service</td>
<td>27,161</td>
<td>36,746</td>
<td>(9,585)</td>
<td>(35%)</td>
<td>27,161</td>
<td>50,399</td>
<td>(23,238)</td>
<td>(86%)</td>
</tr>
<tr>
<td>Open Laboratories &amp; Service</td>
<td>13,785</td>
<td>12,960</td>
<td>825</td>
<td>6%</td>
<td>13,785</td>
<td>17,775</td>
<td>(3,990)</td>
<td>(29%)</td>
</tr>
<tr>
<td>Research Laboratories &amp; Service</td>
<td>11,246</td>
<td>30,459</td>
<td>(19,213)</td>
<td>(171%)</td>
<td>11,246</td>
<td>41,775</td>
<td>(30,529)</td>
<td>(271%)</td>
</tr>
<tr>
<td>Offices &amp; Service</td>
<td>132,520</td>
<td>119,942</td>
<td>12,578</td>
<td>9%</td>
<td>132,520</td>
<td>165,678</td>
<td>(33,158)</td>
<td>(25%)</td>
</tr>
<tr>
<td>Physical Education &amp; Recreation</td>
<td>6,704</td>
<td>55,000</td>
<td>(48,296)</td>
<td>(86%)</td>
<td>6,704</td>
<td>65,000</td>
<td>(58,296)</td>
<td>(87%)</td>
</tr>
<tr>
<td>Other Academic Space</td>
<td>10,283</td>
<td>15,552</td>
<td>(5,269)</td>
<td>(51%)</td>
<td>10,283</td>
<td>21,330</td>
<td>(11,047)</td>
<td>(107%)</td>
</tr>
<tr>
<td><strong>Academic Space Subtotal</strong></td>
<td>286,048</td>
<td>319,071</td>
<td>(33,023)</td>
<td>(12%)</td>
<td>286,048</td>
<td>428,355</td>
<td>(142,307)</td>
<td>(50%)</td>
</tr>
<tr>
<td><strong>Academic Support Space</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td>50,592</td>
<td>63,819</td>
<td>(13,227)</td>
<td>(26%)</td>
<td>50,592</td>
<td>84,146</td>
<td>(33,554)</td>
<td>(66%)</td>
</tr>
<tr>
<td>Assembly &amp; Exhibit</td>
<td>13,742</td>
<td>23,554</td>
<td>(9,812)</td>
<td>(71%)</td>
<td>13,742</td>
<td>35,110</td>
<td>(21,368)</td>
<td>(155%)</td>
</tr>
<tr>
<td>Physical Plant</td>
<td>15,610</td>
<td>24,518</td>
<td>(8,908)</td>
<td>(57%)</td>
<td>15,610</td>
<td>29,428</td>
<td>(13,818)</td>
<td>(89%)</td>
</tr>
<tr>
<td>Other Administrative Space</td>
<td>9,282</td>
<td>10,368</td>
<td>(1,086)</td>
<td>(12%)</td>
<td>9,282</td>
<td>14,220</td>
<td>(4,938)</td>
<td>(53%)</td>
</tr>
<tr>
<td><strong>Academic Support Space Subtotal</strong></td>
<td>89,226</td>
<td>122,259</td>
<td>(33,033)</td>
<td>(37%)</td>
<td>89,226</td>
<td>162,904</td>
<td>(73,678)</td>
<td>(83%)</td>
</tr>
<tr>
<td><strong>Auxiliary Space</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Union</td>
<td>26,240</td>
<td>72,000</td>
<td>(45,760)</td>
<td>(174%)</td>
<td>26,240</td>
<td>90,000</td>
<td>(63,760)</td>
<td>(243%)</td>
</tr>
<tr>
<td>Health Care Facilities</td>
<td>584</td>
<td>1,555</td>
<td>(971)</td>
<td>(166%)</td>
<td>584</td>
<td>2,133</td>
<td>(1,549)</td>
<td>(265%)</td>
</tr>
<tr>
<td><strong>Auxiliary Space Subtotal</strong></td>
<td>26,824</td>
<td>73,555</td>
<td>(46,731)</td>
<td>(174%)</td>
<td>26,824</td>
<td>92,133</td>
<td>(65,309)</td>
<td>(243%)</td>
</tr>
<tr>
<td><strong>TOTAL (w/o residence life)</strong></td>
<td>402,098</td>
<td>514,886</td>
<td>(112,788)</td>
<td>(28%)</td>
<td>402,098</td>
<td>683,391</td>
<td>(281,293)</td>
<td>(70%)</td>
</tr>
<tr>
<td><strong>Residence Life Space</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residence Life</td>
<td>111,800</td>
<td>220,000</td>
<td>(108,200)</td>
<td>(97%)</td>
<td>111,800</td>
<td>330,000</td>
<td>(218,200)</td>
<td>(195%)</td>
</tr>
<tr>
<td><strong>INSTITUTION TOTAL</strong></td>
<td>513,898</td>
<td>734,886</td>
<td>(220,988)</td>
<td>(43%)</td>
<td>513,898</td>
<td>1,013,391</td>
<td>(499,493)</td>
<td>(97%)</td>
</tr>
<tr>
<td>Inactive/Conversion Space</td>
<td>72,075</td>
<td></td>
<td></td>
<td></td>
<td>72,075</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Temporary Buildings</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ASF = Assignable Square Feet

At Enrollment Horizon A (8,000 headcount students), the guideline produced a need for 514,886 ASF of academic, academic support, and auxiliary space. When residence life is added to the analysis, the guideline increased to 734,886 ASF. With the exception of residence life, the greatest deficits were generated in the Physical Education & Recreation (48,296 ASF) and Student Union (45,760 ASF) categories. Horizon A represents an 182,500 ASF increase over the base year guideline space.

Enrollment Horizon B (10,000 students) enrollment and staffing assumptions generated a guideline total of 1,013,391 ASF of space, including 218,200 ASF of residential life space. In total, Horizon B would require a campus twice the size of current facilities.
SPACE NEEDS ANALYSIS – GUIDELINE APPLICATION

CLASSROOM ANALYSIS
Classrooms are defined as any room generally used for scheduled instruction requiring no special equipment and referred to as a "general purpose" classroom, seminar room, or lecture hall. Classroom service space directly supports one or more classrooms as an extension of the classroom activities by providing media space, preparation areas, or storage. The classroom station size includes the classroom service area space; however, additional service space can be justified on a program or classroom basis. Given the liberal arts focus, the consultant assumed that a large majority of instruction occurs in traditional classrooms with a lecture format.

The ABOR Guidelines specify a classroom utilization goal of 35 hours of use per week at 65% student station occupancy for lecture courses. The guidelines call for 19 ASF as the average classroom station size. Classroom space requirements were determined by a formula that takes the target utilization of 35 hours per week, multiplies it by the average student occupancy target of 65%, and divides the result into the 19 ASF per student station. This calculation produces a guideline of .84 ASF per weekly student contact hour for classrooms. Similarly, the ABOR Guidelines for lecture rooms call for 17 ASF per station, 32 hours per week, and an occupancy rate of 63%, producing a guideline of .84 ASF/WSCH. Because the guideline calculation is the same, classrooms and lecture halls have been treated as one category for this analysis. Assignable square feet per weekly student contact hour (ASF/WSCH) is calculated as follows:

<table>
<thead>
<tr>
<th>ABOR Classroom Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classrooms • 35 WRH • 65% SSO • 19 ASF/Station</td>
</tr>
<tr>
<td>Seminar Rooms • 35 WRH • 67% SSO • 22 ASF/Station</td>
</tr>
<tr>
<td>Computer Instructional • 32 WRH • 75% SSO • 32 ASF/Station</td>
</tr>
<tr>
<td>WRH = Weekly Room Hour; SSO = Student Station Occupancy</td>
</tr>
</tbody>
</table>

For seminar and computer instructional rooms similar calculations were made using the guidelines. For seminar rooms, the guidelines used were 22 ASF per student station, 35 hours per week, and 67% student station occupancy which results in a guideline of .94 ASF per weekly student contact hour. For computer instructional rooms, the guidelines used were 32 ASF per student station, 32 hours per week, and 75% student station occupancy which results in a guideline of 1.33 ASF per weekly student contact hour.

The total number of weekly student contact hours for a lecture course section is obtained by multiplying the enrollment of the course section by the number of meeting hours in one week. For example: a history course with 30 students enrolled which meets three (3) times a week for one hour produces 90 weekly student contact hours (WSCH) [30 students x 3 weekly contact hours = 90]. Multiplying 90 weekly student contact hours by the classroom guideline of .84 ASF/WSCH generates 75.6 ASF of classroom space.

The classroom guideline application for the ASU – West Campus generated an 11% surplus of approximately 6,248 ASF at the base year. The enrollment projection growth percentages were applied to the course data to determine projected classroom calculations. At the Target Enrollment C (12,000 HC Students), the space needs analysis indicates a smaller surplus of 2,654 ASF. The additional 30,000 ASF of existing classroom space in Target Enrollments A through C reflects completion of the Classroom Lab/Computer Classroom II (CLCC II) building.

In reviewing an informal classroom utilization analysis conducted by the consultant, there are 56 classrooms on the ASU-West campus, not including classrooms in the CLCC II building.
Classrooms average 43 stations per room with 22 ASF per station. On average, 40% to 45% of the classrooms are used between the hours of 8:00 AM and 4:00 PM. Classroom usage is much greater between the hours of 5:00 PM and 8:00 PM, where approximately 80% of the classrooms are in use. This finding suggests that the campus has a larger evening student population. As the freshman class continues to grow at the ASU-West campus, classrooms should be available to expand course offerings during weekdays.

**TEACHING LABORATORY ANALYSIS**

Teaching Laboratories, referred to in the *ABOR Guidelines* as Classroom Laboratories, are defined as rooms used primarily by regularly scheduled classes that require special purpose equipment to serve the needs of particular disciplines for group instruction, participation, observation, experimentation, or practice. Station sizes in teaching laboratories vary by discipline. Space requirements are calculated with a formula which is similar to that used to determine classroom space requirements, except that the ASF per student station varies by discipline.

The CEFPI space per student station guideline has approximately 50 different subject areas for which it provides teaching laboratory modules. In all cases, these are expressed as a range and the *ABOR Guidelines* use the middle of the range. The guideline space per station in each discipline includes service space for laboratories and takes into account the need for enough space for new paradigms in teaching methodology requiring collaborative learning environments such as mediated laboratories.

*ABOR Guidelines* indicate a standard of 85% student station occupancy. The weekly room hour standard varies by discipline. Disciplines are categorized into three groups:

- **Group A** – Social Sciences, Business and Education – 25 hours per week
- **Group B** – Physical Sciences and Biological Sciences – 22.5 hours per week
- **Group C** – Engineering, Architecture, Health Sciences, and Agriculture – 12.5 hours per week

In addition to using the standard method of calculating teaching laboratory space needs using weekly student contact hours, the consultants used the existing amount of teaching laboratory space as the guideline at the base year and increased the guideline proportionate to the colleges’ enrollment growth to generate a guideline space need for the target year.

ASU-West campus teaching laboratory space at the base year shows a deficit of 16,101 ASF. At Target Enrollment C, teaching laboratory space needs analysis shows a deficit of 34,848 ASF. The additional 9,500 ASF of existing lab space in Target Enrollments A through C reflects completion of the Classroom Lab/Computer Classroom II (CLCC II) building.

**OPEN LABORATORY ANALYSIS**

The category of open laboratory space consists of rooms that are open for student use and are not used on a regularly scheduled basis. These rooms provide equipment to serve the needs of particular disciplines for group instruction in informally or irregularly scheduled classes. Alternatively, these rooms are used for individual student experimentation, observation, or practice in a particular field of study. The size of these laboratories is based on equipment size and/or on the station size and student count desired and should be determined on an individual basis. Types of rooms included in this category are computer laboratories, language laboratories, music practice rooms, and tutoring and testing facilities.

Open laboratories are not specifically addressed by either the *ABOR Guidelines* or the CEFPI guidelines. In recent benchmarking and consulting work with several statewide systems, the
consultants found between five (5) and ten (10) ASF per Student FTE allocated for space in this category. The consultants note that the amount of space the University has classified in this category is less than three (3) ASF per Student FTE, at the low end of what the consultants expect to find at institutions similar to Arizona State University.

The consultants believe that a reasonable guideline for the University open laboratory space is 2.5 ASF per Student FTE. This is a number lower than the benchmark range, but closer to the amount of space that ASU-West currently provides in this category. The number also takes into consideration ASU-West’s liberal arts focus.

Base year open laboratory space needs analysis generated a surplus 678 ASF. At Target Enrollment C, the open laboratory category generates a deficit of 8,085 ASF. The 1,200 ASF increase in existing space in planning horizons A through C is due to the completion of the CLCC II building.

**RESEARCH LABORATORY ANALYSIS**

The consultants calculated the need for research space using *ABOR Guidelines*, which are based on CEFPI standards, using a square feet allocation for the number of headcount faculty and graduate faculty.

The research used for this analysis was based on the Higher Education Facilities Planning and Management Manuals, as published by the Western Interstate Commission for Higher Education (WICHE). This guideline uses the number of tenure/tenure track faculty and graduate students involved in research as the indicator of research space. Research spaces vary significantly among academic programs and disciplines. A range of 150 to 400 ASF was applied per tenure/tenure track faculty member. A range of 20 to 90 ASF was used for each graduate student. The ASF guideline for faculty includes up to four graduate students working with each faculty member.

It was assumed that a large majority of wet labs, specialized research equipment and animal quarters will remain at the Arizona State University’s Tempe campus. ASU-West will focus on more applied, social, and field research. With respect to research productivity, the consultants assumed that 50% of all tenure/tenure track faculty and 15% of all graduate students would be engaged in some type of research endeavor.

The guideline resulted in a calculation of 9,779 ASF in additional need at the base year. The guideline generated at Horizon C was a need of just over 40,000 ASF. The consultants assumed that this method will generate the research space required to support an increase in research expenditures in the future. However, since the guideline is calculated based upon research personnel rather than research productivity, a dramatic increase in research expenditures may necessitate the need for additional space.

An alternative guideline method of calculating research space needs is based on sponsored research expenditures. The guideline applies 900 ASF per $100,000 of expenditure for the first $50,000,000; 600 ASF per $100,000 for the second $50,000,000; and 300 ASF per $100,000 for sponsored research expenditures over $100,000,000. This formula is calculated on a campus wide basis.

**OFFICE SPACE ANALYSIS**

Office space guidelines in the *ABOR Guidelines* are based on CEFPI standards. The CEFPI guideline determines office space needs based on major categories of staff and application of space amounts for office service and conference space needs. ASU provided staffing information for major categories of staff by college. The consultants then applied the *ABOR Guidelines* to each major category. The amount of office space allotted to each position is specified in the *ABOR Guidelines* based on the status and duties of the employee. Headcounts were used in the analysis for the
number of employees except positions that were less than half-time faculty and part-time students. In this instance total FTE was substituted.

Some modifications were made to the application of the ABOR Guidelines based upon CEFPI guidelines. CEFPI identifies certain units to receive an additional amount of office space per headcount for extra office space or studio space. The mid-point of the suggested range for extra office or studio space was selected (60 ASF per headcount) since ABOR Guidelines use the midpoint of the guideline range for regular office space. These units are: Architecture, Art, Law, and Music. However, most are not applicable to the ASU-West campus.

CEFPI also recommends that supplemental conference space be allotted to each department. Conference space was allocated to faculty, professional/technical, and clerical/secretarial positions on the campus. Faculty and professional/technical position received 25 ASF per employee, while clerical staff received 15 ASF per employee. This allocation of conference space may overestimate conference room needs for large departments or underestimate needs for colleges that have few departments. However, at the campus wide level, the numbers should adequately reflect conference space needs.

### ABOR Office Guidelines as Applied to the Office Analysis

<table>
<thead>
<tr>
<th>Employee Type</th>
<th>Office ASF</th>
<th>ASF</th>
<th>Service ASF</th>
<th>Total ASF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator Executive</td>
<td>160</td>
<td>50</td>
<td>30</td>
<td>240</td>
</tr>
<tr>
<td>Administrator Other</td>
<td>160</td>
<td>50</td>
<td>30</td>
<td>240</td>
</tr>
<tr>
<td>Faculty Administrator</td>
<td>160</td>
<td>50</td>
<td>30</td>
<td>240</td>
</tr>
<tr>
<td>Faculty Instructional</td>
<td>125</td>
<td>25</td>
<td>30</td>
<td>180</td>
</tr>
<tr>
<td>Faculty Instructional (requiring studio space)</td>
<td>185</td>
<td>25</td>
<td>30</td>
<td>240</td>
</tr>
<tr>
<td>Professional</td>
<td>130</td>
<td>25</td>
<td>30</td>
<td>185</td>
</tr>
<tr>
<td>Staff - Professional</td>
<td>130</td>
<td>25</td>
<td>30</td>
<td>185</td>
</tr>
<tr>
<td>Staff - Technical</td>
<td>130</td>
<td>15</td>
<td>30</td>
<td>175</td>
</tr>
<tr>
<td>Staff - Clerical</td>
<td>105</td>
<td>15</td>
<td>30</td>
<td>150</td>
</tr>
<tr>
<td>GTA Teaching</td>
<td>55</td>
<td>0</td>
<td>0</td>
<td>55</td>
</tr>
<tr>
<td>GTA Research</td>
<td>55</td>
<td>0</td>
<td>0</td>
<td>55</td>
</tr>
<tr>
<td>Student Worker</td>
<td>55</td>
<td>0</td>
<td>0</td>
<td>55</td>
</tr>
<tr>
<td>Employees Not Requiring an Office</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Library Personnel (office space included in Library Gdln)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Crafts &amp; Trades</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

When viewing the guidelines for office space, it is important to note the following. First, most administrative and academic functions, including student affairs and Information Technology, are assigned to the Provost and Vice President, making distinctions between academic and administrative office spaces difficult. Second, many of the buildings on campus have offices that are larger than the size specified by the ABOR Guidelines. Currently ASU West has 534 offices comprising 93,666 ASF, providing an average office size of 175 ASF. In addition, there were 34 conference rooms, averaging 310 ASF per room. These numbers do not include office or conference room service, which comprises another 19,011 ASF.

The ABOR Guidelines specify 125 ASF for faculty offices and 130 ASF for professional staff offices. Using the 125 ASF per office to calculate guideline space needs and comparing the calculation to the average of 175 ASF per office of existing permanent office space may under-represent the amount of space needed for offices and indicate a surplus of office space. If the guidelines were applied using the average size of existing permanent offices the campus office deficit would be
greater. It is necessary to balance the ABOR Guidelines against the reality of the average size of existing permanent offices when interpreting the results of this analysis for use in detailed program planning in new construction or renovation.

The base year guideline analysis showed a surplus of 22,919 ASF in the office space category. At Horizon C, a deficit is generated, with an additional need of 72,610 ASF.

**PHYSICAL EDUCATION AND RECREATION SPACE ANALYSIS**

The consultants used the CEFPI guidelines to generate physical education and recreation space. There are other guidelines and formulas that could be used that would generate more space for ASU-West. However, the consultants chose to use the CEFPI standard as that is the basis for most of the other categories of space in the ABOR Guidelines.

The CEFPI formula for physical education and recreation space uses a core of 20,000 ASF for the first 1,000 headcount students. An additional five (5) ASF per headcount is added to the base 20,000 ASF for the students over the first 1,000. If the headcount enrollment is over 2,000 then the Student FTE is substituted for the student headcount. Student FTE was used for this analysis.

Space needs analysis at the base year showed a deficit of 41,446 ASF over existing physical education and recreation space. At the target year, the deficit increases to 68,296 ASF.

This category includes indoor space for recreation/physical education activities. Current space includes the Fitness Center located in the basement of the University Center Building. Both enrollment growth and the guideline application suggest that this space will not meet the needs for student fitness in the near future.

**ATHLETIC SPACE NEEDS**

The space needs for Athletics will largely be met through programs at ASU’s Tempe Campus. As a result, the guideline application was not applied.

**OTHER ACADEMIC SPACE ANALYSIS**

The space classified as other academic space includes all other space assigned to an academic unit that has not been included in the other classification of classrooms, teaching laboratories, open laboratories, research laboratories, or offices. This space category consists of a variety of space types. Due to the diversity of these spaces and the different ways various campuses might classify these spaces, these spaces are not specifically addressed by the CEFPI or ABOR Guidelines. In recent benchmarking studies the consultants conducted, this space category tends to exhibit a wide range of between one (1) and eighteen (18) ASF per Student FTE.

The types of space included in this space category at ASU-West include:

- study rooms
- media production space
- clinic spaces
- demonstration rooms

Other academic space at the ASU-West campus averaged nearly two ASF per Student FTE. The consultants believe that a reasonable guideline to apply in this category is three ASF per student FTE. This factor reflects the current campuswide use of space in this category; allows some additional lounge space lounge and meeting space for faculty and student interaction; and is within the benchmark range of space at other universities.

At the base year, guideline application shows a space deficit of 14,289 ASF in the other academic
space category. At Horizon C, this deficit increases to 15,961ASF.

**LIBRARY ANALYSIS**

The Fletcher Library on the ASU-West campus focuses on integration of library skills across the curriculum. The library is also extremely service-oriented with a $1.3 million per year for volume acquisition, or 10,000 to 15,000 volumes (monographs per year). Equivalent volume generation totaled 377,083 at base year. Currently, the library hosts 27,000 electronic titles, mostly in the liberal arts, and has pressure to add more. An additional 25,000 electronic titles are anticipated once all programs are in place.

The library presently has 12 librarians and 27 staff members, 2 computer technicians, of which one staff member is half time. The library is presently at 725 seats plus 60 electronic seats. During on-site work sessions, the consultants observed that stacks had very little room to expand and the computer classroom was undersized at 28 stations. There are two programs located in the library that are not library functions: Technopolis which is an IT function and the Writing and Tutoring Center. These spaces are not included in the library ASF. Gallery space is hugely popular in the library and acts as a showcase for the Arts department as well as others on campus.

Most of the guideline systems for library space utilize one set of factors for collections, another for readers, and a third for service space. This approach was used by the consultants. The library analysis is based on collections data reported by Arizona State University to the Association of Research Libraries (ARL) and shared with the consultants.

The **ABOR Guidelines** for library collections assume that .07 ASF per volume is used for collection space in the Fletcher Library. This .07 ASF is 30% lower than standard CEFPI guidelines.

ASU has a modular library storage facility on the Polytechnic Campus with a capacity of more than 1 million volumes, but it is not used by ASU-West. The consultants suggest that future storage for collections could be accommodated with compact shelving on the lower level.

Until recently, the reader space calculations have generally been based on seating for 25% of the student body. The Association of College and Research Libraries (ACRL) suggests that if a college or university has more than 50% of its students in residential housing, it should have one reader station for every four full-time equivalent students. If less than 50% were on site, it would be calculated at one for every five students or 20%. Because many students now do research electronically from non-library locations, this percentage of students has begun to lower. **ABOR Guidelines** use the CEFPI reader guideline percentage which specifies a 15% factor to undergraduate headcount, a 20% factor to graduate headcount, and 10% to the total full-time equivalent faculty.

In determining the guidelines for reader station sizes, the consultants believe the 25 square feet per reader station recommended by CEFPI is not adequate because of the increased use of electronic carrels. The consultants applied 25 ASF per reader station for regular study stations, but 35 ASF per station for electronic study stations. For the Fletcher Library, 30% of the stations were considered as electronic seats for this analysis.

CEFPI suggests 25% of the total collection and reader station space for service and staff space. ACRL, in their most recent guidelines, changed this category to 12.5%. The consultants used the 12.5% figure for the Fletcher Library.
### Library Guideline Application

<table>
<thead>
<tr>
<th>VOLUME GENERATION</th>
<th>Current Items</th>
<th>Conversion Factor</th>
<th>Base Year Volumes</th>
<th>Base Year Volume Growth %</th>
<th>Horizon C Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ASU West Library Collection</td>
<td>377,083</td>
<td>1.00</td>
<td>377,083</td>
<td>24%</td>
<td>790,028</td>
</tr>
</tbody>
</table>

**VOLUME GENERATION Current Items Conversion Factor**

<table>
<thead>
<tr>
<th>No. of Volumes</th>
<th>Base Year Volumes</th>
<th>Horizon C Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 150,000</td>
<td>10,500</td>
<td>10,500</td>
</tr>
<tr>
<td>150,001 - 300,000</td>
<td>10,500</td>
<td>11,731</td>
</tr>
<tr>
<td>300,001 - 600,000</td>
<td>10,500</td>
<td>20,895</td>
</tr>
<tr>
<td>600,001 - 4,500,000</td>
<td>10,500</td>
<td>21,000</td>
</tr>
</tbody>
</table>

**TOTAL VOLUMES**

**No. of Volumes**

**ASOF per Volume**

<table>
<thead>
<tr>
<th>STUDY SPACE</th>
<th>Percent of FTE</th>
<th>Base Year Stations</th>
<th>Horizon A FTE Stations</th>
<th>Horizon C Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>15%</td>
<td>4,008</td>
<td>601</td>
<td>4,147</td>
</tr>
<tr>
<td>Graduate Students</td>
<td>20%</td>
<td>755</td>
<td>151</td>
<td>1,037</td>
</tr>
<tr>
<td>Faculty (FTE)</td>
<td>10%</td>
<td>241</td>
<td>24</td>
<td>276</td>
</tr>
</tbody>
</table>

**Total Study Stations**

| Regular Study Stations | 70% @ 25 ASF/Staion | 13,580 | 25,323 |
| Electronic Study Stations | 30% @ 35 ASF/Staion | 8,148 | 15,194 |

**TOTAL STUDY SPACE**

**TOTAL COLLECTION & STUDY SPACE**

**Service Space**

| 0.125 of Total Collection and Study Space | 6,016 | 11,977 |

**TOTAL LIBRARY SPACE**

Overall library space needs analysis at the base year shows a space deficit of 3,548 ASF. At Horizon C, the deficit increases to 57,204 ASF. To accommodate immediate needs, non-library units housed on the lower level could be relocated and the space reassigned to the library.

**Assembly & Exhibit Space Analysis**

Assembly and exhibit space is defined as any room designed and equipped for the assembly of large numbers of people. This includes theaters, auditoriums, concert halls, arenas, and chapels. Exhibit spaces are used for exhibition of materials, works of art, or artifacts intended for general use by students and the public. The CEFPI guideline has a core allowance of 22,450 ASF for institutions with a minimum of 5,000 Student FTE and an active fine arts program. It then allows for an additional six (6) ASF per Student FTE over the 5,000 FTE minimum. CEFPI also adds 5,000 ASF for institutions with an active music program. The consultants applied two of the three allowances (the core allowance and the six ASF per FTE over 5,000, in the guideline application.

Currently the large ballroom (Room 160) in the University Center Building comprises approximately 10,000 ASF of assembly and exhibit space that is beyond the usual and customary CEFPI guideline intentions. In addition, a 1,665 ASF black box theater in located in the basement of the University Center Building.

Application of the CEFPI guidelines for the base year shows a deficit of 13,471 ASF or 98% in the assembly and exhibit space category. At Horizon C, this deficit increases to 31,196 ASF.
The assembly and exhibit space in this planning scenario includes space for a performing arts center of approximately 22,450 ASF. This facility includes up to a 500 seat theatre with stage and wings at approximately 8,500 ASF. In addition, the consultant factored in control rooms, costume and storage, scene shop for sets and props storage, lighting and repair space, sound effects and production rooms, rehearsal room, make-up and dressing rooms, and a green room. It also includes 2,500 ASF in exhibition space. The space beyond the 22,450 ASF is for additional needs of the performing arts department, mostly exhibition and gallery space located thought-out the campus.

**PHYSICAL PLANT ANALYSIS**

Most guidelines suggest a percentage of seven (7) to eight percent (8%) of all square footage on campus, minus existing physical plant and residence life space, be used to drive master plan needs in this category. In most cases, these percentages generate a space need that is greater than the amount of physical plant space typically found at an institution. From previous studies, the consultants have found that the average percentage used to drive physical plant space needs is approximately four (4) to seven percent (7%). One of the reasons a lower percentage is adequate for master planning purposes is the fact that many physical plant departments are increasing the outsourcing of many typical shop functions and are using just-in-time purchasing methods to decrease warehousing needs.

For this analysis, the consultants applied five percent of all square footage on campus, with the exception of existing physical plant, parking, and residence life space, to calculate the space needs in this category, with the exception of Horizons B & C, where 4.5% and 4% were used respectively. A range was used to reflect enrollment growth over the planning period and the maintenance load of new and existing buildings.

The base year guideline analysis shows a deficit of 5,318 ASF or 34%. At the Horizon C, the deficit increases to more than 20,000 ASF.

**OTHER ADMINISTRATIVE SPACE ANALYSIS**

As with other academic space, other administrative space consists of a variety of space types. Again, no guideline has been developed by CEFPI or the ABOR Guidelines to deal with such a diverse set of space types. In recent benchmarking studies, the consultants found other administrative space to have a range of less than one (1) ASF per Student FTE and as great as 46 ASF per Student FTE. The types of space included in this space category at ASU-West include:

- Central telecommunications spaces
- study rooms
- shops
- central storage
- meeting rooms
- public safety areas

Other administrative space averaged less than two ASF per Student FTE at ASU-West campus. The consultant believes that a reasonable guideline for this space category is two (2) ASF per Student FTE, with the exception of Horizon C, where the consultant used 1.7 ASF per Student FTE. This guideline is at the low end of the benchmark range but reflects the current campuswide economics of space for this category as enrollments grow.

For other administrative space the analysis at the base year showed a deficit of 244 ASF. At Horizon C, the deficit increases to 5,590 ASF.
STUDENT UNION SPACE ANALYSIS

CEFPI recommends a formula of nine (9) ASF per student headcount and the Association of College Unions International (ACUI) recommends a formula of ten (10) ASF per student for each graduate and undergraduate student for generating student union space. These guidelines for space application provide space for the various functions and the room use code designations that are typically found in a comprehensive student union including: food service, bookstore, lounge, meeting space, student government/club space, and other student service type space categories. The guideline applied by the consultants is seven ASF per student for student union space at ASU-West campus.

At the base year, the application of space guidelines shows a deficit of 20,170 ASF. At Horizon C, the deficit increases to approximately 82,000 ASF.

RESIDENCE LIFE

ASU-West currently houses a small portion of students on campus. Called Las Casas, the new residence life facilities include apartment style living with double and single occupancy units. Currently ASU-West has four residence halls with 100 beds each. Total ASF is 26,700 ASF per hall or 267 ASF per bed for a total of 106,800 ASF. A community Center of 5,000 ASF is adjacent to the residence life halls. It is anticipated that ASU-West will add another 1,500 beds over the enrollment horizons A through C.

Across the nation, there are changes in student demands for housing. These changes result in more housing space per student in most recently constructed facilities. A guideline widely used in higher education residence life planning is 275 ASF per bed. A 275 ASF per bed guideline provides sufficient space for a variety of housing types ranging from traditional double–loaded corridor layouts to suite and apartment–style housing. This analysis uses 275 ASF per bed as the guideline to address housing needs and space for a small dining hall.

The residence life guideline application shows no deficit at the base year as residence life facilities were newly completed and had not reached 100% occupancy. At Horizon C, a deficit of 300,700 ASF was generated.

HEALTH CARE FACILITIES

Health care facilities are not specifically addressed by the CEFPI guidelines. In recent benchmarking and consulting work with several statewide systems, the consultants found amounts of space in this category ranging from 0.3 ASF per Student FTE to four (4) ASF per Student FTE. The average space per student FTE for this category at the ASU-West was just under 0.09 ASF per student headcount. The consultants believe that a reasonable guideline for ASU-West is 0.3 ASF per student headcount. While this factor is at the low end of the benchmark range, it is a number that reflects current use and allocation of space in this category.

The guideline application shows a deficit of 845 ASF or a 145% at the base year. At enrollment Horizon C, the deficit increases to 2,040 ASF. It should be noted that health care facilities are defined as clinics established for the use of students.

OTHER SPACE

Spaces in the facilities inventory database coded as parking garages, inactive/conversion spaces, temporary buildings, and space leased to outside organizations are not included in this analysis. The existing and projected amounts of space in these categories have been noted at the bottom of the Space Needs Analysis table for ASU-West is not included in the total space calculations. These spaces include 10,000 ASF of shell space in the CLCC II building and 2,075 ASF of space in the University Center Building and the Faculty Administrative Building.
LIMITATIONS OF ANALYSIS

The consultants analyzed campus data provided by The Arizona State University for staffing, courses, and facilities information. The data provides a "snapshot in time" of staff, course enrollments, and facilities at the ASU-West campus. As with other large, complex higher education institutions that the consultants have studied, many changes are occurring simultaneously on a continuous basis. Of necessity, all these analyses are "snapshots in time," but nevertheless, are consistently used as valuable tools for institutional planning.

The Space Needs Analysis is a quantitative analysis only. All permanent existing space is counted regardless of its quality. Because several rooms in the facilities inventory have multiple functions (i.e., one room containing a reception space, clerical workstation, storage, and filing), it is impossible to accurately distribute the existing space among the appropriate room use and functional categories. However, the proposed area calculations are distributed among the room use and functional categories. Therefore, the relationship between existing space and proposed guideline space for individual categories should be considered as rough comparisons. The only true comparison is between a unit's total existing space and proposed guideline space.

Space needs analysis for the purpose of master planning is a process that estimates space amounts likely to be needed by various units of an institution at current and projected enrollment, staffing, and activity levels. Reliability of the findings of any space needs study depends on several factors including the quality of the data, the appropriateness of the space standards used, and the validity of the projections. Data used in this study was updated and refined to a high level of accuracy and currency. Space standards that reflect national trends and specific ABOR Guidelines were applied. Future projections of enrollment and research levels were carefully reviewed. The consultants, therefore, believe that the findings and recommendations of this study may be considered reliable and may be used with confidence by ASU for its campus master planning effort.

The study was conducted at the campus level and was intended for use in initial planning of future facilities expansion. The scope of the study at the campus level did not identify every individual school or college requirement and did not include detail normally developed in room-by-room program planning of specific facilities. This study was not intended to replace program plan level analysis. Further, this study only analyzed space needs and did not evaluate the quality of existing space or the suitability of the space.

Unless otherwise noted, all findings are in assignable square feet (ASF). ASF is defined as the area measured within the interior walls of a room that can be assigned to a program. It does not include circulation, mechanical or building service spaces. Converting assignable space to gross square foot usually adds about 30% to 40% to the assignable space.
OBSERVATIONS
The consultant conducted work sessions with each major administrative and academic unit on the campus. The focus of the work sessions centered on facilities and space needs. The following is a condensed version of these discussions.

COLLEGE OF ARTS AND SCIENCES
- There will be a need for additional general classrooms since the College of Arts and Sciences could be adding 20-22 additional programs with more mathematics, English, languages, applied computing, etc. The College now has one graduate program and the strategic plan calls for five new programs in the next few years at the master’s level and one to three Ph.D. level programs. There is a need for additional 150-200 seat lecture venues as the college admits increasing numbers of lower division students. The addition of CLCC-II in spring of 2004 added one 150 seat lecture hall to the campus.
- If one were to look to a peer model, it would be a high-end liberal arts college. Those could include James Madison, University of Wisconsin-Milwaukee, Evergreen, College of Charleston, Clark College, Franklin and Marshall.
- Staffing is currently at 66 full-time, tenured-track faculty, but there will be a need for 60 additional faculty in the next five years, necessitating the need for additional office space.
- Art space will consist primarily of performance and media arts and will not include a formal music program. As a result, there will need to be additional performance space with digital capability and electronic based arts programs.
- Sciences space will be primarily life sciences and contained within teaching laboratories in the new CLCC II building. These programs were being taught primarily at the community colleges.
- Research will primarily be focused in the sciences; however they will also include social and behavioral science research spaces, including psychology and data collection type of research spaces. Research centers presently include social justice, social entrepreneurship, child development center, oral histories, and urban environment.

COLLEGE OF EDUCATION
- Presently all students enter the College as juniors. All lower division classes are contained in Arts & Sciences.
- There will be a shortage of office space. There are presently 38 tenured-track faculty in the college. Employment searchers were ongoing for 12 additional positions of which seven were new. Next year, it was anticipated that an additional 10 to 13 new faculty positions will be filled in the College. There are presently 130 adjunct teaching faculty.
- The College will focus on undergraduate teacher education on the West Campus. Total research expenditures in 2002 are approximately $1.4 million. Faculty have just received an additional $2.9 million grant toward research on
charter schools over the next three years. Research will grow as a consistent percentage rather than as a spike.

- Most of the existing classes contain 40 students and most computer labs are 30 students. Therefore most classrooms need to be of a size to match this paradigm. Existing computer labs could be bigger due to computers and space for printers.

- The College of Education representative believed that classrooms and offices should be more integrated. There is a need to place all faculty offices for education in the same area.

- The College prides itself in community engagement. The Child Development Center needs more space for additional clientele. It is used heavily as a teaching facility.

**College of Human Services**

- Both the lower and upper division enrollments are growing as they build undergraduate offerings in Communication and Criminal Justice.

- Research rewards are primarily located in Criminal Justice and the Partnership in Community Development where the College puts approximately $100,000 per year into the partnership. They have a need for larger classrooms.

- There are currently no research labs in the College of Human Services and no place to house teaching assistants. The Criminal justice Program faculty and staff need to be together on one floor.

**School of Management**

- The M.B.A. program is responsible for 16% of enrollment but has been decreasing in enrollment substantially over the last five years. Efforts are being made now to stabilize and grow the program. There is a need for a convention center type building for Executive MBA programs.

- No particular research is presently being performed. The Institute for International Management – ABOR approved – works out of the faculty offices and has a three-quarter time person. There are no special facilities for Research & Development.

- There is a need for additional space for community outreach program as well as a career management functional placement space.

- Because of the layout of the office/classroom buildings, where offices are in one building and teaching space in another, faculty express concern of seldom seeing students.

- There is a need for 70-100 student classrooms. The College could also use more computer classrooms.

- New initiatives include Business Outreach Function and career services, both of which will need new space in the future.
Fletcher Library

- The library is presently at 725 seats plus 60 electronic seats. Stacks have very little room to expand and the computer classroom is undersized at 28 stations.

- The library is installing wireless systems to provide stations for laptops. There is no compact shelving on the lower level. However, the lower level was designed for compact shelving.

- The loading dock does not work in that it provides very poor security and, after unloading trucks often have to let air out of their tires so that they can leave the dock area.

- There are two programs located in the library that are not library functions. The first is Technopolis which is an IT function and the second is the Writing and Tutoring Center. The relocation of these programs would provide more space for library functions.

- Over time, technical support will need more space than they presently have.

- Gallery space is hugely popular in the library and acts as a showcase for the Arts department as well as others on campus.

- Do not locate future student union as close to the library as has happened on the Tempe Campus. The noise with bands, assemblies, and student events at the student union is very disruptive in the library.

Information Technology

- IT sees no reason to co-locate with the library. However, it would be advantageous for IT to be located near the library for functional purposes.

- IT presently has a staff of 20 full-time and five unfilled positions. They also have 25 student staff with no current space for them to occupy. Help desk is in the FAB. They also need room for storage, shared printing, and workspace for staff.

Physical Plant

- The physical plant facilities were designed for 5,000 student population. The only storage is a storage shed of approximately 10,000 square feet behind the facilities building. Facilities also needs a refueling facility.

- The child care center is now authorized for 64 full-time children and needs to expand. Child care should be separated from the UCB.

- The Health Center will also need to be replaced elsewhere on campus.

- Public Safety, shops, and mail were designed to serve 5000 student. Now at 7000 students with no increase in space.

- No central storage or space for fleet vehicles. Would like fueling facility.
AUXILIARY SERVICES AND PURCHASING

- All units are short on storage space. Need a combination of local and centralized storage. Parking services is outgrowing space in the Visitor’s center. Parking will grow substantially with expansion in the future.

- The bookstore is undersized for the student population.

RECREATION

- The fitness center is outgrown its capacity and poorly located in the basement of the UCB. In addition, there is no recreation space, either outdoor or indoor.

RESIDENTIAL LIFE

- Will have dining facility in next phase of residence halls as well as some health spaces.

PUBLIC AFFAIRS

- The Vice Provost has control over the following three areas: development, constituent outreach, and marketing and PR. Public Affairs currently has a staff of 22 full-time people, plus one to two additional in the development office during the present campaign. A total of 30 staff will be needed in the near future.

- Very limited in ballroom and presentation space.

- There is a tremendous need on the ASU-West campus for rooms of quality furnishings and quality architecture for presentations by alumni affairs and development staff.

- An Alumni/University Club venue would be very helpful for the development office. Knowing that there are very few present alumni, it would probably not be an Alumni House in the traditional sense.

ACADEMIC AFFAIRS

- Academic Affairs also includes the Honors College, the Learning Enhancement Center presently located in the Library, the Division of Collaborative Programs, Research Consulting Center, and Academic Articulation which includes degree audit.

- The campus overall needs sophisticated video conferencing facilities in all of the conference rooms. Need for computational labs for research and space for research staff who manage grants.

- Graduate Studies needs space for files and scanning.

- Learning Enhancement Center could use much more space for tutoring, and TRIO program.

- Research should be in the $5 to $10 million range over the next five years. It has been set as a strategic goal of the West campus. They have two ABOR approved institutes which will provide an avenue for more research activity.
The registration and advising area needs consolidation and a large file area for more paper and electronic filing. The learning enhancement center could use twice as much space, but its location next to Technopolis in the Library is highly beneficial.

The bookstore is far too small and needs to be more like a university bookstore than a community college bookstore.

The present buildings on campus lack social spaces. There is no space in the building for casual contact. It is hard to get commuter student to stay on campus with no gathering spaces.

Peer institutions could be the University of California San Marcos, which has 60 undergraduate degree programs. It could also include the University of Missouri – St Louis, William and Mary, and Royal Hallowell at the University of London.

**Student Services**

The Dean of Students has direct responsibility over the following: Health Services, Career Services and Counseling, the Disability Resource Center, Registrar and Enrollment Services, Student Life, Trio, Technical Support, Dean’s Office.

Student Affairs is the big user of meeting space in the UCB using it for orientations, welcoming events, and financial aid and other functions at the start of class sessions.

They could use a greater number of external gathering spaces as well as recreation fields and a larger wellness center.

Student government does not have enough space. The fitness center is too small.

Disability services needs quiet testing area.

The unit needs more computer space for electronic job searches and web-based registration.
PEER ANALYSIS

During on-campus work sessions, several institutions were named that ASU-West thought were good peer institutions for benchmarking purposes. The goal of this analysis was to use similar institutions in both student FTE and mission as a check against the consultants ASF recommendations based on target year enrollment Horizon C. These institutions, with total FTE and headcount included:

<table>
<thead>
<tr>
<th>Institution</th>
<th>Student FTE</th>
<th>Headcount</th>
</tr>
</thead>
<tbody>
<tr>
<td>James Madison University</td>
<td>13,996</td>
<td>14,414</td>
</tr>
<tr>
<td>University of Missouri- St. Louis</td>
<td>7,391</td>
<td>12,872</td>
</tr>
<tr>
<td>College of Charleston</td>
<td>10,068</td>
<td>11,716</td>
</tr>
<tr>
<td>Cal State – San Marcos</td>
<td>4,841</td>
<td>6,496</td>
</tr>
<tr>
<td>Franklin &amp; Marshall College</td>
<td>1,850</td>
<td>1,892</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>9,074</strong></td>
<td><strong>11,375</strong></td>
</tr>
<tr>
<td>ASU –West Horizon C</td>
<td><strong>9,720</strong></td>
<td><strong>12,000</strong></td>
</tr>
</tbody>
</table>

* Without Franklin & Marshall

Due to low headcount and FTE, data from Franklin & Marshall was removed from the analysis. As noted, the average FTE and headcount of the four institutions is similar to the FTE and headcount at enrollment Horizon C for ASU-West. The results are as follows:

ASU - West Campus Peer Analysis

<table>
<thead>
<tr>
<th>Assignable Square Footage</th>
<th>TOTAL ASF</th>
<th>without Residential</th>
<th>Class-rooms</th>
<th>Teaching Labs</th>
<th>Open Labs</th>
<th>Research Labs</th>
<th>Office &amp; Conf</th>
<th>Library</th>
<th>Physical Education Rec</th>
<th>Assembly &amp; Exhibit</th>
<th>Physical Plant</th>
<th>Student Union</th>
<th>Health Facilities</th>
<th>Residential</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIN CAMPUS TOTAL ASF</td>
<td>335,846</td>
<td>79,183</td>
<td>57,375</td>
<td>46,318</td>
<td>34,706</td>
<td>222,151</td>
<td>79,939</td>
<td>62,886</td>
<td>50,400</td>
<td>44,835</td>
<td>100,049</td>
<td></td>
<td>3,040</td>
<td>318,163</td>
</tr>
<tr>
<td>Peer Average</td>
<td>728,905</td>
<td>79,183</td>
<td>57,375</td>
<td>46,318</td>
<td>34,706</td>
<td>222,151</td>
<td>79,939</td>
<td>62,886</td>
<td>50,400</td>
<td>44,835</td>
<td>100,049</td>
<td></td>
<td>3,040</td>
<td>318,163</td>
</tr>
<tr>
<td>Peer ASF/FTE</td>
<td>80.3</td>
<td>8.7</td>
<td>6.3</td>
<td>5.2</td>
<td>3.8</td>
<td>24.5</td>
<td>8.8</td>
<td>6.9</td>
<td>3.9</td>
<td>4.9</td>
<td>11.0</td>
<td>0.3</td>
<td>34.8</td>
<td></td>
</tr>
<tr>
<td>Peer ASF/Headcount</td>
<td>84.7</td>
<td>8.2</td>
<td>6.3</td>
<td>5.3</td>
<td>3.8</td>
<td>24.5</td>
<td>8.8</td>
<td>6.9</td>
<td>3.9</td>
<td>4.9</td>
<td>11.0</td>
<td>0.3</td>
<td>34.8</td>
<td></td>
</tr>
<tr>
<td>ASU- West &quot;Base Year&quot; ASF</td>
<td>335,846</td>
<td>79,183</td>
<td>57,375</td>
<td>46,318</td>
<td>34,706</td>
<td>222,151</td>
<td>79,939</td>
<td>62,886</td>
<td>50,400</td>
<td>44,835</td>
<td>100,049</td>
<td></td>
<td>3,040</td>
<td>318,163</td>
</tr>
<tr>
<td>Existing Base ASF/FTE</td>
<td>70.5</td>
<td>11.4</td>
<td>3.7</td>
<td>2.6</td>
<td>2.4</td>
<td>24.5</td>
<td>10.6</td>
<td>1.4</td>
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<td>3.3</td>
<td>5.5</td>
<td>0.1</td>
<td>23.5</td>
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<tr>
<td>Existing Base ASF/HC</td>
<td>58.7</td>
<td>8.2</td>
<td>6.2</td>
<td>5.0</td>
<td>3.8</td>
<td>19.1</td>
<td>7.6</td>
<td>1.0</td>
<td>2.1</td>
<td>2.4</td>
<td>4.0</td>
<td>0.1</td>
<td>16.9</td>
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<tr>
<td>ASU-West &quot;Horizon C&quot; ASF</td>
<td>762,524</td>
<td>81,696</td>
<td>63,009</td>
<td>51,870</td>
<td>39,395</td>
<td>205,130</td>
<td>107,796</td>
<td>75,000</td>
<td>44,938</td>
<td>32,963</td>
<td>108,000</td>
<td>2,624</td>
<td>473,500</td>
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<tr>
<td>&quot;Horizon C&quot; ASF/FTE</td>
<td>81.5</td>
<td>8.8</td>
<td>6.4</td>
<td>2.3</td>
<td>2.3</td>
<td>21.1</td>
<td>11.1</td>
<td>7.7</td>
<td>4.6</td>
<td>3.3</td>
<td>11.1</td>
<td>0.3</td>
<td>42.4</td>
<td></td>
</tr>
<tr>
<td>&quot;Horizon C&quot; ASF/HC</td>
<td>66.0</td>
<td>8.8</td>
<td>5.2</td>
<td>1.8</td>
<td>4.3</td>
<td>17.1</td>
<td>9.0</td>
<td>6.3</td>
<td>3.7</td>
<td>2.7</td>
<td>9.0</td>
<td>0.2</td>
<td>34.4</td>
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</tr>
</tbody>
</table>
Total ASF without residential space for the four peer institutions averaged 80.3 ASF per FTE or 64 ASF per headcount. At the base year, ASU-West campus contained 70.5 ASF/FTE, a 14% difference from the peer average. Again, the base year analysis does not include the ASF for the CLCC II building. If included, the ASU base year number would increase to 83 ASF/FTE. This finding would suggest that ASU-West could continue to increase enrollments without additional facilities in the immediate future.

During fall 2002, ASU-West provided more space per FTE in classrooms, office, and library categories than the peer average. In other categories such as teaching, open and research labs, assembly & exhibit and physical plant, ASU-West was below peer averages. Spaces related to physical education, student union, and health facilities at ASU-West were significantly below the peer average.

At Enrollment Horizon C, using the guideline space needs as a point of comparison, total ASF without residential was calculated at 81.5 ASF, or a 1.5 ASF difference from the peer average. Classrooms, teaching labs, physical education/recreation, student union, and health facilities compared very favorable to the peer average. Space categories in research labs, library, and assembly & exhibit all generated more ASF/FTE than peer averages. Three categories, open labs, office & conference, and physical plant, all generated less space per FTE than what was generated by the guideline in Horizon C.

The comparison of the peer analysis findings and the space needs determination at enrollment Horizon C based on guideline applications would indicate that the two outcomes are in relative balance. Therefore, the consultants would ascertain that the outcomes of the guideline application are a good indicator of the potential needs for space at the enrollment levels and programmatic assumptions made in the development of this analysis.
APPENDIX A

ASSIGNABLE SQUARE FEET BY BUILDING
### Assignable Square Feet by Building

<table>
<thead>
<tr>
<th>Building Description</th>
<th>Class-rooms</th>
<th>Teaching Labs</th>
<th>Open Labs</th>
<th>Research Labs</th>
<th>Acad Offices</th>
<th>Adminn Offices</th>
<th>Library</th>
<th>PE/Rec</th>
<th>Athletics</th>
<th>Assembly/Exhibit</th>
<th>Student Union</th>
<th>FB/AQ Gmnhs</th>
<th>Physical Plant</th>
<th>Other Dept Space</th>
<th>Residence Life</th>
<th>Health Care</th>
<th>Parking Garages</th>
<th>Inactive</th>
<th>Vacated Space</th>
<th>Outside Agencies</th>
<th>TOTAL ASF</th>
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</thead>
<tbody>
<tr>
<td>WC- Central Plant</td>
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<td>3,159</td>
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<tr>
<td>WC- Central Services Complex</td>
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<tr>
<td>WC- Classroom Annex</td>
<td>4,448</td>
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<tr>
<td>WC- Classroom/Lab/Computer Classroom</td>
<td>11,560</td>
<td>3,619</td>
<td>6,777</td>
<td>5,374</td>
<td>440</td>
<td>3,186</td>
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<tr>
<td>WC- FAB Annex</td>
<td>419</td>
<td>4,045</td>
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<tr>
<td>WC- Faculty Office/Administration</td>
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<td>567</td>
<td>190</td>
<td>65,177</td>
<td>11,534</td>
<td>1,168</td>
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<tr>
<td>WC- Fine Arts Modular</td>
<td>557</td>
<td>1,602</td>
<td>1,205</td>
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<tr>
<td>WC- Fletcher Library</td>
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<td>576</td>
<td>50,230</td>
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<tr>
<td>WC- Sands Classroom &amp; Lecture Hall</td>
<td>34,382</td>
<td>1,115</td>
<td>1,357</td>
<td>567</td>
<td>567</td>
<td>541</td>
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<tr>
<td>WC- University Center</td>
<td>467</td>
<td>159</td>
<td>472</td>
<td>6,572</td>
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<td>5,104</td>
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<tr>
<td>WC- Welcome Center</td>
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<td>1,900</td>
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<tr>
<td>WC- Racquetball Courts</td>
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<td>WC- Storage</td>
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<td>WEST CAMPUS Classroom/Lab/Computer Classroom</td>
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<tr>
<td><strong>Subtotal</strong></td>
<td>54,975</td>
<td>17,661</td>
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<td>77,984</td>
<td>48,410</td>
<td>39,923</td>
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</tbody>
</table>
APPENDIX B

ASSIGNABLE SQUARE FEET BY COLLEGE UNIT, DEPARTMENT, AND BUILDING
### COLLEGE OF ARTS & SCIENCES

**ASUW American Studies**

<table>
<thead>
<tr>
<th>WC- Classroom/Lab/Computer Classroom</th>
<th>Teaching Labs</th>
<th>Research Labs</th>
<th>Acad Offices</th>
<th>Admin Offices</th>
<th>Library</th>
<th>PE/Rec</th>
<th>Athletics</th>
<th>Assembly</th>
<th>Student Union</th>
<th>FB/AQ</th>
<th>Grnhs</th>
<th>Physical Plant</th>
<th>Other Dept</th>
<th>Space</th>
<th>Residence Life</th>
<th>Health Care</th>
<th>Parking Garages</th>
<th>Vacated Space</th>
<th>Outside Agencies</th>
<th>TOTAL ASF</th>
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<tbody>
<tr>
<td>521</td>
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<td></td>
<td>521</td>
</tr>
</tbody>
</table>

WC - Faculty Office/Administration

| 3,782                               |               |               |              |               |         |        |           |          |               |       |       |               |           |       |               |            |                |           |               | 3,782    |

**ASUW American Studies Total:**

| 521                                 | 3,782         |               |              |               |         |        |           |          |               |       |       |               |           |       |               |            |                |           |               | 4,303    |

**ASUW Arts & Sciences College**

| WC- Faculty Office/Administration |               |               |              |               |         |        |           |          |               |       |       |               |           |       |               |            |                |           |               | 3,745    |

**ASUW Integrative Studies**

<table>
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<th>Teaching Labs</th>
<th>Research Labs</th>
<th>Acad Offices</th>
<th>Admin Offices</th>
<th>Library</th>
<th>PE/Rec</th>
<th>Athletics</th>
<th>Assembly</th>
<th>Student Union</th>
<th>FB/AQ</th>
<th>Grnhs</th>
<th>Physical Plant</th>
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<th>Residence Life</th>
<th>Health Care</th>
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WC - Faculty Office/Administration

| 1,875                               |               |               |              |               |         |        |           |          |               |       |       |               |           |       |               |            |                |           |               | 1,875    |

**ASUW Integrative Studies Total:**

| 128                                 | 174           |               |              |               |         |        |           |          |               |       |       |               |           |       |               |            |                |           |               | 2,177    |

**ASUW Interdis Arts/Performance**

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WC - Faculty Office/Administration

| 147                                 |               |               |              |               |         |        |           |          |               |       |       |               |           |       |               |            |                |           |               | 1,615    |

WC - Fine Arts Modular

| 557                                 | 127           |               | 1,205        | 246           |         |        |           |          |               |       |       |               |           |       |               |            |                |           |               | 2,262    |
### Assignable Square Feet by College/Unit by Department by Building

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### COLLEGE OF EDUCATION

#### ASUW College of Education

WC- Classroom/Lab/Computer Classroom

| | | | | | | | | | | | | | | | | | | | |
| | 1,021 | | | | | | | | | | | | | | | | | | |

Arizona State University
## Assignable Square Feet by College/Unit by Department by Building

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<th>ASF</th>
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<th>Teaching Labs</th>
<th>Open Labs</th>
<th>Research Labs</th>
<th>Acad Offices</th>
<th>Admin Offices</th>
<th>Library</th>
<th>PE/Rec</th>
<th>Athletics</th>
<th>Assembly /Exhibit</th>
<th>Student Union</th>
<th>FB/AQ Grnhs</th>
<th>Physical Plant</th>
<th>Other Dept Space</th>
<th>Residence Life</th>
<th>Health Care</th>
<th>Parking Garages</th>
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Arizona State University
##Assignable Square Feet by College/Unit by Department by Building

###ARIZONA STATE UNIVERSITY • WEST CAMPUS

###Assignable Square Feet by College/Unit by Department by Building

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<th>FB/AQ Grnhs</th>
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###ASUW Social Work

WC- Faculty Office/Administration

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**College of Human Services Total:**

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###OFFICE OF PROVOST ASU WEST

###ASUW Academic Affairs

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WC- Classroom/Lab/Computer Classroom

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WC- Fletcher Library

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WC- Sands Classroom & Lecture Hall

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WC- University Center

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**ASUW Academic Affairs Total:**

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###ASUW Collaborative Programs

WC- Classroom/Lab/Computer Classroom

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###Arizona State University
Assignable Square Feet by College/Unit by Department by Building

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Arizona State University
### Assignable Square Feet by College/Unit by Department by Building

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<th>Research Labs</th>
<th>Acad Offices</th>
<th>Admin Offices</th>
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<th>PE/Rec</th>
<th>Athletics</th>
<th>Assembly/Exhibit</th>
<th>Student Union</th>
<th>FB/AQ Grnhs</th>
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<th>Residence Life</th>
<th>Health Care</th>
<th>Parking Garages</th>
<th>Inactive Space</th>
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Arizona State University
### Assignable Square Feet by College/Unit by Department by Building

| Space Mgt/To Be Assigned Area | WC- Central Plant | | | | | 100 | 100 |
| WC- Faculty Office/Administration | | | | 370 | | | 370 |
| WC- University Center | | | | | | 1,835 | 1,835 |
| Space Mgt/To Be Assigned Area Total: | | | 370 | | | 1,935 | 2,305 |

### Space Mgt/University Classroom

| WC- Classroom Annex | 219 | | | 219 |

#### Campuswide Total:

| 219 | 370 | | | 2,075 | 2,664 |

### OFFICE OF VICE PRESIDENT ASU WEST

#### ASUW Auxiliary Services

| WC- Central Services Complex | 478 | 614 | | 1,092 |
| WC- Sands Classroom & Lecture Hall | | | 364 | 364 |
| WC- University Center | 2,046 | 10,398 | 13,195 | 276 | 1,704 | 27,619 |
| WC- Welcome Center | | | | | | 1,252 |

Arizona State University
## ARIZONA STATE UNIVERSITY • WEST CAMPUS

### Assignable Square Feet by College/Unit by Department by Building

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<tr>
<th>Class-rooms</th>
<th>Teaching Labs</th>
<th>Open Labs</th>
<th>Research Labs</th>
<th>Acad Offices</th>
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<th>PE/Rec</th>
<th>Athletics/Exhibit</th>
<th>Student Union</th>
<th>FB/AQ Grnhs</th>
<th>Physical Plant</th>
<th>Other Dept Space</th>
<th>Residence Life</th>
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<th>Parking Garages</th>
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**ASUW Auxiliary Services Total:**

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**ASUW Copy Center**

**WC- Faculty Office/Administration**

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**WC- Fletcher Library**

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**ASUW Dept of Public Safety**

**WC- Central Services Complex**

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**ASUW Facilities Dev/Management**

**WC- Central Plant**

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**WC- Central Services Complex**

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**WC- Classroom/Lab/Computer Classroom**

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**WC- FAB Annex**

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**WC- Faculty Office/Administration**

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**WC-Storage**

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</tbody>
</table>

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**Arizona State University**
### Assignable Square Feet by College/Unit by Department by Building

<table>
<thead>
<tr>
<th>Classrooms</th>
<th>Teaching Labs</th>
<th>Open Labs</th>
<th>Research Labs</th>
<th>Acad Offices</th>
<th>Admin Offices</th>
<th>Library</th>
<th>PE/Rec</th>
<th>Athletics</th>
<th>Assembly/Exhibit</th>
<th>Student Union</th>
<th>FB/AQ Grnhs</th>
<th>Physical Plant</th>
<th>Other Dept Space</th>
<th>Residence Life</th>
<th>Health Care</th>
<th>Parking Garages</th>
<th>Vacated Space</th>
<th>Outside Agencies</th>
<th>TOTAL ASF</th>
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<tr>
<td>ASUW Facilities Dev/Management Total:</td>
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<td>ASUW Financial &amp; Support Svs</td>
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<td>WC- FAB Annex</td>
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<tr>
<td>WC- Sands Classroom &amp; Lecture Hall</td>
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<td>WC- FAB Annex</td>
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<td>WC- Faculty Office/Administration</td>
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<td>WC- Central Plant</td>
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<td>WC- Classroom/Lab/Computer Classroom</td>
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<tr>
<td>WC- Faculty Office/Administration</td>
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</tbody>
</table>

Arizona State University
## Assignable Square Feet by College/Unit by Department by Building

<table>
<thead>
<tr>
<th>Classrooms</th>
<th>Teaching Labs</th>
<th>Open Labs</th>
<th>Research Labs</th>
<th>Acad Offices</th>
<th>Admin Offices</th>
<th>Library</th>
<th>PE/Rec</th>
<th>Athletics</th>
<th>Assembly</th>
<th>Student Union</th>
<th>FB/AQ Grnhs</th>
<th>Physical Plant</th>
<th>Other Dept</th>
<th>Space</th>
<th>Residence Life</th>
<th>Health Care</th>
<th>Parking Garages</th>
<th>Inactive</th>
<th>Vacated Space</th>
<th>Outside Agencies</th>
<th>TOTAL ASF</th>
</tr>
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<tbody>
<tr>
<td>WC- Fletcher Library</td>
<td>4,208</td>
<td>317</td>
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<td></td>
<td>4,525</td>
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<td>WC- Sands Classroom &amp; Lecture Hall</td>
<td>919</td>
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<td>15,023</td>
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</table>

**ASUW Institutional Plan & Res**

WC- Faculty Office/Administration

911

**ASUW Planning And Budget**

WC- Faculty Office/Administration

719

**ASUW Public Affairs**

WC- Faculty Office/Administration

3,960

**ASUW Stores/Mail Services**

WC- Central Services Complex

845 5,800 6,645

**ASUW Student Affairs Admin**

WC- Faculty Office/Administration

117

WC- Sands Classroom & Lecture Hall

496

WC- University Center

467 17,156 1,605 869 584 20,683

WC- Welcome Center

318 648 55 1,021

Arizona State University
## Assignable Square Feet by College/Unit by Department by Building

<table>
<thead>
<tr>
<th>Classrooms</th>
<th>Teaching Labs</th>
<th>Open Labs</th>
<th>Research Labs</th>
<th>Acad Offices</th>
<th>Admin Offices</th>
<th>Library</th>
<th>PE/Rec</th>
<th>Athletics</th>
<th>Assembly</th>
<th>Student Union</th>
<th>FB/AQ Grnhs</th>
<th>Physical Plant</th>
<th>Other Dept Space</th>
<th>Residence</th>
<th>Health Care</th>
<th>Parking Garages</th>
<th>Vacated Space</th>
<th>Outside Agencies</th>
<th>TOTAL ASF</th>
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</thead>
<tbody>
<tr>
<td>467</td>
<td>318</td>
<td>17,806</td>
<td>1,605</td>
<td>1,537</td>
<td>584</td>
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<td>22,317</td>
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</tbody>
</table>

**ASUW Student Affairs Admin Total:**

**ASUW Univ Center Management**

WC- Sands Classroom & Lecture Hall

| 362 | 567 | 107 | 1,036 |
| WC- University Center |
| 960 | 9,117 | 10,077 |

**ASUW Univ Center Management Total:**

| 362 | 1,527 | 9,117 | 107 | 11,113 |

**ASUW Womens Resource Center**

WC- Faculty Office/Administration

| 427 | 486 | 915 |
| WC- University Center |
| 256 | 486 | 786 |

**ASUW Womens Resource Center Total:**

| 427 | 486 | 915 |

**Office of Equal Opportunity**

WC- Faculty Office/Administration

| 161 | 161 |

**Partnership Community Dvlpmnt**

WC- Faculty Office/Administration

| 252 | 252 |

**Office of Vice President ASU West Total:**

| 1,275 | 5,445 | 47,781 | 471 | 10,398 | 26,063 | 15,610 | 9,505 | 584 | 117,132 |

Arizona State University
# Assignable Square Feet by College/Unit by Department by Building

## ARIZONA STATE UNIVERSITY • WEST CAMPUS TOTAL

<table>
<thead>
<tr>
<th>Class-rooms</th>
<th>Teaching Labs</th>
<th>Open Labs</th>
<th>Research Labs</th>
<th>Acad Offices</th>
<th>Admn Offices</th>
<th>Library</th>
<th>PE/Rec</th>
<th>Athletics</th>
<th>Assembly/Exhibit</th>
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<th>Health Care</th>
<th>Parking Garages</th>
<th>Inactive Space</th>
<th>Vacated Space</th>
<th>Outside Agencies</th>
<th>TOTAL ASF</th>
</tr>
</thead>
<tbody>
<tr>
<td>54,975</td>
<td>17,661</td>
<td>12,585</td>
<td>11,246</td>
<td>77,984</td>
<td>50,230</td>
<td>6,704</td>
<td>13,742</td>
<td>26,240</td>
<td>15,610</td>
<td>19,481</td>
<td>564</td>
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<td>357,527</td>
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</table>

**2002 Campus Student FTE:** 4,763

**Campus ASF/FTE**

| 12 | 4 | 3 | 2 | 16 | 10 | 11 | 1 | 3 | 6 | 3 | 4 | 0 | 0 | 75 |
ADDENDUM A

TO THE

SPACE NEEDS ANALYSIS

In support of
Comprehensive Facilities Master Planning
for
Arizona State University – West Campus

Prepared by
Paulien & Associates, Inc.

July 2004

PURPOSE

In early June 2004, Paulien & Associates, Inc. published the space needs analysis for the ASU-West Campus. Enrollment horizons in that report included 8,000, 10,000 and 12,000 headcount students. During work sessions with members of the master planning team and the executive administration of ASU, it was decided that additional enrollment horizons would be desirable.

The scope of this addendum includes:

- Add enrollment horizons of 15,000 and 20,000 headcount students,
- Apply ABOR space guidelines to determine future space needs; and
- Compare projected ABOR space needs to adjusted guidelines.

KEY SPACE DETERMINANTS

Three iterations of space needs were used to project growth from the fall 2002 levels. Enrollment horizons included 10,000, 15,000 and 20,000 headcount students. The time period for reaching these enrollment levels is not a factor in this analysis. This report provides detailed analysis for each of the enrollment horizon levels but focuses on the 15,000 enrollment level.

SPACE NEEDS PLANNING

The Arizona Board of Regents (ABOR) as well as other national guidelines appropriate to the ASU-West campus mission and pedagogy was used to quantify space needs. One additional analysis was calculated at the 15,000 student headcount level using adjusted guidelines, which provides a comparison to ABOR guidelines.
ENROLLMENT, FACULTY AND STAFF ASSUMPTIONS

Enrollment and staffing data for this report were provided from several source documents. These include ASU’s Pathway to 2020, Enrollment Planning for the New American University, and ASU Enrollment and Employee Projections, 2002-2020, as provided by the University Office of Institutional Analysis, dated November 24, 2003. The ratios used to develop the space needs analysis for the three enrollment horizons in this addendum are the same assumptions as described in greater detail in the consultant’s final report for the ASU – West Campus, dated June 2004. The revised data are listed in the following table.

ASU West Comprehensive Master Plan Assumptions

<table>
<thead>
<tr>
<th>ENROLLMENT</th>
<th>Base Year</th>
<th>Horizon A</th>
<th>Horizon B</th>
<th>Horizon C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment FTE &amp; Headcount</td>
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<tr>
<td>Headcount</td>
<td>6,630</td>
<td>10,000</td>
<td>15,000</td>
<td>20,000</td>
</tr>
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<td>FTE/HC Ratio</td>
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<td>0.79</td>
<td>0.81</td>
<td>0.81</td>
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<tr>
<td>Total FTE</td>
<td>5,053</td>
<td>7,900</td>
<td>11,850</td>
<td>16,200</td>
</tr>
<tr>
<td>% on Campus</td>
<td>0.90</td>
<td>0.90</td>
<td>0.90</td>
<td>0.90</td>
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<tr>
<td>Total On Campus FTE</td>
<td>4,763</td>
<td>7,110</td>
<td>10,665</td>
<td>14,580</td>
</tr>
<tr>
<td>Total On Campus HC</td>
<td>6,232</td>
<td>9,000</td>
<td>13,500</td>
<td>18,000</td>
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<tr>
<td>Total Undergraduate FTE (80%)</td>
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<td>5,688</td>
<td>8,532</td>
<td>11,664</td>
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<tr>
<td>Total Undergraduate HC (75%)</td>
<td>4,931</td>
<td>6,750</td>
<td>10,125</td>
<td>13,500</td>
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</table>

Notes:
Base Year reflects actual campus data and excludes Extended Education FTE
FTE projections for target years from Office of the President
Ratios and percentages from the University Office of Institutional Analysis

<table>
<thead>
<tr>
<th>STAFFING</th>
<th>Base Year</th>
<th>Horizon A</th>
<th>Horizon B</th>
<th>Horizon C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
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</tr>
<tr>
<td>Total Student FTE</td>
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<td>7,900</td>
<td>11,850</td>
<td>16,200</td>
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<td>T/TT &amp; Fac. Assoc. Ratio student FTE/Fac. FTE</td>
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<td>20.8</td>
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<td>PT Faculty FTE</td>
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<td>146</td>
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Contractual Staff

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<tr>
<th></th>
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<th>Horizon B</th>
<th>Horizon C</th>
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</thead>
<tbody>
<tr>
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<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
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<tr>
<td>Ratio Staff FTE to Staff Hdcnt</td>
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<td>20%</td>
<td>20%</td>
<td>20%</td>
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<tr>
<td>Total Staff FTE</td>
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<td>567</td>
<td>855</td>
<td>1,174</td>
</tr>
<tr>
<td>Total Staff Headcount</td>
<td>448</td>
<td>680</td>
<td>1025</td>
<td>1409</td>
</tr>
<tr>
<td>Total T/TT Faculty &amp; Staff FTE</td>
<td>515</td>
<td>849</td>
<td>1278</td>
<td>1752</td>
</tr>
</tbody>
</table>

Student Workers, TA's & GRA's

<table>
<thead>
<tr>
<th></th>
<th>Base Year</th>
<th>Horizon A</th>
<th>Horizon B</th>
<th>Horizon C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio Student Worker to Fac. &amp; Staff</td>
<td>0.19</td>
<td>0.22</td>
<td>0.25</td>
<td>0.27</td>
</tr>
<tr>
<td>Student Worker, TA's &amp; GRA's Headcount</td>
<td>98</td>
<td>187</td>
<td>319</td>
<td>473</td>
</tr>
<tr>
<td>Student Worker, TA's &amp; GRA's FTE</td>
<td>32</td>
<td>62</td>
<td>105</td>
<td>156</td>
</tr>
</tbody>
</table>
**RESEARCH ASSUMPTIONS**

The consultant used current and projected tenured/tenure track faculty to develop the space needs analysis for this category. The methodology is fully explained in the original report.

**FACILITIES ASSUMPTIONS**

Starting with the spring semester 2004, the Classroom Lab/Computer Classroom- Phase II (CLCC II) building, with 59,266 ASF, was completed. The building program is included in existing space classifications in target enrollment planning horizons A through C.

**SPACE NEEDS ANALYSIS – ABOR GUIDELINES**

**GUIDELINE ASSUMPTIONS AND APPLICATION**

The consultants used the *Arizona Board of Regents Guidelines* which were prepared in 1997, revised in 1999, and implemented in 2000 as the primary source of guideline formulas for determining the University’s space needs for enrollment horizons A through C. For some space categories, alternative guideline models were used as deemed appropriate by the consultants and Arizona State University planners.

**SPACE NEEDS ANALYSIS – SUMMARY FINDINGS**

The enrollment projections are the foundation for all projected classroom and laboratory space needs and any other space needs based upon total number of student headcount or FTE’s. The 10,000 student headcount space needs analysis did not generate the same amount of space as originally calculated in the June 2004 published report for two specific reasons.

1) The number of library volumes has been updated in this report to reflect growth at the new enrollment levels.

2) New residence life space data was provided by the master planning architects. The new guidelines for calculating the number of beds on campus is as follows:
   - 75% of the freshman FTE student population,
   - 37% of the upperclassman undergraduate FTE population,
   - 10% of the graduate FTE population,
   - 5% of the full time faculty and staff

At Enrollment Horizon A (10,000 headcount students), the guideline produced a need for 673,029 ASF of academic, academic support, and auxiliary space. When residence life is added to the analysis, the guideline increased to 1,480,704 ASF.

Enrollment Horizon B (15,000 headcount students) enrollment and staffing assumptions generated a guideline total (without residential) of 997,290 ASF of space, if the 1,211,650 ASF of residential space is added to the total, Horizon B would require a campus of 2,208,940 ASF.

At Horizon C (20,000 headcount students) enrollment and staffing levels, ASU-West campus shows a campuswide need, excluding residential, of 1,338,611 ASF. When resident life is added to the overall total, the campus size increases to 2,995,211 ASF.
# Space Needs Analysis - Base Year and Enrollment Horizon A - ABOR Guidelines

<table>
<thead>
<tr>
<th>SPACE CATEGORY</th>
<th>Existing ASF</th>
<th>ASF</th>
<th>Surplus/Deficit</th>
<th>ASF</th>
<th>Percent Surplus/Deficit</th>
<th>Existing ASF</th>
<th>ASF</th>
<th>Percent Surplus/Deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Space</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom &amp; Service</td>
<td>54,529</td>
<td>48,281</td>
<td>6,248 (11%)</td>
<td>84,349</td>
<td>66,398 (21%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Laboratories &amp; Service</td>
<td>17,661</td>
<td>33,762 (16,101) (91%)</td>
<td>27,161</td>
<td>50,399 (23,238) (86%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open Laboratories &amp; Service</td>
<td>12,585</td>
<td>11,908</td>
<td>678 (5%)</td>
<td>11,246</td>
<td>17,775 (6,529) (29%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Laboratories &amp; Service</td>
<td>11,246</td>
<td>21,025 (9,779) (87%)</td>
<td>11,246</td>
<td>41,775 (30,529) (271%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offices &amp; Service</td>
<td>126,394</td>
<td>103,636</td>
<td>22,758 (18%)</td>
<td>132,520</td>
<td>165,678 (33,158) (25%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Education &amp; Recreation</td>
<td>6,704</td>
<td>48,150 (41,446) (618%)</td>
<td>6,704</td>
<td>65,000 (58,296) (870%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Academic Space</td>
<td>10,283</td>
<td>14,289 (4,006) (39%)</td>
<td>10,283</td>
<td>21,330 (11,047) (107%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Academic Space Subtotal</strong></td>
<td>239,402</td>
<td>281,050 (41,648) (17%)</td>
<td>239,402</td>
<td>281,050 (41,648) (17%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Academic Support Space</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td>50,592</td>
<td>54,140 (3,548) (7%)</td>
<td>50,592</td>
<td>71,163 (20,571) (41%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assembly &amp; Exhibit</td>
<td>13,742</td>
<td>27,213 (13,471) (98%)</td>
<td>13,742</td>
<td>35,110 (21,368) (155%)</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Physical Plant</td>
<td>15,610</td>
<td>20,988 (5,378) (34%)</td>
<td>15,610</td>
<td>32,049 (16,439) (105%)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other Administrative Space</td>
<td>9,282</td>
<td>9,526 (244) (3%)</td>
<td>9,282</td>
<td>14,220 (4,938) (53%)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Academic Support Space Subtotal</strong></td>
<td>89,226</td>
<td>111,867 (22,641) (25%)</td>
<td>89,226</td>
<td>152,542 (63,316) (71%)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Auxiliary Space</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Union</td>
<td>26,240</td>
<td>46,410 (20,170) (77%)</td>
<td>26,240</td>
<td>90,000 (63,760) (243%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Care Facilities</td>
<td>584</td>
<td>1,429 (845) (145%)</td>
<td>584</td>
<td>2,133 (1,549) (265%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Auxiliary Space Subtotal</strong></td>
<td>26,824</td>
<td>47,839 (21,015) (78%)</td>
<td>26,824</td>
<td>92,133 (65,309) (243%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL (w/o residence life)</strong></td>
<td><strong>366,254</strong></td>
<td><strong>440,756 (74,502) (24%)</strong></td>
<td><strong>366,254</strong></td>
<td><strong>673,029 (306,775) (46%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Residence Life Space</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residence Life</td>
<td>111,800</td>
<td>111,800</td>
<td>0 (0%)</td>
<td>111,800</td>
<td>807,675 (695,875) (622%)</td>
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</tr>
<tr>
<td><strong>INSTITUTION TOTAL</strong></td>
<td><strong>478,054</strong></td>
<td><strong>552,566 (74,502) (16%)</strong></td>
<td><strong>478,054</strong></td>
<td><strong>1,480,704 (966,650) (66%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ASF** = Assignable Square Feet
### Arizona State University - West Campus

#### Space Needs Analysis for Horizons B and C - ABOR Guidelines

<table>
<thead>
<tr>
<th>SPACE CATEGORY</th>
<th>Existing ASF</th>
<th>ASF</th>
<th>Surplus/ (Deficit)</th>
<th>Percent Surplus/ (Deficit)</th>
<th>Guidelines ASF</th>
<th>ASF</th>
<th>Surplus/ (Deficit)</th>
<th>Percent Surplus/ (Deficit)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Space</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom &amp; Service</td>
<td>84,349</td>
<td>99,597</td>
<td>(15,248)</td>
<td>(18%)</td>
<td>84,349</td>
<td>136,158</td>
<td>(51,809)</td>
<td>(61%)</td>
</tr>
<tr>
<td>Teaching Laboratories &amp; Service</td>
<td>27,161</td>
<td>75,598</td>
<td>(48,437)</td>
<td>(178%)</td>
<td>27,161</td>
<td>103,349</td>
<td>(76,188)</td>
<td>(231%)</td>
</tr>
<tr>
<td>Open Laboratories &amp; Service</td>
<td>13,785</td>
<td>26,663</td>
<td>(12,878)</td>
<td>(93%)</td>
<td>13,785</td>
<td>36,450</td>
<td>(22,665)</td>
<td>(61%)</td>
</tr>
<tr>
<td>Research Laboratories &amp; Service</td>
<td>11,246</td>
<td>62,663</td>
<td>(51,417)</td>
<td>(457%)</td>
<td>11,246</td>
<td>85,665</td>
<td>(74,419)</td>
<td>(662%)</td>
</tr>
<tr>
<td>Offices &amp; Service</td>
<td>132,520</td>
<td>249,044</td>
<td>(116,524)</td>
<td>(88%)</td>
<td>132,520</td>
<td>342,664</td>
<td>(210,144)</td>
<td>(159%)</td>
</tr>
<tr>
<td>Physical Education &amp; Recreation</td>
<td>6,704</td>
<td>90,000</td>
<td>(83,296)</td>
<td>(1,242%)</td>
<td>6,704</td>
<td>115,000</td>
<td>(108,296)</td>
<td>(1,615%)</td>
</tr>
<tr>
<td>Other Academic Space</td>
<td>10,283</td>
<td>31,995</td>
<td>(21,712)</td>
<td>(211%)</td>
<td>10,283</td>
<td>43,740</td>
<td>(33,457)</td>
<td>(325%)</td>
</tr>
<tr>
<td><strong>Academic Space Subtotal</strong></td>
<td>286,048</td>
<td>635,559</td>
<td>(349,511)</td>
<td>(122%)</td>
<td>286,048</td>
<td>863,026</td>
<td>(576,978)</td>
<td>(202%)</td>
</tr>
<tr>
<td><strong>Academic Support Space</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td>50,592</td>
<td>102,816</td>
<td>(52,224)</td>
<td>(103%)</td>
<td>50,592</td>
<td>135,010</td>
<td>(84,418)</td>
<td>(167%)</td>
</tr>
<tr>
<td>Assembly &amp; Exhibit</td>
<td>13,742</td>
<td>56,440</td>
<td>(42,698)</td>
<td>(311%)</td>
<td>13,742</td>
<td>79,930</td>
<td>(66,188)</td>
<td>(482%)</td>
</tr>
<tr>
<td>Physical Plant</td>
<td>15,610</td>
<td>42,945</td>
<td>(27,335)</td>
<td>(175%)</td>
<td>15,610</td>
<td>51,485</td>
<td>(35,875)</td>
<td>(230%)</td>
</tr>
<tr>
<td>Other Administrative Space</td>
<td>9,282</td>
<td>21,330</td>
<td>(12,048)</td>
<td>(130%)</td>
<td>9,282</td>
<td>24,786</td>
<td>(15,504)</td>
<td>(167%)</td>
</tr>
<tr>
<td><strong>Academic Support Space Subtotal</strong></td>
<td>89,226</td>
<td>223,531</td>
<td>(134,305)</td>
<td>(151%)</td>
<td>89,226</td>
<td>291,211</td>
<td>(201,985)</td>
<td>(226%)</td>
</tr>
<tr>
<td><strong>Auxiliary Space</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Union</td>
<td>26,240</td>
<td>135,000</td>
<td>(108,760)</td>
<td>(414%)</td>
<td>26,240</td>
<td>180,000</td>
<td>(153,760)</td>
<td>(586%)</td>
</tr>
<tr>
<td>Health Care Facilities</td>
<td>584</td>
<td>3,200</td>
<td>(2,616)</td>
<td>(448%)</td>
<td>584</td>
<td>4,374</td>
<td>(3,790)</td>
<td>(649%)</td>
</tr>
<tr>
<td><strong>Auxiliary Space Subtotal</strong></td>
<td>26,824</td>
<td>138,200</td>
<td>(111,376)</td>
<td>(413%)</td>
<td>26,824</td>
<td>184,374</td>
<td>(157,550)</td>
<td>(587%)</td>
</tr>
<tr>
<td><strong>TOTAL (w/o residence life)</strong></td>
<td>402,098</td>
<td>997,290</td>
<td>(595,192)</td>
<td>(148%)</td>
<td>402,098</td>
<td>1,338,611</td>
<td>(936,513)</td>
<td>(233%)</td>
</tr>
<tr>
<td><strong>Residence Life Space</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residence Life</td>
<td>111,800</td>
<td>1,211,650</td>
<td>(1,099,850)</td>
<td>(984%)</td>
<td>111,800</td>
<td>1,656,600</td>
<td>(1,544,800)</td>
<td>(1,382%)</td>
</tr>
<tr>
<td><strong>INSTITUTION TOTAL</strong></td>
<td>513,898</td>
<td>2,208,940</td>
<td>(1,695,042)</td>
<td>(330%)</td>
<td>513,898</td>
<td>2,995,211</td>
<td>(2,481,313)</td>
<td>(483%)</td>
</tr>
</tbody>
</table>

ASF = Assignable Square Feet

### COMPARISON OF ABOR AND ADJUSTED GUIDELINES

As a point of comparison, the consultant was asked to develop a space needs analysis at the 15,000 student headcount level using non-ABOR standards. The consultant, with 25 years of experience in space planning on more than 400 campuses, revised some of the ABOR guidelines to reflect space allowances more commonly used in higher education.

Deviations from the ABOR guidelines included:

1) Classroom Space Guidelines, as noted in the table.
### Classroom Space Guidelines - Adjusted and ABOR

<table>
<thead>
<tr>
<th>Type</th>
<th>ASF/Station</th>
<th>Weekly Room Hours</th>
<th>Student Station Occupancy</th>
<th>ASF/Station</th>
<th>Weekly Room Hours</th>
<th>Student Station Occupancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classrooms</td>
<td>20</td>
<td>30</td>
<td>65</td>
<td>19</td>
<td>35</td>
<td>65</td>
</tr>
<tr>
<td>Seminar</td>
<td>25</td>
<td>30</td>
<td>67</td>
<td>22</td>
<td>35</td>
<td>67</td>
</tr>
<tr>
<td>Computer Inst.</td>
<td>35</td>
<td>30</td>
<td>75</td>
<td>32</td>
<td>32</td>
<td>75</td>
</tr>
</tbody>
</table>

#### Arizona State University - West Campus

Space Needs Analysis - Guideline Comparisons Adjusted Guidelines

<table>
<thead>
<tr>
<th>SPACE CATEGORY</th>
<th>ABOR Guidelines</th>
<th>Adjusted Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing ASF</td>
<td>ASF (Deficit)</td>
</tr>
<tr>
<td><strong>Academic Space</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom &amp; Service</td>
<td>84,349</td>
<td>(15,248) (18%)</td>
</tr>
<tr>
<td>Teaching Laboratories &amp; Service</td>
<td>27,161</td>
<td>(48,437) (178%)</td>
</tr>
<tr>
<td>Open Laboratories &amp; Service</td>
<td>13,785</td>
<td>(12,878) (93%)</td>
</tr>
<tr>
<td>Research Laboratories &amp; Service</td>
<td>11,246</td>
<td>(51,417) (457%)</td>
</tr>
<tr>
<td>Offices &amp; Service</td>
<td>132,520</td>
<td>(124,366) (92%)</td>
</tr>
<tr>
<td>Physical Education &amp; Recreation</td>
<td>6,704</td>
<td>(83,296) (1,242%)</td>
</tr>
<tr>
<td>Other Academic Space</td>
<td>10,283</td>
<td>(21,712) (211%)</td>
</tr>
<tr>
<td><strong>Academic Space Subtotal</strong></td>
<td>286,048</td>
<td>(349,511) (122%)</td>
</tr>
<tr>
<td><strong>Academic Support Space</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td>50,592</td>
<td>(52,224) (103%)</td>
</tr>
<tr>
<td>Assembly &amp; Exhibit</td>
<td>13,742</td>
<td>(42,698) (311%)</td>
</tr>
<tr>
<td>Physical Plant</td>
<td>15,610</td>
<td>(27,335) (75%)</td>
</tr>
<tr>
<td>Other Administrative Space</td>
<td>9,282</td>
<td>(12,048) (130%)</td>
</tr>
<tr>
<td><strong>Academic Support Space Subtotal</strong></td>
<td>89,226</td>
<td>(134,305) (151%)</td>
</tr>
<tr>
<td><strong>Auxiliary Space</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Union</td>
<td>26,240</td>
<td>(108,760) (414%)</td>
</tr>
<tr>
<td>Health Care Facilities</td>
<td>584</td>
<td>(2,616) (448%)</td>
</tr>
<tr>
<td><strong>Auxiliary Space Subtotal</strong></td>
<td>26,824</td>
<td>(111,376) (415%)</td>
</tr>
<tr>
<td><strong>TOTAL (w/o residence life)</strong></td>
<td>402,098</td>
<td>(595,191) (148%)</td>
</tr>
<tr>
<td><strong>Inactive/Conversion Space</strong></td>
<td>12,075</td>
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</tr>
<tr>
<td><strong>Temporary Buildings</strong></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>INSTITUTION TOTAL</strong></td>
<td>513,898</td>
<td>(2,208,940) (330%)</td>
</tr>
</tbody>
</table>

**ASF = Assignable Square Feet**

2) Teaching Laboratories – For the analysis, the consultant used 80% student station occupancy vs. 85% with ABOR. The high point of the range for module size in liberal arts and sciences programs was used in the adjusted guideline. Most of the ABOR guidelines use the mid-range.

3) Office Space – The consultant increased the ASF of office space for administrators and faculty. In most cases, this added another 5 ASF to 60 ASF of office space per office,
depending on employee type.

4) Library/Digital Commons/Information Center – Used 0.10 ASF/volume as opposed ABOR’s 0.07 ASF/volume and increased the percent of undergraduate spaces for reading stations from the ABOR guideline of 15% to the adjusted guideline of 20%.

The results are noted in the table. At the 15,000 student headcount level, the space needs analysis generated a need for 997,289 ASF of space, excluding residence life, when ABOR guidelines were applied. When adjusted guidelines were substituted for ABOR standards, the space needs analysis at the 15,000 student headcount level generated 1,085,303 ASF of space prior to the addition of residence life. The net change, not including residence life space, was 88,014 ASF or 8.8% between the two guidelines. Therefore, Paulien & Associates, Inc. believes that a good range for master planning purposes at the 15,000 student headcount level for the ASU-West campus is between 2,209,000 ASF and 2,297,000 ASF of space.
Potable Water

Existing: Based on available information, the West Campus is adequately served by potable water service for existing requirements. Connection to the City of Phoenix water main system presently occurs at two locations, one to the north and one to the east. Water mains within the campus serve individual buildings including the residence buildings.

Phase 1: Potable water service will be provided to new buildings via the existing potable water system.

Phase 2: The main campus service loop will be extended westward to have another point of connection to the City water main system. This will support new construction on the west side of the campus. Three points of connection to the City main system will be provided.

Phase 3: Additional local water service lines will be constructed as required to serve new buildings.

Phase 4: An additional water main loop within the campus to serve improvements in the southeast portion of the campus will be constructed. Three points of connection to the City main have been proposed, although the need for a fourth connection should be examined based on future needs, water pressure, and capacity of the adjacent City system.

Sanitary Sewer

Existing: Existing sanitary sewer service is adequate. Information related to existing facility locations was not available.

Phases 1 through 4: Sewer system extension will be required to serve new buildings. Additional sewer mains will be required to serve the increasing load attributable to an increasing student count. The adequacy of the existing sewer system to serve future needs was not evaluated.

Stormwater Management

Existing: Stormwater runoff is presently conveyed by a combination of surface flow and a limited storm drain system.
Discharge points are undeveloped areas serving as retention areas in the southwest and north.

**Phase 1:** Proposed building construction will require the abandonment of existing stormdrains. Stormwater conveyance will be by both new stormdrains and surface flow in streets. The retention basin in the southwest of the project will be developed in conjunction with development of athletic fields and a park. The multi-celled retention basin configuration proposed is conceptual and intended to minimize impact on athletic fields and paths. The retention areas adjacent to the north entry will be eliminated to accommodate new building(s).

**Phases 2 and 3:** Additional conveyance via stormdrains and street flow will be required to accommodate the construction of new buildings.

**Phase 4:** A new retention facility is proposed for the southeast corner of the site in accordance with the master drainage plan. An additional smaller basin is proposed to the northwest. This smaller basin will be a water harvesting site, being less than one foot deep with no bleed-off pipe.

**Summary:** During the development process, retention facilities capable of meeting City of Phoenix detention/retention requirements will be developed in conjunction with parks and turf areas. Rigid, structural surface facilities as well as deep retention pools will be avoided. Existing stormdrains will be demolished to allow construction of new buildings. Additional stormdrains and surface conveyance in streets and turf areas will be used to mitigate increased volumes of stormwater runoff.

**ELECTRICAL UTILITIES**

**Normal Power**

**Existing:** Service is from Arizona Public Service (APS) at 12,470 volts. The present campus area has a radial underground distribution system distributed through an existing tunnel system to feed the campus buildings. The present electrical demand is approximately 3.0 megawatts with a utility capacity of approximately 9.0 megawatts.

**Phase 1:** Install additional power distribution in an expanded tunnel system and complete a distribution loop. Provide new buildings with new underground services.

**Phase 2:** Expand the Phase 1 tunnel system and increase the power distribution system. Install a second distribution loop with provision to connect to the first loop to provide multiple redundancies for a more reliable distribution system. Provide new buildings with new underground services. Install a second utility.

**Phase 3:** Expand the Phase 1 and 2 tunnel systems and increase the power distribution system. Expand the second distribution loop with additional provisions to provide multiple additional redundancies. Provide new buildings with new underground services. Install a second utility feed and install utility switching provisions for automatically switching utility feeders in case of a utility power failure on one of the lines.

**Phase 4:** Expand the Phase 1, 2 and 3 tunnel systems and increase the power distribution system. Install a third distribution loop with additional provisions to provide multiple additional redundancies. Provide new buildings with new underground services.

**Emergency Power**

**Existing:** The present campus area has a central plant essential electrical system distribution network. The present essential electrical system has two individual generators operating in parallel. Essential electrical system power is distributed to the campus buildings using the same tunnel system as the normal power distribution system.

**Phase 1:** Expand the central plant essential electrical system to distribute emergency power in parallel with the normal distribution system. Provide new buildings with new emergency underground service.

**Phase 2:** Expand the Phase 1 essential electrical system with additional tunnel distribution. Provide new buildings with new emergency underground services.

**Phase 3:** Expand the Phase 1 and 2 essential electrical systems with additional tunnel distribution. Provide new buildings with new emergency underground services.

**Phase 4:** Expand the Phase 1, 2, and 3 essential electrical systems with additional tunnel distribution. Provide new buildings with new emergency underground services.

**Telecommunications**

**Existing:** There is an existing underground communication distribution covering most of the campus area. This system has not been evaluated.

**Future:** The communication distribution system will have to be evaluated.
MECHANICAL UTILITIES

Chilled Water
Existing: The existing chilled water plant has 4 centrifugal water chillers, 2 rated at approximately 500 tons, one 1000 ton unit, and one at 1100 tons. Additionally the thermal storage system is capable of providing approximately 3000 tons under peak load conditions. The existing chilled water distribution piping is located within utility tunnels.

The systems are in good condition and well maintained. The plant is capable of expanding to approximately 8000 tons.

Phase 1: The existing chilled water piping needs to be extended through the tunnel to complete the chilled water loop. New support and auxiliary facilities will be connected to the central chilled water system whereas the mixed-use/commercial and housing components will be standalone.

Phases 2 through 4: As the campus grows, the existing central plant can be expanded to provide approximately 8000 tons. Dependent upon the mix of the new facilities, a satellite plant will need to be installed in the southeast quadrant of campus and connected to the chilled water distribution system.

Heating
Existing: West campus has no central heating system. Currently there are small hot water boilers serving individual buildings. The majority of the heating is through the variable air volume terminal reheat system using electric resistance heating. Given the very low demand on the electric heating, it is anticipated that this philosophy will continue.

Workshops/Meetings/Presentations
West Community, January 26, 2004, 3:30–5:00 p.m.
West Neighbors, January 26, 2004, 7:00–8:30 p.m.
West Precinct Workshop – February 24, 2004, 1:00–4:00 p.m.
Senior Admin – February 25, 2004, 11:00 a.m.–12:00 p.m.
West Precinct – February 25, 2004, 5:00–7:00 p.m.
ASU Alumni West – October 13, 2004, 12:00–1:00 p.m.
Open Forums