

Site Improvements Design Guidelines

General Guidelines

Planning Principles

Campus development is guided by four planning principles that relate to ASU's eight design aspirations for a New American University. The four planning principles are:

1. Foster change,
2. Connect people,
3. Embody sustainability and resiliency,
4. Inspire commitment.

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

General Landscape Principles

The development and implementation of outdoor spaces is crucial to the character, coherence, and comfort of the ASU campuses. The spaces between the buildings on campus form the common campus environment, and will be the medium that helps to create the identity and sense of place unique to each campus. While the design of outdoor spaces will be specific to each campus, future landscape architectural design on all of the ASU campuses should contribute to the creation of a safe, long lasting and viable campus environment that will accommodate all students and all modes of student transport and traffic. Two campuses are nationally recognized arboretums and it is the intent of the University that they are maintained and that all campuses strive to understand the contextual fabric of the area and campus and there is an overall cohesiveness throughout. All campus landscape development will promote water conservation through use of drought-tolerant plants and efficient irrigation systems. Specific landscape guidelines unique to each campus are included as follows:

- Tempe campus – oasis, historic, complex, high density,
- Polytechnic campus – desert arboretum,
- Downtown Phoenix campus – urban oasis, high density,
- West campus – oasis with transitional landscape at edge.
- Lake Havasu City campus – desert arboretum, high density

Overarching Landscape Principles:

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

Sustainability

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

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

Sustainability Key Elements

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

Sustainability and Site Planning Principles:

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

Cohesive Identity

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

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

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

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

Cohesive Identity Key Elements

- Design landscape and hardscape areas to reinforce and improve campus wayfinding.
- Provide adequate wayfinding at gateways, malls, and pedestrian and vehicular nodes.
- Design flexible and comfortable spaces to allow for small and large group assembly and encourage social interaction.
- Provide ample shade with fixed and flexible seating arrangements.
- Establish a consistent ground plane palette of paving materials for all pedestrian routes and streetscape corridors.
- Establish a simple and consistent palette of trees and select understory plantings for all pedestrian and streetscape corridors.

Human Comfort

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

Human Comfort Key Elements

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

The Result

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

Tempe Campus

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

Primary and Secondary Malls

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

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

Primary and Secondary Mall Key Elements

- Mall design should facilitate the efficient and uninhibited movement of a large number of people.
- Primary and secondary malls should have a unified ground plane with consistent paving materials and site furnishings.
- Incorporate a variety of transitional spaces outside building entries to allow for gathering without impeding traffic flow.
- Malls should be broad, accessible, and easy to navigate.
- Malls should give priority to pedestrians over wheeled traffic.

- Malls should allow access for emergency vehicles and minimal service vehicles.
- Consider the value and location of existing trees during the conceptual design phase.
- Incorporate gardens or landscapes with special emphasis on the microclimates created by buildings.
- Consider sun exposure and orientation when selecting materials to reduce reflected heat and glare.
- Consider a variety of ways to incorporate shade into the space.
- Plant trees in groves in plazas and in linear bosques along walkways.
- Create rainwater harvesting opportunities by grading manipulation of paved and planting surfaces.
- Designate a tree species palette for malls to create consistency and support mall identification and wayfinding.

Nodes

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

Node Key Elements

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

Lawns

Lawns provide students with cool, green places to relax and gather with friends. Turf enables the use of space in ways not achievable with other groundcovers or rock mulch. Lawn areas should be kept relatively open, allowing for visual enjoyment as well as recreational and gathering opportunities. They should be designed as flexible, adaptable spaces that can accommodate a number of functions. While designing to demonstrate a commitment to sustainability is an overarching landscape architectural mandate, thought must be given to the intended function of a space and what materials can best facilitate the varying needs and uses that are programmed for the space. The context and the potential use of the space must be in balance with the overarching goals of the campus and the specific landscape character.

Lawn Key Elements

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

Outdoor/Indoor Transitional Spaces

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

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

seating options that facilitate conversation or privacy. Incorporating large shaded plazas that serve as central spaces on campus that allow large groups to gather is encouraged. This will help foster a sense of community and tie the campus together spatially. Whether a contemporary palette of concrete and glass or a traditional palette of stone and brick, planting design in these transitional spaces must address the architecture and ease the transition from cool interior to variable exterior. Courtyards and building entries provide opportunities to use unique specimen plants that thrive in the microclimates created by the architecture and enhance the arboretum collection. These spaces should be shaded, either with the aid of shade structures or trees.

Outdoor/Indoor Transitional Spaces Key Elements

- Planting design should emphasize the building's entrance.
- Consider using unique specimen plantings in appropriate entry locations and microclimates.
- Design paving that leads visitors to building entrances.
- Incorporate shade trees and vegetative screening to reduce building heat-loading attributed to solar exposure.
- Landscaping should be appropriately scaled to the gathering space.
- Doors/entries should be well lit with no potential hiding places.
- Provide flexibility in gathering spaces and allow for different types of functions by incorporating different types of seating, such as tables with chairs, permanent benches, and moveable furniture.

Pedestrian and Vehicular Portals and Streetscapes

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

Pedestrian and Vehicular Portals and Streetscape Key Elements

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

Ancillary Spaces

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

Ancillary Space Key Elements

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

Phoenix Downtown Campus

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

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

Pedestrian Corridors and Street Edges

In this unique city setting, street edges double as primary pedestrian corridors and need to be designed accordingly. The street edges on the Downtown campus function as conduits that facilitate the quick movement of large numbers of pedestrians around the campus. The street edges also need to provide opportunities for respite, studying, eating, and/or socializing within outdoor/indoor transitional spaces such as plazas, courtyards, and building entries where possible. Such spaces provide links and opportunities for active engagement between the University and public sector, including citizens from the nearby office buildings and transit center.

Mall and Street Edge Key Elements

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

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

Outdoor/Indoor Transitional Spaces

Outdoor/indoor transitional spaces are the spaces between pedestrian walkways and the interiors of campus buildings. They are crucial to the success of the existing and new development on campus. It is in these spaces that students, faculty, and staff connect, gather, and socialize. Courtyards, building entries, and plazas play a major role in blurring the line between the indoors and outdoors and establishing the interdependent relationship between landscape and architecture on campus. Landscape materials and site furnishings should be integral to the adjacent architectural styles and finishes and relate to the urban condition on the City of Phoenix sidewalks. The interdependent relationship between architecture and landscape should be explored at a more functional level and in ways that showcase the University's commitment to sustainability. Vegetative screens should be used to shade building windows and seating areas, courtyards should take advantage of brimming water features that minimize the evaporation typical of more active fountains, and plant irrigation should be supplemented with the HVAC condensate from adjacent buildings where possible.

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

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

Outdoor/Indoor Transitional Space Key Elements

- Planting design should emphasize building entries and pedestrian gathering.
- Consider using unique specimen plantings in appropriate locations and microclimates.
- Design paving to demarcate building entrances from the urban streetscape.
- Augment the buildings with shade trees and other vegetative screening.
- Landscaping is appropriately scaled to the gathering space.
- Provide flexibility in gathering spaces and allow for different types of functions by incorporating different types of seating, such as tables with chairs, permanent benches, and moveable furniture.
- Doors/entries are well-lit with no potential hiding places.

Ancillary Spaces

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

Ancillary Space Key Elements

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

Polytechnic Campus

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

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

Primary and Secondary Malls

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

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

Primary and Secondary Mall Key Elements

- Mall design should facilitate the efficient and uninhibited movement of a large number of people.
- Primary and secondary malls should have a unified ground plane with consistent paving materials and site furnishings that are integral to the design of the architecture.
- Landscape character should exhibit an environmentally-sensitive arid desert plant palette.

- Incorporate a variety of transitional spaces outside building entries to allow for gathering without impeding traffic flow.
- Incorporate gardens with special emphasis on the microclimates created by buildings.
- Consider sun exposure and orientation when selecting materials to reduce reflected heat and glare.
- Consider a variety of ways to incorporate shade into the space.
- Create rainwater harvesting opportunities by grading manipulation of paved surfaces.
- Malls should give priority to pedestrians over wheeled traffic.
- Malls should allow access for emergency and some service vehicles.
- Utilize designated tree species palettes for malls to create consistency, and enhance mall identification and wayfinding.

Nodes

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

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

Node Key Elements

- Nodes should be designed to facilitate traffic flow and directional change. If gathering spaces are provided, they should not impact traffic flow.
- Provide flexibility in gathering spaces at nodes and allow for different types of functions by incorporating different types of seating, such as tables with chairs, permanent benches, and moveable furniture.
- Integrate directional kiosks, water features, public art, and/or accent planting appropriate to the significance of the particular gathering space.
- Nodes should have consistent paving materials and site furnishings that are complementary to the design of the architecture.
- Landscape character should exhibit an environmentally-sensitive arid desert plant palette.

Lawns

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

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

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

Lawn Key Elements

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

Outdoor/Indoor Transitional Spaces

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

The design of these community gathering areas will be site-specific. However, they should be programmed for flexibility. Large or small, formal or informal, they should be able to accommodate a diverse number of functions and users. Where small plazas are developed, their character should be intimate, human-scaled, and with movable seating options that facilitate conversation or privacy. Incorporating large plazas to serve as campus gathering spaces is encouraged. This will help foster a sense of community and tie the campus together spatially.

Outdoor/Indoor Transitional Space Key Elements

- Incorporate transitional spaces outside building entries to allow for socializing or studying without impeding traffic flow.
- Establish a unified ground plane with consistent paving materials, site furnishing materials, and arid desert plantings that complement/reinforce the raw finishes and materials of the adjacent core buildings.
- Landscape design should be complementary to the design of the architecture and help to shade windows, pedestrian corridors and gathering spaces.
- Augment the building's shade with trees or vegetative screening.
- Showcase ASU's commitment to sustainability by investigating techniques for water harvesting, such as collecting condensate from HVAC systems, reusing/redirecting rainwater runoff and recycling gray-water.
- Consider using unique specimen plantings in appropriate entry locations and microclimates.
- Landscaping should be appropriately scaled to the gathering space.
- Provide flexibility in gathering spaces and allow for different types of functions by incorporating different types of seating, such as tables with chairs, permanent benches, and moveable furniture.
- Doors/entries should be well-lit with no potential hiding places.

Vehicular Gateways and Streetscapes

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

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

create a more defined sense of place and cohesive identity. Special attention should also be given to the Williams Field Road entrance off Power Road, as this vehicular entry represents the arrival onto the campus proper and will be the touchstone for wayfinding and identity.

Vehicular Gateways and Streetscapes Key Elements

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

Ancillary Spaces

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

Ancillary Space Key Elements

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

West Campus

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

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

Malls

The primary axis through campus begins at the main vehicular entrance at Thunderbird Road, transitions through the main pedestrian mall and Fletcher Lawn, and terminates at Fletcher Library. The primary mall and lawn not only facilitate the efficient and uninhibited movement of large numbers of people; they also foster a sense of community and tie the campus together spatially.

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

Mall Key Elements

- Mall design should facilitate the efficient and uninhibited movement of a large number of people.
- Malls should have a unified ground plane with consistent paving materials and site furnishings that are complementary to the architecture and conform with existing paving patterns and materials.
- Consider the value and location of existing shade trees during the conceptual design phase. The preservation of existing shade trees and successful formal gardens is strongly encouraged.
- Incorporate a variety of gathering spaces and gardens, with special emphasis on the microclimates created by buildings along major pedestrian routes.
- Consider sun exposure and orientation when selecting materials to reduce heat and glare.
- Malls should give priority to pedestrians over wheeled traffic.
- Use a simple and consistent palette of tree species in malls that will provide ample shade, create consistency and mall identification, and enhance wayfinding.

Outdoor/Indoor Transitional Spaces

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

Future design of these community gathering areas will be site-specific. However, they should be programmed to be flexible. Large or small, they should be able to accommodate a diverse number of functions and users. Where small plazas are developed, their character should be intimate and human-scaled, with movable seating options that facilitate conversation or privacy. Courtyards and building entries often provide opportunities to use unique specimen plants that thrive in the microclimates created by the architecture. These spaces should be shady either with the aid of shade structures or trees and are ideal places for cooling water features.

Outdoor/Indoor Transitional Space Key Elements

- Planting design should emphasize the building's entrance and reinforce the formal campus composition and architecture.
- Consider using unique specimen plantings in appropriate entry locations and microclimates.
- Design paving that leads visitors to building entrances.
- Landscaping should be appropriately scaled to the gathering space.

- Provide flexibility in gathering spaces and allow for different types of functions by incorporating different types of seating, such as tables with chairs, permanent benches, and moveable furniture.
- Consider a variety of ways to incorporate shade into transitional spaces from trees and vegetation screens, to fabric awnings and entry coverings. Do so in a way that respects the formal architectural expression of the campus.
- Implement inventive water reuse strategies such as rainwater harvesting, HVAC condensate collection and gray-water recycling that display ASU's commitment to sustainability where possible and appropriate.

Lawns

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

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

Lawn Key Elements

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

Pedestrian and Vehicular Portals and Streetscapes

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

Pedestrian and Vehicular Portals and Streetscape Key Elements

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

Ancillary Spaces

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

Ancillary Space Key Elements

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