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## 7.0 PEDESTRIAN PLAN

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The Pedestrian Plan is a modal element of the Mesa Transportation Plan. It establishes a coordinated strategy to improve the convenience and accessibility of pedestrian travel throughout the community. The plan is divided into the following sections:

- An overview of the importance of walking
- Pedestrian objectives and policies from the City's General Plan
- A summary of existing conditions
- A review of pedestrian facilities and design considerations
- A compilation of existing and future needs to improve the City's pedestrian system

### The Importance of Walking

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Walking is the oldest form of personal transportation, and is the most readily available form of exercise. It does not require a license, fare, or special preparation. Walking is also the most affordable form of transportation, and not only improves health and well-being, it benefits motorists, employers, the community, businesses, and the environment. Every trip made on foot instead of by car reduces pollution and traffic congestion, and helps improve personal health. Pedestrian activity brings visual security (physical presence of people that deters crime) to a community and enhances the attractiveness of commercial and recreational areas.

For the purposes of this plan, pedestrians include people of all ages who walk, sit, or stand in public spaces, whether by foot or in a wheelchair. Pedestrian trips include walking from one destination to another, such as from home to school. Most trips, even when taken on the bus or in a private auto, include walking - people must walk from their car to the store or from their home to the bus stop.

The number of people who walk regularly is an important measure of a city's quality of life. Sidewalks provide places for casual socializing, and businesses benefit when people stroll and window-shop. The presence of pedestrians in the community indicates that people feel safe and confident outdoors. The quality of the pedestrian environment is also an important economic consideration. Research by the Center for Livable Communities (The Economic Benefits of Walkable Communities, <http://www.lgc.org/center>) includes the following conclusions:

- **Walkability is a good investment** – Real estate values will increase faster over the next 25 years in pedestrian friendly communities.
- **Walkability increases property values** – Property values are higher in neighborhoods that are designed to reduce auto traffic and its associated nuisances (noise, high speeds, and air pollution).
- **Businesses are beginning to leave gridlocked, auto-dependent cities** – Companies are increasingly concerned with the quality of life impacts associated with traffic congestion, which has become an important consideration for retaining employees and managing business costs.
- **Walkability is good for retail sales** – Businesses benefit when the pedestrian environment is improved, both in terms of sales and property values.

Data from the 1990 National Personal Transportation Survey show that 40% of all trips are less than 2 miles in length, and 27.5% of all trips are less than 1 mile in length – a comfortable walking distance for many people. However, only 3.4% of all trips in Arizona were made by walking, suggesting a latent demand for walking in Arizona, and that more people would walk more often if the pedestrian environment was more attractive.

In recent years, alarming data has been released on the declining health of Americans. Reports by the American Cancer Society, the Center for Disease Control, and the Surgeon General have all shown that obesity, and its associated illnesses (heart disease, diabetes and hypertension) is now an epidemic in this country, even among children. Walking provides an excellent opportunity for physical exercise, and doesn't require any special skills or equipment (except for those using a wheelchair). Some community leaders are calling for constructing more public gyms and parks, which is a good idea, but if people choose to drive to the facilities, a key element of the solution has been lost.

## Existing Conditions

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Pedestrian travel in the City of Mesa typically occurs on sidewalks adjacent to a City street. The current City of Mesa Design Guidelines require 4-foot sidewalks on all residential streets and 5-foot sidewalks on collector and arterial streets. Most City streets have sidewalks, which is favorable compared to many other communities. Missing segments of sidewalks that do exist along arterials will be built as the adjacent properties are developed.

Many trip destinations are located along busy arterial streets where sidewalks are typically immediately behind the curb. Some areas have sidewalks that are separated from the curb, which provides a more inviting walking experience. The interior sidewalks of the Town Center area between Country Club and Mesa Drive and between University Drive and Broadway Road have been enhanced with setbacks, landscaping, awnings, and mid-block crossings, making the Town Center area a pleasure to walk.

Pedestrian access between the sidewalk and adjacent businesses is frequently hindered by auto-oriented development patterns and a lack of pedestrian amenities. For example, the typical strip shopping center is separated from the adjacent street by walls and large parking lots with few or no shade trees, and no designated walkways. Pedestrian access is provided at vehicular driveways, where people on foot have to negotiate their way between parked cars, cars backing up, and oncoming traffic before reaching their destination.

## Safety

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Safety is a critical concern for pedestrians in this country. In a report by the Surface Transportation Policy Project (MeanStreets 2000, [www.transact.org/Reports/ms2000](http://www.transact.org/Reports/ms2000)), researchers found that in 1997 and 1998, 10,696 pedestrians died in the United States, representing 13 percent of all traffic fatalities. Locally, the report ranked the Phoenix-Mesa area as the sixth most dangerous metropolitan region in the United States for pedestrians, with 190 pedestrian fatalities between 1997 and 1998.

Traffic crash statistics for the City of Mesa since 1991 show that an average of 11 crashes involving pedestrians occur every month. People 65 years of age and older account for 13 percent of the total population, yet, according to a 1991 survey they make up over 22 percent of all pedestrian fatalities in this country. Older adults are not necessarily involved in more pedestrian crashes, but because of physical vulnerabilities, they are much more likely to die from their injuries.

The very young also have unique problems with the pedestrian environment. They often live within walking distance of their school but have to cross busy, wide streets to get there. Their

smaller stature makes them difficult for motorists to see, and their lack of experience make them more likely to dart into traffic without looking, or to misjudge the speed and distance of oncoming cars. As mentioned previously, rising obesity rates among children can at least partially be linked to the declining pedestrian environment in America.

## **Pedestrian Oriented Design**

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In recent years, there has been a renewed interest among elected officials, planners, and citizens in building communities for people rather than for automobiles. Several names have been attached to these “new” urban design principles – smart growth, neotraditional development, new urbanism, pedestrian-oriented development, and transit-oriented development, to name a few. For all practical purposes, though, they are intended to achieve the same thing:

- Human-scaled, walkable neighborhoods and commercial areas
- Compact, mixed-use development patterns
- Sustainable development practices
- A sense of place through sound planning and urban design principles
- Integrated travel modes that emphasize convenience and accessibility for pedestrians, bicyclists, and transit users

Pedestrian-oriented design embodies the notion that transportation and land use planning must be linked to provide a safe and convenient walking environment. It is characterized by the creation of attractive, interesting places for people to gather, accessible sidewalks and walking paths, buildings oriented to the street, protection from auto traffic, and protection from inclement weather (in Mesa, this usually means shading from the hot desert sun). Pedestrian-oriented design should not be pursued as a means to exclude automobiles; rather, it should incorporate auto travel as a component of the overall transportation system.

Several communities have created very effective pedestrian-oriented design guidelines. Locally, the Maricopa Association of Governments has developed Pedestrian Area Policies and Design Guidelines, and the Regional Public Transportation Authority prepared Pedestrian-Oriented Design Guidelines that are intended to serve as models for area Valley Communities. Both documents provide valuable design information, and were considered in preparing the Pedestrian Plan.

Throughout the Phoenix-Mesa metropolitan area, conventional residential and commercial development patterns are evident from their standardized building formats and monotonous suburban tract neighborhoods. Over the past several decades, this off-the-shelf approach to

community design has made walking increasingly inconvenient. Following is a short explanation of the drawbacks to conventional development patterns, and the advantages of traditional, pedestrian-oriented development.

## Commercial Development

Conventional commercial land uses are characterized by strip development patterns and chain retail architecture (Figures 1 and 2). Typical elements include a building that is separated from the street by a large parking lot, physical separation from adjacent land uses, and an overall lack of pedestrian amenities. Pedestrians are forced to travel greater distances to their destinations, and to mix with auto traffic. As shown in the photos below, people living in a high-density residential area adjacent to retail business would have to walk to the arterial street and back through a busy parking lot, making even the shortest pedestrian trips unlikely.



*Problems for pedestrian and transit access associated with conventional retail development*

Conversely, traditional development projects provide a convenient, enjoyable pedestrian environment (see photos on next page) with a mix of uses (either on-site or nearby). Buildings face the street, providing horizontal spatial definition and direct front door access from the sidewalk. Automobile access is provided, although it is integrated as a part of the overall design, rather than as the dominant theme. On-street parking is provided, and on-site parking is either behind or adjacent to the building. Pedestrians have the opportunity for window-shopping and social interaction along the sidewalk. Amenities such as awnings, benches, and pedestrian level lighting make walking more convenient. The distance pedestrians must travel to reach their destinations is greatly reduced, making transit access quick and convenient.



*A mixed-use development provides an inviting pedestrian environment.*



*Traditional development provides front door access, is oriented to street, and parking is adjacent to building and on-street.*

## Neighborhoods

The design of new residential neighborhoods has undergone vast changes over the past 50 years. Today, conventional residential tract development is characterized by wide streets, a disconnected network of cul-de-sacs and loops, attached sidewalks, walled neighborhoods, and “garagescape” architecture, the most dominant feature of which is the garage; the traditional front porch has retreated to a small space outside the front door. Conventional neighborhoods are usually segregated from nearby commercial uses by concrete walls and arterial streets. Many conventional subdivisions back up to arterial streets, necessitating the placement of a continuous wall that creates a tunnel effect, which in turn increases the perception of the street as the domain of the automobile. (This also removes ‘eyes on the street’, which can be a deterrent to crime.)

Alternatives to the conventional residential neighborhood have developed in recent years. So-called neotraditional design is geared toward creating more sustainable, pedestrian friendly neighborhoods. Key design features include an interconnected network of narrower streets and



*Wallscape / garagescape environment prevalent in conventional development lacks visual interest for pedestrians.*



*A neotraditional neighborhood provides visual interest and convenience for pedestrians.*

smaller blocks, detached sidewalks, alleys with rear loading garages, and pedestrian access to nearby neighborhood commercial uses. Homes in neotraditional neighborhoods include a variety of architectural styles. Residential and commercial uses are blended together rather than strictly separated as in conventional neighborhoods.

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## Pedestrian Facilities and Design Considerations

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As discussed previously in the Street Plan, a safe, inviting pedestrian realm is a crucial part of multi-modal street design. A well-designed pedestrian realm provides the following:

- Continuous, interconnected pedestrian travel corridors
- Convenient pedestrian access between commercial and residential land uses
- Convenient access to transit facilities
- A physical buffer between adjacent land uses and noise from street traffic
- Visually interesting and inviting public spaces for exercise and social interaction

Key considerations when designing the pedestrian realm include safety, comfort, ease of access, and relationships to other elements of the street realm. The pedestrian realm provides spatial definition to the street, and helps reduce the dominance of auto traffic. Adjacent land uses should be oriented to the street to focus pedestrian activity and to improve access to transit facilities.

Following is an overview of the design elements for specific components of the pedestrian realm – sidewalks, pedestrian amenities, on-street parking, landscaping, public transportation, street crossings, and shared-use paths. Each element is discussed in terms of general issues and more specific design considerations. Further review will be necessary to determine how and where the guidelines would be applied in the City of Mesa. For example, the provision of pedestrian amenities (e.g., benches and water fountains) may be appropriate for activity areas like Town Center, but not for less intensely developed areas.

### Sidewalks

Sidewalks are the most basic element of the pedestrian system, and provide access to adjacent land uses, transit facilities, and on-street vehicular parking. Sidewalks provide more to the community than simply moving people on foot; they provide space for vital social interaction, window-shopping, bicycle parking, and space for pedestrian amenities.

#### General Issues

Sidewalks that are detached from the curb provide an additional buffer for pedestrians from automobile traffic, which increases the feeling of personal safety. Attached sidewalks create an uncomfortable feeling of vulnerability due to the proximity of automobile traffic, greatly reducing



*Detached sidewalks provide a welcome buffer between pedestrians and vehicles*



*Attached sidewalks are less desirable for pedestrians*

the pedestrian experience (and also reducing use of the facility). The one exception to this rule is in activity areas like Mesa Town Center, where wide sidewalks are needed because of high pedestrian demand. However, higher concentrations of ground level retail activities create higher pedestrian volumes, and automobile speeds are typically much lower.

Sidewalks should provide the most direct connection possible between a pedestrian's origin and destination. This concept is especially important in Mesa's hot desert climate, where walk distances may be limited during the summer months. Sidewalks that are detached from the curb should follow the contour of the street. Deviations under certain circumstances (e.g., to avoid an existing landscape feature) may be necessary, but should be gradual, and should be minimized.



*Sidewalks should follow the adjacent roadway; gradual meanders may be acceptable.*



*Sidewalks that meander unnecessarily are less pedestrian friendly, especially for the elderly and those with disabilities.*

### Design Considerations

- All sidewalks should be continuous and interconnected, and should be provided on both sides of the street.
- In areas outside activity centers, sidewalks should be detached from the curb to provide space and comfort for pedestrians.
- Sidewalk width should be determined based on the use and amount of activity that is expected.
- The preferred width of a sidewalk is 12 to 15 feet in commercial and mixed-use areas with storefronts close to the street. The minimum width in these areas is eight feet.
- All sidewalks should provide a minimum five-foot clear zone, as required by the Americans with Disabilities Act to allow passing space for wheelchairs. ADA requires a wheelchair passing space every 200 feet along public walkways.
- Pedestrians want to walk in the shortest distance possible – meandering sidewalks should be avoided. Landscaping, pedestrian amenities, and other features can provide a more visually interesting atmosphere without forcing pedestrians to walk longer distances.
- Sidewalk widths of greater than 12 feet provide space for pedestrian amenities and for local business activity to spill out onto the sidewalk.
- Ensure the area dedicated to pedestrian through traffic is not obstructed with street furniture, utility poles, garbage cans, traffic signs, or vegetation.
- The surface of sidewalks should remain level and continuous, even at driveways. This signals to the drivers that they are crossing the pedestrian realm, and must yield accordingly.
- Vehicular access to adjacent land uses (curb cuts) should be consolidated to minimize auto/pedestrian conflict points.
- General maintenance (e.g., fixing potholes and broken sidewalks) is crucial to the pedestrian experience, both for physical safety and to provide an overall sense of security.
- Sidewalk should not be combined with bikeways unless the facility is specifically designated as a shared-use path with a preferred 12-foot width.
- Materials and construction methods should be selected that consider long-term maintenance and appearance.

### **Pedestrian Amenities**

Sidewalk amenities serve pedestrians and outdoor activities. Additional streetscape features, such as lighting and signing for motorists, are typically placed within the sidewalk environment, and should be integrated with the overall pedestrian realm.

General Issues

Pedestrian amenities include items like benches, water fountains, shade structures, information kiosks and maps, transit stations, and trash receptacles.

Pedestrian amenities increase the convenience of the pedestrian environment. Selecting, designing, and placing amenities requires special consideration. Their placement shouldn't necessarily be uniform; rather, they should be located where they're needed, and should be flexible as the area changes over time.



*A well-designed pedestrian environment using the street for café space.*



*Large blocks prevalent throughout the Valley provide opportunities for pedestrian plazas and gathering areas.*

Design Considerations

- Provide areas for people to gather in informal settings to enjoy the outdoors. Ensure that seating is well located and comfortable.
- Pedestrian plazas, benches, café tables, bus shelters, special landscaping, etc., should be provided along public streets to give people an opportunity to socialize and spend time outdoors.
- Special pedestrian areas, such as the Pedestrian Overlay Area in Town Center, require special consideration for pedestrian amenities, including pedestrian level lighting. Pedestrian amenities should be placed for the length of the special use area, and typically with much greater frequency.

**On-Street Parking**

On-street parking is a feature of many well-designed streets. It is located between the curb and the outside travel lane (or bicycle lane on some streets), and is usually either parallel or diagonal to the curb.

General Issues

On-street parking supports area businesses and improves pedestrian safety by providing a buffer from busy street traffic. It also visually narrows the street, signaling drivers to slow down.

On-street parking should be provided to help meet the needs of adjacent land uses. In regional activity centers with higher density development, additional public or shared parking structures will be needed. Parking below grade is preferred to above grade structures to preserve street level space for commercial activities.



*Landscaping and on-street parking visually narrow this downtown street.*



*Angle parking in a well-designed streetscape.*

On-street parking can significantly impact performance of the travelway realm, both for autos and bicycles. The provision of on street parking should be balanced with local access needs and through traffic requirements.

Design Considerations

- The standard parking lane width for parallel parking is seven feet; the maximum width is eight feet.
- Consider extending sidewalks or curbs at transit stops to an equal width of the on-street parking lane to increase pedestrian access.
- To minimize urban space used for vehicle storage in activity centers, consider including on-street parking towards requirements for adjacent uses, particularly in pedestrian activity areas.

**Landscaping**

Natural vegetation, in particular trees, provides an important element to the pedestrian experience. Trees provide shade, help buffer pedestrians from busy streets, and help establish

rhythm and character. Ground cover, shrubs, and flowers also add character, and help provide texture and scale along pedestrian ways.



*A detached sidewalk with trees and shrubs buffers pedestrians from street traffic*



*Drought tolerant landscaping reduces water needs*

### General Issues

Natural landscaping in medians helps break up the “sea of asphalt” prevalent with many Valley arterial streets. Planter strips should be provided between the curb and sidewalk in areas where pedestrian demand is less, and provide excellent opportunities for trees and shrubs to enhance walking. In particular, the walking environment along busy arterials can be greatly enhanced with detached sidewalks and trees and shrubs added to the planting strip, which gives the pedestrian an increased feeling of safety.

Vegetation used along public streets should reflect the identity of the Sonoran Desert, and should follow xeriscape principles that minimize water needs.

### Design Considerations

- Maintain adequate safety standards, including sight distance, in the design of natural landscapes.
- Use drought tolerant trees and shrubs, perennials, and groundcovers cited in the Arizona Department of Water Resources low-water using plant list.
- Trees should typically be planted between 15 and 25 feet apart, depending on species, to maintain a continuous tree canopy.
- Landscape strips with trees should be at least eight feet wide. Landscape strips with some tree types, or with shrubs and ground cover may be less than eight feet.
- Provide adequate funding and resources to maintain investments in landscaping.

## Street Crossings

Street crossings provide important connections along pedestrian routes. Excessively wide intersections often divide areas of the community, and discourage pedestrian traffic. Excessive pedestrian crossing distances also negatively impact automobile traffic, as longer walk cycles are required to allow the pedestrians to safely cross the street. In some instances, curb extensions or bulb-outs may be used to shorten the distance pedestrians must travel, both at corner intersections and mid-block crossings.



*Wide intersection crossings discourage pedestrian use.*



*Curb extensions shorten the distance pedestrians must travel to cross the street.*

### Design Issues

Key elements in developing a pedestrian friendly environment at street crossings include the width of the street, geometry of the intersection, volume of pedestrian and auto traffic, right of way constraints, and frequency of crossing opportunities. In many instances, improvements for pedestrians (and bicyclists and transit users) require trade-offs with vehicular through capacity. Equal consideration should be given to pedestrians when designing and constructing intersection improvements.

Curb radii affect the speed of auto traffic. An intersection with a shorter radius forces drivers to move more slowly when making turns, which is desirable in high pedestrian areas. Issues to consider when establishing curb radii requirements include pedestrian and auto traffic volumes, and the size of large vehicles expected on the street.

Mid-block crossings are sometimes necessary to allow pedestrians to cross large streets in areas with infrequent intersections or where the nearest intersection would require the pedestrian to travel a significant distance out of their way. Properly designed and visible mid-block crosswalks warn drivers that pedestrians frequent the area. Features such as push buttons for pedestrians to activate the traffic signal and pedestrian level lighting help improve the convenience of mid-block crossings.

A thorough analysis should be employed to evaluate a proposed mid-block crossing before installation. Issues to be considered, as part of a nationally recognized “warrant” system, include sight distance, vehicle speed, accident history, lighting, traffic volumes, types of pedestrians, adjacent land uses, etc. Improperly installed mid-block crossings can result in the following: 1) disruption of traffic flow that increases the potential for rear-end collisions; 2) proliferation of crosswalks that cause pedestrians to use conventional intersection crossings less frequently; and 3) creation of a false sense of security among pedestrians, causing them to be less alert as they cross busy streets. However, installing a mid-block crossing when specific warrants are met can: 1) help direct pedestrians to cross at the safest mid-block location; 2) provide visual cues to approaching motorists to anticipate crossing pedestrians and unexpected stopped vehicles; and 3) provide pedestrians with reasonable opportunities to cross busy streets during heavy traffic periods.

### Design Considerations

- Traffic signals should be set at a cycle frequency that dissuades jaywalking.
- The types of pedestrians using crosswalks, in particular children and the elderly, should be considered in establishing pedestrian crossing times at signalized intersections.
- Two ADA compliant wheelchair ramps should be provided at each corner of an intersection. In locations with center medians, an ADA compliant channel must also be provided.
- Curb radii at intersections in pedestrian activity areas should be 10 feet to 20 feet.
- In pedestrian areas, sidewalk bulb-outs should extend into the street for the width of the parking lane (or a minimum of five feet) to reduce pedestrian walking distance, increase pedestrian visibility, provide more space for pedestrian queuing, and to provide a place for sidewalk amenities and landscaping. Curb bulb-outs are also useful to calm traffic by visually narrowing the street and by slowing the movement of drivers making right turns.
- Depending on specific site conditions, consider mid-block crossings when the spacing of signalized intersections is greater than 660 feet and pedestrian travel demand in the area is high.
- Mid-block crossings are generally discouraged on streets with a speed limit of 45 mph or greater.

### **Shared Use Paths**

Shared use paths typically are located along open space corridors such as canal banks and utility corridors. Shared use paths are usually shared by all types of non-motorized forms of transportation including walkers, cyclists, equestrians, joggers, in-line skaters, baby carriages, etc. Additional design information and the location of proposed shared use paths are listed in the Bicycle Plan and the City’s Parks and Recreation Master Plan.

## Transit

Pedestrian improvements are needed to connect public walkways and adjacent land uses with transit centers, bus stops, light rail stations, and park-and-ride lots. The pedestrian amenities discussed above, including shade and benches, help ensure the facilities are comfortable and safe for transit passengers waiting for their ride. Refer to the Transit Plan for additional information on pedestrian friendly transit facilities.



*Convenient pedestrian access to light rail transit*



*Direct pedestrian access is provided to this local park-and-ride lot*

## Other Design Issues

There are numerous other design issues that impact the quality of the pedestrian environment. Each should be considered when developing pedestrian oriented design standards: 1) removing barriers; 2) maintenance and construction practices; 3) buffers, fences, and soundwalls; 4) site access control; 5) on-site parking; 6) designing for the elderly; 7) traffic calming; and 8) climate issues.

### Removing Barriers

Improving the pedestrian environment often requires finding solutions to physical barriers. Barriers are either permanent physical features (e.g., canals, railroads, retention basins, retaining walls, narrow bridges, and freeways) or temporary, as in the case of trash pick-up day in many neighborhoods. Low brick crosswalks can also be hazardous to wheelchair-bound pedestrians and the visually-impaired. Solutions can include alternate routing, design modifications, or new pedestrian overpasses or underpasses.



*The placement of trash containers makes sidewalks unusable for pedestrians.*



*A bridge provides access across a canal for bicyclists and pedestrians.*

Maintenance and Construction

Pedestrian facilities that are not maintained can be deterrents to walking. Walkways, traffic signs, and traffic signals all require routine maintenance to ensure proper working order. In addition, vegetation should be routinely trimmed to maintain adequate sight distances at intersections and driveways. Adequate funding and maintenance practices are needed to preserve walkways in a smooth, clean, and safe condition.

Buffers, Fences, and Soundwalls

Buffers, fences, and soundwalls provide physical separation between the public right-of-way and adjacent land uses, and can be used to enhance the overall appearance of roadways. Fencing and soundwalls should not isolate neighborhoods. Ideally (for bicycle and pedestrian access), breaks should be provided at a rate of 12 to 14 per mile, with a maximum spacing of 660 feet.

Site Access Control

The point at which sidewalks cross driveways is a primary conflict point between pedestrians and vehicles. It is therefore important to minimize the number of driveways that serve adjacent land uses. The City’s design standards should be evaluated to ensure that access controls are adequate. Issues to consider include requiring one-way entries and exits and strategies to consolidate driveway locations.

On-Site Parking

As previously discussed in the section on Commercial Development, the design of on-site parking is an important part of the pedestrian environment. Properly designed parking areas accommodate pedestrian circulation, as well accommodating the car. Conversely, poorly designed, over-sized parking areas are difficult for pedestrians to negotiate, and contribute to the mental perception of an auto-dependent society. Parking requirements should be evaluated

to reduce excessive requirements, and to institute maximum standards as well as minimum standards.



*The number of driveways should be minimized to reduce pedestrian/auto conflicts.*



*A typical shopping center parking lot, as seen from near the adjacent street.*

Elements to consider in designing pedestrian friendly parking areas include the following; 1) clearly delineated walkways that are separated from traffic lanes (preferably between rows of head-in parked cars) ; walkways should provide direct access from the street and between buildings; 2) landscaping that delineates pedestrian walkways and helps visually reduce the size of the parking lot; 3) screening to reduce the visual impact of the parking area; and 4) internal circulation and shared parking between adjacent land uses.

### Designing for the Elderly

The population of Maricopa County residents 60 and older is expected to rise from approximately 500,000 in 2000 to 1.2 million by 2025. Pedestrian design standards that consider the special needs of the elderly will become increasingly important in the future. Clear, unobstructed walkways, longer crossing times at intersections, higher lighting levels, lane markings, and larger, brighter signs are just a few of the issues that are important to the elderly population.

### Traffic Calming

With continued growth, residential traffic is an increasing concern in Mesa. When arterials become congested, motorists often look for short-cuts through residential neighborhoods. Neighborhood traffic calming techniques (e.g., speed humps, traffic circles, narrow streets, curb extensions, chicanes, and diverters) are designed to help reduce cut-through traffic and excessive speeds in residential areas, greatly improving the pedestrian environment.

Traffic calming is a relatively new concept in Mesa. Additional research and funding should be allocated to help manage residential traffic in existing neighborhoods, and new designs should reduce the need for potentially expensive retrofits in the future.

### Climate Issues

Locally, it's a common perception that people don't walk very much because of the climate; people say it's just too hot. In reality, though, Mesa's climate compares very well with other cities, in terms of the number of days per year when the temperature is favorable for walking (imagine walking to work in Boston or Minneapolis in January). Even during the hottest three months of the year, when temperatures typically are above 100 degrees, the evenings are reasonably comfortable for pedestrians (another advantage over cold climates, where evening temperatures are even lower than in the daytime).

Even people who drive an auto are subjected to the environment, when they leave their vehicle and complete their trip on foot. While walk trips may be made less frequently and for shorter distances during the summer, the design of transportation facilities and adjacent land uses should consider the comfort of the pedestrian.

Mesa's desert climate does present specific challenges to the designer working to create a comfortable pedestrian environment. Of primary interest is providing continuous or nearly continuous shade along walkways and in pedestrian areas. Landscaping can be used to provide shade, and to mitigate reflective heat along walkways. Mist systems are another option for improving the comfort levels of pedestrians.

## Existing and Future Needs

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Recommendations for future pedestrian improvements should center on improving the accessibility and convenience of the overall pedestrian environment. This will require developing and implementing pedestrian-oriented design standards, both for capital roadway improvements and for the design of future development and redevelopment projects. The level to which the City is able to retrofit existing transportation facilities will vary according to existing site conditions, financial resources, and community support. For example, when constructing a street improvement project, it may be cost prohibitive to obtain enough right-of-way to include a detached sidewalk. However, the design guidelines should be considered a starting point in developing a more enjoyable and convenient pedestrian environment.

The City of Mesa typically constructs pedestrian improvements as part of overall street construction projects. Capital projects that will enhance the pedestrian environment are included in the Street Plan, Bicycle Plan, and Transit Plan.

Previous arterial landscaping projects typically cost approximately \$525,000 per mile to construct. The Plan allocates \$750,000 per year to fund an ongoing arterial landscaping program to enhance this component of the pedestrian environment.

In developing new pedestrian design standards, the City should consider the following elements:

- Development of an interconnected, local street network
- Integration of the pedestrian system with other modes of travel
- Community design principles that provide equal consideration for pedestrians
- Integration of land uses through neotraditional design principles
- Incentive programs for pedestrian-oriented infill and redevelopment projects
- Integration of appropriate pedestrian amenities into the pedestrian realm
- Funding and maintenance procedures to keep the pedestrian system in good working order
- Building setback and orientation requirements that help create active, pedestrian frontages
- Parking design requirements that enhance pedestrian access
- Identification and elimination of barriers to pedestrian travel
- Changing design needs associated with the projected increase of elderly residents in Mesa
- Traffic calming practices for both new and existing development
- Specific design requirements associated with Mesa's desert environment