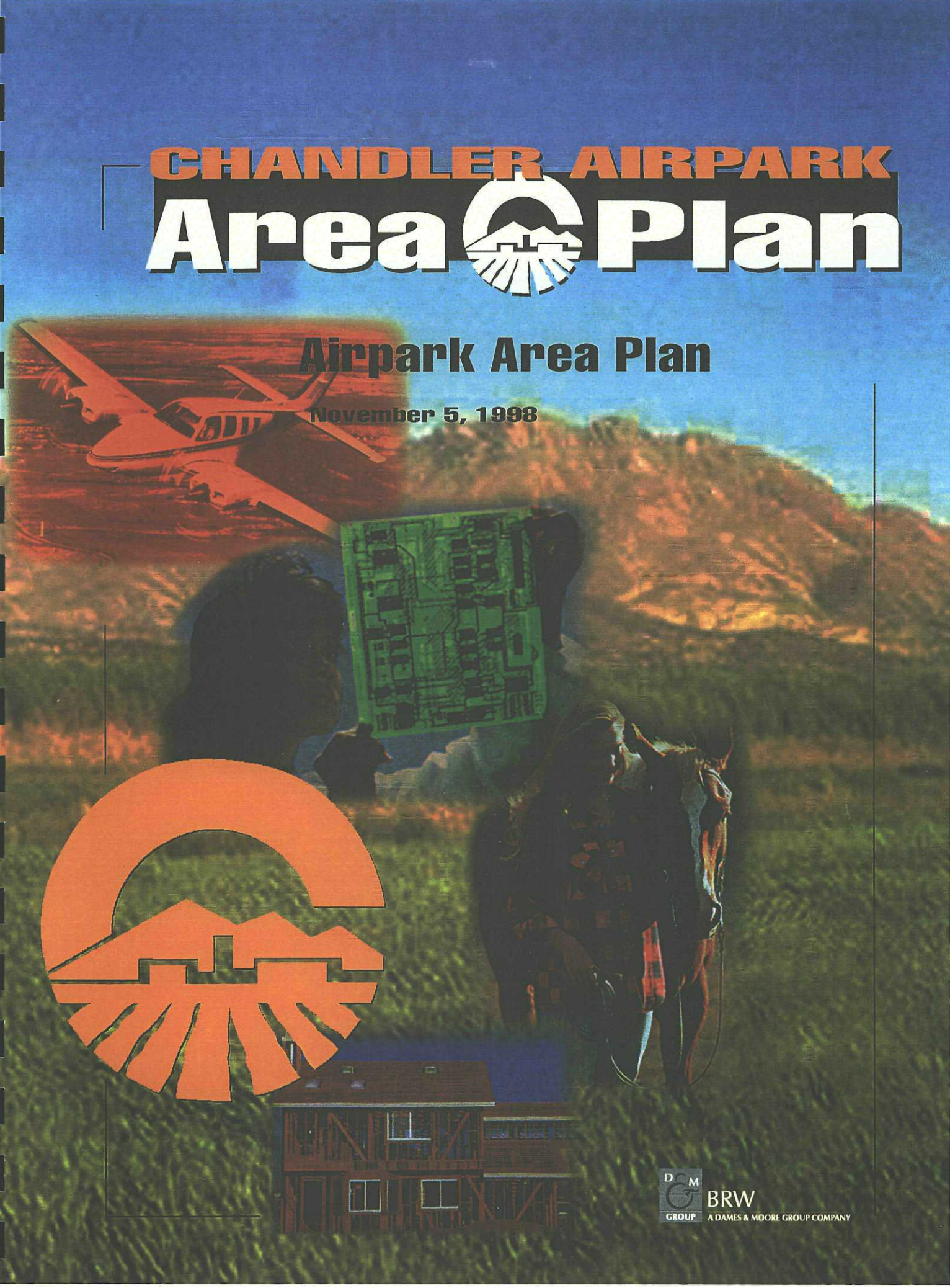
CHANDLER AIRPARK Area Plan



Airpark Area Plan

November 5, 1998

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3.0 Transportation and Circulation Element

The Transportation and Circulation Element of the Chandler Airpark Area Plan is presented in the following sections:

3.1 Introduction

The Transportation and Circulation system is the key to unleashing the economic development potential of the Chandler Airpark Area. Establishing an integrated transportation system, that offers flexibility and alternatives to residents and commuters, is important if all of the transportation opportunities in the Airpark Area are to be fully realized. This system includes the San Tan Freeway, Arizona Avenue, and Gilbert Road (roads of regional significance); other Arterial Streets; the Southern Pacific Railroad; the Municipal Airport; The Paseo System; and Transit. Full development of these transportation and circulation links will ensure access and mobility for residents and workers alike.

The Transportation and Circulation Element is a guide to decision making for the Airpark Area that:

- Identifies the needs of the Airpark Area for development of transportation-related facilities,
- Recommends transportation-related development priorities, and
- Ensures managed growth within the Airpark Area that is compatible with the existing Transportation Plan Element.

3.2 Existing Setting

The roadway network within the Airpark Area consists of primarily two-lane improved roadways, established on a one-mile grid system. These roadways define the arterial roadway system and promote efficient traffic movement through the Airpark Area. Arizona Avenue and Germann Road include design amenities such as improved shoulders, curb and gutter, sidewalks, bike lanes, transit facilities, or acceleration/deceleration lanes at turnouts or intersections.

Within the Airpark Area, two roads have been identified as roadways of regional significance. Arizona Avenue (State Highway 87) defines the western boundary of the study area and establishes a major link for regional commercial and resident traffic movement into the Downtown area from the south. Gilbert Road on the east side of the Airpark Area provides north-south mobility from the Beeline Highway to the Gila River Indian Community. Queen Creek Road is a high-volume commuter corridor for residents of south Chandler with convenient access to Interstate 10 to the west.

Several roads in the Airpark Area have been improved over the past few years and include: Arizona Avenue, a six-lane divided arterial; Germann Road, a four-lane divided roadway; and Airport Boulevard, a four-lane divided roadway. Queen Creek Road (from Arizona Avenue to McQueen) and McQueen Road (from Pecos to Queen Creek Road) are in the design phase by Maricopa County for widening to four lanes.

There is one transit line near the Airpark, Chandler Boulevard Number 56, serving the Community College Area. The line runs along Chandler Boulevard from Intestate 10 to Chandler/Gilbert Community College.

Bicycle lanes exist along the improved portions of Germann Road and Arizona Avenue.

Several other transportation facilities, such as the Paseo System and Southern Pacific Railroad Track, are being reviewed and studied as potential links to the circulation system. The Chandler Municipal Airport is covered in the introduction of this report.

3.3 Transportation and Circulation Vision, Goals and Policies

Vision

Develop and maintain a circulation system that provides access to all development, protects the integrity of the Municipal Airport, encourages economic development, and promotes orderly growth.

General

Goal 1.0 To create a safe, efficient, and convenient circulation system for the transport of people and products within and through the Airport Area.

Policy 1.1 The City shall work with the Arizona Department of Transportation to ensure timely construction of the San Tan Freeway.

Policy 1.2 The City shall work with the Arizona and Maricopa County Departments of Transportation, the Maricopa Association of Governments, and adjacent cities to integrate the Airpark Area into the regional transportation system.

Street System

Goal 2.0 To create a safe and efficient street system throughout the Airpark Area.

Policy 2.1 The City shall require a minimum of 130 feet of right-of-way along all major arterial street alignments and 150 feet at arterial intersections.

Policy 2.2 The City shall require a minimum of 110 feet of right-of-way along all minor arterial street alignments.

Policy 2.3 The City shall require a minimum of 80 feet of right-of-way along all collector streets.

Policy 2.4 The City shall require all developments located along major arterial streets to control access to 1/8, ¼ and ½ mile points to ensure safe and efficient traffic movement.

Policy 2.5 The City shall require the construction of all streets in an orderly and logical progression. This includes ensuring that collector streets in all new developments are planned to connect with collector streets in existing and planned adjacent development.

Policy 2.6 The City shall require developers to construct full-width streets with curb, gutter, sidewalk, bike lane, and landscaping from the centerline to the edge of the proposed development.

Policy 2.7 The City shall require all residential developments adjacent to major and minor arterials to be properly setback and buffered.

Policy 2.8 The City shall encourage detached sidewalks from the curb – to include a landscaping area.

Alternative Transportation Modes

Goal 3.0 To promote the use of alternative (non-automobile) modes of travel.

Policy 3.1 The City shall require that all arterials contain six (6) foot bike lanes for each direction of traffic flow.

Policy 3.2 The City shall encourage the development of integrated pedestrian, bicycle, and equestrian trails along the Paseo System.

Policy 3.3 The City shall study the feasibility of establishing a transit program.

Policy 3.4 The City shall require developers to incorporate transit facilities into project designs.

Policy 3.5 The City shall work with the Regional Public Transit Authority to secure TEA-21 Federal funding for a light rail transit system.

Policy 3.6 The City shall work to preserve the land located at Germann Road and the Southern Pacific Railroad for a future intermodal transit station.

3.4 Transportation and Circulation Plan

Functional Roadway Classification System

The land uses proposed for the Airpark Area indicate the need for a well-developed roadway network that will adequately service residential- and employment-related commute traffic. Roadways within the Airpark Area are defined using the Functional Roadway Classification System. The City of Chandler currently utilizes this system to classify its roadway network in order to apply a standardized method for design and construction. Table 3.1, *Projected Buildout of Airpark Area Arterial Roadways*, demonstrates the Functional Roadway Classification System that assess distinguishing features such as capacity/volume, continuity, access control, and facility spacing. The following five roadway classification categories are found within the Airpark Area:

- Principal Arterials
- Major Arterials
- Minor Arterials
- Collector Streets
- Local Streets

The intent of the classification system is to identify and develop roadways that facilitate the efficient, safe, and continuous movement of traffic through the Airpark Area and to reduce traffic volume on residential roadways.

Table 3.1
Projected Buildout of Airpark Area Arterial Roadways

Roadway	Roadway Classification	R.O.W. Width (1) (in feet)	# of Lanes 1998	# of Lanes 2020 (at Buildout)	Bike Lane (Yes/No)
Arizona Ave	Major Arterial	130'	6	6	Yes
McQueen Rd.	Major Arterial	130'	2	6	Yes
Cooper Rd.	Major Arterial	130'	2	4-6	Yes
Gilbert Rd.	Major Arterial	130'	2	6	Yes
Pecos Rd.	Major Arterial	130'	2	4-6	Yes
Germann Rd.	Major Arterial	130'	2/4	6	Yes
Queen Creek Rd.	Major Arterial	130'	2	6	Yes
Ocotillo Rd.	Major Arterial	130'	2	6	Yes
Willis Rd.	Minor Arterial	110'	2	4-5	Yes
Ryan Rd.	Minor Arterial	110'	2	4-5	Yes
Appleby Rd.	Minor Arterial	110'	0	4-5	Yes
116th St.	Minor Arterial	110'	2	3-4	Yes
124th St.	Minor Arterial	110'	0	3-4	Yes
132nd St.	Minor Arterial	110'	0	3-4	Yes
Airport Blvd.	Minor Arterial	90'	4	4	No

(1) Additional Right-of-Way (R.O.W.) required at intersection
Source: City of Chandler, 1998

Principal Arterials/Freeways

Freeways, as principal arterials, should carry the maximum amount of metropolitan traffic on a minimum of total mileage. Principal arterials are designed to service long trips throughout the region and have some sort of access control to increase traffic flow and volume.

The San Tan Freeway (Loop 202) is the only principal arterial running through the Chandler Airpark. It is a six-lane divided, limited access freeway designed to promote regional access to and from the area and connect to other segments of the regional freeway network such as Interstate 10, Price Freeway (Loop 101), and Superstition Freeway (US 60).

Major Arterials

Major arterials are high volume, high speed roadways that carry a large volume of traffic. Along with freeways, major arterials should carry the majority of trips entering and leaving the region, as well as the majority of through movements desiring to bypass portions of a region. Within the Airpark, principal and major arterials will function to facilitate internal traffic movement from residential areas to business and activity centers. These roadways will also facilitate commercial transport of goods into and out of the Airport vicinity. Major arterials are generally aligned with the one-mile grid system.

These roadways would have flared, 150-foot cross-sections at intersections with dual left-turn lanes and single right-turn lanes. The

right turn lane would also function as a bus pullout with a minimum 200 feet of length.

The existing and proposed roadways designated for major arterial classification in the Airpark Area include:

- Arizona Avenue
- McQueen Road
- Cooper Road
- Gilbert Road
- Pecos Road
- Germann Road
- Queen Creek Road
- Ocotillo Road

Minor Arterials

These roadway types are similar to major arterials with respect to restricted access points and travel speeds, but support lower traffic volumes. Minor arterial roadways should link and augment the major and principal arterial system and provide service trips of moderate length and a limited level of mobility compared with major and principal arterial roadways. Minor arterial roadways provide inter-community continuity, but ideally should not penetrate identifiable neighborhoods. Minor arterials are generally aligned with the one-half mile grid system. Existing and proposed minor arterial roadways include:

- Willis Road
- Ryan Road
- Appleby Road
- Airport Boulevard
- Hartford Street
- Hamilton Street
- 132nd Street Alignment

Collector Street Network

Collector streets act as intermediate roadways to facilitate traffic from neighborhoods or business centers onto the arterial roadway network. By penetrating neighborhood areas, collectors have the ability to distribute traffic without adversely affecting arterial circulation. As the Airpark Area develops, the collector street network will generally be established along the quarter mile-grid system. The City permits flexibility in the development of the collector street system for large developments where a mix of residential, employment and supportive services are part of a planned unit development project. The following roadways were identified as existing and proposed collector streets:

- Lexington Street
- Cottonwood Street

The collector street system within the Airpark Area is continually evolving as development occurs. It is important that as this evolution occurs, the major and minor arterials are relieved of the private land access function that they continue to provide in most of the Airpark Area. Such relief will result in greater efficiency in the arterial systems and reduce the lane and right-of-way requirements that would otherwise be needed.

Local Street System

The local street system in the Airpark Area consists of all residential, commercial, and industrial streets not included in the other functional classifications. The local street system provides direct access to adjacent land uses and linkage with higher roadway classifications in the Airpark Area.

Roadway Design Guidelines

Roadway Design Guidelines for the Airpark Area should comply with those standards specified by the Chandler Transportation Plan Element of the Chandler General Plan. Figures 3-1 and 3-2, *Arterial Street Cross Sections and Collector and Local Street Cross Sections*, illustrate typical cross sections from the City Transportation Plan for major arterial, minor arterial, major collector, minor collector, and local roadways.

While major and minor arterial alignments are expected to occur along the one- and one-half mile grid, the City will allow the collector and local street network within the Airpark Area to be defined by future development. Existing alignments will largely be preserved and proposed alignments must show continuity and connectivity with the existing system. Improvements to collector and local roadways will be developer- sponsored and must conform to the design guidelines established by the General Plan Transportation Element. Roadway improvements will be approved by the City on a per development basis and will consider projected traffic volumes, impact on existing and adjoining roadways, and efficiency of traffic movement.

Pedestrian, Bicycle, and Equestrian Facilities

Facilities for pedestrians and bicyclists in the Airpark Area are an important component of the Circulation Framework. Advance planning for such facilities can contribute to a reduction in levels of vehicular traffic and increased safety for pedestrians, cyclists, and motorists. The Airpark Area's pedestrian circulation framework dictates the development of sidewalks and other pedestrian facilities within residential areas and along roadways of high traffic volume near activity centers, such as commercial areas, schools, and parks.

Bicycle circulation is an integral component in the development of the Airpark Area. By designing a continuous network of bicycle paths, lanes, and routes the system will support the objectives outlined by the Land Use Plan and City Transportation Plan. Types of bicycle facilities to be utilized within the Airpark Area include:

Class I: Bike Path

A Class I exclusive bike path is a separated right-of-way designated for the exclusive use of bicycles. Cross-flows by pedestrians and motorists are minimized. A paved pathway is provided accompanied by signage designating the location of the bike path. Bike paths are specifically located to establish links between major destination points, such as parks and schools. Bike paths shall be adequately buffered from roadways by the use of a landscaping strip or other barrier to avoid conflicts.

Class II: Bike Lane

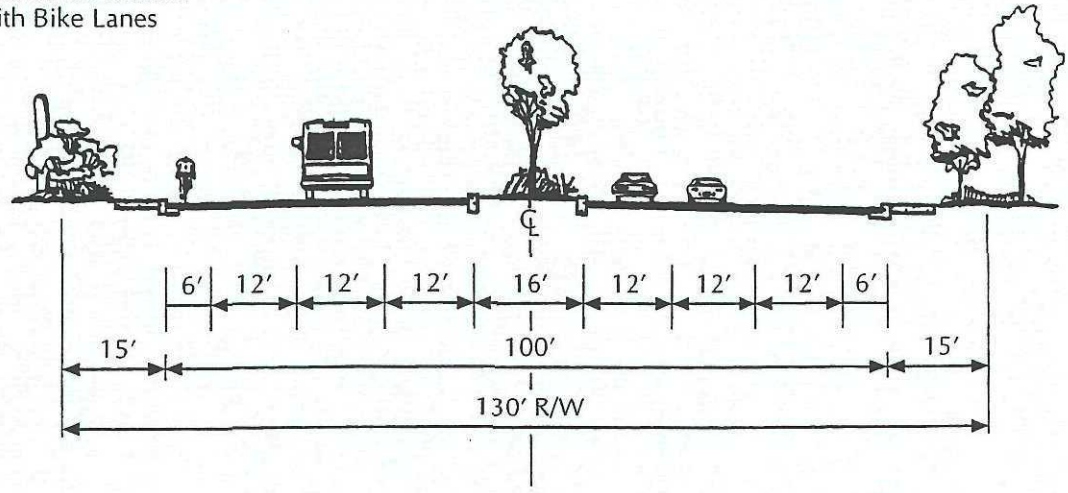
A Class II delineated bike lane is a shared, but restricted right-of-way, designated by signs and pavement for the exclusive or semi-exclusive use of bicycles. Through-travel by motor vehicles or pedestrians is not allowed. Vehicle parking within designated bike lanes may be allowed where warranted.

Class III: Bike Route

A Class III bike route is a shared right-of-way (roadway) designated by posted signs. This class of facility is the least expensive to develop

Major Arterial Street

Typical Cross Section
With Bike Lanes



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Minor Arterial Street

Typical Cross Section
With Bike Lanes

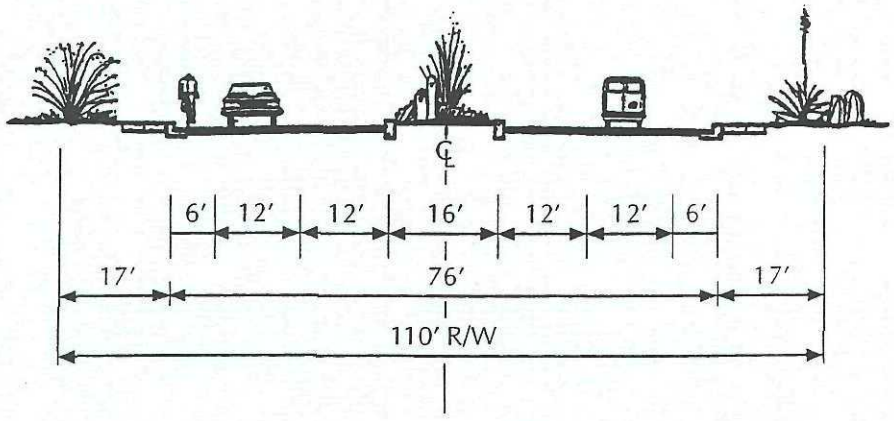

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Figure 3-1
Arterial Street Cross Sections

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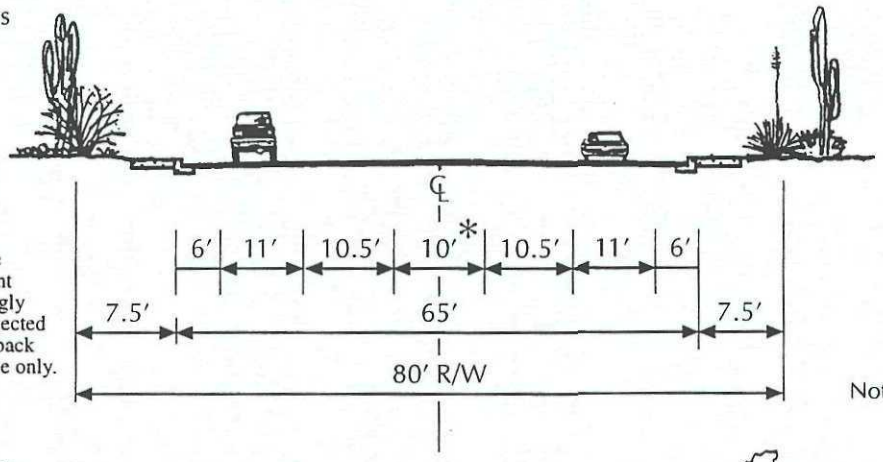
Major Collector Street

Typical Cross Section
With Bike Lanes



* Center turn lane may be eliminated and pavement width reduced accordingly when warranted by projected traffic and shall be 55' back of curb with bicycle lane only.

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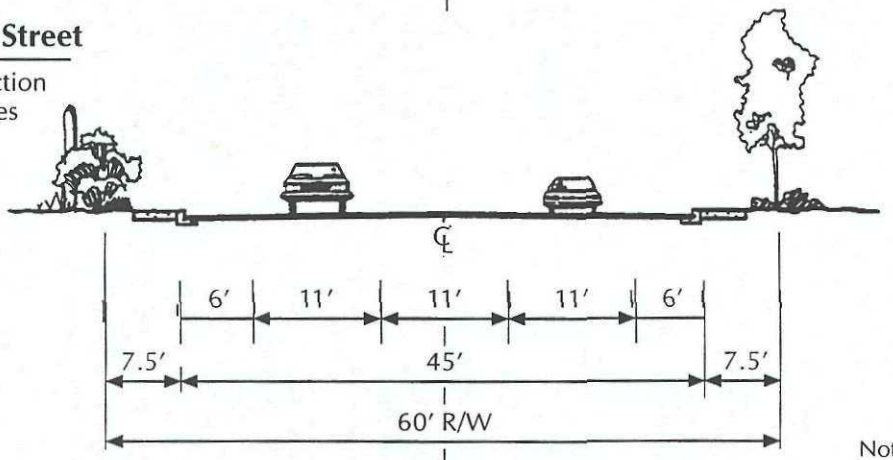
Minor Collector Street

Typical Cross Section
With Bike Lanes



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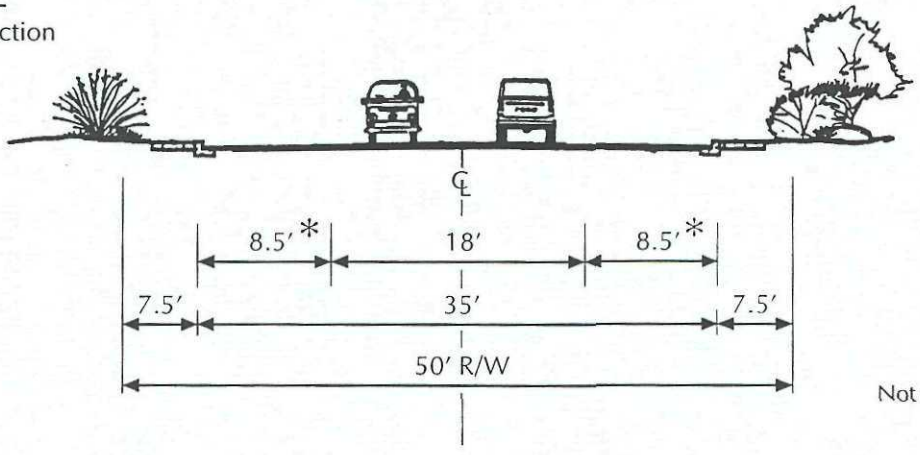
Local Street

Typical Cross Section



* Parking lane not marked by striping.

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Figure 3-2
Collector Street Cross Sections

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and maintain and appropriate signage should be posted as development occurs.

The City is actively assessing the status of continuous pedestrian- and bicycle-oriented facilities within the Airpark Area, particularly land use adjacent to the Consolidated Canal for the proposed Paseo System. This Element would define a continuous pedestrian/ bicycle/equestrian corridor, linking portions of south Chandler to the Downtown and adjacent commercial, residential, and open space areas. City design guidelines for future arterial roadways incorporate the inclusion of bike lanes and sidewalks, providing users with an adequate separation from vehicular traffic.

Public Transit

As densities increase and regional activity centers are established, public transit facilities will become an important component of the Transportation and Circulation Element. The Chandler Airport will serve as the primary economic engine for the Airpark Area and will facilitate regional employment growth, thus defining initial transit needs for the area. Additional increases in employment densities adjacent to the Arizona Avenue corridor will eventually establish transit demand, particularly in response to a proposed future transit center located at the intersection of Germann Road and the Southern Pacific Railroad corridor. The need for this center is strictly predicated by employment-based development densities and the development of a regional light rail transit service that would utilize the existing railroad right-of-way.

Necessary components of a public transit system should adhere to the principles of affordability and convenience for system users within the Airpark Area. A study of public transit in the Airpark Area should address these issues prior to implementation of future City Transit Plan Updates. The Transit Plan should adhere to the Land Use and Transportation and Circulation Elements of the Airpark Area Plan, prior to its adoption. This will ensure that a public transit system evolves in accordance with development and activity centers and will require City staff to work closely with developers. This type of cooperative effort will ensure that the proper and adequate transit facilities are provided for future residents and employees.

San Tan Freeway Corridor

The San Tan Freeway, when completed, will act as a catalyst to enhance regional commercial and industrial access to the Airpark Area. Freeway design specifics include six traffic lanes divided by a median with diamond or urban interchanges at Arizona Avenue, McQueen Road, Cooper Road and Gilbert Road. The City should work with the Arizona Department of Transportation (ADOT) to ensure the preservation of the San Tan Freeway right-of-way and prompt design and construction of the Freeway.

The freeway corridor should utilize noise attenuation measures when possible and apply landscaping design standards to promote a positive visual environment while reducing negative urban impacts. The City will also work with ADOT to promote the design/build process to hasten freeway completion. Disruption of normal traffic patterns should be kept to a minimum during freeway construction with adequate detours and traffic management practices provided. By the time San Tan Freeway construction in the Airpark begins in 2005, development and traffic volumes will

dictate the need to minimize disruption to businesses and residents.

Traffic Impacts

The Airpark Area Land Use Plan calls for intense economic development and the creation of approximately 68,000 jobs. In addition to this, nearly 17,000 residents will be added to the mix. As the Airpark Area develops, the amount of traffic being generated will increase in response. The traffic impacts in the Airpark are expected to be significant. However, the roadway network is expected to adequately handle the majority of the traffic generated by the Airpark Area.

The 1997 Maricopa Association of Governments Transportation Improvement Program models the region through the year 2015. This model assumes that the major and minor arterials are built to full capacity (4 to 6 lanes) and the San Tan Freeway is completed. This data is combined with an employment estimate of approximately 65,000 (MAG Forecast), a population forecast of approximately 70,000 (MAG Forecast) and transient traffic passing through the area. When this data is modeled, the transportation network performs very well with one exception. The intersection of McQueen and Germann Roads is unable to handle the volume of traffic passing through the intersection.

This can be reconciled by looking at the data input and considering some mitigation actions. The data input for employment is identical to what the Airpark Area is projected to create. However, and most importantly, the population projection is approximately 53,000 too high. Although some of this population will be distributed to other areas near the Airpark, the expected development of rural and low density residential will ensure that the number of residents will be lower than forecast. This in itself should be enough to reduce the traffic congestion at this intersection to acceptable levels.

Assuming however, that some mitigation measures will still be required to reduce traffic congestion at the intersection of McQueen and Germann Roads, the following measures can be adopted as growth and development dictate the need:

- Create an eight-lane segment of roadway at the intersection of McQueen and Germann Roads with dual left turn lanes and a right-turn lane. This "flared" intersection is more efficient and will increase traffic through-put.
- Work with ADOT to build an urban interchange rather than a traditional diamond interchange where McQueen Road and the San Tan Freeway intersect. Urban interchanges move much larger volumes of traffic and can help "evacuate" traffic more rapidly from the major arterials, thus increasing efficiency.
- Develop an internal and external shuttle/transit circulation plan that provides alternative ways for people to move around the Airpark Area.

These measures will be more than enough to ensure a smooth flow of traffic around and through the Airpark Area. It should also be noted that this plan is less aggressive than a similar plan completed in 1986 for both population and employment, and that the intersection of McQueen and Germann Roads is the only congested intersection projected for the year 2015 in the City of Chandler. This suggests that there is no larger pattern of congestion established for the City of Chandler or the Airpark Area Plan.

3.5 Transportation and Circulation Implementation Program

Table 3.2, *Transportation and Circulation Framework Implementation Program,* identifies the transportation implementation measures that the City should take to implement the goals and objectives of the Chandler Airpark Area Plan.

The implementation program lists a specific implementation measure, the purpose, timeframe, key participants, project location and the resources necessary to accomplish each implementation measure.

Definitions:

- *Implementation Measure* - Lists the action necessary to carry out the Transportation and Circulation Plan Element of the Chandler Airpark Area Plan.
- *Purpose* - Identifies the intent of accomplishing that particular action.
- *Timeframe*- Establishes the target 5-year priority within the 20-year planning horizon for implementation of the action.
- *Key Participants* - Assigns the elected or appointed public body, agency, group, individuals or volunteers principally responsible to initiate the implementation action.
- *Resources* - Lists the potential funding, City staff, volunteer or other community resources necessary to carry out the implementation action.

Table 3.2
Transportation and Circulation
Framework Implementation Program

Implementation Measure Action	Purpose	Timeframe (Years)				Key Participants	Resources
		1-2	3-5	5-10	10-20		
Upgrade of Traffic Control system along existing arterial roadways with volumes exceeding 15,000 vehicles/day	Mandates require synchronization of signal timing to increase traffic capacities	•	•	•	•	Public Works, MCDOT	Federal Funds (TEA-21), General Obligation Bonds, City Staff
Update the Transportation Plan on a five-year basis	To identify existing and potential transportation issues and provide recommendations for future improvements		•	•	•	Citizens, Public Works, MAG, ADOT, MCDOT, City Council	Consultants
Complete Construction of Airport Access Road (Northern Portion)	To facilitate traffic movement within the Airpark Area	•				Public Works, City Council	Municipal Bonds
Incorporate a Light Rail Transit Study for the Chandler Airpark Area into the Regional Transportation Plan	To identify existing and potential land use and demographic issues concerning ridership and development of a regional system		•			ADOT, MAG, RPTA, City Planning Staff and Public Works	Consultants and City Staff
Prepare a detailed Bikeway and Pedestrian Route System Plan	To provide an overall bikeway route system linking existing and proposed paths, lanes and routes to specific land uses	•	•	•	•	City Planning Staff and Public Works	Consultants
Identify Locations for Transit Amenities to include Signage, Bus Stops, Benches, etc.	To provide the City with recommended locations for transit improvements in accordance with the City's Transportation Plan	•	•	•	•	Public Works, City Planning Staff, RPTA	Consultants, RPTA
Germann Road and Queen Creek Road realignments	To allow runway extension to occur and provide a safe buffer between runway and roadway		•			Public Works, MAG, City Council, Airport Commission	Municipal Bonds, FAA Funding

Source: BRW, Inc., 1998