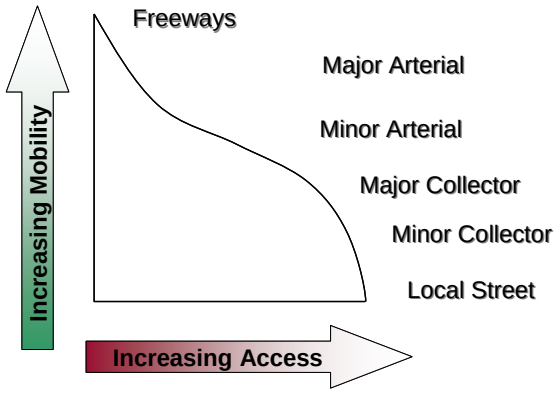
6. RECOMMENDED TRANSPORTATION PLAN - ROADWAY ELEMENT

Chapter 6 presents the Roadway element of the Coolidge-Florence Regional Transportation Plan. First, the concept of a road functional classification is described and a recommended functional classification for the regional plan is presented. The number of recommended lanes for the regional road network is presented. Next, the concept of access management is discussed and recommended road design and access management principles are presented. Design and access criteria are then presented.

ROAD FUNCTIONAL CLASSIFICATION SYSTEM

The road functional classification system is based on mobility, access to adjacent land uses, and continuity of the street network. Figure 6-1 illustrates the relationship of mobility and access for various categories of road functional classification. Roads are classified by function, mobility, and access. Figure 6-1 illustrates the functional relationship of mobility and access to adjacent properties for the various road classifications. The functional classification system for the Coolidge-Florence Region includes the following classifications: Freeway, Major Arterial, Minor Arterial, Major and Minor Collector, and local streets.

FIGURE 6-1. FUNCTIONAL CLASSIFICATION SYSTEM



The following describes the characteristics of the street classifications.

Freeways provide the highest level of mobility by limiting access to grade-separated interchanges. Freeways do not provided direct access to adjacent properties. Interstate 10 is the only freeway in the vicinity of the study area. A North-South (N-S) freeway corridor has been identified from Apache Junction to Coolidge through the study area. A study to determine alignment of this potential freeway will begin in 2008. No funding has been identified for the purchase of right-of-way or for the construction of a North-South freeway.

Prinicpal/Major Arterials provide a high level of mobility and are generally six-lane facilities, located on the one-mile grid, serving major traffic within the region connecting neighborhoods

and business centers. Examples of proposed Principal/Major Arterials include: Hunt Highway in Florence and Christensen Road in Coolidge.

Minor Arterials serve similar circulation needs as Principal Arterials but are typically four-lane roadways. Examples of proposed Minor Arterials include: Butte Road in Florence and Kenilworth Road in Coolidge.

Major Collectors can be configured as a four-lane roadway or as a two-lane road with a center turn-lane. Examples of proposed Major Collectors include: Diversion Dam Road in Florence and Northern Avenue in Coolidge.

Minor Collectors are two-lane roads with no center turn-lane. Major and Minor Collectors provide internal circulation within neighborhoods providing connections to the arterial road system. The establishment of the collector road system is part of the ongoing development activity. Collectors have low access control as they provide connections to the local roadways accessing homes and businesses. Speed limits are lowest for collector roads, and should have lower traffic volumes than larger arterials and expressways. Examples of proposed Minor Collectors include: Ranchview Rd and Bowling Road in Florence.

RECOMMENDED ROAD FUNCTIONAL CLASSIFICATION

Figure 6-2 presents the recommended functional road classification and Figure 6-3 illustrates the proposed number of lanes. Table 6-1 presents the mileage by functional classification.

TABLE 6-1. ROAD MILEAGE BY FUNCTIONAL CLASSIFICATION

Functional Classification	Road Mileage	
	Coolidge Planning Area	Florence Planning Area
Major Arterial	89	118
Minor Arterial	47	117
Major Collector	4	14
Minor Collector	0	3
Frontage	0	18
Total	**140**	**270**

Although the figures illustrating the functional classification and number and lanes include state highways, it is important to note that the Arizona Department of Transportation (ADOT) has the responsibility to determine the improvements on state highways:

> *While this study included roadway facilities owned and operated by ADOT within the study area, it is important to recognize that improvements to the state highway system can be made only after in-depth planning and engineering studies are conducted by ADOT, and upon approval of the State Transportation Board. All traffic interchange improvements must be approved by the Federal Highway Administration (FHWA). The recommendations made by this study for improvements on state facilities can serve only as suggestions for further study.*

FIGURE 6-2. RECOMMENDED FUNCTIONAL ROAD CLASSIFICATION

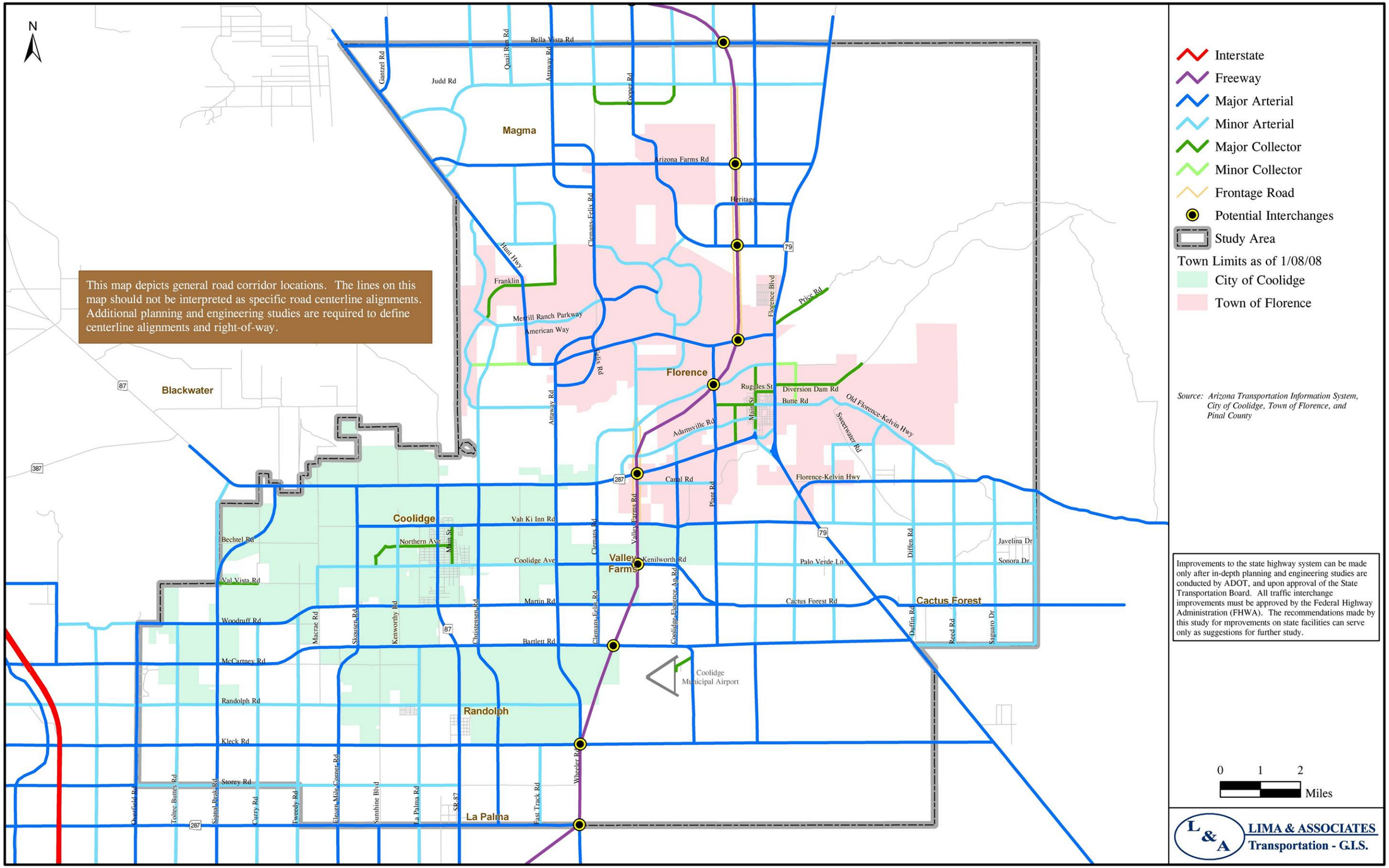
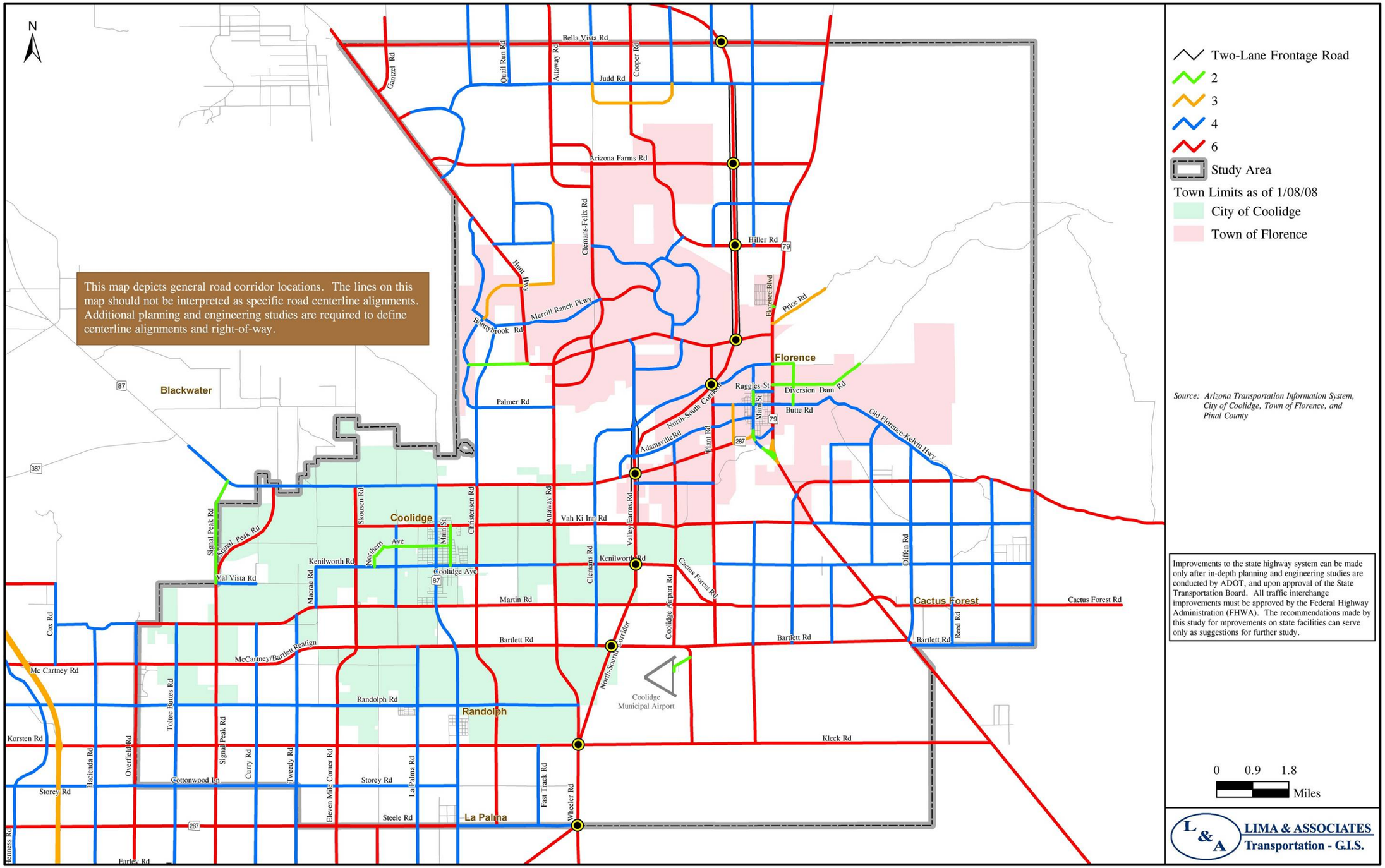


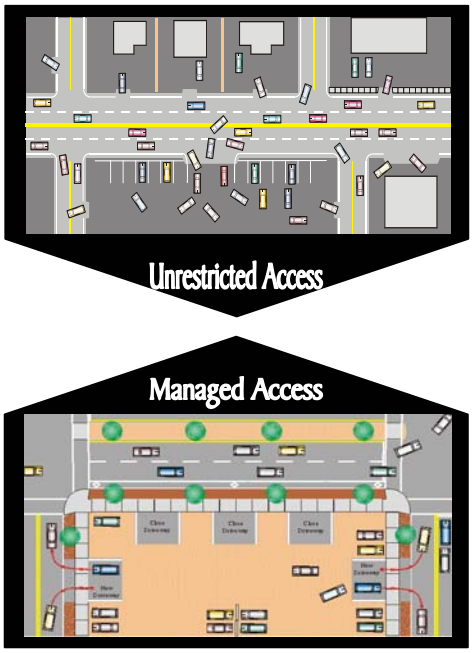
FIGURE 6-3. 2025 NUMBER OF LANES



ACCESS MANAGEMENT

Need for Access Management

The purpose of major transportation corridors is to provide for the safe and efficient movement of people and goods at a high level of service. If access to these corridors is limited, then safety and mobility will be maintained along the corridors. However, if access to adjacent property is not limited and adjacent property develops, the addition of traffic signals and curb cuts often has an adverse effect on mobility and safety. As land is developed along transportation corridors, vehicle access to property adjacent to the corridor is often achieved directly to and from the transportation corridor. As a result, more trips are forced onto the corridor due to insufficient internal access systems serving these land use activities. As traffic congestion increases, the level of service provided by the major transportation corridor decreases. In addition, crashes along such a corridor generally increase due to the large number of turning and other conflicts along the corridor.



What is Access Management?

One way to minimize the adverse impact of increased access to adjacent property is to apply access management techniques along transportation corridors. According to the Federal Highway Administration (FHWA) access management is:

> *The process that provides access to land development while simultaneously preserving the flow of traffic on the surrounding system in terms of safety, capacity, and speed.*

In practical terms this process requires the regulation of vehicular access to public highways from adjoining property in order to limit the number of access points to a roadway, and, therefore; to reduce the number of potential conflict points among the users of the roadway.

- Access management deals with the traffic problems caused by unmanaged development before they occur.
- Access management addresses how land is accessed along arterials.
- Access management focuses on mitigating traffic problems arising from development and increased traffic volume traveling to the new activity centers.
- Access management calls upon local planning and zoning to address overall patterns of growth and the aesthetic issues arising from development.

Access management is the use of techniques by state and local governments to improve the access to highways and local roads. The purpose of these techniques is to improve travel time and improve safety:

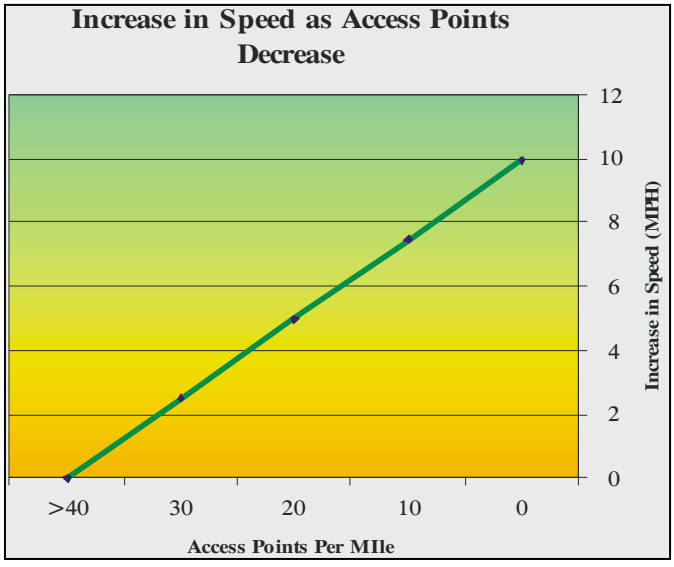
- Increase spacing of intersections and interchanges to improve movement and traffic flow.
- Reduce the number of driveways to avoid conflict points and reduce accidents.
- Use left- and right-turn lanes to separate traffic movements, improving both traffic flow and safety.
- Apply median treatments including two-way left-turn lanes and raised medians that allow drivers to safely turn off of the highway.
- Use frontage and backage roads that provide for safer and easier access to businesses and local roadways.
- Implement land use policies that regulate types of land use conducive to the highway environment.

What are the Benefits of Access Management?

The primary benefits of access management are:

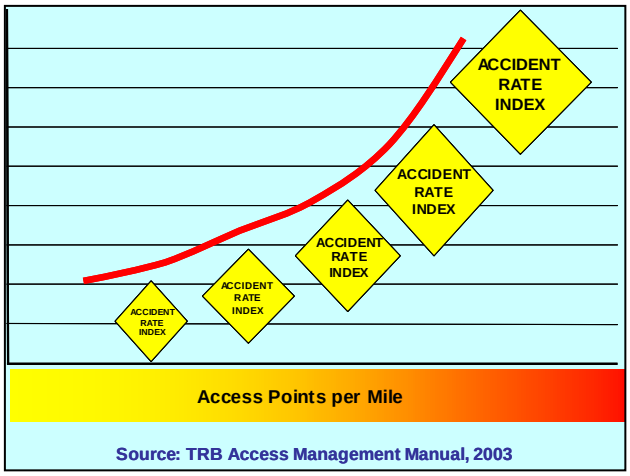
- overall reduced travel time
- reduced vehicle crashes
- reduced travel time of customers to businesses

The benefits of access management are well documented in the professional literature including the *TRB Access Management Manual*, *NCHRP Report 420, Impacts of Access Management Techniques* and other reports.

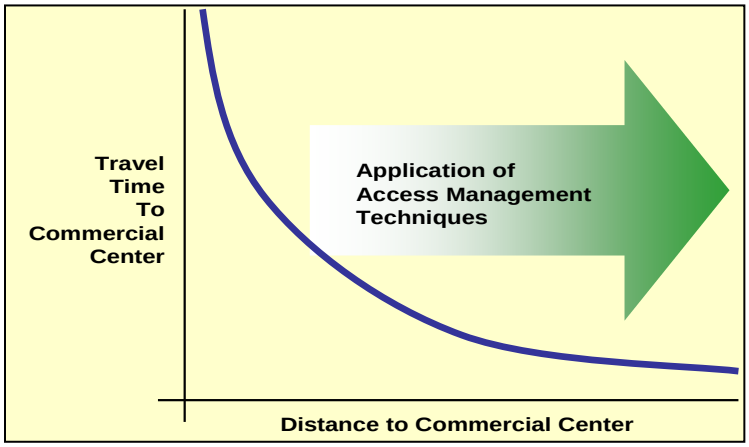


Some of the most important access management techniques relate to the frequency of driveways and intersections and the uniformity of traffic signal spacing. Travel time has been shown to decrease significantly as speed increases with the reduction in the number of driveway and intersection access points. The uniform and increased spacing of traffic signals will also increase travel speeds.

Many studies have shown that crash rates increase with greater frequency of driveways and intersections. More driveways and intersections mean more conflicts between vehicles and also between vehicles and pedestrians. Crashes can be reduced significantly with fewer driveways and intersections.



One of the complaints about access management comes from businesses concerned about restricting access to their enterprises. However, studies have shown that the application of access management techniques reduce the travel time from residential areas to commercial areas and thereby increases the overall market area for businesses. The reduction in the number of access points ensures safer access to business. The positive impact of access management on businesses is documented in the FHWA brochure: *Safe Access is Good For Business*. The brochure and accompanying CD includes support from owners of businesses that were in opposition before access management techniques were applied but in support after the techniques were in effect.



Access Management Techniques

Access management techniques can be grouped into two broad categories: land use and technical tools. Individual techniques within these categories are listed below. Appendix B describes the individual techniques in more detail.

Land use and Development Techniques

- Acquisition of Access Rights
- Dedication and Exactions
- Interim Use Allowances
- Purchase of Development Rights
- Transfer of Development Rights
- Land Development Regulation
- Flexible of Cluster Zoning

- Overlay Zones
- Subdivision Regulations and Site Plan Review
- Zoning Regulation

Technical Tools

- Driveway Consolidation
- Driveway control
- Right-in/Right-out
- Joint Driveway/Cross-Access
- Raised Medians
- Alternative Access Ways
- Frontage and Backage Roads
- Retrofitting Techniques

ROAD DESIGN AND ACCESS CRITERIA

Recommended Access Management Principles include:

- **Primary Access.** For sites that have frontage on two streets, primary access should be onto the minor street.

- **Minimize Access Points.** Subdivisions and sites should be designed to minimize the number of access points. A maximum of two driveway entrances are permitted.

- **Cross Access.** Where new development adjoins other similarly zoned property or compatible land uses, a cross access easement may be required to permit vehicular movement between the parcels and reduce the number of access points required onto the adjacent public street. This may be required regardless of the development status of the adjoining property, unless the cross access is determined to be unfeasible.

Table 6-2 presents the proposed design and access criteria for the roadway classifications. Appendix C in the Final Report presents the specific street design and access criteria roadway classifications for the Town of Florence and Appendix D in the Final Report presents the street cross sections for the City of Coolidge. **Note that the criteria presented in the table are minimum spacing needs and that it is recommended that longer spacing intervals be provided between intersections and between driveways.**

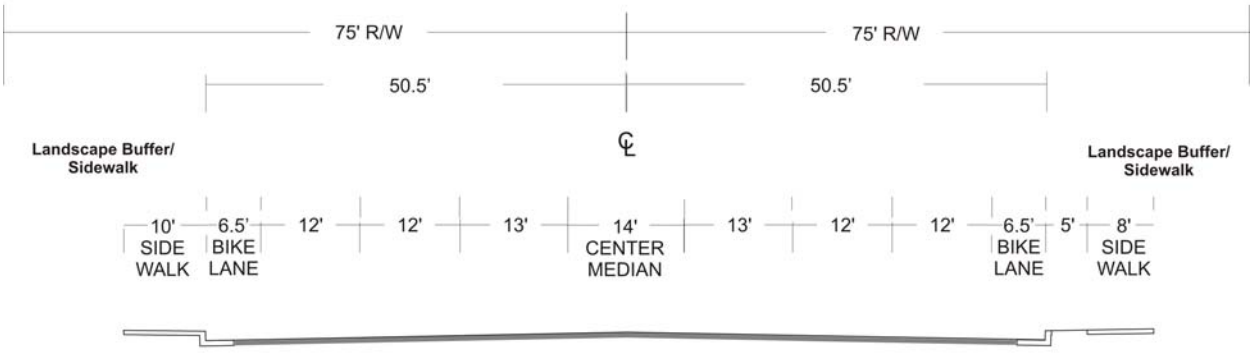
TABLE 6-2. MINIMUM ROAD DESIGN AND ACCESS CRITERIA

Criteria	Functional Classification					
	Freeway	**Principal/Major Arterial**	**Minor Arterial**	**Major Collector**	**Minor Collector**	**Local Street**
Road Purpose	Mobility	Mobility	Mobility/Access	Access/Mobility	Access	Access
Planning Average Daily Traffic	>55,000	45,000-55,000	30,000	10,000	8,000	1,000
Design Standards						
Design Speed	75 mph	55 mph	45 mph	35 mph	35 mph	20 mph
Right-of-Way Width	300'+	130'-150'	110'	80'	60'	50'-60'
Median	Divided	Divided	Divided	TWLT	TWLT	N/A
Number of Lanes	4 and Greater	6	4-5	2-4	2-3	2
Left-turn Lanes	NA	At all locations where permitted	At all locations where permitted	At all locations where permitted	At all locations where permitted	NA
Right-turn Lanes	NA	At all locations where permitted and warranted	At all locations where permitted and warranted	At all locations where permitted and warranted	At all locations where permitted and warranted	NA
Access Management Guidelines						
Public Access	Grade-Separated Interchanges Only	1/8-1/2mile	1/8-1/4 mile	1/8-1/4 mile	1/8 mile	Residential street
Property Access	None	Rt. in/Rt. Out Full access where approved	Rt. in/Rt. Out Full access where approved	Full access where approved	Full access where approved	Not Restricted
Traffic Signal Spacing	NA	Mile and ½ mile locations, Fully coordinated and progressed where warranted	½ mile locations, ¼ mile locations where warranted	½ mile locations. ¼ mile locations where warranted	NA	NA
Typical Traffic Control	NA	Signalized, two-way stop	Signalized, two-way stop	Signalized, two-way stop	Signalized, two-way stop	Stop Control
Parking	Prohibited	Prohibited	Prohibited	Restricted	Restricted	Allowed
Alternative Modes						
Transit	Potential HOV Lane	Bus pull-outs and queue jumpers where warranted	Bus pull-outs and queue jumpers where warranted	NA	NA	NA
Bike Lanes	No	Yes	Yes	Yes	Yes	No
Sidewalk (both sides)	None	6'	6'	5'	5'	3' - 4'

TWTL – Two-way Turning Lanes

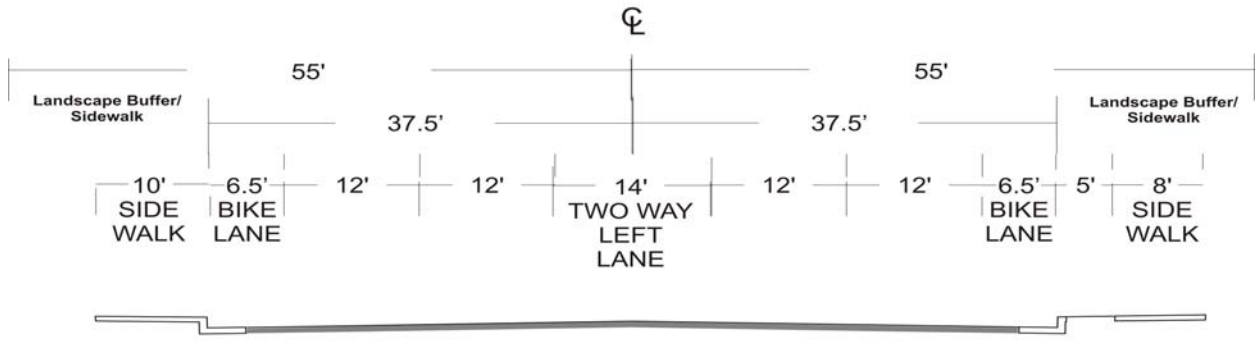
FIGURE 6-4. TYPICAL CROSS-SECTIONS

Major Arterial



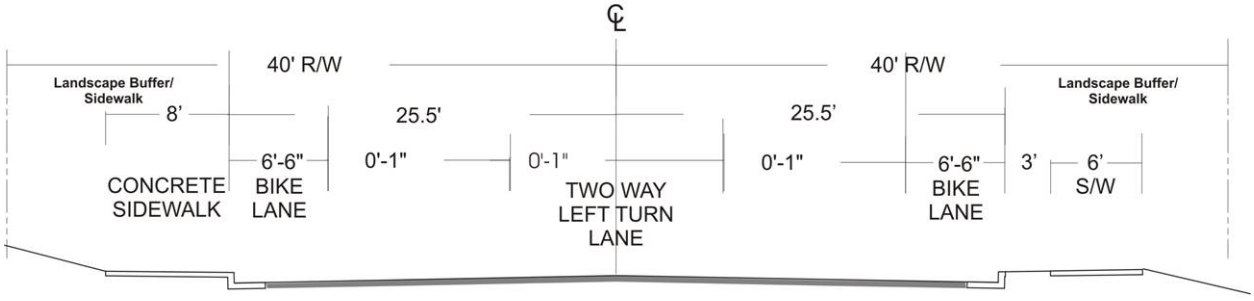
Note: Dimensions shown are for Urban Roadways.
Lane widths may vary by jurisdiction.
Landscape Buffer/Sidewalk widths and treatments vary for rural and suburban areas.

Minor Arterial



Note: Dimensions shown are for Urban Roadways.
Lane widths may vary by jurisdiction.
Landscape Buffer/Sidewalk widths and treatments vary for rural and suburban areas.

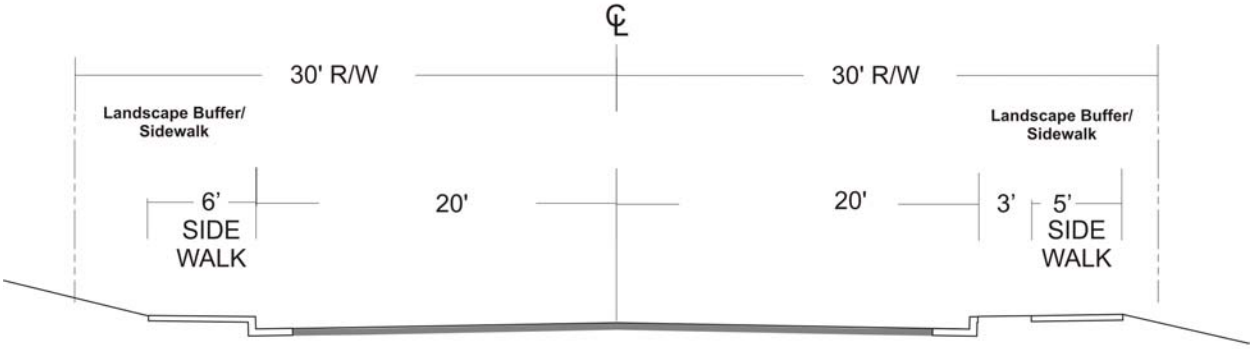
Major Collector



Note: Dimensions shown are for Urban Roadways.
Major Collectors could also include four lanes.
Lane widths may vary by jurisdiction.
Landscape Buffer/Sidewalk widths and treatments vary for rural and suburban areas.

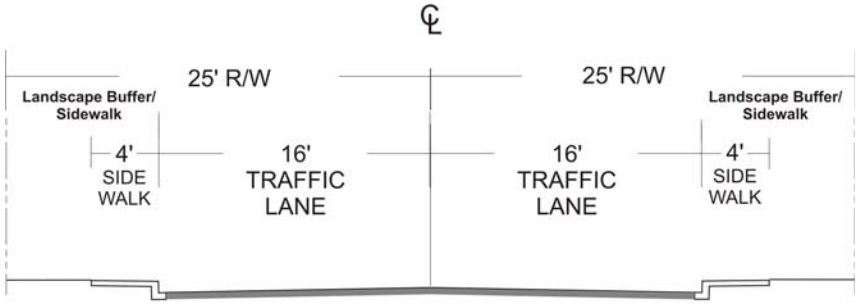
FIGURE 6-4. TYPICAL CROSS-SECTIONS (Continued)

Minor Collector



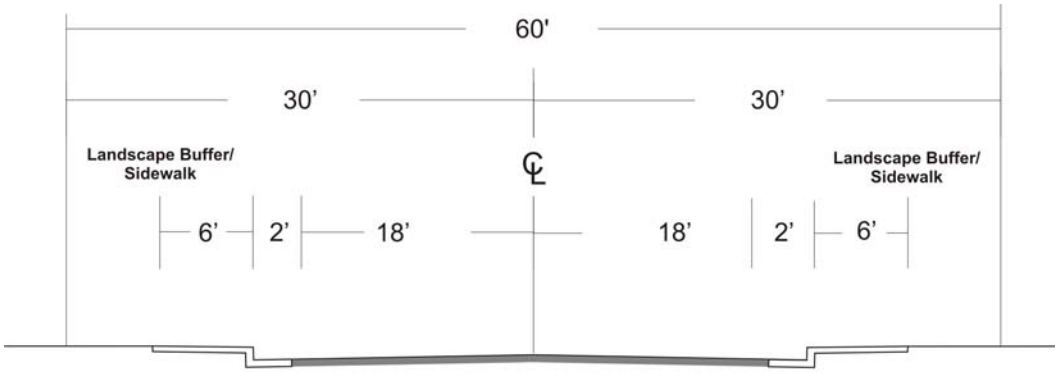
Note: Dimensions shown are for Urban Roadways.
Lane widths may vary by jurisdiction.
Landscape Buffer/Sidewalk widths and treatments vary for rural and suburban areas.

Local Street



Note: Dimensions shown are for Urban and Suburban Roadways.
Rural and local streets may have narrower traffic lanes.
Lane widths may vary by jurisdiction.
Landscape Buffer/Sidewalk widths and treatments vary for rural and suburban areas.

Local Commercial/Industrial



Note: Lane widths may vary by jurisdiction.
Landscape Buffer/Sidewalk widths and treatments vary for rural and suburban areas.