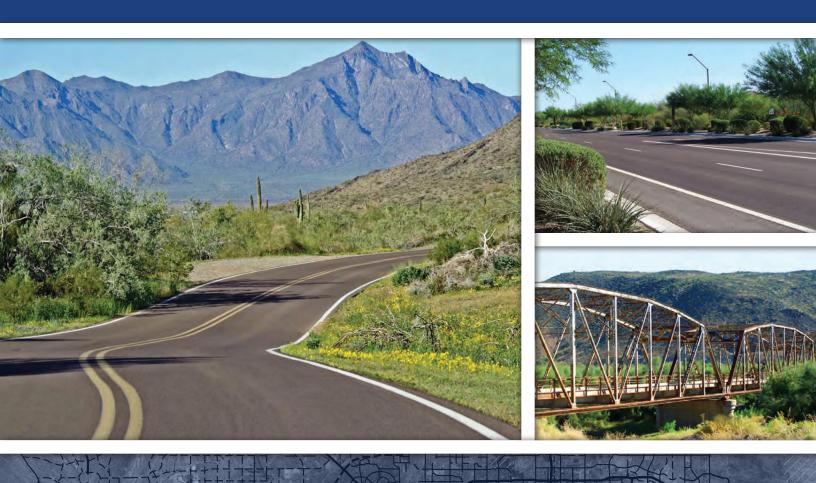
Maricopa County Department of Transportation MAJOR STREETS AND ROUTES PLAN

Policy Document and Street Classification Atlas

Adopted April 18, 2001 Revised September 2004 Revised June 2011



Preface to 2011 Revision

This version of the Major Streets and Routes Plan (MSRP) revises the original plan and the 2004 revisions. Looking ahead to pending updates to the classification systems of towns and cities in Maricopa County, the original MSRP stipulated a periodic review and modification of the street functional classification portion of the plan. This revision incorporates the following changes: (1) as anticipated, many of the communities in the County have updated either their general or transportation plans in the time since the adoption of the first MSRP; (2) a new roadway classification, the Arizona Parkway, has been added to the Maricopa County street classification system and the expressway classification has been removed; and (3) a series of regional framework studies have been conducted by the Maricopa Association of Governments to establish comprehensive roadway networks in parts of the West Valley.

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Maricopa County Major Streets and Routes Plan

1. INTRODUCTION

The Board of Supervisors adopted the latest edition of the Transportation System Plan (TSP) for Maricopa County on February 7, 2007. The TSP is the implementation component of the transportation element of the Maricopa County Comprehensive Plan. Earlier editions of the TSP identified the need for a Maricopa County Major Streets and Routes Plan (MSRP).

The MSRP is an important tool for planning future development along County roads. It insures adequate visibility and access, protects property values and the neighborhood character, and enhances the unique qualities of County areas. It also minimizes unnecessary costs and impact to property owners and the public as designated roadways are improved.

The Maricopa County Department of Transportation (MCDOT) Roadway Design Manual is the controlling document for all roadway specifications and requirements. Any references herein to the MCDOT Roadway Design Manual are to the edition adopted November 3, 1993 and revised April 2004. It is currently available online at: http://www.mcdot.maricopa.gov/manuals/eng_manuals/roadDesign/RoadwayCover_2004.pdf

2. FUNCTIONAL CLASSIFICATION CATEGORIZATION

Functional classification is the process by which roads are grouped into classes according to the kind of service they provide. The basic functional classifications used in the MSRP are Arizona Parkway, Principal Arterial, Minor Arterial, Major Collector, and Minor Collector. Local Streets are included for reference only and are not part of the MSRP. Using national classification criteria, these

systems are classified based on the trips served and the operational characteristics of the streets or highways. Distinctions are made between rural and urban classifications, as discussed below and illustrated in Figures 1 through 9 on pages 10 to 12. For more detailed information please see the MCDOT Roadway Design Manual.

Level of Service and Roadway Classifications

Definitions of the desired Level of Service (LOS) designations for each roadway section referenced in the roadway function classifications is as follows:

- A: Free flow, with low volumes and high speeds
- B: Reasonably free flow, speeds beginning to be restricted by traffic conditions
- C: Stable flow zone, most drivers restricted in freedom to select their own speed
- D: Approaching unstable flow, drivers have little freedom to maneuver
- E: Unstable flow, may be short stoppages
- F: Forced or breakdown flow

Table 2.1: Urban and Rural Roadway Planning Level Traffic Volumes in Chapter 2 of the MCDOT Roadway Design Manual provides general ranges of traffic volumes that can be expected for various roadway types. Please consult the latest edition of the Roadway Design Manual for current traffic volumes. Also, please note that volumes shown in the above mentioned Table 2.1 are not used to determine roadway classifications in the MSRP. Roadway classifications are determined primarily by definition and supported by traffic analysis indicating the desired LOS.

2. Functional Classification Categorization

Rural Principal Arterial

A rural principal arterial road includes the following service characteristics:

- Traffic movements with trip length and density suitable for substantial statewide travel
- Traffic movements between urban areas with populations over 25,000
- Traffic movements at high speeds
- Divided four-lane roads
- Desired LOS C

Rural Minor Arterial

A rural minor arterial road includes the following service characteristics:

- Traffic movements with trip length and density suitable for integrated interstate or inter-county service
- Traffic movements between urban areas or other traffic generators with populations less than 25,000
- Traffic movements at high speeds
- Undivided four-lane roads
- Striped for one or two lanes in each direction with auxiliary lanes at intersections as required by traffic volumes
- Desired LOS C

Rural Major Collector

A rural major collector road includes the following service characteristics:

- Traffic movements with trip length and density suitable for inter-county service
- Traffic movements between traffic generators, between traffic generators and larger cities, and between traffic generators and routes of a higher classification
- Traffic movements subject to a low level of side friction

- Development may front directly on the road
- Controlled intersection spacing of 2 miles or greater
- Striped for one lane in each direction with a continuous left turn lane
- Desired LOS C

Rural Minor Collector

A rural minor collector road includes the following service characteristics:

- Traffic movements between local roads and collector roads
- Traffic movements between smaller communities and developed areas
- Traffic movements between locally important traffic generators within their remote regions
- Two-lane undivided roads with intersections at grade, and designed to take a minimum interference of traffic from driveways appropriate to a rural setting
- Striped for one lane in each direction
- Desired LOS B

Rural Local Road

A rural local road includes the following service characteristics:

- Two-lane undivided roads with intersections at grade
- Traffic movements between collectors and adjacent lands
- Traffic movements involving relatively short distances
- Desired LOS A

Urban Principal Arterial

An urban principal arterial road includes the following service characteristics:

Traffic movements in urban areas consisting

2. Functional Classification Categorization

- of through movements and major circulation movements in these areas
- Traffic movements involving a large portion of the total urban area travel on a minimum of mileage
- Posted speeds less than or equal to 45 mph
- Divided four-lane or six-lane roads
- Striped for two or three lanes in each direction with a median and exclusive turn lanes where applicable
- Desired LOS D

Urban Minor Arterial

An urban minor arterial road includes the following service characteristics:

- Traffic movements in urban areas consisting of major circulation movements within these areas, with more emphasis on land access than major roads
- Traffic movements do not penetrate residential neighborhoods
- Traffic movements at moderate speeds with partially controlled access facilities
- Undivided four-lane with intersections at grade
- Striped for two lanes in each direction with a center left turn lane
- Desired LOS C

Urban Major and Minor Collector

Urban major and minor collector roads include the following service characteristics:

- Traffic movements in urban areas consisting of both land access service and traffic circulation
- Traffic movements subject to high levels of median and side friction
- Traffic movements penetrate local areas
- Development may front directly on the road
- Has more than 10 uncontrolled access points per mile on one side

- Local areas include residential neighborhoods, commercial, and industrial areas
- Traffic capacity for an urban major collector road is limited not by the typical capacity of the road section, but instead by the desirability of maintaining acceptable traffic levels by the use of continuous center left turn lanes rather than intermittent left-turn lanes
- An urban minor collector road maintains acceptable traffic levels that will not affect residential neighborhoods adversely
- Urban "major" or "minor" classifications shall be made at MCDOT's discretion
- Desired LOS C (major collector) and LOS B (minor collector)

Urban Local Road

An urban local road includes the following service characteristics:

- Two-lane undivided roads with intersections at grade with frequent driveway access
- Traffic movements between adjacent lands and collectors or other roads of higher classification
- Traffic movements over relatively short distances, less than 8 blocks long in most cases
- Desired LOS A

Arizona Parkway

An Arizona Parkway includes the following service characteristics:

- Divided roadway with access to abutting land generally limited to right in – right out
- Higher vehicle capacity
- Faster travel times
- Better gas mileage due to fewer stops and less idling at intersections
- Less potential for accidents at intersections due to elimination of left turns
- Grade separated intersections or at-grade,

3. Geometric Design Standards

- signalized intersections no less than one mile apart
- Typically four or more lanes in width constructed on 200 feet of right-of-way

Special Circumstances Classification

There are road classifications used by cities and occasionally in Maricopa County that do not fit conveniently in any of the functional classifications defined in the MSRP. These special roads either do not occur often enough to warrant their own classification or they combine characteristics in such a way that they cannot be classified as a typical parkway, arterial, collector, or local street.

In these instances, the County Engineer, or his or her designee, will make the decision as to when and where these cross-sections will be applied. This can be based on approved general plans, capacity requirements, or other circumstances requiring an alternative cross-section. These special circumstances may require additional right-of-way, number of lanes, urban or rural designation, or other unique design requirements.

3. GEOMETRIC DESIGN STANDARDS

The previous section presented the functional classifications used by Maricopa County to classify County streets. Presented in this section are the general geometric design standards associated with each classification.

The latest edition of the MCDOT Roadway Design Manual should be consulted for specific design guidance.

Roadway Cross-Sections

The typical urban roadway width, right-of-way requirements, and number of lanes are provided in Table 1 (in feet). The cross-sections for parkway, principal arterial, minor arterial, major collector, minor collector, and local street classifications are shown graphically in Figures 1 through 9 on pages 10 to 12.

Table 1. Typical Urban Roadway Cross-Sections

Classification	Street Width (feet)	ROW Width (feet)	Number of Lanes (typical)
Arizona Parkway	162	200	6
Principal Arterial	101	130*	6
Minor Arterial	73	130	5
Major Collector	49	80	3
Minor Collector	40	60	2
Local	31	50	2

^{*}Rural Principal Arterial requires 150 feet of right-of-way.

It is generally anticipated that right-of way will be preserved as follows: 130' for section line roadways; 80' for mid-section line roadways; and 60' for quarter-section line roadways.

Bicycle Lanes

Bicycle lanes are included in the standard crosssections for all principal arterial, minor arterial, and major collector streets. Bicycles are accommodated on minor collector and local streets with wide outside lanes, possibly sharing a parking lane. For an Arizona Parkway, a shoulder is recommended to accommodate bicycles. Curb opening catch basins should be used rather than grated inlets due to the potential for bicycles adjacent to the gutter pan.

The minimum bicycle lane width on an urban street with curb-and-gutter shall be four feet, measured from the edge of the vehicle lane to the edge of the

gutter pan. The minimum bicycle lane width on noncurbed rural streets shall be five feet.

Pedestrians

A five foot (minimum) sidewalk is required for all urban cross-sections, except the Arizona Parkway. For an Arizona Parkway in urban areas, a six foot (minimum) sidewalk is recommended to accommodate pedestrians.

Bus Pullouts

Right-of-way for bus pullouts and shelters should be preserved at all intersections of all principal arterial/principal arterial, principal arterial/minor arterial, and minor arterial/minor arterial intersections. See the Maricopa Association of Governments (MAG) Uniform Standard Specifications for Public Works Construction for details.

Access Management

Access management is defined as the regulation of vehicular access to public roadways from adjoining property. This is provided through legal, administrative, and technical strategies available to a political jurisdiction under its police powers in order to maintain the health, safety, and welfare of the jurisdiction's residents. Access management regulates the level of access control on roadways and is needed to help retain the capacity of public highways, maintain public safety, and retain access to private land. Typically, access management decisions are made during a corridor study or design of roadway improvements.

AZTech™

AZTech™ is partnership between MCDOT, the Arizona Department of Transportation (ADOT), MAG, and cities and towns in the Phoenix metropolitan area that brings together decision makers and practitioners with a consensus-based

approach to integrating and operating a multimodal regional transportation system. Through the application of Intelligent Transportation Systems (ITS) technology, AZTech™ fosters integration of local traffic management and traveler information services on a cross-jurisdictional, regional basis to promote seamless transportation service for the traveling public.

AZTech™ began in 1996, on the strength of a model demonstration grant won by MCDOT and ADOT. The award's objective was to exhibit the strengths and benefits of ITS and regional cooperation in both traffic management and the distribution of traveler information. After successfully completing the initial award, AZTech™ continues today as a voluntary, thriving, beneficial partnership for the region.

The partnership provides many benefits for both travelers and traffic managers. For the traveling public, the AZTech™ program delivers traffic coordination, traffic information and incident management from a regional perspective. Methods include motorist message signs, coordinated traffic signals, travel time information via phone and website, and incident and congestion information relayed through television and radio. For the professional traffic manager, AZTech™ has been able to integrate the many individual local and state government management systems into a regional system of traffic monitoring and control. Project specific decisions are made during roadway improvement design.

4. STREET CLASSIFICATION ATLAS

This section includes the functional classification maps that designate the future classification for the Arizona Parkways, arterial roadways, and collector roadways portion of the 2,478 miles of roads that

are in the Maricopa County Road Inventory System. The following are assumptions and guidelines that were utilized in coding these maps. Please note that no distinction is made between rural and urban classifications.

Primary Purpose

The primary purpose of the MSRP is to identify future roadway classifications for county roads. Identification of roadway classifications for roadways within cities or towns is included for the purpose of showing continuity with county roadways. Generally the classification for the county roadway is matched to the adjacent city or town roadway. A primary objective is to facilitate right-of-way preservation for future roadways. However, assignment of a roadway to a particular functional classification is not a guarantee that roadway improvements will be constructed in the future.

Municipal Functional Classification Resources

A roadway's classification is identified as shown on the most recently updated and adopted/accepted planning document. In many cases this is a municipality's general plan. In other cases, it might constitute a regional transportation framework study.

The municipal functional classification documents referenced include:

- City of Avondale General Plan Update (2002)
- Town of Buckeye Transportation Master Plan (Draft, 2010)
- Town of Carefree General Plan (2002)
- Town of Cave Creek General Plan (2005)
- City of Chandler Transportation Master Plan Update (2010)
- City of El Mirage staff designation (2010)

- Town of Fountain Hills General Plan (2010)
- Town of Gila Bend General Plan Update (2006)
- Town of Gilbert General Plan (2010)
- City of Glendale Transportation Plan (2009)
- City of Goodyear General Plan (2010)
- City of Litchfield Park General Plan Update (2010)
- City of Mesa Transportation Plan (2002)
- Town of Paradise Valley General Plan (2003)
- City of Peoria General Plan (2010)
- City of Phoenix Street Classification Map (2010)
- Town of Queen Creek General Plan Update (2008)
- City of Scottsdale Street Classification Map (2008)
- City of Surprise General Plan (2010)
- City of Tempe General Plan (2003)
- City of Tolleson General Plan (2005)
- Town of Youngtown General Plan (2003)

Municipal functional classification designations, as they relate to the county's categorization, are summarized in Table 2.

The Town of Guadalupe is not included in this list because it does not have a functional classification map. The arterials within Guadalupe are included in the City of Tempe's General Plan.

The Town of Wickenburg is not included in this list because its 2003 General Plan illustrates only existing and future roadways, not roadway classifications. The MAG Hassayampa Valley Framework Study for the Wickenburg Area (November 2010) is used instead, as cited in Table 2 and confirmed by municipal staff.

The City of El Mirage is included in the list, but not in the table, as no functional classification map yet exists for the city; however, city staff clarified intended classification categories for the purpose of this publication.

Table 2. County/Municipal Functional Classification System Comparison

	MCDOT Functional Classification Categories				
Jurisdiction	Principal Arterial	Minor Arterial	Major Collector	Minor Collector	
Avondale	Arterial; RRS	Major Collector	N/A	N/A	
Buckeye	Arterial	N/A	N/A	N/A	
Carefree	Arterial	N/A	Collector	Minor Collector	
Cave Creek	Principal Arterial	N/A	Major Collector	Minor Collector	
Chandler	Major Arterial	Minor Arterial	N/A	N/A	
Fountain Hills	Principal Arterial	Minor Arterial	Major Collector	Limited Collector; Minor Collector	
Gila Bend	Principal Arterial	Minor Arterial	Collector	N/A	
Gilbert	Major Arterial; RRS	Minor Arterial	Major Collector	Minor Collector	
Glendale	Major Arterial; Superstreet	Arterial	Collector	N/A	
Goodyear	Scenic Arterial; Major Arterial; Arterial	City Center Arterial	N/A	N/A	
Litchfield Park	Arterial	N/A	Collector	N/A	
Mesa	Arterial (6 lanes); Parkway	Arterial (4 lanes)	N/A	N/A	
Paradise Valley	Major Arterial	N/A	Minor Arterial	Collector	
Peoria	Principal Arterial; Major Arterial	Minor Arterial	Major Collector	Collector	
Phoenix	Major Arterial	Arterial	Collector	Minor Collector	
Queen Creek	Principal Arterial	Arterial	Collector	N/A	
Scottsdale	Major Arterial	Minor Arterial	Major Collector	Minor Collector	
Surprise	Major Arterial	Minor Arterial	N/A	N/A	
Tempe	Arterial	N/A	N/A	N/A	
Tolleson	Major Street	N/A	N/A	N/A	
Youngtown	Arterial; RRS	N/A	Major Collector	N/A	

Municipal functional classifications are assigned according to the best match of the county's functional classification system. For example, if a municipality classifies a minor arterial as a six-lane roadway with 130 feet of right-of-way, it is depicted as a principal arterial roadway, as it best matches this classification within the county's system. However, if a municipality classifies a minor arterial as having 80 feet of right-of-way and only two lanes, it would most closely match the county's major collector category.

Framework Studies

The framework studies referenced include:

- MAG I-10/Hassayampa Valley Transportation Framework Study (September 2007)
- MAG I-8 and I-10/Hidden Valley Transportation Framework Study (October 2009)
- ADOT Statewide Transportation Planning Framework Study (March 2010)
- MAG Hassayampa Valley Framework Study -Wickenburg Area (November 2010)

MCDOT Corridor Studies

The MSRP incorporates the recommended roadway alignments identified in Corridor Feasibility Studies and Corridor Improvement Studies conducted by MCDOT. A summary of these studies can be found on the MCDOT website (http://www.mcdot.maricopa.gov).

Roadway Names

Roadway names are identified as shown on municipal general plans, transportation master plans, and/or regional transportation framework studies.

Functional Classification Distinctions

Many local jurisdictions do not distinguish between major and minor arterials or between major and minor collectors in their transportation plans. These include:

- City of Avondale
- Town of Buckeye
- Town of Carefree
- Town of Cave Creek
- City of El Mirage
- City of Glendale
- City of Litchfield Park
- · City of Peoria
- City of Tempe
- City of Tolleson
- Town of Youngtown

In order to preserve the maximum required right-ofway, roadways in these jurisdictions are classified as major arterials and major collectors.

It should also be noted that many local jurisdictions do not distinguish between current and future roadways in their transportation plans, as the plan is a snapshot of the intended roadway network. Thus, roadways illustrated as future in the street classification maps are: (1) specifically classified as "future" in the municipal transportation plan or framework study, (2) illustrated in a transportation plan, but non-existent in the Streetnet file (comprehensive county roadway network compilation updated on a weekly basis), thus implying that they do not exist today, or (3) classified as future in the county RoadRunner file (inventory of roadways and their classifications in non-incorporated areas).

Major and Minor Collectors

All collectors in the unincorporated areas are shown. However, only collectors in incorporated areas that complete the grid on the periphery of cities and towns or provide connectivity between major and minor arterials are shown.

Municipal Planning Areas (MPA)

Roadways planned in unincorporated areas as part of a town or city MPA are classified according to the municipal network functional categorization, as opposed to the county's, as the roadway will likely ultimately be built and maintained by the town or city jurisdiction.

Shared Roadways

Similarly, when a roadway is shared by a city or town and the county (north-south or east-west side divisions), ownership is categorized as a county roadway, however classified according to the town or city's functional classification plan.

High Capacity Roadways

Maricopa County does not own or operate any freeways or expressways. High capacity and access controlled roadways (metropolitan state routes/ freeways) are depicted separate from the local roadway system to provide regional context. They are categorized in three ways: Existing; Planned (e.g., adopted alignment, funding available for some degree of improvement over existing conditions); or Proposed (e.g., accepted corridor, no funding for improvements, preliminary design only). U.S. highways and state routes that are limited access and/or rural in nature are depicted as "Highways." U.S. highways and state routes that traverse incorporated areas and function as part of the local roadway network (e.g., principal arterial) are classified according to each jurisdiction's functional classification plan.

Indian Community Roadways

Roadway corridors within an Indian Community are illustrated as "other" to provide regional connectivity context. Those roadways that are maintained by the county, however, due to their regional significance, are classified per the RoadRunner file.

Adjacent Counties

Roadways in adjacent counties are simply depicted with a solid line representing existing, and dashed line for future; however, no functional classification designations are assigned. Roadway network information for adjacent counties was pulled from a variety of sources, including:

- ADOT Statewide Transportation Planning Framework Study (March 2010), which includes principal arterial and higher network information statewide
- MAG Hassayampa Valley Framework Study for the Wickenburg Area (November 2010), which includes some network information for Yavapai County
- La Paz County Comprehensive Plan (2010)
- Yuma County Comprehensive Plan (2010)
- Pima County 2040 Regional Transportation Plan (2010)
- Pinal County Comprehensive Plan (2009)
- Yavapai County Road Centerlines and Routes GIS shapefile (2010)
- MAG I-8 and I-10/Hidden Valley Transportation Framework Study (October 2009), which includes the Pinal County Regionally Significant Routes for Safety and Mobility network
- Yavapai County Comprehensive Plan (2003)

Roadway Cross-Sections

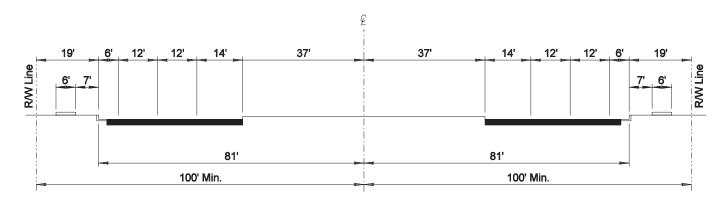


Figure 1. Parkway Cross-Section

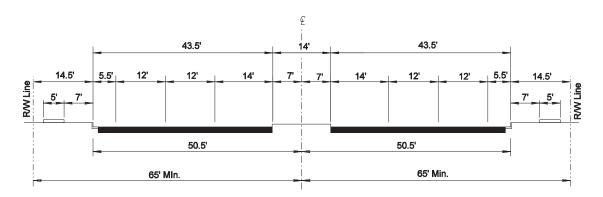


Figure 2. Urban Principal Arterial Cross-Section

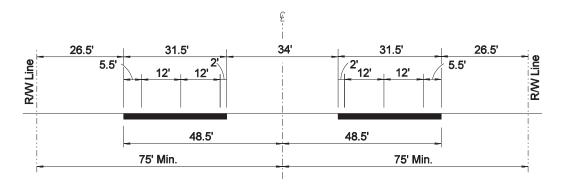


Figure 3. Rural Principal Arterial Cross-Section

Roadway Cross-Sections

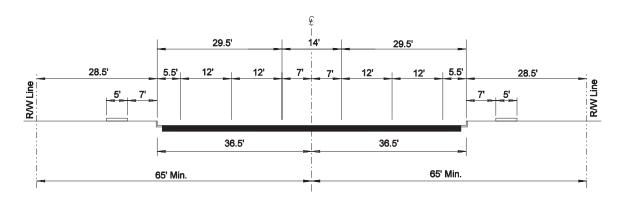


Figure 4. Urban Minor Arterial Cross-Section

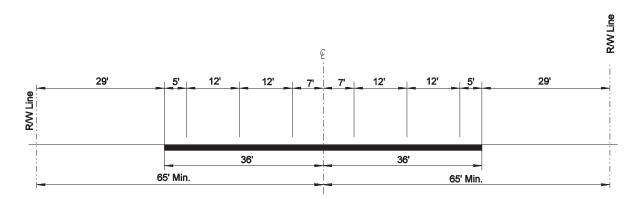


Figure 5. Rural Minor Arterial Cross-Section

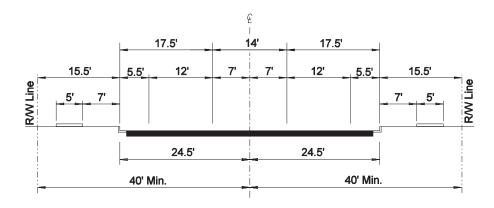


Figure 6. Urban Major Collector Cross-Section

Roadway Cross-Sections

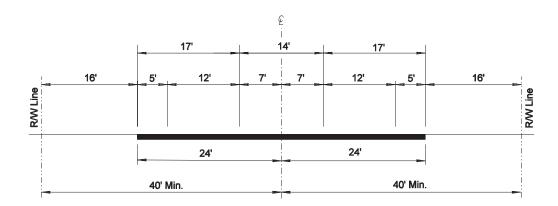


Figure 7. Rural Major Collector Cross-Section

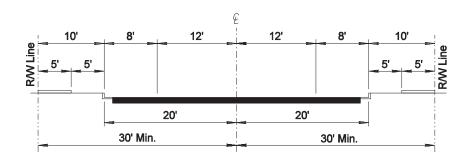


Figure 8. Urban Minor Collector Cross-Section

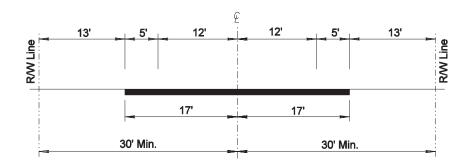


Figure 9. Rural Minor Collector Cross-Section

