

City of Bryant

MASTER STREET PLAN

2007



Adopted December 17, 2007

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ARTICLE 1. FOREWORD

This plan is designed to provide for the basic mobility needs and the orderly growth and development of the City of Bryant, Arkansas. It constitutes Exhibit A to this ordinance with regard to the future location and function of all transportation systems. It is not a legal document but it establishes the basis for the city's subdivision development code which is municipal law within the city's Planning Area Boundary. This document is intended to accompany the municipal law imposed by the regulatory Control of Development and Subdivision of Land Regulation document.

The Planning Area Boundary is the portion of the city's territorial jurisdiction for which the city will prepare plans, ordinances, and regulations. The territorial jurisdiction of the legislative body of the city having a planning commission is exclusive and shall include all land lying within five (5) miles of the corporate limits.

The Planning Area Boundary is indicated on the Master Street Plan Map at the end of this document. If discrepancies exist between the Master Street Plan and the Subdivision Code, the provisions of the Subdivision Code shall take precedence.

Streets and highways serve three basic functions - providing passageways for the movement of people and goods, providing access to property, and providing land for public utilities. In recent time, the increased dependence on motor vehicles and the streets system to accommodate most travel has increased the importance of the Master Street Plan. For that reason, the city staff and planning commission updated the plan in 2005.

The transportation system, both existing and planned, strongly influences land use patterns and urban activities. Conversely, the type and intensity of land development affect the operational efficiency of the transportation elements. Land uses may result in the demand for increased street capacities. For example, the construction of a new street or the widening of an existing street often results in more intensive land developments, which in turn generates increased traffic volumes on the particular street. So, land development and street improvement decisions by the public and private sectors are interrelated. For this reason, decisions that affect land use and the streets system

should be guided by a general plan for the city and the overall goals and objectives of the general plan should be realized through conformance with the adopted Master Street Plan and the enforcement of zoning and subdivision regulations.

The amount of access afforded from streets to abutting land and the recommended design of a roadway is relative to the intended purpose of the roadway facility. The urban freeways are designed to provide a high level of traffic capacity at fast travel speeds with little or no access to abutting property. Local collector streets, on the other hand, are designed for less travel capacity and serve primarily to provide access to property. Local residential streets should serve to provide access to individual properties. The Master Street Plan presents a recommended hierarchy of streets and highways by functional classification and these classifications should be used to indicate the recommended design of a route and the amount of access afforded to abutting property.

Planning for streets and roadways takes place at both state and local government levels. At the State level, the Arkansas State Highway and Transportation Department (AHTD) is responsible for the planning of the State system. This system is an important segment of highway networks that serve people throughout the cities and counties. The AHTD is also authorized to study and prepare plans, and to make recommendations relating to the basic street and roadway network of any city or county or urban area.

Arkansas cities and counties have the responsibility and authority to develop and maintain a system of streets and roads. Both have legislation authorizing them to undertake planning in general and to prepare plans specifically pertaining to their streets and roads.

Implementation of Master Street Plans is necessarily accomplished at both the state and local government levels. At the local level, the City of Bryant also has the authority to establish setback lines parallel with street rights-of-way and also the control of entry to streets and roadways. The City of Bryant can acquire right-of-way through dedication, purchase, gift, or condemnation. The City is permitted by Arkansas statutes to plan and to implement those plans beyond its corporate limits. The City accepts plats-of-addition which often create new streets. While the City has the authority to approve the platting of streets in unincorporated areas and may authorize them to be

filed for record, Saline County must determine whether to receive the dedication and future maintenance responsibility.

The Master Street Plan of Bryant, Arkansas is composed of two parts - this textual material and the map entitled, Master Street Plan, Bryant, Arkansas.

ARTICLE 2. RESPONSIBILITIES AND AUTHORITY

Power to Adopt and Enforce Plans

In accord with Act 186 of 1957, as amended and codified in the Arkansas Code, Annotated (A.C.A) in § 14-56-401, et seq:

"Cities of the first and second class in incorporated towns shall have the power to adopt and enforce a plan or plans for the coordinated, adjusted and harmonious development of the municipality and its environs."

The Planning Commission

The Bryant City Council has created a planning commission with appointment and terms of members provided by city ordinance. The Planning Commission has selected its officers, established its meeting dates, adopted rules and regulations and by-laws for the discharge of its duties and the transaction of business, all according to A.C.A.§ 14-56-408. As specified in A.C.A § 14-56-404:

"The general purpose of the Planning Commission is to prepare or have prepared a plan or plans of the municipality, to receive and make recommendations on public and private proposals for development, to prepare and administer planning regulations, to prepare and transmit to the legislative body recommended ordinances implementing plans, and to advise and counsel the city government and other public bodies. . . "

Master Street Plan

As specified in A.C.A § 14-56-414(d)(1):

"The Planning Commission may prepare and adopt a master street plan which shall designate the general location, characteristics, and functions of streets and highways. The Plan shall include the general locations of streets and highways to be reserved for future public acquisition; it may

provide for the removal, relocation, widening, narrowing, vacating, abandonment, and change of use or extension of any public ways."

General Objectives of the Master Street Plan

The following are the general objectives of the Bryant Master Street Plan:

1. To provide for the efficient and safe transportation of people and goods,
3. To minimize the effect of traffic on residential areas,
4. To provide smooth transition of traffic from residential areas to arterials, expressways and freeways,
5. To provide adequate access to all parcels of land in a manner that will suit needs and intended uses, and
6. To recognize and fulfill the different transportation needs of properties of different land uses.

Implementation of Plan

As specified in A.C.A. § 14-56-417:

“Following adoption filing of the Master Street Plan, the Planning Commission may transmit to the City Council, such ordinances and regulations as are deemed necessary to carry out or protect the intent of the Master Street Plan or parts thereof.”

Scope of the Plan

The Plan seek to meet specific planning objectives set forth below:

1. To functionally classify the street network both within the city and within the extraterritorial planning boundary.
2. To functionally classify the street network in accordance with the nomenclature and standards as established and enacted by the General Assembly of the State of Arkansas, Act 3008 of 1973.

3. To coordinate the plan with the Metropolitan Transportation Plan in accordance with the existing agreement of understanding.
4. To indicate on the plan map the corridors for proposed new streets and roads.
5. To recommend standards and criteria to guide street and roadway improvement planning and programming.

ARTICLE 3. FUNCTIONAL CLASSIFICATION

As enacted by the General Assembly of the State of Arkansas Act 308 of 1973 the functional classification is defined as grouping of public ways by likeness of service or purpose into classes or systems according to the character of service they are intended to provide.

**TABLE ONE
FUNCTIONAL CLASSIFICATION
BRYANT MASTER STREET PLAN**

Class No.	Rural Systems	Municipal Systems	Intended Purpose
I	Interstate Freeways	Interstate Freeway	Provide basic interstate service. Link major cities.
II	Other Principal Arterial Highways	Other Freeways & Expressways	Provide high level of interstate and intrastate service. Connect major generators of traffic. Serve trans-state travel to and through principal cities.
III	Minor Arterial Highways	Other Principal Arterials Streets	Provide a system for the major traffic generators within the city.
IV	Major Arterial Highways	Minor Arterial Streets	Provide connections to and through the large centers of population within the State.
V	Minor Collector	Collector Streets	Provide inter-county service. Serve the economic and state park areas not served by a higher system. Collect and distribute traffic to and from major streets. Provide intra-county service to population centers and other recreational and industrial areas.
VI	Local Roads	Local Streets	Service small rural communities. Provide access to residential areas, subdivisions, and neighborhoods within the City. Provide direct access to adjacent properties.

ARTICLE 4. CROSS SECTIONS AND STREETScape STANDARDS

Recent state and local policies call for the inclusion of the following features that may differ from previous design recommendations. These standards are to be applied when federal funding assistance is to be requested for the modification of the roadway.

Freeways and Expressways: See CARTS Design Standards latest edition.

Principal arterials: The typical cross section must allow for four lanes; six if justified. This roadway may have either a curb & gutter or an eight foot paved shoulder. The moving lanes must be at least eleven feet wide except in areas with higher speeds or with a large percentage of truck traffic, in which case twelve foot lanes are recommended. A sidewalk having a minimum width of 5 ft. should be on each side with at least a four-foot planting buffer between the curb and sidewalk. The exception to this buffer is in the downtown area where the typical buffer strip is commonly paved. A median or pedestrian refuge area is recommended where the pavement width is greater than 50 ft. wide. It is recommended that a median be included with new four to six lane principal arterials. Continuous center turning lanes may be allowed only in areas of preexisting intensive, strip commercial development. Where bike lanes are included, these should be the outermost moving lane and six feet in width.

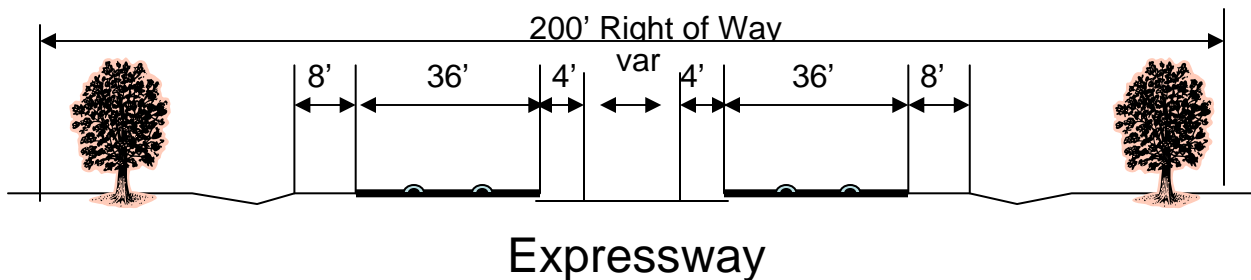
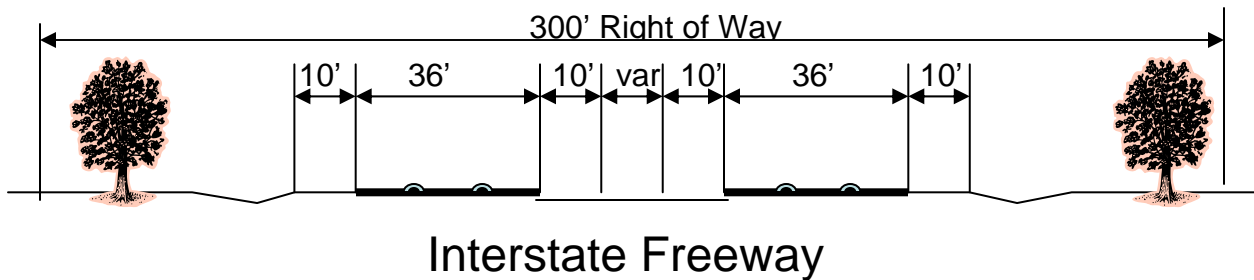
Minor Arterials: The plan for all designated minor arterials must allow for the eventual expansion to four moving lanes. Either a curb and gutter or an eight foot paved shoulder is allowed. Other features, including travel lane width, sidewalk design, center-turning-lanes, and bike lanes are, as described with principal arterials.

Collector Roadways: A curb & gutter or a paved seven-foot shoulder is allowed. Ten- foot travel lanes are allowed with twelve-foot lanes required where heavy truck traffic is expected.

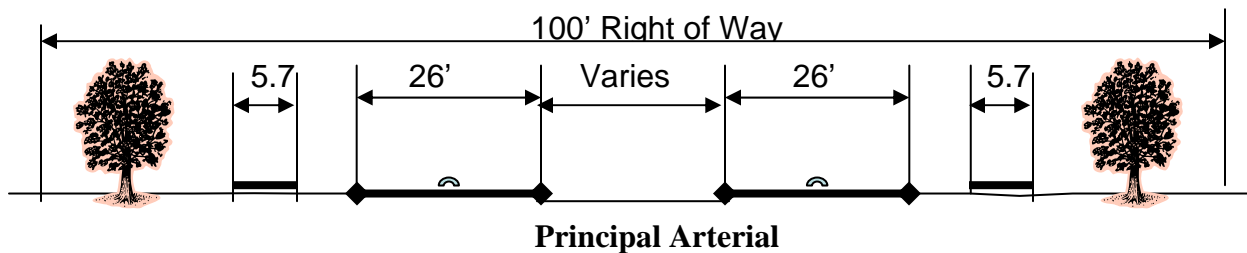
ROADWAY CROSS-SECTIONS

The following sections outline the recommended, typical roadway cross-section standards.

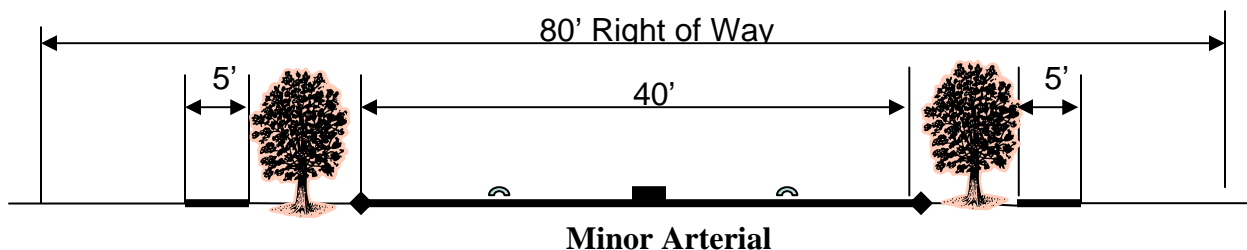
Freeways and expressways provide high-speed travel through the urban area. Freeways maintain this high service by limiting access to adjacent land. Access is provided by freeway interchange ramps which transitions movements between two roadways. Access on expressways is partially controlled and may include signalized intersections and turn-around median breaks. On these higher type roadways a minimum 200' right-of-way is recommended. The carrying capacity of a freeway lane is about 1800 vehicles per hour (VPH). This figure is reduced as additional access is allowed.



Principal arterials provide both long distance connections through the urban area and to major traffic generators within the community. Roadways are designated principal arterials to imply the need to focus more on moving traffic rather than providing direct access to adjacent land. Traffic management techniques used to maintain a high level of traffic capacity on these roadways include the use of medians, restricting curb-cuts to some spacing policy and limiting the use of traffic signals to the intersection with other significant roadways.



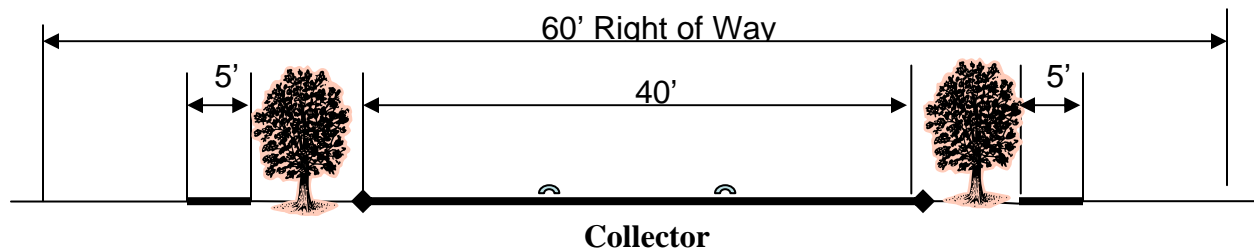
Minor arterials provide network connections within and through the urban area while providing extensive access to adjoining properties. Typical minimum requirements for the design of a minor arterial include an 80' right-of-way and eleven-foot travel lanes. There are numerous cross-section configurations depending on possible features including: on-street parking, bicycle lanes, medians or center-turning lanes.



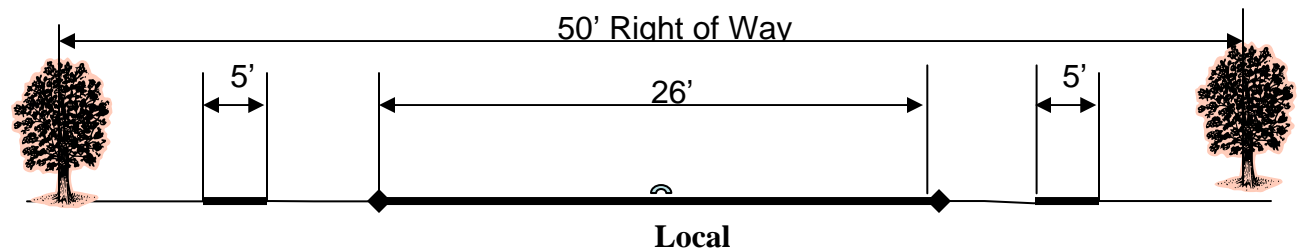
Collector roadways are recognized roadways that provide neighborhood or system connections. These roadways provide extensive access to property. The design standards for these roadways are slightly higher than local streets. In some cases, collectors may be identical in design to local streets but are of extensive length, providing commuter route connections. In general, collectors will have higher traffic counts than local streets.

The typical cross-section of a collector street includes approximately 36' of pavement allowing either three 12' lanes in commercial areas or two 11' lanes and side parking in residential areas. The typical pavement width is referred to as either 40' as measured from back-of-curb to back-of-curb or 39' as measured from face-of-curb to face-of-curb. In relatively flat areas, an open ditch design may be the preferred design with shoulders and side swale ditches. This design has been

found very effective to avoid water undermining the roadway pavement as is often the case when curbs are constructed in very flat, slow draining areas. These open ditch designs also are preferred with heavy truck traffic as a wider roadway helps maneuverability or in relatively rural areas where the outside lanes serves as a bicycle, shared lane facility. Below are the two most common typical designs for collector streets.



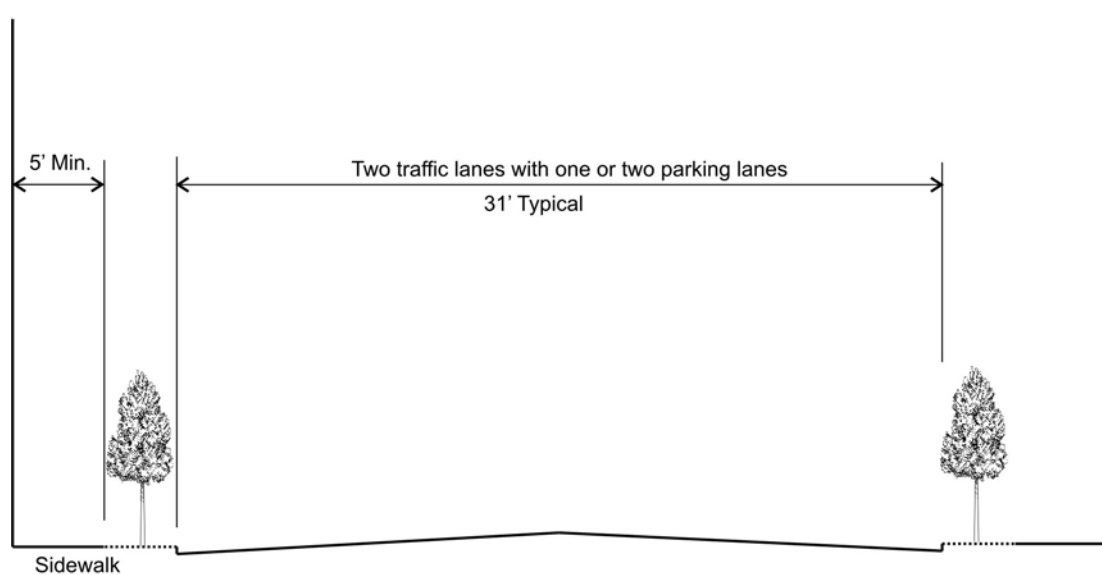
Local streets serve to provide access to property and all development lots must have access to a public or private street. These roadways provide the shortest roadways with the lowest traffic volumes. Low traffic volumes and slow travel speeds help create a good residential setting. The Planning Commission reviews new development in part to avoid creating "cut-through" streets that become commuter routes and generally lower quality of life for residents. Local streets need not be wide as wide streets allow for faster travel. Some measures to slow traffic in neighborhoods, other than the lay-out of streets, include allowing on-street parking, and adding traffic calming devices such as speed humps or landscaped islands centered in street intersections.



STREETSCAPE STANDARDS

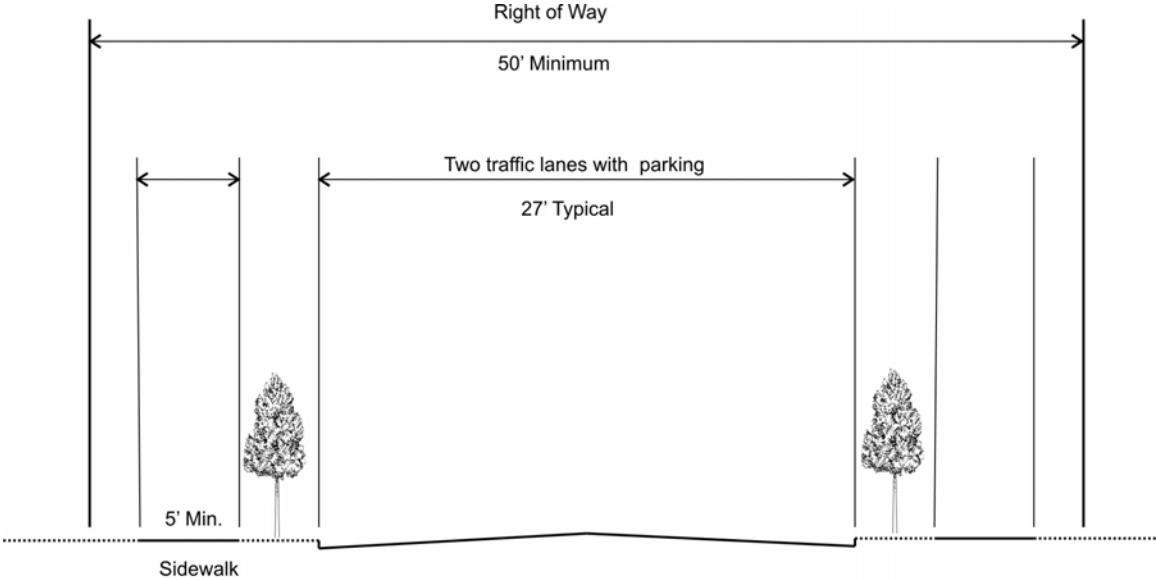
The purpose for including descriptive streetscape standards is to incorporate improved amenities in both the Master Street Plan and the Control of Development/Subdivision Regulations. These standards are to be applied with all plats, major developments and reconstruction efforts. As such, these minimum streetscaping standards are established to serve general public health, safety and welfare purposes by promoting a pedestrian friendly environment with specific amenities while providing traffic circulation needs. As is noted below, street trees are required along most all streets. The recommended type of street trees to be used are those listed as Type B trees from the City's Landscaping Ordinance. The foliage of these trees is to be maintained with a 10' clearance from the ground with additional clearance provided near traffic control devices. It is recognized that much of the City has overhead service power lines. Type A Trees, relatively short trees at maturity, are recommended where service power lines are directly above the street buffer zone. Illumination lines, lines feeding only streetlights, are not considered service power lines.

TYPE A STREETSCAPE, "Commercial Street"



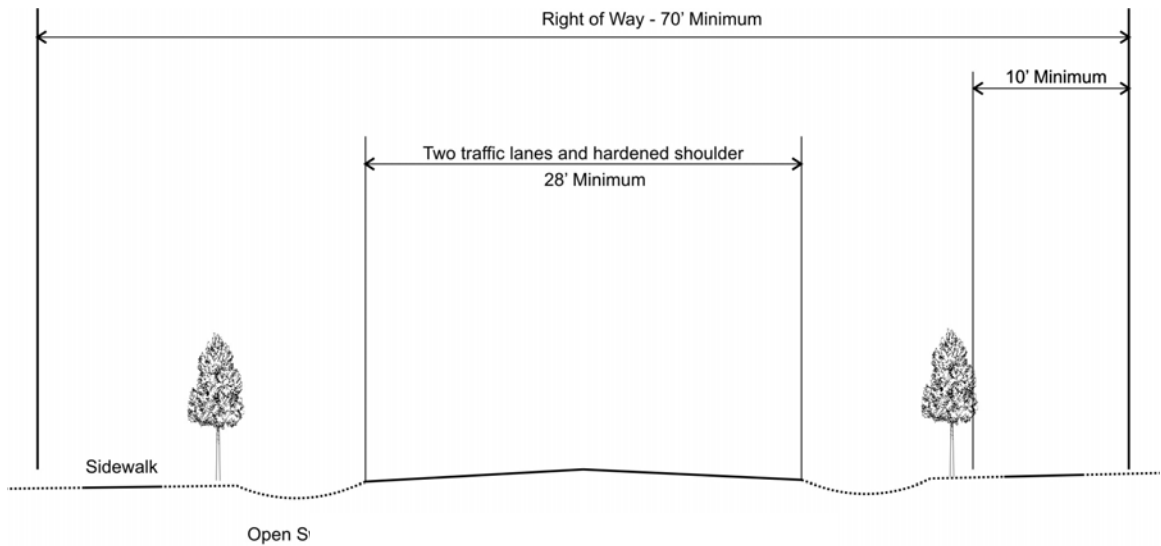
This street cross-section describes a typical commercial street having about 31' of pavement on a 60' right-of-way, allowing for two way traffic with no on-street parking lanes. A 5' wide sidewalk is required on both sides with a grass planting strip bordering the curb. Trees are to be planted in the grass planting strip at a minimum 50' spacing but no closer than 50' of an intersecting street.

TYPE B STREETScape, "Suburban Residential Street"



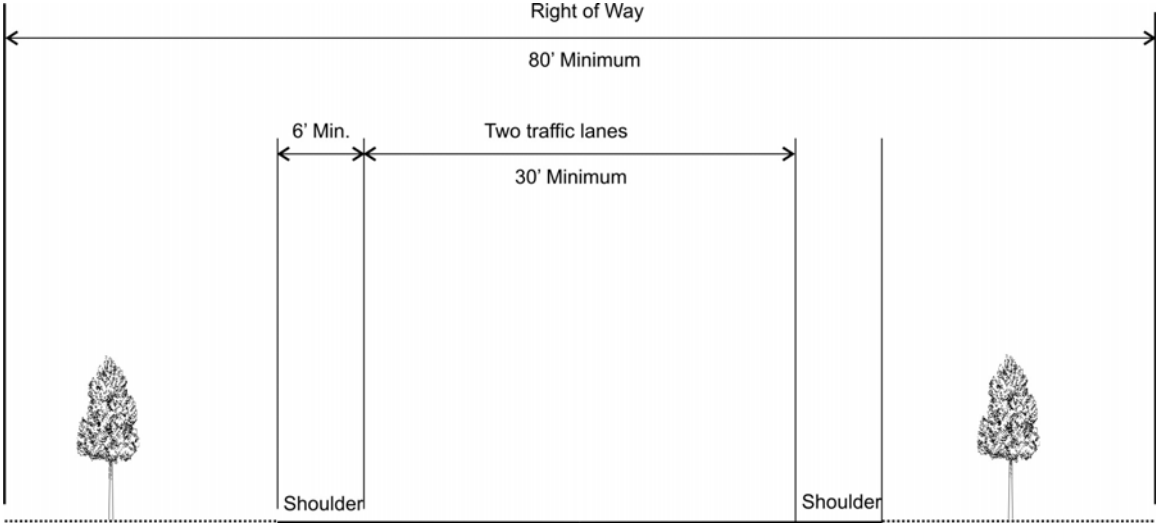
This street describes the typical street constructed in residential areas in the past few decades and includes a minimum 50' right-of-way, 27' of pavement measured from back-of-curb to back-of-curb, a 5' sidewalk on both sides, and street trees at a minimum 50' spacing but no closer than 50' of an intersecting street.

TYPE C STREETSCAPE, "Estate Residential Street"



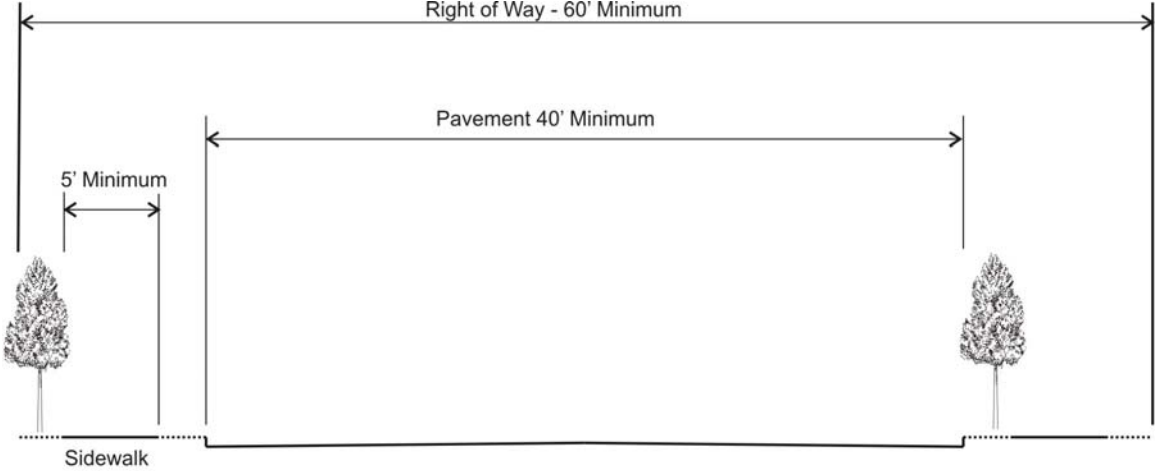
This street describes residential streets found in outlying rural areas where densities are relatively low. Design features shall include a minimum 70' right-of-way, open side swale ditches, 28' of pavement that is to include the moving lanes and hardened shoulder. Street trees are to be located about 10' from the right-of-way line. Sidewalks are required when the average lot is less than 200' in width; these should be located abutting the right-of-way line.

TYPE D STREETSCAPE, "Rural Collector Street"



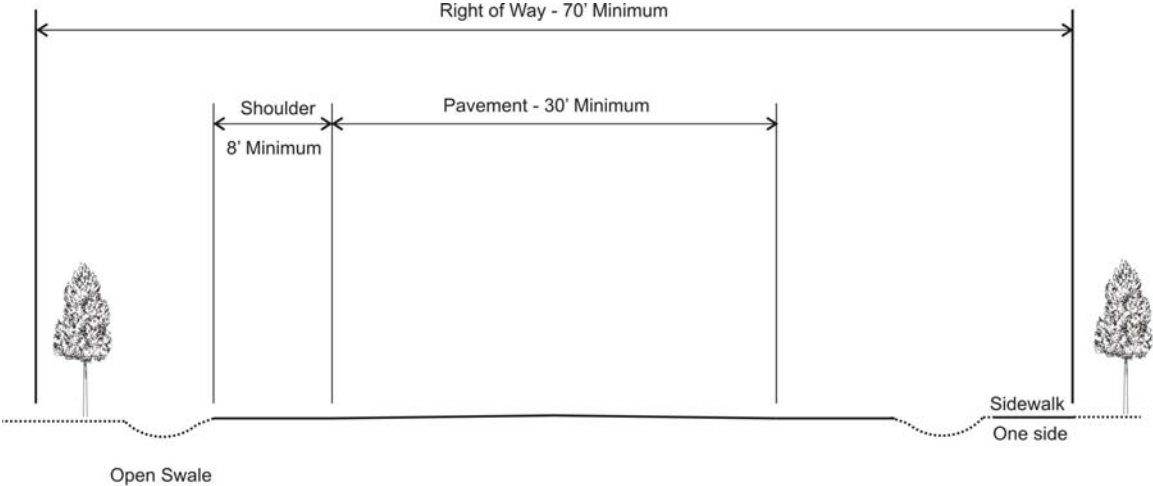
This street is that found in more rural areas where roadways serve as commuter routes. The design is to include an 80' right-of-way, 30' of pavement, 6' side shoulders that may be chip-seal type surface, and street trees located every 50' about 10' from the right-of-way line.

TYPE E STREETScape, "Commercial Collector Street"



This street describes commercial streets with the following design features: a minimum 60' right-of-way, a 40' back-to-back pavement width, sidewalks on both sides, and streets trees no closer than 50' of an intersecting street and with a minimum 50' spacing.

TYPE F STREETScape, "Industrial Collector Street"



This type of street is like that adopted for an Industrial Park where there is a minimum 70' right-of-way, a 30' pavement, an 8' shoulder, and open swale ditches. Street trees are to be located about 10' from the right-of-way line and sidewalks are required on one side of the roadway.

ARTICLE 5. DESIGN OF ROADWAYS

Basis of Design

The existing and proposed streets in Bryant and the unincorporated planning area are classified by function. The functional classification, Class III Principal Arterial through Class IV Residential is an element controlling the thickness and treatment in the various layers of the "pavement structure". The pavement structure is a combination of the sub-base, base course, and surface course placed on a subgrade, generally the natural soil, to support the traffic load and distribute it to the roadbed. The pavement structure may utilize a "flexible pavement", asphalt-type materials, or a "rigid pavement", concrete.

The following minimum design standards will be required as follows:

Freeway and Expressways – Pavement designs must comply with AASHTO (American Association of State Highway and Transportation Officials) pavement design procedures.

Principal Arterial with Median – Pavement designs must comply with AASHTO pavement design procedures.

Principal Arterial with Center Turning Lane – Pavement design must comply with AASHTO pavement design procedures.

Minor Arterial – Minimum design 8” of class 7 crushed granite base course compacted to 95 percent maximum density on a prepared subgrade of 2” ACHM Asphalt Cement Hot Mix ACHM 12.5 mm Binder course and 1 ½” ACHM 12.5 mm or a 6” concrete pavement with 10X10 centered welded wire on 4” of compacted granular base placed on a prepared sub-grade with the concrete testing 4,000 psi on a 28 day break.

Urban Collector with 1 or 2 Parking Lanes – 6” of compacted class 7 crushed granite on a prepared subgrade with 2” of ACHM binder 12.5 mm and 1 ½ of ACHM 12.5 mm Surface Course.

Commercial and Industrial Collector – 8” of compact class 7 crushed granite on a prepared subgrade with a 2” ACHM 12.5 mm binder or 4” of ACHM Stabilized base followed by a 2” ACHM 12.5 mm binder and a 1 ½” ACHM 12.5 mm Surface or

10” of Portland Cement Concrete on a prepared subgrade with 10X10 welded wire reinforcing 2” from the top and 2” from the bottom placed on a 2” granular base with the concrete reaching a 4,000 psi break at 28 days.

Local Street – 5” of compacted class 7 crushed granite material placed on a prepared subgrade with 1 ½” of 12.5 mm binder course or surface course and a 1 ½” 9.5 mm surface course.

Material specifications will be in accordance with the latest edition of the Arkansas Highway and Transportation Department standard specifications for highway construction. Prepared subgrade shall mean that there will be no soft spots or pumping. It will be the responsibility of the contractor to remove any soft spots and backfill with select material or granular base course. All base course material will be set up to 95% density. The surface courses, binder course, and ACHM stabilized base course will be from mix designs that have been approved by the Arkansas Highway and Transportation Department. The Portland Cement concrete Mix will be a mix approved by the Arkansas Highway and Transportation Department. The owner may elect to submit a pavement design prepared by an Arkansas Registered Professional Engineer as a substitute for the minimum pavement designs noted in this plan for consideration by the City. All pavement designs for those functionally classified streets that are not on the state highway system must be approved by the city.

The City of Bryant reserves the right to core pavements before acceptance of the street. Coring will be at the owner’s expense. Those pavements found to be insufficient will be repaired or overlaid at the owner’s expense. No street will be accepted as a dedicated street by the City Engineer or his agent will be required to certify that the street was constructed in substantial compliance with these design standards before dedication of the city street and the city accepting maintenance responsibility. Where subdivisions are being developed in phases, the City reserves the right to require the builder to place the final 1 ½” of 12.5 mm or 9.5 mm surface course on the main construction routes during the final phases of the subdivision. This work will be done concurrent with the street paving in the final phase.

All drainage structures for transporting of stormwater located under the pavement will be reinforced concrete pipe or reinforced concrete culvert and sized by a professional engineer to accommodate flow from the entire built up runoff areas.

ARTICLE 6. DESIGN OF STORM SEWERS AND DRAINAGE FACILITIES

The following minimum design criteria will apply for drainage structures.

Infrastructure Item	Frequency of Storm Event
Bridges and major culverts on flowing or intermittent streams or creeks.	50 years
Cross drain under city streets	25 years
Storm drain system for city streets	10 years

The design engineer must assure the over flow relief is provided so as to prevent backwater caused from larger event storms will not flood adjacent real property.

Flow lines of culverts and pipes will be placed near the natural runoff gradient so as to reduce sedimentation.

Headwall, wingwalls, or riprap are encouraged for inlet and outlet control and may be required by the City at certain locations.

Construction Quality Control

A registered professional engineer or an independent testing laboratory must certify, to the City Engineer, that at least minimum standards for serviceability-performance of roadway construction have been met. The construction quality control for streets and roads in the City of Bryant and its planning area must relate to the roadbed soil, sub-base course, base course, and surface course.

Preparation of the subgrade includes at least grading and compaction of the roadbed soils, and may include other means of providing for optimum support of the pavement structure.

The sub-base course shall require a ninety-five (95) per cent standard proctor density and the base course shall require a one hundred (100) percent standard proctor density.

Core samples for the determination of density and quantities may be required at the developer's expense. Nuclear testing methods will be allowed for determination of densities. Copies of the test results will be provided to the City Engineer. The developer will repair cuts made in taking samples.

Geometric Design

The developer shall provide certification by a registered professional engineer that dimensions are substantially in compliance with the standards for geometric design, and that no slope or gradient exceeds the maximum standards for slope and grade.

Bridges

All bridges and culverts constructed in Bryant and Saline County within the planning area shall be in accordance with Arkansas Highway and Transportation Department standards, before they will be accepted for dedication to the City or County System.

ARTICLE 7. DESIGN OF PIPE AND CULVERT

General requirements for Pipe and Culvert Specifications

1. Reinforced Concrete Box Culverts – All reinforced concrete box culverts “cast place” in the City limits of Bryant, Arkansas will be designed by a registered professional engineer. For culverts being placed under roadways, the design load will be established by the Engineer. Precast box culverts will be allowed provided they comply with ASTM C-789 and are certified for HS-20 Loading when being under roadways.

The inlet and outlet of the box culverts will have either flared wingwalls and concrete aprons or riprap slopes with an approach and outlet apron. All aprons will have a turndown to minimize erosion and undermining.

2. Pipe Culverts
 - A. Reinforced Concrete Pipe (RCP, ARCP) shall be used for all cross drains placed under new streets.
 - B. Galvanized corrugated metal, polymer coated corrugated, or double wall coated allowed for drainage alongside streets or with detention application. Shall not be used for under streets.
 - C. Plastic & Polyvinyl-Chloride pipe (PVC) allowed for drainage or for outfall runs. Shall not be used under streets.

All pipes used for drains, cross drains, or any other stormwater runoff will be designed and sized by a registered professional engineer. The design area must be approved by the City Engineer.

Pipes will have smooth flow lines with no depressions and no indentations or protrusions into the interior. Corrugated pipes will be connected with bands supplied by the manufacturer. Concrete pipes will connect the tongue and groove or bell and spigot and the common surface coated with a quality pipe gasket sealer.

Bedding and Backfill for all pipes will be in accordance with the Arkansas Highway and Transportation Department specification, manufacturers requirements and recommendations, and other applicable requirements.

Lift holes shall be filled with grout, tar or other material as recommended by the manufacturer. Field patching of small breaks and short joints will be allowed. Exposed metal surfaces caused by scratching or cutting will be coated before placing the pipe.

ARTICLE 8. DESIGN OF DROP INLET AND JUNCTION BOXES

Size - Junction boxes and drop inlets will have a minimum inside dimension six inches greater than the outside diameter of the largest culvert being served with a minimum dimension of two feet a minimum square foot space of four feet.

Wall Thickness - Exterior walls will be a minimum of five inches with the steel having a minimum of one and one-half inches of cover. The floor of the structure will be a minimum of six inches and the top of the structure will be a minimum of six inches.

Concrete - Concrete will be a minimum of 3,500 psi at 28 days. The city will have the option to request a cylinder and compression test result on each group of ten junction boxes or drop inlets.

Reinforcing Steel - The vertical walls have a minimum of 0.24 square inches of steel per horizontal and vertical linear foot measured at the mid point of the wall. The floor of the structure will be reinforced with 10 x 10 weld wire mesh or greater and have #4 Tie Bar for the wall reinforcing spaced every one foot. The cover of the drop inlet or junction box will have a top and bottom mat of reinforcing steel with each mat having a minimum of 0.24 square inches of reinforcing steel per linear foot in the transfers and longitudinal direction. Reinforcing will lap each other.

Accessibility - Access will be through a twenty four-inch circular manhole cover through a flat grate with a minimum dimension of two feet and minimum surface area at four square feet. For structures having an inside depth from surface to floor greater than four feet, the manhole or grate will be offset to line with cast in place steps. The steps spacing will be no less than twelve inches and not more than eighteen inches.

Hydraulics - All pipes entering and leaving the structure will be cut flush with the inside face and grouted around the perimeter as necessary.

Workmanship - All concrete surfaces will be free of honeycomb and cracks. Cracks may be grouted.

Precast Product - Pre-approved precast inlets, junction boxes, and concrete pipe with cast in place base will be acceptable.

Method of Acceptance - These structures will be accepted by visual inspection and measurement. Structures with dimensions of less than one-quarter inch of specified thickness will be rejected.

ARTICLE 9. GENERAL REQUIREMENTS FOR CURB, GUTTER, AND SIDEWALKS

1. Curb and Gutter

All curb and gutter constructed on city streets for dedication to the City of Bryant shall utilize a Class A-AHTD combination curb and gutter. This detail can be found in the AHTD Standard Drawing CG-1. The height of the curb above the bottom of the concrete will be 12" and the base of the concrete will be a minimum of 18" and a maximum of 24". The curb will be a 6" curb with 2" radiuses and the gutter depression will be 2".

Form contraction joints at every twenty feet, place ½" compressible material when abutting precast or cast in-place drop inlets, sidewalks, and driveways. Concrete will be 3,500 psi air-entrained with a maximum 4" slump.

Slip form curb and gutters will be allowed when they are poured in conjunction with a concrete street or by themselves to be used to contain a ACHM street. The slip form curb and gutter must be a minimum of 10" high at the back and a minimum of 4" from the top of the curb to the bottom of the flow line and a maximum of 5" from the top of the curb to the bottom of the flow line. Cast alone curb and gutter must be a minimum of 18" wide at the base. All other joint requirements must be satisfied. Contraction joints may be cut.

2. Sidewalk

All sidewalks shall be concrete with a minimum width of 4 feet for residential and 5 feet for commercial locations, with a minimum thickness of 4 inches for any application. Ramps shall meet the current ADA Guidelines or Requirements. Contraction joints will be placed every 6'±. Half inch (1/2") thick compressed material will be placed between driveways, drop inlets, and curbs.

3. General Notes

- A. No concrete structures shall be poured, placed or otherwise constructed over grassy or organic materials.
- B. Quality of workmanship shall be judged by building inspector, code enforcement, street superintendent, or city engineer. Appearance, straightness,

consistency, roughness, surface finish, color, or other subjective measurements shall be judged with regard to commonly accepted practice for a concrete professional. Inferior workmanship may be rejected. Remedies may include complete removal and replacement.

ARTICLE 10. GENERAL REQUIREMENTS FOR TRAFFIC SIGNS AND PAVEMENT MARKINGS

The City of Bryant will require all builders and developers to install traffic control devices and pavement markings on newly constructed or modified city streets in the city limits or subdivisions in accordance with the latest Manual on Uniform Traffic Control Devices (MUTCD). A copy of this manual will be available at city hall for use by builders and developers.

Before completion of the street surfacing for new or modified city streets the builder, accompanied by the city street superintendent, will inspect the streets or street modification and determine where all traffic control devices and pavement markings will be placed. These traffic control devices must be installed prior to occupancy of any residence or building. The city street superintendent may require the builder to install no parking signs on one side of any city street less than thirty feet face to face of curb, or where vertical or horizontal alignment severely restricts sight distance. Any traffic control devices placed on state highways within the city limits of Bryant, Arkansas must meet current AHTD specifications and be approved by AHTD District 6 before installation.

The street name signs will be of the size and color as specified in the manual. The developer must require permission from the city street superintendent to utilize special or ornamental street signs within a subdivision. If the request is approved, the builder will provide the street superintendent with the supplier and extra sign blanks if appropriate. No sign will be placed where any portion of the sign encroaches on the roadway or restricts handicapped accessibility.

ARTICLE 11. ACCESS MANAGEMENT PLANS

Access Management

Urban areas face a constant struggle to maintain the integrity of major traffic arteries. These arteries exist for the primary purpose of moving large volumes of traffic in the most unimpeded manner possible from one point to another. The most efficient design limits access to major intersections and eliminates at-grade crossings of other intersections. Unfortunately, the success of arterials in moving such large volumes of traffic makes them a prime target for commercial enterprises. The developers of such projects seek direct access to major traffic arteries and often exhibit the political power or expertise to obtain such access. This, in turn, diminishes the ability of the artery to carry traffic, resulting in congestion and the demand to build additional arteries, whereupon the process begins anew.

Access Management provides tools to deal with land uses abutting or otherwise served by a roadway, while preserving the safe and efficient flow of traffic on the roadway system. It applies basic traffic engineering principles to the location, design and operation of access drives serving activities along the roadway. It also evaluates the suitability of providing access to a given road, as well as the suitability of a site for land development. It is a way of determining when and where access should be located, how it should be designed, and the procedures needed to administer the program. In other words, it properly manages the competing needs of traffic movements and the demands for access to different land uses.

Access management includes classifying roadways based upon functional criteria, defining allowable levels of access for each roadway class, including spacing requirements for median openings, driveways, and signals, applying appropriate geometric design and traffic engineering analysis criteria, and adopting implementing regulations and administrative procedures.

The City of Bryant has identified four arterials in its urban area that the commission has deemed appropriate for consideration of access management plans. These include portions of Arkansas Highway 5, Arkansas Highway 183, Raymar Road/Airport connection, and Benton Parkway/Alcoa Road.

ARTICLE 12. EXCEPTIONS

Cedar Street Access

The proposed Cedar Street connection located between Westpointe North Phase 1 Subdivision and Springhill Acres Subdivision will not be required to connect until Springhill Road is widened to 4 or 5 lanes.

