

ROAD AND ACCESS STANDARDS CHRISTIAN COUNTY, MISSOURI

Section 1. General Guidelines

The design and construction of all roads that serve *four (4) or more parcels; or any duplex or multifamily residential use, institutional, commercial, or industrial use shall be in accordance with the County Road Standards. The minimum standards for Christian County roads and access points shall be in accordance with these road and access standards and current practice as defined by the MoDOT Standard Specifications for Highway Construction. General guidelines are presented below:

- A.** When, in the opinion of the Christian County Commission, the average daily traffic count is required before a decision is made on any road, the County Commission may install traffic counters for a length of time necessary to obtain such data.
- B.** A Driveway Access Agreement from a County Road Official authorizes only the construction of private roads which will require the disturbance of less than one (1) acre. A Soil and Erosion Control Permit is required should the construction of a road require the disturbance of more than one (1) acre.
- C.** Any required road improvements shall be approved by the County Engineer or the Road Commission responsible for the District in which the development is located. Road inspections shall be completed during every phase of construction.

**Effective August 9, 2010, previously 6 or more parcels which was originally adopted as to the Unified Development Codes on 7/1/1997.*

Section 2. Drawing Standards

Where a new roadway or modifications to existing Roadways are proposed the following shall be required:

- A.** All plans and reports submitted shall be prepared by, or under the direction of a professional engineer, licensed in the State of Missouri, and shall be reviewed for compliance with the minimum design requirements.
- B.** The original submission of engineering construction plans for streets and storm sewer and drainage structure shall be submitted the first time in three (3) sets of prints to the Christian County Planning and Zoning Department.
- C.** After the first submission of engineering construction plans, all future submissions for review shall consist of three (3) sets of prints to the Christian County Planning and Zoning Department. Projects involving State highways will require the approval of the Missouri Department of Transportation.
- D.** All engineering drawings shall be of uniform size 24 x 36 inches and shall have a standard title block on the lower right-hand corner of the sheet. Consultants shall place their own title block above or to the left. The registration seal of the responsible engineer shall be placed on a convenient place in the lower right-hand corner of each sheet of plans. The Title Sheet shall show a Location Map for the project.
- E.** Whenever possible, engineering plans and profiles shall be drawn to a standard scale of one inch (1") equals fifty feet (50') horizontal and one inch (1") equals five feet (5') vertical. Drainage area maps, construction details and cross section or contour maps shall be drawn to a suitable scale.
- F.** Elevations on profiles and sections or as indicated on plans shall be U.S.G.S. datum. At least two (2) permanent bench marks in the vicinity of each project shall be noted on the first drawing of each project and their location and elevation shall be clearly defined.
- G.** The top of each plan shall be either north or east, and the standard north arrow should be used. The stationing on street plans and profiles may be either from the left to right or from right to left, but on drainage plans the stationing shall always begin at the low point.
- H.** When more than one drawing is involved in one project, an overlap of not less than one hundred feet (100') should be provided. Each project shall show at least fifty feet (50') of topography on each side. All existing topography and any proposed changes, including utilities, telephone installations and so forth shall be shown on the plans and profile.

Christian County Road and Access Standards
Section 2 – Drawing Standards

- I.** Revisions to drawings shall be indicated above the title block and shall show the nature of the revision and the date made.
- J.** Sheets showing typical symbols to be used in the preparation or engineering drawings shall be included. Easements shall be shown and, if known, the book and page number of the recording.
- K.** It shall be understood that the requirements outlined in these standards are only minimum requirements. When unusual subsoil or drainage conditions are suspected an investigation should be made and a special design prepared in line with good engineering practice.
- L.** Each plan should indicate owner for whom improvements are to be constructed.
- M.** Lot lines and dimensions shall be shown where applicable.
- N.** No construction or clearing of land of more than 1 acre will begin without approval of the Engineering Plans and Soil and Erosion Control Permit.
- O.** After approval of the engineering drawings, one (1) set of signed plans will be retained by the contractor on the job site and one (1) set to be provided for the Christian County Planning and Zoning Department.

Section 3. Street and Road Standards

A. Relation to Adjoining Streets

The arrangement of rights-of-way in a subdivision shall provide for the continuation of the existing streets or rights-of-way in adjoining areas, unless the Commission deems such continuation undesirable for reasons of topography or design. Where subdivision streets or rights-of-way, the width thereof, where practical, shall be at the same or greater width or width sufficient to adequately serve the subdivision of the existing street or right-of-way, except that in no case shall the street or right-of-way in the subdivision be of less width than hereinafter provided.

B. Additional Right-of-Way on Existing Streets

The Commission will require that additional Right-of-Way along streets which abut the subdivision be in accordance with the Street Type or proposed use. This Right-of-Way width will be measured from the center of the existing roadway. The Right-of-Way shall be cleared of all trees, brush, fences and utilities which shall be relocated as necessary as a part of subdivision requests. A Building Permit application does not require the clearing of the right-of-way.

C. Projection of Streets

Where, in the opinion of the County Commission, it is desirable to provide future street access to adjoining areas, the streets and rights-of-way in the subdivision shall be extended by the provision of a right-of way for street purposes from the end of the pavement to the property line of the subdivision. If deemed necessary by the County Commission, any such dead-end street shall be provided with a temporary turnaround. The street arrangements shall not be such as to cause hardship to owners of adjoining property in platting their own land and land-locking property, nothing therein shall be construed to require that private streets in one subdivision shall provide access to adjacent lands, if the same are not already platted as a subdivision.

D. Curb and Gutter

If curbs and gutters are installed, the curb shall be approximately 6” high and the gutter approximately 18” in width of concrete material. Only standard 90 degree curb may be used, except that roll-type curb shall be permitted along minor and local streets within residential subdivisions. Whenever curb and gutter construction is used on public streets, wheelchair ramps for the handicapped shall be permitted along minor and local streets within residential subdivisions. Whenever curb and gutter construction is used on public streets, wheelchair ramps for the

handicapped access shall be provided at intersections and other major points of pedestrian flow.

E. Street Surface

The street surface shall be as designated in Table 1 – Minimum Design Standards, unless otherwise designated by a registered professional engineer and accepted by the County Commission in consultation with the County Engineer.

F. Street Width

Street pavement widths shall be as stated in Table 1 – Minimum Design Standards.

G. Street Crown

Streets shall have sufficient crown for drainage. (2% minimum) Excepted as approved prior to construction.

H. Curves and Grade – Changes in Streets – Horizontal

1. A tangent of at least one hundred (100) feet long shall be introduced between reversed curves on major and collector streets.
2. Where there is a deflection angle of more than one (1) degree in the alignment of a street, not including an intersection with any street, a curve with a radius adequate to insure safe sight distance shall be made. The minimum radii of curves shall be as indicated in Table 1 – Minimum Design Standards.

I. Street Grades, Elevations and Vertical Curves

1. No street grade shall be in excess of: Arterial – Missouri State Highway Minimum Specifications; Collector – 12%; Minor – 15% except as otherwise approved by the County Commission because of adverse topographic conditions. (Table 1 – Minimum Design Standards)
2. All curbing (or street ditching where permitted) shall be designed to provide for surface water drainage from the surrounding area, buildings and pavement. The minimum grade shall not be less than one-half (1/2) of one (1) percent.

3. Vertical curves shall be used in changes of grade exceeding two percent (2%). The length of vertical curve shall be no less than that determined by the formula:

L equals $\frac{K}{A}$, where: L equals the length of vertical curve. 'A' equals algebraic difference in grades, 'K' shall be determined by the following table:

	Crest	Sag
Arterial	80	60
Collector	50	50
Land Access	28	35

J. Marginal Access Streets (Service Roads)

Where the subdivision abuts on or contains an existing or proposed arterial street, the County Commission may require marginal access streets to be provided to avoid lot frontage on arterial streets.

K. Street Jogs

Street jogs with centerline offsets of less than one hundred twenty-five (125) feet are prohibited.

L. Cul-de-sacs

1. Cul-de-sacs, in developments with tracts with less than three (3) acres, shall be no longer than six hundred (600) feet (unless topography indicates a need for greater length), and shall terminate in a circular open space having a diameter at the outside of the pavement of at least one hundred (100) feet and a diameter at the outside of the right-of-way of at least one hundred ten (110) feet. The cross slope shall not exceed 4% in any direction.
2. Developments with tracts of three (3) or more acres shall have no length limit, but shall have a cul-de-sac having a radius at the outside edge of pavement of at least fifty (50') feet and Right-Of-Way of 55'.
3. All cul-de-sacs shall have a sub-base and base at a minimum of 50' radius. Construction shall be outlined in Section 15-50.

M. Sidewalks

Sidewalks shall have a minimum width of five (5) feet in residential areas and be constructed of concrete. In commercial and industrial areas, the sidewalk shall be provided with an eight (8) foot right-of-way width; however a minimum width of five (5') feet may be constructed and shall be constructed of concrete. The permit-issuing authority may permit the installation of walkways constructed with other suitable materials when it concludes that:

1. Such walkways would serve the residents of the development as adequately as concrete sidewalks; and
2. Such walkways would be more environmentally desirable or more in keeping with the overall design of the development.
3. Whenever the permit-issuing authority finds that a means of pedestrian access is necessary from the subdivision to schools, parks, playgrounds, or other roads or facilities and that such access is not conveniently provided by sidewalks adjacent to the streets, the developer may be required to reserve an unobstructed easement of at least 10 feet in width to provide such access.

N. Road Signs

Road signs for new subdivision roads will be installed by the applicable Christian County or Special Road District at the developer's expense. The cost of signs will be the County's or Special Road District's actual cost and will be established by the applicable Christian County or Special Road District.

O. Street Names

1. Proposed streets which are continuations of, or in alignment with, existing named streets shall bear the names of such existing streets, unless otherwise approved by the County Commission.
2. The name of a proposed street which is not in alignment with an existing street shall not duplicate the name of any existing or platted street.
3. All names of streets proposed by the developer shall be approved or disapproved by the County Commission in accordance with this Resolution. The developer shall submit three proposed names for each street.

P. Alleys

Alleys may be provided to give access to the rear of all lots used for commercial and industrial purposes. Alleys shall not be provided in residential subdivisions.

Q. Streets in Relation to Railroads, Expressways, Freeways and Parkways

When the area to be subdivided adjoins or contains, for a considerable distance, a railroad right-of-way, an expressway or freeway, a street shall be provided approximately parallel to the side of such right-of-way. In determining the distance of such parallel street from the right-of-way, consideration shall be given to the distance required for approach grades to future grade separations.

R. Bridges and Culverts

1. Bridges and Culverts shall be designed in accordance with the design standards governed by the current “Standard Specifications for Highway Bridges” published by AASHTO (American Association of State Highway and Transportation Officials).
2. The structure shall be designed using an AASHTO HL-93 loading.
3. The width of the structure shall match the approach roadway width.
4. Where required by the AASHTO publication, “Roadside Design Guide”, a crash worth railing system is required, along with approach railing, including transition section, approach section and end terminal section. All of these elements shall meet the TL-2 requirements. For culverts when the headwalls are located outside the clear zone (as defined by the AASHTO publication “Roadside Design Guide”), no bridge railing is required. Object markers shall be required when no railing is required. When pedestrian sidewalks are incorporated with the structure, the railing system on the structure shall be located between the traffic lane and the sidewalk.

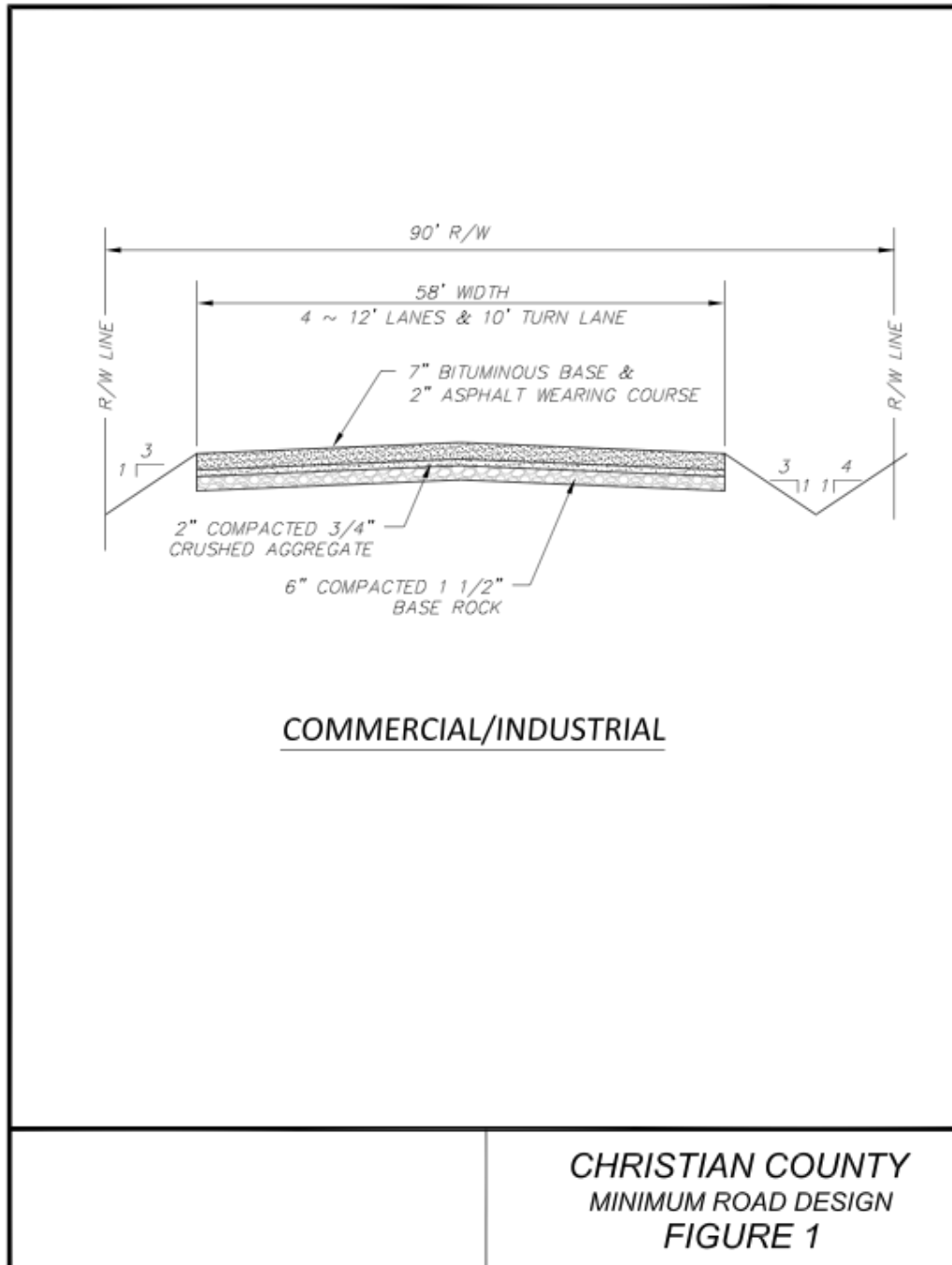
S. Off-site Improvements

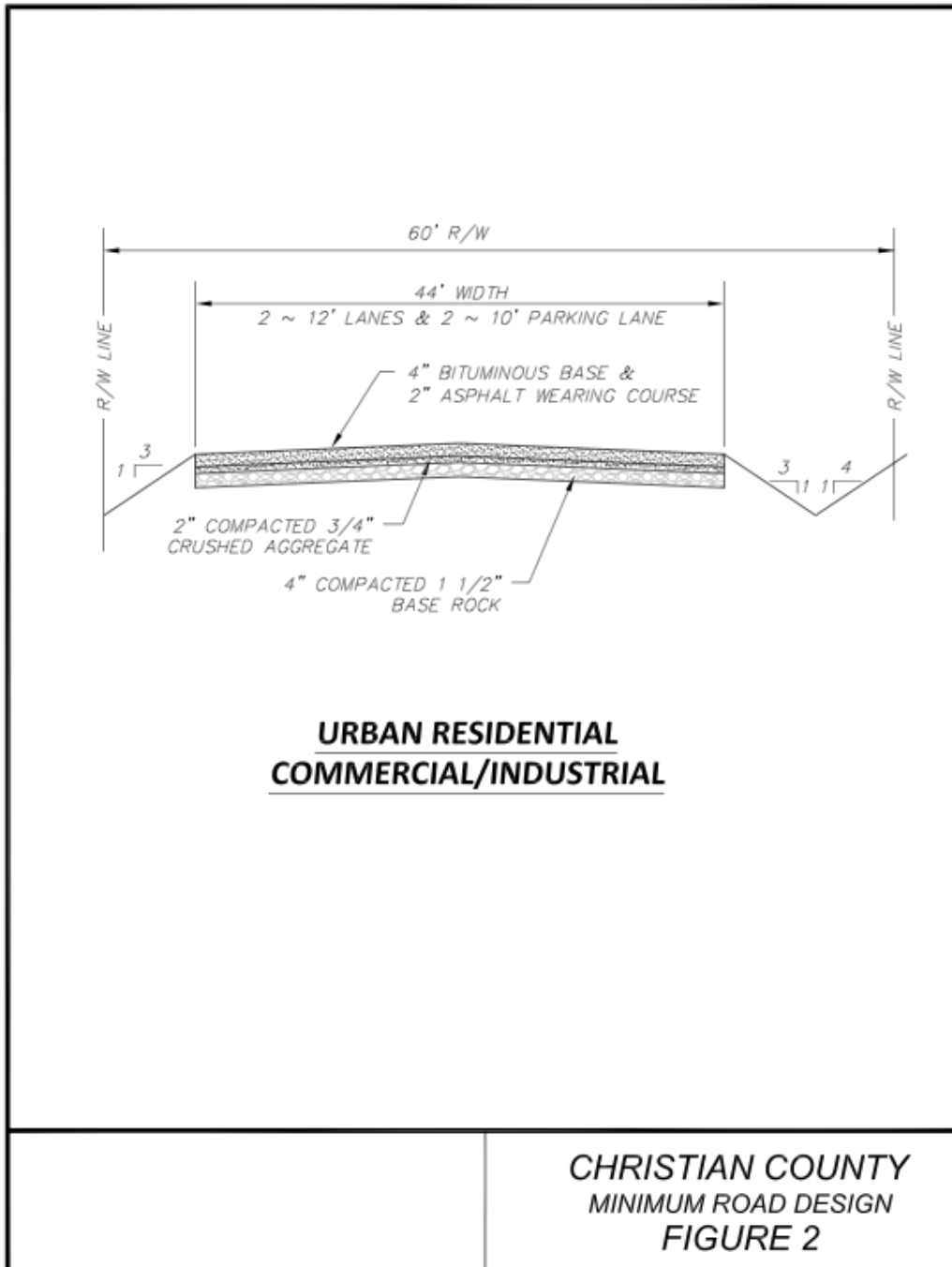
Where a development will increase traffic volume, or a roadway which provides access to the development is inadequate, the developer will be required to construct the necessary off-site improvements to the roadway to provide adequate access. In order to make a determination as to the need for off-site improvements a traffic analysis may be required:

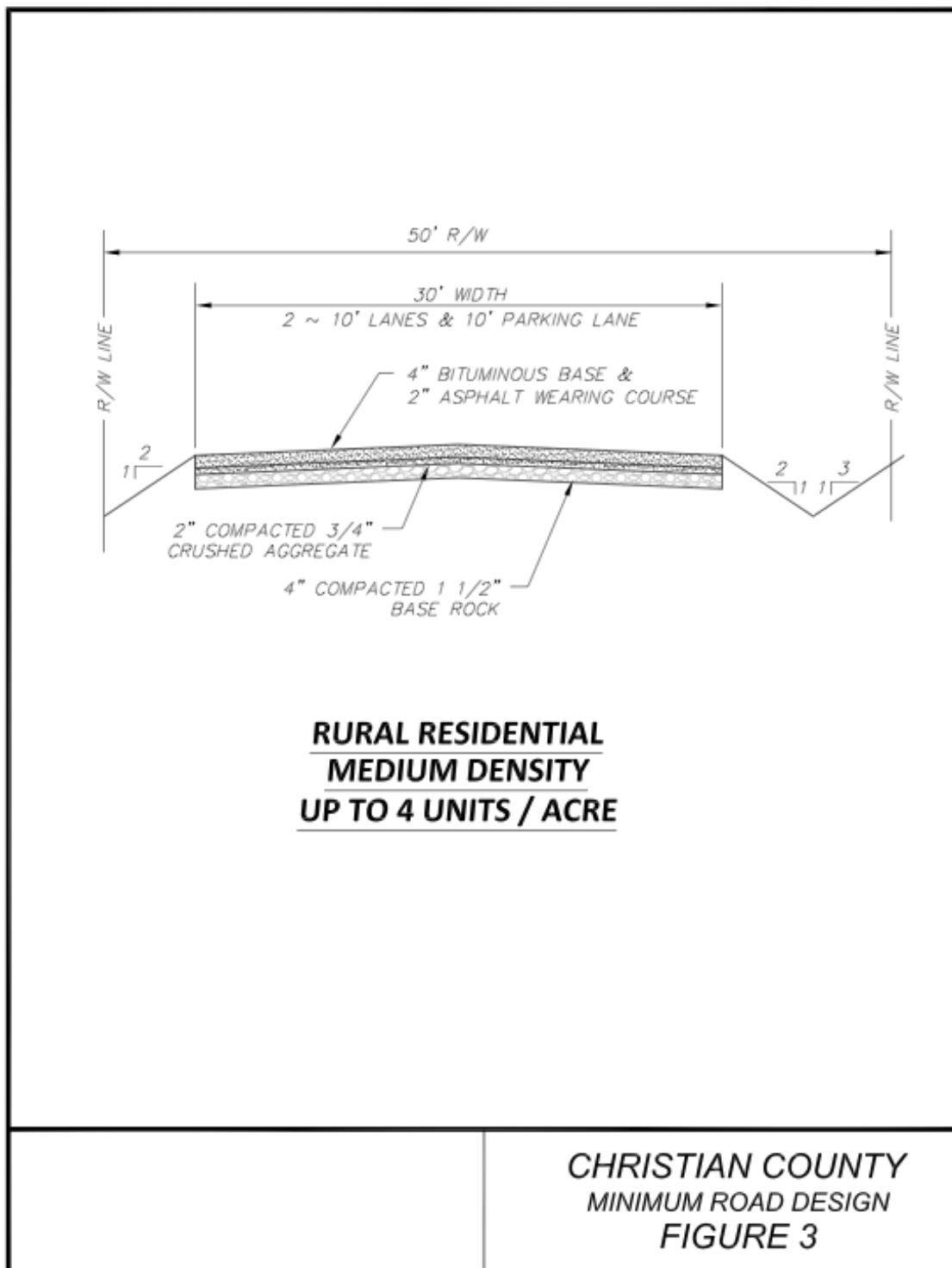
1. Traffic analysis / street capacity.
 - a. Estimated trips per day for each outlet from the proposed developments in vehicles per day must be stated.
 - b. The types of traffic expected and the effects on the existing roads must be described.
 - c. The traffic investigation must extend from the development to the nearest arterial. Existing traffic counts may be estimated from a study of the area served by the subject road, or by actually counting vehicles consistent with good engineering practice.
 - d. The proposed and existing road system must be evaluated as to its capacity. Off site improvements may be required by the County Commission depending on effects that additional traffic from the development will have on the existing adjacent road system.
 - e. Each proposed street must be listed by name and classification. The proposed right-of-way and design specifications must also be listed.

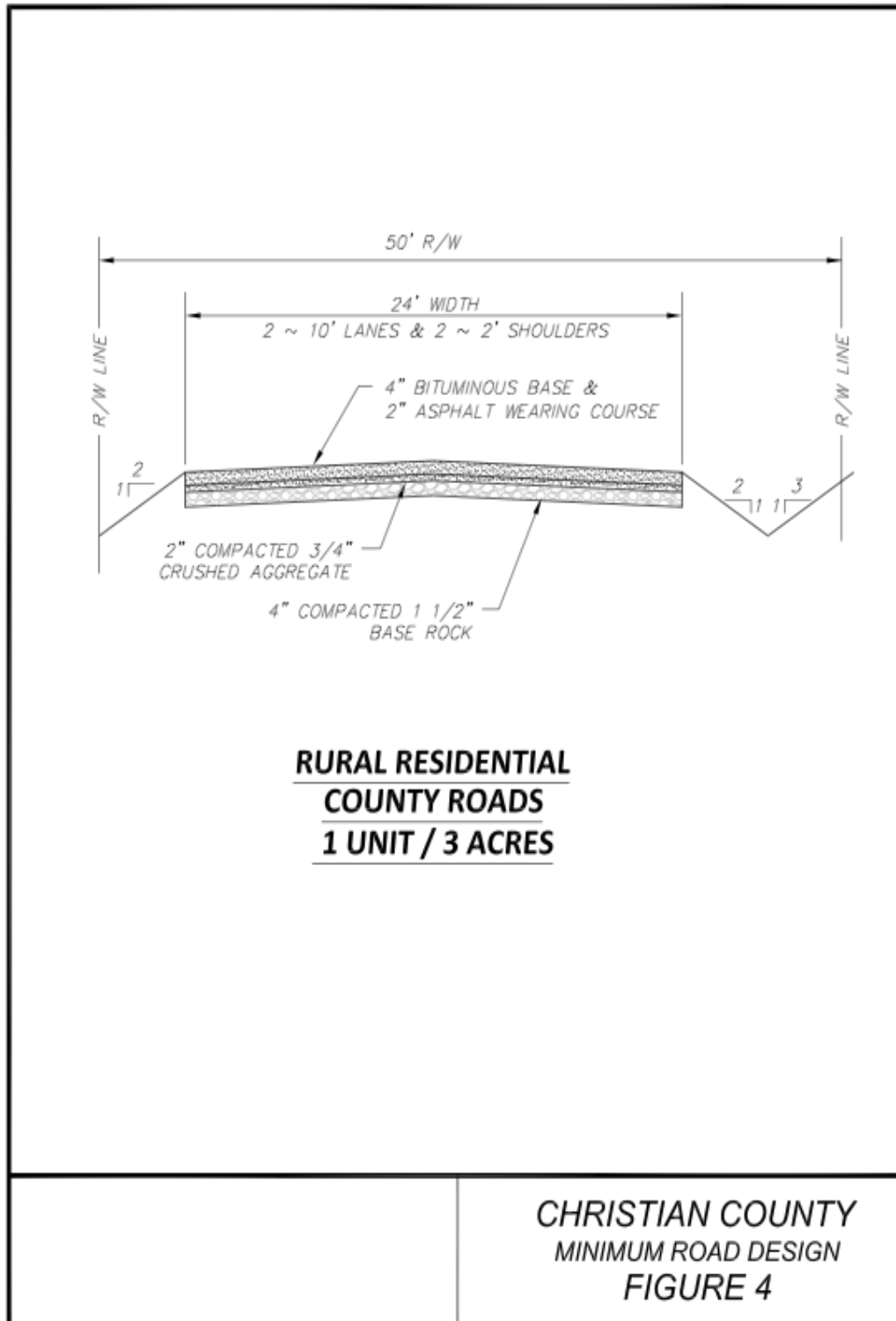
**TABLE 1
 MINIMUM DESIGN STANDARDS**

		Commercial/Industrial 4 Lanes	Urban Residential Commercial/Industrial 2 Lanes	Rural Residential Medium Density Up to 4 Units / Acre	Rural Residential County Roads 1 Unit / 3 Acres +
1.	Right of Way	90'	60'	50'	50'
2.	Cartway Width	58'	44'	30'	20' with 2' Shoulders
3.	Number of Lanes	4	2	2	2
4.	Lane Width	12'	12	10'	10'
5.	Parking Lanes	No	10' Both Sides	10' One Side	No
6.	Turn Lane	10'	No	No	No
7.	Surface Type	9" B & C **	6" B & C **	6" B & C *	6" B & C*
8.	Road Base***	2"	2"	2"	2"
	Road SubBase****	6"	4"	4"	4"
9.	Maximum Grade	8%	8 10%	12%	15%
10.	Curve Radius	400'	400'	300'	175'
11.	Inter. Offset	660'	660'	330'	125'
12.	Inter. Sight Dist.	900'	700'	425'	225'
13.	Cut Slopes	3:1	3:1	2:1	2:1
14.	Fill Slopes	3:1	3:1	2:1	2:1
15.	Back Slopes	4:1	4:1	3:1	3:1
Typical Cross Sections are shown in Figures 1, 2, 3, and 4 as follows * B & C = Bituminous Base & Asphaltic Concrete or 6" Concrete **B&C=Bituminous Base & Asphaltic Concrete or 7" Concrete *** Compacted Base Rock **** Compacted 3/4" Crushed Aggregate					









Section 4. Variance from Road Standards

If, in the opinion of the County Commission, any of the Christian County road standards places an undue hardship on any person, then the County Commission may grant a variance from these standards, provided the variance does not constitute a hazard to the public's health, safety and welfare.

Section 5. Right-of-Way Widths

Streets shall have the following minimum rights-of-way and shall be constructed along the centerline of the right-of-way. The Right-of-Way can not contain any obstructions (trees, etc.)

Table 2
Right of Way Widths

<u>Street Type and Purpose</u>	<u>Right of Way Minimum Width</u>
Land access, commercial (4 lane)	90 feet
Land access, commercial (2 lane)	60 feet
Land access, residential (Private and Public)	50 feet
County Roads and Other Streets	50 feet
Cul-de-sacs	**55 foot radius
Ingress Egress Easements & Alleys	***25 feet

** Originally 50' effective 2/15/2004

***Originally 20' effective 2/15/2004

Section 6. Private Roads and Streets

A. Private Streets

1. Private streets shall be permitted only with the approval of the Planning and Zoning Commission and the County Commission.
2. Where private streets are permitted, the restrictive covenants must contain provisions to assure maintenance of the streets, sidewalks, and other common improvements. Restrictive covenants must be approved by the office of the Christian County Counselor and must be recorded with the final plat.
3. Only local streets may be designated as private streets.
4. Private streets shall be constructed in accordance with the Christian County Road and Access Standards. Any private street located within an ingress / egress / utility and drainage easement shall have the same width as the right-of-way provided for local streets in the Christian County Road and Access Standards.
5. A sign shall be provided at the connection of the private street with any public street or road to notify the public that the street is privately owned and maintained. Signs shall comply with requirements set forth in the Christian County Road and Access Standards. Signs shall be provided at the developer's expense but shall be installed by the Christian County Highway Department.

B. Right-of-Way

Private roads must meet the minimum right of way widths set forth in Section 5 – Rights-of-Way Widths.

C. Final Plats

The recorded plat of any subdivision that includes a private road shall clearly state that such road is a private road.

Section 7. Private Easements

- A.** For tracts without direct access to a County road satisfactory provision shall be made for access to the public road.
1. An ingress / egress easement with a minimum width of twenty-five (25) feet shall be recorded should said easement serve one tract of land.
 2. An ingress / egress easement with a minimum width of fifty (50) feet shall be recorded should said easement serve two or three tracts of land.
 3. No lot or lot width shall be created by use of an easement on lots that abut existing roads or use road ROW for an easement.

Section 8. Private Drives

- A.** A private drive, exempt from standards for public streets, may be utilized by no more than three tracts without public road frontage (administrative minor subdivision only).
- B.** A private drive that serves more than one lot must have a sign that meets the requirements of the County Commission. Signs shall be paid for by the developer but shall be installed by applicable Christian County or Special Road District.
- C.** The Christian County or Special Road District must review proposals to directly access any County roads.

Section 9. Classification of Streets

All streets shall be classified in accordance with their use and function, the standards of public safety and topographic conditions.

A. New Subdivisions

In all new subdivisions, streets that are dedicated to public use shall be classified as provided in Subsection (B).

1. The classification shall be based upon the projected volume of traffic to be carried by the street, stated in terms of the number of trips per day;
2. The number of dwelling units to be served by the street may be used as a useful indicator of the number of trips but is not conclusive;
3. Whenever a subdivision street continues an existing street that formerly terminated outside the subdivision or it is expected that a subdivision street will be continued beyond the subdivision or it is expected that a subdivision street will be continued beyond the subdivision at some future time, the classification of the street will be based upon the street in its entirety, both within and outside of the subdivision.

B. Classifications

1. Limited Access Highway and U.S. Highways

These streets are intended to move high volume, moderate to high speed traffic through a region. Limited access is usually provided at some grade crossings with signals or through a system of interchanges. Direct access and service to adjoining properties is limited. (Example: U.S. Highway 65, 160 and 60)

2. Primary Arterial

Arterials are primarily intended to provide for movement of high volume, moderate to high speed traffic through a community and to major activity nodes. For most arterials, access to abutting property is subordinate to traffic movement. Direct access to abutting property should be allowed only if the traffic-carrying capacity of the arterial is not diminished. (Example: MO Highway 14)

3. **Secondary Arterial**

A major street in the street system that serves as an avenue for the circulation of traffic onto, out or around the County and carries high volumes of traffic. Secondary arterials compliment the primary arterial system and are intended to move moderate volume, moderate speed traffic. Access to abutting properties is a secondary function and access should be partially controlled. (Example: State lettered highways)

4. **Collector**

The Street whose principal function is to carry traffic between minor, local, and subcollector streets and arterial streets but that may also provide direct access to abutting properties. It serves or is designed to serve, directly or indirectly, more than 100 dwelling units and is designed to be used or is used to carry more than 800 trips per day. Collectors provide for both traffic movement and access to abutting properties. Collectors feed traffic from local residential, commercial and industrial areas into the arterial street system and are typically designed for low to moderate volume, lower speed traffic.

5. **Sub collector**

A Street whose principal function is to provide access to abutting properties but is also designed to be used or is used to connect minor and local streets with collector or arterial streets. Including residences indirectly served through connecting streets, it serves or is designed to serve at least 26 but not more than 100 dwelling units and is expected to or does handle between 200 and 800 trips per day.

6. **Local**

A Street whose function is to provide access to abutting properties. It serves or is designed to serve at least 10 but not more than 25 dwelling units and is expected to or does handle between 75 and 200 trips per day. Local streets function primarily to provide access to abutting property. These streets are designed for low volume, low speed traffic and short trip lengths. Use of local streets by through traffic is discouraged. (Example: Subdivision roads)

7. **Minor**

A Street whose sole function is to provide access to abutting properties. It serves or is designed to serve not more than nine dwelling units and is expected to or does handle up to 75 trips per day.

1. **Marginal Access**

A street that is parallel to and adjacent to an arterial street and that is designed to provide access to abutting properties so that these properties are somewhat sheltered from the effects of the through traffic on the arterial street and so that the flow of traffic on the arterial street is not impeded by direct driveway access from a large number of abutting properties.

Section 10. Intersections

A. Two Streets

Intersections involving the junction of more than two (2) streets shall be prohibited.

B. Grade

Preferable grade for one hundred (100) feet before any intersection is zero to three percent (0-3%). The grade should not exceed five percent (5%).

C. Sight Distance

Sight distance should not be obstructed at any intersection. Required sight distances for new intersection shall be as indicated in Table 1 -Minimum Design Standards.

D. Hazards

Intersections should not create hazardous driving conditions. Curves in the roadway and the crests of hills should be avoided at intersection locations.

E. Alignment

Roadways should be within ten (10 degrees) of a perpendicular alignment for one hundred (100) feet before any intersection.

F. Intersection offsets/spacing

The minimum distance between intersections is shown in Table 1 - Minimum Design Standards.

G. Intersections

1. Streets shall intersect, as nearly as possible, at right angles.
2. Street curb intersections shall be rounded by radii of at least 15 (15) feet. When the smallest angle of street intersections is less than sixty (60) degrees, the Commission shall require curb radii of greater length.

Section 11. Driveway Access Agreement

Approval must be obtained for any new parcel created and any new structure. Gated Communities shall also require driveway access agreements though the road will not be a County road, it will allow for future conveyance.

A. Driveway Access Points

Every lot shall have access to it that is sufficient to afford a reasonable means of ingress and egress for emergency vehicles as well as for all those likely to need or desire access to the property in its intended use.

1. Sight Distance

For commercial, institutional, industrial, and multifamily residential complexes of ten (10) or more units, access points shall comply with sight distance standards for intersections.

2. Spacing

Access drives shall be spaced according to the following table:

**Table 3
Access Drive Spacing**

Street Type	Minimum Spacing	From Intersections
Local	35 feet apart	50 feet
Collector	50 feet apart	75 feet
Arterial	75 feet apart	115 feet

3. Arterial Access

Access points to arterial streets shall be minimized. Whenever a major subdivision that involves the creation of one or more new streets borders on or contains an existing or proposed arterial street, no direct driveway access may be provided from the lots within this subdivision onto this street. (See Section 3, J – Marginal Access Streets).

4. Ditches and Culverts

Minimum culvert sizes at intersecting roads and driveways shall be twelve (12) inches. Larger sizes may be required if drainage calculations by the Christian County Highway Engineer indicates the need. Culvert type shall be corrugated metal, concrete or staff approved material. The minimum ditch depth will be twelve (12) inches. This depth will be deeper as required to provide positive

drainage and provide the necessary cover over the culverts. In ditches with steep will be at the County Engineer’s discretion.

5. **Entrances**

- a. All driveway entrances shall have a negative grade for a minimum of 48” from the edge of the driving surface.
- b. Driveway material may not extend onto the driving surface.
- c. Access permits must be obtained prior to construction on any parcel.

**CHRISTIAN COUNTY
DRIVEWAY ACCESS AGREEMENT**

NAME: _____

ADDRESS: _____
City Zip

LEGAL DESCRIPTION: _____ Lot No. _____

Residential ____ **Commercial** ____ **Agriculture** ____

Access off of Asphalt ____ **Chip and Seal** ____ **Gravel** ____

The above described property is subject to the following:

This property will ____ will not ____ require a culvert at point of access.

Size of culvert required _____.

Site distance required _____ Existing ____ Mitigated ____

48 inch flat or negative grade _____

Mail boxes 24" off of road surface _____

As authority for road commission for Christian County, I do hereby state that I have made a physical inspection of the above property and have stated the above requirements to be implemented.

Designated Road Official

Date

Owner or Representative

Date

Comments:

THIS ACCESS PERMIT APPLIES TO ROAD ACCESS ONLY. THIS IS NOT A PERMIT FOR BUILDING CONSTRUCTION.

WESTERN ROAD OFFICIAL
Bill Barnett, Commissioner
417/581-2112

EASTERN ROAD OFFICIAL
Tom Huff, Commissioner
417/581-2112

Brent Young/Foreman
Shop 725-1994

Allen Moss/Foreman
Shop 634-2272

Danny Garbee/Billings Special
Shop 744-4485

Bill Snook/Ozark Special
Shop 581-1632

Section 12. Traffic Control

The Developer will be responsible to pay the County for the material and construction of all roadway signs.

A. Stop Signs

Stop signs should be placed at all intersections with arterials and may be required at intersections with collectors.

B. Yield Signs

Yield signs may be required at the intersections of all collectors or of local streets with collectors as a condition of approval.

Section 13. Utilities

- A. No public or private utilities will be permitted on the public right-of-way, except as approved for crossings.
- B. All utility crossing shall be approved by the Commission. No open cutting of the roadway will be permitted without prior approval by the County Commission. (Refer to Article 18 *Road Right-of-Way and Road Crossing Procedures for Buried Lines* of the Zoning Regulations.)

Section 14. Specifications for New Roads and Culvert Installation

- A.** County officials shall be notified during road construction so there may be continuing inspections during these phases of construction:
 - 1. After removal of top soil, roots, stumps, etc. and before application of sub base.
 - 2. During application of sub base and before application of base.
 - 3. During application of base.
 - 4. During application of double coat of chip and seal or asphalt.
- B.** All paving materials must be approved by the county.
- C.** All Right of Ways must be a minimum of 50 feet in width.
- D.** All top soil must be removed from the future road bed.
- E.** Road bed must be the minimum of 24' in width. Ditches must be outside of this road bed where they are required.
- F.** The sub-base of the road must be a minimum of 4" in depth after compaction, 24' wide with a minimal 1 inch sized crushed rock and no larger than 1 1/2" rock. (See typical section)
- G.** The road base will be a minimum of 24' in width of 3/4" clean base rock, a minimum of 2" in depth after compaction. (No trap rock)
- H.** Bituminous asphalt mix may be used and shall meet all requirements of the Missouri Standard Specifications for Highway Construction, Division 400, and Flexible Pavements.
- I.** Alternative pavement designs will be considered when submitted and approved by the County Commission prior to construction.
- J.** Cul-de-sacs will have a ROW of 55' in radius with a sub-base and base a minimum of 50' radius. Depth of sub-base and base to be the same as road way above using the same materials. Pavement shall be 50' in radius.
- K.** If bituminous asphalt mix is used and the roadway is inspected according to the Christian County Road Agreement, the County Commission will accept the road into the County system. At that time, core tests may be required by the County Commission. If core test (check for material and thickness) are taken, they will be at the Developer's expense.

- L.** Any work performed without proper notification for inspection may be grounds for rejection. The developer shall contact the County Engineers 24 hours prior to the request of inspections.
- M.** A road must be hard-surfaced for a minimum of one year and when 75% of the development is occupied before the county will consider taking it into the county road system. Any damage incurred during this period must be repaired to the county’s satisfaction before acceptance into the county road system. All roads to be taken into the county road system must be deeded by Warranty Deed or Conveyance of Right of Way. Recording of roads on an approved plat in the County Recorders office will not suffice.
- N.** All culverts will be a minimum of 12” or larger where required and have a minimum of 20’ driving surface. Culverts at intersections and driveway entrances must have a one-to-two slope cut at both ends or as directed by the County Road District Official. For example, the ends on a fifteen (15)” culvert (sloping 1” for every 2” linear) would require thirty (30)” more in length on each end added to the required 29’. On an eighteen (18)” culvert there would be need to have 3’ added on each end plus the required 24’ making a total of 30’. If an approved plastic culvert is used, a sloped metal end cap must be attached to each end. Where a development (new) road connects to a county road, a culvert must be long enough to provide a 34’ driving surface where it joins to the county road.
- O.** All driveways connecting with a county road must have a slope of level or negative for a minimum of 4’ away from the road.
- P.** Before installing a culvert, individuals need to check with the Christian County Road District officials. Culvert installations failing to meet these requirements could result in their removal. Christian County will not be liable for replacement of removed culverts.
- Q.** There shall be no structure, including trees or landscaping, allowed within the ROW except for county signs and markers, and U.S. Postal receptacles. There shall be no part of postal receptacle (mail box) within 24” at the closest point to the edge of the road way. No part of the supporting structure shall block a ditch or culvert.
- R.** Knuckles or Dimples on a straight segment of roadway in development road systems are prohibited. Variances may be applied for through proper regulation.

Section 15. Public Improvements

Installation of required public improvements in a development or any phase of a development shall be required or guaranteed by any one of the following methods:

- A. The developer must install all of the required improvements prior to the recording of a final plat.
- B. The planning and zoning commission shall require that all public improvements be installed and dedicated prior to the Planning and Zoning Administrator authorizing the recording of the final plat.

C. Security for Public Improvements

In cases when, because of weather conditions or other factors beyond the control of the permit recipient (exclusive of financial hardship), the Planning and Zoning Commission determines it would be unreasonable to require the permit recipient to comply with all of the requirements of these Regulations with respect to the installation and dedication of all public improvements before the filing of the final plat to commence, intended use of the property or occupying any buildings or selling lots in the development, the permit recipient must establish a Performance Bond from a qualified insurance or bonding company to guarantee the cost for the completion of the required public improvements. The amount of the Performance Bond shall be established by either of the following methods:

1. If the permit recipient submits detail plans and drawings of the development(s) with an itemized cost estimate for public improvements (see Table 1 for standard cost estimate form), the amount of Performance Bond to guarantee the completion of the required public improvements shall be established by the Planning and Zoning Administrator after consultation with the County designated engineer, in an amount sufficient to pay the estimated cost of the required public improvements plus ten percent (10%).
2. In the event the permit recipient does not submit detailed plans and drawings of the public improvements in the development, they must submit two (2) estimates from contractors of the anticipated costs of the development's public improvements, utilizing the County's itemized cost estimate form in Table 1. The amount of the Performance Bond shall be established by the Planning and Zoning Administrator, after consultation with the County's designated engineer, in an amount sufficient to pay the estimated cost for the development's public improvements, plus forty percent (40%).

Section 16. Security Requirements

A. Performance Bond

A performance bond issued by a bonding company acceptable to the County shall be submitted by a permit recipient to guarantee the estimated cost of the required public improvements which shall:

1. Run or be made payable to the County.
2. Be an amount determined by the Planning and Zoning Administrator, based upon the recommendation of the County's designated engineer, to be sufficient to complete the installation of the public improvements in compliance with these regulations.
3. Specify the time required on public improvements to be completed and installed according to the plans submitted. Such time shall be satisfactory to the County, provided all required improvements shall be completed within 12 months. The County shall require an engineer's certification or other inspections necessary to satisfy the County that the improvements have been constructed in accordance with the plans and the County's design specifications. In the event that all improvements have not been completed within the time specified, the County will call the Performance Bond to complete the required improvements.
4. The initial deadline for the completion of all public improvements may be extended by the Planning and Zoning Administrator or the County Commission upon a showing of sufficient cause, but no additional phase of the development shall be permitted to begin during such extension. Should the applicant request to renew a Performance Bond and the extension be approved by the Planning and Zoning Administrator, the applicant shall submit two (2) new estimates with a new Performance Bond, in a form approved by the Planning and Zoning Administrator, for any increased cost of the infrastructure. At no time will the Planning and Zoning Administrator accept a Performance Bond reduced from the original amount.

B. Maintenance Bond

The developer shall execute a maintenance bond in favor of and acceptable to Christian County which guarantees that all required improvements will be properly maintained during the maintenance period, prior to final acceptance by either the Christian County Commission or the applicable Special Road District. The amount of the maintenance bond, to be supplied by the developer, shall be established by the Planning and Zoning Administrator after consultation with the County designated engineer, in an amount sufficient to pay the estimated costs of the repair or replacement of required public improvements installed and constructed in a development prior to their final acceptance by either the Christian County Commission or the applicable Special Road District. The Maintenance Bond must be accepted by the Planning and Zoning Administrator in consultation with the County designated engineer prior to the recording of a final plat or to any use or land sales in the development.

Section 17. Performance by the County of Developer’s Obligations

Should the developer fail to perform the developer’s obligation to construct and correct defects in public improvements as required by the Christian County Road and Access Standards, the Christian County Subdivision Regulations or any other County regulations or requirements, the County may liquidate any performance security in the County’s possession and use the proceeds to construct or correct the improvements in whole or in part as the County in its sole discretion deems appropriate.

- A.** The developer is to pay all costs if defective. Notwithstanding the amount of the Subdivision performance bond or the maintenance bond, the owner of the subdivision shall pay all costs that Christian County actually incurs in designing and constructing improvements or correcting defects in any improvements the developer is required to install and maintain pursuant to these Regulations and the Christian County Subdivision Regulations but which the developer fails to design, construct or maintain free from defects in accordance with these Road and Access Standards. If the amount of money is insufficient to pay all such costs, the developer shall reimburse the County for the remainder within thirty (30) days of the County sending a bill for the balance due.
- B.** The attorney’s fees are to be paid. Should Christian County be required to institute proceedings in court in order to collect any sum due under these Road and Access Standards or the Subdivision Regulations or to enforce the provisions of the developer’s subdivision performance bond, maintenance bond or to collect on the security pledged in support of said bond, the County shall be entitled to collect reasonable attorney’s fees it incurs, regardless of whether the attorney is engaged by the County on a part or full-time basis.

Appendix A. Itemized Cost Estimate for Public Improvements

Subdivision Name

Final Plat File Code

ITEM	QUANTITY	UNITS	AMOUNT
Temporary gravel const. Entrance and upkeep		EA	
Straw / hay bale dike		LF	
Sediment basin		LS	
(List other initial sediment controls)			
Detention basin grading		LS	
Detention basin outlet structure		LS	
Detention basin trickle channel		LF	
Seed & mulch sediment/detention basin berms		AC	
Rough grade streets		LF	
Rough grade lots		LS	
Rough grade drainage channel, (Line A, 1,etc)		LF	
Sanitary sewer mains, off-site		LF	
Sanitary sewer mains, on-site		LF	
Sanitary sewer laterals		EA	
Water mains, off-site		LF	
Water mains, on-site		LF	

Christian County Road and Access Standards
Appendix A

Water line service laterals		EA	
Gas main, off-site		LF	
Gas main, on-site		LF	
Gas line service laterals		EA	
Electric facilities, off-site			
Electric facilities, on-site			
Storm sewer Line A			
15" RCP		LF	
Etc, pipe size & type		LF	
Junction Box		EA	
SS-6 inlet		EA	
DI-1 inlet		EA	
XX" Flared end section		EA	
Grouted riprap		SF	
Etc for each storm sewer line			
Fine grade subgrade		LF	
Curb & gutter		LF	
Aggregate base course		LF	
Asphalt base course		LF	
Asphalt surface course		LF	
Concrete pavement		LF	
Sidewalks		LF	
Backfill curbs			
Seed & mulch right-of-way		LF	
Seed & mulch lots		LS	

Christian County Road and Access Standards
 Appendix A

Remove temporary sediment controls		LS	
Clean out sediment from storm sewers & detention basins		LS	
Re-seeding / erosion repair		LS	
Street Signs			
Street stripping			
TOTAL			

* Appendix A is subject to revisions
 ** Line items may need to be added to fully define the needed improvements for this format.

ORDER of the
CHRISTIAN COUNTY COMMISSION
OZARK, MISSOURI

DATE: July 8, 2010

SUBJECT: Adoption of Amendments to Road and Access Standards for Christian County,
Missouri

WHEREAS, Christian County, Missouri desires to coordinate physical development in accordance with its present and future needs; so as to conserve the natural resources of the County, to insure efficient expenditure of public funds and to promote the health, safety, convenience, prosperity and general welfare of its inhabitants; and

WHEREAS, the Planning and Zoning Commission has held advertised public hearings in order to obtain public input concerning the amendment of the Unified Development Codes (UDC) for Christian County, Missouri, which henceforth shall be known as the "Zoning Regulations for Christian County, Missouri", in accordance with the requirements of Section 64.670 of the Missouri Revised Statutes; and

WHEREAS, the Christian County Planning and Zoning Commission has further recommended the removal and separation from the Unified Development Codes of the Road and Access Standards formerly known as Chapter Fifteen of the UDC, resulting in the creation of what is to now be cited separately as the "Road and Access Standards for Christian County" .

NOW, THEREFORE, on this 8th day of July, 2010, at a duly called meeting of the Christian County Commission, having received the report and recommendation of the Planning and Zoning Commission and, after public notice, and in open session, upon motion made by Commissioner Tom Huff, seconded by Commissioner Bill Burrell, and concurred by Presiding Commissioner Grubaugh, the Christian County Commission did vote unanimously to amend the Unified Development Codes for Christian County, Missouri, by adopting amended road and access standards to be known as the "Road and Access Standards for Christian County, Missouri", for the purpose of providing a uniform set of design standards for roads and other points of access within the unincorporated areas of Christian County. Existing road and access standard regulations within the Unified Development Codes of Christian County, Missouri, are repealed and superceded to the extent of their inconsistency with the Road and Access Standards of Christian County, Missouri adopted this date.

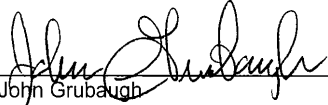
IT IS HEREBY ORDERED that Chapter Fifteen of the Unified Development Codes for Christian County, Missouri, are hereby amended and in lieu thereof Road and Access Standards to be known as the "Road and Access Standards for Christian County, Missouri" are hereby adopted and enacted and are attached hereto and incorporated herein by this reference and a copy shall be on file in their entirety at the Christian County Planning & Zoning office, 202 West Elm Street, Ozark, Missouri 65721.

IT IS FURTHER ORDERED that the Road and Access Standards for Christian County, Missouri adopted hereunder also provide for the security requirements for public improvements and the means by which to collect any sum for those improvements including attorney's fees, and authorize said Regulations to be amended from time to time by Order of the Christian County Commission.

IT IS FURTHER ORDERED that the Road and Access Standards for Christian County, Missouri shall become effective on 9 day of Aug, 2010, the same effective date as the Zoning Regulations and a copy of this Order shall be filed in the office of the County Clerk before 5:00 p.m. this date.

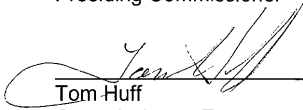
Done this 8th day of July, 2010, at 11:16 o'clock a.m.

CHRISTIAN COUNTY COMMISSION



John Grubaugh
Presiding Commissioner

Yes
Dated: 7-8-10



Tom Huff
Commissioner, Eastern District

Yes
Dated: 7-8-10



Bill Barnett
Commissioner, Western District

Yes
Dated: 7-8-10

ATTEST:



Kay Brown
County Clerk

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