

# Chapter 151-8 Subdivision Design and Improvements

## 151-8.1 General

### A. Applicability

The standards of this chapter shall apply to all subdivisions of land unless otherwise expressly exempted.

### B. Technical Specifications and Design Criteria Manual

Standards and specifications for public improvements and technical subdivision design standards are addressed in the County's *Technical Specifications and Design Criteria Manual*. Compliance with the standards of the *Technical Specifications and Design Criteria Manual* shall be required on all publicly dedicated rights-of-way.

### C. Exemptions

The standards of this chapter shall not apply to the following subdivisions:

1. A transaction between owners of adjoining unplatted property which involves only a change in the boundary between the land owned by such persons provided no additional tracts are created and such tracts comply with the lot size and setback standards of the underlying zoning district.
2. Property which is created by adjoining unplatted tracts which involves the combination of contiguous parcels of land into one larger parcel.
3. The conveyance of land for street or railroad right-of-way, utility or drainage easements, or other public utility purposes subject to local, state, or federal regulations, and where no new street or access easements are created.
4. The conveyance of land for public recreation, trails or similar easements and public purposes.
5. The division of land into tracts 20 acres or larger in area on or before June 13, 1994 and in compliance with the subdivision regulations in force at that time.
6. The division of land into tracts 40 acres or larger in area after June 13, 1994 and in compliance with the County Subdivision Regulations in force at that time.
7. The division of land into tracts 40 acres or larger in area after the date of adoption of this chapter, provided such tracts have at least 100 total feet of frontage along a state or county maintained roadway, and access to the tracts and any remnant parcels comply with state minimum sight distance requirements.
8. The division of land into cemetery plots, provided that such division complies with RSMo 214.

*(Commentary: The exemption for cemetery plots exempts those creating individual subdivision plots from the subdivision process. It does not exempt those creating a cemetery.)*

9. The division of land by any court action pursuant to the law of eminent domain.
10. A division of property through the probate of an estate, or by order or judgment of a court of law of competent jurisdiction of the State of Missouri.

## **151-8.2 Layout and Design Generally**

### **A. Compliance with Plans and Regulations**

The design of subdivisions shall be consistent with:

1. The *Comprehensive Plan* and all other adopted plans and policies of the County Commission; and
2. The requirements of the zoning district in which the property is located and all other applicable standards of this Land Development Code.

### **B. Traffic Movement and Pedestrian Circulation**

1. The design of subdivisions should create an integrated system of lots, streets, trails, and infrastructure that provides for efficient movement of people, bicycles, and automobiles within the subdivision and to and from adjacent development.
2. All subdivisions should provide for the efficient movement of through traffic by providing a completely interconnected hierarchy of streets in order to avoid isolation of residential areas and over-reliance on arterial streets.
3. Subdivisions should be designed to provide safe and attractive pedestrian routes to nearby commercial centers, employment, recreation, and other uses.
4. Street layouts should be uncomplicated, so that emergency services, public services, and visitors can find their way to their destinations.
5. The proliferation of individual driveways on state and county roads should be avoided. Tracts of 20 acres or more with at least 100 feet of width at the front property line must provide an easement with a width of at least 60 feet to provide driveway access to rear lots. A maximum of 4 driveways will be allowed. Homeowners are responsible for all maintenance of driveway easements. Specific address signage may be required.
6. Residential subdivisions involving 5 or more lots should be served by internal street systems rather than relying on the state and county roads for direct access to all lots, unless exempted by the Clay County Highway Department or the state regulating authority. If the decision-making body allows direct residential driveway access to state or county roads, the decision-making body shall be authorized to require shared access drives and other mitigation measures to reduce the number of access points on to state and county roads and thereby promote public safety and efficient movement of traffic.

### **C. Streetscape Appearance**

1. Lot and street designs should be designed to avoid extended distances of back yard frontage on arterial streets, and where that cannot be avoided, buffering of back yards from those streets should be landscaped with buffers and fences.
2. Edges of subdivisions should include adequate landscaping and buffering to improve the image of the area, and to protect future residents of the subdivision and adjacent developments from adverse impacts caused by significant differences in use, development intensity, or development height.
3. Lots and streets should not be designed to require significant numbers of adjacent dwelling units with front-loaded garages that dominate the streetscape.

### **D. Open Spaces**

1. Open spaces should be integrated into and throughout the subdivision, should be connected with each other and with open spaces in adjacent development, and should

include trails that connect to pedestrian routes in the subdivision and to regional trail systems.

2. Open spaces anticipated for use as active or developed parks should be located on relatively flat, well-drained terrain.
3. Open spaces not anticipated for use as active or developed parks should be located on prominent high points with significant views, or along significant and interesting geological features or wooded areas, or along significant drainages.
4. Open spaces that are anticipated to serve as trail corridors should be continuous with anticipated trail corridors on adjacent properties.
5. Subdivisions should be designed and laid out in a manner that creates the least damage to the natural environment, avoids to the maximum extent feasible, significant natural resources such as prime agricultural lands, wooded areas and wetlands.

#### **E. Specifications and Standards Generally**

1. All public improvements shall be constructed in compliance with the standards and specifications established by this chapter, the County Code and adopted regulations, including all design standards and requirements set forth in the *Technical Specifications and Design Criteria Manual*. (Adopted: November 8, 1999).
2. No subdivider shall be relieved of the duty to construct public improvements for the subdivision until all public improvements are constructed, approved and accepted by the county. This may be accomplished by an irrevocable letter of credit, cash escrow, performance bond, or other financial improvement guarantee acceptable to the County.

### 151-8.3 Required Infrastructure and Improvements

Infrastructure and subdivision improvements shall be required in accordance with the following table:

Zoning District	Streets / Roads	Water	Fire Protection	Wastewater Systems	Sidewalks
	See 151-8.7-151-8.8	See 151-8.9	See 151-8.9	See 151-8.10	See 151-8.6
AG	Asphalt, curb and gutter [2] and perimeter road improvements [3]	Municipal, PWSD or well [1]	Hydrants required unless exempted pursuant to 151-8.9-B	Central (gravity) system, package plant or septic [1]	One side only [4] [5]
R-1		Municipal or PWSD [1]		Central (gravity) system or package plant [1]	One side only [4][5]
R-1A				Central (gravity) system or package plant [1]	One side only [4][5]
R-1B					One side only [4][5]
R-2					Required
R-3					Required
R-MHP					Required [5]
C-1	Asphalt, curb and gutter [2] and perimeter road improvements [3]	Municipal or PWSD [1]	Hydrants required unless exempted pursuant to 151-8.9-B	Central (gravity) system, package plant or septic [1]	Not required in Rural or Low Density Development Zone. Required in Urban Density Dev't Zone [5]
C-2					Required [5]
C-3					
I-1					
I-2					
PUD	Infrastructure/improvements as required by decision-making body as part of PUD approval (151-3.8)		Hydrants required unless exempted pursuant to 151-8.9-B	Infrastructure / improvements as required by decision-making body as part of PUD approval (151-3.8)	

[1] As approved/required by decision-making body.

[2] See Street Design Requirements (Sec. 151-8.7-L). Ditch sections may be approved in AG and R-1 zoning districts.

[3] See Section 151-9

[4] Decision-making bodies shall be authorized to require trails/trail easements as necessary to implement the *Comprehensive Plan*.

[5] Sidewalks not required if lots within subdivision average 1.5 acres or more in area.

## **151-8.4 Lots**

### **A. Width to Depth Ratio**

The width to depth ratio of any lot shall not exceed 1 to 4 (width to depth).

### **B. Lot Area**

Minimum lot area shall be subject to the underlying zoning district in which the subdivision is located, unless modified by Conservation District or Planned Unit Development.

### **C. Land Remnants**

Remnants of land containing less area than prescribed by the underlying zoning district regulations shall not be permitted unless designated and accepted for utility or public purposes.

### **D. Side Lot Lines**

All side lot lines shall bear between 60 and 90 degrees from the street right-of-way line on a straight street, or from the tangent of a curved street.

### **E. Setbacks**

Front building or setback lines shall be shown on the final plat for all lots in the subdivision and shall not be less than the setbacks required by the underlying zoning district or any other regulations adopted by the County Commission.

### **F. Double Frontage**

Double frontage lots shall be avoided except along arterial streets unless, in the opinion of the decision-making body, a variation to this rule will give better street alignment and lot arrangement.

### **G. Street Access**

Every lot should abut on and have access to a public street other than an alley, provided that the decision-making body may approve lots with access to private streets when included as part of a Conservation District or Planned Unit Development.

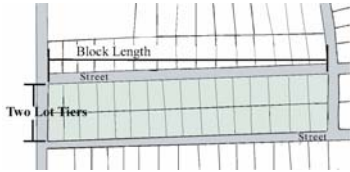
### **H. Existing Structures**

The subdivision or re-subdivision of a tract or lot shall not be permitted where the subdivision or re-subdivision causes an existing permanent structure to violate the standards of this Land Development Code.

## 151-8.5 Blocks

### A. Width

Blocks must have sufficient width to provide for 2 tiers of lots, except where single tier lots are required to separate residential development from through vehicular traffic, to separate lots from another type of incompatible use, to allow for unusual topographic conditions or when adjacent to the outer perimeter of the subdivision.



### B. Length

Block lengths shall not exceed 1,320 feet, and when blocks longer than 800 feet are proposed, pedestrian crossings may be required near the center of the block.

## 151-8.6 Pedestrian Circulation (Sidewalk and Trails)

Where required (See Sec. 151-8.3), sidewalks shall meet the following standards.

### A. Location

Sidewalks shall be constructed in the road right-of-way within 1 foot from the property line. Sidewalks shall also be installed in any pedestrian easements as may be required by the decision-making body.

### B. Paving Width and Depth

Sidewalks shall be constructed in accordance with the *Technical Specifications and Design Criteria Manual*, unless different design criteria are approved by the County Commission (e.g. trails instead of sidewalks).

### C. Responsibility for Installation

Construction of sidewalks along streets shall be the responsibility of the builder on each lot adjacent to the street. Sidewalks in common open spaces, greenways or parks shall be the responsibility of the subdivider.

### D. Maintenance

The maintenance of sidewalks shall be the responsibility of the adjacent property owner or homeowners association and shall not be the responsibility of the County.

### E. Sidewalk Exemptions

1. Sidewalks are not required in subdivision where the average of all lot sizes are 1.5 acres or more.
2. Sidewalks are required on only one side of the street in AG, R-1, R-1A and R-1B zones.
3. Pedestrian trails, particularly where they connect to the Northland Trails System or the Clay County Master Parks Plan, may be substituted for sidewalks.

## **151-8.7 Vehicular Circulation (Streets and Bridges)**

All new public street and bridge construction shall comply with all applicable state and county requirements. It is furthermore intended that all streets be dedicated, along with required rights-of-way, to the county. The standards of this section shall apply to any street or bridge regardless of location in a Rural Density, Low Density or Urban Density Development Zone, unless otherwise expressly stated. In the Urban Density Development Zone, compliance with more restrictive standards of the nearest municipality may be required if such property lies within the Stated Annexation Intent Area of the subject municipality.

### **A. Street Curvature**

On streets with reverse curves, a reasonable tangent shall be provided between curves to permit a smooth flow of traffic.

### **B. Street Layout**

Proposed streets shall conform to topography as nearly as possible to reduce drainage problems and grades. Intersections shall be designed with a flat grade. Except in unusual circumstances (as determined by the County Highway Administrator), in hilly or rolling areas, at the approach to an intersection, a leveling area shall be provided having not greater than 2 percent rate for a distance of 60 feet, measured from the nearest right-of-way line of the intersecting street. Where any street intersection will involve earth banks or existing vegetation inside any lot corner that would create a traffic hazard by limiting visibility, the developer shall cut such ground, and/or vegetation (including trees) in connection with the grading of the public right-of-way to the extent deemed necessary to provide an adequate sight distance within the right-of-way. Sight triangles shall conform to the requirements of Sec. 151-10.4. The cross-slopes on all streets, including intersections, shall be 3 percent or less.

### **C. Arterial Street Intersections**

The number of intersections and private vehicular access points (curb cuts) along arterial streets shall be held to a minimum. Unless otherwise expressly approved by the decision-making body, the distance between intersections shall not be less than 1,200 feet.

### **D. Arterial Streets**

Arterial streets through subdivisions shall conform to the major street plan of the *Comprehensive Plan*.

### **E. Collector Streets**

Unless otherwise expressly approved by the decision-making body, collector streets (as designated in the *Comprehensive Plan*) on either side of an arterial street shall be offset by at least 600 feet (measured centerline to centerline).

### **F. Alleys**

Alleys may be required in commercial, industrial, and residential areas. Dead-end alleys shall be avoided wherever possible, but if unavoidable, such alleys shall be provided with adequate turnaround facilities at the dead-end.

**G. Cul-de-sacs**

An adequate turnaround of not less than 120-foot diameter right-of-way shall be provided at the closed end of a dead-end local street longer than one lot in length. If such cul-de-sac does not have a curb and gutter (“temporary”), the turnaround right-of-way shall not be less than a 100-foot diameter. The maximum length of a cul-de-sac street shall be as follows:

Maximum Length*	Temporary	Permanent
Rural Density Development Zone	1,600 feet	1,620 feet
Low Density Development Zone	1,600 feet	1,620 feet
Urban Density Development Zone	1,000 feet [1]	1,000 feet [1]

- [1] Or more restrictive standard of the nearest municipality or fire district.
- \* Length shall be measured from the centerline of an intersection of a cross street to the center of the cul-de-sac.

**H. Offset**

Local streets shall be at least 150 feet apart (measured centerline to centerline).

**I. Right-Angle Intersections**

Under normal conditions, streets shall be laid out to intersect, as nearly as possible, at right angles. Where topography or other conditions justify a variation from the right-angle intersection, the minimum angle shall be 60 degrees.

**J. Existing Half Streets**

Whenever there exists a dedicated or platted half street or alley adjacent to the tract to be subdivided, the other half of the street or alley shall be platted and dedicated.

**K. Streets Adjacent to a Railroad, Freeway, Principal Highway or Arterial Street**

Where lots front or side, but do not back on railroad right-of-way, limited access freeways, or principal highways or arterial streets, the decision-making body may require a marginal access street or frontage road adjacent to the boundary of such right-of-way in order to ensure traffic safety and maintain adopted levels of service on the adjacent street. The distance from said right-of-way shall be determined based on a consideration of minimum distance requirements for approach connections to future grade-separated intersections.

**L. Street Design Requirements**

Unless otherwise specified herein, the minimum design criteria, construction methods and material specifications for public improvements required by the chapter shall conform to that adopted by the Kansas City Metropolitan Chapter of the American Public Works Association, as of December 31, 1992, Chapter 5200, Streets. Any specification as to procedure, equipment, or materials not covered in the street specifications and standards APWA, and subsequent amendments and/or revisions thereto, or the Clay County Highway Department's special instructions, shall be subject to the Missouri Department of Transportation (MoDOT) Standards for Highway Construction, 1999 Edition and subsequent amendments and/or revisions thereto, for all Clay County roads in the unincorporated area. The right-of-way, grades and widths for proposed or existing abutting streets and alleys shall conform to the designation in the *Comprehensive Plan* and shall not be less than the minimum for each classification as follows:

Feature	Street Types					
	Major Arterial	Minor Arterial	Collector	Local Rural/Low	Local Urban (Res)	Local (Comm/Ind)
Minimum Right-of- Way Width (ft) [1]	120	100	80	60	50	70
Pavement Width	44+	32+	32+	24	24	32
Degree of Curvature	12.5	12.5	23	28	28	23
Curb Radii	30	30	25	25	25	30
Curbing [2]	CG-2	CG-2	CG-2	CG-2	CG-2	CG-2
Number of Lanes	2-4	2-4	2-3	2-3	2	2-3
Pavement Section	[3]	[3]	[4]	[4]	[5]	[4]

- [1] When existing or anticipated traffic on arterial and collector streets warrants greater widths of right-of-way, the additional width shall be dedicated.
- [2] Ditch sections may be approved by the decision-making body in AG and R-1 zoning districts.
- [3] To be constructed to specifications of APWA Standard Drawing ST-3, Type B or C design. If constructed with ditch section in lieu of curbing, county Standard Road Drawing CR-3 is to be utilized.
- [4] To be constructed to specifications of APWA Standard Drawing ST-2, Type B or C design. If constructed with ditch section in lieu of curbing, county Standard Road Drawing CR-2 is to be utilized.
- [5] To be constructed to specifications of APWA Standard Drawing ST-1, Type E or F design. The absolute minimum gradient on a street shall be 0.25 percent and a minimum gradient shall be 1.0 percent wherever practical.

**M. Low Impact Development Design**

Low Impact Development (LID) design standards may be substituted for standard street design, curb and gutter requirements used within Conservation Districts and Planned Unit Developments with the approval of the Highway Department, Planning and Zoning Commission and County Commission, and provided they are maintained by the homeowner association for the subdivision.

LID design standards may include, but are not limited to: engineered vegetative swales, individual lot rain gardens, lot layout adjustments to preserve natural drainage ways, open space, wetlands, lakes, upland prairie plantings, minimizing impervious surfaces, maximizing green space and other stormwater management tools which slow, reduce and filter stormwater runoff to mimic pre-existing hydrologic conditions and protect water quality.

Developments using Conservation District or Low Impact Development design may reduce the street width from 60 feet to 50 feet.

## **151-8.8 Construction Standards for Vehicular Circulation (Streets and Bridges)**

The subdivider shall install, construct, or provide for the construction of the improvements required by this chapter and in conjunction with all laws, restrictions, and codes established by this chapter, the Statutes of the State of Missouri, and all other applicable regulations. All required improvements shall conform to the specifications of this chapter and compliance therewith shall be confirmed by the County Highway Department prior to release of the surety by the County Commission.

### **A. Assignment of Responsibilities to the Subdivider**

The dedication of right-of-way and the construction of improvements for new interior roads shall be at the expense of the subdivider. All right-of-way dedication and road construction shall be in conformance with the provisions of this chapter, and other pertinent codes of Clay County.

### **B. Location of Street Paving**

All street paving shall be located in the center of the right-of-way.

### **C. Construction Plans**

No grading or other construction shall take place within a street right-of-way until construction plans have been examined and approved by the County Highway Administrator and all necessary permits have been obtained.

### **D. No Use Prior to Acceptance**

No right-of-way may be used for vehicular access until the required improvements are accepted by the County Commission, in accordance with the provisions of this chapter.

### **E. Access to Adjoining Land Required**

In instances where proposed development abuts undeveloped land on at least 2 sides, a minimum of 2 street accesses shall be provided to such undeveloped property. This requirement may be waived by the decision-making body in cases where a traffic study conducted by a licensed engineer determines that 1 or more such accesses are impractical due to topography, water courses, or traffic.

### **F. Connecting Streets Required**

Streets in the proposed developments shall connect with existing streets that abut the proposed development.

### **G. Street Trees**

Street trees may be planted by the subdivider on all streets in the subdivision. Such trees, if provided, shall be planted on private property and located at least 5 feet back from the right-of-way line.

### **H. Street Names**

Street names shall conform to the County's 911 Emergency Response standards. Streets that are obviously in alignment with other already existing and named streets shall bear the names of the existing streets in accordance with the County's master street name plan and adopted policies. Street names may be changed by the County Commission after a duly advertised public hearing held to discuss such name change. At least 15 days prior to such hearing, notice of such proposed change shall be published in the official county newspaper and the local newspaper in the area where the change is proposed. After a street name change, notification shall be made to the 911 coordinator, County Assessor, telephone company, post office(s), and other public and quasi-public agencies requiring such information.

### **I. Required Improvements to Existing Roadways**

The improvement of existing roads shall be improved in accordance with the requirements of this Land Development Code. Such regulations apply to all roadways abutting all new and expanded development.

**J. Existing Subdivisions With Unimproved Internal Roadways**

If an existing subdivision has an unimproved road or an improved road that has not been accepted into the County system or is not under an approved 1 year developer maintenance bond, then prior to issuing a building permit for any construction upon any lots within this subdivision, these roads shall be improved to the current County standards.

**K. Bridge Standards**

New or replacement bridge and concrete box culvert construction on all roads in the unincorporated area of Clay County shall be to the MoDOT Standards for Highway Construction, 1999 Edition using the Federal-Aid Highway Off-System Bridge Replacement and Rehabilitation Program specifications and subsequent amendments and/or revisions thereto. Minimum standards are:

1. H S-20 load design
2. Traffic lane deck width 12 feet per traffic lane
3. Equipped with safety guide rails
4. Designed to the 50 year flood level minimum in the Rural Density Development Zone, the 50 year flood level minimum in the Low Density Development Zone, and the 100 year flood level minimum in the Urban Density Development Zone, or as determined by the U.S. Army Corps of Engineers.

All new bridges and box culverts will meet these standards and minimums regardless of the source of funding.

**L. Bridge Responsibilities**

Bridges of primary benefit to the subdivider shall be constructed at the full expense of the subdivider without reimbursement from the County. The sharing expense for the construction of bridges not of primary benefit to the subdivider may be established by special agreement between the County Commission and the subdivider. Such costs shall be charged to the developer pro rata as the percentage of his land developed and so served. Determination of benefit to the subdivider shall be made at the time of preliminary plat between the subdivider and Highway Administrator. Final approval of benefit and any special agreements shall be made by the County Commission and recorded with the Recorder of Deeds Office.

**M. Requirement of Final Platting**

No roadway improvements shall be constructed nor shall any work preliminary thereto be done until such time as a final plat and the engineering drawings accompanying it shall have been approved and there shall have been compliance with all of the requirements relating to financial guarantee, as specified in these regulations.

**N. Acceptance of Improvements**

No roadway improvements shall be accepted into, or recommended for acceptance into the County Highway Road System until after the 1-year maintenance period by the contractor and/or developer has been successfully completed and approved by the County Highway Administrator. Ten days prior to the conclusion of the 1-year maintenance period by the contractor and/or developer, a written request shall be submitted to the County Highway Administrator for the streets, roads or subdivision improvements to be accepted into the County Road System. Upon receipt of this written request, the County Highway Administrator shall mail a standard form to the contractor and/or developer, to be signed and notarized by the contractor and/or developer, and returned promptly to the County Highway Administrator. Upon determination by the Highway Administrator that all street specifications and standards have been met by the contractor and/or developer, the Highway Administrator shall promptly recommend to the County Commission the acceptance of the particular streets, roads or subdivision improvements into the County road system.

## 151-8.9 Water Supply and Fire Protection

- A. Unless otherwise expressly exempted, all proposed development shall be connected to an approved water system that meets the following minimum requirements:

Improvement		Development Zone		
		Rural	Low	Urban
Minimum Line Size (diameter in inches)		6	6	8
Maximum Distance from Fire Hydrant to Structure (ft.)		2,400	1,200	600
Fire Flow (gallons per minute)	Building Separation >100 ft.		250	
	Building Separation 31-99 ft.		500	
	Building Separation 11-30 ft.		750	
	Building Separation <11 ft.		[1]	

[1] Fire flow for buildings closer than 11 feet shall comply with applicable fire safety codes.

### B. Exemptions

Exemptions from the standards of Sec. 151-8.9-A may be approved only in the following 2 instances. As a condition of any approved exemption, the property owner shall sign a notarized statement that they will connect within 90 days to a public water supply district or other approved water source when service becomes available within 200 feet of the property. This agreement and connection requirement shall be noted on all Preliminary and Final plats.

1. Single dwelling units located on parcels with a minimum area of at least 10 acres in the Rural Density Development Zone and accessory farm buildings shall be exempt from the minimum standards of Sec. 151-8.9-A.
2. Decision-making bodies may approve subdivisions that do not comply with the standards of Sec. 151-8.9-A if both of the following conditions are met:
  - a. The applicable water supplier has reviewed the proposed development and stated in writing that it has budgeted improvements to provide water supplies consistent with the standards in Sec. 151-8.9-A within 2 years, or that there is no feasible way to meet the water supply standards within 5 years; and,
  - b. The decision-making body determines that the proposed development:
    - i. will be adequately served for normal water demands;
    - ii. will not reduce system water pressures or supplies so as to create a hazard to the public health or safety within other development served by the water system;
    - iii. will not pose a threat to life or property within or adjacent to the proposed development due to inadequate fire protection; and
    - iv. will not impede the logical extension of services to serve growth in the county in accordance with the *Comprehensive Plan*.

In acting on exemptions pursuant to the preceding paragraph, the decision making body shall give due consideration to any recommendation submitted by the applicable fire district. The fire district shall be authorized to recommend, and the decision-making body shall be authorized to approve alternative strategies for providing fire protection to the subject development.

**C. Technical Specifications**

All water supply systems shall be designed and constructed to meet APWA and AWWA standards or other standard adopted by the water supplier. Written authorization from the water supplier shall be required prior to approval of any system which does not meet these standards.

**D. Off-Site Water Improvements**

The developer of a parcel shall provide for on-site and off-site improvements required to adequately serve a proposed development, provided that the decision-making body may authorize development to proceed if the water provider certifies that the necessary capital improvements have been funded for construction within 18 months.

**E. Approved Supply Required**

In no event shall a certificate of occupancy be granted prior to connection to an approved water supply that meets all applicable state standards. The decision-making body shall be authorized to require that a licensed engineer, registered in the State of Missouri, certify that the water system serving the development will be adequate to meet all state requirements and the standards of this Land Development Code without adversely affecting service to existing dwelling units.

**F. Water System Construction**

Public water services, including rural water districts, shall be used whenever available. Lines shall be installed to form a closed service loop wherever possible.

**G. Water Meters**

Water meters shall be connected to every lot within a subdivision.

**H. Well Water**

Well water for residential or commercial use may be approved only under unusual circumstances, as determined by the Planning and Zoning Commission, Clay County Commission and approved by the MO Department of Natural Resources.

## **151-8.10 Wastewater Systems**

It is the intent of the *Comprehensive Plan* to protect the natural environment of Clay County and provide for densities that would support common sanitary sewer systems either from existing municipalities, a regional sewer district, or private provider. The *Comprehensive Plan's* adopted growth strategy (Development Zones) is based largely on these goals. Provisions set forth herein shall govern the provision of sanitary sewer service in the county.

**A. General Standards**

Sanitary sewer disposal connections shall be required of all properties and uses in the County according to the following general standards:

**1. Rural Density Development Zone**

Sanitary sewer service may be provided by on-site disposal methods (septic systems) approved by the County Health Department with the exception that lots less than 10 acres in size in the Smithville Lake Drainage Basin should be connected to a central sanitary sewer system.

**2. Low Density Development Zone**

Sanitary sewer service may be provided by on-site disposal methods (septic systems) approved by the County Health Department with the exception that lots less than 10 acres in size in the Smithville Lake Drainage Basin should be connected to a central sanitary sewer system. Additionally, if any lot of the subdivision lies within 1,000 feet and within the same service basin of a central sanitary sewer system with capacity to serve the subdivision, then on-site disposal systems will be prohibited and connection to the central system will be required.

**3. Urban Density Development Zone**

Sanitary sewer service will be provided through use of, or connection to, a central

sanitary sewer system except for residences on lots zoned AG, R-1, and R-1A unless such lots lie within 1,000 feet and within the same service basin of a central sanitary sewer system with capacity to serve the lots. In that case, on-site disposal systems will be prohibited and connection to the central system will be required.

**B. Service and Ownership Requirement**

The subdivider shall be required to install sanitary sewer facilities, or individual sewage disposal systems, designed in accordance with the rules, regulations and standards of the Missouri Clean Water Commission and the Missouri Department of Natural Resources. Installation of a central sanitary sewer system that is not connected to a municipal or other public authority treatment plant shall require the dedication of the treatment facility to a utility agency approved by the County Commission. This provision shall not be interpreted as allowing the County Commission to approve control of a treatment facility by a property owners' association.

**C. Connection Requirement**

Sewage from a building or premises shall be discharged directly into the community or county sewage system when the system is available within 200 feet (or other applicable requirement) from the building or premises measured along a street, alley, or easement to the encasement of the sewer system. Abandoned or disconnected septic tanks or pits shall be pumped out and filled with clean earth or sand, in accordance with State and County regulations.

**D. Adjoining Properties Service Requirement**

Where a development is proposed to have a central sanitary sewer system and is adjacent to an undeveloped tract of land, the proposed sanitary sewer system should be extended to the exterior boundary lines of the proposed development so as to provide for future connection to the adjacent tract of land.

**E. Performance Standards for Smithville Lake**

All wastewater which is released within the Smithville Lake Drainage Basin, as indicated in the adopted Clay County *Comprehensive Plan*, shall be treated so as to contain no more than 20 milligrams per liter of suspended solids or be rated higher than having a biological oxygen demand (B.O.D.) of 20 milligrams per liter at the point it is discharged immediately after treatment. All sewage system effluent discharge shall be disinfected in accordance with Clay County Health Department standards. The Clay County Health Department shall be responsible for determining whether proposed treatment facilities comply with the standards of this paragraph.

## **151-8.11 Other Utilities**

**A. Electrical and Communication Lines**

All telephone, cable television, electrical service and distribution lines shall be placed underground, except that this provision shall not include meters, service pedestals, transformers, three phase feeder lines, subtransmission and transmission lines (34.5KV and above), electrical substations, and other such facilities as the utility may deem necessary to install utilizing overhead type construction.

**B. Gas Meters**

All gas meters must be located within 3 feet of the building foundation, and located within front yards in all subdivisions.

**C. Water Towers**

All private or public water towers will require a review and building permits from the Clay County Building Official.

**D. Blasting Permits**

Any entity desiring to use blasting materials in their construction process must notify the Planning and Zoning Department, Building Official, County Sheriff, and all residents located within 1,000 feet of the blasting area at least 24 hours in advance of the blasting.

## 151-8.12 Stormwater Management

- A. Stormwater management is a requirement of all development within Clay County. New development is required to be responsible for potential runoff onto and off of his property. Specific requirements are noted in the “Technical Specifications and Design Criteria Manual” and “Drainage Easements” Sec. 151-11.
- B. When required by the Planning and Zoning Commission, two copies of the final stormwater plan shall be submitted to the Planning and Zoning Department for review by the County’s engineer, or designee, and one copy to the Clay County Highway Department. Appropriate plan review and inspection fees will be paid at the time of submitting the plans.
- C. **Criteria for stormwater plans shall include:**

Methodology of analysis – In developments where the area contributing runoff is one hundred (100) acres or less, the Rational Method of calculating the quantity of runoff shall be utilized. Development where the area contributing runoff exceeds one hundred (100) acres shall be designed using the unit hydrograph method (SCS) or other methodologies approved by the County Engineer.

- 1. **Criteria for drainage system** – Property adjacent to the study area which is undeveloped shall be considered as fully developed in accordance with the most probable anticipated future land use. In areas where this cannot be adequately projected, the average runoff coefficient to be used shall not be less than 0.65 for use in the Rational Method or an appropriate equivalent value as approved by the County Engineer for any other method.
- 2. **Roadways** – The primary function of roadways within a development shall be for the conveyance of traffic. The use of streets as a storm runoff facility shall be restricted to the requirements established and set forth in these design criteria.
- 3. **Onsite or on stream detention and natural drainage ways** – are recommended and encouraged where feasible.
- 4. **Minimum Standards of Design**
  - a. **Enclosed Systems** – Enclosed systems consisting of underground pipes, culverts, and similar functional underground structures shall be used to convey storm water at all locations:
    - i. Where the design peak discharge of a 10 year return period storm is equal to or less than the capacity of a seventy-2 inch diameter round pipe having a Manning’s “n” of .013.
    - ii. Within the right-of-way of improved streets, regardless of system design capacity.
    - iii. Within 60 feet of any existing or proposed habitable building, regardless of system design capacity.
    - iv. Where the design peak discharge of a 10 year return period storm equals or exceeds 8 c.f.s . and the collected drainage is generated from more than 1 lot.
  - b. **Open Systems** – Open systems consisting of natural and/or improved open channels with intermittent culverts or bridges crossing streets and other surfaced areas may be used to convey storm water at all locations where the use of an enclosed system is not required by the foregoing criteria.

c. **Overflow Systems** – Ease conveyance element of the storm water drainage system shall include an overflow system having sufficient hydraulic capacity when combined with the capacity of the conveyance elements to convey the peak discharge generated by 100 year return period storm without damage to land or buildings, as defined as follows:

- i. **One hundred (100) year stage**; plus 1 foot freeboard, at an elevation equal to or greater than the lowest elevation at which water may enter any proposed or existing building or structure.
- ii. **Design Storm Frequencies** – Enclosed and open channel conveyance system components shall be designed for the following return period storms, irrespective of the land use in which the system is located or the land use in the drainage area tributary to the system:

iii. **In-System Capacity:**

Floodway in 100 year Flood Plain	100 year
Bridges, Pipes, and Culverts (any crossing of and/or under roads)	50 year
All other system components	10 year

iv. **Overflow Channels:**

The combined capacity of the overflow channel and in system conveyance element shall be sufficient to convey the 100 year storm at all locations.

v. **Runoff Computation** – The Rational Method of calculation storm water quantities,  $Q = KCIA$ , shall be used with the following definitions of terms and arbitrary values:

- "Q" is the quantity of runoff in cubic feet per second and is the basis for design of the storm drainage system.
- "K" is a dimension less coefficient to account for antecedent precipitation.
- "C" is the weighted coefficient of runoff from the tributary area and shall have the following values where applicable:
- "I" is intensity of rainfall in inches per hour and shall be determined for the yearly frequency stipulated previously and as derived from the intensity duration curves included as part of this criteria.

D. All construction improvements shall be guaranteed in the same manner as street improvements.

Also see Technical Specifications and Design Criteria Manual and "Drainage Easements," Sec. 151-8.15B, and Sec. 151-11.

## **151-8.13 Dams and Water Impoundment Structures**

### **A. New Dams**

New dams and water impoundment structures shall comply with the standards of Sec. 151-11.1B.

### **B. Existing Dams**

#### **1. Within Minor Subdivisions**

All dams and ponds within a minor subdivision (3 or fewer lots) must be inspected by the Clay County Soil and Conservation District (for lots 20 acres or more) or a registered engineer to insure stability.

#### **2. Within Major Subdivisions**

An engineering report shall be submitted to the county with the Preliminary Plat on all existing dams within a proposed major subdivision (4 or more lots). Any dam found to be structurally unsafe or inadequate to accommodate the proposed development shall be reconstructed, reinforced or removed in accordance with all applicable standards, including those of Sec. 151-11.1.

## **151-8.14 Street Signs and Traffic Markers**

The subdivider shall install street signs and other traffic control devices at all intersections within the subdivision. Such signs shall meet the size and design standards established by the Missouri Department of Transportation or by the Clay County Highway Department

## **151-8.15 Easements**

### **A. Utility Easements**

Where alleys are not provided, permanent easements shall be provided of not less than 7 ½ feet in width on each side of all rear and side lot lines, for utility poles, wires, conduits, underground conductors, storm and sanitary sewers, gas, water and heat mains, and other public utilities and a maximum of 30 feet along all front lot lines. These easements shall provide for a continuous right-of-way. Where the utility company or agency has the need for a wider easement than required above for a specific location, this easement shall be shown on the plat. Permanent easements shall not be obstructed by structures, retaining walls, ponds or trees. A property owner may install fences and landscape over the easement with grass and shrubs at their own risk. Property owners shall be responsible for the maintenance on their property.

### **B. Drainage Easements**

If a subdivision is traversed by a watercourse, drainage way or channel, the decision-making body shall be authorized to require the provision of drainage easements or no-build zones to protect such watercourses. Required easements and no-build zones shall be of such width or construction, or both, as may be necessary to provide adequate storm water drainage for a 100-year storm and for access for maintenance thereof. Parallel streets or parkways may be required in connection therewith. The subdivider shall have an engineer's study prepared for review as part of the plat process. The study shall address the required width of easements for each watercourse or drainage way that contains flowing water for more than 90 days per year. Such study shall be based on a 100-year storm, using build-out assumptions derived from the *Comprehensive Plan*. Wherever possible, drainage ways should remain open, unpaved and maintained so as not to become overgrown.

### **C. Landscape Easements**

Landscape easements or buffer strips may be required by the Planning and Zoning Commission wherever the proposed subdivision contains or is adjacent to a railroad right-of-way or limited access highway, or where lots back onto a public street. When in residential districts, landscape easements should be at least 50 feet in depth, in addition to the normal required lot depth when

provided adjacent to the railroad right-of-way or limited access highway. Landscape easements shall be a part of the platted lots and shall have the following restriction letter on the face of the plat: "This strip reserved for the planting and maintenance of trees or shrubs by the owner; the building of structures hereon is prohibited".

**D. Topographic Preservation Easements**

If greenways or drainage ways influenced by topographical features such as streams or ponds, ravines, wooded areas or other natural features are to be provided within the proposed plat, their width and location shall be determined as may be necessary to preserve such features.

**E. Stream Setback Easements**

Any development adjacent to an existing stream shall be set back 100 feet from the center of the stream. (See Sec. 151-11.2C)

**F. Trail Easements**

See Chapter 151-8.17.

### ***151-8.16 Monuments***

Permanent surveyor monuments shall be placed at all lot and block corners, angle points, points of curves in streets, and at intermediate points as required prior to final acceptance by the County. Such permanent monuments shall be 3/4-inch iron bars with aluminum caps, at least 2 feet in length, and shall be set with top of the monument flush with existing grade. Such monuments shall be installed in accordance with minimum standards as established by the Missouri Department of Natural Resources.

### ***151-8.17 Parks and Trail Land Dedications***

In accordance with the intent of the Northland Trails Plan adopted on September 4, 2001 by the Clay County Planning and Zoning Commission, it is a requirement of subdivision of property in the County for residential and non-residential purposes in the County.

**A. General Requirements**

Whenever a proposed subdivision includes designated trail system locations, or is located adjacent to such designated trails, and shown on the approved Northland Trails Plan, the dedication of such land or an appropriate easement over such land shall be required as a condition of plat approval, unless otherwise waived as provided herein. Such dedication or easement shall be consistent with the standards of the Northland Trails Plan and as established within this Ordinance, and shall be granted by the subdivider without any charge to the County. Such dedication or easement shall be designed with the intent and ability to connect to or supplement the Northland Trails System at some future date.

**B. Requirements of Platting**

As a condition of Preliminary Plat approval, the trail easement/dedication shall be shown on the Preliminary Plat. For Final Plat approval the subdivider shall dedicate land or designate an easement for trail, transportation, and recreational purposes consistent with the approved preliminary plat and according to the standards contained in this Section and Sec. 151-3.6.

**C. Dedication of Land**

**1. Standards for Dedication of Land**

Where the planning director, in consultation with the highway and parks directors, has determined that a public trails system is planned to be located in whole or in part within the proposed subdivision, the subdivider of the proposed subdivision shall convey sufficient land or land interests by plat or deed for trails to meet that need, as specified in this Section, the Comprehensive Plan and the Northland Trails Plan. The quality and quantity of property required to be conveyed shall be based on the standards for the trails system as established in the Northland Trails Plan.

The evaluative process will occur during the review of applications for preliminary plat approval. Diversity and originality in lot layout and property dedication should be encouraged to achieve the best possible relationship between development and conservation/recreation areas.

2. **Suitability of Land**

Land to be dedicated for trails shall be suitable for a community trails system consistent with the Comprehensive Plan and the Northland Trails Plan. While efforts shall be made to accept and utilize land that is otherwise protected or not feasible for development (e.g., located in a riparian corridor, unusual topography, or in protected wildlife habitat), the location, accessibility, size, topography, environmental characteristics, and development potential for the intended trails shall be considered. At a minimum, consideration shall be given to the following factors in determining the suitability of land for trails:

a. **Location**

Land to be dedicated should be located along a trail route designated in the Northland Trail Plan or, if that location is not practicable, in close proximity to the designated route with a direct connection to the designated trail route.

b. **Characteristics**

The land to be dedicated should:

- 1) be of sufficient shape, size, and overall quality to allow for any approved amenities (e.g., trailside exercise facilities, drinking fountains, benches) to be provided and for other physical features necessary to provide access;
- 2) not have unusual topography that renders the land unusable for the intended recreational purposes;
- 3) preserve existing trees, scenic elements, and other aesthetic features;
- 4) protect and preserve floodplains, wetlands, and steep slopes;
- 5) preserve and maintain mature woodlands, existing fields, pastures, meadows, prairies, and other natural features;
- 6) be designed around existing tree lines, hedgerows, between fields or meadows, and minimize impacts on large woodlands;
- 7) protect wildlife habitat areas;
- 8) be designed around and preserve sites of historic, archaeological, or cultural value;
- 9) provide active recreational areas;
- 10) offer adequate screening from nearby residential or non-residential development;
- 11) facilitate pedestrian access within neighborhoods, to and from adjoining neighborhoods, schools and other public uses.

3. **Plat Note Requirements**

In order to dedicate land interests, there shall be a statement on the final plat, which says the following:

a. **Easement Note**

*“A recreational easement consistent with the Northland Trails design guidelines shall be granted to Clay County for the purpose of developing part of trail \_\_\_\_\_ of the Northland Trails Plan along the \_\_\_\_\_.”*

b. **Dedication Statement**

*“...over, under and along the strips of land designated utility easement (U.E.) and a Northland Trails dedication/easement.”*

4. **Waiver**

The County, through an application to the Board of Zoning Adjustment, may waive the requirement to dedicate land interests for the Northland Trails System based on the subdivider's ability to demonstrate that the dedication is not lawfully justified because of a lack of requisite reasonable relationship, unique site circumstances, undue hardship, or other circumstances warranting a waiver. Any decision by the County rejecting a waiver must be appealed within thirty (30) days of the review by filing a written petition with the Circuit Court of Clay County. The County may also waive the dedication provisions of this section on its own initiative such as where there is no suitable or acceptable land within the subdivision to which the County, in the public interest, is willing to accept dedication.

## **151-8.18 Subdivision Guarantees**

Two types of subdivision guarantees are established for the purpose of assuring proper, safe and timely installation and maintenance of required subdivision improvements: (1) performance guarantees and (2) maintenance guarantees. Subdivision guarantees shall be required for all subdivisions, except for those with no engineered improvements.

### **A. General Requirements**

All restoration, performance and maintenance guarantees shall be prepared in a format acceptable to the County and shall be submitted to the Highway Administrator. The Treasurer of Clay County shall be the beneficiary of all subdivision guarantees. Upon acceptance of a subdivision guarantee, the Highway Administrator shall deposit the guarantee with the County Clerk or, in the case of a cash bond, may place it in an account with the County Treasurer. The following forms of subdivision guarantees may be used for required restoration, performance and maintenance guarantees.

1. **Cash Bond**

A Cash Bond is an acceptable form of subdivision guarantee. The bond shall be made payable to “Treasurer, County of Clay.” Cash Bonds may be provided in the form of a cashier's check, bank draft, certified check or bank money order. A Certificate of Deposit is not an acceptable form of guarantee.

2. **Irrevocable Letter of Credit**

An Irrevocable Letter of Credit is an acceptable form of subdivision guarantee provided the form and content of the documents are found acceptable to the County.

### **B. Performance Guarantees**

1. **Purpose**

Performance guarantees are established for the purpose of assuring that the developer properly installs all proposed subdivision improvements in accordance with the approved Construction Plans and Final Plat for the subdivision. Should the developer fail to properly install all subdivision improvements within the term of the guarantee, the county

may draw on the guarantee and use the funds to complete subdivision improvements.

The county also may draw on the performance guarantee if the developer fails to provide a maintenance guarantee to the county. The county may use the funds to ensure proper maintenance of subdivision improvements.

2. **Amount**

The amount of the performance guarantee shall be 100 percent of the engineer's estimate of the probable cost of subdivision improvements, as approved during the review of Construction Plans.

3. **Term**

The performance guarantee shall be posted as a prerequisite to recordation of the Final Plat. The guarantee shall be posted for a minimum 2-year period. However, should the end of the 2-year period fall between December 1 and June 14, the guarantee shall expire the first business day after June 14. The Highway Administrator, for good cause and with the approval of the provider of the guarantee, may extend the term for not more than 1 year.

4. **Release of Development Improvement Agreement and Guarantee**

The county's final acceptance of improvements will follow the receipt of signatures of all entities accepting the constructed improvements and documentation showing that the developer owns the improvements in fee simple and that there are no liens or encumbrances on the improvements. The county will then execute a resolution accepting the improvements and releasing the developer from the performance guarantee, after which the developer shall record such release.

**C. Maintenance Guarantees**

1. **Purpose**

Maintenance guarantees may be required by the County Commission for the purpose of assuring that the developer maintains the structure, function and integrity of subdivision improvements in accordance with the approved Construction Plans and specifications for the subdivision during the term of the guarantee. In the event the developer has failed to maintain subdivision improvements within the term of the guarantee, the county may draw on such guarantees and use the funds to correct the deficiencies.

Furthermore, if at any time during the term of the maintenance guarantee the county identifies that the developer's failure to maintain subdivision improvements has created a clear threat to the public's health, safety and/or general welfare, the county may, after appropriate notice and demand requirements, draw on the maintenance guarantee and use the funds to correct the identified threat.

2. **Amount**

The amount of the maintenance guarantee shall be determined by the County Commission. Generally, the maintenance guarantee shall be 15 percent of the engineer's estimate of the probable cost of subdivision improvements, as approved during the review of Construction Plans. The County Commission may waive the requirement for a maintenance guarantee when it finds that the guarantee is not necessary.

3. **Term**

The maintenance guarantee shall be posted as a prerequisite to the release of the performance guarantee, unless waived by the Highway Administrator. The guarantee shall be posted for a period of 1 to 3 years, as deemed necessary by the Highway Administrator. The Highway Administrator, for good cause and with the approval of the provider of the guarantee, may extend the term not to exceed the total maintenance period to more than 3 years.

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