

**DESIGN CRITERIA FOR
STREET IMPROVEMENTS**

- A. GENERAL. Proposed street improvements within the City shall conform to the pattern established in the Major Street Plan as adopted by the City of Liberty.

Street improvements shall be designed to conform to applicable codes, regulations, ordinances, and the provisions set forth in these criteria as established by the City of Liberty. Plans for said improvements shall be submitted to the City Engineer for approval and shall include all information as may be required or described hereinafter.

- B. FUNCTIONAL CLASSIFICATION OF STREETS. The classification of streets shall be generally defined as follows:

1. Local Streets. A street designed to provide access to abutting property from collector and arterial streets.
2. Collector/Commercial Streets. Streets, which, in addition to serving abutting properties, intercept local streets, connect with community facilities and carry neighborhood traffic to the arterial street systems. Commercial streets serve areas predominately zoned for commercial or industrial uses. Also, as defined within the City's Major Street Map.
3. Arterial Streets. A street or road of considerable continuity which serves or is intended to serve as principal trafficway between separated areas or districts and which is the main means of access to the collector street system, highways or expressways. Also, as defined within the City's Major Street Map.

- C. STREET DESIGN STANDARDS*.

	ARTERIAL		COLLECTOR	LOCAL
	<u>Major</u>	<u>Minor</u>	<u>2-Lane**</u>	<u>2-Lane</u>
Right-of-Way Width (ft)	120	100	64	54
Street Width (ft)	69' or 76'	62' or 71'	24' or 32'	26'
Median Width(ft)	12' min.	8' min.	As Required	-0-
Minimum Pavement Depth - Asphaltic Concrete (inches)	10.5	10.5	8.5	6.5
Minimum Depth Crushed Aggregate Base (inches)	6	6	6	6
***Design Speed (MPH)	50	35	30-35	25-30
Maximum Grade	6%	6%	8%	10%
Minimum Grade	1%	1%	1%	1%
Curb Return Radius	See Section S	See Section S	See Section S	25'
Minimum Radii Horizontal Curve	1300'	700'	300'	185'

Minimum K Crest Vertical Curve	110-150	60-80	30	20
Minimum K Sag Vertical Curve	90-110 (55 w/lights)	60-70 (35 w/lights)	50 (20 w/lights)	30 14 (w/lights)
Minimum Private Curb Cut Spacing (ft)	350'	One per Property	One per Property	One per Property
Minimum Distance from Intersection of R.O.W. to curb cut (ft.)	250	200	150	25
****Sidewalk width(ft)	See Typical Sections	See Typical Sections	See Typical Sections	5
Parking Permitted	No	No	One Side Only	One Side Only
Storm Sewers	Yes	Yes	Yes	Yes
Curb & Gutter	CG-1	CG-1	CG-1	CG-1
Pavement Markings	Yes	Yes	Yes	No
Turn Lanes	As Warranted/Required	As Warranted/Required	Required (at significant intersections)	Not Required

* Refer to City Ordinances 30-93.3

** Also applicable to commercial streets.

*** Design Speed criteria for horizontal and vertical alignment should meet the requirements of the current edition of "A Policy on Geometric design of Highways and Streets, AASHTO".

**** Both sides of roadway.

- D. OFF-CENTER STREET INTERSECTIONS. Off-center street intersections shall be separated by a minimum centerline to centerline distance of one hundred and fifty feet (150).
- E. INTERSECTION VERTICAL ALIGNMENT. In all cases where a higher functional street intersects with a lower functional street, normal street crown shall be maintained on the higher functional street. Where streets of equal function intersect, street grades shall coincide in the center of the intersection with reduced rideability for both streets, or a warping of the cross slope for both streets. (Design Aid No. 5)
- F. MINIMUM ANGLE OF INTERSECTION. It is desirable for all intersections to meet at approximately a 90 degree angle. Skewed intersections should be avoided, and in no case should the angle be less than 60 degrees.
- G. MAXIMUM GRADIENT. The maximum gradient for streets as noted in Section C may be exceeded only upon written approval of the City Engineer. Such approval will only be granted in unusual cases where grades within the acceptable limits cannot be obtained.
- H. GRADING GRADIENTS. The finished grade within the limits of the right-of-way shall slope from one-quarter (1/4) inch vertical to one (1) foot horizontal minimum, to one-half

(1/2) inch vertical to one (1) foot horizontal maximum measured above the back of the curb. The grading gradients may be varied only upon written approval of the City Engineer.

- I. TANGENT LENGTH. The minimum tangent length between reverse curves shall be fifty (50) feet for local streets and one hundred (100) feet for collector/commercial and arterial streets, except that no tangent will be required for radii longer than five hundred (500) feet.
- J. CONNECTIONS TO EXISTING PAVEMENTS. Where a new street is to connect to an existing street, all deteriorated or cracked asphalt within five (5) feet of the connection point shall be removed to a point where sound material is found. If full-depth pavement removal is required the subgrade will be recompacted to 95% of standard density.
- K. STORM DRAINAGE. All storm drainage works constructed in connection with street improvements shall be designed in accordance with the City of Liberty Design Criteria for Storm Sewers and Appurtenances.
- L. CUL-DE-SACS. At locations where streets are to be terminated and a vehicular connection between adjacent streets is not required a cul-de-sac may be permitted. Such cul-de-sac shall be constructed with a minimum radius of thirty-nine (39) feet to the back of the curb.
- M. TEMPORARY TURN-AROUNDS. At locations where streets are to be temporarily terminated which will be extended at a later date, and said street extends beyond the intersection of an adjacent street more than five (5) lots, a temporary cul-de-sac shall be constructed with a minimum radius of thirty-five (35) feet. The temporary cul-de-sac shall be constructed of asphaltic concrete with a minimum depth of six (6) inches. Curb and gutter will not be required. The cul-de-sac shall be constructed within the limits of a permanent construction easement.
- N. MONUMENT BOXES. Monument boxes conforming to the Standard Drawings shall be installed at all quarter section corners and any other monuments involved in the street construction.
- O. OTHER DESIGN CRITERIA. All other street design elements not contained within this criteria shall be in accordance with the most current edition of "A Policy on Geometric Design of Highways and Streets" authored by the American Association of State Highway and Transportation Officials (AASHTO) or other applicable AASHTO design guides.
- P. DRIVEWAY ELEVATIONS. Driveways shall attain top of curb elevation within the right-of-way. Driveway grades within right-of-way shall be 8% maximum until curb height is reached. Break over grades for crest drives shall be 8% maximum and sag drives shall be 12% maximum. Driveway elevation shall not be more than 6" above or below the normal shoulder elevation at the right-of-way line, to allow for a smooth sidewalk profile.
- Q. DRIVEWAY WIDTHS: Residential driveways shall have a minimum driveway width of 10' and a maximum of 20'. A lot having two (2) driveway access points (i.e. circle drive) must have at least 100' width at the right-of-way line. An existing driveway may be replaced at its existing width.
- R. SIGNAGE. Street name and regulatory traffic signs conforming to the Standard Drawings

shall be furnished and installed at the appropriate locations in connection with the street improvement. All regulatory signage shall be in conformance with MUTCD requirements and shall be approved by the City Engineer.

- S. Curb Return Radius. The minimum curb return radius for local streets shall be as defined within section C of this standard. For Collector and Arterial Streets (minor and major) the minimum curb return radius shall be as determined to be necessary using appropriately selected vehicle turning templates.