

APPENDIX C

City of Poteet, Texas

TRANSPORTATION AND STREET DESIGN

The purpose of this section is to prescribe minimum design standards for streets within new subdivisions, developments requiring site plan approval.

- *Create and adopt urban design guidelines and standards which specifically encourage pedestrian safety and comfort, transit access, street level amenities, and circulation between neighborhood centers.*
- *Consider the use of alternative surface materials to increase durability.*
- *Work with the county to establish design requirements for streets and road construction so that streets have a lifetime expectancy of at least 20 years.*
- *Develop a safe and convenient pedestrian travel network with sidewalks, walkways and trails integrated into the transportation system and neighborhood centers.*
- *Ensure that all new sidewalks comply with city codes, and are designed to be functional and unobstructed, linking neighborhoods, residential areas and neighborhood centers together.*
- *Promote safety on the pedestrian networks by eliminating physical barriers for the movement impaired maximizing visual contact between the network and surrounding areas to promote high activity uses adjacent to the network providing buffers from vehicular traffic, and enhancing signage for pedestrians.*

The city further finds and determines that street layout and design can have a very significant influence on the total imperviousness and hydrology of a site. Alternative road layout can result in a significant reduction in imperviousness, thereby reducing storm water runoff, protecting water quality, and providing cost savings for developers and homebuyers.

1. Applicability

A. Generally.

The provisions of this Division shall apply to:

- (1) Any application for subdivision plat approval.
- (2) Any ministerial permit where required by subsection (2), below.

The owner of any tract of land situated within the corporate limits or the extraterritorial jurisdiction of Poteet who is required to file a plat shall provide street right-of-way dedication as required by this article.

B. Building Permit Requirements.

The construction of standard curbs and sidewalks shall be a condition of the granting of a building permit in each of the following cases:

- (1) A new building or structure when curbing is in place or curb lines are established for a sidewalk.

- (2) The repair or improvement of an existing building or structure when curbing is in place or curb lines are established and the cost of the repair or improvement amounts to twenty-five (25) percent or more of the assessed evaluation of the building/structure as set forth by the city tax roll for the entire lot.
- (3) A new or an additional driveway approach.
- (1) Refer to section (q) for sidewalk standards.

In addition to the above requirement, premises used as motor vehicle service stations or parking lots require the construction of a minimum six (6) inch raised curb or other approved traffic barrier, within the lot, along the entire street frontage except at approved driveway approaches and access walks to prevent vehicular access to the street except at designated driveway(s).

C. Variance

A variance to the requirements of this section may be granted by the City Council if the City Council finds that there are special circumstances or conditions, unique to the land involved, such that strict application of these requirements would be unreasonable and the granting of the variance would not be detrimental to the public health, safety, or welfare. Application for a variance shall be submitted in writing to the City Administrator accompanied by the variance fee specified in Exhibit C to this chapter and an eight and one-half by eleven (8 1/2 X 11) inch site plan indicating the location of the variance request and the location of existing sidewalks and curbs within a two thousand (2,000) foot radius.

2. Improvements Required

A. All street grading and base construction shall be in accordance with approved plans. Streets shall be completed consistent with the approved construction plans. County street cross section and design may be used in the ETJ when the density is less than 2 units per acre.

B. Street Layout

The arrangement, character, extent, width, grade and location of all streets shall be considered in their relation to existing and planned streets, to topographical conditions, to public safety and convenience, and in their appropriate relation to the proposed uses of the land to be served by such streets. The street layout shall be devised for the most advantageous development of the entire neighborhood development.

C. Standard Street Cross Sections

The subdivider shall develop the streets for the subdivision in accordance with the minimum standards in Section (d) following.

3. Classification

4. Cross-Section and Construction Standards

A. Interior Streets

The subdivider shall dedicate all interior streets within the subdivision based upon the following Table C-1.

TABLE C-1

Conventional street Design Standards Street Type	Alley	Residential	Collector¹	Major Thoroughfare
R.O.W. (min.)⁵	24'	60'	80'	100'
Pavement Width⁵	18-24'	30'	42'	60'
Grade (max.)³	12%	12%	7%	5%
Grade (min.)⁴	0.5%	0.5%	0.5%	0.5%
“K” Crest Curve	NR	30	55	70
“K” Sag Curve	NR	35	55	60
Centerline Radius (min.)	50'	150'	400'	1200'
Stopping Sight Distance	75'	110'	200'	300'
Curb	No	Yes	Yes	Yes
Median	NR	NR	NR	14' min.
Sidewalk Width	No	4' ⁶	4 ⁶ /6' ⁷	4 ⁶ /6' ⁷

Notes and Rules of Interpretation:

NR designates the item is « not required »

Table C-1 is required for conventional option subdivisions (see § 35-202) or subdivisions not subject to Table 506-4, below).

¹ For collector right-of-ways designated on the Major Thru Plan, the required right-of-way will be a minimum of 80' with 86' at the intersections as determined by the City Engineer or Director of Public Works

² For major thoroughfares the required right-of-way will be a minimum of 100' with 120' at the intersections as determined by the City Engineer or Director of Public Works.

³ See Figure C-2

⁴ 0.4% Optional with concrete curb and gutter.

⁵ Right-of-Way and pavement width requirements in established neighborhoods can be waived by the Director of Public Works or City Administrator as required on capital improvement projects

⁶ Sidewalks shall be 4 foot in width with a planting strip.

⁷ Sidewalks shall be 4 foot in width with a planting strip or 6 foot in width without a planting strip.

This diagram below provides the minimum turning radius for a pumper truck. The minimum inside radius is 25' and the minimum outside radius is 50'.

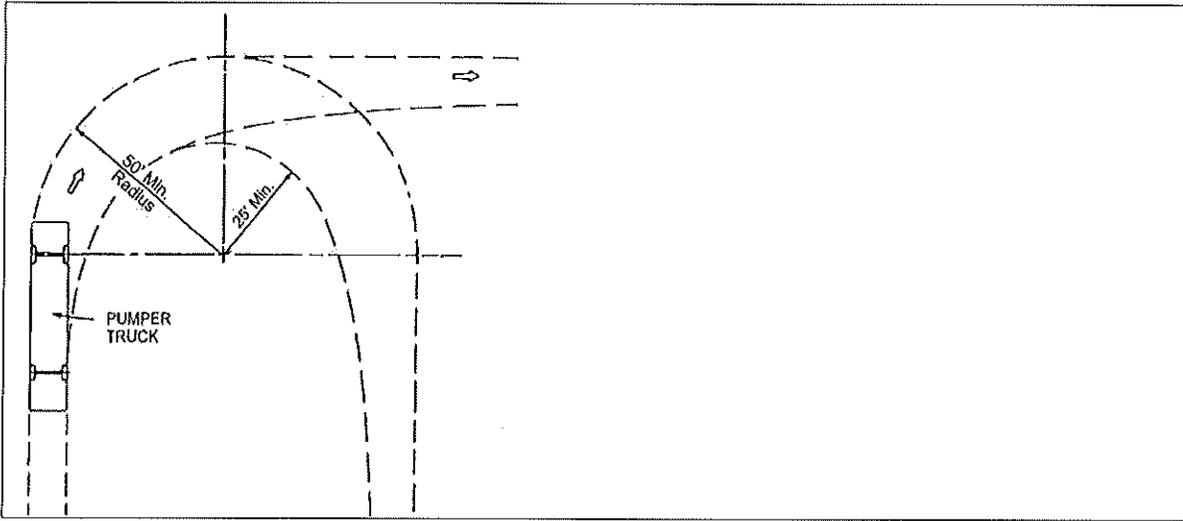
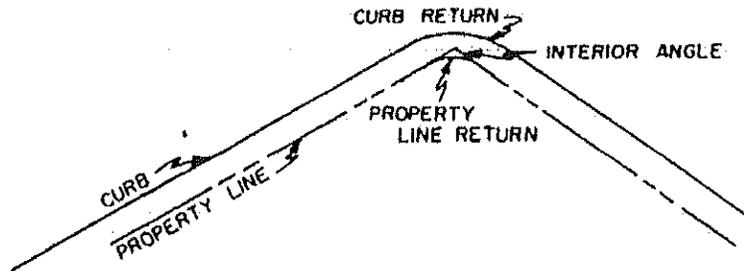


Figure C-1
Turning Radius Design

Table C-4B
Curb Return and Property Line Table

Minimum radii for Curb (Corner) Returns (CR) and Property Line Returns (PLR)

Interior Angles in Degrees	Residential w/ Residential		Residential "A" w/ Local "B"		Local "B" w/ Collector		Collector w/ Collector		Collector w/ Throughfare	
	CR	PLR	CR	PLR	CR	PLR	CR	PLR	CR	PLR
120-106	15'	5'	20'	10'	25'	15'	25'	15'	25'	15'
105-91	15'	5'	20'	10'	25'	15'	25'	15'	25'	15'
90	15'	5'	20'	10'	25'	15'	25'	15'	25'	15'
89-76	20'	10'	25'	15'	30'	20'	30'	20'	30'	20'
75-60	25'	15'	30'	20'	35'	25'	35'	25'	35'	25'



Notes:

- (1) Intersections with interior angles greater than 120 degrees or less than 60 degrees not permitted.
- (2) Property Line Return may be simple curve tangent to right-of-way lines or cut-off measured from PI of intersecting right-of-way lines.
- (3) Street intersections with arterial streets may require additional turn lanes and/or turning islands, resulting in CR and PLR values that would be customized for the intersection design.
- (4) Major Through fare streets shall intersect at continuous centerline extensions and not offset from each other.
- (5) Minimum curb radii for a commercial driveway is 10 feet.
- (6) Minimum curb radii for a residential driveway is 5 feet.

B. Vertical Curvature.

A gradual transition from one roadway grade to another shall be accomplished by means of a vertical parallel curve connecting two (2) intersecting tangents. No vertical curve for gradients having an algebraic difference of 1.5 or less will be required. The minimum length of vertical curve shall be computed from the following formula and table:

$$L = KA$$

Where: L = the length of vertical curve in feet
 K = a constant related to sight distance and geometry of a parabolic curve (see Tables C-3 and C-4)
 A = the algebraic difference in grades in percent

C. Grade.

- (1) Street and alley grades shall conform to the terrain and shall not exceed the values prescribed in Tables D-3 and D-4, above. No street or alley grade shall be less than five-tenths of one percent (0.005) or four-tenth of one percent (0.004) if concrete curb and gutter is provided, unless otherwise specified by the Director of Public Works or City Engineer. The minimum cross-slope of a road shall be 2% and the maximum shall be 4%.
- (2) Grades between 12% and 15% can be negotiated by the fire equipment depending upon the length of such grades, and the approach conditions below these grades. The restrictions on using grades between 12% and 15% are contained in Figure C-2.
- (3) The design engineer should also note that the maximum grades may also be restricted by drainage considerations. Streets used as drains have maximum flow velocities assigned to control erosion of the pavement (see Table C-6).

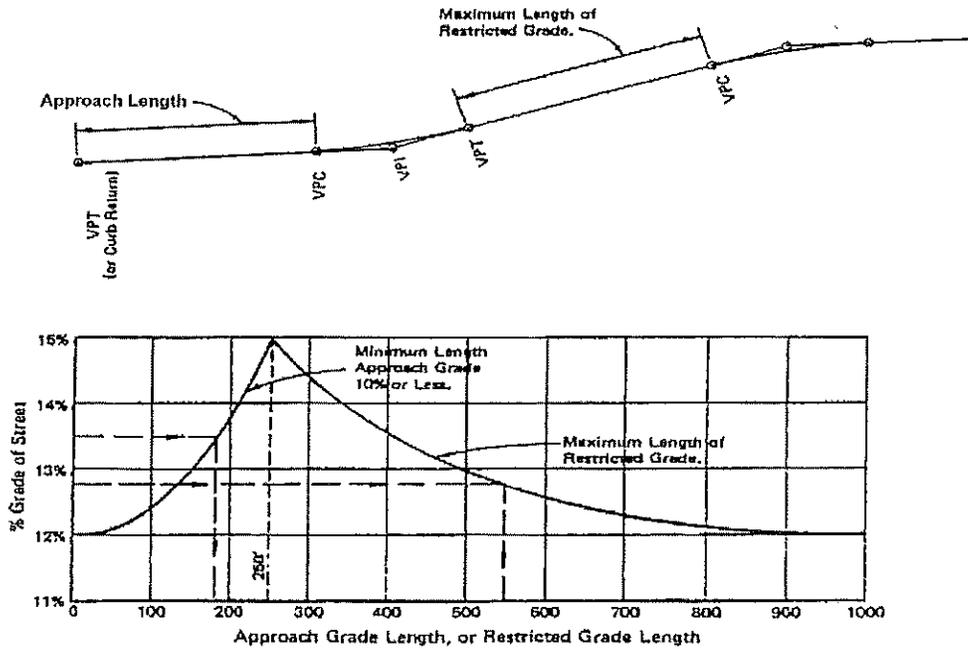


Figure C-2

D. Intersection Sight Distance.

To ensure safety of motorists and other travelers, it is necessary that drivers who are entering an intersection have an adequate view of approaching motorists. This view is required over a clear vision area, which is a right triangle where one side is called "intersection sight distance" and the adjacent side is the distance between the driver and the path of the vehicles approaching from the side. The clear vision area is that portion of a property over which motorists must see to safely judge and execute a driving maneuver into the intersection and onto the street. This applies to intersections of two or more streets as well as junctions of driveways and streets. Clear vision areas must be free of visual obstructions, e.g. structures, walls, fences, and vegetation, which are higher than three feet and lower than eight feet above the pavement. The American Association of State Highway & Transportation Officials (AASHTO) Policy on Geometric Design of Highways and streets, or latest revision thereof determines this length of the required intersection sight distance.

E. Cul-de-sac Streets.

The following criteria shall be used for cul-de-sac street design and fire hydrant layout:

- (1) For cul-de-sac streets less than or equal to 500 feet in total length, the following is required:
 - a. Turnaround right-of-way shall be not less than one hundred (100) feet in diameter in residential areas and not less than one hundred fifty (150) feet in diameter in commercial and industrial areas.

- b. Turnaround shall include at least twenty-five (25) feet of paved driving surface with a minimum exterior radius of forty (40) feet for residential areas and sixty (60) feet for commercial and industrial areas.
 - c. The interior of the turnaround may be landscaped or paved. A maximum radius of fifteen (15) feet will be allowed for landscaping purposes.
 - d. Temporary turnarounds are to be used at the end of a street more than four hundred (400) feet long that will be extended in the future. The following note should be placed on the plat: "Cross-hatched" area is temporary easement for turn around until street is extended (direction) in a recorded plat.
- (2) For cul-de-sac streets in residential subdivisions greater than 500 feet and less than or equal to 1000 feet in total length, the following is required:
- a. Pavement width for the entire length of the cul-de-sac street shall be a minimum of 30 feet, regardless of the type of residential subdivision.
 - b. Turnaround right-of-way shall be not less than one hundred twenty (120) feet in diameter.
 - c. Turnaround roadway shall have a minimum exterior radius of fifty (50) feet. The entire interior of the turnaround must be paved with no island.
- (3) Cul-de-sac streets over one thousand (1000) feet in length may be permitted subject to approval by the Engineer after consultation with the fire chief or his designee. No such approval shall be granted unless the City Engineer and Director of Public Works find the following:
- a. The cul-de-sac length, layout and topography will not impede safe access and egress by emergency vehicles including fire trucks and emergency medical services
 - b. A longer cul-de-sac street is needed because of unique topographical conditions such as steep slopes, wetlands, streams, or similar conditions and an alternative design would not more effectively accommodate said conditions.
- (4) Fire hydrant installation. Fire hydrants located in cul-de-sacs within residential subdivisions shall be located within 500 feet of every building site. In every case a fire hydrant shall be installed on the cul-de-sac, not more than twenty (20) feet and not less than ten (10) feet from the intersecting street. For cu-de-sac distances greater than 500 feet but less than or equal to 700 feet, a minimum of two fire hydrants shall be installed. One fire hydrant shall be installed on the Cul-de-sac, not more than twenty (20) feet and not less than ten (10) feet from the intersecting street, and the other at the mouth of the cul-de-sac not more than ten (10) feet before the beginning of the turnaround. For cul-de-sac distances greater than 700 feet but less than or equal to 1000 feet, a minimum of three fire hydrants shall be installed. One fire hydrant shall be installed on the cul-de-sac, not more than twenty (20) feet and not less than ten (10) feet from the intersecting street. A second fire hydrant shall be placed at the mouth of the cul-de-sac not more than ten (10) feet before the beginning of the turnaround. The third fire hydrant shall be installed as close as possible at the midpoint between the other two. Refer to the Figure 506-3 below regarding fire hydrant locations on cul-de-sacs.

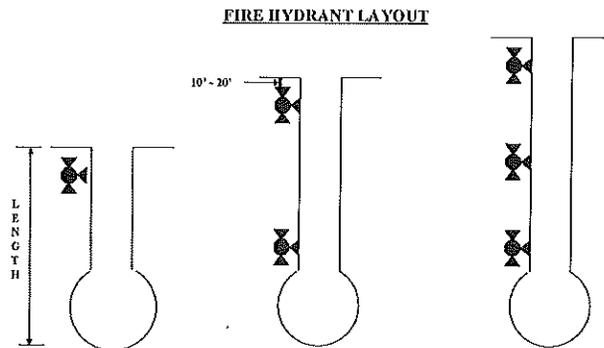


Figure 506-3

less than or equal to 500-ft

greater than 500-ft. but less than or equal to 700-ft

greater than 700-ft but less than or equal to 1000-ft

F. Alleys.

Alleys are discouraged but can be approved by City Council.

G. Intersection with Alleys and Utility Easements.

Where two (2) alleys or utility easements intersect or turn at a right angle, a cutoff of not less than ten (10) feet from the normal intersection of the property or easement line shall be provided along each property or easement line. If the alleys are not straight within each block or if they do not connect on a straight course with the alleys of adjoining blocks, then an easement shall be provided for the placing of guy wires on lot division lines in order to support poles set on curving or deviating rights-of-way or alleys.

H. Substandard Existing Streets.

Where subdivisions within the city limits are adjacent to existing streets and right-of-way widths of those existing streets are less than the minimum right-of-way widths as set out in this chapter for all streets, no building permits shall be granted until the right-of-way widths have been dedicated to the minimum widths required by this chapter abutting the development. In addition, substandard existing streets located in the ETJ shall be upgraded to minimum standards as set forth in the code and in connection with plat approval. Curb, sidewalk and pavement improvements adjacent to the development for multi-family and commercial developments shall be provided on sub-standard width existing streets at the time of building permit. In cases where an existing fence and landscaping is present, the Director of Public Works and City Engineer shall require dedication of the additional right-of-way but may allow existing landscaping and fences to remain until such time as the right-of-way width is needed for infrastructure improvement. The Director and City Engineer shall evaluate the condition of the existing fencing and may direct additional reconstruction of the fence.

I. Curbs and Pavement.

Curbs shall be required on both sides of all interior streets. Curbs and pavement are required on the development side of all adjacent streets except:

- (1) When the Director of Public Works in consultation with the City Engineer determines that the curbs will interfere with or disrupt drainage.
- (2) When the Director of Public Works in consultation with the City Engineer determines that public construction that would require curb replacement will take place on the street within three (3) years.
- (3) On residential streets in single-family or two-family residential subdivisions.
- (4) On streets in residential subdivisions where no adjacent lots are platted if approved by the Director of Public Works, such as streets adjacent to walls or drainage ways.
- (5) Where the Director of Public Works determines that preservation of trees warrants the elimination, reduction in width, or modification to the curb requirements in accordance with the tree preservation standards.
- (6) When densities of less than 2 units per acre exist and a county section for residential streets is proposed in the ETJ.

5. Street Intersections

- A. Streets shall intersect at an angle of not less than sixty (60) or more than one-hundred twenty (120) degrees. The centerline offset of intersections shall be at least one hundred seventy-five (175) feet
- B. Each new street intersection with, or extending to meet, an existing street, shall be tied to the existing street on centerline.

6 Dedication of Major Through fare

A. Adjacent Streets.

The subdivider shall dedicate right-of-way and construct the required street to the pavement width and construction standards in accordance with the following table and typical sections in Subsection (d) of this section.

Table C-5

Street Type	Right-of Way Width	Pavement Width
Major Through fare	60 ft.	24 ft. with curbs

B. All Existing Streets.

Where subdivisions are adjacent to existing major through fare streets and right-of-way widths of those existing major through fare streets are less than the minimum right-of-way widths as set out in this chapter for all streets, the subdivider shall be required to dedicate on the plat one-half (1/2) of the right-of-way width required adjacent to the land being platted to bring the existing major through fare streets to the right-of-way widths in accordance with Major Through Fare Street locations.

C. Additional Right-of Way.

Additional right-of-way beyond that specified as Major Through Fares may be required for major through fares and/or their intersections in order to meet Texas Department of Transportation (TX DOT) requirements. The total right-of-way will generally not exceed one hundred twenty (120) feet. Where TXDOT has plans to acquire right-of-way within 5 years, a right-of-way reservation or a building setback line shall be established to

preclude the construction of significant improvements that would ultimately be removed in conjunction with future highway widening.

- D. Partial or half streets may be provided where the City Council projects that a street should be located on the property.

7. Street Names & Signage

- A. Generally.

Names of new streets shall not duplicate, or cause confusion with the names of existing streets, unless the new street is a continuation of, or in alignment with, an existing street. All new street names shall be submitted to and approved by the City of Poteet and 911.

- B. Within City Limits.

Within the incorporated areas of the city, street name signs shall be installed at all intersections within and abutting the subdivision. Such signs shall be manufactured and installed by the subdivider in accordance to specifications of, and subject to plan reviews and inspections, by the Department of Public Works. Street name signs shall not be accepted by the City until the street has been accepted for maintenance by the City, unless approved by the Director of Public Works in order to provide mail service.

- C. ETJ.

Within the city's extraterritorial jurisdiction, street name signs shall be installed at all intersections within and abutting the subdivision. Such signs shall be manufactured and installed by the subdivider in accordance to specifications of, and subject to plan reviews and inspections by the City Department of Public Works.

- D. Warning and Regulatory Traffic Signs.

Within the City limits, regulatory and warning traffic signs shall be installed within and abutting the subdivision in accordance with the *Texas Manual on Uniform traffic Control Devices (TMUTCD)*, as required by the City's Department of Public Works. Such signs shall be manufactured and installed by the subdivider in accordance to specifications of, and subject to plan reviews and inspections by, City's Department of Public Works. Warning and regulatory signs shall not be accepted by the City until the street has been accepted for maintenance by the City.

- E. Street Name Changes

Requests for street name changes within the City limits shall be submitted to the City Clerk. An application processing fee as specified in Exhibit C shall be paid to the Director of Public Works for each street name change request prior to consideration of the request by the City Council. Additionally, an installation fee as specified in Exhibit C for each sign that needs to be changed per each street intersection shall also be paid prior to the City Council consideration. The installation fee shall be refunded if the request is not approved.

- F. Private streets are prohibited.

8. Traffic Signals

- A. Where a proposed street, or driveway, intersects a public street at an existing traffic signal, the traffic signal shall be upgraded to accommodate the added traffic approach at the expense of the developer or subdivider. The design and construction of this partial signal installation shall comply with the Texas Manual on Uniform traffic Control Devices (TMUTCD) and any applicable City of Poteet specifications and design requirements.
- B. Where a proposed intersection involves an existing or proposed major through fare street, and the intersection could reasonably be expected to warrant a traffic signal within approximately five (5) years, the subdivider shall install that portion of the traffic signal infrastructure that is underground on the proposed street. The design and construction of this partial signal installation shall comply with the TMUTCD and the applicable City of Poteet specifications and design requirements.

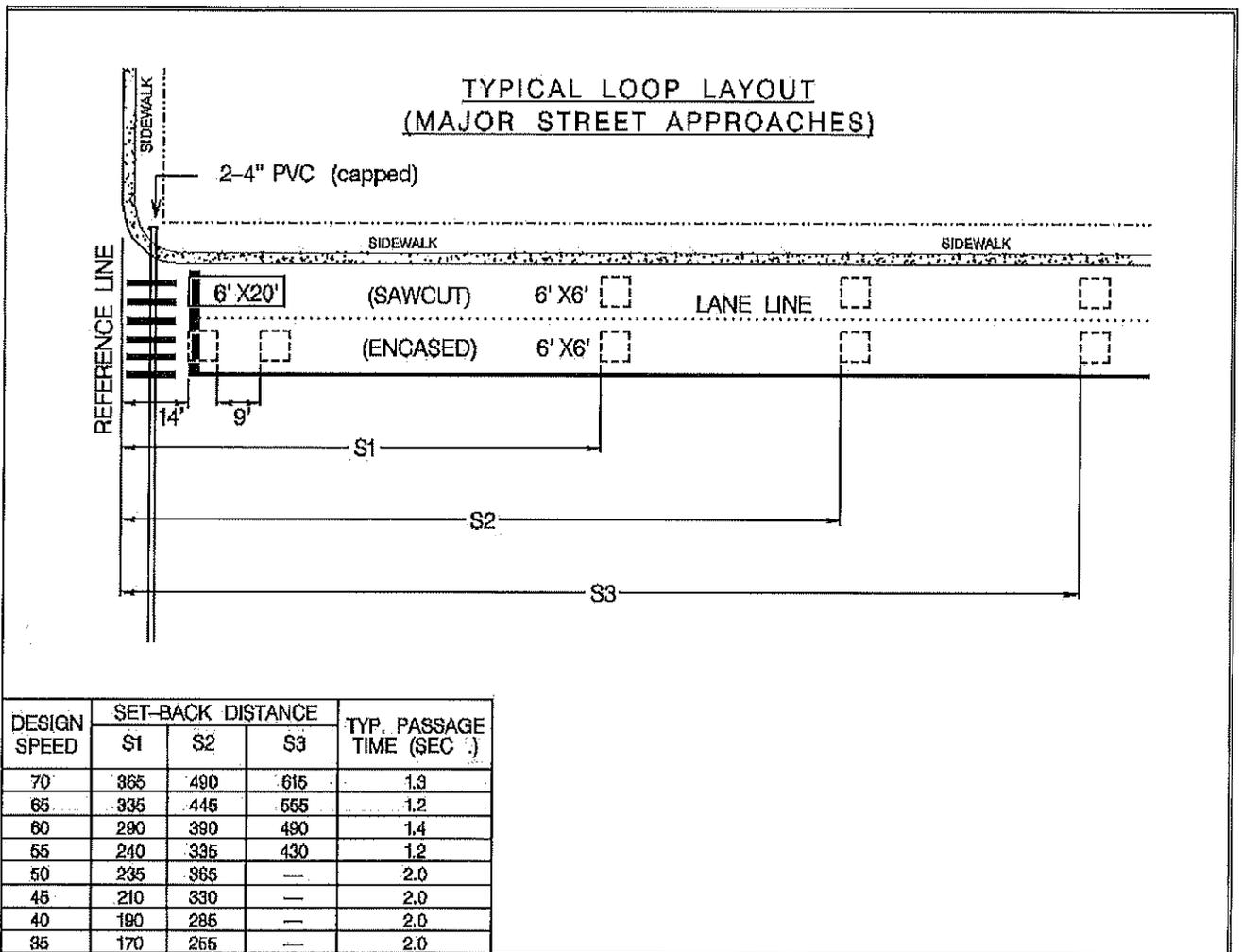


Figure C-1

9. Horizontal Curvature

A. Conventional Design.

Horizontal centerline curvature shall be provided by simple circular curves with a constant radius for the safety and comfort of motorists. The minimum and maximum radii designated in this section, Table C-3, and Figure C-1 shall be used in designating horizontal curves. "Broken-back", compound curves, reverse curves shall not be permitted. A minimum fifty (50) foot tangent length is required between curves on residential streets. A minimum of one-hundred (100) foot tangent length is required between curves on collector and major through fare streets. Super elevation may be used on major through fare streets with the approval of the Director of Public Works in consultation with the City Engineer.

B. Combination of Curves.

A combination of horizontal and vertical curves shall be permitted provided sufficient sight distance is available for safe operation in accordance with the requirement of Subsection () of this Appendix.

C. "Elbow" Configurations.

An alternative design required by Subsection () of this section may be used in lieu of the centerline radius prescribed by Subsection () of this section. The point of radius may be relocated along the lines indicated by letters on the figure below (lines AX, AY and AZ). The point of radius shall not exceed fifteen (15) feet from point A. The point of radius shall be shown on the plat. The point of radius may be shifted along the street centerline (lines AX and AZ) see Figure C-6.

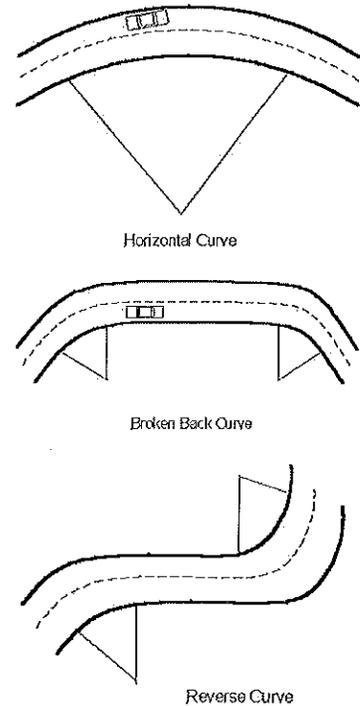


Figure C-5

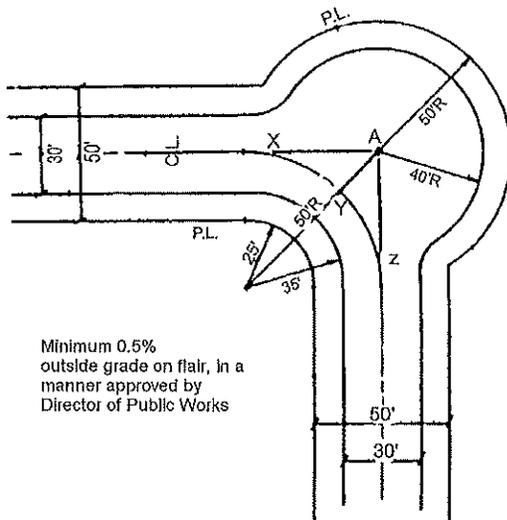


Figure C-6

10. Pavement and Median Transition

Where cross section changes occur, appropriate pavement transition shall be provided. Transition shall be described as a ratio of lateral transition width to transition length in feet. The following formulas shall be used in computing appropriate transition:

- A. Local Street to Local Street, Local Street to Collector, Collector to Collector.

$$L = 20W$$

Where:

L = Transition length in feet measured along the centerline of the street.
 W = Transition width measured as the difference in pavement width from the centerline to the pavement edge of the two (2) cross sections.

- B. Major Through Fares Except Freeways.

$$L = DW$$

Where:

L = Transition length in feet measured along the centerline of the street.
 D = Design speed of 60 miles per hour.
 W = Transition width measured as the difference in pavement width from the centerline to the pavement edge of the two (2) cross sections.

- C. Median or Center Dividers.

Median or center dividers will also be transitioned. Median transition shall generally parallel the pavement transition to a point where the median width is four (4) feet at which point the median shall be rounded off with a two-foot radius. Median or divider transition shall be designed so that abrupt offsets are not created at intersections.

11. Medians

- A. Openings.

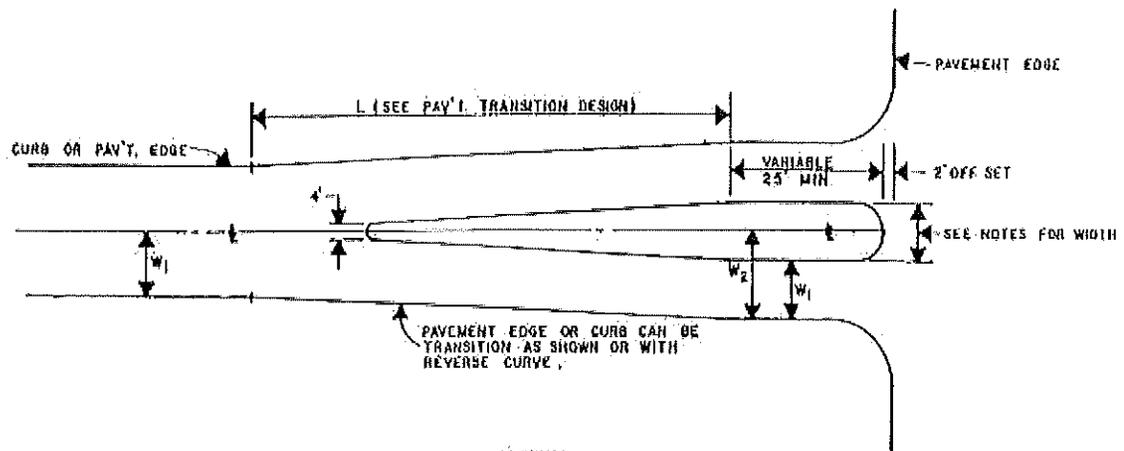
Medians shall be continuous. Openings in the median may be provided for public streets or driveways provided the centerline spacing between median openings is at least four hundred (400) feet. When medians are open, left turn bays and median radii shall be provided and curbed. Existing medians shall be modified to conform to these requirements where necessitated by the traffic generated by the Proposed development, as set forth in the traffic Impact Analysis. Where existing streets are improved, dual left turn lanes can be approved if supported by a Traffic Impact Analysis.

- B. Special Purpose Medians.

Dividers constructed for aesthetic purposes such as entrances for subdivisions or landscaping shall be permitted. The minimum width for such dividers is fourteen (14) feet with minimum eighteen (18) feet of pavement width on either side of the median. The divider shall maintain the full width for a minimum twenty-five (25) feet after which an appropriate transition shall be provided in accordance with standards for pavement and median transition (Subsection (m), above). The twenty-five (25) feet shall be measured from the edge of pavement of the ultimate width of the intersecting roadway. The nose or rounded portion of the divider shall be placed two (2) feet off the edge of the traveled

roadway of the intersecting street unless the turning radius of vehicular traffic indicates other modifications to the median nose are required. No signs, walls or fences, trees, shrubs or other ground cover shall be placed in the median which will obstruct the driver's sight distance (See Figure D-7). The median design and exceptions to pavement width adjacent to median must be approved by the Director of Public Works in consultation with the City Engineer. In addition, the Director shall seek concurrence from the applicable County Authority for all proposed medians located in the ETJ.

TYPICAL INTERSECTION DIVIDER



NOTES:

1. MEDIAN WIDTH SHALL NORMALLY BE 14'.
2. MEDIAN WIDTHS OTHER THAN 14' SHALL BE APPROVED BY DIRECTOR OF TRAFFIC AND TRANSPORTATION.
3. DIVIDER SHALL BE CONSTRUCTED WITH THE MATERIALS AS SPECIFIED BY THE DIRECTOR OF PUBLIC WORKS.

FigureC-7

C. Sidewalk Crossings.

Where a median or traffic divider projects across sidewalks, the median (concrete or sod) shall be opened for five (5) feet at the projection of the crosswalk. This five (5) foot opening shall be paved to the grade of the existing surface to permit wheelchair and mobility impaired persons to utilize the crosswalk. If no development is located on either side of the median then the first developer to plat or replat fronting on the median at the point of the required cut shall pay for the design and construction of the median cut to City specifications. If property on one side of the median facing upon the point of the required median cut has been previously developed, then the next developer to file a plat or replat facing on the median at the point of cut shall pay for the design and construction of the cut to City specifications.

12. Wheelchair Ramps

A. Location.

Wheelchair ramps shall be constructed at the entrance to all crosswalks where sidewalks exist or where required as part of these regulations. A waiver of sidewalk requirements does not waive the wheelchair requirement. Where sidewalks or curbs exist, wheelchair ramps shall be added at locations specified herein, wherever any work is proposed to the existing driveways, curb, or sidewalks. Also, wheelchair ramps shall be added wherever missing sidewalks or curb segments are added in front of any lot or block of a subdivision. ADA ramps shall be designed and placed considering the topography of the finished grades of a completed intersection. Changes required because of field conditions will be reflected on revised drawings submitted to the reviewing agency (City of Poteet or Atascosa County Engineer) for approval prior to completing construction. The use of symbols to indicate approximate locations of ramps is not acceptable unless appropriately detailed elsewhere on the drawings.

B. Design Standards.

Any construction, reconstruction or other improvements addressed in this chapter shall conform as a minimum to the Americans with Disabilities Act and any rules and regulations relating thereto. The plat or site plan shall show infrastructure construction, reconstruction, repair or regarding and details of curb cut and wheelchair ramps. The location of the curb-cut opening and ramp must be coordinated with respect to the pedestrian crosswalk lines. This planning must ensure that the ramp openings at a fully depressed curb shall be situated within the parallel boundaries of the crosswalk markings. Ramps for persons with disabilities are not limited to intersections and marked crosswalks, and ramps shall also be provided at other appropriate or designated points where there is a concentration of pedestrian traffic, such as loading islands, midblock pedestrian crossings, and locations where pedestrians could not otherwise recognize the proper place to cross the street. Because non-intersection pedestrian crossings are generally unexpected by the motorist, warning signs shall be installed and parking shall be prohibited. Ramps for persons with disabilities shall have a textured nonskid surface for the user which also warns a sight-impaired person of the presence of the ramp. Wheelchair ramps shall be designed and constructed in accordance with the details in Figure D-8, below except for wheelchair ramps located in the ETJ where the Atascosa County Engineer has approval authority.

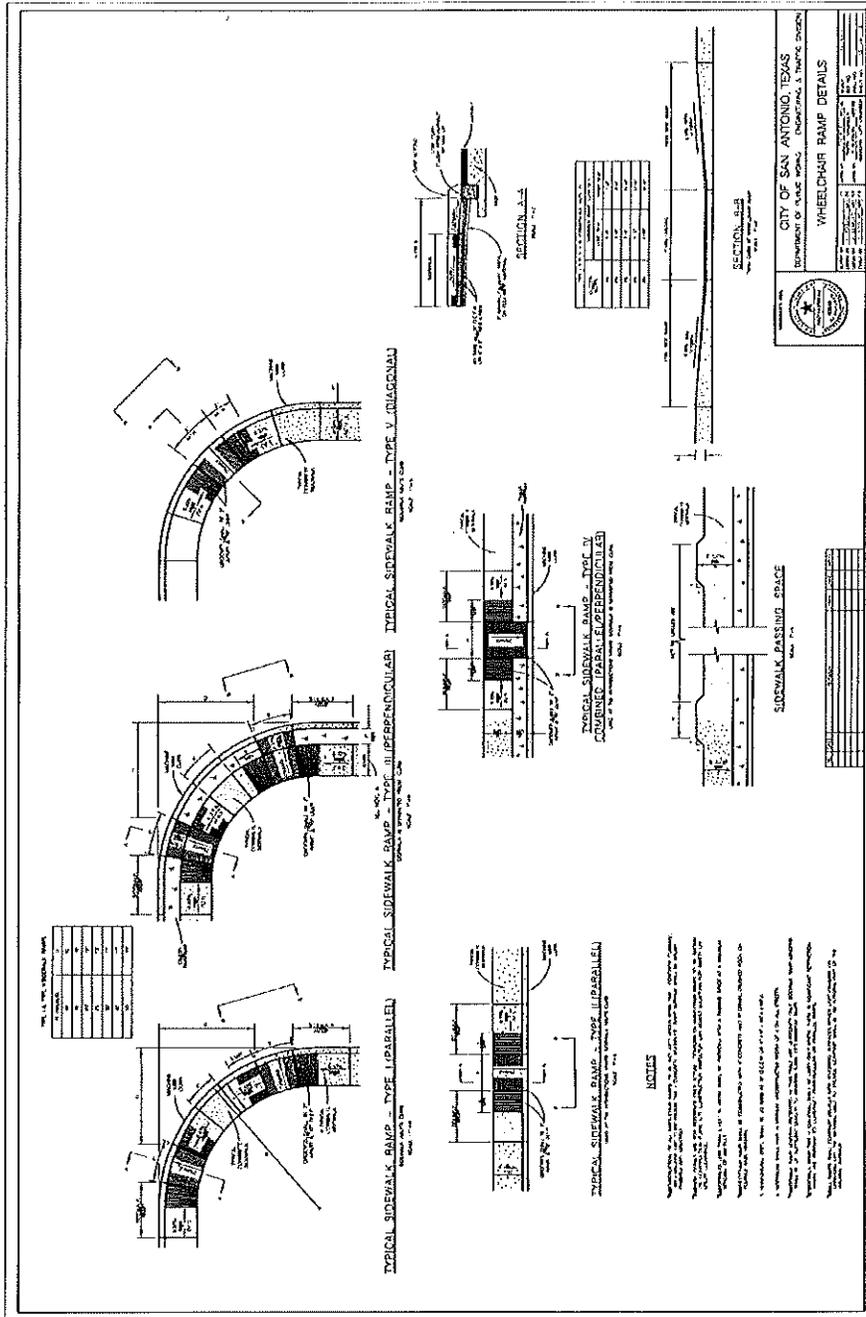


Figure C-8

13. Pavement Standards

A. Pavement Structure.

The design of pavement structures shall be in accordance with the American Association of State Highway and Transportation officials (AASHTO) Guide for Design of Pavement Structures, 1993 or latest approved edition. The pavement design report shall be prepared and signed by, or under the supervision of, a professional engineer registered in the State of Texas. The following design requirements shall be used for pavement design:

B. Length of Service Life.

Pavement shall be designed for a twenty-year service life.

C. Traffic Load, Reliability and Pavement Structures.

The traffic load is the cumulative expected 18-Kip equivalent single axle loads (ESAL) for the service life. The following 18-Kip ESAL Reliability Level and Pavement Structure shall be used in the design of streets for each street classification:

**Table C-6
Pavement Specifications**

Street Classification	18-KIP ESAL	Reliability Level	Minimum Pavement Structure	Maximum Pavement Structure
Major Through Fares	3,000,000	R-95	SN = 3.80	SN = 5.76
Collector streets	2,000,000	R-90	SN = 2.92	SN = 5.08
Residential street with bus traffic	1,000,000	R-70	SN = 2.58	SN = 4.20
Residential street without bus traffic	100,000	R-70	SN = 2.02	SN = 3.18

Traffic loads for primary and secondary arterials, collector and Local type B streets shall include bus traffic.

D. Serviceability.

The serviceability of a pavement is defined as the pavement's ride quality and its ability to serve the type of traffic (automobiles and trucks) which uses the facility. The initial serviceability index (p0) for flexible pavements shall be 4.2 and for rigid pavement shall be 4.5. The minimum terminal serviceability index (Pt) for Local streets shall be 2.0 and for collectors and arterials shall be 2.5. A standard deviation (S0) for flexible pavement shall be 0.45 and for rigid pavement shall be 0.35.

E. Roadbed Soil.

A soil investigation must be performed for the design of pavement structures. The number of borings and locations shall be sufficient to accurately determine the stratum along the route. Any existing soil information that is available either from the city or from private sources will be evaluated and, if determined to be applicable and valid, will be allowed in place of new soil tests.

Roadbed soil having a plasticity index (P.I.) greater than twenty (20) shall be treated with lime to reduce the P.I. below twenty (20). Application rate of lime shall be determined based on laboratory testing. In no case shall the lime be less than fifteen (15) pounds/S.Y. for six (6) inches of lime treated sub grade. Lime treated sub grade will be

included as a "structural layer" within the pavement design calculations. Proposals for stabilization alternatives in place of the use of lime will be considered upon submittal of an engineering report verifying adequate stabilization of the highly plastic soil.

Where the roadbed is in a rock excavation a "structural layer" within the pavement design calculations can be used that is equivalent to a structural layer for lime stabilized sub grade. If a roadbed structural layer is used in the pavement calculation for rock sub grade an engineering Report will be provided to public works addressing the consistency of the sub grade prior to base placement.

F. Pavement Layer Material.

Alternative pavement materials may be used where the existing soil or subsurface conditions, or the alternative materials, provide a level of drivability comparable to the materials otherwise required by this section. Proposals for alternative pavement materials with supporting engineering documentation may be submitted to the city for consideration for use. The combination of the following materials will be allowed for pavement structure:

- (1) Lime treatment for sub grade.
- (2) Flexible base.
- (3) Prime coat.
- (4) Tack coat.
- (5) Hot mix asphaltic concrete pavement.
- (6) Asphalt treated base.
- (7) Reinforced concrete.
- (8) Base reinforcement (Geogrids).

The Director of Public Works in consultation with the City Engineer in accordance with the standards provided herein must approve the pavement combination.

G. Minimum Layer Thickness (Compacted).

If the following components are utilized in proposed pavement sections, the minimum thickness for the components shall be:

- (1) Hot mix asphaltic concrete pavement shall not be less than one and one-half (1 1/2) inches thick for surface course (Type D).
- (2) Hot mix asphaltic concrete pavement shall not be less than two and one-half (2 1/2) inches thick for a leveling-up course (Type B).
- (3) Asphalt treated base shall not be less than four (4) inches thick.
- (4) Flexible base shall not be less than six (6) inches thick.
- (5) Lime treatment for sub grade shall not be less than six (6) inches thick.

H. Curb and Gutter.

Concrete curbs or monolithic curbs and gutters constructed in accordance with the details shown on Figure C-9 shall be provided where indicated on the typical cross sections provided in Subsection (d) of this Appendix.

- (1) Backfill Behind Curb. Compacted backfill shall be placed on all of the rights-of-way behind curbs to a minimum elevation equal to the top of curb.
- (2) Utility Location in Streets. In so far as practicable, as determined by the City Administrator, utilities in the streets rights-of-ways shall be situated behind the curb.

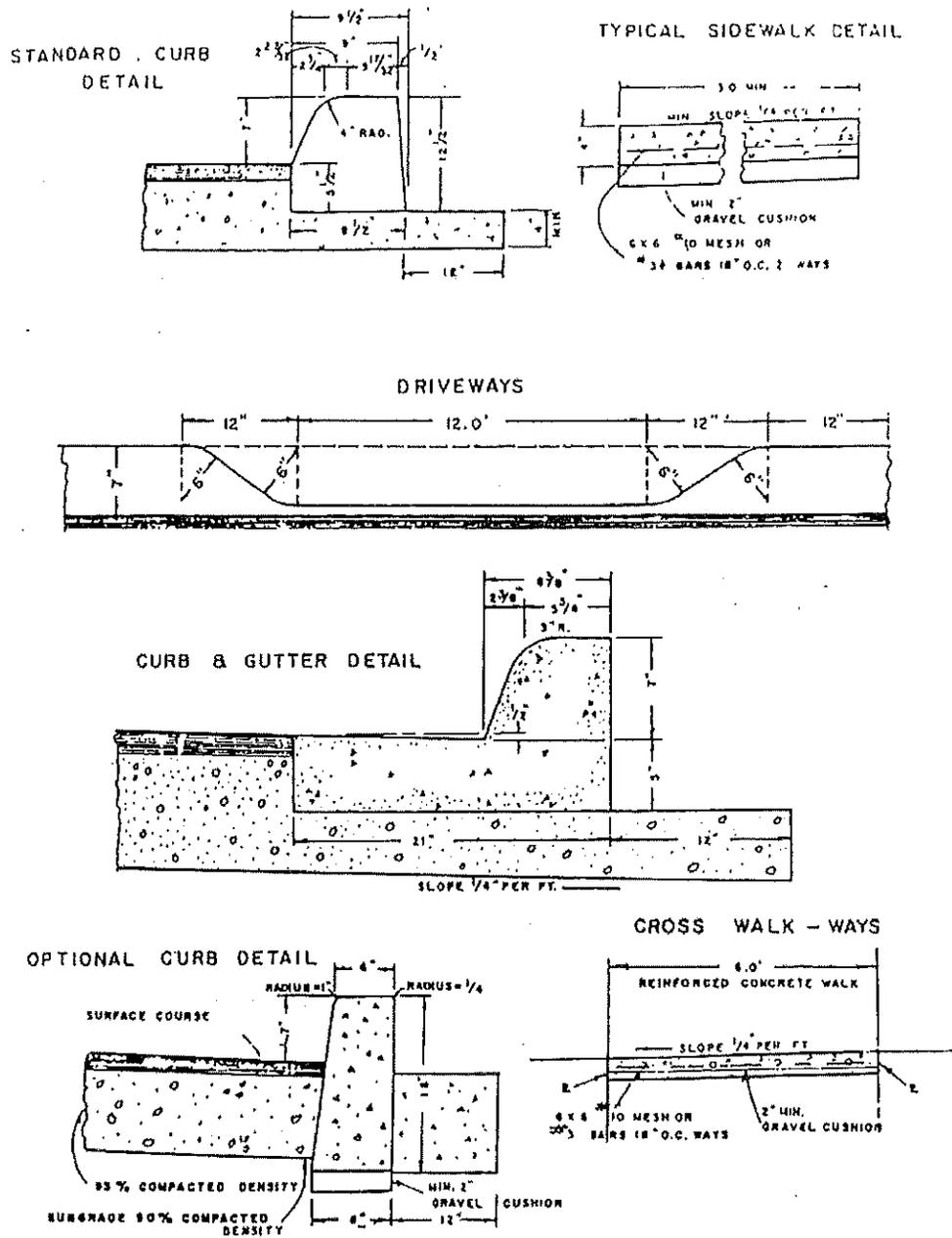


Figure C-9

I. Medians and Dividers.

Medians and dividers having curbs shall be constructed in accordance with the approved cross section. Where divider strips on major through fares are constructed without curbs, they shall be graded to a slope of one-quarter (0.25) inch per foot from the center of the divider strip to a point seven (7) inches from above the edge of pavement and from that point to the edge of pavement.

J. Parkways.

Parkway slopes shall be one-quarter (0.25) inch per foot toward the street except in heavy cuts, where a maximum of one (1) inch per foot shall be permitted. Landscaping, walls or fences placed in the parkway for aesthetic purposes shall not obstruct sight distance.

K. Testing

Compaction reports for all layers including subgrade shall be submitted with as-built drawings.

14. Sidewalk Standards

A. Applicability.

Sidewalks shall be required on both sides of all internal streets and the subdivision side of all adjacent or perimeter streets except as specified in Subsection (2), below. Reverse residential street lots shall have sidewalks provided on both street frontages. Sidewalks shall be required as part of the street improvements only on one (1) side of subdivision entry streets unless residential lots are platted or planned to be platted on both sides of the street.

B. Sidewalk Exceptions.

Sidewalks shall not be required in the following situations:

- (1) When the Director of Public Works in consultation with the City Engineer determines that the sidewalks will interfere with or disrupt drainage.
- (2) When the Director of Public Works in consultation with the City Engineer determines that public construction which would require sidewalk replacement will take place on the street within three (3) years.
- (3) On Residential streets and when County design standards are used in single- or two-family residential subdivisions with a density less than two (2) residential units per acre.
- (4) On streets in residential subdivisions where no adjacent lots are platted if approved by the Director of Public Works, such as streets adjacent to walls or drainage ways.
- (5) Where the Director of Public Works determines that preservation of trees warrants the elimination, reduction in width, or modification to the sidewalk and curb requirements.

C. Planting Strips.

When required by Table D-3 or D-4 above sidewalks shall be defined by placing a planted strip of not less than two (2) feet minimum between the back of the curb (BOC) and the street edge of the sidewalk. Trees may be located in the planting strip if trees are a minimum of three (3) feet from the curb.

D. Performance Agreement and Time of Construction.

Sidewalks shall be included as part of the performance agreement required by this Appendix with exception of sidewalks along street frontage of lots within the city limits for which building permits will be required. All sidewalks within a subdivision must be completed when ninety-five (95) percent of the lots within the subdivision are built out, excluding lots for which a building permit is pending.

E. Width.

Except as otherwise specified in Americans with Disabilities Act (ADA), sidewalks shall have a minimum unobstructed width as follows:

(1) Within the City Limits the minimum width of sidewalks adjoining a planting strip shall be four (4) feet and the minimum width of sidewalks adjoining the curb shall be six (6) feet for collectors and Major through fare streets and four (4) feet for residential streets. In the ETJ sidewalks shall adjoin the curb and shall be six (6) feet in width for collector and major through fares streets and four (4) feet in width for residential streets.

(2) The minimum width of sidewalks located within the boundaries of the downtown area shall be not less than six (6) feet.

F. Location.

All sidewalk construction shall conform to the latest criteria of the Americans with Disabilities Act (ADA). Changes in the sidewalk location for a maximum linear distance of two hundred (200) feet are permitted to be approved by the field inspector without amending the street plan or utility layout provided such plans are annotated with a note stating that intent. During the plat review process, reviewing agencies may designate areas where prior approval of the agency is necessary for any alteration to the sidewalk location. No other changes shall be allowed without the approval of all agencies that approved the original utility layout.

G. Continuity.

Sidewalks shall not be installed in such a manner that they conflict with or are obstructed by power lines, telephone poles, fire hydrants, traffic/street signs, mail boxes, trees, buildings, barriers, light poles, or any other structure. The grades of sidewalks shall be such that changes of grades greater than ten percent (10%) are not encountered within blocks. When there is an existing or anticipated obstruction, the sidewalk shall be installed around the object and shall provide the required sidewalk width. When utility layouts are required as part of a plat, the location and extent of sidewalks within the subdivision shall be shown on the utility layout and shall be subject to the approval of the Director of Public Works in consultation with the City Engineer and the utility agencies.

H. Drain Crossings.

Pedestrian double rails shall be required on both sides of all sidewalk drain crossings.

I. Grade.

Sidewalks shall be constructed so as to align vertically and horizontally with adjoining sidewalks.

15. Access and Driveways

A. Applicability.

The provisions of this section shall apply to all driveways. A lot which is a part of an approved plat which does not otherwise limit access and which was approved by the City and filed for record as of the effective date of this Section, and which does not have sufficient frontage to meet the driveway approach spacing requirements in this section, shall be allowed one driveway approach.

B. Single-Family Residential Subdivisions.

Where a subdivision abuts a major through fare, lots for single-family residential use in the ETJ shall not front on the through fare, the sole exception shall be lots greater than one (1) acre in size which provide for permanent vehicular turn around on the lot to prevent backing onto the through fare and this restriction should be noted on the plat. Access points which would permit vehicular access to such lots less than one acre in size from the through fare shall be prohibited. However, if conditions are such that vehicular access to such lots cannot be provided other than from the collector or through fare street, the Director of Public works or City Engineer may permit the creation of an easement to serve two (2) or more lots. The easement shall be designed to permit entry to the through fare without requiring a motorist to execute a backing maneuver. Easements shall be included on the subdivision plat.

C. Commercial, Industrial and Medium or High Density Residential Developments.

Lots in commercial, industrial and medium or high-density residential developments in City or the ETJ may have vehicular access from a through fare. However, the number of access points permitted will be based on the following criteria: (A) for lots with less than two hundred (200) feet of frontage, one (1) access point may be permitted; (B) for lots with a frontage of two hundred (200) feet or more, one access point for every 200 feet of frontage will be permitted. Driveway spacing will be in accordance with subsection (7) below, if applicable. All lots in commercial, industrial and medium or high density residential developments with less than 400 feet fronting an arterial street shall provide for shared cross access with adjacent lots fronting the through fare, by means of platted common access easement across the lot or recorded deed covenant providing common access across the lot with adjacent lot(s).

D. Additional Access Points.

The Director of Public Works (or the Texas Department of Transportation, or County Authority, if appropriate) is authorized to permit additional access points under the following conditions: (A) the additional land; and access points are necessary to ensure the property owner beneficial use of the land; and (B) the resulting additional ingress and egress of vehicles will not seriously disrupt the flow of traffic on the through fare.

E. Location of Access Points.

The specific location of access points will be determined by the Director of Public Works (or by the Texas Department of Transportation or County Authority, if appropriate) at such time as a site plan is reviewed prior to the issuance of a building permit. The location shall be based on the following criteria: (A) the location shall minimize conflicts with vehicle turning movements; (B) the location shall be located as far as practicable from intersections; and (C) the location shall be not less than fifty (50) feet from another driveway location. If this standard is not possible, based upon the frontage of the property, the location shall be directed as far as practicable from the other driveway

locations. Driveways along an through fare within 400 feet of a major intersection, such as the intersection of two through fare streets or the intersection of a collector and a through fare street, may be restricted to right turn movements.

F. Driveway Throat or Vehicle Storage Length.

For purposes of this subsection, "throat length" means the length of extending from the entry into the site to the first left-turn conflict or intersection with a parking aisle. Vehicle storage length means the length of a driveway, service lane, bay, or other passageway for motor vehicles which is designed to minimize queuing onto surrounding streets. Throat length shall be designed in accordance with the anticipated storage length for entering and exiting vehicles to prevent vehicles from backing into the flow of traffic on the public street or causing unsafe conflicts with on-site circulation. Throat length and vehicle storage length shall not be less than the standards set forth in Table C-7 unless approved by the Director of Public Works. These measures generally are acceptable for the principle access to a property and are not intended for minor driveways.

**Table C-7
Minimum Driveway Throat Lengths**

Land Use	Throat Length or Vehicle Storage Length
Shopping Centers > 200,000 GLA	Throat Length 200'
Developments < 200,000 GLA not otherwise enumerated in this Table	Throat Length 75'
Unsignalized driveways not otherwise enumerated in this Table	Throat Length 40' minimum
Residential subdivision entryway (Private, gated entries)	Poisson distributed probability model at a 95% confidence level. In addition, the subdivider shall provide for vehicle turnaround capability based on the single unit design vehicle as provided in the 1990 AASHTO Green Book, or latest revision thereof. The minimum entryway vehicle storage length shall be forty (40) feet.
Single-lane drive-in banks	Sufficient to accommodate minimum queue of six (6) vehicles
Drive-in banks with more than one (1) lane	Sufficient to accommodate minimum queue of four (4) vehicles per service lane
Single-lane drive-through car washes	Sufficient to accommodate minimum queue of twelve (12) vehicles
Automatic or self-serve car washes with more than one bay	Vehicle storage of 60 feet per bay
Fast-food restaurants with drive-in window service	Sufficient to accommodate minimum queue of eight (8) vehicles per service lane
Gasoline service stations with pump islands perpendicular to the pavement edge	Minimum 35 feet between pump islands and right-of-way

GLA = Gross Lease Area

Commentary: The throat lengths in Table C-7 are provided to assure adequate stacking space within driveways for general land use intensities. This helps prevent vehicles from stacking into the thoroughfare as they attempt to access the site. High traffic generators, such as large shopping plazas, need much greater throat length than smaller developments or those with unsignalized driveways. These standards refer to the primary access drive.

G. Spacing and Location on Major Through Fare Streets.

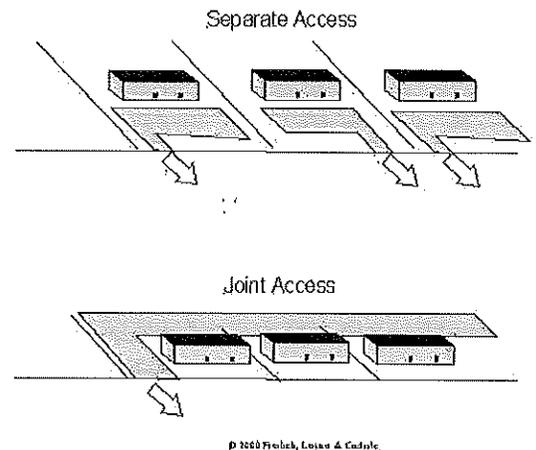
This subsection applies to driveway approach spacing and location along major through fares.

- (1) Where a traffic impact analysis is required, driveways shall be spaced in such a manner as to avoid reducing the traffic LOS below that established in the traffic impact analysis.
- (2) Along either side of any corner commercial or industrial property the driveway approaches shall be located so as to maintain a minimum distance from the corner of the intersecting roadways equal to 90 percent of the length of the property along the roadway upon which the proposed driveway approach is to be located, or 125 feet, whichever distance is less.

H. Alignment.

Major driveway approaches, with peak hour trips greater than 100 pht, accessing major through fares shall attempt to meet the following guidelines:

- (1) Align with opposing driveway approaches if any, or shall be offset by 175 feet or more to provide adequate left turn storage capacity in advance of each driveway approach and to avoid the overlap of left turn lanes.
- (2) Shared among different property owners or users when necessary to maintain minimum spacing requirements.
- (3) Planned, when possible, to match existing openings in medians. In addition, no cuts through the left turn reservoir of a median shall be permitted in order to provide left turn movements for driveway approaches accessing major through fares.



I. Parking Approaches.

Parking aisles shall be located a minimum of twenty (20) feet from the intersection of the driveway approach and the through fare.

J. Driveway Approaches.

Driveway approach materials may be asphalt, concrete or other materials as approved by the Director of Public Works.

Figure 506-10

16. Specific Requirements for Transportation LOS

A. Traffic Impact Analysis (TIA).

No permit shall be approved unless a traffic impact analysis (TIA) or PHT generation form is completed and approved as provided in this section. A traffic impact analysis (TIA) or a PHT generation form shall be performed by the property owner (or its agent) according to the format established in Appendix "C." The type of submittal shall be based upon the number of peak hour trips (PHT) generated by the proposed development, as set forth in Table 502-1.

Table C-8

Peak Hour Trips	Submittal Category (see Appendix B)
1,001 or more	Level 3 TIA
501 – 1,000	Level 2 TIA
101 – 500	Level 1 TIA
100 or less	PHT Generation Form (no TIA is required)

When an activity on, or change to, property occurs that varies from the activity on which a previous TIA was submitted and accepted, and the new activity places the project into a level different from that of the previous TIA or generates an increase of at least 100 PHT (or 10 percent for a Level 3 TIA) relative to the previous TIA, the property owner (or its agent) shall perform and submit to the city an amended TIA under the formats specified in Appendix "C." For the purposes of this section, the amendment will be satisfactory to determine if the increase in PHT impacts capacity and requires additional mitigation as defined herein.

B. Permits or Development orders.

The appropriate level TIA as required by Subsection (a) of this section may only be required by the city as part of the approval process for the activities described in Table C-9 for each respective category of property, as follows:

TableC-9

Category	Description	Point at Which TIA is Required
Pre-development	Property which is not the subject of a valid concept plan	May be required as a condition of acceptance of a concept plan.
Pre-Platting	Property which is the subject of a concept plan	May be required at the time of platting, as a part of the plat approval process.
Platted	Property which is the subject of a valid plat which has been accepted and approved by the city.	May be required at the time a building permit is requested.
Post-TIA	Property which is the subject of a TIA provided at one of the points identified above (or for which the City Engineer has determined no TIA is needed) or voluntarily provided by the Developer.	No further TIA required.

C. Impact Area.

The impact area is the area within which any analysis is conducted in order to determine compliance with the level of service standards. This area shall be based on the size of the development and the PHTs projected to be generated by the proposed development. The impact areas shall be established as follows:

Table C-10

Category	Impact Area
Level 1 or 2 TIA	The site, and the area within a one-quarter (¼) mile radius from the boundary of the site
Level 2 TIA	The city engineer may require the area of the study to be extended up to a maximum area of one (1) mile radius.
Level 3 TIA	The site, and the area within a one mile radius from the boundary of the site

D. Mitigation.

The applicant may propose mitigation measures as described in subsections (8) through (10) herein as an alternative to deferral or permits or denial of the application. Mitigation measures may be permitted which would allow the LOS to be achieved by permitting the transportation network to function more efficiently, or which advance the construction of necessary transportation facilities so that they are available concurrent with the impacts of the development.

- (1) Roadways and intersections, within the study area, that are expected to operate at level of service D, E, or F, under traffic conditions including projected traffic plus site-generated traffic must be identified and viable recommendations made for raising the traffic conditions to level of service C or better.
- (2) As depicted in Table C-11, roadways and intersections within the project site and along its boundary streets which are projected to operate at level of service D, E, or F, without site-generated traffic, need not to be brought up to level of service C by the proposed development. Such roadways and intersections, under conditions which include such site generated traffic, must be brought up to the projected Level of service that would exist without the site-generated traffic, by altering on-site and/or off-site traffic demands and/or capacities. Level of service notwithstanding, required traffic impact mitigation improvements are limited to those that can be implemented within the project site and along its boundary streets.

Table C-11 Minimum Acceptable Level of Service

		Level of Service Without development					
		A	B	C	D	E	F
Projected Level of Service	A	NA	-	-	-	-	-
	B	B	NA	-	-	-	-
	C	C	C	NA	-	-	-
	D	C	C	C	NA	-	-
	E	C	C	C	D	NA	-
	F	C	C	C	D	E	NA

E. Implementation.

For phased construction projects, implementation of these traffic improvements must be accomplished no later than the completion of the project phase for which the capacity analyses show that they are required. Plans for project phases subsequent to a phase for which a traffic improvement is required may be approved only if the traffic improvements are completed or bonded.

F. Limitations on Traffic Impact Mitigation.

(1) Additional limitations on traffic impact mitigation requirements are as follows:

- a) Off-site traffic impact mitigation improvements are not required on public streets for which a funded capital improvement project is scheduled to be accomplished within three (3) years of the TIA review.
- b) Requirements for mitigation for land development projects located inside the extra territorial jurisdiction of the City of Poteet will be considered on a case by case basis and may be waived by the City Council for city-sponsored infill development project.

(2) Voluntary efforts, beyond those herein required, to mitigate traffic impacts are encouraged as a means of providing enhanced traffic handling capabilities to users of the land development site as well as others.

(3) Traffic mitigation tools include, but are not limited to, pavement widening, turn lanes, median islands, access controls, curbs, sidewalks, traffic signalization, traffic signing, pavement markings, etc.

G. Exemptions.

The City finds and determines that certain factors, such as interconnected street systems, mixed uses, and the availability of pedestrian facilities, can result in fewer trips than isolated, low-density subdivisions. Certain development patterns produce fewer trips and shorter trips than developments subject to conventional zoning or located on the fringe of the metropolitan area. The City hereby finds that traffic patterns and infrastructure within its urban core are established, and that there is a strong public policy to encourage reinvestment in the city's downtown areas. Further, the City hereby finds that there is a strong public policy to encourage infill development and that there is little opportunity to expand transportation capacity in many infill areas without destroying the city's historic built environment. Accordingly, the following are exempt from the provisions of this Section.

- (1) Applications for development approval within the downtown area.
- (2) Any infill development.

- H. The following vehicles per day (vpd) will provide clarification to the roadway classification system for streets within conventional subdivisions exclusive of traditional neighborhood developments (TND) as related to master development plans, plats, zoning and building permits:
- (1) Residential Streets: Function of roadway DC (Table C-2: Functional Classification System Description). Daily traffic volumes shall range between 500-1000 vehicles per day (vpd). Street design standards shall follow (Transportation and Street Design). Spacing of Residential streets should range from 175 to 800 feet.
 - (2) Collector: Function of roadway DC (Table C-2: Functional Classification System Description) and Appendix A (Definitions). Daily traffic volumes range from 1,000 to 4,000 vpd (houses fronting) and 4,000 to 8,000 vpd (no houses fronting). Street design standards shall follow (Transportation and Street)