

Engineering and Development General Requirements Checklist

(This is not an all-inclusive comprehensive list but is intended to provide development guidance. Please Contact the City Engineer's office for clarification or assistance (12/2022))

Subdivision Platting

The sub-divider shall install, at his own expense, except as hereinafter provided, all required improvements within the subdivision, including streets, curbs, alleys, water lines, sewer lines, electrical lines, street lighting, storm sewer lines and drainage facilities and any appurtenant structures.

All proposed developments shall provide new drainage facilities, improvements of existing drainage facilities, channel improvements or other drainage improvements determined by the City Engineer to provide for the stormwater drainage needs of the development and the downstream areas impacted for a distance of 2,000 feet downstream from the proposed development; provided however, that if any appreciable adverse impact still exists at that distance, the City Engineer may require that additional drainage facilities be constructed to the point where any remaining adverse impacts are de minimus.

The developer (and/or assigns) shall verify and provide, to the City Engineer, all necessary information and calculations to demonstrate that the capacities of these systems are not exceeded as a result of the proposed development, and the developer shall be responsible for constructing the needed improvements (at no cost to the City). It is the responsibility of the developer to provide for conveyance of upstream runoff and an adequate street circulation system.

Y N N/A

Preliminary Plat

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. Title or name of proposed subdivision. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. North arrow, date and scale. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. One-inch equals 100 feet scale, on a sheet at a minimum of 17" x 24". |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. Appropriate key map clearly showing the location of the proposed subdivision. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 5. Boundary of the proposed subdivision, with bearings and distances. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 6. Size and location of all existing utilities, natural water or drainage courses, streets, lots and easements within the proposed subdivision. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 7. Location of any FEMA floodplain(s). |

- 8. Proposed blocks, lots, alleys, streets, easements, purposes thereof, drainage or watercourses.
- 9. Proposed uses within the proposed subdivision.
- 10. Proposed street names.
- 11. Overall development concept plan sufficiently detailed to depict general land usage contemplated, internal circulation patterns and utility and storm drainage systems and extensions. Provide adequate traffic circulation patterns for existing, interim and ultimate traffic circulation patterns. Provide sufficient information and calculations to demonstrate that a workable stormwater plan including preliminary channel, swale to demonstrate that a workable stormwater plan including preliminary channel, swale and pond calculations, typical easement dimensions and cross sections, horizontal street layouts meeting minimum requirements, adequate number of access points to adjacent existing and proposed roads and/or adjacent properties, workable utility schematics (with preliminary flow lines and depths), etc.
- 12. Copy of any private restrictions (covenants) proposed to be recorded with the final plan shall be submitted for review, comments and concurrence by the Planning and Zoning Commission.

Y N N/A

Final Plat

- 1. Title or name of proposed subdivision, name and address of owners and/or sub-dividers name and address of engineer, surveyor, person or persons preparing the plat
- 2. North arrow, date and scale.
- 3. All lots, blocks, streets, alleys, pipelines, watercourses, easements, right-of-way, reserves and total area, number of blocks and number of lots.
- 4. The dimensions of streets and alleys shall include complete curve data (P.C., L.R., P.R.C. P.T.), shown on each side of the street and alleys; length and bearings of all tangents; distance from all angle points and points of curve to an adjacent side lot line; and the width measured at right angles or radially, wheel curved.
- 5. Watercourses and easements.
- 6. Pipelines.
- 7. Location, width and name of existing streets and subdivisions within 200 feet.
- 8. Infrastructure construction summary prior to acceptance.

Public Improvements

Use a 24" x 36" title sheet with project, title, location, P.E. seal, signature and date. Provide a copy of the entire plat(s) covered by the proposed improvements. Include any required and necessary call outs and details.

Y N N/A

Street System

- 1.** Plan and profile sheet showing stationing, elevations, right-of-way widths, street widths, alley widths, pavement type and section(s), existing and proposed centerlines, right and left curb elevations, ties to other streets and alleys (or other types of roads or paths), locations and sizes of drainage inlets.

- 2.** Regulatory, advisory and street sign plan and inventory of signs to be installed prior to acceptance.

- 3.** ADA compliant sidewalks and handicap ramps to be constructed with the development construction. Any lot or parcel that is part of the subdivision and is not required to secure a building permit, or a site permit, shall construct the sidewalks with the street construction. Handicap ramps shall be constructed with the street construction.

- 4.** Driveway aprons for any lot or parcel that is not required to secure a building permit.

- 5.** An overall grading plan, including lot grading layouts for residential subdivision. This plan should include sidewalk location(s) for the public.

Y N N/A

Water Distribution System

- 1.** Size and location of all existing and proposed water main, service lines, valves, fire hydrants and all other water distribution appurtenances within the proposed subdivision, as well as the location and method of connecting the proposed water lines, water mains and water lines greater than or equal to 12 inches. A hydrant shall be placed at all intersections and spaced within the site per Fire Marshal requirements.

- 2.** Profile for water lines greater than or equal to 12 inches.

- 3.** Include City standard construction details as applicable.

Y N N/A

Sanitary Sewer System

- 1.** A general location map of the property showing the watershed(s) and limits of all on-site and off-site stormwater draining to the project.

- 2.** Computation of design flows.
- 3.** Peak wet weather flows, depth of flows and velocities in profile of proposed line segments.
- 4.** Include City standard construction details as applicable.

Y N N/A

Stormwater System

- 1.** A general location map of the property showing the watershed(s) and limits of all on-site and off-site stormwater draining to the project.
- 2.** Calculations showing the existing and proposed flows. Include summary input and output detention and outlet date.
- 3.** Plan and profile of proposed storm sewers, culverts and channels, including stationing, pipe/culvert sizes, cross sections, grades, hydraulic grade lines (25-yr, 100-yr), grades, grade breaks, surface type, material type, manholes, inlets,
- 4.** Inlet hydraulic calculations table.
- 5.** Driveway culverts at each required location along with flow calculations, sizing end treatments, etc.
- 6.** Street intersections - stormwater shall not flow across a street that is a collector or higher classification.
- 7.** Bridges and culverts at all waterway crossings including plan and profile sheets and necessary details including railing, connectors, structural members, reinforcements, material types, decking details, etc.

Y N N/A

Electrical Distribution

- 1.** Location and size of all lines, transformers and other appurtenances within the proposed subdivision and the location and method of connecting the proposed electrical system into the existing electrical distribution system.

Y N N/A

Street Lighting

- 1.** Location and size and type of street light standards, fixtures and lamps and other appurtenances. Plans shall also show the location and method of connecting the proposed street light electrical service system into the existing or proposed City electrical distribution system. Street light spacing shall not exceed 500 feet.

Y N N/A

Plans and Specifications

- 1.** Plans and specifications shall be approved by the City Engineer and shall meet City of Seguin requirements and shall be approved for construction by the City Engineer.
- 2.** Engineer's Opinion of Probable Construction Cost.
- 3.** Geotechnical Report, including pavement design recommendations.

Y N N/A

Close Out

- 1.** Upon completion of the required improvements, the owner or owners of the subdivision shall request, in writing, acceptance for maintenance by the City of said improvements.
- 2.** Upon receipt of such request, the City Engineer or designee, shall inspect the required improvements and if found to be in compliance with the approved engineering plans and specifications for said improvement, shall notify within five (5) days in writing, the sub-divider for acceptance for maintenance by the City.
- 3.** Should the City Engineer find non-compliance with said plans and specifications, he shall notify within ten (10) days, in writing, the sub-divider of those deficiencies, which must be corrected prior to acceptance for maintenance by the City of those required improvements.
- 4.** The sub-divider shall provide a two (2) year warranty bond, executed by a corporate surety licensed in the State of Texas, warranting that the improvements are free of defects in material and workmanship.
- 5.** All drainage improvements constructed or installed shall in accordance with the following:
 - a)** Drainage improvements located in the public right-of-way, that have been accepted by the City, will be maintained by the appropriate jurisdiction.
 - b)** All natural drainage channels, swales, etc., located on private property and which are publicly dedicated easements, shall be maintained by the property owner. When such easements are shown on the subdivision plat, this exclusivity and restriction shall be noted on the plat and included in the restrictive covenants. The use of drainage easements on private property shall be minimized as much as practical.

- 6. Reproducible and electronic finished grades and "as-builts", with GIS coordinates and a construction summary (comprehensive list and associated values) of all infrastructure improvements for which the City and/or County will assume maintenance responsibility prior to acceptance. This information shall be certified by the engineer of record.
- 7. A two (2) year warranty for all infrastructure accepted by the City.
- 8. No certificate of occupancy shall be issued for any structure located on any lot within a subdivision until all requirement improvements within said subdivision have been completed and accepted for maintenance by the City.
- 9. Once all requirements and obligations are met, the City Engineer or his designee, shall issue a Letter of Acceptance for the improvements.

Y N N/A

General/Streets

- 1. The street pattern shall provide adequate circulation with the subdivision and in a manner so as to discourage excessive through traffic on minor streets. The arrangement, character, width, grade and location of all streets shall conform to the City's Thoroughfare Plan and shall be considered in their relation to existing and planned streets, topographical conditions, public safety and convenience and in their appropriate relation to the proposed uses of the land to be served by such streets. If any portion of a major street (collector or above) depicted in the Thoroughfare Plan, traverses any part of the land being subdivided, that portion of the street as planned, shall be incorporated into the subdivision plan. The street layout shall be devised for the most advantageous development of the entire subdivision and shall conform to connecting street in land adjacent to the new subdivision. Provisions shall be made with the subdivision to provide street access to adjacent undeveloped acreage in such a way as to assure adequate circulation for future development. Dead-end streets and those which do not conform to adjacent established streets are to be avoided whenever possible.
- 2. Contours not exceeding one-foot (1') intervals
- 3. ~~Street dimensions shall comply with dimensions shown in the Roadway Design Table.~~
- 4. Maximum length of a cul-de-sac street is 800' for single-family; 500' for other land uses.
- 5. ~~All street intersect(s) at 90-degree angles shall not have a centerline offset of less than 125'. In no case shall a street intersection(s) vary from 90-degrees by more than 10 degrees.~~

- 6.** Easements (DE, PUE, etc.,) as needed.
- 7.** Show ADA compliant sidewalks on both sides of proposed streets.
- 8.** Double frontage single-family lots are prohibited.
- 9.** All cull-de-sacs shall have a minimum throat length of 85', no knuckle-sacs allowed.
- 10.** Corner bubbles (corner sacs), are only allowed on 90-degree streets with a 40' radius measured from the street centerline intersections. As measured from the adjoining street edge.
- 11.** Private drives require minimum 12' width.
- 12.** Private streets shall provide enough area to be able to construct streets to public street standards in the future.
- 13.** Dead ends greater than one lot in depth requires a cul-de-sac or other acceptable turnaround in a dedicated right-of-way. Temporary turnarounds are allowed at phasing lines, when the street is intended to be extended part of a subsequent phase. Temporary turn arounds shall meet International Fire Code requirements.
- 14.** Concrete alleys for Zero Lot Line Subdivisions are required to be a minimum of 20' wide.
- 15.** Engineer's certifications on reports/plans as required.
- 16.** Any requirement not cited shall meet or exceed minimum AASHTO requirements as agreed to by the City Engineer.
- 17.** A certified geotechnical investigation, certified by a Licensed Professional Engineer, licensed in the State of Texas. The street pavement section shall meet the recommendation of the geotechnical engineer. However, the street section shall meet or exceed the minimum City of Seguin requirements:

Alley: 2" HMAC (minimum)
 95% Subgrade (compacted density*)
 8" Base (100% compacted density**)

Minor Street: 2" HMAC (minimum)
 95% Subgrade (compacted density*)
 12" Base (100% compacted density**)



Collector: 2" HMAC (minimum)
95% Subgrade (compacted density*)
12" Base (100% compacted density**)

Arterial: 2" HMAC (minimum)
95% Subgrade (compacted density*)
12" Base (100% compacted density**)

* As Per TxDOT method Tex 114-E

** Minimum dry density as per TxDOT method Tex 113-E at moisture content ranging from -2 to +3 percentage points of optimum moisture content

The City Engineer may approve an alternate pavement, as long as the alternative meets minimum performance requirements. Alternative pavements must be accompanied by a geotechnical report(s) certified by a Professional Engineer licensed in the State of Texas.

18. Street light spacing not to exceed 500 feet.

19. Single outlet streets for developments with delay secondary access for traffic volume proposes (additional requirements by Fire Marshal also apply):

| <u>ADT</u> | <u>Street Width*</u> |
|-------------------|-------------------------|
| Less than 300 | 30' |
| 300-1000 | 36' |
| 2500-4000 | 48' |
| Greater than 4000 | 2 @ 24' with 14' median |

*If the length of the single outlet street exceeds 2000', provide 2 @ 24' with a 14' median

General Drainage

Storm Water Drainage Policy

The City has a Drainage Technical Criteria Manual as referenced in the Unified Development Code (UDC) manual under design and review at this time. During this interim period, we recommend you utilize the Engineering Checklist as prepared by this office, which provides the basic criteria for storm water management (SWM) requirements within the City of Seguin and its Extraterritorial Jurisdiction (ETJ). We recommend use of TxDOT's impervious runoff coefficient or a c values, for calculation of storm water runoff in combination with their most current spreadsheet to generate the rainfall intensities. Time of concentration flow path calculations may also follow TxDOT procedures and we recommend a sheet flow distance at or less than 150 linear feet for post-developed condition (however, it shall not exceed the proposed developed condition, taking into account developed grades), unless a longer distance can be verified in the field. Existing or proposed road base material shall be modeled (C-runoff coefficient) at halfway between the natural material and concrete.

The City of Seguin requires attenuation of the increase in storm water runoff for all developments and does not have any available regional detention program or in-lieu of payment. Five (5) storm events including the 2, 10, 25, 50 and 100-year design events are modeled as part of the required SWM report.

Y N N/A

Hydrology and Hydraulics

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <p>1. Detention (attenuation) for the five required storms: 2-yr, 10-yr, 25-yr, 50-yr, and 100-yr storms (also referred to as the 50%, 10%, 4%, 2% and 1% chance storms). Proposed runoff rates shall not exceed existing runoff rates. Proposed conditions shall design to the maximum allowable impervious cover limits for the proposed development. Development normally results in lower times of concentration and higher flow rates, any submittals to the contrary will be severely scrutinized.</p> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <p>2. Runoff calculations for all required storms. Include (show) flow path formulas, flow paths, Tc's, C's, I's, A's, Q's, CN's, TLAG's, etc., as appropriate, for existing and proposed conditions.</p> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <p>3. The rational method, TR-55, or similar type of generally accepted industry methodology is acceptable for areas of 100 acres or less, utilizing TxDOT IDF formulas for Guadalupe County. For drainage areas greater than 100 acres, use HEC-HMS (CN method) or TR-20 for hydrologic calculations and HEC-RAS for hydraulic calculations. Use/revise accepted H&H models, when available. Provide electronic copies and analysis of existing and proposed models. Model normal antecedent condition and Type III storm for 24-hr storms.</p> |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <p>4. Existing and proposed drainage area maps.</p> |

- 5.** Drainage system schematics.
- 6.** Printed input and output hydrologic and hydraulic computer runs.
- 7.** Appropriate pond outlet details. Provide spillway for flows greater than the 100-yr frequency.
- 8.** Pond outlet rating table.
- 9.** Appropriate floodplain/drainage way calculations. Floodplains are not limited to FEMA floodplains, waterways with contributing areas less than the FEMA threshold still have floodplains and must be calculated.
- 10.** Required drainage easements, encompassing the existing and proposed 100-yr storm runoff.
- 11.** For upstream contributing areas in the County’s jurisdiction, model runoff as 65% overall impervious cover, for areas greater than 25 acres. For upstream contributing areas in the County’s jurisdiction, model runoff as 80% impervious cover, for areas less than 25 acres.
- 12.** Model upstream contributing areas, in the City’s jurisdiction, as existing conditions flows plus 25%. This is to account for future detention and also for the unknown increases in flows due to changes in hydrologic and hydraulic timing of the future developments’ detention ponds.
- 13.** Demonstrate no adverse impacts to upstream and downstream properties, structures, facilities, etc. (no increase in inundation depths, widths and velocities, etc.)
- 14.** Consider pond outlet conditions – level spreader for sheet flow conditions, if no defined waterway (or storm sewer) is available. Consider discharge velocities – do not exceed 6 fps (for the 100-yr flows) for grassy environment, provide energy dissipation, if necessary.
- 15.** Sample cross sections for typical channels/swales.
- 16.** The entire surface of the channel must be vegetated, or stabilized through use of concrete riprap.
- 17.** Appropriate channel armoring when velocities exceeding 6 fps (up to and including 100-yr flows).

- 18.** Concrete trickle (pilot) channels when required (grades less than 1%). Trickle channels shall be a minimum of four (4) feet in width and two (2) inches deep, and shall be able to withstand vehicular (maintenance) loadings.
- 19.** Appropriate channel side slopes (3H: 1V or flatter), channel side slopes steeper than 3H:1V shall be armored.
- 20.** A one (1) foot of freeboard for 100-yr frequency flows, for contributing drainage areas of 25-acres, or larger. For flows with contributing drainage areas smaller than 25-acres, provide a minimum of 6-inches of freeboard. For flows with contributing drainage areas smaller than five (5) acres, no freeboard is required.
- 21.** Channel centerline curvature shall have a minimum radius of twice the top width of the 100-yr storm flow.
- 22.** Adequate maintenance access for drainage infrastructure, this maintenance access shall be encompassed by a drainage easement and/or right-of-way, adjacent to the facility (4' minimum wide path required along one side of the channel).
- 23.** Drainage between developed lots shall remain the responsibility of the affected property owners.
- 24.** Culvert and bridge crossing calculations/runs, 25-yr flows must be passed, with allowance for 1-foot of water over a local street and 6-inches over streets of a classification higher than a local street. Flows must be contained in easements and/or rights-of-way.
- 25.** Conveyance of upstream flows through the property, provide necessary easements.
- 26.** All storm sewers, inlets, and drainage appurtenances, in all rights-of-way, shall be minimum Class 3 RCP. Driveway culverts (to be maintained by the property owner) may be RCP or CMP. Storm sewers in drainage easements may be CMP and must be installed in accordance with the manufacturer's recommendations.
- 27.** The minimum storm sewer diameter is 18".
- 28.** Storm sewers shall match at soffit (top) of the pipes.
- 29.** Storm sewer manholes or junction boxes at all changes in grade, alignment, sizes, intersections, and intervals of no more than 1000-feet.

- 30.** For local (minor) streets, 10-yr flows must be contained in the street; for streets of a higher classification than a local street, 25-year flows must be contained in the street; 100-yr flows must be contained in the rights-of-way for all street classifications.
- 31.** A 12-foot wide path, free of inundation must be provided on all streets of a higher classification than a local street, for emergency response purposes. Streets with medians – one 12-foot wide path, free of inundation must be provided, in each direction.
- 32.** Street intersections - Stormwater shall not flow across a collector, or a street of a higher classification.

Y N N/A

Sites (in addition to requirements above)

- 1.** Detailed parking layout to meet City of Seguin requirements.
- 2.** Detailed driveways and parking areas must be Portland cement concrete (PCC), hot mix asphaltic concrete (HMAC) or other approved permanent surface, as approved by the City Engineer. Crushed limestone base, slag, caliche or other similar materials are not acceptable.
- 3.** Detailed fire lanes shall be provided as required by the Fire Marshal.
- 4.** Detailed sanitary sewer cleanouts at property lines, on-site sanitary/plumbing lines.
- 5.** Detailed location and flow line elevations for proposed wastewater connection.
- 6.** Detailed sample port.
- 7.** Detailed delineation of septic drain field, if not connecting to City sewer (separate permit required).
- 8.** Location, size and material of existing and proposed service lines and utilities.
- 9.** Detailed proposed water meter(s) at property lines or within recorded utility easement for on-site water/plumbing lines.
- 10.** Detailed water meter type, size and details.
- 11.** Detailed fixture unit and domestic water demand calculations.

- 12.** Detailed irrigation plan or hose bib locations.
- 13.** Detailed proper backflow prevention device, location and details.
- 14.** Detailed sidewalks meeting ADA requirements, must provide accessible path from the public sidewalk to the proposed building(s).
- 15.** Detailed securement of TxDOT approval for driveways, sidewalks, and all other improvements in State right-of-way.
- 16.** Detailed easements for public utilities drainage elements.
- 17.** Detailed driveway/intersection spacing.
- 18.** Detailed minimum driveway throat lengths (without conflicts) of 20' for collectors, 40' for minor arterials and 50' for major arterials
- 19.** Minimum of four (4) vehicle queue for each drive thru lane of any commercial use. Drive thru traffic shall not extend into the public right-of-way.
- 20.** Detailed minimum spacing of 50' for local streets; residential and neighborhood collectors, 75' for industrial collectors; 100' for primary collectors; 150' for minor arterials; and 200' for major arterials.

Pavement Design Standards

Current Street Pavement Design Standards

Local Street, No Business Traffic

- 100,000, 18 KIP Equivalent Standard Axle Loads (ESAL)
- R-70 reliability rating
- Minimum Pavement Structures SN = 2.02
- Maximum Pavement Structures SN = 3.18

Collector Streets

- 1,000,000 ESALS
- R-90 reliability rating
- Minimum Pavement Structures SN = 2.58
- Maximum Pavement Structures SN = 4.20

Arterial/Industrial Streets

- 2,000,000, 18 KIP Equivalent Standard Axle Loads (ESAL)
- R-95 reliability rating
- Minimum Pavement Structures SN = 2.92
- Maximum Pavement Structures SN = 5.08

For the Arterial and Industrial Streets, we also consider use of a Type C HMA surface course as means to improve the pavement structure given the heavier loading and frequency of use by heavier vehicles. The City also encourages the use of geo-grid as part of the design to improve the base structure and minimize longitudinal cracking in high PI soils.

Roadway radius and land configuration are included in 2018 Thoroughfare Plan Update

Subdivision Plat - Storm Water Management Notes

Standard Note:

THE MANAGEMENT OF STORM WATER RUNOFF IS THE RESPONSIBILITY OF THE PROPERTY OWNER(S) OR THEIR ASSIGNED AGENT. STORMWATER MANAGEMENT INCLUDES, BUT IS NOT LIMITED TO: CONSTRUCTION, MAINTENANCE, AND ONSITE FACILITIES WHETHER TEMPORARY (EROSION/SEDIMENTATION CONTROL) OR PERMANENT INCLUDING CONVEYANCE, STORAGE, DISCHARGE AND REGULATORY COMPLIANCE CONSISTENT WITH APPLICABLE CITY CODES, ORDINANCES, AND STATE AND FEDERAL LAW.

Residential Storm Water Requirement Note:

STORM WATER RUNOFF MANAGEMENT TO MITIGATE THE INCREASE OF RUNOFF FROM LAND DEVELOPMENT IS REQUIRED FOR RESIDENTIAL PROPERTIES.

Stormwater Drainage Easement Note:

THE EASEMENT INDICATED SHALL BE KEPT CLEAR OF FENCES, BUILDINGS, PLANTINGS, AND OTHER OBSTRUCTIONS TO THE OPERATION AND MAINTENANCE OF THE DRAINAGE FACILITY, AND ABUTTING PROPERTY SHALL NOT BE PERMITTED TO DRAIN INTO THE EASEMENT EXCEPT BY APPROVED METHODS.

Roadway Design

| Street Classification | Minimum ROW | Road Width | Design Speed (mph) | Horizontal Curve Radii (min) | Tangent between reverse curve | |
|-----------------------|-------------|-------------|--------------------|------------------------------|-------------------------------|-----|
| | | | | | | |
| Parkway | 180' | 76' (2) | 45-55 | 700', 1200', 1300' | 175' | (8) |
| Major Arterial | 120' | 72' (3) | 45 | 700' | 125' | (8) |
| Arterial - Rural | 120' | 70' (7) | 40 | 600' | 125' | (8) |
| Arterial - Urban | 90' | 58' (4) (7) | 45 | 700' | 125' | (8) |
| Major Collector | 80' | 58' (7) | 40-45 | 600', 700' | 125' | (8) |
| Downtown Approach | 70' | 38' | 35-40 | 470', 600' | 125' | (8) |
| Collector | 60' | 36' | 35, 40 | 470', 600' | 125' | (8) |
| Local/Residential | 50' | 31' | 25, 30 | 180', 300' | 75' | (8) |

Street Grade: 0.5%, minimum

Max. Grade: 5% - 10%

1. Road Width measured back of curb to back of curb inclusive of curb and gutter
2. Road Width consists of 3 sets of 12' travel lanes and 2' shoulder, divided by 20' raised median
3. Road Width consists of 3 sets of 12' travel lanes, divided by 20' raised median
4. Road Width consists of 2 sets of 11' travel lanes, with 7' bike lanes, divided by 16' raised median
5. Road Width includes pavement bicycle lane adjacent to travel lanes
6. Road Width consists of 2 sets of 11' travel lanes, with 7' bike lanes
7. Road Width includes pavement bicycle lane adjacent to travel lanes
8. Based upon AASHTO table 3-23 Tangent Runout Lengths

All traffic control plans shall comply with the Texas Manual on Uniform Traffic Control Devices (TMUTCD).