

**CITY OF GRANBURY, TEXAS**

**POLICY**

**FOR THE INSTALLATION OF**

**PUBLIC IMPROVEMENTS**

**MAY, 1997**

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## A GUIDE TO LAND DEVELOPMENT

The following outline is prescribed as a guide for developing land in the City of Granbury.

1. Make contact with the Director of Community Development of the City of Granbury (116 West Bridge Street, Granbury, Texas, 76048, phone number (817)573-9692) for guidance as to what steps are needed before land can be developed and used.
2. Make formal request for annexation if area is not totally within the City.
3. File "conceptual site plan" with Community Development Department. Plan should show landscaping, streets, lot sizes, thoroughfares, abutting frontage streets, type of development, drainage, etc.
4. If property is not zoned properly, a zoning change request shall be filed previous to platting.
5. File "preliminary plat" with Community Development Department. File application to vacate streets, alleys, easements, and plat abandonment.
6. After approval of preliminary plat, make request by letter to the Director of Community Development for a Public Improvements Agreement. Please include with the letter cost estimates and exhibits. (Public Improvements include streets, street lights, street name signs, storm drains, water, sewer and park facilities.)
7. Execute the Public Improvements Agreement and provide required security guarantees and fees. The Public Improvements Agreement is then presented to the City Council for approval.
8. Submit "final plat" with Community Development Department. Upon approval of the Final plat, and after completion and acceptance of the subdivision, the City will file the plat at the courthouse to be part of the plat records
9. Construct public improvements as agreed to in the Public Improvements Agreement and provide utilities as needed.
10. After final completion, request final acceptance letter along with plat recording information.
11. Land is now ready for building permits.

NOTE: The above outline is an abbreviated list of items to be used as a guide, and not meant to be a complete list of requirements.

## REQUIREMENTS FOR A PUBLIC IMPROVEMENTS AGREEMENT REQUEST

To be submitted to the Director of Community Development

1. Name of Developer/Mailing Address/(local) Phone Number/ also, whether Developer is a Company, Partnership, Joint Venture, Individual or etc.
2. Exact Name of Person(s) authorized to sign Public Improvements Agreement, Title of Signatory in Development Company (President, Partner, Individual, etc.).
3. Applicable Filing Fee made payable to City of Granbury.
4. If Developer is a Joint Venture, we need the names of the joint venturers or a Joint Resolution or Power of Attorney giving the Signatory power to do so.
5. Submissions as per "Policy for the Installation of Public Improvements" below.

COST ESTIMATE	ESTIMATE FOR DEVELOPER'S SHARE OF COSTS	ESTIMATE FOR CITY'S SHARE OF COSTS	ESTIMATE FOR TOTAL COSTS OF PROJECT	MYLAR EXHIBIT SHOWING CONFIGURATION OF DEVELOPMENT
WATER LINES (If required)	REQUIRED	REQUIRED	REQUIRED	EXHIBIT "A"
SANITARY SEWER (If required)	REQUIRED	REQUIRED	REQUIRED	EXHIBIT "B"
STREETS (If required)	REQUIRED	REQUIRED	REQUIRED	EXHIBIT "C"
STORM DRAINAGE (If required )	REQUIRED	REQUIRED	REQUIRED	EXHIBIT "D"
STREET LIGHTS & STREET NAME SIGNS (If required)	REQUIRED	REQUIRED	REQUIRED	EXHIBIT "E"
TOTAL PROJECT	REQUIRED	REQUIRED	REQUIRED	LOCATION MAP <u>REQUIRED</u> - Show Development's Relationship to City of Granbury

Exhibits should always be placed in alphabetical order, no matter what facilities are required. If only streets are required, then only Exhibit "C" would be in the submittal.

**PROCEDURES FOR OBTAINING A CONTRACT  
FOR THE INSTALLATION OF PUBLIC IMPROVEMENTS**

I. Contract for the Installation of Public Improvements Required:

A contract for the installation of public improvements is required when public facilities are needed and whenever any new construction is planned. The life of a standard Public Improvements Agreement shall be two (2) years, and it is understood that any obligations on the part of the City to make any refunds shall cease upon the expiration of the two (2) years from the date of execution of the Agreement. If the construction under the Public Improvements Agreement shall have started within the two year period, the life of the Public Improvements Agreement may be extended for an additional one-year period. Public Improvements Agreements not completed within the time periods stated above will require renewal of the contract with all up-dated agreements being in compliance with the policies in effect at that time. Developers must recognize that City funds may not be available to pay all or a portion of the normal City share for renewed contracts. It must be understood by all parties to the Public Improvements Agreement that any of the facilities or requirements included in the contract that are to be performed by the developer but not performed by the developer within the time periods stated above, may be completed by the City at the developer's expense, and the City of Granbury shall not be obligated to make any refunds due to the developer on any facilities constructed under this agreement until all provisions of the agreement are fulfilled.

II. Information Regarding Proposed Contracts:

Information concerning proposed contracts for installation of public improvements can be obtained from the Community Development Director of the City of Granbury, 116 West Bridge Street, Granbury, Texas, 76048, phone number (817)573-9692.

III. Requests for Preparation of Contracts:

A request for the preparation of a proposed contract, requiring water and wastewater facilities, street improvements, storm drains, park facilities or street lights should be made by letter to the Community Development Director, together with a reproducible copy of exhibits clearly designating the proposed area to be developed, along with cost estimates of all public improvements needed. The letter should contain any specific or unusual requests of the developer and the name and title of the person authorized to sign the Public Improvements Agreement. Requests which do not include the required data, number of exhibits and/or cost information will be considered incomplete and not accepted for processing by the City until all required data is provided to the city staff.

IV. Time Required for the Preparation of Contracts:

As a general rule contracts will be processed and contract documents returned to the developer for signature in a three or four week period, unless additional time is needed to perform preliminary engineering.

V. Approval of Contracts:

After the contract has been signed by the developer and returned to the Community Development Director, together with necessary security guarantees, it will be submitted to the City Manager for review. If the provisions of the contract conform with, or exceed minimum requirements of City Council policies for the installation of public improvements, the City Manager will submit the contract to the City Council for approval. If any special provisions or deviations from established policies are included in the contract, specific notice of those provisions are required. Approximately three weeks are normally required before the contract can be scheduled on the agenda of the City Council meeting, which is usually held the first and third Tuesday of each month.

VI. Security Requirements:

In order to be satisfied that all public improvements required will be constructed and to insure that the City might not incur liabilities in the event of default, the City requires that the developer provide security guarantees in the following amounts and under the following conditions:

1. If the total project cost is estimated to be under \$25,000 the City will generally not require a security deposit from the developer.
2. If the total project cost is estimated to be equal to or greater than \$25,000 the developer shall furnish a security deposit in one of the following ways:
  - A) Furnish the City with a performance and payment bond executed by a surety company authorized to do business in the State of Texas in an amount equal to one hundred percent (100%) of the estimated developer's share of the cost of installing the required public improvements. The bonds shall be subject to the approval of the City Attorney and must be executed by a corporate surety in conformance with Texas law. In order for a surety to be acceptable to the City, the name of the surety shall be included on the current U. S. Treasury list (Circular 570) of acceptable sureties, and the amount of bond written by any one acceptable company shall not exceed the amount shown on the Treasury list for that company. Each bond shall be properly executed by both the developer and the surety

company. No sureties will be accepted by the City which are at the time in default or delinquent on any bonds or which are interested in any litigation against the City. Should any surety on the contract be determined unsatisfactory at any time by the City, notice will be given to the developer to that effect and the developer shall immediately provide a new surety satisfactory to the City; or

- B) Assign an interest bearing account, with a financial institution which is insured by the Federal Deposit Insurance Corporation or Federal Savings and Loan Insurance Corporation, or deposit a certified check or cash with the City in an amount equal to the percentages as discussed below. If an interest bearing account is utilized, the developer shall execute three copies of a letter, approved by the City Attorney, assigning the account to the City and authorizing the City to withdraw funds and requiring authorization by the City before the developer may withdraw funds. Any arrangement involving an interest bearing account shall be accepted in writing by the financial institution.

- 1) The developer shall guarantee one hundred percent (100%) of the estimated developer's share of the cost of the required public improvements by one of the methods discussed above.

As significant portions of the public improvements are completed in accordance with the applicable construction standards, the developer may make application to the Director of Community Development to reduce the amount of the security guarantee. If the City is satisfied that such portion of the public improvements has been completed in accordance with City standards it may cause the amount of the security guarantee to be reduced, by such amount that it deems appropriate, so that the remaining amount adequately insures the completion of the remaining public improvements; or

- 2) The developer shall guaranteed thirty percent (30%) of the estimated developer's share of the cost of the required public improvements by one of the methods discussed above.

After seventy five percent (75%) of the public improvements requiring developer participation are completed in accordance with the applicable construction standards, the developer may make application to the Director of Community Development to reduce the amount of the security guarantee. If the City is satisfied that such portion of the public improvements has been completed in accordance with City standards, it may cause the amount of the

security guarantee to be reduced by such amount that it deems appropriate, so that the remaining amount adequately insures completion of the remaining public improvements.

Where City participation is necessary or desired by the developer, the developer shall also guarantee one hundred percent (100%) of the estimated City's share of the cost of the required public improvements by one of the methods discussed above.

As significant portions of the public improvements requiring City participation are completed in accordance with the applicable construction standards, the developer may make application to the Director of Community Development to reduce the amount of the security guarantee. If the City is satisfied that such portion of the public improvements has been completed in accordance with City standards, it may cause the amount of the security guarantee to be reduced under the conditions stated above.

3. A professional engineer hired by the developer and licensed to practice in the State of Texas shall furnish estimates of the cost of construction of all required improvements to the Director of Community Development, who shall review the estimates in order to determine the adequacy of the security guarantees for insuring the construction of the required facilities.

#### VII. Engineering

The developer shall retain a professional civil engineer, licensed to practice in the State of Texas, for all design in new subdivisions or developments, including streets, storm drains, water, sanitary sewers and street lights.

The City will provide construction engineering, except for the setting of line and grade stakes for streets, storm drains, street lights, water and sanitary sewer on all projects regardless of size. The setting of line and grade stakes for streets, storm drains street lights, water and sanitary sewer shall be the responsibility of the developer except that the City reserves the right to pre-qualify persons and/or firms that are hired to provide this surveying and to check the accuracy of the surveying and the conformance of the stakes to the approved plans.

#### VIII. Award of Construction Contract

Where City financial participation is involved in the installation of public improvements, the City shall advertise and receive bids on the project. The City shall make recommendations to the developer concerning the award of the construction contract to

the responsive low bidder. If there is no City participation in the cost, the developer has the option of advertising and awarding his own contract to the low bidder or awarding the contract on a negotiated basis. Regardless of the method utilized above, the developer shall employ a construction contractor who is approved by the City.

IX. Standard Policies Available:

Complete sets of the policy for the installation of public improvements as adopted by the City Council are available to all interested persons from the Community Development Director, located at City Hall, 116 West Bridge Street, phone (817)573-9692.

## DEFINITIONS

For the purpose of these policies, the following terms, phrases, words and their derivations shall have the meaning given herein. When not inconsistent with the context, words used in the present tense include the future, words in the plural number include the singular number and words in the singular number include the plural number. Definitions not expressly prescribed herein are to be determined in accordance with customary usage in municipal planning and engineering practices. The word "shall" is always mandatory, while the word "may" is merely directory.

- A. **Alley** - A minor public right-of-way not intended to provide the primary means of access to abutting lots, which is used primarily for vehicular service access to the back or sides of properties otherwise abutting on a street.
- B. **Approach Mains:**
  - a. **Water**  
The offsite main required to connect a development to a source of ample supply. It shall be not less than 8 inches in diameter and of a size large enough to serve both the development for which service is requested and adjoining areas, as determined by the Water/Wastewater Department.
  - b. **Wastewater**  
The sanitary sewer required by the Water/Wastewater Department to serve the entire drainage area in which it is to be constructed, both inside and outside of a developer's property, under ultimate development conditions, to connect sanitary sewer facilities in the development to the City wastewater system.
- C. **Bond** - Any form of a surety bond in an amount and form satisfactory to the City.
- D. **City** - The City of Granbury, Texas, together with all its governing and operating bodies.
- E. **City Council** - The duly elected governing body of the City of Granbury, Texas.
- F. **City manager** - The person holding the position of city manager as appointed by the City Council according to the City Charter.
- G. **Construction Engineering** consists of the following:
  - a. Review and approval of plans and specifications and contract documents.
  - b. Advertising and receipt of bids and award of contracts (if required).
  - c. The setting of line and grade stakes from the approved plans.
  - d. Necessary laboratory tests to assure compliance with plans and specifications except those specified in the project specification documents.
  - e. Field inspection to assure compliance with plans and specifications.

- f. Review and approval of change orders submitted by developer's design engineer.
  - g. Preparation of monthly estimates and final payments to the construction contractor if the contract is awarded by the City.
  - h. Final inspection for acceptance of project by the City.
- H. **Design Engineering** - consisting of all necessary studies, tests, preliminary plans, etc., necessary for the preparation of final construction plans, specifications and contract documents meeting the approval of the City.
- I. **Drainage Plan** - A general plan for handling the storm water affecting property proposed for development. The Drainage Plan shall show how and where water will be received from adjacent higher areas; how and where it will be collected and handled within the property; and how and where it will be discharged to a recognized drainageway in a lower area. The plan shall deal with individual watershed areas as necessary; show the proposed phasing of development and attendant phasing of drainage improvements; describe any unusual water features anticipated; provide topographic, physical and geographical information; and form the basis for subsequent review of design plans submitted for property to be final platted.
- J. **Flood Plain** - Any land area susceptible to being inundated by water from a one hundred (100) year frequency storm. This condition could result from the overflow of inland waters or the unusual and rapid accumulation of runoff of surface waters.
- K. **Homeowner's Association** - The HOA shall be organized as a non-profit corporation with automatic membership in the HOA when property is purchased. This shall be specified in the covenants which run with the land, and which bind all subsequent owners. Covenants for maintenance assessments shall also run with the land. Assessments shall also be handled in covenant form rather than as articles of incorporation since the latter may be easily amended. Included in the maintenance covenants shall be procedures for changing them at stated intervals since maintenance costs may change over time. Deeds shall also mention the rights and responsibilities of property owners to the HOA. The HOA shall also be responsible for liability insurance, local taxes, and the maintenance of all commonly held facilities through the use of a pro-rata share formula for all property owners.
- L. **Improved Drainage Channel** - A drainage channel constructed to design standards, with constant cross sections, used to convey the 100 year design frequency storm, plus one foot of free board, within its banks.
- a. **Unlined Channel** - This channel has a trapezoidal shape with side slopes no steeper than 3 feet horizontal to 1 foot vertical (4 to 1 preferred). The side slopes are smooth, free of rocks and are covered with approved turf. The bottom section has either a natural solid rock surface or a reinforced concrete pilot channel.

- b. **Lined Channel** - This channel has a trapezoidal shape with side slopes no steeper than 1 foot horizontal to 1 foot vertical. The entire surface is covered with reinforced concrete.
- M. **Natural Channel** - An earthen drainage channel in its natural state, generally with irregular cross sections. This channel has its original meanders and does not have consistent side slopes. Such channels may be modified by cutting or filling in accordance with plans approved by the City. Natural channels may be approved with or without channel improvements provided that:
- a. the design frequency storm flow cannot be contained in a seventy-two (72) inch internal diameter pipe,
  - b. no effective erosion is anticipated or expected,
  - c. the smallest cross section can convey the 100 year design frequency storm, plus one foot of free board, within its banks,
  - d. sufficient flood plain and floodway easements are dedicated to provide protection to adjacent properties or facilities, and
  - e. arrangements have been made for perpetual maintenance by an approved maintenance entity.
- N. **On-site facilities or improvements** - On-site shall mean those existing or proposed facilities or improvements constructed within the property boundaries of the plat. On-site shall also mean those existing or proposed facilities required to be constructed or improved immediately adjacent to the property which are required to serve the development. These include streets, water lines, sewer lines, storm drainage, curb and gutter and any other construction or reconstruction to serve the property.
- O. **On-Site Mains:**
- a. **Water**  
An on-site water main is one that provides service within a development or subdivision.
  - b. **Wastewater**  
An on-site sanitary sewer main is one designed to serve the entire drainage area in which it is to be constructed both inside and upstream from all or part of a developer's property, under ultimate development conditions, but which is located entirely within the limits of the development.
- P. **Perimeter street** - Any existing or planned street which abuts the subdivision or addition to be platted.

Q. **Public Improvements Agreement or Contract** - A contract between the developer and the City for the construction of one or more of the following public facilities within public right-of-way or easement: water, sanitary sewer, street, storm drain, street light, and street name signs. A contract may include private facilities within right-of-way dedicated as private right-of-way or easement on a recorded plat.

## POLICY FOR WATER AND/OR WASTEWATER IMPROVEMENTS

The following policy shall govern the installation of all water and/or wastewater improvements within the corporate limits of the City of Granbury, Texas, and its extraterritorial jurisdictional area.

### I. DESIGN REQUIREMENTS

1. All water and/or wastewater improvements shall be designed and constructed in accordance with applicable Federal and State regulations, the City of Granbury Subdivision Ordinance, these Public Improvements policies, the adopted Standard Specifications and Standard Details and other design criteria of the Water/Wastewater Department.
2. The developer shall retain a professional civil engineer, licensed to practice in the State of Texas, for the preparation of construction plans, specifications and contract documents for all public improvements required by the proposed development. No public improvements shall be installed until and unless said plans have been received and approved by the City.
3. The determination as to compliance of the plans and specifications with applicable policies, regulations and criteria shall be the sole responsibility of the City. Approval of the plans and specifications by the City signifies the City's acceptance of the general design concept and that the minimum criteria appears to be satisfied. Such approval shall not be deemed to be an assumption of responsibility or liability by the City of any negligent act, or omission in the performance of the developer's engineer or in his preparation of such plans and specifications.
4. Design and construction plans shall be submitted according to the requirements set forth herein and any adopted City standards and/or specifications. Plans for all public improvements shall be submitted on sheets no larger than twenty-four inches by thirty-six inches (24" x 36") and at a scale of one inch equals 40 or 50 feet (1" = 40' or 50') horizontally and one inch equals four or five feet (1" = 4' or 5') vertically.
5. The following minimum number of plans and specifications shall be submitted to the City during the review phase, construction phase and upon completion of the project. Additional sets may be required for other departments and/or agencies.
  - A) Four (4) sets of the design plans and preliminary specifications each time a submittal is made to the City for review purposes.
  - B) Five (5) sets of the approved final construction plans and approved specifications prior to award of contract.

- C) Three (3) sets of "as built" construction plans and one (1) set of "as built" sepias when all the improvements are found to be installed in accordance with the approved plans and prior to acceptance by the City.
6. If the design plans and specifications are incomplete, a letter stating the necessary changes required or requested on the plans and/or specifications or one (1) set of plans and specifications marked with the necessary changes and/or comments, shall be returned to the developer's engineer for his use in making needed corrections. The letter or the marked plans and specifications must be returned to the City with the revised plans and specifications.
7. To determine the water and/or wastewater improvements required to provide service to the proposed development and the surrounding properties, the developer shall provide a comprehensive water and/or wastewater facilities study to evaluate the adequacy of the planned water and/or wastewater improvements for present and future needs. The study shall include a hydraulic study for water distribution systems and/or a drainage study for the wastewater collection system. The City will approve the sizes of on-site and/or approach facilities based on these studies, the current City design criteria, the City Fire Code and other applicable criteria.
8. The developer shall be responsible for providing all water and/or wastewater facilities required to provide necessary service to the development, subdivision or lot/tract. An approach main and its appurtenances, if required, must be capable of providing water and/or wastewater service to the development, from a point in the existing water and/or wastewater system that has adequate capacity as determined by the comprehensive study required by item 7 above.
9. WATER IMPROVEMENTS:
- A) Minimum water main pipe size shall be eight inches (8") nominal internal diameter or such larger size as may be necessary to properly serve the proposed development. All underground water pipe shall be PVC Class 150, AWWA C-900 or ductile iron, AWWA C151. Fittings shall be American manufactured cast or ductile iron.
- B) Water mains shall be located behind the curb and/or opposite sides of the street, whenever possible, and shall have a minimum cover of forty-two (42") inches.
- C) Water service lines shall be a minimum three-fourths inch Type "K" copper with compression brass fittings and shall be provided with a corporation at the main and a curb stop located at least two (2) feet outside of curb. Residential all long side services shall be one inch "K" copper (dual). All bullhead service shall be one inch "K" copper.

- D) Water services for each lot shall be stubbed out with an angle stop to the location required, as shown on the City of Granbury standard detail. A meter box conforming to Water/Wastewater Department requirements shall be installed over the end of each service.
- E) In general, fire hydrants shall be placed on block corners or near the center of the block in such a manner as to put all of every lot within a radius of five hundred (500) feet (preferable four hundred (400) feet) of a fire hydrant in residential areas and within a radius of three hundred (300) feet in commercial or industrial areas. At all locations flanged valve to "tee" connection or approved restraint coupling is required. Valve to tee connection shall be flanged or with approved restraint coupling.
- F) All fire hydrants shall have one - five and one quarter inch (5 1/4") pumper nozzle and two - two and one half inch (2 1/2") hose nozzles with the City's standard threads, a main barrel valve opening of not less than five and one-quarter inches (5 1/4"). Six-inch gate valves shall be placed on all fire hydrant leads.
- G) All fire protection service lines require double swing check valves contained in a vault at the connection to City main. Resilient wedge valves shall be placed on main side of the vault, outside the vault.
- H) All valves two (2) inches and larger shall be resilient wedge type and shall be square head operating nut. Location and frequency of valves to be approved by the City. Valve boxes located in non-paved areas shall have a 2x2 foot concrete pad around the top.
- I) Other appurtenances such as air relief valves, blow off valves and flushing valves shall be placed as required by the City.

10. WASTEWATER IMPROVEMENTS:

- A) Minimum wastewater main pipe size shall be eight inches (8") nominal internal diameter or such larger size as may be necessary to properly serve the proposed development. All underground wastewater pipe shall be PVC SDR-35 or ductile iron, AWWA C151.
- B) Wastewater service lines shall be a minimum four inch (4") internal diameter Schedule 40 PVC and shall meet the same requirements as for the wastewater mains described above. Preferable grades for service lines is two (2) percent with one (1) percent being the absolute minimum. Curbs shall be stamped showing the location of sewer taps.

- C) Wastewater service lines for each lot shall be carried to the property line at the center of the lot. Two-way clean outs shall be installed at the property line. The clean out assembly shall be fitted with a water tight threaded cap and terminated approximately six (6) inches below finished grade, and housed within a City approved vault or box.
  - D) Where possible, wastewater mains shall be located in street or ally rights-of-way or utility easements, and shall be a minimum of thirty-six (36) inches deep to invert.
  - E) Grades and appurtenances of wastewater lines shall conform to the requirements of the Texas Natural Resource Conservation Commission.
  - F) The maximum distance between manholes shall be five hundred (500) feet and shall be concrete cast in place construction only. Manholes shall be located at changes in pipe size, direction or grade.
  - G) Where necessary, location and design of lift stations and other appurtenances shall be as approved by the Water/Wastewater Director.
11. Utility easements shall be provided by the developer along the entire length of the system for all water and/or wastewater facilities outside of a public right-of-way. The width of all easements shall be approved by the City.

## II. CONSTRUCTION REQUIREMENTS

1. Standard Specifications for Public Works Construction, North Central Texas, are hereby adopted by reference and made part of this policy, which shall be controlling in construction and installation of all water and/or wastewater improvements required herein. A copy of these standard specifications and/or design standards can be obtained from the North Central Texas Council of Governments. Specifications and/or design standards utilized locally by the City of Granbury may be obtained from the Water/Wastewater Department.
2. Construction of water and/or wastewater improvements shall be by a contractor employed by the City of Granbury, by Water/Wastewater forces or by a contractor employed by the developer as described in Section IV. below.
3. Water and/or wastewater facilities and appurtenances shall be constructed at the locations and to the line and grade established in the approved final construction plans. It is the responsibility of the developer and his contractors to perform all construction in accordance with the approved construction plans and specifications. Any change in design required during construction shall be made by the Engineer whose seal and

signature are shown on the plans. All changes shall be approved by the Water/Wastewater Director.

4. All construction shall be performed in accordance with applicable local, State and Federal safety standards and requirements.
5. Residential service connections shall be installed at the same time as the water and/or wastewater mains are constructed.
6. Water lines shall be tested hydrostatically at 150 p.s.i. for a minimum of four (4) hours and disinfected per City and the Texas Natural Resource Conservation Commission (TNRCC) specifications prior to placement in use.
7. Air relief valves, blow off valves and flushing valves determined to be required by the City during construction, shall be constructed at designated locations in accordance with approved specifications.
8. The City will provide construction engineering and inspection, except for the setting of line and grade stakes for water and/or wastewater improvements on all projects regardless of size. The setting of line and grade stakes for water and/or wastewater improvements shall be the responsibility of the developer, except that the City reserves the right to pre-qualify persons and/or firms that are hired to provide this surveying and to check the accuracy of the surveying and the conformance of the stakes to the approved plans.

### III. DISTRIBUTION OF COST

1. The developer shall be responsible for one hundred percent (100%) of the cost of installing all standard water and/or wastewater improvements required by the City. Standard water main pipe size shall be eight inches (8") diameter or such larger size as may be necessary to properly serve the proposed development. Standard wastewater main pipe size shall be eight inches (8") diameter, or such larger size as may be necessary to properly serve the proposed development.
2. In the event that the City's Master Water/Wastewater Plan, Capital Improvements Plan or the City approved developer's comprehensive water and/or wastewater facilities study indicate that larger sized water and/or wastewater improvements are needed, than those required to provide exclusive service to the proposed development, for ultimate growth considerations, the developer shall be responsible for one hundred percent (100%) of the cost of all improvements designed to provide exclusive service to the proposed development. Should the City elect to install larger facilities than indicated to be necessary for the exclusive service to the development, the additional incremental cost shall be borne by the City based on the unit prices contained in the lowest responsible bid received from a qualified bidder.

3. The developer shall be responsible for one hundred percent (100%) of the cost of installation of all water and/or wastewater services to each proposed or existing lot or tract within the development.
4. Any replacement or relocation of an existing water and/or wastewater facility required by the developer to accommodate a contemplated or projected use of a property shall be the responsibility of the developer. In the event that the City requests that a larger line be substituted for the existing line, the City shall be responsible for the additional incremental cost. If the increase in size is necessary to properly serve the proposed development or to provide capacity at least equivalent to that of the existing line the developer shall be responsible for the total cost. The plans for any such replacement or relocation shall be approved in writing by the Water/Wastewater Director prior to initiation of construction.
5. No permanent structures shall be constructed over an existing water main or an existing wastewater main or lateral. In the event that the developer desires to construct a permanent structure over an existing water and/or wastewater facility, the developer shall be responsible for the total cost of relocating the existing facility.
6. In those situations where the construction of water main transmission facilities or wastewater collector main facilities are not economically feasible, the developer may petition the Director to construct water supply facilities and/or package wastewater treatment facilities or water/wastewater pumping facilities, and, subject to the approval of the City Manager and the City Council, construct same.
  - A) When the special facilities are designed to provide service exclusively to the development, the developer shall be responsible for one hundred percent (100%) of the cost of such facilities. In the event that the City requires larger facilities be constructed to provide service to other areas, the developer shall be responsible for the portion which represents the cost of constructing facilities to provide exclusive service to the proposed development and the City shall be responsible for the remainder of the cost. In the event City funds are not available, the developer shall install those special facilities as are required to provide service to the proposed development.
  - B) The special facilities statement of this policy shall not be construed as requiring the City to provide water and/or wastewater service to areas where normal service, as defined in this policy, is not immediately or economically available. Rather, it is intended to permit an equitable method of providing such water and/or wastewater service where the best interests of the City will be served by the use of such facilities.

7. The developer shall pay a construction inspection and materials testing fee in the amount of two percent (2%) of the developer's share of the water and/or wastewater construction cost. The two percent (2%) amount shall be submitted as a cash deposit together with the signed Public Improvements Agreement to the Director of Community Development. For the preparation of a Public Improvements Agreement, two percent (2%) of the estimated cost of the developer's share of the water and/or wastewater construction cost shall be used for the construction inspection and materials testing fee. This amount may be adjusted by the developer or the City, upon written request, to conform to the actual construction cost upon completion and acceptance of the water and/or wastewater facilities, provided the difference is greater than twenty-five dollars (\$25.00).
8. The City shall assume a share of the cost of the water and/or wastewater improvements only if funds are available for such participation. In the event that no funds are available for City participation, the developer shall award the contract and deposit with the City cash or a bond in the amount of the total construction cost of the facility.

#### IV. GENERAL ARRANGEMENTS AND FINANCING

1. Subsequent to the approval of the preliminary subdivision plat, preliminary design plans and an adequate cost estimate, the developer shall request a Public Improvements Agreement to provide for the installation of water and/or wastewater improvements. Such request and accompanying information shall be in writing and addressed to the Director of Community Development. No construction shall begin until a Public Improvement contract has been executed by the developer and the City.
2. The Water/Wastewater Department shall review and may approve or modify the improvements deemed necessary by the developer's engineer. The Water/Wastewater Director will submit the Water/Wastewater portion of the Public Improvements Agreement to the Director of Community Development.
3. Simultaneous with the execution of the proposed Public Improvements Agreement by the developer, the developer shall furnish necessary security guarantees as specified under Item VI, Procedures for Obtaining a Contract for the Installation of Public Improvements.
4. Where City financial participation is allowed by this policy and desired by the developer, the City shall advertise and receive bids on the project. After approval of the bid tabulations and the apparent responsive low bidder, by the City, the developer may award the construction contract. The developer shall not award the contract for the project until such time as he has received written approval from the Water/Wastewater Director to do so. Under this procedure the developer is required to:
  - A) Require the contractor to furnish to the City satisfactory carriage of insurance in accordance with Item 1.26, Insurance, Standard Specifications for Public Works

Construction, North Central Texas. Certificates of each policy shall be delivered to the City along with a written statement from the issuing company stating that said policy shall not be canceled, non-renewed or materially changed without advance notice being given to the City.

- B) Require the contractor(s) to furnish to the City performance, payment and maintenance bonds executed by a surety company authorized to do business in the State of Texas and subject to the approval of the City Attorney in an amount equal to one hundred percent (100%) of the contract price of the improvements. The performance and payment bonds shall be submitted prior to the City issuing the Notice to Proceed. The two (2) year maintenance bond(s) shall be submitted and approved prior to acceptance of the project.
- C) Following the setting of line and grade by a private surveyor hired by the developer, the contractor shall give 48 hours notice to the Water/Wastewater Department so that inspection personnel will be available. No work shall begin until the assigned inspector gives his consent to proceed.
- D) Any change order to the contract must be approved in writing by the City.
- E) Except for partial payments as provided below, the City's participation will not become due and payable to the developer until all work has been completed by the contractor and accepted by the City as complete, as evidence by a letter stating such acceptance, and until the developer has submitted evidence satisfactory to the City that final payment to the contractor has been made, and that all subcontractors and persons furnishing labor and materials have been paid in full and all claims settled. The City's participation shall be based upon actual quantities constructed as measured and calculated by the developer's engineer and approved by the Water/Wastewater Department.
- F) For projects involving City participation and where the participation amount is fully secured by either performance and payment bonds or an equivalent escrow deposit, the developer may request partial payments of the City's participation, based on completed work. All estimates for partial payments shall be approved by the Water/Wastewater Director prior to payment to the developer. The approval of any partial payment shall in no way constitute acceptance of the work, nor in anyway affect the obligations of the developer under this policy or the Public Improvements Agreement. Such partial payments may be approved on a monthly basis, and such payment checks will be issued by the City upon receipt of an affidavit executed by the contractor certifying that he had received payment for the accomplished work in accordance with contracts documents.

5. Where no City financial participation is allowed by this policy or where City financial participation is allowed but not desired by the developer, the developer has the option of advertising and awarding his own construction contract to the responsive low bidder or awarding the contract on a negotiated basis. Under this procedure the developer is required to comply with items A) through D) listed in paragraph 4 above, plus the following:
  - A) The developer shall employ a construction contractor who is approved by the City. This contractor must meet the City's requirements for being registered and bonded to perform work in a public right-of-way.
  - B) Prior to commencing work, the developer shall furnish copies of the contract between the developer and the contractor as required by the City. Upon approval by City officials, the developer will be notified in writing as to when he may commence work.
6. When all work required under the Public Improvements Agreement has been completed by the contractor and the following items have been accomplished, the City will accept the project as being complete, as evidenced by a letter to the developer stating such acceptance.
  - A) A final inspection of all improvements has been accomplished and the resulting 'Punch List' corrected, and
  - B) The contractor has provided the City a Maintenance Bond indicating that he will be responsible for defects in the project due to faulty materials and/or workmanship for a period of two (2) years from date of final acceptance, and
  - C) The developer has submitted evidence satisfactory to the City that final payment to the contractor has been made, and that all subcontractors and persons furnishing labor and materials have been paid in full and all claims settled, and
  - D) The required number of "as built" construction plans have been submitted to and accepted by the City.
7. Utility easements shall be provided to the City by the developer free of cost. Where a public or community necessity for such easement(s) has been determined by the City Council, and the requesting developer provided written evidence, including affidavits as appropriate, that he is unable to negotiate the purchase of the necessary easement(s) at a fair price, the City may expeditiously undertake to acquire same using its powers, provided the requesting developer agrees to pay the actual cost of the easement and any

and all other costs connected with such attempted acquisition.

8. The Water/Wastewater Director may require a developer to begin and complete construction of any water/wastewater facility included in the Public Improvements contract when, in the judgement of the Water/Wastewater Director, the facility is needed for the proper and orderly development of the area.

When the Water/Wastewater Director determines that a water and/or wastewater facility should be constructed, he shall notify the developer in writing to make arrangements for construction of the facility. Within 15 calendar days after receiving the notice, the developer shall make arrangements for constructing the facility, including making the necessary payment to the City in accordance with this policy. Construction must be completed within 90 days from the date on which the developer received notice from the City to proceed with construction. If construction has not been completed within the 90 day period, the City may take whatever action is required to insure prompt completion of the improvements, including but not limited to, awarding a construction contract for the improvements and requiring forfeiture of the security guarantee to pay all costs resulting from failure of the developer to complete the improvements. Such costs shall include, but not be limited to, construction costs, engineering costs, administrative and legal expenses, damages, etc.

#### V. OWNERSHIP AND MAINTENANCE

1. All water and wastewater mains installed in connection with a development project, which is within a dedicated right-of-way or utility easement, shall be and shall remain the property of the City, and after expiration of the maintenance bonds, shall be maintained by the City.
2. All domestic/irrigation water services, from the water main to the meter (to include the meter and meter box or vault), installed in connection with a development project shall be and shall remain the property of the City. After the expiration of the maintenance bonds, these water services shall be maintained by the City.
3. All fire protection service lines, from the water main to the gate valve on the main side of the check valve, installed in connection with a development project shall be and shall remain the property of the City. After expiration of the maintenance bonds, these lines shall be maintained by the City.
4. All wastewater services installed in connection with a development project shall be and shall remain the property of the developer or single customer property owner. The City assumes no responsibility for the maintenance and/or operation of such services, even though the service is within a public right-of-way.

VI. EFFECTIVE DATE

This policy shall apply on all projects on which a Public Improvements contract (including all necessary engineering, technical materials, cost estimates and exhibits) has not been fully executed by the Water/Wastewater Services Department by the date of policy adoption by the City Council and on any Public Improvements contract that has not been fully executed and bonded by the developer and the City within ninety (90) days after the date of adoption of this policy by the City Council.

## POLICY FOR STORM DRAINAGE FACILITIES

The following policy shall govern the installation of all drainage facilities within the corporate limits of the City of Granbury, Texas, and its extraterritorial jurisdictional area.

### I. DESIGN REQUIREMENTS

1. All storm drainage improvements shall be designed and constructed in accordance with the City of Granbury Subdivision Ordinance, these Public Improvements policies, the adopted Standard Specifications and Standard Details and other design criteria of the Public Works Department.
2. The developer shall retain a professional civil engineer, licensed to practice in the State of Texas, for the preparation of construction plans, specifications and contract documents for all public improvements required by the proposed development. No public improvements shall be installed until and unless said plans have been received and approved by the City.
3. The determination as to compliance of the plans and specifications with applicable policies, regulations and criteria shall be the sole responsibility of the City. Where there is a question as to the justification or size of facilities required, doubt will be resolved in favor of additional drainage capacity. Approval of the plans and specifications by the City signifies the City's acceptance of the general design concept and that the minimum criteria appears to be satisfied. Such approval shall not be deemed to be an assumption of responsibility or liability by the City of any negligent act, or omission in the performance of the developer's engineer or in his preparation of such plans and specifications.
4. Design and construction plans shall be submitted according to the requirements set forth herein and any adopted City standards and/or specifications. Plans for all public improvements shall be submitted on sheets no larger than twenty-four inches by thirty-six inches (24" x 36") and at a scale of one inch equals 40 or 50 feet (1" = 40' or 50') horizontally and one inch equals four or five feet (1" = 4' or 5') vertically.
5. The following minimum number of plans and specifications shall be submitted to the City during the review phase, construction phase and upon completion of the project. Additional sets may be required for other departments and/or agencies.
  - A) Three (3) sets of the design plans and preliminary specifications each time a submittal is made to the City for review purposes.
  - B) Five (5) sets of the approved final construction plans and approved specifications prior to award of contract.

- C) Three (3) sets of "as built" construction plans and one (1) set of "as built" sepias when all the improvements are found to be installed in accordance with the approved plans and prior to acceptance by the City.
6. If the design plans and specifications are incomplete, a letter stating the necessary changes required or requested on the plans and/or specifications or one (1) set of plans and specifications marked with the necessary changes and/or comments, shall be returned to the developer's engineer for his use in making needed corrections. The letter or the marked plans and specifications must be returned to the City with the revised plans and specifications.
  7. For any set of plans which is 2 years old or older, a new submittal, review and new signatures shall be required before a construction contract can be let.
  8. This policy is based on a total concept design which includes the carrying capacity of the street, the right-of-way or easement section and the underground drainage system or channel, which in combination will provide the necessary total carrying capacity to protect from runoff of a storm of 100 year design frequency magnitude.
  9. Storm flow resulting from a one hundred (100) year frequency storm once contained in a public right-of-way and/or drainage easement shall continue to be retained within public easements or rights-of-way, unless approved by the City under a strictly controlled set of criteria. Overflow swells intended to convey "public" storm flow shall be contained in a drainage easement, included in the design plans and constructed in conjunction with the storm drainage improvements.
  10. There are several methods of relating runoff to precipitation in general use. As indicated in Section 3.9 of the Subdivision Ordinance, two methods have been approved and accepted for use in the City of Granbury. The methods are (1) the use of the Rational Method for watersheds less than 500 acres, and (2) the use of synthetic unit hydrographs, developed from runoff data collected from watersheds judged similar to watersheds in or near Granbury, for watersheds equal to or greater than 500 acres.

The relationship between rainfall and runoff is expressed through application of the Rational Method with satisfactory accuracy for small watersheds, but the accuracy diminishes as the watershed to which the procedure is applied increases in size. Without actual records, it is believed that the use of the synthetic unit hydrograph procedure provides the best means for estimating the relationship between rainfall and runoff for the larger watersheds.

The following procedure will provide satisfactorily accurate estimates of the runoff for which the storm drainage and flood control systems must be designed.

The Rational Formula will be used until the watershed area reaches approximately 500 acres. At that point the peak rate of runoff will be estimated by both the Rational Formula and by the unit hydrograph method. If use of the unit hydrograph produces the greater estimate, it will be used to estimate runoff discharges for all further increases in the watershed area. If the Rational Formula produces the greater estimate, the above comparison will be repeated at incremental increases of approximately 100 acres in watershed area until the unit hydrograph produces the greater result, after which it will be used for further estimates, or until the design of the system serving the watershed is complete.

11. Drainage Area/Watershed - The size and shape of the watershed for each installation (project) must be determined. The area of each watershed may be determined through the use of planimetric - topographic maps of the area, supplemented by field surveys in areas where topographic data has changed or where the contour interval is insufficient to adequately determine the direction of flow.

The outline of the drainage area contributing to the system being designed and outline of the sub-drainage area contributing to each inlet point shall be determined. The outline of the drainage divides must follow actual drainage lines rather than the artificial land divisions used in locating the drainage lines in the design of sanitary sewers. The drainage lines are determined by the pavement slopes, location of down spouts, paved and unpaved yards, grading of lawns and many other features that are altered by the development of a city.

A drainage area map shall be provided for each installation on a scale no smaller than 1 inch equals 200 feet.

12. The following table provides approximate values for the runoff coefficient pertaining to land uses to be used in the determination of storm runoff.

#### RUNOFF COEFFICIENT "C"

<u>LAND USE</u>	<u>"C"</u>
PARKS OR OPEN AREAS	0.30
RESIDENTIAL (LOTS > 1.0 ACRE)	0.35
RESIDENTIAL (LOTS < 1.0 ACRE)	0.50
INDUSTRIAL	0.70
APARTMENTS	0.75
BUSINESS	0.80

In the event that an innovative design concept would result in a coefficient of runoff sufficiently different than that shown above, the Public Works Director may allow the

design runoff coefficient to be determined from approved cover data by applying 90% runoff from impervious areas and 20% runoff from pervious areas.

13. Time of concentration - The time of concentration is defined as the longest time without unreasonable delay, that will be required for a drop of water to flow from the upper limit of a drainage area to the point of concentration. The time of concentration to any point in a storm drainage system is a combination of the "inlet time" and the time of flow in the drain. The inlet time is the time for water to flow over the surface of the ground to the storm drain inlet. Because the area tributary to most storm drain inlets is relatively small, it is customary in practice to determine the inlet time on the basis of experience under similar conditions. Inlet time decreases as the slope and the imperviousness of the surface increase, and it increases as the distance over which the water has to travel and the retention by the contact surfaces increase. The shortest inlet time to be allowed for impervious areas on steep slopes shall be 5 minutes. All "inlet time" should be verified by direct overland flow computations.

The following table provides the minimum values for inlet time of concentration which are recognized by the City of Granbury:

MINIMUM INLET TIME OF CONCENTRATION

<u>TYPE OF AREA</u>	<u>MINIMUM INLET TIME</u>
Parks and Open Areas	20 Min.
Residential	15 Min.
Industrial	10 Min.
Business	10 Min.
Mercantile District	5 Min.

14. The minimum storm frequency to be used in the design of various elements of the storm drainage system shall be as follows:

STREETS	5 Years
SYSTEMS COLLECTING ON GRADE INLETS	5 Years
SYSTEMS COLLECTING LOW POINT INLETS	100 Years
CULVERTS, BRIDGES, CHANNELS, CREEKS, STREET RIGHT-OF-WAY	100 Years

15. The relationship between rainfall intensity, storm duration, and frequency vary widely from place to place and with each storm, and there is no reliable method of predicting rainfall intensity with any degree of accuracy. In the design of storm drainage systems therefore, it is considered that the best procedure is to rely on historical records of duration, intensity, and frequency of storms that have occurred in the past. The U. S. Department of Commerce, through the U. S. Weather Bureau, has compiled a

considerable amount of information that is useful in this regard. This information is published by the U. S. Department of Commerce in Technical Paper No. 25 (T.P. 25), "Rainfall Intensity-Duration-Frequency Curves", December 1955 and Technical Paper No. 40 (T.P. 40), "Rainfall Frequency Atlas of the United States", May, 1961.

When submitting the drainage calculations for the drainage plan or the construction plans the developer's engineer shall submit to the City a copy of the Design Storm Frequency curves versus Rainfall Intensity and Storm Duration used in the calculations and the source of the data.

16. When the Unit Hydrograph Method is used for developing drainage calculations the developer's engineer shall submit to the City a copy of the design output highlighting the unit period, the values used for watershed coefficients and the procedure or program used.
17. Each installation (project) and/or development phase shall provide a drainage system which is fully functional and readily maintained.
18. Whenever the capacity of a street to the top of either adjacent curb is exceeded by storm runoff from a five (5) year design frequency storm, a storm drainage system shall be designed and constructed.
19. Storm flow which can be contained in a seventy-two (72) inch internal diameter pipe, or smaller sized pipe, shall be carried in an underground drainage system constructed in streets, alleys or drainage easements.
20. Main lines of an enclosed storm drainage system shall not be smaller than a twenty-four (24) inch diameter pipe. Inlet lead lines for an enclosed system shall not be smaller than an eighteen (18) inch diameter pipe.
21. Manholes shall be located at intervals not to exceed four hundred (400) feet for pipe thirty-six (36) inches in diameter or smaller. Manholes for pipe greater than thirty-six (36) inches in diameter shall be located at points where design indicates entrance into the system is desirable. However, in no case should the distance between openings exceed one thousand (1,000) feet. Manholes should preferably be located at street intersections, junctions or changes in alignment.
22. In those cases where storm flow cannot be handled by a pipe seventy-two (72) inches or smaller in diameter, the developer shall either install an improved drainage channel, of approved design, continue the underground drainage system with larger capacity or outfall the system into a natural channel.
23. Improved drainage channels shall be designed to convey the 100 year design frequency storm while maintaining one foot of free board within its banks. Detailed drainage

calculations substantiating the channel design shall be submitted to the City for its approval.

A) Unlined channels shall have a maximum side slope of 3:1 and a minimum grade of 0.3 foot per 100 feet. The minimum design velocity should be 3 fps, based on a 10 year frequency storm, to reduce siltation. The maximum design velocity shall be less than 8 fps, based on a 100 year frequency storm, to control erosion. Unless the excavated channel bottom is Austin Chalk, limestone, or other similar acceptable rock, a reinforced concrete pilot channel of sufficient width shall be required by the City. If an unlined channel is built the developer shall sod or seed the exposed ground, up to the top of banks, to prevent erosion. Where the design velocity exceeds 8 feet per second the channel shall be lined with reinforced concrete.

24. Under some unusual circumstances which would preclude an adequate outfall condition, an on-site detention system may be allowed. In this case, the design of the detention system shall be such that the additional runoff generated by the proposed development will be detained on site until it can be safely discharged off-site, and will not increase the amount of original discharge nor change the time of concentration downstream. The provision of either an adequate outfall condition or an on-site detention system shall be subject to the approval of the City. Drainage easements along a required outfall channel or ditch shall be provided until the flowline "day lights" on natural grade. The minimum grade allowed on an outfall channel or ditch will be 0.3 foot per 100 feet. Drainage easements will generally extend at least twenty-five (25) feet past an outfall head wall to provide an area for maintenance operations.

25. All coordination required with public and/or private utility agencies to eliminate conflicts with proposed storm drainage facilities shall be the responsibility of the developer and/or his engineer. Likewise, coordination with agencies requiring special conditions (i.e., railroads and the Texas Department of Transportation) shall be the responsibility of the developer and/or his engineer.

26. Drainage easements shall be provided by the developer along the entire length of the system for all storm drainage facilities and to an adequate outfall condition acceptable to the City outside of public right-of-way.

## II. CONSTRUCTION REQUIREMENTS

1. Standard Specifications for Public Works Construction, North Central Texas Council of Governments, are hereby adopted by reference and made part of this policy, which shall be controlling in construction and installation of all storm drainage facilities and other public improvements required herein. Standard Specifications for Construction of Highways, Streets and Bridges, 1993, Texas Department of Transportation, may also be

referenced as applicable for particular items. A copy of the preceding standard specifications and/or design standards can be obtained from the identified originating agency. Specifications and/or design standards utilized locally by the City of Granbury may be obtained from the Public Works Department.

2. Construction of storm drainage facilities shall be by a contractor employed by the City of Granbury or by Public Works forces as described in Section III.1. or by a contractor employed by the developer as described in Section IV below.
3. Storm drainage facilities and appurtenances shall be constructed to the line and grade established in the approved final construction plans. It is the responsibility of the developer and his contractors to perform all construction in accordance with the approved construction plans and specifications. Any change in design required during construction shall be made by the Engineer whose seal and signature are shown on the plans. All changes shall be approved by the Public Works Director.
4. All construction shall be performed in accordance with applicable local, State and Federal safety standards and requirements.
5. The City will provide construction engineering and inspection, except for the setting of line and grade stakes for street and/or storm drainage improvements on all projects regardless of size. The setting of line and grade stakes for streets and storm drains shall be the responsibility of the developer, except that the City reserves the right to pre-qualify persons and/or firms that are hired to provide this surveying and to check the accuracy of the surveying and the conformance of the stakes to the approved plans.

### III. DISTRIBUTION OF COST

1. For existing developments, the City shall bear the cost of drainage facilities where the drainage conditions, overall existing development, or planned improvement projects (e.g. street reconstruction) justify the installation of drainage facilities. Such financing of drainage facilities in these areas shall be limited to the availability of City funds and subject to the following exceptions:
  - A) Individual property owners may request the extension of an existing enclosed drainage facility across their property. Such an extension will be installed provided the benefitted property owner supplies a drainage easement to the City free of cost and furnishes the required and necessary storm drainage pipe. The Public Works Department will provide the design and the Street Department will provide construction forces for the installation of the extension. This arrangement shall be limited to the availability of necessary personnel and equipment.
  - B) Drainage facilities installed in conjunction with paving projects adjacent to platted

property shall be at City expense, except portions of systems which are adjacent to undeveloped, newly developing or redeveloping (re-platting) property or which extend out of the street right-of-way into new developments where it shall be financed in accordance with Item 2. below.

2. For New Developments and for Redeveloping property, the City shall participate in the cost of storm drainage facilities located within or adjacent to the development and to an appropriate outfall facility based on the following.
  - A) Residential Subdivisions or Additions.
    - 1) Where storm drainage pipe smaller than or equal to seventy-two (72) inches in diameter is installed the developer shall pay the total cost of the line and all appurtenances required to complete the system.
    - 2) Where storm drainage pipe larger than seventy-two (72) inches in diameter or a structure of some other shape with an internal cross sectional area of more than 28.3 square feet is used, the City shall pay twenty-five percent (25%) of the difference in the material cost between the 72 inch diameter pipe and the larger diameter pipe or structure. The developer shall pay the remaining seventy-five percent (75%) of the difference in cost plus the total cost of an equivalent 72 inch diameter pipe. There shall be no City participation in the cost of any trench excavation, manholes, inlets, lead lines and/or any other facilities required to complete the system.
    - 3) Where an improved drainage channel is installed, whether lined or unlined, the developer shall dedicate at his own expense a drainage easement of sufficient width to permit the construction and maintenance of the channel. The developer shall pay the total cost of the facility and all appurtenances required to complete the system. Where an unlined channel is constructed, a maintenance agreement between an approved maintenance entity and the City is required.
    - 4) Where bridges or culverts under roadways require an opening larger than double 72 inch diameter pipes or a structure of some other shape with an internal cross sectional area of more than 56.5 square feet, the City will participate to the extent of twenty-five percent (25%) of the additional cost of the structure as approved by the City Council of the City of Granbury, and shall reimburse the developer for such costs when City funds become available.
    - 5) There shall be no City participation in the cost of parkway improvements, including pedestrian ways, guardrails, etc.

- 6) If the City desires a roadway width greater than required, one hundred percent (100%) of the additional cost of the drainage facility necessary for that excess width will be paid by the City of Granbury.
- 7) If the developer constructs a roadway wider than determined necessary by the City, then there shall be no City participation for the additional cost of the drainage facility necessary for the excess width.

B) Commercial and Industrial Developments.

- 1) The developer shall pay the total cost of all underground drainage systems regardless of the size of the largest diameter of pipe required to carry the design storm flow.
- 2) Where an improved drainage channel is installed, whether lined or unlined, the developer shall dedicate at his own expense a drainage easement of sufficient width to permit the construction and maintenance of the channel. The developer shall pay the total cost of the facility and all appurtenances required to complete the system. Where an unlined channel is constructed, a maintenance agreement between an approved maintenance entity and the City is required.
- 3) Where bridges or culverts under roadways require an opening larger than double 72 inch diameter pipes or a structure of some other shape with a cross sectional area of more than 56.5 square feet, the City will participate to the extent of ten percent (10%) of the additional construction cost of the structure as approved by the City Council of the City of Granbury and shall reimburse the developer for such costs when City funds become available.
- 4) There shall be no City participation in the cost of parkway improvements, including pedestrian ways, guardrails, etc.
- 5) If the City desires a roadway width greater than required, one hundred percent (100%) of the additional cost of the drainage facility necessary for that excess width will be paid by the City of Granbury.
- 6) If the developer constructs a roadway wider than determined necessary by the City, then there shall be no City participation for the additional cost of the drainage facility necessary for the excess width.

C) Bids and estimates for the construction of bridges and culverts shall be prepared on a unit cost basis for the length of the basic structure (width of the street) with

all appurtenances such as guard rail, wingwalls, etc., being separate bid items, so that the cost distribution due to oversized structures can be readily determined.

- D) Storm flow shall not be diverted from its natural drainage course to a perimeter street unless approved by the City. Where storm flow is diverted, in the opinion of the City, there shall be no City participation for the additional cost of constructing and/or oversizing any drainage facility or appurtenance required to handle such diverted storm flow and the City's participation shall stay the same as if the diversion did not occur.
- E) The developer shall pay a construction inspection and materials testing fee in the amount of two percent (2%) of the developer's share of the storm drainage construction cost as defined above. The two percent (2%) amount shall be submitted as a cash deposit together with the signed Public Improvements Agreement to the City. For the preparation of a Public Improvements Agreement, two percent (2%) of the estimated cost of the developer's share of the storm drainage construction cost, as defined above, shall be used for the construction inspection and materials testing fee. At the time when bids are received and prior to the work order being issued, the developer shall submit any additional amount required representing two percent (2%) of the developer's share of the storm drainage construction cost. This amount may be adjusted by the developer or the City, upon written request, to conform to the actual construction cost upon completion and acceptance of the storm drainage facilities, provided the difference is greater than twenty five (\$25.00) dollars.
3. Any replacement or relocation of an existing storm drainage facility required by the developer to accommodate a contemplated or projected use of a property shall be the responsibility of the developer. The plans for any such replacement or relocation shall be approved in writing by the Public Works Director prior to initiation of construction.
4. No permanent structures shall be constructed over an existing or proposed storm drainage facility. In the event that the developer desires to construct a permanent structure over an existing storm drainage facility, the developer shall be responsible for the total cost of relocating the existing facility.
5. The City shall assume its share of the cost of the storm drainage facilities only if funds are available for such participation. In the event that no funds are available for City participation, the developer shall award the contract and deposit with the City cash or a bond in the amount of the total construction cost of the facility.

IV. GENERAL ARRANGEMENTS AND FINANCING

1. Subsequent to the approval of a Drainage Plan, the preliminary subdivision plat, preliminary design plans and an adequate cost estimate, the developer shall request a Public Improvements Agreement to provide for the installation of storm drainage improvements. Such request and accompanying information shall be in writing and addressed to the Director of Community Development. No construction shall begin until a Public Improvements contract has been executed by the developer and the City.
2. The Public Works Department shall review and may approve or modify the drainage facilities deemed necessary by the developer's engineer. The Public Works Director will submit the Public Works portion of the Public Improvements Agreement to the Director of Community Development.
3. Simultaneous with the execution of the proposed Public Improvements Agreement by the developer, the developer shall furnish necessary security guarantees as specified under Item VI, Procedures for Obtaining a Contract for the Installation of Public Improvements.
4. Where City financial participation is allowed by this policy and desired by the developer, the City shall advertise and receive bids on the project. After approval of the bid tabulations and the apparent responsive low bidder, by the City, the developer may award the construction contract. The developer shall not award the contract for the project until such time as he has received written approval from the Public Works Director to do so. Under this procedure the developer is required to:
  - A) Require the contractor(s) to furnish to the City satisfactory carriage of insurance in accordance with Item 1.26, Insurance, Standard Specifications for Public Works Construction, North Central Texas. Certificates of each policy shall be delivered to the City along with a written statement from the issuing company stating that said policy shall not be canceled, non-renewed or materially changed without advance notice being given to the City.
  - B) Require the contractor(s) to furnish to the City performance, payment and maintenance bonds executed by a surety company authorized to do business in the State of Texas and subject to the approval of the City Attorney in an amount equal to one hundred percent (100%) of the contract price of the improvements. The performance and payment bonds shall be submitted prior to the City issuing the Notice to Proceed. The two (2) year maintenance bond(s) shall be submitted and approved prior to acceptance of the project.

- C) Following the setting of line and grade by a private surveyor hired by the developer, the contractor shall give 48 hours notice to the Public Works Department so that inspection personnel will be available. No work shall begin until the assigned inspector gives his consent to proceed.
- D) Any change order to the contract must be approved in writing by the City.
- E) Except for partial payments as provided below, the City's participation will not become due and payable to the developer until all work has been completed by the contractor and accepted by the City as complete, as evidence by a letter stating such acceptance, and until the developer has submitted evidence satisfactory to the City that final payment to the contractor has been made, and that all subcontractors and persons furnishing labor and materials have been paid in full and all claims settled. The City's participation shall be based upon actual quantities constructed as measured and calculated by the developer's engineer and approved by the Public Works Department.
- F) For projects involving City participation and where the participation amount is fully secured by either performance and payment bonds or an equivalent escrow deposit, the developer may request partial payments of the City's participation, based on completed work. All estimates for partial payments shall be approved by the Public Works Director prior to payment to the developer. The approval of any partial payment shall in no way constitute acceptance of the work, nor in anyway affect the obligations of the developer under this policy or the Public Improvements Agreement. Such partial payments may be approved on a monthly basis, and such payment checks will be issued by the City upon receipt of an affidavit executed by the contractor certifying that he had received payment for the accomplished work in accordance with contracts documents.

5. Where no City financial participation is allowed by this policy or where City financial participation is allowed but not desired by the developer, the developer has the option of advertising and awarding his own construction contract to the responsive low bidder or awarding the contract on a negotiated basis. Under this procedure the developer is required to comply with items A) through D) listed in paragraph 4 above, plus the following:

- A) The developer shall employ a construction contractor who is approved by the City. This contractor must meet the City's requirements for being registered and bonded to perform work in a public right-of-way.
- B) Prior to commencing work, the developer shall furnish copies of the contract between the developer and the contractor as required by the City. Upon approval by City officials, the developer will be notified in writing as to when he may

commence work.

6. When all work required under the Public Improvements Agreement has been completed by the contractor and the following items have been accomplished, the City will accept the project as being complete, as evidenced by a letter to the developer stating such acceptance.
  - A) A final inspection of all improvements has been accomplished and the resulting 'Punch List' corrected, and
  - B) The contractor has provided the City a Maintenance Bond indicating that he will be responsible for defects in the project due to faulty materials and/or workmanship for a period of two (2) years from date of final acceptance, and
  - C) The developer has submitted evidence satisfactory to the City that final payment to the contractor has been made, and that all subcontractors and persons furnishing labor and materials have been paid in full and all claims settled, and
  - D) The required number of "as built" construction plans have been submitted to and accepted by the City.
7. Drainage easements shall be provided to the City by the developer free of cost. Where a public or community necessity for such easement(s) has been determined by the City Council, and the requesting developer provided written evidence, including affidavits as appropriate, that he is unable to negotiate the purchase of the necessary easement(s) at a fair price, the City may expeditiously undertake to acquire same using its powers, provided the requesting developer agrees to pay the actual cost of the easement and any and all other costs connected with such attempted acquisition.
8. The Public Works Director may require a developer to begin and complete construction of any storm drainage facility included in the Public Improvements contract when, in the judgement of the Public Works Director, the facility is needed for the proper and orderly development of the area.

When the Public Works Director determines that a storm drainage facility should be constructed, he shall notify the developer in writing to make arrangements for construction of the facility. Within 15 calendar days after receiving the notice, the developer shall make arrangements for constructing the facility, including making the necessary payment to the City in accordance with this policy. Construction must be completed within 90 days from the date on which the developer received notice from the City to proceed with construction. If construction has not been completed within the 90 day period, the City may take whatever action is required to insure prompt completion of the improvements, including but not limited to, awarding a construction contract for the

improvements and requiring forfeiture of the security guarantees to pay all costs resulting from failure of the developer to complete the improvements. Such costs shall include, but not be limited to, construction costs, engineering costs, administrative and legal expenses, damages, etc.

V. OWNERSHIP AND MAINTENANCE

1. All underground storm drainage facilities installed in connection with a development project and which are in a public right-of-way and/or easement shall be and shall remain the property of the City, and shall be operated and maintained by the City unless special agreements to the contrary are entered into by the developer and the City.
2. The developer may choose to construct a reinforced concrete lined channel. When all City standards, including special design criteria, are satisfied the City shall own, operate and maintain the channel.
3. Where the developer chooses to construct an improved unlined channel, detention or retention pond or leave a natural creek in its natural state in accordance with this policy, the drainage way shall be maintained by an approved maintenance entity. The plat shall contain a perpetual maintenance statement and the maintenance entity shall also be required to enter into an agreement which would indemnify the City against any harm that may come to person or property.

VI. EFFECTIVE DATE

This policy shall apply on all projects on which a Public Improvements contract (including all necessary engineering, technical materials, cost estimates and exhibits) has not been fully executed by the Public Works Department by the date of policy adoption by the City Council and on any Public Improvements contract that has not been fully executed and bonded by the developer and the City within ninety (90) days after the date of adoption of this policy by the City Council.

## POLICY FOR STREET IMPROVEMENTS

The following policy shall govern the installation of all street, alley and parkway improvements within the corporate limits of the City of Granbury, Texas, and its extraterritorial jurisdictional area.

### I. DESIGN REQUIREMENTS

1. All street, alley and parkway improvements shall be designed and constructed in accordance with the City of Granbury Subdivision Ordinance, these Public Improvements policies, the adopted Standard Specifications and Standard Details and other design criteria of the Public Works Department.
2. The developer shall retain a professional civil engineer, licensed to practice in the State of Texas, for the preparation of construction plans, specifications and contract documents for all public improvements required by the proposed development. No public improvements shall be installed until and unless said plans have been received and approved by the City.
3. The determination as to compliance of the plans and specifications with applicable policies, regulations and criteria shall be the sole responsibility of the City. Approval of the plans and specifications by the City signifies the City's acceptance of the general design concept and that the minimum criteria appears to be satisfied. Such approval shall not be deemed to be an assumption of responsibility or liability by the City of any negligent act, or omission in the performance of the developer's engineer or in his preparation of such plans and specifications.
4. Design and construction plans shall be submitted according to the requirements set forth herein and any adopted City standards and/or specifications. Plans for all public improvements shall be submitted on sheets no larger than twenty-four inches by thirty-six inches (24" x 36") and at a scale of one inch equals 40 or 50 feet (1" = 40' or 50') horizontally and one inch equals four or five feet (1" = 4' or 5') vertically.
5. The following minimum number of plans and specifications shall be submitted to the City during the review phase, construction phase and upon completion of the project. Additional sets may be required for other departments and/or agencies.
  - A) Three (3) sets of the design plans and preliminary specifications each time a submittal is made to the City for review purposes.
  - B) Five (5) sets of the approved final construction plans and approved specifications prior to award of contract.

- C) Three (3) sets of "as built" construction plans and one (1) set of "as built" sepia when all the improvements are found to be installed in accordance with the approved plans and prior to acceptance by the City.
6. If the design plans and specifications are incomplete, a letter stating the necessary changes required or requested on the plans and/or specifications or one (1) set of plans and specifications marked with the necessary changes and/or comments, shall be returned to the developer's engineer for his use in making needed corrections. The letter or the marked plans and specifications must be returned to the City with the revised plans and specifications.
7. All dedicated public streets shall conform to the "General Design Criteria" provided in the following table:

**GENERAL DESIGN CRITERIA**

<b>STREET CLASSIFICATION</b>		<b>MIN. ROW WIDTH*</b>	<b>MIN. ROADWAY WIDTH FACE TO FACE</b>	<b>NUMBER OF LANES &amp; WIDTH</b>
PRIMARY THOROUGHFARE	P6U	100'	80'	3 - 12', 4-11'
SECONDARY THOROUGHFARE	S4D	84'	2 - 24'	4 - 12'
SECONDARY THOROUGHFARE	S4U	68'	48'	4- 12'
COMMERCIAL/ INDUSTRIAL	C/I	60'	40'	2 - 12', 2 - 8'
COLLECTOR	C	60'	36'	2 - 10', 2 - 8'
RESIDENTIAL	R	50'	27'	1 - 11', 2 - 8'

\*Additional right-of-way other than the minimums shown above in the General Design Criteria, may be required at intersections and high volume driveways for turning lanes. This additional right-of-way will be determined by the City during the design phase of the street system and before submittal of the final plat.

All proposed streets shall be planned, designed and constructed based on their anticipated function, traffic volumes, adjacent land use and system continuity.

8. In addition to the "General Design Criteria" shown in item 7 above, all dedicated streets shall conform to the "Technical Design Criteria" provided in the following table:

**TECHNICAL DESIGN CRITERIA**

	<b>STREET CLASSIFICATION</b>	<b>MIN. DESIGN SPEED (MPH)</b>	<b>MAX. GRADE (%)</b>	<b>MIN. GRADE (%)</b>	<b>AREA FREE OF 5 YEAR FREQ. STORM</b>
P6U	PRIMARY THOROUGHFARE	45	6	0.4	ONE LANE EACH DIRECTION
S4D	SECONDARY THOROUGHFARE	45	6	0.4	ONE LANE EACH DIRECTION
S4U	SECONDARY THOROUGHFARE	40	6	0.4	CENTER 16 FT.
CI	COMMERCIAL/ INDUSTRIAL	30	8	0.4	CENTER 12 FT.
C	COLLECTOR	35	8	0.4	CENTER 12 FT.
R	RESIDENTIAL	25	10	0.4	N/A

9. Soil samples to determine the Plasticity Index (PI) of the natural soil, at the ultimate level of the pavement base course, shall be taken at least once per block or every 400 feet, whichever is less. A minimum of two (2) samples per project will be tested. Should the PI vary considerably from one sample to another, additional samples will be taken as determined by the Public Works Director. All soil testing shall be paid for by the developer.
- A) If the PI of the soil is less than 10, soil stabilization will not generally be required.
  - B) If the PI of the soil is between 10 and 20, the subgrade shall be stabilized to a depth of at least 5 inches with the application of 4% by weight of Portland cement or 6% by weight of lime.
  - C) If the PI exceeds 20, soil stabilization to a depth of at least 6 inches will be required utilizing 6% by weight of either Portland cement or lime.
  - D) At the developers option and expense, a lime series test may be made by an approved, qualified testing firm, and lime may then be applied at the optimum rate

indicated by the test.

- E) When a proper subgrade cannot be constructed in soils having a low PI, cement stabilization may be required when deemed necessary by the Public Works Director.
10. The following assumptions were made in determining the minimum pavement sections required by this policy.
- A) The concrete design achieves a 28 day compressive strength ( $f'_c$ ) of at least 3,000 psi (minimum requirement - 5 sack mix).
  - B) The concrete design achieves a 28 day modulus of rupture (MR ) of at least 600 psi when measured in accordance with the American Society for Testing Materials, ASTM C78, third-point loading.
  - C) The degree of subgrade support as defined in terms of the Westergaard modulus of subgrade reaction (k-value) is at least 150 pci.
  - D) The minimum traffic level for the residential roadway during the 30-year performance period is 50,000 18-kip ESAL applications.
11. Residential roadways shall have a minimum pavement section of five and one half inches (5½") of reinforced concrete on a subgrade stabilized as required by item 9, above. This pavement section with subgrade stabilization is equivalent to a structural number of 3.30.
12. Collector roadways shall be designed based on their anticipated vehicular and truck traffic and the existing subgrade characteristics. Collector roadways shall have a minimum pavement section of six inches (6") of reinforced concrete on a subgrade stabilized as required by item 9, above. This pavement section with subgrade stabilization is equivalent to a structural number of 3.55.
13. Commercial roadways shall have a minimum pavement section of six inches (6") of reinforced concrete on a subgrade stabilized as required by item 9, above.
14. Industrial and secondary thoroughfare streets shall have a minimum pavement section of seven inches (7") of reinforced concrete on a subgrade stabilized as required by item 9, above.
15. Primary thoroughfare streets shall have a minimum pavement section of eight inches (8") of reinforced concrete on a subgrade stabilized as required by item 9, above.

16. The City shall retain the right to require the developer's engineer to design a greater pavement thickness based on American Concrete Pavement Association or AASHTO design criteria, if it is determined that the anticipated loading characteristics, traffic volumes or soil conditions warrant a greater pavement strength.
17. All streets shall be designed to accommodate storm water runoff resulting from a 100 year frequency design storm. The 100 year storm shall be contained within the available right-of-way and/or drainage easements. The capacity of the street and parkway and/or easement must be designed so as to safely accommodate both pedestrian and vehicular traffic.
18. Collector streets shall be designed to allow at least one 12 foot wide lane to be open to traffic and free of storm water (using the 5 year design storm) at all times. Undivided secondary thoroughfare streets shall be designed to allow at least one 16 foot wide (two 8 foot wide) lane to be open to traffic and free of storm water (using the 5 year design storm) at all times. Divided secondary thoroughfares and primary thoroughfares shall be designed to allow at least one 12 foot wide lane to be open to traffic in each direction and free of storm water (using the 5 year design storm) at all times.
19. Alleys
  - A) Alleys serving residential areas shall have a right-of-way width of twenty (20) feet and a paved width of fifteen (15) feet, exclusive of any items which may be required for drainage purposes. Alleys serving non-residential areas shall have a minimum right-of-way and paving width of twenty (20) feet. Alleys shall be paved with reinforced concrete.
  - B) Alley pavement sections shall be constructed in accordance with the City of Granbury's Standard Details.
  - C) Alley paving should have a minimum grade of 0.4% and a maximum grade of 10.0%.
  - D) Alleys shall intersect streets at right angles or radially to curved streets. The intersection of a street and an alley shall be constructed as a standard driveway approach.
  - E) Dead end alleys shall be avoided where possible, but, if unavoidable, shall be provided with an adequate turnaround at the dead end as approved by the Public Works Director.
20. Sidewalks
  - A) If sidewalks are constructed they shall be a minimum width of four (4) feet. In residential areas the sidewalks are to be placed five (5) feet behind the back of

curb or as directed by the Public Works Director.

- B) In commercial and industrial areas, the sidewalks may either be placed one (1) foot in front of the property line or adjacent to the streets curb. If sidewalks are located a minimum of five (5) feet behind the back of curb, a minimum width of four (4) feet is required. If sidewalks are located adjacent to the streets curb, a minimum width of five (5) feet is required.
  - C) Sidewalks not less than six (6) feet wide shall be required by the Public Works Director where deemed essential to provide circulation or access to public/community facilities such as schools, shopping centers, transportation hubs and other similar locations.
- 21. All railroad crossings on roadway widths less than forty (40) feet shall be full depth timber crossings. Railroad crossings on roadway widths forty (40) feet or greater shall be either rubber type or concrete crossings without exception. If it is necessary for the City to condemn railroad property, the developer shall reimburse the City the entire cost of the condemnation process including attorney fees plus any other costs associated with the right-of-way and or easement acquisition.
  - 22. All necessary storm drainage facilities shall be installed in accordance with the "Policy for Storm Drainage Facilities".
  - 23. All coordination required with public and/or private utility agencies to eliminate conflicts with proposed street grades or storm drainage facilities shall be the responsibility of the developer and/or his engineer. Likewise, coordination with agencies requiring special conditions (i.e., railroads and the Texas Department of Transportation) shall be the responsibility of the developer and/or his engineer.

## II. CONSTRUCTION REQUIREMENT

- 1. Standard Specifications for Public Works Construction, North Central Texas Council of Governments, are hereby adopted by reference and made part of this policy, which shall be controlling in construction and installation of street paving, curbs and gutters, sidewalks, utilities and other public improvements required herein. Standard Specifications for Construction of Highways, Streets and Bridges, 1993, Texas Department of Transportation, may also be referenced as applicable for particular items. A copy of the preceding standard specifications and/or design standards can be obtained from the identified originating agency. Specifications and/or design standards utilized locally by the City of Granbury may be obtained from the Public Works Department.
- 2. Construction of street, alley and sidewalk improvements shall be by a contractor employed by the City of Granbury, by Public Works forces or by a contractor employed

by the developer as described in Section IV below.

3. Streets, including parkways, and alleys shall be constructed to the line and grade established in the approved final construction plans. It is the responsibility of the developer and his contractors to perform all construction in accordance with the approved construction plans and specifications. Any change in design required during construction shall be made by the Engineer whose seal and signature are shown on the plans. All changes shall be approved by the Public Works Director.
4. All construction shall be performed in accordance with applicable local, State and Federal safety standards and requirements.
5. For purposes of this design criteria the City of Granbury considers six inch (6") curb to be standard.
6. Parkway shall be graded for their full width to provide suitable finished grades for sidewalks, driveways and planting strips with adequate surface drainage and convenient access to adjacent lots.
7. All utilities and services to be located in the parkway shall be installed at least two (2) feet back of the curb line prior to the construction of curb and gutter and the paving of the roadway. All trenches shall be backfilled in accordance with the standard specifications.
8. Subdrains determined to be required by the City during construction, shall be constructed at designated locations in accordance with approved specifications.
9. The City will provide construction engineering and inspection, except for the setting of line and grade stakes for street and storm drainage improvements on all projects regardless of size. The setting of line and grade stakes for streets and storm drains shall be the responsibility of the developer, except that the City reserves the right to pre-qualify persons and/or firms that are hired to provide this surveying and to check the accuracy of the surveying and the conformance of the stakes to the approved plans.

### III. DISTRIBUTION OF COST

1. A) Interior Streets -
  - 1) The developer shall bear the full cost of constructing all street improvements for roadway widths equal to or less than forty (40) feet.
  - 2) The developer shall bear the cost of constructing the outside forty (40) feet of roadway plus the full width of the parkways, on widths greater than forty (40) feet. The City shall bear the excess cost of the center portion of the street improvements for widths greater than forty (40) feet. This cost shall be reimbursed to the developer by the City at the contract prices for

such paving when City funds are available, except as provided in paragraph 4) below.

- 3) The developer shall bear the cost of constructing a pavement section up to that equivalent to six inches (6") of reinforced concrete on a stabilized subgrade for zoning other than industrial. For industrial development the developer shall bear the cost of constructing a pavement section equivalent to seven inches (7") of reinforced concrete on a stabilized subgrade. For secondary and primary thoroughfares the City shall bear the excess cost of pavement sections greater than six inches (6") of concrete for all zoning other than industrial. For industrial zoning the City shall bear the excess cost of pavement sections greater than seven inches (7") of concrete. This cost shall be reimbursed to the developer by the City at the contract prices for such paving when City funds are available, except as provided in paragraph 4) below.
- 4) If the developer constructs a wider street than required or requested by the City, there shall be no City participation for the cost of the extra width or thickness.

B) Perimeter Streets -

- 1) If the City Council determines that an improved roadway is needed for the proper and orderly development of the surrounding area, the perimeter street improvements shall be constructed at the time of development. The developer shall bear the full cost of constructing one-half of the required street improvements for all widths equal to or less than forty (40) feet. For roadway widths greater than forty (40) feet the developer shall bear the cost of construction for twenty (20) feet of roadway and all adjacent parkway improvements. The City shall bear the excess cost of street improvements.
- 2) For secondary and primary thoroughfares the City shall bear the excess cost of pavement thickness as described in paragraph 3) above, based on the adjacent zoning.
- 3) Should the City Council determine that it is not feasible to construct or improve the perimeter road at the time of development, the developer shall provide the City with funds equivalent to the cost of constructing his share of the roadway improvements (i.e., pavement, curb and gutter, storm drainage, water and waste water, street lights and street signs) as described in item 1) above.

C) Alleys - The developer shall bear the full cost of constructing required improvements within alley right-of-way.

D) Sidewalks - The developer shall bear the cost of constructing sidewalks in new additions where they are required by the Public Improvements Agreement.

E) Railroad Crossings -

- 1) The developer shall bear the full cost of constructing railroad crossings for roadway widths less than forty (40) feet.
  - 2) For roadway widths forty (40) feet or greater, as required by the City, the developer shall pay the cost of the first forty (40) feet and the City shall pay for the additional length when City funds are available.
  - 3) If the developer constructs a wider street than required by the City, there shall be no City participation in the cost of the crossing through the extra width.
2. The developer shall pay a construction inspection and materials testing fee in the amount of two percent (2%) of the developer's share of the street construction cost. The two percent (2%) amount shall be submitted as a cash deposit together with the signed Public Improvements Agreement to the Director of Community Development. For the preparation of a Public Improvements Agreement, two percent (2%) of the estimated cost of the developer's share of the street construction cost shall be used for the construction inspection and materials testing fee. This amount may be adjusted by the developer or the City, upon written request, to conform to the actual construction cost upon completion and acceptance of the street facilities, provided the difference is greater than twenty-five dollars (\$25.00).
3. The City shall assume a share of the cost of the street improvements only if funds are available for such participation. In the event that no funds are available for City participation, the developer shall award the contract and deposit with the City cash or a bond in the amount of the total construction cost of the facility.

IV. GENERAL ARRANGEMENTS AND FINANCING

1. Subsequent to the approval of the preliminary subdivision plat, preliminary design plans and an adequate cost estimate, the developer shall request a Public Improvements Agreement to provide for the installation of street and alley improvements. Such request and accompanying information shall be in writing and addressed to the Director of Community Development. No construction shall begin until a Public Improvements contract has been executed by the developer and the City.
2. The Public Works Department shall review and may approve or modify the street improvements deemed necessary by the developer's engineer. The Public Works Director will submit the Public Works portion of the Public Improvements Agreement to the Director of Community Development.
3. Simultaneous with the execution of the proposed Public Improvements Agreement by the developer, the developer shall furnish necessary security guarantees as specified under

Item VI, Procedures for Obtaining a Contract for the Installation of Public Improvements.

4. Where City financial participation is allowed by this policy and desired by the developer, the City shall advertise and receive bids on the project. After approval of the bid tabulations and the apparent responsive low bidder, by the City, the developer may award the construction contract. The developer shall not award the contract for the project until such time as he has received written approval from the Public Works Director to do so. Under this procedure the developer is required to:
- A) Require the contractor(s) to furnish to the City satisfactory carriage of insurance in accordance with Item 1.26, Insurance, Standard Specifications for Public Works Construction, North Central Texas. Certificates of each policy shall be delivered to the City along with a written statement from the issuing company stating that said policy shall not be canceled, non-renewed or materially changed without advance notice being given to the City.
  - B) Require the contractor(s) to furnish to the City performance, payment and maintenance bonds executed by a surety company authorized to do business in the State of Texas and subject to the approval of the City Attorney in an amount equal to one hundred percent (100%) of the contract price of the improvements. The performance and payment bonds shall be submitted prior to the City issuing the Notice to Proceed. The two (2) year maintenance bond(s) shall be submitted and approved prior to acceptance of the project.
  - C) Following the setting of line and grade by a private surveyor hired by the developer, the contractor shall give 48 hours notice to the Public Works Department so that inspection personnel will be available. No work shall begin until the assigned inspector gives his consent to proceed.
  - D) Any change order to the contract must be approved in writing by the City.
  - E) Except for partial payments as provided below, the City's participation will not become due and payable to the developer until all work has been completed by the contractor and accepted by the City as complete, as evidence by a letter stating such acceptance, and until the developer has submitted evidence satisfactory to the City that final payment to the contractor has been made, and that all subcontractors and persons furnishing labor and materials have been paid in full and all claims settled. The City's participation shall be based upon actual quantities constructed as measured and calculated by the developer's engineer and approved by the Public Works Department.
  - F) For projects involving City participation and where the participation amount is

fully secured by either performance and payment bonds or an equivalent escrow deposit, the developer may request partial payments of the City's participation, based on completed work. All estimates for partial payments shall be approved by the Public Works Director prior to payment to the developer. The approval of any partial payment shall in no way constitute acceptance of the work, nor in anyway affect the obligations of the developer under this policy or the Public Improvements Agreement. Such partial payments may be approved on a monthly basis, and such payment checks will be issued by the City upon receipt of an affidavit executed by the contractor certifying that he had received payment for the accomplished work in accordance with contracts documents.

5. Where no City financial participation is allowed by this policy or where City financial participation is allowed but not desired by the developer, the developer has the option of advertising and awarding his own construction contract to the responsive low bidder or awarding the contract on a negotiated basis. Under this procedure the developer is required to comply with items A) through D) listed in paragraph 4 above, plus the following:
  - A) The developer shall employ a construction contractor who is approved by the City. This contractor must meet the City's requirements for being registered and bonded to perform work in a public right-of-way.
  - B) Prior to commencing work, the developer shall furnish copies of the contract between the developer and the contractor as required by the City. Upon approval by City officials, the developer will be notified in writing as to when he may commence work.
  
6. When all work required under the Public Improvements Agreement has been completed by the contractor and the following items have been accomplished, the City will accept the project as being complete, as evidenced by a letter to the developer stating such acceptance.
  - A) A final inspection of all improvements has been accomplished and the resulting 'Punch List' corrected, and
  - B) The contractor has provided the City a Maintenance Bond indicating that he will be responsible for defects in the project due to faulty materials and/or workmanship for a period of two (2) years from date of final acceptance, and
  - C) The developer has submitted evidence satisfactory to the City that final payment to the contractor has been made, and that all subcontractors and persons furnishing labor and materials have been paid in full and all claims settled, and

D) The required number of "as built" construction plans have been submitted to and accepted by the City.

7. The Public Works Director may require a developer to begin and complete construction of any street or storm drainage included in the Public Improvements contract when, in the judgement of the Public Works Director, the facility is needed for the proper and orderly development of the area. In addition, installation of all underground utilities will be required before the paving is installed.

When the Public Works Director determines that a street or streets, including underground utilities, should be constructed, he shall notify the developer in writing to make arrangements for construction of the facilities. Within fifteen (15) calendar days after receiving the notice, the developer shall make arrangements for constructing the streets and utilities including making the necessary payment to the City in accordance with this policy. Within ninety (90) calendar days after receiving the notice, the developer shall have completed construction of the utilities and streets. In the event the developer fails to complete the required street and/or utility improvements within the ninety (90) calendar day period, as required by the Public Works Director, the City may take whatever action is required to insure prompt completion of the improvements, including, but not limited to, awarding a construction contract for the street and/or utilities improvements or the incomplete portions of such improvements, and requiring forfeiture of the security guarantees to pay all costs resulting from the failure of the developer to complete the improvements as required. Such costs shall include, but not be limited to, street and/or utilities construction costs, engineering costs, administrative and legal expenses, damages, etc.

#### V. OWNERSHIP AND MAINTENANCE

All street and alley improvements installed in connection with a development project, which is within a dedicated street or alley, shall be and shall remain the property of the City, and after expiration of the maintenance bonds, shall be maintained by the City.

#### VI. EFFECTIVE DATE

This policy shall apply on all projects on which a Public Improvements contract (including all necessary engineering, technical materials, cost estimates and exhibits) has not been fully executed by the Public Works Department by the date of policy adoption by the City Council and on any Public Improvements contract that has not been fully executed and bonded by the developer and the City within ninety (90) days after the date of adoption of this policy by the City Council.

## POLICY FOR STREET LIGHT INSTALLATION

The following policy shall govern all street light installations within the corporate limits of the City of Granbury, Texas.

### I. DESIGN REQUIREMENTS

1. All street light improvements shall be designed and installed in accordance with the City of Granbury Subdivision Ordinance, these Public Improvements policies, the adopted Standard Specifications and Standard Details and other design criteria of the Public Works Department. The Public Works Director shall specify the equipment and materials which will be acceptable for all street lighting projects.
2. The developer shall furnish an exhibit plat at a standard engineering scale showing street light locations and a cost estimate along with his submittal of the request for a Public Improvements Agreement. For developments scheduled to be done in phases, the developer shall submit an exhibit plat showing the total development.
3. The developer shall employ an engineer proficient in street light design and registered in the State of Texas for preparation of required plans and specifications. All plans and specifications must be approved by the City. Approval of the plans and specifications by the City signifies the City's acceptance of the general design concept and that the minimum criteria appears to be satisfied. Such approval shall not be deemed to be an assumption of responsibility or liability by the City of any negligent act, or omission in the performance of the developer's engineer or in his preparation of such plans and specifications.
4. A minimum of three (3) sets of design plans and specifications shall be submitted to the City for review by appropriate staff. Additional sets may be required for other departments and/or agencies.
5. If the design plans and specifications are incomplete, either:
  - a) A letter stating the necessary changes required or requested on the plans and/or specifications, or
  - b) One (1) set of plans and specifications marked with the necessary changes and/or comments, shall be returned to the developer's engineer for his use in making needed corrections.The letter or the marked plans and specifications must be returned to the City with the revised plans and specifications.
6. The following criteria highlights the City's minimum design standards based on street classification.

A) Residential or Local Streets

- 1) Street lights shall be installed at the following locations:
  - a) At all intersections
  - b) On all cul-de-sac or dead-end streets longer than 250 feet
  - c) At all significant changes in direction of the roadway
  - d) At mid-block if the block is longer than 600 feet. Mid-block lights will be equally spaced within the block so that lights are less than 500 feet apart, except as required in c) above.
- 2) The design standard for local or residential streets shall consist of a mast-arm mounted, 175 watt mercury vapor luminaire, mounted at a 28 foot height above the roadway surface on a metal pole using underground wiring in accordance with the National Electric Code.
- 3) Existing utility poles may only be used with the prior approval of the City.

B) Collector Streets

- 1) Street lights shall be installed at the following locations:
  - a) At all intersections, and
  - b) Equally spaced within the block between 250 and 300 feet apart.
- 2) The design standard for collector streets shall consist of a mast-arm mounted, 175 watt mercury vapor luminaire, mounted at a 28 foot height above the roadway surface, on a metal pole using underground wiring in accordance with the National Electrical Code.
- 3) Existing utility poles may only be used with the prior approval of the City.

C) Thoroughfare Streets

- 1) Street lights shall be installed at the following locations:
  - a) At all intersections, and
  - b) Equally spaced along the block at 200 foot intervals. On divided roadways the lighting can be back to back along the center of the median. On undivided roadways lighting shall be provided on both sides of the roadway.
- 2) The design standard for thoroughfare streets shall consist of a mast-arm mounted, 200 watt high pressure sodium luminaire, mounted at a 40 foot height above the roadway surface, on a steel pole using underground

wiring in accordance with the National Electrical Code.

D) Frontage/Service Roads

Street light installation on any frontage road, service road or other roadway adjacent to a U. S. or State highway or a County road will be determined by the City on an individual basis.

7. Requests for approval of designs other than the City's minimum standard design must include calculations of average, maximum and minimum light levels demonstrating that the proposed design equals or exceeds the current ANSI criteria and the City's minimum standard.

II. CONSTRUCTION REQUIREMENTS

1. Standard Specifications for Public Works Construction, North Central Texas, are hereby adopted by reference and made part of this policy, which shall be controlling in construction and installation of all street lighting facilities and other public improvements required herein. Standard Specifications for Construction of Highways, Streets and Bridges, 1993, Texas Department of Transportation, may also be referenced as applicable for particular items. Design Standards together with all exhibits, charts, drawings and diagrams pertaining hereto, which have been approved by the City may be obtained from the Public Works Department.
2. Installation of street lighting facilities shall be by a contractor employed by the City of Granbury, by Public Works forces or by a contractor employed by the developer which has been approved by the City.
3. The developer's contractor shall give 48 hours notice to the Electric Superintendent and the appropriate utility company prior to start of construction so that inspection personnel will be available.
4. The developer's contractor shall provide electrical service to each street light in conformity with the approved plans and specifications.
5. Inspection of all street light construction work shall be performed by the Public Works Department.

III. DISTRIBUTION OF COST

1. For existing developments where either (1) street lighting has not been installed or (2) street lighting does not meet current design standards, the City will pay 100% of the cost to install the minimum standard design if:

- A) A majority of the adjacent property owners petition the Public Works Department for a street light, and
  - B) The property owners agree to provide the necessary utility easements for the electrical service to the light.
  - C) Street light installations requested by petitioning citizens which are of a different design (i.e. ornamental) or at a higher level of service than the minimum design standard required by the City will have to be approved by the Public Works Director. If approved for installation, all additional costs will be paid by the petitioning citizens.
  - D) Installation of street lighting is subject to the availability of City funds for lighting projects.
2. For new developments and for redeveloping property the cost participation for installing street lighting shall be as follows:
- A) Interior Streets - all costs paid 100% by the developer
  - B) Perimeter Streets -
    - 1) Adjacent to unplatted property - all costs paid 100% by the developer
    - 2) Adjacent to platted property - 50% by the developer and 50% by the City
    - 3) Adjacent to City Parks - 50% by the developer and 50% by the City
  - C) The developer shall pay for the electricity until building permits are issued or for two (2) years from the date of installation, after which the City shall pay for the electricity.
  - D) The City's cost participation will be based on the cost to install improvements meeting the minimum standards described in Section I, Item 6, above.
  - E) The developer shall pay a construction inspection and materials testing fee in the amount of two percent (2%) of the developer's share of the street light installation cost. The two percent (2%) amount shall be submitted as a cash deposit together with the signed Public Improvements Agreement to the Director of Community Development. For the preparation of a Public Improvements Agreement, two percent (2%) of the estimated cost of the developer's share of the street light installation cost shall be used for the construction inspection and materials testing fee. This amount may be adjusted by the developer or the City, upon written request, to conform to the actual construction cost upon completion and acceptance of the street light facilities, provided the difference is greater than

twenty-five dollars (\$25.00).

- F) The City shall assume a share of the cost of these improvements only if funds are available for such participation. In the event that no funds are available for City participation, the developer shall award the contract and deposit with the City cash or a bond in the amount of the total construction cost of the facility.

#### IV. GENERAL ARRANGEMENTS AND FINANCING

1. Simultaneous with the execution of the proposed Public Improvements Agreement by the developer, the developer shall furnish security guarantees as specified under Item VI, Procedures for Obtaining a Contract for the Installation of Public Improvements. The release of said guarantees shall be conditioned upon satisfactory compliance with the provisions of the Public Improvements Agreement, or when the developer deposits cash equal to that of the most recent cost estimate. Partial release may be granted provided that work remaining to be done is financially guaranteed.
2. The Public Works Director may require a developer to install any street lights included in a developer's contract at a specified time when, in his judgement, the lights are needed for the proper and orderly development of the area. When it is determined that street lights should be constructed, the Public Works Director shall notify the developer in writing to make arrangements for construction of the lights. Within fifteen (15) calendar days after receiving the notice, the developer shall make arrangements for construction of the street lights, including making any necessary payment to the City in accordance with this policy. Construction must be completed within 90 calendar days from the date on which the developer receives notice from the City to proceed with construction. If the improvements have not been completed within the 90 day period, the City may take whatever action is required to insure prompt completion of the uncompleted portion of the improvements, including forfeiture of the security guarantees required above to pay all costs resulting from the failure of the developer to complete the improvements as required. Such costs shall include, but not be limited to, construction and engineering costs, administrative and legal expenses, damages, etc.
3. The developer shall provide on the final plat all necessary utility easements required for the street lighting system.

#### V. OWNERSHIP AND MAINTENANCE

All street lights installed under this policy shall be, and shall remain, the property of the City or the utility company in whose jurisdiction it is located. The street lights will be maintained by either the City or the appropriate electric service company depending on

whose jurisdiction it is located.

VI. EFFECTIVE DATE OF POLICY

This policy shall apply on all projects on which a Public Improvements contract (including all necessary engineering, technical materials, cost estimates and exhibits) has not been fully executed by the Public Works Department by the date of policy adoption by the City Council and on any Public Improvements contract that has not been fully executed and bonded by the developer and the City within ninety (90) days after the date of adoption of this policy by the City Council.

## POLICY FOR STREET NAME SIGNS

The following policy shall govern the installation of street name signs within the corporate limits of the City of Granbury, Texas. The intent of this policy is to provide guidelines for the installation of street name signs, on both public and private streets, for the information and convenience of emergency vehicles, postal services and the general public.

### I. INSTALLATION REQUIREMENTS

1. Street name signs shall be installed at all intersecting public streets as per current design standards.
2. Intersections created by streets within a subdivision that intersect a perimeter street shall also be considered intersections within the subdivision.
3. In order to provide uniformity and consistency in materials and workmanship throughout the City, the Public Works Department shall obtain, locate and install all street name signs for public streets within the City. The signs will be installed by City forces when street improvements have met final approval.
4. Street name signs shall be installed at all intersecting private streets. Private street name signs shall be noticeably different in design and/or color than public street name signs. The background of the sign face shall be fabricated using reflective material with a reflective legend. The words "PRIVATE STREET" shall be placed across the bottom of the sign in upper case letters a minimum of one-half inch high. The design and location of private street name signs must be approved by the City. Installation will be performed by a contractor employed by the developer.
5. All street name signs installed at the intersection of a public street and a private street shall be located on private property.

### II. DISTRIBUTION OF COST

1. The developer shall be responsible for the initial cost of street name sign installation, at all public street intersections. The cost will be provided to the City in the form of a deposit per intersection within a subdivision.

The cost per intersection shall be determined annually by the Public Works Department and shall be based on prevailing costs of materials and labor.

2. The developer shall pay the total cost of obtaining and installing private street

name signs.

### III. GENERAL ARRANGEMENTS AND FINANCING

1. The developer shall deposit with the City:
  - A) A fixed sum of money as specified in the Public Improvements Agreement, based on the number of intersections within the subdivision.
  - B) If the developer deposits cash funds with the City simultaneous with the execution of the Public Improvements Agreement, the cost of street name signs will be at the rate prevailing at the time. If the developer elects to wait until the time when street signs are to be installed, the cost of street name signs will be at the rate prevailing at the time the developer deposits the money with the City.

### IV. OWNERSHIP AND MAINTENANCE

1. All street name signs installed within a dedicated public street shall be, and shall remain, the property of the City, and shall be maintained by the City.
2. All private street name signs which identify a private street shall be, and shall remain, the property of the developer or a Home Owners Association, and shall be maintained by the developer or the Home Owners Association.

### V. EFFECTIVE DATE

This policy shall apply on all projects on which a Public Improvements contract (including all necessary engineering, technical materials, cost estimates and exhibits) has not been fully executed by the Public Works Department by the date of policy adoption by the City Council and on any Public Improvements contract that has not been fully executed and bonded by the developer and the City within ninety (90) days after the date of adoption of this policy by the City Council.