

HIDALGO COUNTY
Professional Engineering Services
Contract # C- 12-126-10-16
Work Authorization Form
WORK AUTHORIZATION NO. 2

THIS WORK AUTHORIZATION is made pursuant to the terms and conditions of Article 1 of the Agreement made by and between HIDALGO COUNTY, action herein by and through the Commissioner's Court, hereinafter called the "Owner," and, L & G Consulting Engineers, Inc. d/b/a L & G Engineering, professional engineers of Mercedes, Texas hereinafter called "Engineer".

PART 1. SCOPE OF WORK

The purpose of this Work Authorization is for the Engineer to provide Engineering Services required for the preparation of the PS&E for the 10th Street Extension Project from SH 107 to FM 1925.

The scope of services to be provided by the Owner is identified in *EXHIBIT "A" - Scope of Services to be provided by the Owner* attached hereto.

The scope of services to be provided by the Engineer is identified in *EXHIBIT "B" - Scope of Services to be provided by the Engineer* attached hereto.

PART 2. ESTIMATED COST

The estimated cost for services under this Work Authorization is \$1,187,220.00. This amount is based upon the costs outlined in the Estimated Cost Proposal attached hereto as *EXHIBIT "D-1" - Fee Schedule and Estimated Manhour Breakdown*.

PART 3. PAYMENT

Compensation and payment to the Engineer for the services established under this Work Authorization shall be made in accordance with Article 6 of the Agreement.

PART 4. FUNDING

This Work Authorization No. 2 shall be funded through funding source:

Account No. (to be determined by budget office)

Requisition Number _____ (MUST BE INCLUDED AFTER CC APPROVAL)
(req. # will be provided thereafter)

PART 5. PERIOD OF SERVICE

This Work Authorization shall become effective on the date of final acceptance of the parties hereto, and terminate upon completion of scopes of the work authorization, as identified on *EXHIBIT "C" - Work Schedule*.

PART 6. RESPONSIBILITIES AND OBLIGATIONS

This Authorization does not waive the parties' responsibilities and obligations provided under the Agreement.

PART 7. ACKNOWLEDGEMENT AND CONFIRMATION

Acknowledgement and confirmation by Hidalgo County Precinct No. 4, Commissioner Joseph Palacios as to the content and detail of this Work Authorization No. 2.

HIDALGO COUNTY
COMMISSIONER PRECINCT NO. 4

BY: Joseph Palacios

PART 8. ACCEPTANCE AND APPROVAL

This Work Authorization is hereby accepted, approved by Hidalgo County Commissioners' Court on _____ as indicated below.

THE ENGINEER:
L&G ENGINEERING

Jacinto Garza
By: Jacinto Garza, P.E.
President

THE OWNER:
HIDALGO COUNTY

By: Ramon Garcia,
County Judge

ATTEST:

By: Arturo Guajardo, Jr., County Clerk

LIST OF ATTACHMENTS:

- Location Map
- Exhibit A - Services to be provided by Owner
- Exhibit B - Services to be provided by Engineer
- Exhibit C - Work Schedule
- Exhibit D-1 - Fee Schedule and Estimated Manhour Breakdown

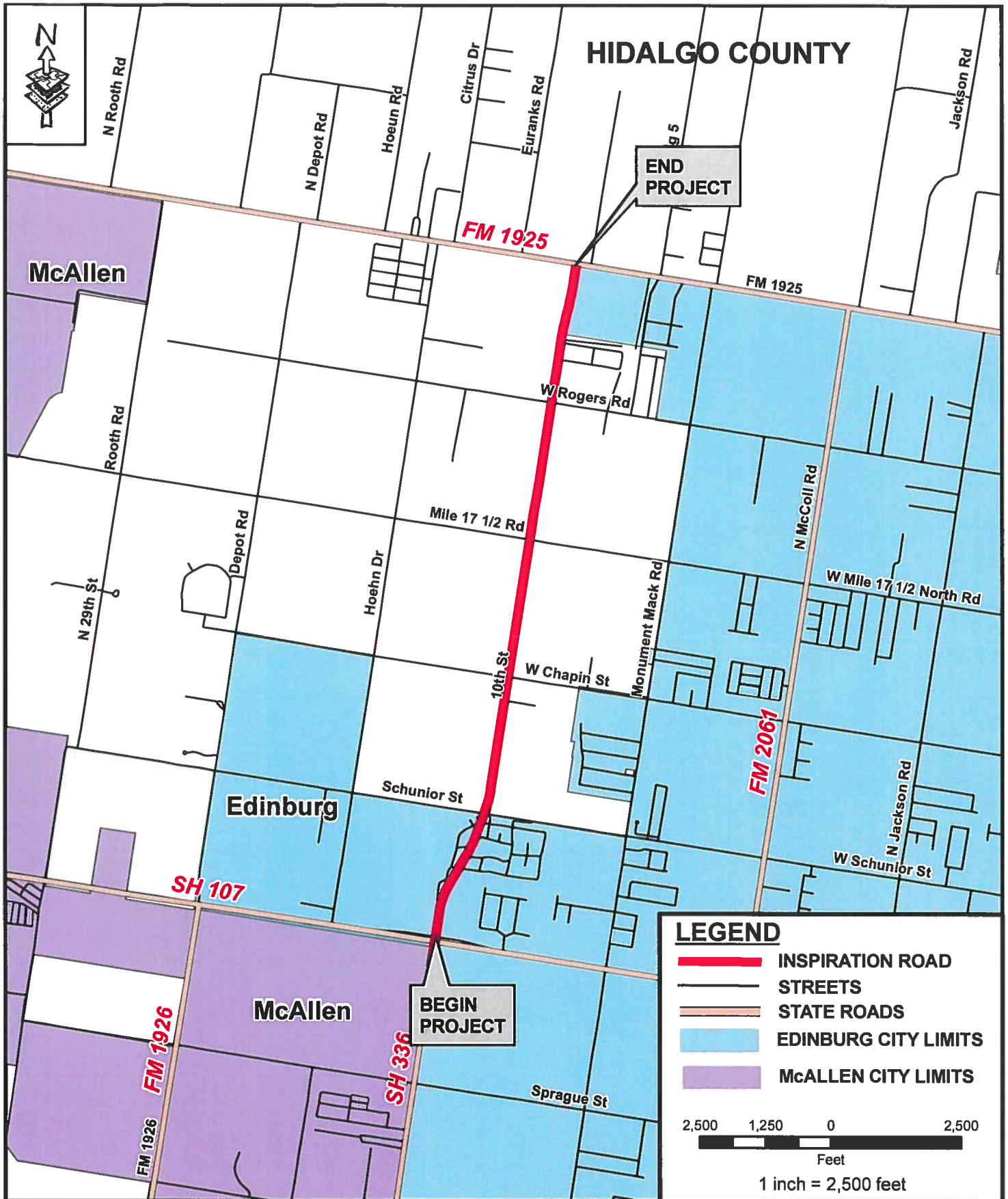


EXHIBIT A
10TH STREET EXTENSION
LOCATION MAP
 FROM SH 107 TO FM 1925 (MONTE CRISTO RD)
 APPROX. PROJECT LENGTH 2.5 MILES



L & G Engineering
 Transportation Consulting Engineers

EXHIBIT "A"
Services to be provided by the County

1. The County will issue work authorization to initiate all required services and designate the authorized representative of the coordination of each work authorization.
2. The County will provide copies of all subdivision plats of record and/or in the subdivision process.
3. The County will provide the Engineer with on-going guidance, timely reviews, and decisions necessary to complete services required by the work authorization in order to permit the Engineer to maintain an agreed upon project schedule.
4. The County will process all acceptable requests for payment in a timely manner.

GENERAL INSTRUCTIONS

ENGINEER shall mean L&G Engineering.

STATE shall mean Texas Department of Transportation.

COUNTY shall mean the Hidalgo County.

PROJECT DESCRIPTION

The services designated herein as “Services provided by the ENGINEER” shall include the performance of all engineering services for the following described facility:

COUNTY/CITY: HIDALGO COUNTY

CONTROL: _____

PROJECT/DESCRIPTION: 10th STREET EXTENSION PROJECT – WA #2
(PS&E & Design Surveys)

LENGTH: 2.5 Miles

HIGHWAY: 10th Street Extension

LIMITS: from SH 107 TO FM 1925

EXISTING FACILITY

PROJECT CLASSIFICATION

(Place an “X” in only one Project Classification)

- Surface Treatment
- Overlay
- Rehabilitation Existing Road (Scarify & Reshape)
- Convert Non-Freeway to Freeway
- Widen Freeway
- Widen Non-Freeway
- New Location Toll Freeway
- New Location Non-Freeway
- Interchange (New or Reconstruct)
- Bridge Widening or Rehabilitation
- Bridge Replacement
- Upgrade to Standards - Freeway
- Upgrade to Standards - Non-Freeway
- Miscellaneous Studies (Use Function Code 110 for All Tasks)

NOTE

FIELD SURVEYING AND PHOTOGRAMMETRY
 (Function Code 150)

Services
 Provided By:
ENGINEER COUNTY

- | | |
|---|--|
| <p><u>YES</u> <u>NO</u></p> | <p>1. Field Surveying</p> <p>a. Primary Project Control – 3 to 5 miles spacing
 Precision shall be 1 part in 20,000 or better, unless otherwise directed by the District Engineer.
 (1) Establish horizontal control points
 (2) Establish vertical control points</p> <p>NOTE: ALL BEARING AND DISTANCE SHALL BE BASED ON THE STATE PLANE COORDINATE SYSTEM NAD 1983, SOUTH ZONE.</p> <p>ALL DISTANCES AND COORDINATES SHALL BE SURFACE AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.999960</p> |
| <p><u>YES</u> <u>NO</u></p> | <p>b. Secondary Project Control – Surveyor shall recover and/or reset H&V Control Points as provided by the Engineer and create Survey Data Sheets for inclusion in the Project Plans.</p> <ul style="list-style-type: none"> • No traverse should exceed 25 angle points. Planimetrics shall be 20 ft Lt & Rt from the proposed ROW as per the schematic provided by the Engineer. • The unadjusted angular error should not exceed 2 seconds per angle, plus 14 seconds. • The unadjusted ratio of precision should be one part in 10,000 or better. (The ratio of precision is the total length of the traverse divided by the total error.) • The unadjusted vertical error should not exceed 0.03 foot per mile of traverse. <p>(1) Project control base lines</p> |
| <p><u>NO</u> <u>NO</u>
 <u>NO</u> <u>NO</u>
 <u>NO</u> <u>NO</u>
 <u>NO</u> <u>NO</u></p> | <p>(2) Photogrammetric ground control</p> <ul style="list-style-type: none"> (a) Establish horizontal control (b) Establish vertical control points (c) Place and maintain control point targets |
| <p><u>YES</u> <u>NO</u></p> | <p>c. Other Field Surveying</p> <p>(1) The limit of the Design surveys shall be 500-ft before and after the limits of the project as identified by the Project Engineer on the schematic. Establish horizontal and vertical control. Set benchmarks at 1000-ft intervals along the project proposed right-of-way. Provide x, y, z for each Benchmark. Provide a BM along each outfall identified on the Hydrologic Map. The BM's shall be #5 I.R. 2-ft in depth set in concrete. The surveyor shall provide an H&V Book (a Sample shall be provided by the Engineer to the Surveyor). The Surveyor will provide a 3-pt reference sketch with ties to the BMs for inclusion the existing H&V Control Book. Establish benchmark circuit throughout the project with a tolerance of 0.03'/ft per mile error vertically.</p> <p>(2) Complete topographic and cross section survey, data processing, and CADD mapping (2D & 3D) for the limits of the project.</p> <p>(3) Locate all visible utilities, data processing and CADD mapping (2D & 3D) including irrigation lines. Follow sample provided by the Engineer.</p> <p>(4) Field locate cross culverts, driveway culverts, inverts, irrigation lines, within the project limits, data processing and CADD mapping (2D & 3D).</p> <p>(5) Right of Entry, Right of Way Research, and Appraisal District Records is the responsibility of the Surveyor.</p> |

Services
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ENGINEER COUNTY

YES NO

c. Other Field Surveying (*continued*)

- (6) The Surveyor shall also paint the proposed centerline on the existing pavement as approved by Engineer. (500-ft stations and a tick mark at 100 ft. stations –12 inches long with approved paint by Engineer) before construction for the purpose of utility adjustments and project location.
- (7) Profile and cross section intersecting streets for ties into project (500-ft. beyond the proposed ROW per schematic and 20-ft wider than the existing ROW of intersecting street). Reference missing voids as per CD provided by the Engineer.
- (8) Cross section irrigation crossings for a distance of 20-ft beyond the proposed ROW at 100-ft intervals in a DTM file. Provide a complete description of irrigation appurtenances as identified by the engineer sample layout.
- (9) Tie Horizontally and Vertically the existing storm drain system that lies within the existing proposed ROW including the elevation of the outfall of said recovered existing storm drain systems.

YES NO

- (10) Tie to existing underground and overhead utilities (location, elevation and direction)

Horizontally – The surveyor shall call the 1-800 number for the utilities to be marked on the ground as well as any city water and sewer lines. He shall tie all visible utility crossings with name, address and Phone #'s of utility companies. The engineer will coordinate with the utility companies and jointly the Surveyor and the Engineer will identify which utilities were missed and need to be tied down.

Vertically – The engineer shall identify all utilities that are potential conflicts and that need to be tied vertically. The engineer will advise the surveyor in writing of the needed vertical ties and the surveyor will tie the lines vertically once the surveyor has coordinated the exposure and provide the information to the engineer.

YES NO

- (11) Additional Field Surveying as shown below:

- (a) IRRIGATION LINES – The surveyor will meet with the engineer before he ties down any irrigation lines. The Engineer will provide him the existing Irrigation District Maps and the A&M Data of existing irrigation lines that are identified of record. He will follow the sample given to him by the engineer and tie the structures horizontally and vertically and provide Field Books to the engineer.

- (b) OUTFALLS – The surveyor will provide a complete 2D & 3D File including utilities of the outfall identified on the Hydrologic Map. Profile and cross section drain ditch crossings (500-ft beyond the proposed ROW and 20-ft wider than the existing ROW of the ditch both upstream and downstream) @ 100-ft intervals.

YES NO

- (12) Driveways and Turnouts

- (a) Inventory commercial entrances, public roads and side streets separately.
- (b) Obtain centerline station. (Width at ROW, PAV'T and existing radius.
- (c) Inventory by type (dirt, caliche, gravel or paved). If paved, indicate condition in terms of no patches, has patches or has potholes.
- (d) Obtain width at R.O.W. line.
- (e) Obtain elevations at both edges of the driveway or turnout in line with the side drain.

YES NO

- (13) ROW staking (Existing and Proposed @ 1,000 ft. stations PC's PT's and Angle points as per ROW Map)

YES NO

- (14) Soil core hole staking.

Services
 Provided By:
ENGINEER COUNTY

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| <u>YES</u> | <u>NO</u> | (15) Determine changes in topography from voids and outdated maps due to development, erosion, etc. |
| <u>YES</u> | <u>NO</u> | (16) Profiles of existing drainage facilities. |
| <u>YES</u> | <u>NO</u> | (17) Measurement of hydraulic opening under existing bridges. |
| <u>YES</u> | <u>NO</u> | (18) Obtain elevations of manholes and valves of utilities |
| | | c. Other Field Surveying (<i>continued</i>) |
| <u>YES</u> | <u>NO</u> | (19) Provide temporary signs, traffic control, flags, safety equipment, etc. |
| <u>YES</u> | <u>NO</u> | (20) Ties to existing bridges or culverts that may conflict with new construction. |
| <u>YES</u> | <u>NO</u> | (21) Bridge widening top of deck and/or top of cap elevations at the Profile Grade Line (PGL) and the edges of slab at bent locations. |
| <u>YES</u> | <u>NO</u> | (22) Inventory signs, mailboxes, and driveways |
| <u>YES</u> | <u>NO</u> | (23) Survey controlled data sheets per TxDOT guidelines. |
| <u>NO</u> | <u>NO</u> | 2. Photogrammetric Products |
| | | a. Uncontrolled Photography |
| | | (1) Contact Prints |
| | | (2) Mosaics |
| | | (3) Digital ortho plots |
| | | b. Mapping |
| | | (1) Planimetric Maps |
| | | (2) Contour Maps |
| | | (3) Cross Sections |
| | | (4) Profiles |
| | | (5) Digital Terrain Models (DTM) |

ROADWAY DESIGN CONTROLS
(Function Code 160)

Services
Provided By:
ENGINEER COUNTY

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| <u>NO</u> | <u>NO</u> | 1. Geometric Design |
| <u>NO</u> | <u>NO</u> | a. Horizontal and Vertical Alignment |
| | | b. Schematic Layout |
| | | (1) The location of interchanges, main lanes, grade separations, frontage roads and ramps. |
| | | (2) Develop vertical and horizontal alignment of main lanes, ramps and cross roads at proposed interchanges or grade separations. Frontage road alignment data need not be shown on the schematic; however, it should be developed in sufficient detail to determine ROW needs. The degree of horizontal curves and vertical curve data, including "K" values, shall also be shown for ease of checking. |
| | | (3) For freeways, show the location and text of the proposed main lane guide signs. Lane lines and/or arrows indicating the number of lanes shall also be shown. |
| | | (4) A complete explanation of the sequence and methods of stage construction, if proposed, including the initial and ultimate proposed treatment of crossovers and ramps. |
| | | (5) The tentative ROW limits. |
| | | (a) Provide a roadway Design System (RDS) or (GEOPAK) computer tape of the preliminary earthwork to verify ROW requirements. |
| | | (b) Provide a graphics file containing the approved schematic. |
| | | (6) The geometric (pavement cross slopes, lane and shoulder widths, slope rates for fills and cuts) of the typical sections of proposed highway main lanes, ramps, frontage roads, and cross roads. |
| | | (7) The current and projected traffic volumes as provided by the TxDOT (20 year traffic projection, unless otherwise determined by the District Engineer). |
| | | (8) The control of access lines if Interstate or designated under House Bill 179. |
| | | (9) Direction of traffic flow on all roadways. |
| | | (10) Location and width of median openings for highway without access control. |
| | | (11) The geometric of speed change (acceleration, deceleration, climbing) lanes. |
| <u>NO</u> | <u>NO</u> | 2. General Guidelines for Project Development |
| | | a. Prior to preparing detailed plans for a proposed project, a preliminary schematic layout shall be prepared which indicates the general geometric features and location requirements peculiar to the project. An uncontrolled aerial mosaic will be provided for this use. Four copies of the schematic layout shall be submitted through the district to the Design Division for approval and subsequent coordination with the Federal Highway Administration (FHWA) where applicable. The layout shall be submitted for two-lane arterial highway projects on new locations and for all multi-lane highway projects. No geometric design is to be performed until the COUNTY has given the engineer written approval of the preliminary schematic layout. |
| | | b. All geometric design shall be in conformance with the State's Design Division, Operations and Procedures Manual, except where variances are permitted in writing by the STATE. |
| | | c. The schematic layout shall include basic information which is necessary for the proper review and evaluation including the items listed above in the checklist for schematic layout. |
| | | d. Handling of traffic during construction shall be a consideration in the development of preliminary designs. |

Services
 Provided By:
ENGINEER COUNTY

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| <u>NO</u> | <u>NO</u> | 2. General Guidelines for Project Development (<i>continued</i>) |
| | | <ul style="list-style-type: none"> e. Upon approval of the schematic layout by Design Division (FHWA on Federal-aid projects), it shall be the basis for an exhibit at any required public hearing prior to final development of the project. If there are any changes to the schematic after the Design Division and FHWA approval and before the public hearing, four copies of the revised schematic, as displayed at the hearing, shall be submitted either prior to or accompanying the public hearing data. If there are no changes in the schematic as displayed at the hearing, only photographs of the schematic and other displays shall be submitted with the public hearing data. f. For all freeway construction projects, these schematics shall show the location and text of the proposed main lane guide signs. A schematic layout shall be submitted through the district to the Traffic Operations Division, Traffic Safety Section for approval and subsequent coordination with the FHWA. All signing shall be in conformance with the Texas MUTCD. g. On complex projects, informal contact through the district with the Design Division and FHWA personnel is encouraged with regard to development of preliminary design prior to official schematic submission. h. The engineer shall furnish a project tape that is compatible with the STATE's computer system, a project listing, and a cross section plot showing the original design sections containing the earthwork input and original cross sections for the project. Accuracy of the earthwork design is of utmost importance since it is the basis for contractor payments and construction staking. |
| <u>NO</u> | <u>NO</u> | 3. Exhibit for Airway/Highway Clearance Permits |
| <u>NO</u> | <u>NO</u> | 4. Grading Design |
| | | <ul style="list-style-type: none"> a. Refine the horizontal and vertical alignment of main lanes, frontage roads, ramps, cross roads and direct connectors based upon the approved schematic layout. Determine vertical clearances at grade separations and overpasses, taking into account the appropriate super elevation rate. b. Typical Sections c. Design Cross Sections d. Determine Cut and Fill Quantities e. Slope Stability Analysis f. Embankment Foundation Stability Analysis g. Embankment Settlement Analysis |
| <u>YES</u> | <u>NO</u> | 5. Pavement Design |
| | | <ul style="list-style-type: none"> a. Prior to initiating detailed plan preparations for a project, a preliminary investigation shall be made to determine the approximate section and pavement type to be used for the pavement structure. The Flexible Pavement Design Manual for flexible pavement, "Appendix F" of the Design Division, Operations and Procedures Manual, and the current AASHTO Guide for the Design of Pavement Structures, may be used for this purpose. b. The typical section shall also reflect proposed geometric including pavement cross slopes, lane and shoulder widths, and slope rates whenever this data have not been previously shown on a schematic submission. c. Embankment and Subgrade <ul style="list-style-type: none"> (1) Soil Core Holes (Show cost estimate with Function Code 110) <ul style="list-style-type: none"> (a) Along center line (b) Along center line of each roadway |
| <u>YES</u> | <u>NO</u> | |
| <u>NO</u> | <u>NO</u> | |
- The location and minimum number of soil core holes required for this project are as follows: (To be determined when schematic is being completed)

Services

Provided By:

ENGINEER COUNTY

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| <u>YES</u> | <u>NO</u> | 5. Pavement Design (<i>continued</i>) |
| <u>YES</u> | <u>NO</u> | c. Embankment and Subgrade (<i>continued</i>) |
| <u>YES</u> | <u>NO</u> | (2) Identify, interpret and summarize geologic features that affect engineering design
(PI, Sulfate content, % of lime) |
| <u>YES</u> | <u>NO</u> | d. Traffic Data for Pavement Design by STATE |
| <u>YES</u> | <u>NO</u> | e. Basic Design Criteria |
| <u>YES</u> | <u>NO</u> | f. Life Cycle Cost Analysis(es) |
| <u>YES</u> | <u>NO</u> | g. Cost Data |
| <u>YES</u> | <u>NO</u> | h. Pavement Material Properties |
| <u>YES</u> | <u>NO</u> | i. Rehabilitation Investigations |
| <u>YES</u> | <u>NO</u> | (1) Core Hole Survey (Show cost estimate with Function Code 110) |
| | | (a) Determine type and depth of existing material, pavement, etc. The Engineer
will determine whether to salvage ACP and FLEXBASE as well as their
properties and provide this information to TxDOT. |

DRAINAGE
 (Function Code 161)

Services
 Provided By:
ENGINEER COUNTY

All hydraulic design shall be in accordance with the TxDOT's Hydraulic Manual, except where variances are permitted in writing by the COUNTY.

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| <u>YES</u> | <u>NO</u> | 1. Hydrologic Studies, Discharges |
| <u>YES</u> | <u>NO</u> | a. Drainage area maps showing existing conditions and proposed improvements. |
| | | b. Hydrologic data/discharge determination |
| | | 2. Hydraulic Drainage Study and Documentation |
| <u>NO</u> | <u>NO</u> | a. Hydraulic computations |
| <u>YES</u> | <u>NO</u> | (1) Storm water detention available within the ROW (linear ft. along side drain ditch). |
| <u>YES</u> | <u>NO</u> | (2) Storm water detention required outside the ROW (as per HCDD#1) |
| <u>YES</u> | <u>NO</u> | (3) Culverts |
| <u>YES</u> | <u>NO</u> | (4) Bridge waterways |
| <u>YES</u> | <u>NO</u> | (5) Channels |
| <u>YES</u> | <u>NO</u> | (6) Storm sewers/inlets |
| <u>NO</u> | <u>NO</u> | (7) Pump stations |
| <u>NO</u> | <u>NO</u> | (8) Storm Water Management facilities |
| <u>YES</u> | <u>NO</u> | (9) Other |
| | | (a) Irrigation Canals/Siphons |
| <u>NO</u> | <u>NO</u> | b. Hydraulic report(s) |
| <u>NO</u> | <u>NO</u> | c. Federal Emergency Management Agency (FEMA) floodway requirements |
| <u>YES</u> | <u>NO</u> | d. Determine impact of proposed drainage plan on the following receiving stream(s) |
| | | (1) Hidalgo County Drainage District Outfalls |
| | | (2) All Irrigation District Outfalls impacted |
| | | 3. Layout, Structural Design and Detailing of Drainage Features |
| <u>YES</u> | <u>NO</u> | a. Culverts |
| <u>YES</u> | <u>NO</u> | (1) New culverts |
| <u>YES</u> | <u>NO</u> | (2) Culvert widening and/or lengthening |
| | | (3) Culvert replacements |
| | | b. Storm sewers |
| <u>YES</u> | <u>NO</u> | (1) New storm sewers |
| <u>NO</u> | <u>NO</u> | (2) Modify existing storm sewers |
| <u>YES</u> | <u>NO</u> | (3) Inlets |
| <u>YES</u> | <u>NO</u> | (4) Manholes |
| <u>YES</u> | <u>NO</u> | (5) Trunk lines |
| <u>NO</u> | <u>NO</u> | c. Pump stations |
| <u>NO</u> | <u>NO</u> | d. Subsurface drainage at retaining walls |
| <u>YES</u> | <u>NO</u> | e. Outfall channel(s) within the ROW |
| <u>YES</u> | <u>NO</u> | f. Outfall channel(s) outside the ROW |
| <u>NO</u> | <u>NO</u> | g. Detention Pond(s) within the ROW |
| <u>NO</u> | <u>NO</u> | h. Detention Pond(s) outside the ROW |
| <u>YES</u> | <u>NO</u> | i. Summary of Quantities |
| <u>NO</u> | <u>NO</u> | j. Storm Water Management facilities |
| <u>YES</u> | <u>NO</u> | 4. Storm Water Pollution Prevention Plan (SW3P) |
| <u>YES</u> | <u>NO</u> | 5. Scour Evaluation - Waterway Structures only (to be completed by Bridge Engineer under FC 170). |

SIGNING, MARKINGS AND SIGNALIZATION
(Function Code 162)

Services
Provided By:
ENGINEER COUNTY

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| <u>YES</u> | <u>NO</u> | 1. Signing and Markings Layout |
| | | a. Requirements (Separate Layout) |
| | | (1) Roadway layout |
| | | (2) Center line with station numbering |
| | | (3) ROW lines |
| | | (4) Culverts and other structures that present a hazard to traffic |
| | | (5) Location of utilities, if not shown on plan and profile |
| | | (6) Existing signs to remain, to be removed, to be relocated |
| | | (7) Proposed signs (illustrated and numbered) |
| | | (8) Existing overhead sign bridges to remain, to be revised, removed or relocated |
| | | (9) Proposed overhead sign bridges indicating location by plan layout (electrical details need not be shown on this layout) |
| | | (10) Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation |
| | | (12) Quantities of existing pavement markings to be removed |
| | | (13) Proposed delineators and object markers |
| | | b. For projects involving freeway to freeway or other types of directional interchanges, projects including left-hand ramps or connections, the following information must be provided: |
| | | (1) The location of interchanges, main lanes, grade separations, frontage roads and ramps |
| | | (2) complete explanation of the sequence and methods of stage construction, where applicable, which would include the initial and ultimate proposed treatment of crossovers and ramps |
| | | (3) The number of lanes in each section of proposed highway and the location of changes in numbers of lanes |
| | | (4) The projected traffic volumes as provided by the STATE (20 year traffic projection, unless otherwise determined by the District Engineer) |
| | | (5) Tentative ROW limits |
| | | (6) Direction of traffic flow on all roadways |
| | | (7) Main lane, ramp, frontage road, and necessary cross road profiles at proposed interchanges or grade separations |
| <u>YES</u> | <u>NO</u> | 2. Summary of Small Signs Tabulation |
| <u>NO</u> | <u>NO</u> | 3. Summary of Large Signs Tabulation including all Guide Signs |
| <u>YES</u> | <u>NO</u> | 4. Sign Detail Sheets |
| | | a. All signs except route markers |
| | | b. Design details for large guide signs |
| | | c. Dimensions of letters, shields, borders, corner radii etc. |
| | | d. Designation of shields attached to guide signs |
| | | e. Designation of arrow used on exit direction signs |

Services
Provided By:
ENGINEER COUNTY

5. Traffic Signals

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| <u>YES</u> | <u>NO</u> | a. Development of Justification (Warrant) Data |
| | | (1) Location Map |
| | | Relationship of proposed installation to other traffic signals, highways, business areas and traffic generators |
| <u>YES</u> | <u>NO</u> | (2) Photographs as appropriate |
| <u>YES</u> | <u>NO</u> | (3) Accident data as appropriate |
| | | (4) Vehicle volumes (provided by TxDOT) |
| <u>YES</u> | <u>NO</u> | (a) Existing |
| <u>YES</u> | <u>NO</u> | (b) Estimated |
| <u>YES</u> | <u>NO</u> | (c) Projected |
| <u>YES</u> | <u>NO</u> | (d) Pedestrian |
| <u>YES</u> | <u>NO</u> | (5) Traffic Survey - Count Analysis |
| <u>YES</u> | <u>NO</u> | (6) Recommendation based on above data |
| <u>YES</u> | <u>NO</u> | b. Layout |
| | | (1) Title Sheet (when applicable) |
| | | (a) Describe the location |
| | | (b) Type of installation |
| | | (c) Area map with project limits for each location |
| | | (d) Index of sheets |
| | | (e) Space for official signatures |
| | | (2) Estimate and quantity sheet (when applicable) |
| | | (a) List of all bid items |
| | | (b) Bid item quantities |
| | | (c) Specification item number |
| | | (d) Paid item description and unit of measure |
| | | (3) Basis of estimate sheet (list of materials) |
| | | (4) General notes and specification data sheet |
| | | (5) Condition diagram |
| | | (a) Highway and intersection design features |
| | | (b) Roadside development |
| | | (c) Traffic control including illumination |
| | | (6) Plan sheet(s) |
| | | (a) Existing traffic control that will remain (signs and markings) |
| | | (b) Existing utilities |
| | | (c) Proposed highway improvements |
| | | (d) Proposed installation |
| | | (e) Proposed additional traffic controls |
| | | (f) When applicable, proposed conduit for Railroad interconnect with standard details for runs under tracks. |
| | | (g) Proposed illumination attached to signal poles. |
| | | (7) Notes for plan layout |
| | | (8) Elevation sheet(s) (span wire design) |
| | | (9) Phase sequence diagram(s) |
| | | (a) Signal locations |
| | | (b) Signal indications |
| | | (c) Phase diagram |
| | | (d) Signal sequence table |
| | | (e) Flashing operation (normal and emergency) |
| | | (f) Preemption operation (when applicable) |
| | | (g) Interval timing, cycle length and offset |

Services
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ENGINEER COUNTY

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|--|--|
| <p><u>YES</u> <u>NO</u></p> | <p>5. Traffic Signals <i>(continued)</i></p> <p>b. Layout <i>(continued)</i></p> <p style="padding-left: 20px;">(10) Construction detail sheets(s)</p> <p style="padding-left: 40px;">(a) Poles (TxDOT standard sheets)</p> <p style="padding-left: 40px;">(b) Detectors</p> <p style="padding-left: 40px;">(c) Pull Box and conduit layout</p> <p style="padding-left: 40px;">(d) Controller Foundation standard sheet</p> <p style="padding-left: 20px;">(11) Marking details (when applicable)</p> <p style="padding-left: 20px;">(12) Barricade and warning sign standard sheet and any special details for work zone traffic control for special conditions</p> <p style="padding-left: 20px;">(13) Aerial or underground interconnect details (when applicable)</p> <p>c. General Requirements</p> <p style="padding-left: 20px;">(1) Contact local utility company</p> <p style="padding-left: 40px;">(a) Confirm power source</p> <p style="padding-left: 40px;">(b) Discuss route of aerial or underground interconnect cable (when applicable)</p> <p style="padding-left: 40px;">(c) Adjustment of overhead utility lines</p> <p style="padding-left: 20px;">(2) Prepare governing specifications and special provisions list</p> <p style="padding-left: 20px;">(3) Prepare project estimate</p> |
| <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> <p><u>YES</u> <u>NO</u></p> | <p>d. Summary of Quantities</p> |

MISCELLANEOUS (ROADWAY)
 (Function Code 163)

Services
 Provided By:
ENGINEER COUNTY

- | | | |
|-----------|-----------|---|
| | | 1. Retaining Walls |
| | | a. Structural Details |
| <u>NO</u> | <u>NO</u> | (1) Cast-in-Place Cantilever at _____ locations. (TxDOT Standard Retaining Wall)* |
| <u>NO</u> | <u>NO</u> | (2) Tiedback Retaining Wall at _____ location. (TxDOT standard retaining wall) |
| <u>NO</u> | <u>NO</u> | (3) Specialized Retaining Wall at _____ locations (Unique Design).* |
| | | b. Alternate Patented Retaining Walls at all locations. (Layouts Only)** |
| <u>NO</u> | <u>NO</u> | (1) Mechanically Stabilized Earth |
| <u>NO</u> | <u>NO</u> | (2) Concrete Block Wall Systems |
| <u>NO</u> | <u>NO</u> | c. Retaining Wall Layout (PLAN) |
| | | (1) Designation of reference line |
| | | (2) Beginning and ending retaining wall stations |
| | | (3) Station of each retaining wall joint*** |
| | | (4) Offset from reference line |
| | | (5) Horizontal curve data |
| | | (6) Number of retaining wall panels and lengths*** |
| | | (7) Total length of wall |
| | | (8) Indicate face of wall |
| | | (9) All wall dimensions and alignment relations (alignment data as necessary) |
| | | (10) Soil core hole locations |
| <u>NO</u> | <u>NO</u> | d. Retaining Wall Layout (ELEVATION) |
| | | (1) Top of wall elevations at each joint or intervals*** |
| | | (2) Existing and finished ground line elevations |
| | | (3) Height of stem at each joint*** |
| | | (4) Wall panel designations*** |
| | | (5) Top of footing elevations*** |
| | | (6) Limits of measurement for payment**** |
| | | (7) Type, limits and anchorage details of railing (If applicable) |
| | | (8) Top and bottom of wall profiles and soil core hole data plotted at correct station and elevation. The plot shall be at the same scale as the wall profile. Ground water elevations and the observation date shall be shown. |
| <u>NO</u> | <u>NO</u> | e. Foundation Studies (Show cost estimate with Function Code 110) |
| <u>NO</u> | <u>NO</u> | (1) The soil core holes shall be obtained at approximately 200 foot intervals along retaining wall alignments. The core holes shall extend 25 feet below the footing elevation. |
| <u>NO</u> | <u>NO</u> | f. Stability Analysis (the ENGINEER shall estimate this task as part of his bid to complete the work). |
| <u>NO</u> | <u>NO</u> | g. Estimate |
| <u>NO</u> | <u>NO</u> | h. Summary of Quantities |
| <u>NO</u> | <u>NO</u> | i. Typical X-section. |
| <u>NO</u> | <u>NO</u> | j. General Guidelines for Retaining Walls |
| | | (1) The ENGINEER shall make final design calculations and final detail drawings in accordance with standard requirements of the Texas Department of Transportation. The designer and checker shall check all calculations and initial each page. |
| | | (2) The ground water level should be observed at the water strike. |
| | | (3) For purposes of uniformity statewide, soil core hole data shall be shown on layouts as illustrated in the Bridges and Structures Foundation Exploration and Design Manual. |
| | | (4) Foundation exploration shall conform to the requirements set forth in Administrative Circular No. 25-84, Administrative Circular 33-87 and Administrative Circular No. 25-92. |

Services
Provided By:
ENGINEER COUNTY

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|------------|-----------|--|
| <u>YES</u> | <u>NO</u> | <p>2. Traffic Control Plan, Detours and Sequence of Construction</p> <p>Traffic Control Plans (TCP) are required for all projects. A detailed TCP shall be developed when traffic handling during construction involves complications for which a feasible solution is not covered by the Texas MUTCD or the current Barricade and Construction (BC) Standards. The following items are required on all Traffic Control Plan Layouts:</p> <ul style="list-style-type: none">a. The sequence of construction and method of handling traffic during each phase.b. The existing and proposed traffic control devices that will be used to handle traffic during each construction sequence. Include signals, regulatory signs, warning signs, construction warning signs, guide signs, route markers, construction pavement markings, channelizing devices, portable changeable message signs, flashing arrow boards, barricades, barriers, etc.c. The proposed traffic control devices (stop signs, signals, flag person, etc.) at grade intersections during each construction sequence.d. Where detours are provided, typical cross sections shall be shown.e. Road construction work hours shall be developed after an investigation of the traffic volumes has been performed. |
| <u>NO</u> | <u>NO</u> | <p>3. Illumination</p> <p>a. Preliminary Roadway Illumination Layout and Circuit Layout</p> <ul style="list-style-type: none">(1) For projects involving freeway to freeway or other types of directional interchanges and projects including left-hand ramps or connections, provide the following:<ul style="list-style-type: none">(a) The location of interchanges, main lanes, grade separations, frontage roads and ramps(b) A complete explanation of the sequence and methods of stage construction, where applicable, which would include the initial and ultimate proposed treatment of crossovers and ramps(c) The number of lanes in each section of proposed highway and the location of changes in the number of lanes(d) The projected traffic volumes as provided by the STATE (20 year traffic projection unless otherwise determined by the district engineer)(e) Tentative ROW limits(f) Direction of traffic flow on all roadways(g) Main lane, ramp, frontage road, and necessary cross road profiles at proposed interchanges or grade separations |
| <u>NO</u> | <u>NO</u> | <p>b. Final Roadway Illumination and Electrical Circuit Layouts</p> <ul style="list-style-type: none">(1) Roadway layout showing pavement edges, shoulders, curbs, retaining walls, etc.(2) Center line with station numbering.(3) ROW lines.(4) Symbol legend. Use department standard symbols for lighting and electrical.(5) Culverts and other structures that present a hazard to traffic.(6) Location of underground utilities, if not shown on plan profile.(7) Location of overhead electrical lines, both crossing and parallel to ROW.(8) Existing sign lighting circuits and roadway illumination to remain, to be removed, to be relocated.(9) Existing service poles, electrical circuits, ground boxes, etc.(10) Contact electric utility for service pole locations, voltage characteristics.(11) Location of proposed sign lighting circuits and roadway illumination.(12) Proposed electrical circuits.(13) Tabulation of all quantities including proposed, existing to be relocated, existing to be removed. The layout sheet quantities and lighting summary shall be shown. Tabulations to include estimated quantity with a column for final quantities. |

Services
 Provided By:
ENGINEER COUNTY

<u>NO</u>	<u>NO</u>	3. Illumination (<i>continued</i>)
		c. General Guidelines for Illumination (If applicable)
		The ENGINEER shall submit to the COUNTY, well in advance of PS&E due date, the roadway illumination and electrical circuit layout sheets for review by the STATE. Two copies of the layout sheets are to be submitted. One copy will be returned to the Engineer showing corrections that are to be made by the ENGINEER. When final plan submission is made, the ENGINEER shall provide a written statement regarding completion of the corrections.
<u>YES</u>	<u>NO</u>	4. Miscellaneous Drafting/Standards
<u>NO</u>	<u>NO</u>	a. Erosion Control
		b. Landscape Development
<u>YES</u>	<u>NO</u>	5. Compute and Tabulate Quantities
<u>YES</u>	<u>NO</u>	6. Special Utility Details (Irrigation lines)
		7. Miscellaneous Structures
		a. Type of Structure*
<u>NO</u>	<u>NO</u>	(1) Overhead Sign Bridges (O.S.B.)
<u>NO</u>	<u>NO</u>	Modifications or special O.S.B. designs shall be prepared using the same design assumptions that are used for the standard O.S.B structures.
		(a) New O.S.B. structure(s)
		(b) Structural evaluation of existing O.S.B. structure(s) that are to remain in place or to be relocated.
<u>NO</u>	<u>NO</u>	(2) High Mast Illumination Poles (HMIP)
<u>YES</u>	<u>NO</u>	(3) Traffic Signal Supports
<u>NO</u>	<u>NO</u>	(4) Conventional Illumination Poles
<u>NO</u>	<u>NO</u>	(5) Sound Barrier Walls
<u>NO</u>	<u>NO</u>	b. Checklist for Layouts
		(1) Reference appropriate O.S.B. standard
		(2) Drilled shaft size and length
		(3) Soil strength used for design {indicate basis and boring(s) used}
		(4) Design height
		(5) Tower heights
		(6) Leg spacings
		(7) Design wind speed
<u>NO</u>	<u>NO</u>	c. Foundation Studies (Show cost estimate with Function Code 110)
		The soils exploration requirements for miscellaneous structures on this project are as follows: (To be provided by the Engineer on an as-needed basis)
		8. Agreements
<u>NO</u>	<u>NO</u>	a. Utility Agreements
<u>NO</u>	<u>NO</u>	b. Exhibits for Utility Agreements
<u>NO</u>	<u>NO</u>	c. Railroad Agreements
		d. Railroad Exhibits
<u>NO</u>	<u>NO</u>	(1) Railroad Underpasses
<u>NO</u>	<u>NO</u>	(2) Railroad Overpasses
<u>NO</u>	<u>NO</u>	(3) Railroad Grade Crossing (Replanking)
<u>NO</u>	<u>NO</u>	(4) Railroad Grade Crossing Warning Systems (Signals)
<u>NO</u>	<u>NO</u>	(5) Other Miscellaneous Sketches for Railroads
<u>YES</u>	<u>NO</u>	e. Traffic Signal Agreements
<u>YES</u>	<u>NO</u>	f. Exhibits for Traffic Signal Agreements
<u>YES</u>	<u>NO</u>	9. Estimate
<u>YES</u>	<u>NO</u>	10. Specifications and General Notes

BRIDGE DESIGN
 (Function Code 170)

Services
 Provided By:
ENGINEER COUNTY

			<u>NUMBER REQUIRED</u>
		1. Preparation of Structural Details	
		a. New Structure(s)	
<u>NO</u>	<u>NO</u>	(1) Underpass(es)	
<u>NO</u>	<u>NO</u>	(2) Overpass(es)	
<u>NO</u>	<u>NO</u>	(3) Main Lanes	<u>N/A</u>
<u>NO</u>	<u>NO</u>	(4) Direct Connector(s)	<u>N/A</u>
<u>NO</u>	<u>NO</u>	(5) Ramp Bridge(s)	<u>N/A</u>
<u>YES</u>	<u>NO</u>	(6) Waterway Structure(s)**	<u>1</u>
<u>NO</u>	<u>NO</u>	(7) Pedestrian Structure(s)	<u>N/A</u>
<u>NO</u>	<u>NO</u>	(8) Utility Structure(s)	<u>N/A</u>
<u>NO</u>	<u>NO</u>	(9) Railroad Underpass(es)	<u>N/A</u>
<u>NO</u>	<u>NO</u>	(10) Railroad Overpass(es)	<u>N/A</u>
<u>NO</u>	<u>NO</u>	(11) Bridge Classification Culvert(s)**	<u>N/A</u>
<u>NO</u>	<u>NO</u>	(11) Alternate Structural Designs	<u>N/A</u>
<u>NO</u>	<u>NO</u>	(12) Alternate Foundation Design	<u>N/A</u>
		Total New Structures =	<u>1</u>
		b. Existing Structure(s)	<u>N/A</u>
<u>NO</u>	<u>NO</u>	(1) Bridge Widening, Rehabilitation and/or Modification of Existing Structure(s)	
<u>YES</u>	<u>NO</u>	(2) Bridge Replacement	<u>1</u>
<u>NO</u>	<u>NO</u>	(3) Raising Bridge Elevation	<u>N/A</u>
<u>NO</u>	<u>NO</u>	(4) Bridge Classification Culvert(s) Widening and/or Modification of Existing Structures(s)	<u>N/A</u> <u>N/A</u>
<u>NO</u>	<u>NO</u>	(5) Railroad Overpass(es)	<u>N/A</u>
<u>NO</u>	<u>NO</u>	(6) Railroad Underpass(es)	<u>N/A</u>
		Total Existing Structures =	<u>1</u>

* Contour plots of bridge gores are required for projects involving ramps within the main bridge in order to ensure project transition. The Template data and vertical alignment necessary to generate the contour plots are also required.

** In the early stages of a project, it sometimes cannot be determined whether a Waterway Bridge Structure or a Bridge Classification Culvert (20' minimum length) will be required. Therefore, the ENGINEER should be aware that either of these two types of bridges may be reclassified later in the project for the other type when more information is known that would dictate a change in structure classification.

Services
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- | <u>YES</u> | <u>NO</u> | |
|------------|-----------|--|
| | | 2. Preparation of Bridge Layouts (each bridge) |
| | | a. Bridge Layouts (PLAN) |
| | | (1) Horizontal curve information or bearing of centerline. |
| | | (2) Including horizontal, vertical, and template information of all roadways or railroads crossed. |
| | | (3) Bearing of center line or reference line. |
| | | (4) Skew angle(s). |
| | | (5) Slope for header banks and approach fills. |
| | | (6) Control stations at beginning and ending of bridge (with deck elevation), intersections, etc. |
| | | (7) Approach pavement and crown width. |
| | | (8) Bridge roadway width and curbs, face of rail, shoulders, or sidewalks. |
| | | (9) Approach slab and curb returns. |
| | | (10) Limits and type of riprap. |
| | | (11) Proposed features under structure. |
| | | (12) Location of profile grade line. |
| | | (13) North arrow. |
| | | (14) Typical bridge roadway section including preliminary proposed beam types and spacings. |
| | | (15) Cross slope and super elevation data. |
| | | (16) Minimum horizontal clearances when applicable. |
| | | (a) Dimensions to features that control clearances. (Calculate and indicate points of minimum vertical and horizontal clearances. |
| | | (17) Location of soil core holes (station and offset), shown on layout. |
| | | (18) Bent stations and bearings. |
| | | (19) Retaining wall locations. |
| | | (20) Traffic flow directional arrows. |
| | | (21) Railing types shown. |
| | | (22) Joint types and seal size, if used. |
| | | (23) Beam line numbers consistent with span details. |
| | | (24) Critical horizontal clearances (location of railroad tracks, nearby structures and utilities). |
| | | (25) Bearings of utilities. |
| | | b. Bridge Layouts (ELEVATION) |
| | | (1) Type of foundation. |
| | | (2) Finished grade elevations at beginning and end of bridge. |
| | | (3) Overall length of structure. |
| | | (4) Length, type of spans and units. |
| | | (5) Type of railing. |
| | | (6) Minimum calculated vertical clearance(s). |
| | | (7) Existing and proposed ground lines clearly marked. |
| | | (8) Grid elevations and stations. |
| | | (9) Bent numbers encircled. |
| | | (10) Stationing of bridge compatible with grid stations. |
| | | (11) Standard title. |
| | | (12) Profile grade data. |
| | | (13) Type of riprap. |
| | | (14) Soil Core Hole information with penetrometer test data shall be shown on the bridge layout at correct station, elevation and scale. |
| | | (15) Fixed/expansion condition of all bents. |
| | | (16) Column "H" heights. |
| | | (17) Number, size and length of foundations. |

Services
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ENGINEER COUNTY

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|------------|-----------|---|
| <u>YES</u> | <u>NO</u> | 2. Preparation of Bridge Layouts (each bridge) <i>(continued)</i> |
| | | c. Additional layout requirements for waterway structures and bridge classification culverts. <ul style="list-style-type: none"> (1) Design and 100-year peak discharges. (2) Design and 100-year high water (HW) (Recorded HW and date if available) (3) Natural and through-bridge velocities for design and 100-year floods. (4) Calculated backwater for design and 100-year floods. (5) Direction of flow for waterway crossings. (6) Contours for water crossing. |
| <u>NO</u> | <u>NO</u> | 3. Bridge Classification Culvert, Estimate, Quantities, and Specifications (each bridge) |
| <u>YES</u> | <u>NO</u> | 4. Foundation Studies (Show cost estimate with Function Code 110)
The minimum number of soil core holes shall be obtained in accordance with Section 1-301 of the Bridges and Structures Foundation Exploration and Design Manual. Soil core holes shall be obtained at approximately (300 foot) intervals along bridge alignments. Texas cone penetrometer (TCP) tests shall be conducted in all soil types encountered at a maximum of (10 foot) intervals. If single column bents with single drilled shafts are planned, TCP values should be taken at close intervals in the upper (15 feet). |
| <u>YES</u> | <u>NO</u> | 5. Bridge Total Quantities and Cost Estimates (each bridge) |
| <u>YES</u> | <u>NO</u> | 6. Bridge Special Provisions and Specifications (each bridge) |
| <u>YES</u> | <u>NO</u> | 7. Bearing seat elevations for each beam or girder. Top of cap elevations for non-beam type structures. |
| <u>YES</u> | <u>NO</u> | 8. General Guidelines for Bridge Design <ul style="list-style-type: none"> a. The ENGINEER shall prepare a bridge layout of each bridge structure for Company's review and approval. The bridge layout shall be in conformance with the Bridges and Structures, Operation and Planning Manual and the Bridges and Structures, Detailing Manual. Soil core hole data is not required for submission of the preliminary bridge layout. No bridge design work is to be performed until the COUNTY has given the engineer written approval of the preliminary bridge layout. |

Several months may be required, after the preliminary bridge layout is submitted, for the district to obtain approval and/or permits from the following:

- TxDOT Design Division, when applicable:
 - Railroad Companies
 - FHWA
 - U.S. Army Corps of Engineers
 - U.S. Coast Guard
 - Bureau of Reclamation
 - Texas Parks and Wildlife
 - Others

Therefore, the bridge layout should be submitted at the earliest possible date and the ENGINEER's design schedule should reflect this.

- b. All bridge superstructure and substructure design will be reviewed by the Design Division for purposes of verifying structural integrity and optimization of design.
- c. The final bridge layout shall be in conformance with the Bridges and Structures, Operation and Planning Manual and the Bridges and Structures Detailing Manual.

Services
Provided By:
ENGINEER COUNTY

8. General Guidelines for Bridge Design (*continued*)

- d. The ENGINEER shall make final design calculations and final detail drawings in accordance with standard requirements of the Texas Department of Transportation. All bridge design shall be in conformance with the Texas Department of Transportation Bridges and Structures Operation and Planning Manual, the current American Association of State Highway and Transportation Officials or American Railway Engineers Association Specifications for railway structures, Standard Specifications for Highway Bridges, including applicable interim specifications, and the Bridges and Structures, Foundation Exploration and Design Manual. The ENGINEER shall furnish design calculations to the Design Division. **The designer and checker shall check all calculations and initial each page.**
- e. Structural steel or prestressed concrete shop drawings, form work drawings and false work drawings are not part of the design requirements. However, contract plans shall be in sufficient detail to permit the preparation of complete shop details for fabrication and erection.
- f. Elements of the bridge (abutments, bents, slabs, etc.) shall be detailed to a metric scale of 1:20 (1/2 inch equals one foot architect scale) or 1:50 (1/4 inch equals one foot architect scale) to provide clear legible drawings when the drawings are reduced. Lettering shall be a minimum size of 4 millimeters (5/32 inch) height for hand lettering and 140 for lettering by computer-aided design and drafting (CADD).
- g. Standard drawings for beams, diaframs, railings, armor joints, riprap, etc., shall be furnished to the ENGINEER upon request. These standards shall not be redrawn by the ENGINEER nor shall his title block be transferred to the standard drawings. Modifications to the standards, if necessary, shall be clearly identified and designated by “MOD” in the standard title. Specific special drawings prepared by the ENGINEER shall not be identified as standards.
- h. Bridge layout sheets shall have the same vertical and horizontal scale. Usually a metric scale of 1:100 (1 inch = 10 feet) or 1:200 (1 inch = 20 feet) is used. Sections of existing and proposed structures usually have a metric scale of 1:50 (1 inch = 5 feet). Soil core holes shall be positioned and labeled on the bridge layout plan view. The core hole data shall be plotted at the correct station, at the same vertical scale, and at the proper elevation unless otherwise approved by the Design Division.
- i. APPENDIX C, “GENERAL PLAN CHECKLIST”, on pages C-1 thru C-5, more specifically relates various sheet types, details, summaries, standards, etc.
- j. For purposes of uniformity statewide, soil core hole data shall be shown on layouts as illustrated in the Bridges and Structures Foundation Exploration and Design Manual.
- k. Geometry and structural design errors found after acceptance of bridge plans shall be promptly corrected by the consultant at no cost to the Company.

ADDITIONAL RESONSIBILITIES

Easements, Letters of Permission, Etc.

The ENGINEER shall be responsible for delineating easements. The ENGINEER will be responsible for securing the necessary legal instruments.

Coordination of Utilities

The ENGINEER shall furnish the COUNTY prints of a project layout which will be distributed by ENGINEER to various utility companies to determine which utilities are in the limits of the project. These shall be preliminary layouts. Upon completion of the preliminary drainage plans and U&D sheets, the ENGINEER shall distribute to the various utility companies and request return. Upon return of these prints, the ENGINEER will schedule a meeting with the various utility companies to discuss potential conflicts and conformance with the State's Utility Accommodation Policy. The ENGINEER is responsible for coordination with the various utility companies for exposing potential conflicts and field ties to uncover utilities in potential conflict areas.

Meetings

Meetings will be held with the FHWA, State Officials, local governments, property owners, utility owners, railroad companies, other consulting firms, etc., as needed or required by the COUNTY. The ENGINEER shall coordinate through the COUNTY for the development of this project with any local entity having jurisdiction or interest in the project (i.e., city, county, etc).

Specifications, Special Provisions, Special Specifications

Use the State's standard specifications or previously approved special provisions and/or special specifications. If a special provision and/or special specification is developed for this project, it shall be in the State's format and incorporate references to approved State test procedures.

Project Manager/Engineer Communication

The ENGINEER shall designate one Texas Registered Professional Engineer to be responsible throughout the project for project management and all communications, including billing, with the COUNTY's Director. Any replacements to the ENGINEER's designated Project Manager/Engineer must be approved by the COUNTY.

Engineering documents produced for the department's engineering projects shall be signed, sealed and dated or CADD sealed in accordance with Administrative Order No. 5-89 and Administrative Circular No. 26-91.

Design Responsibilities

The ENGINEER is responsible for design errors and/or omissions that become evident before, during or after construction of the project. The ENGINEER's responsibility for all questions arising from design errors and/or omissions will be determined by the COUNTY and all decisions shall be final and binding. This would include, but not necessarily be limited to:

1. All design errors and/or omissions resulting in additional design work to correct the errors and/or omissions.
2. Preparation of design documents and detail drawings necessary for a field change due to design errors and/or omissions.
3. Revision of original tracings to the extent required for a field change due to design errors and/or omissions.

The ENGINEER shall promptly make necessary revisions or corrections resulting from the ENGINEER's errors, omissions or negligent acts without additional compensation. Acceptance of the work by the COUNTY will not relieve the ENGINEER of the responsibility for subsequent correction of any such errors or omissions or for clarification of any ambiguities.

Document and Information Exchange

Data, Plan Sheets, General Notes and/or Specifications provided to the COUNTY shall be furnished on 8GB USB flash drives. Each 8 GB flash drive shall have a file titled Table of Contents. The Table of Contents shall indicate the locations of files within the directory structure of the documentation.

General Notes and specifications shall be provided in MS Office 2007 format. Plan sheets shall be provided in Microstation DGN or GEOPAK GPK format. PDF copies of plan sheets shall also be provided.

Two copies of the documentation shall be provided to the COUNTY.

If required, the ENGINEER shall provide to the COUNTY, a CD that contains all the plan sheets for the project. The graphics tape shall be compatible with the COUNTY's computer system.

CD Tape Required (YES or NO): YES

Proposal Time

The time indicated in the proposal and the contract shall include time necessary for reviews, approval, etc.

Office Location

The ENGINEER will perform the services to be provided under this agreement out of their office or offices listed below:

Service
PS&E

Office Location
Mission Office

The work effort will be managed out of the _____ Mercedes _____
(City)
office located at 2100 West Expressway 83 _____,
(Address)
Mercedes _____, Texas _____.
(City) (State)

APPENDIX A - PLAN SHEET SEQUENCE PROCEDURE

1. Title Sheet
Detailed Index of Sheets
2. Typical Sections
3. General Notes and Specifications Data
4. Estimate and Quantity Sheets
5. Storm Water Pollution Prevention Plan (SW3P) Sheets
6. Traffic Control Plans
 - a. Sequence of Construction Layouts
 - b. Detour Plan/Profile/Typical Sections/Quantities
7. Roadway Layouts
 - a. Roadway Plan/Profile Sheets
 - b. Intersection Plan/Profile Sheets
 - c. Intersection Layouts
 - d. Alignment Layouts/Data
 - e. Ramp Layouts/Profiles
 - f. Connection Roads/U-turns Layouts/Profile
8. Roadway Details
 - a. Concrete Pavement Details/Standards
 - b. Concrete Pavement Terminal Anchorage Details/Standards
 - c. Bridge Approach Details/Standards
 - d. Bridge Terminal Anchorage Details/Standards
 - e. Roadway/Median Barrier Details/Standards
 - f. Curb Details
 - g. Driveway Details/Typical Sections/Standards
9. Signing Layouts and Marking Layouts
10. Traffic Signal Layouts
11. Lighting Layouts
12. Illumination Detail Standards (HMID, HMIF, HMIP, RID)
13. Utility Layouts/Profiles
14. Drainage Area Maps and Hydraulic Data
 - a. General Drainage Area Maps
 - b. Stage-Discharge Curves
 - c. Main Cross-Drainage Culvert/Bridge Hydraulic Data
 - d. Drainage Area Maps/Culverts/Storm Sewer
 - e. Hydraulic Data/Culverts/Inlets/Storm Sewer/Pumps
15. Detailed Drainage Plans
 - a. Drainage Plan/Profile Sheets (Storm Sewer Plan/Profile Sheets)
 - b. Channel Plan/Profiles/Typical Sections
 - c. Box Culvert Plan/Profile
 - d. Pipe Sewer/Culvert Cross Sections

APPENDIX A - PLAN SHEET SEQUENCE PROCEDURE (Continued)

16. Drainage Structural Details/Standards
 - a. Inlet Details/Standards
 - b. Manhole Details/Standards
 - c. Junction Box Details/Standards
 - d. Safety End Treatment Details/Standards
 - e. Box Culvert Details/Standards
 - f. Culvert Wingwall Details/Standards
 - g. Excavation-Backfill Diaphragms
 - h. Riprap Details/Standards
 - i. Temporary Pollution and Erosion Control Details
17. Pumphouse Layouts
18. Pumphouse Details
19. Pumphouse Standard Details
20. Bridge Layouts/Profile/Typical Sections*
21. Bridge Details*
 - a. Summary of Bridge Quantities
 - b. Abutments
 - c. Interior Bents
 - d. Spans
 - e. Special details for the specific bridge
22. Bridge Standard Details*
23. Bridge Railing Standards
24. Retaining Wall Layouts/Profiles**
25. Retaining Wall Details**
26. Retaining Wall Standard Details**
27. Guard Fence/Standards and Signal Pole Standards
28. Signal/Electrical Details/Standards and Signal Pole Standards
29. Signing/Markers/Striping Details/Standards
30. Barricade/Construction/Beacon Standards
31. Miscellaneous Standards
 - a. Chain Link Fence Standards
 - b. Bridge End Detail/Standards
 - c. Roadway Clearance Details/Standards
 - e. Attenuator Standards

NOTE: Variations of these plan sheet sequence guidelines may be permitted if approved in writing by the County.

APPENDIX B - PLAN PREPARATION PROCEDURES

1. Title Sheet
The ENGINEER shall be responsible for completing the title sheet as required and formatted by the STATE and as discussed in Part V of the Highway Design, Operations and Procedures Manual. Refer to Section K - Plans, 1 - Title Sheets, page 5-24, for the procedure to be used regarding all plans prepared by the ENGINEER.
2. Project Layout
The project layout shall clearly depict the entire project as it is proposed and will usually be drawn at a scale of 1 inch=100 feet or 1 inch=200 feet, depending on the size of the project.
3. Typical Sections
See Part IV of the Highway Design, Operations and Procedures Manual.
4. Sequence of Work Sheets (Traffic Control Plan)
Clarity and completeness should be the rule to follow in preparing these sheets, with particular attention given to location of construction signs and barricades, lane widths, protection of drop offs, etc. For a reference guide use the Texas Department of Transportation, Texas Manual on Uniform Traffic Control Devices. Usual scale of 1 inch=100 feet and/or 1 inch=50 feet for special locations. A narrative sequence shall be included in the special provisions for the project. Staging of structural elements shall be considered. Provisions for drainage shall be considered, included and indicated during all stages of construction operations.
5. Removal Item Sheets
These sheets indicate removal of existing facilities necessary to the proposed construction. (1 inch=40 feet) (use same scale as plan/profile sheets).
6. Summary Sheets
Summary Sheets are required to indicate type, quantity and/or location of work for individual items of the proposed project.
7. Alignment Layout Sheets
These sheets indicate the horizontal alignment with curve data and coordinates usually tabulated thereon. On some projects, depending on size, this information may be included on the plan profile sheets. Usual scale (1 inch=100 feet) or (1 inch=40 feet).
8. Plan Profile Sheet
Clarity and completeness should be the rule to follow in preparation of these sheets. Usual scale (1 inch=40 feet or 1 inch=50 feet) or (1 inch=20 feet), depending on project complexity.
9. Drainage Area Maps
Usual scale (1 inch=100 feet) and/or (1 inch=200 feet) supplemented by large scale area maps as necessary.
10. Drainage Plan Profile Sheets
These sheets may be required on some projects to clearly depict location of inlets, storm sewer lines, and profile of storm sewer lines and laterals. Usual scale (1 inch=40 feet or 1 inch=50 feet) or (1 inch=20 feet). Storm sewer design does include redesign of storm sewers imposed by utility constraints developing after initial reviews by the STATE and consequential redesign and adjustments.
11. Runoff, Inlet, Storm Sewer and Culvert Sheets
Use standard sheets.

APPENDIX B - PLAN PREPARATION PROCEDURES (Continued)

12. Culvert Cross Sections and Details
District standard reproducible sheets can be furnished (one each) to the ENGINEER for modification of special designs.
13. Manhole and Inlet Details
District standard reproducible sheets can be furnished (one each) to the ENGINEER.
14. Miscellaneous Detail
Curb, Sidewalk, Driveways, etc.
15. Intersection Details
16. Marking Layouts and/or Details
Layouts of the entire project with markings depicted thereon. Usual scale 1:500 (1 inch=40 feet or 1 inch=50 feet). On some projects typical details might suffice.
17. Structural Details
Bridge layout sheets shall have the same horizontal and vertical scale. Usually (1 inch = 10 feet) (1 inch = 20 feet). Sections of existing and proposed structures usually have a scale of (1 inch = 5 feet). Elements of the bridge (abutments, bents, slabs, etc.) shall be detailed to a (1/2 inch = 1 foot) or (1/4 inch equals 1 foot) architect scale to provide clear legible drawings when reduced. Letters shall be a minimum size of 4 millimeters (5/32 inch) height for hand lettering and 140 for lettering by computer-aided design and drafting (CADD).
18. Overhead Sign Bridge Layouts
A maximum of four structures may be shown on each layout sheet. The reference to the appropriate overhead sign bridge (OSB) standard and the following requirements shall be shown on the layout:
 - (1) Drilled shaft size and length
 - (2) Soil strength used for design {indicate basis and boring(s) used}
 - (3) Design height
 - (4) Tower height
 - (5) Leg spacings and
 - (6) Design wind speed.

The wind speed design map need not be included in the project plans. Designation of tower member size and anchor bolt size shall not be shown. For OSBs which require special design, the design shall be in accordance with the AASHTO sign specifications (see Item 22 of References on page 49) and to the same loading requirements as for normal standard structures. Structures (special or standard) which will have changeable message signs shall be analyzed by the ENGINEER.

APPENDIX C - GENERAL PLAN CHECKLIST

Services
 Provided By:
ENGINEER COUNTY

<u>YES</u>	<u>NO</u>	Title Sheet
<u>YES</u>	<u>NO</u>	Project Layout
<u>YES</u>	<u>NO</u>	Sequence of Work
<u>YES</u>	<u>NO</u>	Detour Layouts & Profiles
<u>YES</u>	<u>NO</u>	Construction Pavement Markings
<u>YES</u>	<u>NO</u>	Signing & Barricades
<u>YES</u>	<u>NO</u>	Construction Sign & Beacons
<u>YES</u>	<u>NO</u>	Typical Sections
<u>YES</u>	<u>NO</u>	Shaping & Finishing Sections
<u>YES</u>	<u>NO</u>	Slopes Adjacent to Shoulders
<u>YES</u>	<u>NO</u>	Estimate & Quantities
<u>YES</u>	<u>NO</u>	General Notes & Specification Data
<u>YES</u>	<u>NO</u>	Grading Summary
<u>YES</u>	<u>NO</u>	Miscellaneous Summaries (See following “SUMMARIES” heading)
<u>YES</u>	<u>NO</u>	Horizontal Curve Data & Alignment Layouts
<u>YES</u>	<u>NO</u>	Drainage Summaries
<u>YES</u>	<u>NO</u>	Structure Summaries
<u>YES</u>	<u>NO</u>	Erosion Control Summary & Details
<u>YES</u>	<u>NO</u>	Plan/Profile Sheets
<u>YES</u>	<u>NO</u>	Erosion Control Summary & Details
<u>YES</u>	<u>NO</u>	Pavement Contours
<u>NO</u>	<u>NO</u>	Superelevation Transition (If Required)
<u>YES</u>	<u>NO</u>	Grading Contours
<u>YES</u>	<u>NO</u>	Guard Fence Layouts
<u>YES</u>	<u>NO</u>	Storm Water Pollution Prevention Plans (SW3P)
<u>YES</u>	<u>NO</u>	Drainage Area Maps
<u>YES</u>	<u>NO</u>	Hydraulic Data
<u>YES</u>	<u>NO</u>	Drainage Sheets
<u>YES</u>	<u>NO</u>	Bridge Hydrology Sheets
<u>YES</u>	<u>NO</u>	Inlet & Manhole Details
<u>YES</u>	<u>NO</u>	Utility Support Details
<u>YES</u>	<u>NO</u>	Culvert Cross Sections & Details
<u>YES</u>	<u>NO</u>	Special Culvert Designs
<u>YES</u>	<u>NO</u>	Special Drainage Details
<u>YES</u>	<u>NO</u>	Chain Link Fence Locations
<u>NO</u>	<u>NO</u>	Ramp Details Sheet
<u>YES</u>	<u>NO</u>	Removal Item Sheet - Including detours (Shown in detour summary, No payment for removal; subsidiary to construction detours)
<u>YES</u>	<u>NO</u>	Pavement Details
<u>NO</u>	<u>NO</u>	Pavement Standard Modification for Concrete Shoulder
<u>NO</u>	<u>NO</u>	Concrete Pavement Continuously Reinforced (CPCR)
<u>NO</u>	<u>NO</u>	Concrete Pavement Contraction Design (CPCD)
<u>NO</u>	<u>NO</u>	Concrete Pavement Details - Jointed Reinforced (Steel Bars) (CPJR)
<u>NO</u>	<u>NO</u>	Bridge Approach Slab Details
<u>YES</u>	<u>NO</u>	Vehicle Attenuator Details
<u>YES</u>	<u>NO</u>	Miscellaneous Details
<u>YES</u>	<u>NO</u>	Wheelchair Ramps
<u>YES</u>	<u>NO</u>	Pavement Marking Details
<u>YES</u>	<u>NO</u>	Modified Standards
<u>YES</u>	<u>NO</u>	List of Standards
<u>YES</u>	<u>NO</u>	Permanent Signing Plans & Quantities

APPENDIX C - GENERAL PLAN CHECKLIST (continued)

Services
 Provided By:
ENGINEER COUNTY

<u>NO</u>	<u>NO</u>	Permanent Lighting Plans, Quantities & Standards
<u>YES</u>	<u>NO</u>	Bridge Layout(s)
<u>YES</u>	<u>NO</u>	Bridge Details
<u>NO</u>	<u>NO</u>	Retaining Wall Layout(s)
<u>NO</u>	<u>NO</u>	Retaining Wall Details
<u>NO</u>	<u>NO</u>	Pumphouse Details
<u>NO</u>	<u>NO</u>	Underdrain Details (Retaining Walls)
<u>YES</u>	<u>NO</u>	Culvert Standards
<u>YES</u>	<u>NO</u>	Soil Profile
<u>YES</u>	<u>NO</u>	Temporary Traffic Signals
<u>YES</u>	<u>NO</u>	Design Cross Sections
<u>YES</u>	<u>NO</u>	Estimate
<u>YES</u>	<u>NO</u>	List of Standard Specification, Special Provisions & Special Specifications
<u>YES</u>	<u>NO</u>	Detour Special Provisions (If Required)
<u>YES</u>	<u>NO</u>	Construction Time Estimate
<u>YES</u>	<u>NO</u>	Critical Path Method (CPM)
<u>YES</u>	<u>NO</u>	Unit Price Documentation

Miscellaneous

<u>NO</u>	<u>NO</u>	Conduit Requirements
<u>YES</u>	<u>NO</u>	Traffic signal Requirements

Summaries

(ALL BELOW YES FOR ENGINEER AND NO FOR COUNTY UNLESS NOTED OTHERWISE)

<u>NO</u>	___	Salvaging and Placing Topsoil
___	___	Prepare ROW
___	___	Remove Old Structures
___	___	Scarify Existing Pavement
___	___	Remove Old Concrete Curb of Curb and Gutter (C&G)
___	___	Remove Old Concrete Pavement
___	___	Remove Old Concrete Riprap
___	___	Remove Metal Beam Guard Fence
___	___	Galvanized steel Beam Guard Fence (12Ga) (GSBGF)
<u>NO</u>	___	Temporary Guard Fence (TEMPGF)
___	___	Summary of Concrete Flumes
___	___	Curbs
___	___	Adjust Manholes & Inlets
___	___	Underdrains
___	___	Base and Pavement
___	___	Large Structure
___	___	Concrete Riprap (RR8 & RR9)
___	___	Temporary Portable Concrete Barrier (PCBR)
___	___	Concrete Traffic Barrier
___	___	Vehicle Attenuator
<u>NO</u>	___	Guard Rail Energy Absorbing Terminal (Great System)
___	___	Pavement Markings & Blast Cleaning (Thermoplastic)
___	___	Retaining Walls
___	___	Large Structure Summaries
___	___	Small Structure Summaries

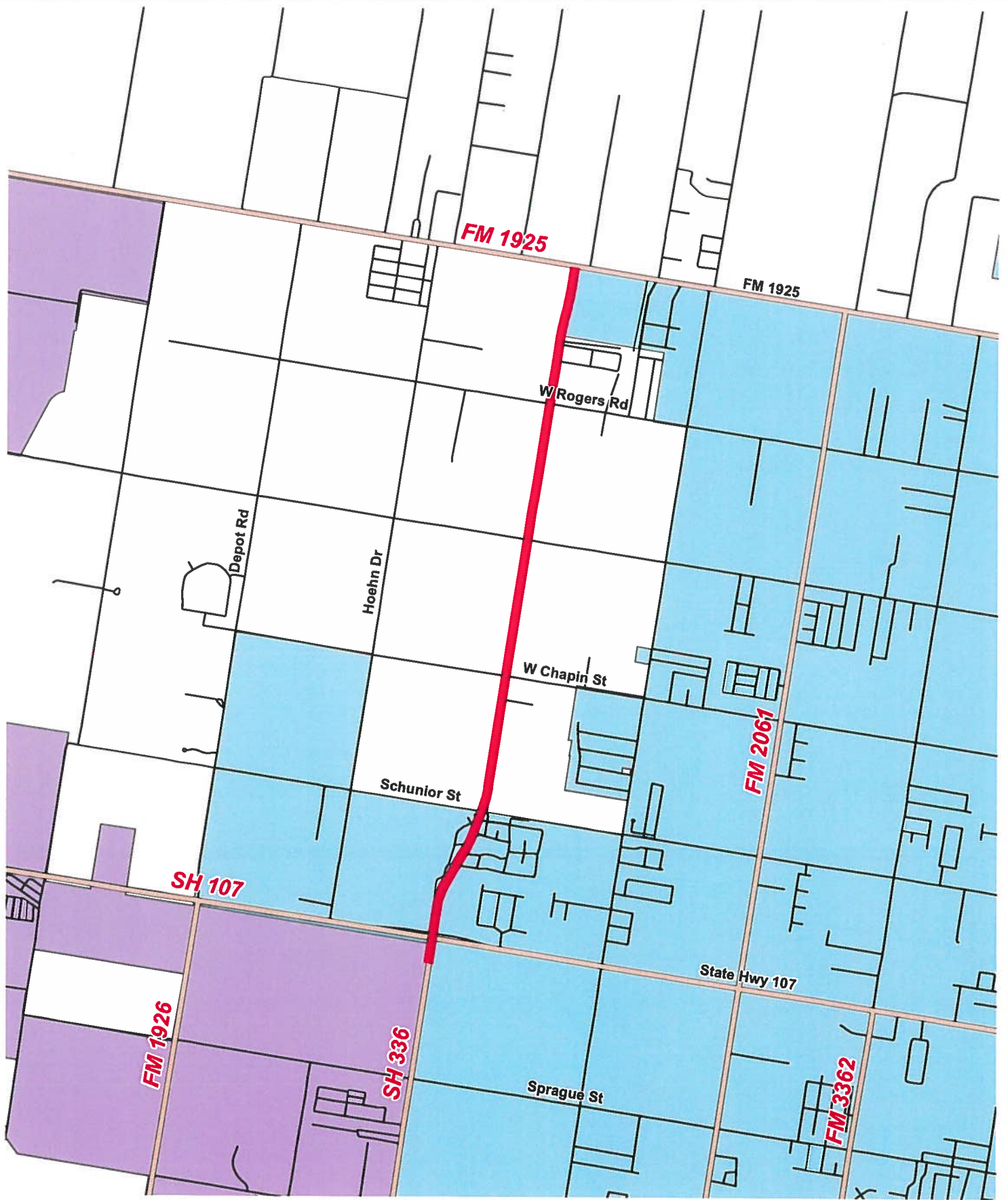
APPENDIX C - GENERAL PLAN CHECKLIST (continued)

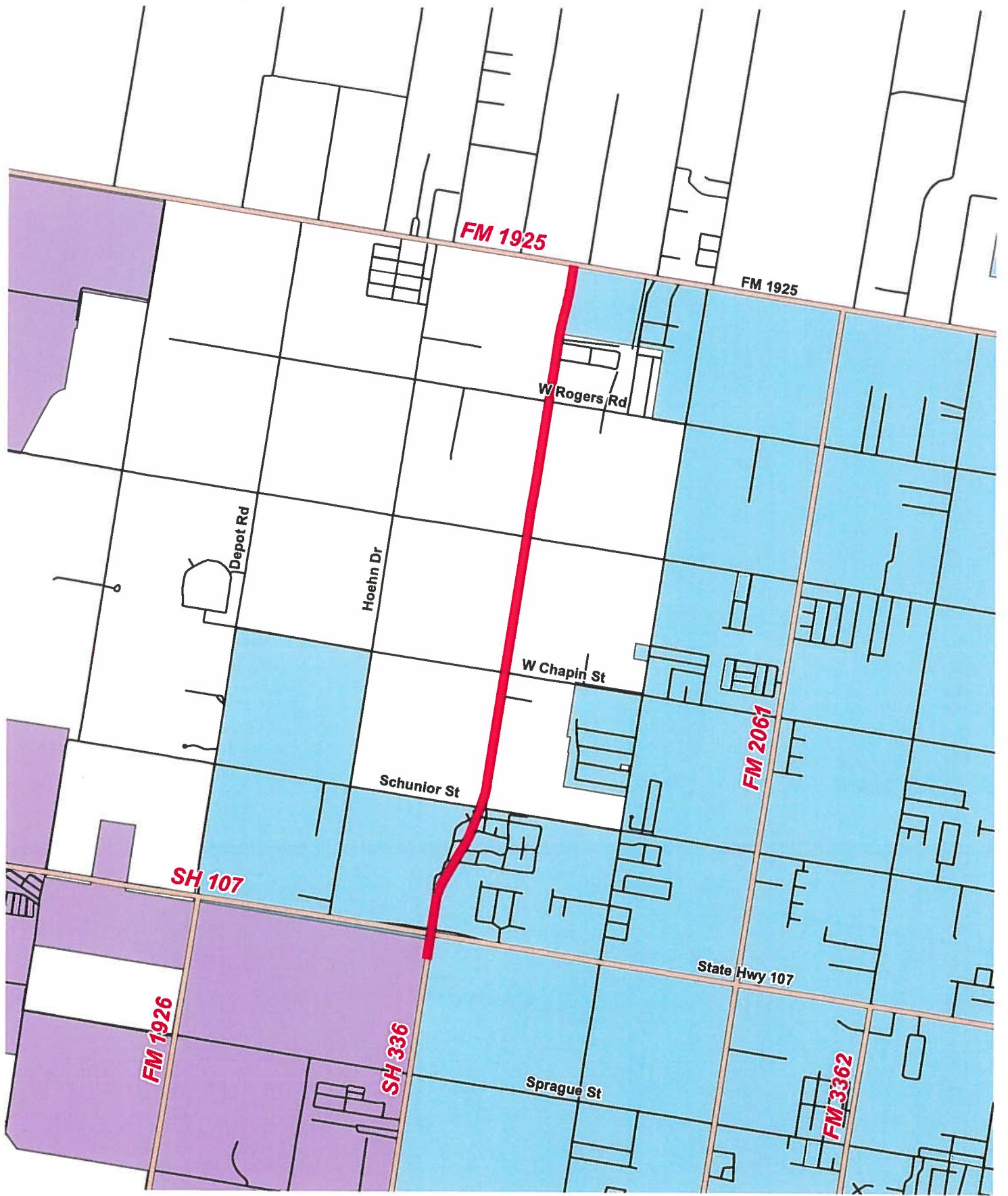
Services
Provided By:
ENGINEER COUNTY

Summaries

(ALL BELOW YES FOR ENGINEER AND NO FOR COUNTY UNLESS NOTED OTHERWISE)

___	___	Earthwork (Roadway & Channel) & Channel Details
___	___	Culverts
___	___	Detours
___	___	Seeding or Mulch Sod - Quantity Only
___	___	Inlet & Manholes
___	___	Sidewalks
___	___	Construction Pavement Markings
___	___	Driveways
___	___	Concrete Median
___	___	Storm Sewers
___	___	Head Walls & Safety End Treatments
___	___	Curb Openings
___	___	Manholes
___	___	Chain Link Fence, Remove & Replace Chain Link Fence
___	___	Remove & Relay Reinforced Concrete Pipe (RCP) or Pipe Sewer





FM 1925

FM 1925

W Rogers Rd

Depot Rd

Hoehn Dr

W Chapin St

Schunior St

FM 2061

SH 107

State Hwy 107

FM 1926

SH 336

Sprague St

FM 3362

EXHIBIT "D-1" FEE SCHEDULE

10TH ST. EXTENSION PROJECT

ESTIMATED COSTS

ROADWAY PROJECT:	10th St. North Extension PROJECT	
LIMITS:	SH 107 to FM 1925	
EXISTING ROADWAY SECTION:	40' -- Rural	
EXISTING ROW WIDTH:	80 Varies and New Location	
PROPOSED ROADWAY SECTION:	4-lane divided urban	
PROPOSED ROW WIDTH:	120ft	
ESTIMATED CONSTRUCTION COST	\$9,687,500.00	
LENGTH:	2.5 Miles	
ESTIMATED PROJECT COSTS	STATE/MPO	LOCAL
WORK AUTHORIZATION NO. 1		
PHASE I - EA, PUBLIC INVOLVEMENT, SCHEMATIC, DESIGN, ROW MAPPING		
Environmental Assessment with TxDOT		\$ 95,024.83
Public Involvement for Environmental Assessment		\$ 20,019.67
Archeological and Historical Research		\$ 20,022.48
Engineering Technical Support at Public Mtgs with Layouts etc		\$ 20,005.84
Schematic		\$ 118,815.08
Hydrological Map		\$ 30,017.18
Office Surveys for Schematic (Preliminary Ownership Identification and Property Rights)		\$ 20,017.05
ROW Map (ESTIMATED 52 PARCELS)		\$ 207,906.22
Relocated Homes/Businesses		\$ -
Compensable Utilities Management Oversight (1-person for 10 months) /2 Phase I Work		\$ 89,995.75
SUB-TOTAL	\$ -	\$ 621,824.10
WORK AUTHORIZATION NO. 2 (Revised 11/27/2012)		
PHASE II- PS&E		
Field Surveys for Design and Construction		\$ 125,001.00
PS&E Development		\$ 799,217.00
PS&E Development for Outfall(s)		\$ 48,000.00
Signal Design		\$ 120,002.00
Permitted Utilities Coordination	\$ -	\$ 95,000.00
SUB-TOTAL	\$ -	\$ 1,187,220.00
WORK AUTHORIZATION NO. 3 (Revised 11/27/2012)		
PHASE II - ROW ACQUISITION		
Right-of-Way Costs - Acq.Services @ (est. 52 Parcels @ \$13,500/Parcel Avg.)		\$ 702,000.00
Compensable Utilities Management Oversight (1.5-person for 10 months) /2 Phase II Work		\$ 135,000.00
Roadway Right-of-Way Costs - (120 ft. for 1/2 mile @ \$4.00/sq ft)	\$ 960,000.00	\$ 240,000.00
COMPENSABLE UTILITY COSTS (UNKOWN \$300,000 IS FOR BUDGET PURPOSES)	\$ 240,000.00	\$ 60,000.00
SUB-TOTAL	\$ 1,200,000.00	\$ 1,137,000.00
WORK AUTHORIZATION NO. 4 (Revised 11/27/2012)		
PHASE III- CONSTRUCTION OVERSIGHT		
ROADWAY CONSTRUCTION COST	\$ 8,167,500.00	\$ 82,500.00
Construction Inspection & Testing (11.5%)	\$ 1,002,656.25	\$ 111,406.25
L&G Construction Management (24 Months)		\$ 192,000.00
SUB-TOTAL	\$ 9,170,156.25	\$ 385,906.25
GRAND TOTAL	\$10,370,156.25	\$ 3,331,950.35

Work Authorization No. 1 Phase I	FY 12	\$ 621,824.10	ISSUED
Work Authorization No. 2 Phase II	FY 13	\$ 1,187,220.00	NOT ISSUED
Work Authorization No. 3 Phase III	FY 14	\$ 837,000.00	NOT ISSUED
Work Authorization No. 4 Phase IV	FY 15	\$ 303,406.25	NOT ISSUED

State Estimated Cost
 Local Estimated Cost

TOTAL ESTIMATED COUNTY COST:	\$	3,331,950.35	24.32%
TOTAL ESTIMATED PROJECT COST:	\$	13,702,106.60	
COUNTY COSTS NOT INCLUDED IN WORK AUTHORIZATIONS	\$	382,500.00	

EXHIBIT D-1
PROJECT FEE SCHEDULE AND
ESTIMATED MANHOUR BREAKDOWN

10TH STREET EXTENSION PROJECT

	MANHOURS										Sub-Contract Amounts / ROW COST	TOTAL LINE ITEM COST
	Senior Project Manager	Senior Engineer	Project Engineer	Design Engineer	EIT	Senior Engineer Tech	Engineer Tech	CADD Operator	Admin / Clerical	TOTAL HOURS		
CONTRACT RATE	205.89	171.57	122.96	108.66	74.35	71.49	68.63	60.05	51.47			
WORK AUTHORIZATION NO. 2												
PHASE II - PS&E												
1 Field Surveys for Design and Construction	20	32	40	53	21	22	22	21		231	\$ 98,811.00	\$ 26,190.00
2 PS&E Development	350	670	910	1080	1519	1121	1241	1538	240	8669		\$ 799,217.00
3 PS&E Development for Outfall(s)	24	52	62	80	67	53	62	61	22	483		\$ 48,000.00
4 Signal Design	38	57	81	123	80	70	50	40	39	578	\$ 60,281.00	\$ 59,721.00
5 Permitted Utilities Coordination	0	100	100	0	0	806	0	96	42	1144		\$ 95,000.00
SUB-TOTAL	432	911	1193	1336	1687	2072	1375	1756	343	11105	\$ 159,092.00	\$ 1,028,128.00

Subtotal Manhour Fee with Sub-Consultant Costs:	\$ 1,187,220.00
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Total Project Fee:	\$ 1,187,220.00
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**Exhibit D-1
Fee Schedule**

Work Authorization No.6

	A	B	C	D	E	F	G	H	I	J	
1	Highway: 10th St. Extension Project					R.O.W. Surveying Services, LLC					
2	County: Hidalgo County, Texas										
3	From: SH 107 to FM 1924										
4	Description of Work: Design Survey										
5											
6	TASK AND DESCRIPTION	Survey PM	RPLS	Survey Technician	4-man Survey Crew	3-man Survey Crew	2-man Survey Crew	Admin/ Clerical	Total Hours	Cost	
8	HOURLY RATE	\$124.00	\$125.00	\$82.00	\$175.00	\$155.00	\$130.00	\$50.00			
9	PHASE 1 - FC 150 Field Surveying (Control Hz & Vt)										
10	A. Primary Project Control										
11	a. Establish Primary Control	4	0	8	0	30	0	0	42	\$ 5,802.00	
12	B. Secondary Project Control										
13	a. Set additional secondary control points as needed	4	3	6	0	20	0	0	33	\$ 4,463.00	
14	b. Horizontal values established with RTK or VRS	0	2	4	0	0	10	0	16	\$ 1,878.00	
15	c. Vertical values established with digital level	2	4	8	0	0	24	0	38	\$ 4,524.00	
16	C. Setting Benchmarks										
17	a. Setting Benchmarks @ 1000'(ft) intervals	2	0	0	0	30	0	0	32	\$ 4,898.00	
18	Subtotal Hours	12	9	26	0	80	34	0	161		
19	Subtotal Cost - Phase 1	\$1,488.00	\$1,125.00	\$2,132.00	\$0.00	\$12,400.00	\$4,420.00	\$0.00		\$21,565.00	
20	PHASE 2 - DTM Topography and Cross sections										
21	A. Topographic & Crosssections	8	0	35	0	80	0	0	123	\$ 16,262.00	
22	B. Locate Visible Utilities	8	0	8	0	16	0	0	32	\$ 4,128.00	
23	C. Utilities	6	0	10	0	20	0	0	36	\$ 4,664.00	
24	D. Paint Proposed Centerline on Existing Pavement	2	0	6	0	16	0	0	24	\$ 3,220.00	
25	E. Profile and Cross section Intersecting Streets	2	0	8	0	24	0	0	34	\$ 4,624.00	
26	F. Irrigation Crossings	4	0	8	0	16	0	0	28	\$ 3,632.00	
27	G. Existing Storm Drain	2	0	4	0	8	0	0	14	\$ 1,816.00	
28	C. Cross Culverts, Driveway Culverts, Inverts	2	0	8	0	16	0	0	26	\$ 3,384.00	
29	I. Outfalls	4	0	8	0	16	0	0	28	\$ 3,632.00	
30	J. Driveways and Turnouts	1	0	6	0	12	0	0	19	\$ 2,476.00	
31	K. Bridge Widening Detail	2	0	8	0	16	0	0	26	\$ 3,384.00	
32	Subtotal Hours	41	0	109	0	240	0	0	390		
33	Subtotal Cost - Phase 2	\$5,084.00	\$0.00	\$8,938.00	\$0.00	\$37,200.00	\$0.00	\$0.00		\$ 51,222.00	
34	PHASE 3 - FINAL REPORT & DELIVERABLES										
35	A. CADD file (2D & 3D) for limits of project	40	0	20	0	0	0	4	64	\$ 6,800.00	
36	B. Final Report and Deliverables	40	0	0	0	0	0	8	48	\$ 5,360.00	
37	Subtotal Hours	80	0	20	0	0	0	12	112		
38	Subtotal Cost - Phase 3	\$9,920.00	\$0.00	\$1,640.00	\$0.00	\$0.00	\$0.00	\$600.00		\$ 12,160.00	
39	PROJECT MANAGEMENT & OVERSIGHT										
40	A. Meeting & Coordination w/ Engineers	83		0	0	0	0	2	85	\$ 10,392.00	
41	B. QC/QA Survey	28	0	0	0	0	0	0	28	\$ 3,472.00	
42	Subtotal Hours	111	0	0	0	0	0	2	113		
43	Subtotal Cost - PM & Oversight	\$13,764.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$100.00		\$ 13,864.00	
44											
45											
46	Total Fee FC 150	\$30,256.00	\$1,125.00	\$12,710.00	\$0.00	\$49,600.00	\$4,420.00	\$700.00	776	\$98,811.00	
47											

Exhibit D1 - Fee Schedule

10TH STREET AT SH 107 AND AT FM 1925

Ergonomic Transportation Solutions, Inc.

			MANHOURS					
PERMANENT AND TEMPORARY TRAFFIC SIGNAL DESIGN ALONG 10TH STREET			No. of sheets (estimated)	Project Manager	Senior Transp. Engineer	CADD Designer	Administrative Assistant	Total
TASK								
1	General Notes	n/a		2			2	4
2	Basis of Estimate	1	2	8	8			18
3	Condition Diagram	2	4	8	16			28
4	Proposed Signal Plan Layout	2	8	48	48			104
5	Signal Phasing/Timing	n/a	4	4				8
6	Electrical Schedules	2	4	16	12			32
7	Int..Signs, Pav.Markings, Curb Ramps	n/a	2	8	8			18
8	Standard Sheets List	1		4				4
9	Specifications and Cost Estimate	1	4	8	4			16
10	Coordination and Meetings	n/a	8					8
11	TEMPORARY TRAFFIC SIGNALS	2	8	24	32			64
	Subtotal	11	44	130	128	2		304

Total Sheets/Labor Hours	11	44	130	128	2	304
Contract Rates		\$ 55.50	\$ 38.00	\$ 22.00	\$ 18.00	
Direct Salary Cost		\$ 2,442.00	\$ 4,940.00	\$ 2,816.00	\$ 36.00	\$ 10,234.00
Overhead Multiplier	165.260%	\$ 4,035.65	\$ 8,163.84	\$ 4,653.72	\$ 59.49	\$ 16,912.71
Fixed Fee	12.50%	\$ 809.71	\$ 1,637.98	\$ 933.72	\$ 11.94	\$ 3,393.34
Total Labor Costs		\$ 7,287.36	\$ 14,741.82	\$ 8,403.44	\$ 107.43	\$ 30,540.05

Ergonomic Transportation Solutions, Inc. Expenses

EXPENSES

Printing Reproduction	\$	60.00	
Travel	\$	450.00	
Deliveries	\$	74.95	
Total Expenses	\$		584.95

ETSI Total Cost

\$ 31,125.00

Exhibit D1 - Fee Schedule

10TH STREET FROM SH 107 TO AT FM 1925

Ergonomic Transportation Solutions, Inc.

TRAFFIC SIGNAL WARRANT STUDIES ALONG 10TH STREET		MANHOURS				
		Project Manager	Traffic Engineer	CADD/ Designer	Administrative Assistant	Total
TASK						
1	Conduct Field Investigations, Collect Field Data (including photos)		8	8		16
2	Assess Collected Data		10	16		26
3	Request Accident Data & Conduct Accident Analysis		20			20
4	Prepare Collision Diagram			30		30
5	Prepare Intersection Exhibits		10	40		50
6	Conduct Warrant Analysis & Prepare Forms (including graphs & tables)	4	40			44
7	Prepare Photo Album			16		16
8	Make recommendations	2	10			12
9	Prepare Warrant Report	4	40		12	56
	Subtotal	10	138	110	12	270

Total Sheets/Labor Hours		10	138	110	12	270
Contract Rates		\$ 55.50	\$ 27.00	\$ 22.00	\$ 18.00	
Direct Salary Cost		\$ 555.00	\$ 3,726.00	\$ 2,420.00	\$ 216.00	\$ 6,917.00
Overhead Multiplier	165.260%	\$ 917.19	\$ 6,157.59	\$ 3,999.29	\$ 356.96	\$ 11,431.03
Fixed Fee	12.50%	\$ 184.02	\$ 1,235.45	\$ 802.41	\$ 71.62	\$ 2,293.50
Total Labor Costs		\$ 1,656.22	\$ 11,119.04	\$ 7,221.70	\$ 644.58	\$ 20,641.54

Ergonomic Transportation Solutions, Inc. Expenses

EXPENSES

Printing/Reproduction	\$ 45.00
Travel	\$ 450.00
Delivery	\$ 19.46
Collect 12 hr Counts for each approach	\$ 8,000.00

Total Expenses **\$ 8,514.46**

ETSI Total Cost