Docusign City Council Transmittal Coversheet

PSA	6590-049
File Name	Hickory Creek Road Realignment
Purchasing Contact	Jamie Cogdell
City Council Target Date	February 12, 2019
Piggy Back Option	Not Applicable
Contract Expiration	N/A
Ordinance	19-351

DS
LH

CITY OF DENTON, TEXAS

STANDARD AGREEMENT FOR ENGINEERING RELATED PROFESSIONAL SERVICES
FILE 6590-049

This AGREEMENT is between the City of Denton, a Texas home-rule municipality ("CITY"), and HDR Engineering, Inc., a Nebraska corporation with its corporate office at 17111 Preston Road, Suite 300, Dallas, Texas 75248 and authorized to do business in Texas, ("ENGINEER"), for a PROJECT generally described as: analysis and evaluation of schematic, environmental, survey, right-of-way, sue, construction plans, and specifications for Hickory Creek Road (the "PROJECT").

SECTION 1
Scope of Services

A. The CITY hereby agrees to retain the ENGINEER, and the ENGINEER hereby agrees to perform, professional engineering services set forth in the Scope of Services attached hereto as Exhibit A. These services shall be performed in connection with the PROJECT.

B. Additional services, if any, will be requested in writing by the CITY. CITY shall not pay for any work performed by ENGINEER or its consultants, subcontractors and/or suppliers that has not been ordered in advance and in writing. It is specifically agreed that ENGINEER shall not be compensated for any additional work resulting from oral orders of any person.

SECTION 2
Compensation and Term of Agreement

A. The ENGINEER shall be compensated for all services provided pursuant to this AGREEMENT in an amount not to exceed $3,342,509.00 in the manner and in accordance with the fee schedule as set forth in Exhibit B. Payment shall be considered full compensation for all labor, materials, supplies, and equipment necessary to complete the services described in Exhibit A.

B. Unless otherwise terminated pursuant to Section 6. D. herein, this AGREEMENT shall be for a term beginning upon the effective date, as described below, and shall continue for a period which may reasonably be required for the completion of the PROJECT, until the expiration of the funds, or completion of the PROJECT and acceptance by the CITY, whichever occurs first. ENGINEER shall proceed diligently with the PROJECT to completion as described in the PROJECT schedule as set forth in Exhibit C.

SECTION 3
Terms of Payment

Payments to the ENGINEER will be made as follows:

A. Invoice and Payment

(1) The Engineer shall provide the City sufficient documentation, including but not limited to meeting the requirements set forth in the PROJECT schedule as set forth in Exhibit C to reasonably substantiate the invoices.

(2) The ENGINEER will issue monthly invoices for all work performed under this AGREEMENT. Invoices for the uncontested performance of the particular services are due and payable within 30 days of receipt by City.

(3) Upon completion of services enumerated in Section 1, the final payment of any balance for the uncontested performance of the services will be due within 30 days of receipt of the final invoice.

(4) In the event of a disputed or contested billing, only that portion so contested will be withheld from payment, and the undisputed portion will be paid. The CITY will exercise reasonableness in contesting any bill or portion thereof. No interest will accrue on any contested portion of the billing until mutually resolved.

(5) If the CITY fails to make payment in full to ENGINEER for billings contested in good faith within 60 days of the amount due, the ENGINEER may, after giving 7 days' written notice to CITY, suspend services under this AGREEMENT until paid in full. In the event of suspension of services, the ENGINEER shall have no liability to CITY for delays or damages caused the CITY because of such suspension of services.

SECTION 4
Obligations of the Engineer

Amendments to Section 4, if any, are included in Exhibit D.

A. General

The ENGINEER will serve as the CITY's professional engineering representative under this AGREEMENT, providing professional engineering consultation and advice and furnishing customary services incidental thereto.

B. Standard of Care

The ENGINEER shall perform its services:

(1) with the professional skill and care ordinarily provided by competent engineers practicing in the same or similar locality and under the same or similar circumstances and professional license; and

(2) as expeditiously as is prudent considering the ordinary professional skill and care of a competent engineer.

C. Subsurface Investigations

(1) The ENGINEER shall advise the CITY with regard to the necessity for subcontract work such as special surveys, tests, test borings, or other subsurface investigations in connection with design and engineering work to be performed hereunder. The ENGINEER shall also advise the CITY concerning the results of same. Such surveys, tests, and investigations shall be furnished by the CITY, unless otherwise specified in Exhibit A.

(2) In soils, foundation, groundwater, and other subsurface investigations, the actual characteristics may vary significantly between successive test points and sample intervals and at locations other than where observations, exploration, and investigations have been made. Because of the inherent uncertainties in subsurface evaluations, changed or unanticipated underground conditions may occur that could affect the total PROJECT cost and/or execution. These conditions and cost/execution effects are not the responsibility of the ENGINEER.

D. Preparation of Engineering Drawings

The ENGINEER will provide to the CITY the original drawings of all plans in ink on reproducible mylar sheets and electronic files in .pdf format, or as otherwise approved by CITY, which shall become the property of the CITY. CITY may use such drawings in any manner it desires; provided, however, that the ENGINEER shall not be liable for the use of such drawings for any project other than the PROJECT described herein.

E. Engineer's Personnel at Construction Site

(1) The presence or duties of the ENGINEER's personnel at a construction site, whether as on-site representatives or otherwise, do not make the ENGINEER or its personnel in any way responsible for those duties that belong to the CITY and/or the CITY's construction contractors or other entities, and do not relieve the construction contractors or any other entity of their obligations, duties, and responsibilities, including, but not limited to, all construction methods, means, techniques, sequences, and procedures necessary for coordinating and completing all portions of the construction work in accordance with the AGREEMENT Documents and any health or safety precautions required by

such construction work. The ENGINEER and its personnel have no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions.

(2) Except to the extent of specific site visits expressly detailed and set forth in Exhibit A, the ENGINEER or its personnel shall have no obligation or responsibility to visit the construction site to become familiar with the progress or quality of the completed work on the PROJECT or to determine, in general, if the work on the PROJECT is being performed in a manner indicating that the PROJECT, when completed, will be in accordance with the AGREEMENT Documents, nor shall anything in the AGREEMENT Documents or this AGREEMENT between CITY and ENGINEER be construed as requiring ENGINEER to make exhaustive or continuous on-site inspections to discover latent defects in the work or otherwise check the quality or quantity of the work on the PROJECT. If the ENGINEER makes on-site observation(s) of a deviation from the AGREEMENT Documents, the ENGINEER shall inform the CITY.

(3) When professional certification of performance or characteristics of materials, systems or equipment is reasonably required to perform the services set forth in the Scope of Services, the ENGINEER shall be entitled to rely upon such certification to establish materials, systems or equipment and performance criteria to be required in the AGREEMENT Documents.

F. Opinions of Probable Cost, Financial Considerations, and Schedules

(1) The ENGINEER shall provide opinions of probable costs based on the current available information at the time of preparation, in accordance with Exhibit A.

(2) In providing opinions of cost, financial analyses, economic feasibility projections, and schedules for the PROJECT, the ENGINEER has no control over cost or price of labor and materials; unknown or latent conditions of existing equipment or structures that may affect operation or maintenance costs; competitive bidding procedures and market conditions; time or quality of performance by third parties; quality, type, management, or direction of operating personnel; and other economic and operational factors that may materially affect the ultimate PROJECT cost or schedule. Therefore, the ENGINEER makes no warranty that the CITY's actual PROJECT costs, financial aspects, economic feasibility, or schedules will not vary from the ENGINEER's opinions, analyses, projections, or estimates.

G. Construction Progress Payments

Recommendations by the ENGINEER to the CITY for periodic construction progress payments to the construction contractor will be based on the ENGINEER's knowledge,

information, and belief from selective sampling and observation that the work has progressed to the point indicated. Such recommendations do not represent that continuous or detailed examinations have been made by the ENGINEER to ascertain that the construction contractor has completed the work in exact accordance with the AGREEMENT Documents; that the final work will be acceptable in all respects; that the ENGINEER has made an examination to ascertain how or for what purpose the construction contractor has used the moneys paid; that title to any of the work, materials, or equipment has passed to the CITY free and clear of liens, claims, security interests, or encumbrances; or that there are not other matters at issue between the CITY and the construction contractor that affect the amount that should be paid.

H. Record Drawings

Record drawings, if required, will be prepared, in part, on the basis of information compiled and furnished by others, and may not always represent the exact location, type of various components, or exact manner in which the PROJECT was finally constructed. The ENGINEER is not responsible for any errors or omissions in the information from others that is incorporated into the record drawings.

I. Right to Audit

(1) ENGINEER agrees that the CITY shall, until the expiration of five (5) years after final payment under this AGREEMENT, have access to and the right to examine and photocopy any directly pertinent books, documents, papers and records of the ENGINEER involving transactions relating to this AGREEMENT. ENGINEER agrees that the CITY shall have access during normal working hours to all necessary ENGINEER facilities and shall be provided adequate and appropriate work space in order to conduct audits in compliance with the provisions of this section. The CITY shall give ENGINEER reasonable advance notice of intended audits.

(2) ENGINEER further agrees to include in all its subconsultant agreements hereunder a provision to the effect that the subconsultant agrees that the CITY shall, until the expiration of five (5) years after final payment under the subcontract, have access to and the right to examine and photocopy any directly pertinent books, documents, papers and records of such subconsultant, involving transactions to the subcontract, and further, that the CITY shall have access during normal working hours to all subconsultant facilities, and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with the provisions of this section together with subsection (3) hereof. CITY shall give subconsultant reasonable advance notice of intended audits.

(3) ENGINEER and subconsultant agree to photocopy such documents as may be requested by the CITY. The CITY agrees to reimburse ENGINEER for the cost

of copies at the rate published in the Texas Administrative Code in effect as of the time copying is performed.

J. INSURANCE

(1) ENGINEER'S INSURANCE

a. Commercial General Liability – the ENGINEER shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella insurance with a limit of not less than $1,000,000.00 per each occurrence with a $2,000,000.00 aggregate. If such Commercial General Liability insurance contains a general aggregate limit, it shall apply separately to this PROJECT or location.

i. The CITY shall be included as an additional insured with all rights of defense under the CGL, using ISO additional insured endorsement or a substitute providing equivalent coverage, and under the commercial umbrella, if any. This insurance shall apply as primary insurance with respect to any other insurance or self-insurance programs afforded to the CITY. The Commercial General Liability insurance policy shall have no exclusions or endorsements that would alter or nullify: premises/operations, products/completed operations, contractual, personal injury, or advertising injury, which are normally contained within the policy, unless the CITY specifically approves such exclusions in writing.

ii. ENGINEER waives all rights against the CITY and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the commercial general liability or commercial umbrella liability insurance maintained in accordance with this AGREEMENT.

b. Business Auto – the ENGINEER shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than $1,000,000 each accident. Such insurance shall cover liability arising out of "any auto", including owned, hired, and non-owned autos, when said vehicle is used in the course of the PROJECT. If the engineer owns no vehicles, coverage for hired or non-owned is acceptable.

i. ENGINEER waives all rights against the CITY and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by the business auto liability or commercial umbrella liability insurance obtained by ENGINEER pursuant to this AGREEMENT or under any applicable auto

physical damage coverage.

c. Workers' Compensation – ENGINEER shall maintain workers compensation and employers liability insurance and, if necessary, commercial umbrella liability insurance with a limit of not less than $100,000.00 each accident for bodily injury by accident or $100,000.00 each employee for bodily injury by disease, with $500,000.00 policy limit.

    i. ENGINEER waives all rights against the CITY and its agents, officers, directors and employees for recovery of damages to the extent these damages are covered by workers compensation and employer's liability or commercial umbrella insurance obtained by ENGINEER pursuant to this AGREEMENT.

d. Professional Liability – ENGINEER shall maintain professional liability, a claims-made policy, with a minimum of $1,000,000.00 per claim and aggregate. The policy shall contain a retroactive date prior to the date of the AGREEMENT or the first date of services to be performed, whichever is earlier. Coverage shall be maintained for a period of 5 years following the completion of the AGREEMENT. An annual certificate of insurance specifically referencing this PROJECT shall be submitted to the CITY for each year following completion of the AGREEMENT.

(2) GENERAL INSURANCE REQUIREMENTS

a. Certificates of insurance evidencing that the ENGINEER has obtained all required insurance shall be attached to this AGREEMENT prior to its execution.

b. Applicable policies shall be endorsed to name the CITY an Additional Insured thereon, subject to any defense provided by the policy, as its interests may appear. The term CITY shall include its employees, officers, officials, agents, and volunteers as respects the contracted services.

c. Certificate(s) of insurance shall document that insurance coverage specified in this AGREEMENT are provided under applicable policies documented thereon.

d. Any failure on part of the CITY to attach the required insurance documentation hereto shall not constitute a waiver of the insurance requirements.

e. A minimum of thirty (30) days notice of cancellation or material change in coverage shall be provided to the CITY. A ten (10) days notice shall be

acceptable in the event of non-payment of premium. Notice shall be sent to the respective Department Director (by name), City of Denton, 901 Texas Street, Denton, Texas 76209.

f. Insurers for all policies must be authorized to do business in the State of Texas and have a minimum rating of A:V or greater, in the current A.M. Best Key Rating Guide or have reasonably equivalent financial strength and solvency to the satisfaction of Risk Management.

g. Any deductible or self insured retention in excess of $25,000.00 that would change or alter the requirements herein is subject to approval by the CITY in writing, if coverage is not provided on a first-dollar basis. The CITY, at it sole discretion, may consent to alternative coverage maintained through insurance pools or risk retention groups. Dedicated financial resources or letters of credit may also be acceptable to the CITY.

h. Applicable policies shall each be endorsed with a waiver of subrogation in favor of the CITY as respects the PROJECT.

i. The CITY shall be entitled, upon its request and without incurring expense, to review the ENGINEER's insurance policies including endorsements thereto and, at the CITY's discretion; the ENGINEER may be required to provide proof of insurance premium payments.

j. Lines of coverage, other than Professional Liability, underwritten on a claims-made basis, shall contain a retroactive date coincident with or prior to the date of the AGREEMENT. The certificate of insurance shall state both the retroactive date and that the coverage is claims-made.

k. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption nor restrictive modification or changes from date of commencement of the PROJECT until final payment and termination of any coverage required to be maintained after final payments.

l. The CITY shall not be responsible for the direct payment of any insurance premiums required by this AGREEMENT.

m. Sub consultants and subcontractors to/of the ENGINEER shall be required by the ENGINEER to maintain the same or reasonably equivalent insurance coverage as required for the ENGINEER. When sub consultants/subcontractors maintain insurance coverage, ENGINEER shall provide CITY with documentation thereof on a certificate of insurance.

K. Independent Consultant

The ENGINEER agrees to perform all services as an independent consultant and not as a subcontractor, agent, or employee of the CITY. The doctrine of *respondeat superior* shall not apply.

L. Disclosure

The ENGINEER acknowledges to the CITY that it has made full disclosure in writing of any existing conflicts of interest or potential conflicts of interest, including personal financial interest, direct or indirect, in property abutting the proposed PROJECT and business relationships with abutting property cities. The ENGINEER further acknowledges that it will make disclosure in writing of any conflicts of interest that develop subsequent to the signing of this AGREEMENT and prior to final payment under the AGREEMENT.

M. Asbestos or Hazardous Substances

(1) If asbestos or hazardous substances in any form are encountered or suspected, the ENGINEER will stop its own work in the affected portions of the PROJECT to permit testing and evaluation.

(2) If asbestos or other hazardous substances are suspected, the CITY may request the ENGINEER to assist in obtaining the services of a qualified subcontractor to manage the remediation activities of the PROJECT.

N. Permitting Authorities - Design Changes

If permitting authorities require design changes so as to comply with published design criteria and/or current engineering practice standards which the ENGINEER should have been aware of at the time this AGREEMENT was executed, the ENGINEER shall revise plans and specifications, as required, at its own cost and expense. However, if design changes are required due to the changes in the permitting authorities' published design criteria and/or practice standards criteria which are published after the date of this AGREEMENT which the ENGINEER could not have been reasonably aware of, the ENGINEER shall notify the CITY of such changes and an adjustment in compensation will be made through an amendment to this AGREEMENT.

O. Schedule

ENGINEER shall manage the PROJECT in accordance with the schedule developed per Exhibit C to this AGREEMENT.

P. Equal Opportunity

(1) **Equal Employment Opportunity:** ENGINEER and ENGINEER's agents shall engage in any discriminatory employment practice. No person shall, on the grounds of race, sex, sexual orientation, age, disability, creed, color, genetic testing, or national origin, be refused the benefits of, or be otherwise subjected to discrimination under any activities resulting from this AGREEMENT.

(2) **Americans with Disabilities Act (ADA) Compliance:** ENGINEER and ENGINEER's agents shall not engage in any discriminatory employment practice against individuals with disabilities as defined in the ADA.

SECTION 5
Obligations of the City

Amendments to Section 5, if any, are included in Exhibit D.

A. City-Furnished Data

ENGINEER may rely upon the accuracy, timeliness, and completeness of the information provided by the CITY.

B. Access to Facilities and Property

The CITY will make its facilities accessible to the ENGINEER as required for the ENGINEER's performance of its services. The CITY will perform, at no cost to the ENGINEER, such tests of equipment, machinery, pipelines, and other components of the CITY's facilities as may be required in connection with the ENGINEER's services. The CITY will be responsible for all acts of the CITY's personnel.

C. Advertisements, Permits, and Access

Unless otherwise agreed to in the Scope of Services, the CITY will obtain, arrange, and pay for all advertisements for bids; permits and licenses required by local, state, or federal authorities; and land, easements, rights-of-way, and access necessary for the ENGINEER's services or PROJECT construction.

D. Timely Review

The CITY will examine the ENGINEER's studies, reports, sketches, drawings, specifications, proposals, and other documents; obtain advice of an attorney, insurance counselor, accountant, auditor, bond and financial advisors, and other consultants as the CITY deems appropriate; and render in writing decisions required by the CITY in a timely manner in accordance with the PROJECT schedule prepared in accordance with Exhibit C.

E. Prompt Notice

The CITY will give prompt written notice to the ENGINEER whenever CITY observes or becomes aware of any development that affects the scope or timing of the ENGINEER's services or of any defect in the work of the ENGINEER or construction contractors.

F. Asbestos or Hazardous Substances Release.

(1) CITY acknowledges ENGINEER will perform part of the work at CITY's facilities that may contain hazardous materials, including asbestos containing materials, or conditions, and that ENGINEER had no prior role in the generation, treatment, storage, or disposition of such materials. In consideration of the associated risks that may give rise to claims by third parties or employees of City, City hereby releases ENGINEER from any damage or liability related to the presence of such materials.

(2) The release required above shall not apply in the event the discharge, release or escape of hazardous substances, contaminants, or asbestos is a result of ENGINEER's negligence or if ENGINEER brings such hazardous substance, contaminant or asbestos onto the PROJECT.

G. Contractor Indemnification and Claims

The CITY agrees to include in all construction contracts the provisions of Article IV.E. regarding the ENGINEER's Personnel at Construction Site, and provisions providing for contractor indemnification of the CITY and the ENGINEER for contractor's negligence.

H. Contractor Claims and Third-Party Beneficiaries

(1) The CITY agrees to include the following clause in all contracts with construction contractors and equipment or materials suppliers:

> "Contractors, subcontractors and equipment and materials suppliers on the PROJECT, or their sureties, shall maintain no direct action against the ENGINEER, its officers, employees, and subcontractors, for any claim arising out of, in connection with, or resulting from the engineering services performed. Only the CITY will be the beneficiary of any undertaking by the ENGINEER."

(2) This AGREEMENT gives no rights or benefits to anyone other than the CITY and the ENGINEER and there are no third-party beneficiaries.

(3) The CITY will include in each agreement it enters into with any other entity or person regarding the PROJECT a provision that such entity or person shall have no third-party beneficiary rights under this AGREEMENT.

(4) Nothing contained in this Section H. shall be construed as a waiver of any right the CITY has to bring a claim against ENGINEER.

I. CITY's Insurance

(1) The CITY may maintain property insurance on certain pre-existing structures associated with the PROJECT.

(2) The CITY may secure Builders Risk/Installation insurance at the replacement cost value of the PROJECT. The CITY may provide ENGINEER a copy of the policy or documentation of such on a certificate of insurance.

J. Litigation Assistance

The Scope of Services does not include costs of the ENGINEER for required or requested assistance to support, prepare, document, bring, defend, or assist in litigation undertaken or defended by the CITY. In the event CITY requests such services of the ENGINEER, this AGREEMENT shall be amended or a separate agreement will be negotiated between the parties.

K. Changes

The CITY may make or approve changes within the general Scope of Services in this AGREEMENT. If such changes affect the ENGINEER's cost of or time required for performance of the services, an equitable adjustment will be made through an amendment to this AGREEMENT with appropriate CITY approval.

SECTION 6
General Legal Provisions

Amendments to Section 6, if any, are included in Exhibit D.

A. Authorization to Proceed

ENGINEER shall be authorized to proceed with this AGREEMENT upon receipt of a written Notice to Proceed from the CITY.

B. Reuse of Project Documents

All designs, drawings, specifications, documents, and other work products of the ENGINEER, whether in hard copy or in electronic form, are instruments of service for this PROJECT, whether the PROJECT is completed or not. Reuse, change, or alteration by the CITY or by others acting through or on behalf of the CITY of any such instruments of service without the written permission of the ENGINEER will be at the CITY's sole risk.

The CITY shall own the final designs, drawings, specifications and documents.

C. Force Majeure

The ENGINEER is not responsible for damages or delay in performance caused by acts of God, strikes, lockouts, accidents, or other events beyond the control of the ENGINEER that prevent ENGINEER's performance of its obligations hereunder.

D. Termination

(1) This AGREEMENT may be terminated:

a. by the City for its convenience upon 30 days' written notice to ENGINEER.

b. by either the CITY or the ENGINEER for cause if either party fails substantially to perform through no fault of the other and the nonperforming party does not commence correction of such nonperformance within 5 days' written notice or thereafter fails to diligently complete the correction.

(2) If this AGREEMENT is terminated for the convenience of the City, the ENGINEER will be paid for termination expenses as follows:

a. Cost of reproduction of partial or complete studies, plans, specifications or other forms of ENGINEER'S work product;

b. Out-of-pocket expenses for purchasing electronic data files and other data storage supplies or services;

c. The time requirements for the ENGINEER'S personnel to document the work underway at the time of the CITY'S termination for convenience so that the work effort is suitable for long time storage.

(3) Prior to proceeding with termination services, the ENGINEER will submit to the CITY an itemized statement of all termination expenses. The CITY'S approval will be obtained in writing prior to proceeding with termination services.

E. Suspension, Delay, or Interruption to Work

The CITY may suspend, delay, or interrupt the services of the ENGINEER for the convenience of the CITY. In the event of such suspension, delay, or interruption, an equitable adjustment in the PROJECT's schedule, commitment and cost of the ENGINEER's personnel and subcontractors, and ENGINEER's compensation will be made.

F. Indemnification

IN ACCORDANCE WITH TEXAS LOCAL GOVERNMENT CODE SECTION 271.904, THE ENGINEER SHALL INDEMNIFY OR HOLD HARMLESS THE CITY AGAINST LIABILITY FOR ANY DAMAGE COMMITTED BY THE ENGINEER OR ENGINEER'S AGENT, CONSULTANT UNDER CONTRACT, OR ANOTHER ENTITY OVER WHICH THE ENGINEER EXERCISES CONTROL TO THE EXTENT THAT THE DAMAGE IS CAUSED BY OR RESULTING FROM AN ACT OF NEGLIGENCE, INTENTIONAL TORT, INTELLECTUAL PROPERTY INFRINGEMENT, OR FAILURE TO PAY A SUBCONTRACTOR OR SUPPLIER. CITY IS ENTITLED TO RECOVER ITS REASONABLE ATTORNEY'S FEES IN PROPORTION TO THE ENGINEER'S LIABILITY.

G. Assignment

Neither party shall assign all or any part of this AGREEMENT without the prior written consent of the other party.

H. Jurisdiction

The law of the State of Texas shall govern the validity of this AGREEMENT, its interpretation and performance, and any other claims related to it. The venue for any litigation related to this AGREEMENT shall be Denton County, Texas.

I. Severability and Survival

If any of the provisions contained in this AGREEMENT are held for any reason to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability will not affect any other provision, and this AGREEMENT shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein. Sections 5.F., 6.B., 6.D., 6.F., 6.H., and 6.I. shall survive termination of this AGREEMENT for any cause.

J. Observe and Comply

ENGINEER shall at all times observe and comply with all federal and State laws and regulations and with all City ordinances and regulations which in any way affect this AGREEMENT and the work hereunder, and shall observe and comply with all orders, laws ordinances and regulations which may exist or may be enacted later by governing bodies having jurisdiction or authority for such enactment. No plea of misunderstanding or ignorance thereof shall be considered. **ENGINEER AGREES TO DEFEND, INDEMNIFY AND HOLD HARMLESS CITY AND ALL OF ITS OFFICERS, AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS OR LIABILITY ARISING OUT OF THE VIOLATION OF ANY SUCH ORDER, LAW, ORDINANCE, OR REGULATION, WHETHER IT BE BY ITSELF OR ITS EMPLOYEES**.

K. Immigration Nationality Act

ENGINEER shall verify the identity and employment eligibility of its employees who perform work under this AGREEMENT, including completing the Employment Eligibility Verification Form (I-9). Upon request by CITY, ENGINEER shall provide CITY with copies of all I-9 forms and supporting eligibility documentation for each employee who performs work under this AGREEMENT. ENGINEER shall adhere to all Federal and State laws as well as establish appropriate procedures and controls so that no services will be performed by any ENGINEER employee who is not legally eligible to perform such services. **ENGINEER SHALL INDEMNIFY CITY AND HOLD CITY HARMLESS FROM ANY PENALTIES, LIABILITIES, OR LOSSES DUE TO VIOLATIONS OF THIS PARAGRAPH BY ENGINEER, ENGINEER'S EMPLOYEES, SUBCONTRACTORS, AGENTS, OR LICENSEES.** CITY, upon written notice to ENGINEER, shall have the right to immediately terminate this AGREEMENT for violations of this provision by ENGINEER.

L. Prohibition On Contracts With Companies Boycotting Israel

ENGINEER acknowledges that in accordance with Chapter 2270 of the Texas Government Code, CITY is prohibited from entering into a contract with a company for goods or services unless the contract contains a written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract. The terms "boycott Israel" and "company" shall have the meanings ascribed to those terms in Section 808.001 of the Texas Government Code. ***By signing this AGREEMENT, ENGINEER certifies that ENGINEER'S signature provides written verification to the CITY that ENGINEER: (1) does not boycott Israel; and (2) will not boycott Israel during the term of the AGREEMENT.*** Failure to meet or maintain the requirements under this provision will be considered a material breach.

M. Prohibition On Contracts With Companies Doing Business with Iran, Sudan, or a Foreign Terrorist Organization

Section 2252 of the Texas Government Code restricts CITY from contracting with companies that do business with Iran, Sudan, or a foreign terrorist organization. ***By signing this AGREEMENT, ENGINEER certifies that ENGINEER'S signature provides written verification to the CITY that ENGINEER, pursuant to Chapter 2252, is not ineligible to enter into this AGREEMENT and will not become ineligible to receive payments under this AGREEMENT by doing business with Iran, Sudan, or a foreign terrorist organization***. Failure to meet or maintain the requirements under this provision will be considered a material breach.

N. Certificate of Interested Parties Electronic Filing

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908

of the Government Code. The law states that the City may not enter into this contract unless the Contractor submits a disclosure of interested parties (Form 1295) to the City at the time the Contractor submits the signed contract. The Texas Ethics Commission has adopted rules requiring the business entity to file Form 1295 electronically with the Commission.

Contractor will be required to furnish a Certificate of Interest Parties before the contract is awarded, in accordance with Government Code 2252.908.

The contractor shall:

1. Log onto the State Ethics Commission Website at : https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm
2. Register utilizing the tutorial provided by the State
3. Print a copy of the completed Form 1295
4. Enter the Certificate Number on page 2 of this contract.
5. Complete and sign the Form 1295
6. Email the form to purchasing@cityofdenton.com with the contract number in the subject line. (EX: Contract 1234 – Form 1295)

The City must acknowledge the receipt of the filed Form 1295 not later than the 30th day after Council award. Once a Form 1295 is acknowledged, it will be posted to the Texas Ethics Commission's website within seven business days.

O. Agreement Documents

This AGREEMENT, including its Exhibits and schedules, constitutes the entire AGREEMENT, which supersedes all prior written or oral understandings, and may only be changed by a written amendment executed by both parties. This AGREEMENT may be executed in one or more counterparts and each counterpart shall, for all purposes, be deemed an original, but all such counterparts shall together constitute but one and the same instrument. The following Exhibits and schedules are hereby made a part of this AGREEMENT:

Exhibit A - Scope of Services
Exhibit B – Summary of Tasks/Manhour Fee Estimate
Exhibit C – Project Schedule
Exhibit D - Amendments to Standard Agreement for Engineering Services

These documents make up the AGREEMENT documents and what is called for by one shall be as binding as if called for by all. In the event of an inconsistency or conflict in any of the provisions of the AGREEMENT documents, the inconsistency or conflict shall be resolved by giving precedence first to the written AGREEMENT then to the AGREEMENT documents in the order in which they are listed above.

Duly executed by each party's designated representative to be effective on the date subscribed by the City Manager.

BY:
CITY OF DENTON, TEXAS

DocuSigned by:
Todd Hileman
B776C711BA0D454...

City Manager

Date: 2/15/2019

BY:
ENGINEER
HDR Engineering, Inc.

DocuSigned by:
Ramon F. Miguez
A5445F87D5E874E5...

Authorized Signature, Title

Date: 2/8/2019

THIS AGREEMENT HAS BEEN BOTH REVIEWED AND APPROVED as to financial and operational obligations and business terms.

DocuSigned by:
0658E4F8FB78476...

Signature

City Engineer

Title

Capital Projects

Department

Date Signed: 2/8/2019

2019-450193

TEXAS ETHICS COMMISSION CERTIFICATE NUMBER

APPROVED AS TO LEGAL FORM:
AARON LEAL, CITY ATTORNEY

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ATTEST: RACHEL WOOD, INTERIM CITY SECRETARY

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Exhibit A

SCOPE OF SERVICES

CITY OF DENTON-TRAVEL DEMAND MODEL ANALYSIS AND EVALUATION OF SCHEMATIC, ENVIRONMENTAL, SURVEY, RIGHT-OF-WAY, SUE, CONSTRUCTION PLANS, AND SPECIFICATIONS FOR HICKORY CREEK ROAD

SCOPE ASSUMPTIONS:

1. Hickory Creek TDM Update – Including Crawford Road Analysis
2. Schematic, Env., and Public Involvement – TxDOT process (Riverpass Dr. – I-35W)
3. PS&E plan development (Riverpass Dr. – Country Club Drive)

It should be noted that this Scope of Services has been prepared prior to formal approval of a Scope of Work approved by the City of Denton/TxDOT. The budget suggested herein will be adjusted if necessary upon receipt of an approved Scope of Work from the City. A written notification of any such changes will be provided.

A. FEASIBILITY STUDY

The ENGINEER shall prepare preliminary drawings to identify potential impacts within the project corridor, including impacts to the nature, cultural, and human environment. Identification should include, but not be limited to major existing and proposed utilities (public and private), wetlands, floodways, structures, burial grounds, neighborhood communities, historical landmarks, and undeveloped areas is required. Potential utility conflicts and structural impediments must be identified and documented. The ENGINEER shall propose alternatives which would avoid or minimize displacements and damages, and prepare any additional attachments or exhibits required illustrating a preferred alternative alignment. The ENGINEER shall render assistance to the City for agency meetings as necessary during the development of the schematic design as requested by the City. The ENGINEER shall also render assistance to the City for meetings with affected property owners (MAPOs), public meetings and a public hearing if requested.

An itemization of the schematic design and engineering work activity to be performed under this contract is detailed below. All designs shall be prepared in accordance with the latest version of: AASHTO Policy on Geometric Design of Highways and Streets, Texas Manual on Uniform Traffic Control (TMUTCD), and Highway Capacity Manual - Transportation Research Board.

The following steps shall be completed by the ENGINEER in the development of the Feasibility Study:

1. **DATA COLLECTION**

   The ENGINEER shall conduct field reconnaissance and collect data as necessary to complete the schematic design. Data shall include the following information.

   - Available Corridor Major Investment Studies
   - Design data from record drawings of existing and proposed facilities
   - Existing and future design year traffic data
   - Roadway inventory information, including the number of lanes, speed limits, pavement widths and rating, bridge widths and ratings.
   - Existing Right-of-Way (ROW) and Easements
   - Parcel Information
   - Aerial photos, planimetric mapping, and DTM
   - Environmental Data
   - Previously prepared drainage studies
   - Adopted land use maps and plans as available
   - Federal Emergency Management Agency (FEMA) Flood Boundary Maps and Flood Insurance Studies and Models
   - Public and private utility information
   - Plat research for adjacent properties as available.
   - Local Major Thoroughfare Plan.

   Task Deliverable

   - Electronic submittal of ArcGIS Online Maps containing data collected

2. **ANALYZE EXISTING CONDITIONS**

   Using collected data, the ENGINEER shall develop an overall analysis of the existing conditions in order to develop the schematic design. The analysis shall include, but not be limited to the following:

   - ROW determination
   - Horizontal alignment
   - Vertical alignment

- Pavement cross slopes and pavement type
- Soil Exploration
- Geotechnical Testing
- Intersection design and analysis
- Sight distance
- Large Guide Signs and Roadside signing
- Signal Warrants
- Level-of-service
- Locations of critical constraints
- Drainage
- Traffic control and construction phasing sequence

Task Deliverable

- Electronic submittal of Existing Conditions Report

3. PRELIMINARY DESIGN SUMMARY REPORT AND TYPICAL SECTIONS

The ENGINEER shall prepare and submit a preliminary Design Summary Report (DSR) to the CITY for review and approval. The DSR will include design criteria for roadway elements: design speed, lane and shoulder widths, pavement structure and slopes, horizontal curvatures, horizontal and vertical clearances, range of vertical profile grades, and side slopes. The ENGINEER shall develop both existing and proposed typical sections that depict the number and type of lanes, shoulders, median width, curb offsets, cross slope, border width, clear zone widths, and ROW limits.

Task Deliverable

- Electronic submittal of Design Summary Report
- Electronic submittal of Typical Sections

4. ENVIRONMENTAL CONSTRAINTS

The ENGINEER shall consider impacts to environmentally sensitive sites (as identified by the ENGINEER and verified by the City and/or State) during the schematic design process. Environmentally sensitive sites include natural, cultural, and the human environment. Examples are historic and archeological resources, burial grounds, neighborhood communities and residential areas, farmland, floodplains, wetlands,

endangered species, rare habitats, wildlife corridors, wildlife crossings, parks and nature preserves, geologic features, undeveloped areas, and significant trees.

Task Deliverable

- Electronic submittal of Constraints Map
- Electronic submittal of ArcGIS Map of Constraints Map

5. ALTERNATIVE ALIGNMENTS AND SCREENING

The ENGINEER shall develop up to five (5) Alternative Alignments for evaluation. An Alternative Alignment is to be comprised of a horizontal elements with an associated typical section represented by a Right-of-Way width along the alignment. Each Alternative Alignment is to be evaluated and screened in regards to Engineering, Mobility, Environmental, and Public Input. Up to two (2) Alternative Alignments are to be recommended for further evaluation. A Feasibility Report shall be compiled which documents the Alternative Alignments and screening process.

Task Deliverable

- Electronic submittal of Draft and Final Feasibility Report

B. DRAINAGE DESIGN

This Scope of Services is submitted to evaluate hydraulic impacts of the study area within the limits of Hickory Creek Rd (from IH35W to Riverpass Road). This is approximately 4 miles of existing and new roadway. This a conceptual level effort to study the existing cross drainage streams and evaluate structures needed to meet the City's design standard and avoid impacts to adjacent properties. This scope does not include the design of parallel drainage structures (storm drain). There are Five (5) major streams identified and 12 minor crossings (3 per mile of project) for this stretch of road. This scope assumes no ditches will be evaluated since road widening will eliminate ditches. Detention requirements as a consequence of significant added runoff will also be evaluated.

The major crossings are:

- Hickory Creek (Detailed studied Zone AE)
- Hickory Creek Tributary near Argyle Ln (Unstudied Zone A)

- Hickory Ck Trib meander section 1500' west of Country Club Rd.
- Hickory Ck Trib 2 800' west of Country Club Rd. (Unstudied Zone A)
- Unnamed Tributary just east of IH35W

The scope of work includes:

1. DATA COLLECTION

- In addition to the roadway survey, hydraulic analysis of stream crossings will require survey of the cross sections, culverts and bridge shown in the attached Exhibit. The field survey will include:
  - X-section to include toe and top of bank shots, grade break shots, at least 2 flowline shots, at least 100 feet past the top of bank (overbank) or to the closest privacy/property fence. ROE might be required.
  - Survey of stream lowest flowline elevations at 25' intervals within the x-sections
  - Photos and sketch of each x-section and culvert/bridge tied
  - Tier adjacent residential structure lowest FFE (if possible)
  - Existing culvert/bridge
    - Tie structure in details (opening dimension, top of rail, low chord at both ends of each side, inverts, columns locations and widths, etc)
- Collect culvert/bridge as-builts
- Collect from City latest copy of HEC-RAS models for stream outlined above
- Collect from City Hydraulic and Hydrology (H&H) reports (if available)
- Collect contributing watershed's soils and land use data
- Field visit to determine physical aspects at crossings
- Project meetings as required under this scope (assume 3 meetings and 1 visit)

2. HYDROLOGY

Preliminary hydrologic analysis to determine the discharges for the 2-, 5-,10-, 25, 50, and 100-year storm frequency events. Methods as described in the City's Drainage Design Manual and NCTCOG's iSWM Manual will be used. TxDOT's HDM will also be used as a reference and at locations within TxDOT's jurisdiction.

The ENGINEER shall determine the existing conditions drainage area boundaries to be used for determining discharges for cross drainage structures, ditches and detention ponds. The delineations will be based on the best available terrain surface data (2-foot contour data), contour maps, as-built data, and aerial imagery. Site visit by ENGINEER is required to identify critical hydrologic and hydraulic areas not visible on maps.

Flows will be calculated and compared between pre- and post- project conditions only within the affected roadway area. This evaluation will aid in determining the excess runoff

produced and the potential required areas for detention. Detention is required to not impact downstream properties. The USACE HEC-HMS Program will be used to calculate flows for the SCS Curve Number Method. Standard Excel spreadsheets can be used for the Regression Analysis equations and the Rational Method calculations. Honey Creek is an unstudied Zone A stream, discharges for the hydraulic analysis will be computed. City of Denton's Drainage Manual will be followed as well as NCTCOG's iSWMM Manual and FEMA's NFIP Criteria.

a. Drainage area delineation
b. Time of concentration calculation
c. Curve Number computation for major crossings
d. Precipitation analysis
e. Hydraulic modeling in HEC-HMS version 4.2 for major crossings
f. Minor crossings' runoff values will be calculated with Rational Method unless area is larger than 150 acres or as dictated by City Manual.
g. Validation of hydrologic peak discharges with a different methodology or nearby effective studied stream.

EXCESS RUNOFF ANALYSIS - Flows will be calculated and compared between pre- and post- project conditions only within the affected roadway area. This evaluation will aid in determining the excess runoff produced and the potential required areas for detention. Detention is required to not impact downstream properties. The USACE HEC-HMS Program will be used to calculate flows for the SCS Curve Number Method. Standard Excel spreadsheets can be used for the Regression Analysis equations and the Rational Method calculations.

3. OPEN CHANNEL AND BRIDGE/CULVERT HYDRAULICS

a. Obtain and review ground-surveyed field cross sections and complement with local 2' contours and flown terrain (LiDAR)
b. For major crossings, develop existing creek hydraulic model in HEC-RAS. Assume backwater flow conditions from nearby rivers or ponds as necessary.
c. For minor crossings, hydraulic models will be developed in HY-8.
d. Coordination with transportation design team to determine location of crossings and physical aspects of cross drainage structure.
e. Develop proposed conditions analysis and models. Calculations of geometric input into hydraulic model (includes roadway widening, columns, bridge/culverts, riprap, etc.)
f. Determine pre- and post- project impacts into stream WSEL and velocities.

g. Mitigation analysis and recommendations to avoid hydraulic impacts outside of project area (includes additional modeling)

4. DETENTION ANALYSIS

Determine the increase in runoff per the proposed improvements to determine if detention is required. **Conceptually determine potential detention sites if needed using Hydraflow by Autodesk.** If the increased corridor storage provided is not sufficient to offset the impact resulting from the roadway improvements, proposed offsite detention facilities would be evaluated and recommended. Every effort shall be made to provide detention within existing ROW if it is deemed necessary.

This task will also include the generation of a conceptual CAD plan sheet showing the pond location, calculations, cross sections of the proposed detention facilities, and details of the proposed outfall structures. **Assume 5 pond locations maximum.**

5. DRAINAGE EASEMENTS IDENTIFICATION

The analysis will also determine the adequacy of the existing drainage easements and proposed new drainage easements associated with the proposed improvements.

6. CHANNEL MITIGATION OR EROSION CONTROL SHEET AND DETAILS

There is one location where the stream is in close proximity to Brush Creek Road. The roadway widening might require a stream realignment and floodplain mitigation plans to avoid hydraulic impacts. This effort includes stream analysis, calculations and modeling and preparation of sheet. (Assume 2 sheets) Prepare details to accompany erosion control sheet.

7. HYDRAULICS REPORT

The hydraulic report, signed and sealed by a professional engineer, shall include applicable hydrologic and hydraulic methodology, exhibits, calculations, collected data and models used. The Report will be in accordance with the City's Design Manual.

- QA/QC – Report, Analysis and Results
- Address comments (if any). Revisions to analysis, models, recommendations per City's review

8. CLOMR SUBMITTAL TO FEMA

A FEMA Conditional Letter of Map Revision (CLOMR) application and technical report will be produced upon the completion of the schematic hydraulic report. This will include any impacted streams that require floodplain remapping as a consequence of floodplain mitigation. The report will be submitted to the City of Denton for review and approval. Once the City approves and signs the FEMA CLOMR MT2 Forms, the CLOMR report will be sent to FEMA for review and approval.

The following are the tasks required for the CLOMR effort:

1. Update duplicate effective conditions and corrected effective (pre-project) HEC-RAS floodway and floodplain models.
    a. ENGINEER will convert the effective model from HEC-2 to HEC-RAS and create a duplicate effective model. The limits of the update will only include the improved areas related to the impacts per the roadway improvements. This model will be known as the corrected effective (pre-project conditions) floodplain model.
    b. A corrected effective floodway model will also be created.
    c. Effective flows will be used for CLOMR related models. The flows developed from the study phase (as part of the overall contract) will not be used for this CLOMR study. This follows FEMA criteria for LOMR applications.
2. Proposed project conditions floodplain and floodway Models
    a. ENGINEER will update the corrected effective (pre-project conditions) floodplain model to reflect post-project conditions.
    b. Prepare a post project conditions floodway model.
    c. Models will be checked using Check-RAS Program (per FEMA requirements).
3. Floodplain and floodway delineation and CLOMR approval report
    a. A floodplain and floodway certified topographic map will be created based on the models created for Tasks 1 through 5. A stream FIS profile will also be created based on the RAS-Plot Program.
    b. Prepare MT-2 Forms 1 through 3.
    c. Draft and document narrative report explaining methodologies, findings and conclusions.
    d. Exhibit and letters required by FEMA for inclusion into the report: location map, annotated FIRM Panel, Floodplain Easement Map, BFE increases notification

letter (if required) and acceptance, endangered species letter, sediment transport explanation letter, and a floodway revision notification letter.

e. The tables to be included in the report will be: summary of flows, Manning's n-values summary, reach-lengths, floodway data table, and a hydraulic summary table.

4. Review and acceptance of CLOMR by CITY
    a. Submittal of CLOMR Forms and Report to CITY for review and signature of City's Certified Floodplain Manager.
    b. Coordination with CITY to publish a floodway impact notification letter in local newspaper.
    c. ENGINEER to submit approved CLOMR Report by Cities to FEMA for Review.
5. Revisions from FEMA CLOMR Review.
    a. A maximum of two (2) rounds of revisions to address any FEMA related comments. More reviews are considered out of this scope.

Key Understanding:

- Additional requirements (models, calculations, reports, data and review fees) required by outside agencies will be considered out-of-scope. Plan sheets will not include profiles views.
- Any environmental permit requirement is not included in this H&H scope of work.
- The study only covers the crossings specified, if additional modeling is required of other stream locations, a supplemental agreement will be necessary.

C. SCHEMATIC DESIGN

The design schematic horizontal layout will adhere to a design scale of 1 in. = 100 ft. (or 1 in. = 200 ft. as directed by the CITY.) The schematic layout, exhibits, and attachments will be developed in English units. All Microsoft Office and Microstation Openroads Technology computer graphic files furnished to the CITY must be submitted in electronic format by means of a USB media or through SharePoint that will be compatible to the City and/or State. Schematics will follow the City and/or State and Federal Highway Administration (FHWA) standards. Final copies of the schematic design shall be signed by a professional engineer licensed in the City and/or State of Texas. The following steps shall be completed by the ENGINEER in the development of the Schematic.

1. SCHEMATIC ALTERNATIVES AND SCREENING

The ENGINEER shall identify and analyze a maximum of three (3) Conceptual Schematic Alternatives to minimize potential adverse impacts, major utility conflicts, structural impediments, or exceptions to the City and/or State or FHWA design criteria. The conceptual schematics will be plan view only. Profile work will be done only to the extent necessary to lay out the proper horizontal geometry. The Conceptual Schematics shall contain the following design elements:

- Mainlane roadway alignment
- Pavement edges, face of curbs and shoulder lines
- Typical sections of existing and proposed roadways
- Proposed structure locations (including wildlife crossings and fencing structures)
- Preliminary ROW requirements and control-of-access locations
- Direction of traffic flow and the number of lanes on existing and proposed roadways
- Existing and projected traffic volumes
- Existing utilities

A Comparative Quantitative Evaluation Matrix (CQEM) shall be developed by the ENGINEER to evaluate the Engineering, Mobility and Environmental components for each Conceptual Design Schematics. The CQEM evaluation shall consider the following:

- Impacts to Existing and future residential and commercial areas
- Socioeconomic impacts
- Safety – Predictive Crash Analysis
- Potential displacements
- ROW costs
- Utilities
- Construction Costs
- Public Input
- Land use
- Traffic LOS Improvement
- Corridor Safety Impacts (Crash modification factors)
- Wetlands / waters of the U.S.
- Wildlife habitat

- Floodplains
- City and/or State or federally listed threatened or endangered species
- Historic and archaeological assets
- Cemeteries
- Hazardous waste sites
- Other environmental sensitive sites

The ENGINEER shall submit the preliminary results of the CQEM to TxDOT for review. A conceptual alternatives analysis workshop shall be coordinated by the ENGINEER to review and address comments by the CITY. Results of the CQEM shall narrow the three (3) Conceptual Schematic Alternatives to one (1) Recommended Preferred Alternative which is to be developed into Geometric Design Schematic.

Task Deliverable

- Electronic submittal of Draft and Final Conceptual Schematic Layouts
- Electronic submittal of Draft and Final CQEM

2. GEOMETRIC DESIGN SCHEMATICS

The ENGINEER shall develop Geometric Design Schematics based on the Recommended Preferred Alternative after the basic layout, lane arrangement, and ROW and easements requirements depicted on the schematics is approved.

a. The geometric schematic plan view shall contain the following design elements:
    - Geopak calculated roadway alignments for mainlanes, bridges, and cross streets at major intersections.
    - Horizontal curve data shown in tabular format
    - Pavement edges, curb lines, sidewalks for proposed roadway improvements
    - Typical sections of existing and proposed roadways
    - Proposed structure locations, bridge layouts including abutment, bent and rail locations
    - Existing and proposed major utilities
    - Existing property lines and respective property ownership information

- Existing ROW and easements
- ROW and easements requirements adequate for preparation of ROW maps
- Waters of the US (WOUS)
- Control-of-access limits
- Existing and projected traffic volumes
- Lane lines, shoulder lines, and direction of traffic flow arrows indicating the number of lanes on existing and proposed roadways
- Existing utilities

b. The geometric schematic profile view shall contain the following design elements:
    - Calculated profile grade and vertical curve data including "K" values for the mainlanes
    - Existing ground line profiles along the mainlanes
    - Grade separations and overpasses including preliminary bent locations, girder type, and span lengths.
    - Calculated vertical clearances at grade separations and overpasses
c. Preliminary cross-sections every 50 feet and at culvert locations in conjunction with the Schematic shall be developed by the ENGINEER to determine earthwork volumes for use in the cost estimate.
d. Preliminary Construction Sequence Layout in conjunction with the Geometric Schematic depicting the phasing and traffic detours anticipated to construct the proposed design.
e. Preliminary cost estimate for the project shall be developed by the ENGINEER, which includes the costs of construction, required ROW and associated improvements, and eligible utility adjustments. Current City and/or State unit bid prices will be used in preparation of the estimate.

Task Deliverable

- Electronic submittal of Draft and Final Geometric Schematic Layouts
- Electronic submittal of Draft and Final Preliminary Cross-Sections
- Electronic submittal of Draft and Final Preliminary Construction Sequence
- Electronic submittal of Draft and Final Preliminary Cost Estimates

3. RAILROAD COORDINATION

The ENGINEER shall assist the CITY in coordination meetings with the affected Railroads. Three (3) meetings with Union Pacific Railroad (UPRR) and three (3) meetings Kansas City Southern Railroad (KCS) for a total of six (6) total meetings shall be conducted during the schematic and environmental development.

4. CITY AND/OR STATE COORDINATION

The ENGINEER shall assist the CITY in coordination meetings with the CITY AND/OR STATE and FHWA. A maximum of six (6) meetings are to be utilized during the development of the schematic and environmental development. These meetings are intended to provide an overview of the project, discuss protocols for schematic and environmental approvals, review plans and discuss comments.

D. ENVIRONMENTAL

1. ENVIRONMENTAL DOCUMENTATION.

Each environmental service provided by the ENGINEER shall have a deliverable. Deliverables shall summarize the methods used for the environmental services, and shall summarize the results achieved. The summary of results shall be sufficiently detailed to provide satisfactory basis for thorough review by the City and/or State, The Federal Highway Administration (FHWA), and (where applicable) agencies with regulatory oversight. All deliverables shall meet regulatory requirements for legal sufficiency, and shall adhere to the requirements for reports enumerated in the City and/or State's NEPA MOU.

a. Quality Assurance/Quality Control Review

For each deliverable, the ENGINEER shall perform quality assurance quality control (QA/QC) reviews of environmental documents and on other supporting environmental documentation to determine whether documents conform with:

- Current Environmental Compliance Toolkit guidance published by the City and/or State's Environmental Affairs Division and in effect as of the date of receipt of the documents or documentation to be reviewed;

- Current City and/or State and federal laws, regulations, policies, guidance, agreements, and memoranda of understanding between the City and/or State and other City and/or State or federal agencies; and
- FHWA and American Association of City and/or State Highway and Transportation Officials (AASHTO) guidelines contained in "Improving the Quality of Environmental Documents, A Report of the Joint AASHTO and American Council of Engineering Companies (ACEC) Committee in Cooperation with the Federal Highway Administration" (May 2006) for:
    - Readability, and
    - Use of evidence and data in documents to support conclusions.

Upon request by the City and/or State, the ENGINEER shall provide documentation that the QA/QC reviews were performed by qualified staff.

a. Deliverables shall contain all data acquired during the environmental service. All deliverables shall be written to be understood by the public and must be in accordance with the City and/or State's Environmental Toolkit guidance, documentation standards, current guidelines, policies and procedures.
b. Electronic versions of each deliverable must be written in software which is compatible to the City and/or State and must be provided in a changeable format for future use by the City and/or State. The ENGINEER shall supplement all hard copy deliverables with electronic copies in searchable Adobe Acrobat™ (.pdf) format, unless another format is specified. Each deliverable shall be a single, searchable .pdf file that mirrors the layout and appearance of the physical deliverable. The ENGINEER shall deliver the electronic files on CD-R, CD-RW media in Microsoft Windows format, or through the ftp site.
c. When the environmental service is to apply for a permit (e.g., United City and/or States Coast Guard (USCG) or United City and/or States Army Corps of Engineers (USACE), the permit and all supporting documentation shall be the deliverable.
d. Submission of Deliverables
    - Deliverables consist of reports of environmental services performed in addition to documentation for a Categorical Exclusion (CE) determination, including the preparation of a Request for Classification to classify the project as an Open Ended (d) list CE, if needed, or an Environmental Assessment (EA) document, when applicable.

- All deliverables must comply with all applicable City and/or State and federal environmental laws, regulations and procedures and include all items listed in the Environmental Document Review Checklist and the Administrative Completeness Review Checklist.
- On the cover page of each environmental assessment (EA), finding of no significant impact (FONSI), environmental impact City and/or Statement (EIS), and record of decision (ROD) prepared under the authority granted by this MOU, and for any memorandum corresponding to any CE determination it makes, the ENGINEER shall insert the following language in a way that is conspicuous to the reader or include it in a CE project record:
  "The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT."

f. The City and/or State shall provide the City and/or State's and other agency comments on draft deliverables to the ENGINEER. The ENGINEER shall revise the deliverable:

- to include any City and/or State commitments, findings, agreements, or determinations (e.g., wetlands, endangered species consultation, Section 106, or Section 4(f)), required for the Transportation Activity as specified by the City and/or State;
- to incorporate the results of public involvement and agency coordination;
- to reflect mitigation measures resulting from comments received or changes in the Transportation Activity; and
- include with the revised document a comment response form (matrix) in the format provided by the City and/or State.

g. All photographs shall be 3.5" x 5" color presentation printed on matte finish photographic paper or 3.5" x 5" color presentation printed on matte white, premium or photo quality laser or inkjet paper. All photographs shall be well focused and clearly depict details relevant to an evaluation of the project area. Provision of photographs shall be one original print of each image or electronic presentations of comparable quality. Comparable quality electronic photograph presentations shall be at least 1200 x 1600 pixel resolution. Photographs shall be attached to separately labeled pages that clearly

identify project name, project identification (ID) number, address or Universal Transverse Mercator (UTM) of resource, description of the picture and direction of the photographic view. In addition to the hard-copy prints, an electronic version of each will be submitted with the same identification information as the hard-copy.

2. TECHNICAL REPORTS AND DOCUMENTATION

Definition of technical report and documentation for environmental services: a report, checklist, form, or analysis detailing resource-specific studies identified during the process of gathering data to make an environmental decision.

Technical reports and documentation must be produced before an environmental document (e.g. EA) is prepared in order to identify issues early in the process. The City and/or State will determine what technical reports and documentation will be necessary for any given project. Technical reports and documentation must be prepared for the City and/or State with sufficient detail and clarity to support environmental determination(s). All technical reports shall be compliant with TxDOT Environmental Compliance Toolkits. The environmental document will reference the technical reports.

Environmental technical reports and documentation must include appropriate National Environmental Policy Act of 1969 (NEPA) or federal regulatory language in addition to the purpose and methodology used in delivering the service. Technical reports and forms must include sufficient information to determine the significance of impacts. Some examples of environmental technical reports and documentation are listed below:

- Purpose and Need
- Biological Evaluation Form
- Air Quality
- Archeological Background Study
- Bicycle and Pedestrian Accommodation
- Coastal Barrier Resources Act
- Community Impacts Assessment
- Ecological Resources
- Farmland Protection Policy Act
- Hazardous Materials
- Historic Resources

- Indirect and Cumulative Impacts
- Section 6(f) Land and Water Conservation Fund Act
- National Environmental Policy Act (NEPA) and Project Development
- Chapter 26, Parks and Wildlife Code
- Public Involvement
- Traffic Noise Analysis
- U.S. DOT Section 4(f) Analysis

All technical reports and documentation prepared under the authority granted by this MOU, the ENGINEER shall insert the following language in a way that is conspicuous to the reader or include in a CE project record:

"The environmental review, consultation, and other actions required by applicable

Federal environmental laws for this project are being, or have been, carried-out by

TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT."

Minimum Deliverables: (Additional deliverables to be identified based on work assigned.)

- Draft Document
- Final Document

3. ENVIRONMENTAL ASSESSMENT (EA) CONTENT AND FORMAT.

- The EA shall meet the requirements of 23 CFR §771.119 and TAC, Title 43, Part 1, Chapter 2. The EA content shall be in sufficient detail to meet regulatory requirements for legal sufficiency and include all items listed in the Environmental Document Review Checklist and the Administrative Completeness Review Checklist.
- Exhibits to be included in reports or EAs shall not exceed 11” by 17,” and shall be in color. Text pages shall be 8.5” by 11”. Exhibits and text in reports or EAs shall be neat and reproducible via photocopying without loss of legibility. The EA documents shall be reproduced on plain white paper unless otherwise approved in advance in writing by the City and/or State.
- The EA shall use good quality maps and exhibits, and shall incorporate by reference and summarize background data and technical analyses to support the concise discussions of the alternatives and their impacts. The ENGINEER shall follow the Environmental

Assessment Outline and the Environmental Handbook: Preparing an Environmental Assessment located in the Environmental Compliance Toolkits located on the TxDOT website.

Minimum Deliverables: (Additional deliverables to be identified, based on work assigned.)

- Preliminary Draft EA for district review
- Revised Draft EA (per district comments)
- Draft EA for City and/or State review
- Revised Draft EA (per City and/or State comments)
- Draft EA for Public Hearing
- Final EA

4. COMMUNITY IMPACTS

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

- Community Impacts includes land use, environmental justice, limited English proficiency, and other issues as addressed in TxDOT Environmental guidance.
- The ENGINEER shall perform Community Impact Assessments including relocations and Environmental Justice analysis (in accordance with Executive Order 12898) and Limited English Proficiency analysis (in accordance with Executive Order 13166).
- Compile analysis to meet requirements of TA 6640.8A. Analysis must conform to applicable current City and/or State and FHWA guidance.
- Process for Community Impact Assessment should follow guidance provided in TxDOT's Community Impacts Assessment Toolkit.

5. HISTORIC RESOURCE IDENTIFICATION, EVALUATION AND DOCUMENTATION SERVICES

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

- The ENGINEER shall perform limited non-archeological historic-age resource studies related to compliance with Section 106 and Section 110 of the NHPA (36 CFR 800).

Prior to conducting formal historic resource investigations, a Project Coordination Requests (PCR) would be prepared and approved to determine if further studies would be warranted.

- The PCR shall comply with the TxDOT Environmental Compliance Toolkits provided by the City and/or State's Environmental Affairs Division in effect as of the date of the receipt of the documents.
- The ENGINEER shall revise the PCR to address comments by the City and/or State at no additional cost to the City and/or State and may be required to integrate the findings into another environmental document. The City and/or State assumes responsibility for transmitting the findings to THC and for transmitting THC comments to the ENGINEER's Technical Expert. ENGINEER's Technical Expert is an institution, firm, individual, or team that provides professional scientific services, including but not limited to archeologists, biologists, geologists, historians, or other environmental professions that conduct environmental or cultural assessments required by City and/or State or federal law for transportation projects. The City and/or State assumes responsibility for any further historic, non-archeological surveys that arise from the findings of the PCR.
- The ENGINEER shall conduct tasks associated with public involvement as requested during the historic resources reporting phase and conforming to the methodology outlined in the TxDOT Environmental Compliance Toolkits.
- The ENGINEER shall contact interested parties when applicable in order to determine local knowledge of historic resources in the project area. Interested parties include but are not limited to: Certified Local Governments, Historic Preservation Offices, County Historical Commissions, Historic Bridge Foundation, and other consulting parties.

6. ARCHEOLOGICAL RESOURCES

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

- The Background Study shall be produced by a professional archeologist as defined in 13 TAC §26.4(2).
- The Archeological Background Study shall conform to the current Review Standard for Archeological Background Studies, available from the City and/or State.
- Unless the ENGINEER has previously completed an Archeological Background Study for the project, the Archeological Background Study must define and consider all alternatives selected for detailed study, including all existing right of way, all proposed

new right of way, easements (temporary and permanent), and any other project-specific location designated by the City and/or State. The Archeological Background study shall consider the likely depth of impacts resulting from the proposed project. The location of all alternatives selected for detailed study shall be presented on a map or maps as part of the Archeological Background Study.

- For projects in which an Archeological Background Study has already been completed by the ENGINEER and the project has materially changed --affecting the project limits, proposed new right of way (if any), easements (if any), any other project-specific location designated by the City and/or State, and/or the depth of impacts -- the Archeological Background Study shall incorporate the previous study by reference and focus on the project changes.
- To conduct the Archeological Background Study, the professional archeologist shall undertake a review of existing data, including, but not limited to, the Texas Archeological Sites Atlas, geologic maps, soil maps, Potential Archeological Liability Map (PALM) of the project area (if applicable), aerial photographs, and historic maps. Based on this review, the Archeological Background Study shall identify and plot on a map the areas that require field investigation to evaluate the project's effects on archeological resources and cemeteries and shall identify the areas in which the proposed project would have no effect on archeological resources and cemeteries. The Archeological Background Study shall identify any areas proposed for field investigation where impacts are deep, extending beyond three feet in depth.
- If required, the Archeologist shall prepare an Archeological Survey Permit for submittal to TxDOT and Coordination through the Texas Historical Commission (THC).
- For areas identified, the Archeologist will conduct field based shovel testing according to THC specifications.
- Mechanical excavation and site curation would require supplemental work authorization.

7. AIR QUALITY STUDIES

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

The ENGINEER shall prepare the air quality section in accord with the current version of the City and/or State's Air Quality Handbook, and Air Quality toolkit. If the Air Quality Handbook requires it, the administrative record must contain and the ENGINEER shall prepare the

following air quality elements in the format prescribed in the specific SOP documents or other Air Quality toolkit documents:

- Conformity report form and applicable coordination,
- Hot-spot technical report and applicable coordination,
- CO TAQA technical report,
- Qualitative MSAT analysis,
- Quantitative MSAT technical report and conference call,
- CMP analysis,
- GHG analysis (only if it becomes a requirement in the Air Quality Handbook),
- Applicable disclosure City and/or Statements in the environmental document as prescribed in the SOP for Preparing Air Quality City and/or Statements,
- Air quality cumulative and indirect impacts analysis as specified in the Cumulative and Indirect Impacts Analysis section of this attachment and include a discussion of the analysis in the environmental document, and
- Response to public comments received on air quality issues.

8. TRAFFIC NOISE STUDIES

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

The ENGINEER shall:

- Perform a traffic noise analysis in accordance with the current version of the City and/or State's (FHWA approved) "Guidelines for Analysis and Abatement of Roadway Traffic Noise" The current version of the guidance is located on the City and/or State's Traffic Noise Toolkit website located at http://www.txdot.gov/inside-txdot/division/environmental/compliance-toolkits.html. Noise analyses shall be performed for all alternatives.
- Comply with all noise policy, guidelines and standards found on the City and/or State's Traffic Noise Toolkit website located at http://www.txdot.gov/inside-txdot/division/environmental/compliance-toolkits.html. . Upon request, the City and/or State shall provide the ENGINEER's Technical Expert with existing and predicted (future) traffic data and, when available, aerial photography.

- By project location site visit, identify adjacent, land use development and photo document representative receivers that might be impacted by highway traffic noise and may benefit from feasible and reasonable noise abatement.
- Determine existing and predicted noise levels for representative receivers, as follows:
  - For transportation activities on new location, take field measurements of existing noise levels. Field measurements shall be accomplished with sound meters that meet or exceed American National Standards Institute (ANSI) S1.4-1983, Type 2.
  - For transportation activities not on new location, perform computer modeling of existing noise levels and predicted (future) noise levels.
  - Computer modeling shall be accomplished with the latest FHWA approved Traffic Noise Model (TNM) software program which must be purchased at the expense of the ENGINEER's Technical Expert from the software distributor.
- Identify impacted receivers in accordance with the absolute and relative impact criteria.
- Consider and evaluate all required noise abatement measures for impacted receivers in accordance with the feasible and reasonable criteria.
- Propose noise abatement measures that are both feasible and reasonable.
- Determine predicted (future) noise impact contours for transportation activities where there is adjacent undeveloped property where residential or commercial development is likely to occur in the near future.

9. CLEAN WATER ACT SECTION 303(D)

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

The ENGINEER shall:

- Address all water quality studies in accordance with Section 303(d) of the Clean Water Act as administered by the Texas Commission on Environmental Quality (TCEQ).
- Identify if the project is located within five miles of an impaired assessment unit and within the watershed of the impaired assessment unit.
- Identify whether the project drains to any impaired assessment unit.
- Provide the location of the project within the watershed of the impaired assessment unit.
- Identify the impaired assessment unit number, segment name, and segment number.
- Identify the pollutant(s) in the discharge for which the water body is listed, and the year of the 303(d) list used in the assessment

- If the impaired assessment unit has a Total Maximum Daily Load that has been approved by the Environmental Protection Agency, provide:
  - the name and date of the Total Maximum Daily Load,
  - the name and date of any corresponding Implementation Plan, and
  - a discussion of whether the project is consistent with the approved Total Maximum Daily Load and Implementation Plan.
- If unit does not have a Total Maximum Daily Load that has been the impaired assessment approved by the Environmental Protection Agency, indicate:
  - that the impaired assessment unit does not have a Total Maximum Daily Load that has been approved by the Environmental Protection Agency, and
  - if the project could discharge the pollutant identified in (d) above. If yes, discuss measures that will be taken to prevent or reduce the likelihood of such a discharge.
- Discuss the Best Management Practices that will be used-particularly at the discharge point to the water body to meet other water quality regulations, such as vegetative swales, silt fencing, compliance with the Texas Pollutant Discharge Elimination System (TPDES).

10. DETERMINING IMPACTS TO WATERS OF THE UNITED CITY AND/OR STATES, INCLUDING WETLANDS

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

- The ENGINEER shall identify all waters within the boundaries of the project area.
- The ENGINEER shall make a preliminary determination of USACE jurisdiction. Restrict the level of effort to identification without formal delineation
- The ENGINEER shall delineate waters of the United City and/or States (WOUS), including wetlands.
  - Provide documentation which shall include all field work and compilation of field documentation for all WOUS, including wetland delineations. Wetland delineations shall be performed in accordance with the current USACE Wetlands Delineation Manual (Technical Report Y-87-1) and, if appropriate, the Great Plains, Arid West, or Atlantic and Gulf Coastal Plain Supplement to Technical Report Y-87-1.
  - Stake all WOUS boundaries in the field.
  - Map the boundaries of the WOUS with the global positioning system per guidance from the USACE-Galveston, and City and/or State the boundaries in the field.

- The ENGINEER shall provide a land survey of the WOUS boundaries within 48 hours of the completion of the delineation. The land survey shall follow the General Standards for Surveying.
- Draft and Final Deliverable.
  - The ENGINEER shall produce a draft and final report of the WOUS determinations and delineations. The draft report will be submitted to the City and/or State for review and approval by the City and/or State and USACE, if applicable. In the final report, address City and/or State and USACE comments from the draft report. The revised final report shall be delivered to the City and/or State within 10 days of receipt of comments from the City and/or State or USACE.
  - The location of all sites, cities, villages, highways, rivers and other features or place names discussed in the text and situated in the project locale shall be shown on the appropriate figure. All tables, figures and maps shall have a number, title, appropriate explanatory note and a source reference. In addition, where applicable, figures and all maps shall display a title, north arrow, scale, legend and source reference.
  - The report shall be in the following format:

    a) Cover Sheet

    In accordance with the City and/or State's NEPA MOU, on the cover page of the WOUS Determination and Delineation Report prepared under the authority granted by the MOU, the ENGINEER shall insert the following language in a way that is conspicuous to the reader or include in a CE project record:

    "The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT."

    b) Introduction

    i. Who authorized the WOUS delineation

    ii. Why the WOUS delineation is being done

    iii. Location of site (USGS 7.5' Map)

    iv. Date of field visit(s).

v. Identification of delineators.

c) Methods

i. Brief description of the method used.

ii. City and/or State any modification of the method.

iii. Source of existing information.

d) Results and Discussion

i. Description of the site.

ii. Topography of the site.

iii. Plant communities of the site.

iv. Soil types identified on the site.

v. Hydrology information of the site.

vi. Existing wetland mapping (e.g., NWI, City and/or State, and local).

e) Findings

i. Types of all WOUS identified on the site (e.g., Cowardin, et al. 1979).

- Description of WOUS identified.
- Locations of WOUS.
- Area of WOUS (in acres).
- Contrast with non WOUS.
- How was the WOUS boundary chosen (e.g., feature on landscape).

ii. Types of other waters identified on the site.

- Description of the other waters.
- Locations of the other waters.
- Area of the other waters.
- How was the other water boundary chosen (e.g., feature on landscape).

f) Conclusion.

i. Table summary of total area and types of all WOUS.

ii. A map showing the location of each WOUS, including wetlands, and where a Wetland Data Form was completed.

iii. City and/or Statement regarding the need for permits.

iv. Caution that final authority rest with the appropriate agencies.

g) Literature Cited.

h) Appendix (Routine Wetland Determination Data Forms and, if required, Atypical Situation Data Forms).

11. FLOODPLAIN IMPACTS

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

The ENGINEER shall determine whether the Transportation Activity has the potential to affect floodplains. Document Trinity River Corridor Development Certificate Regulatory Zone requirements (Dallas and Fort Worth Districts), and International Boundary Water Commission (IBWC) requirements (Transportation Activity within the floodplain of the Rio Grande) if the project is within the area covered by these regulations. Studies for floodplain impacts shall fulfill the requirements of Executive Order 11988 and 23 CFR 650, Subpart A.

- Briefly describe the watershed characteristics of the study area in terms of land uses and changes in land use that may affect stream discharge.
- Briefly describe the streams in the study area, including evidence of stream migration, down cutting, or aggradations.
- Identify the presence and nature (e.g., zone A, zone AE, zone AE with floodway) of any Federal Emergency Management Agency (FEMA) mapped floodplains. Include the panel number.
- Indicate the existence of any significant development associated with the mapped area and identify the jurisdiction responsible for the floodplain.
- Identify the locations where an alternative will encroach on the base (100-year) floodplain ("encroachments"), where an alternative will support incompatible floodplain development and the potential impacts of encroachments and floodplain development. This identification should be included in the text and on a map.
- Include a list of all jurisdictions having control over floodplains for each alternative.

- Where an encroachment or support of incompatible floodplain development results in impacts, the report shall provide more detailed information on the location, impacts and appropriate mitigation measures. In addition, if any alternative (l) results in a floodplain encroachment or supports incompatible floodplain development having significant impacts, or (2) requires a commitment to a particular structure size or type, the report shall include an evaluation and discussion of practicable alternatives to the structure or to the significant encroachment. The report shall include exhibits which display the alternatives, the base floodplains and, where applicable, the regulatory floodplains.
- For each alternative encroaching on a designated or regulatory floodplain, the report shall provide a preliminary indication of whether the encroachment would be consistent with or require a revision to the regulatory floodplain. If the preferred alternative encroaches on a regulatory floodplain, the report shall discuss the consistency of the action with the regulatory floodplain. In addition, the report shall document coordination with FEMA and local or City and/or State agencies with jurisdiction indicating that revision would be acceptable or that a revision is not required.
- If the preferred alternative includes a floodplain encroachment having significant impacts, the report shall include a finding that it is the only practicable alternative as required by 23 CFR 650, Subpart A. The finding shall refer to Executive Order 11988 and 23 CFR 650, Subpart A. In such cases the report shall document compliance with the Executive Order 11988 requirements and shall be supported by the following information:
  - The reasons why the proposed action must be located in the floodplain;
  - The alternatives considered and why they were not practicable; and
  - A City and/or Statement indicating whether the action conforms to applicable City and/or State or local floodplain protection standards;

12. STORMWATER PERMITS (SECTION 402 OF THE CLEAN WATER ACT)

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

The ENGINEER shall:

- Describe the need to use the TPDES General Permit, TX 150000. The text will describe how the project will comply with the terms of the TPDES, including the Stormwater Pollution Prevention Plan.

- Describe the need for Municipal Separate Storm Sewer System (MS4) notification. List MS4 participating municipalities.

13. USACE PERMITS

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

- Section 10 of the Rivers and Harbors Act (33 USC 403). The ENGINEER shall determine whether the Transportation Activity requires a Section 10 permit and upon approval by the City and/or State, prepare and submit permit applications to USACE and obtain the permits.
- Section 404 of the Clean Water Act (33 USC 1344). The ENGINEER shall determine whether the Transportation Activity requires a Section 404 permit (Nationwide or Individual Permit (IP)) and upon approval by the City and/or State, prepare and submit permit applications (Pre-Construction Notification (PCN) or individual permit application) to USACE and obtain the permits. PCNs and IPs will be prepared in accordance with current USACE policies and regulations.
- If the permit is an Individual Section 404 permit, upon approval by the City and/or State, prepare and submit a Tier 1 checklist or a Tier II 401 certification questionnaire and water quality certification documentation to TCEQ and USACE.
- The ENGINEER shall provide the City and/or State with documentation (including all original correspondence) of consultation with USACE and TCEQ.
- The ENGINEER shall keep the City and/or State informed during the permit coordination process.
- It is not anticipated that the Project will require a USACE Section 10 or Section 404 permit. The project is anticipated to fall under the thresholds of USACE Nationwide Permit 14 for Linear Transportation Projects. Additional work required to provide a Section 10 Permit, NWP 14 Pre-Construction Notice, and/or an Individual Permit would be done under a supplemental work authorization. The ENGINEER shall provide permitting documents and supporting information suitable for filing by the City and/or State.

14. USCG SECTION 9 PERMIT (33 USC 401)

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

The ENGINEER shall:

- Determine whether streams or other water bodies crossed by a proposed transportation facility are navigable as defined in the USCG Commandant Publication P16591.3A, "Bridge Permit Application Guide."
- Consult with the USCG to obtain Coast Guard concurrence on navigability and the need, if any, for a USCG Bridge Permit.
- Provide the City and/or State with documentation (including all original correspondence) of consultation with the Coast Guard.
- Upon approval by the City and/or State, submit permit application and obtain a USCG Bridge Permit for bridges crossing navigable waters. The permit(s) shall be obtained in accordance with the USCG Commandant Publication P16591.3A, "Bridge Permit Application Guide."
- It is not anticipated that the Project will require a USCG Section 9 Permit. Additional work required to provide a Section 9 Permit would be done under a supplemental work authorization. The ENGINEER shall provide permitting documents and supporting information suitable for filing by the City and/or State.

15. FISH AND WILDLIFE COORDINATION ACT (FWCA)

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

- The ENGINEER shall identify water body modifications and impacts to wildlife. The Fish and Wildlife Coordination Act (FWCA) applies to projects that would result in the control or modification of a natural stream or body of water and would require a Section 404 Individual Permit.

16. THREATENED OR ENDANGERED SPECIES

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

The ENGINEER shall perform biological services.

a. Surveys for Protected Species or Habitat of Protected Species based on the most current City and/or State and TPWD Memorandum of Understanding (MOU Effective 2013.) The ENGINEER shall:
    - o Perform surveys of protected species or habitat of protected species. This shall include:

- All species listed by the United City and/or States Fish and Wildlife Service (USFWS) as threatened or endangered or proposed for listing as threatened or endangered (50 CFR 17.11-12),
- All species that are candidates for review for listing by USFWS as threatened or endangered (per most recently updated list in Federal Register),
- Species listed as threatened or endangered species or species of greatest conservation need (SGCN) by the City and/or State of Texas Threatened and Endangered Species Listings, Texas Park and Wildlife Department (TPWD),
- Species protected by the Migratory Bird Treaty Act (50 CFR 10.13) and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).
- For projects located within United City and/or States Fish and Wildlife Service (USFWS) Karst Zones 1, 2, 3, and 4, a karst invertebrate habitat survey shall be performed, and must be signed and sealed by a Texas licensed Professional Geoscientist (P.G.)

o Examine existing data to determine the likelihood that rare species, protected species, their habitat, or designated critical habitat (per 50 CFR §17.94-95) could be impacted by the Transportation Activity. Existing data shall include the Element Occurrence Identification (EOID) records of the TPWD Natural Diversity Database, following the Guidelines set forth in the most current version of TPWD's Guidelines for TXNDD Data Analysis in TxDOT Environmental Documents.

o It is not anticipated that the Project will provide habitat for Threatened and Endangered Species. Should habitat be present or Threatened and Endangered Species individuals are identified in the project area, the following tasks would be provided under a supplemental agreement:

  o Perform an effect determination pursuant to the Endangered Species Act (ESA) for all federally listed species. A determination of impact must be included for all City and/or State-listed species. The determination of effect and impact must be supported by evidence, and may require a detailed assessment. Any technical reports used to support the determination(s) must be referenced and provided to the City and/or State.

  o Determine whether critical habitat is present in the study area and whether the Transportation Activity will affect that critical habitat.

  o Perform species-specific habitat surveys, presence or absence surveys for protected species, or critical habitat (per 50 CFR 17.94-95) and rare species.

- Conduct surveys for the presence or absence of protected species according to protocols adopted by USFWS and TPWD for all protected species for which such protocols have been established.
- Personnel conducting presence or absence surveys for protected species shall hold appropriate USFWS and TPWD permits at the time surveys are performed.
- Conduct presence or absence surveys during the time of the year appropriate for each species. If the ENGINEER's Technical Expert believes that a work authorization to conduct a presence or absence survey does not adequately consider timing of the survey, notify the City and/or State as soon as the issue with the survey timing is recognized.
- Furnish the City and/or State with completed Biological Evaluation Form and ENGINEER's Technical Expert's field notes.
- Coordinate between the City and/or State and USFWS or TPWD as directed by the City and/or State to verify proper rules, regulations and policies are followed for biological services. All coordination between the ENGINEER's Technical Expert and resource agencies shall be approved in advance by the City and/or State.

b. Habitat Analysis and Characterization of Project Study Area. The ENGINEER shall perform an analysis and characterization of habitat and habitat impacts for the study area and documented on the Biological Evaluation Form. The habitat analysis shall be based on the most current City and/or State and TPWD MOU and associated Programmatic Agreements.
   - For transportation activities involving no new right-of-way or easements, including temporary easements, this includes:
     - The habitat descriptions of habitat types (e.g., forested, prairie, riparian, floodplain, rangeland, agricultural) in the study area are based upon the 2013 MOU.
     - The habitat description shall indicate the vegetative type(s) listed for the study area in the 2013 MOU.
     - The habitat description shall include a description of the existing vegetation within and adjacent to the right-of-way, as per the 2013 MOU.
     - The habitat description shall describe habitat for protected species if such habitat occurs within or adjacent to the right-of-way.
     - The description shall be supplemented with topographic maps (based on USGS 7.5' maps, aerial photos, on-site photographs and per the 2013 MOU.

- Maps and aerial photos shall be annotated to indicate the locations and areas of distinct vegetative types if any have been identified during field inspections.
- Photographs shall illustrate representative vegetation for each vegetation type. Aerial photographs (with dates) shall be provided when available.

o If the vegetation within the right-of-way does not match the description as per the 2013 MOU or if there is an unusual difference between the vegetation in the right-of-way and outside the right-of-way, details shall be included in the description to clearly explain the differences in vegetative content between the existing vegetation and the 2013 MOU 4)

For transportation activities involving new right-of-way or easements, including temporary easements, the habitat description shall address the entire study area. For projects with multiple alternatives, all alternatives shall be described to the same level of detail. If lack of access to the new location right-of-way limits field observation for the habitat description, existing published sources shall be used to provide an estimate. All elements of description required for projects with no new right-of-way (above) shall be included. Land use within and outside the proposed right-of-way shall be described. In addition, the description of vegetation in the new right-of-way or easements shall include the following:

- Dominant Species for each vegetation stratum (i.e., tree, shrub, vine, herbaceous [grass and forbs]) present,
- Height of trees (range), if present,
- Diameter at Breast Height (DBH) of trees (range and average), if present,
- Percent canopy cover of trees, if present,
- Acreage for each vegetation type present.

o The habitat analysis shall contain a description of anticipated impacts to the following:

- Any vegetation, broken down by plant community (as above),
- Unusual vegetation features (as above),
- Special habitat features (as above),
- Habitat for any protected species (as above),
- Any other habitat feature identified by and considered to be important to the City and/or State's District.

  Note: The description of anticipated impacts shall be based on impacts that can be predicted as a result of construction activities and the kind(s) of facility proposed for the Transportation Activity. If the ENGINEER's Technical Expert believes that the City and/or State has not provided sufficient engineering and

other data to support a description of anticipated impacts, notify the City and/or State, and the ENGINEER's Technical Expert and the City and/or State shall negotiate an appropriate level of description of anticipated impacts.

c. Survey Reports and Habitat Analyses included in the appendices of the Biological Evaluation Form must follow all guidelines and requirements as specified by the TxDOT Environmental Compliance Toolkits.

17. INVASIVE SPECIES

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

The ENGINEER shall address Executive Order 13112 on Invasive Species as per the Ecological Resources Handbook (TxDOT Environmental Online Toolkit).

18. ESSENTIAL FISH HABITAT

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

The ENGINEER shall perform Essential Fish Habitat studies. Studies shall fulfill the requirements of 50 CFR 600.920.

The ENGINEER shall:

- Determine if Essential Fish Habitat is present in the project area.
- Determine if the project will adversely affect Essential Fish Habitat.
- Describe adverse impacts, if any. (If Essential Fish Habitat will be impacted, then consultation is required)

19. BENEFICIAL LANDSCAPING

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

Address Executive Memorandum on Beneficial Landscaping of April 26, 1994 as per the Ecological Resources Handbook (TxDOT Environmental Online Toolkit).

20. FARMLAND IMPACTS

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

Determine farmland impacts. Identification of farmland impacts shall be in accord with the Farmland Protection Policy Act (FPPA) (7 USC 4201 et. seq.) and the Ecological Resources Handbook (TxDOT Environmental Online Toolkit) guidance on addressing FPPA, which includes determining whether the project is exempt or completion of form AD 1006 or CPA 106 as appropriate.

21. INITIAL ASSESSMENT OF HAZARDOUS MATERIALS IMPACTS

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

The ENGINEER shall:

- The ENGINEER shall perform an Initial Site Assessment (ISA) for potential hazardous materials impacts for the limits of the study area. The ENGINEER is responsible acquiring the latest version of TxDOT's Hazardous Materials Initial Site Assessment (ISA) located in the Hazardous Materials Toolkit (http://www.txdot.gov/inside-txdot/division/environmental/compliance-toolkits/haz-mat.html).
    - Note: The ISA shall determine the potential for encountering hazardous materials in the study area, including possible environmental liability, increased handling requirements (e.g. soil or groundwater), and potential construction worker health and safety issues.
    - Note: The ENGINEER is responsible for reviewing and being familiar with the City and/or State's guidance related to the development of the ISA and the Hazardous Material process. All guidance and information related to this can be found on the Hazardous Materials Toolkit.
- Produce and submit to the City and/or State a completed ISA using the City and/or State's ISA Environmental Compliance Toolkit guidance format.
- The ENGINEER's completed ISA shall include, when applicable, full copies of list search reports, including maps depicting locations, copies of agency file information, photographs, recommendations, and any other supporting information gathered by the ENGINEER to complete the ISA.

- Based on the ISA information, the ENGINEER shall provide the City and/or State a report discussing the known or potential hazardous materials impacts suitable for inclusion in the environmental document. The report of hazardous materials impacts shall include, when applicable:
    - A concise summary of relevant information gathered during the ISA, including sufficient information to show that the study area for the Transportation Activity was adequately investigated for known or potential hazardous material contamination.
    - A concise description of the scope of the hazardous materials ISA, disclosure of any limitations of the assessment, and a City and/or Statement indicating who performed the assessment.
    - A concise summary of the findings of the assessment for each alternative considered, along with an opinion of the potential of an identified site to impact the project during construction.
    - A discussion of any commitments recommended for performing further investigation of suspect areas, and justification for postponement of further investigation.
    - A summary of efforts to be employed by the City and/or State to avoid or minimize involvement with known or suspected hazardous material contamination sites during construction, and justification for not avoiding contaminated sites within the preferred alternative or corridor alignment.
    - Disclosure of known or suspected hazardous material contamination that is anticipated to be encountered during construction.
    - A discussion of any required or recommended special considerations, contingencies or provisions to handle known or suspected hazardous material contamination during right-of-way negotiation and acquisition, property management, design and construction.
    - A summary of any early coordination or consultation conducted with the regulatory agencies, local entities or property owners.
    - A discussion of any further hazardous materials related coordination with, and approvals or permits required from, the regulatory agencies or other entities.
- Should the findings of the ISA conclude that additional investigation, special considerations, or other commitments from the City and/or State are required during future stages of project development, the ENGINEER shall review those findings and commitments with the City and/or State prior to completing the hazardous materials discussion for the environmental document.

22. SECTION 4(F) EVALUATIONS.

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

- Determine Section 4(f) impacts in compliance with U.S. Transportation Act. The ENGINEER will identify any Section 4(f) properties that may be impacted by the Project. The ENGINEER will work with the City and/or State to avoid impacts to the Section 4(f) properties.
- The 4(f) Section of the environmental document shall document all data necessary to address to the satisfaction of the City and/or State potential use of Section 4(f) properties in accordance with 23 CFR 774.
- It is not anticipated that the Project will require evaluation of a Section 4(f) impact. Additional work required to evaluate, mitigate, and coordinate a Section 4(f) property impact would be done under a supplemental work authorization.
- All Section 4(f) evaluations shall meet the requirements set forth in the City and/or State's Environmental Compliance Toolkit guidance.

23. SECTION 6(F) EVALUATION

(This scope is for the corresponding section(s) as listed in the Affected Environment and Environmental Consequences section of the EA.)

- The ENGINEER shall determine if Land and Water Conservation Fund Act funds were used for the Section 4(f) property in accordance with the regulatory requirements and TPWD guidelines.

24. REFERENCE DOCUMENTS

The ENGINEER shall adhere to the content of TxDOT's On-Line Environmental Compliance Toolkit guidance

The scope, if executed, would provide an environmental assessment (EA) for coordination through TxDOT. Should that scope change as a result of design changes, or per guidance from TxDOT, then additional work shall be provided under a supplemental work authorization.

E. PUBLIC INVOLVEMENT (23 CFR §771.111)

(This scope is for the corresponding section(s) as listed in the Public Involvement section of the EA.)

The ENGINEER shall:

- Perform public involvement activities in accordance with TAC, Title 43, Part 1, Chapter 2 and 36 CFR 800.2.
- Develop a plan for public involvement activities. The Public Involvement Plan (PIP) shall specify all activities to be performed and alternatives to be discussed during public involvement activities and address the cultural and human environmental potential impacts. Public involvement activities must be carried out in compliance with EO 13166 and EO 12898. The plan shall also discuss outreach strategies for both the general public and targeted strategies for Environmental Justice and Limited English Proficiency populations.
- Compile, maintain and update a mailing list of people, agencies and organizations interested in the Transportation Activity.
- Make all arrangements and pay for meetings with stakeholders, public meetings and hearings, including the site of the meetings, mailing and publishing notices, preparation of exhibits, provision for taping or transcription of proceedings, and any other arrangements as directed by the CITY. The ENGINEER's Technical Expert shall not hold public meetings or hearings in the absence of City and/or State personnel.
    - Stakeholder Meetings, assume a maximum of four (4)
    - Public Meetings, assume a maximum of two (2)
    - Public Hearing, assume a maximum of one (1)
- Submit all legal notices to the CITY for review no less than two weeks prior to publication.
- Arrange a meeting with the CITY to review all exhibits and other materials to be used prior to public meetings or hearings.
- Obtain the CITY's approval for all legal notices, exhibits, and other materials.
- Provide personnel to staff meetings and hearings, including a translator and people to perform registration, make presentations, and answer questions. Staffing levels of personnel to be provided shall be identified.
- Develop and submit to the CITY a public meeting documentation packet consistent with the CITY AND/OR STATE's Environmental Compliance Toolkits. The documentation packet shall be included in the environmental document.
- Develop and submit to the CITY and CITY AND/OR STATE a report consistent with the Environmental Compliance Toolkits

- Develop and send acknowledgement letters and response letters to commenters at public meetings or hearings. The ENGINEER's Technical Expert shall not distribute acknowledgement or response letters without prior approval by the CITY.
- Develop, publish, and distribute a newsletter on the Transportation Activity, including compiling and maintaining a mailing list, if directed by the City and/or State. The ENGINEER's Technical Expert shall not distribute the newsletter without prior approval by the City and/or State.

F. TOPOGRAPHIC MAPPING/DESIGN SURVEYS

The Surveyor shall utilize Aerial Photography and Aerial Light Detection and Ranging (LiDAR) services, as well as ground-based GPS data collection, conventional and terrestrial scanning methods, to produce Planimetry and a Digital Terrain Model (DTM) with one (1) foot contours for the City's proposed feasibility study. This is requested generally along Hickory Creek Road, in Denton County. Mapping, shall be provided for an approximately 1400' foot wide corridor centered on the existing projected alignment. All work shall be performed on City and/or State Plane Coordinate System NAD 83 (2011), GEOID 12B, and adjusted to the Denton County Surface Adjustment Factor (SAF) of 1.00015063.

1. PRIMARY CONTROL

The Surveyor will utilize a REAL TIME Network (RTN) to set 22 aerial panel points throughout the project at pre-determined locales, collect data on each panel, verify up to four (4) existing City of Denton control monuments, and set up to six (6) new control monuments (to TxDOT Type II standards or equivalent markers in stable concrete structures) via Leica SmartNet RTN utilizing the current TXDOT GPS Positioning Specifications for a Level 3 Survey and a level loop (either 3-wire or digital) through each control point. The combined total number of control points verified and/or set throughout the project shall not exceed ten (10) total monuments.

Deliverables: The Surveyor shall provide a 3D MicroStation V8i file, ASCII files of surface coordinates, two (2) sets of signed and sealed 11"X17" control data sheets, and photos of each primary control point in digital format. The Surveyor shall also produce an 11"x17" Survey Control Index Sheet showing the overall project site and the locations of the primary survey control set throughout the limits of the project. One copy of all deliverables in electronic format on external digital media is required.

2. SECONDARY CONTROL

The Surveyor shall set additional secondary control, as necessary, to perform topographic mapping and Right of Way mapping utilizing the current TXDOT GPS Positioning Specifications for a Level 3 Survey. Control Data Sheets will not be prepared for any control monuments located under this task.

Deliverables: The Surveyor shall provide a 3D MicroStation V8i file, ASCII files of surface coordinates, and photos of each primary control point in digital format. One copy of all deliverables in electronic format on external digital media is required.

3. RIGHT-OF-ENTRY

The Surveyor shall prepare Right-of-Entry (ROE) permission letters for approximately 100 landowners within the project limits to be mailed by Certified Mail (Return Receipt requested) to property owners for which entry onto their property may be required to collect obscured survey data, set flight panels, collect creek cross sections, etc. A written response will be requested either permitting or denying ROE. The Surveyor will make reasonable attempts to contact each landowner verbally prior to conducting any fieldwork if a written response is not received. This is limited to two mailing attempts. The Surveyor shall only access properties with documented land owner permission and shall comply with all reasonable requests made known by said landowners. A log with landowner permissions will be maintained.

Deliverables: PDF copy of ROE log spreadsheet along with copies of mailed right-of-entry letters and received return receipts. One copy of all deliverables in electronic format on external digital media is required.

4. AERIAL MAPPING

The Surveyor shall acquire Aerial Photography for Planimetry and LiDAR point cloud data 700 feet left and right of the project center line, as well as mapping side streets up to 300 feet from centerline, with no cross flights being necessary. The photography shall be obtained under clear skies with the absence of any environmental factors which may obscure conditions such as haze, smoke, dust, snow, floodwaters etc. Photos shall be obtained at a sun angle no less than 30 degrees sun up. Digital Orthophotos shall be produced at a 0.25-foot pixel resolution. The Surveyor shall electronically tone, balance and digitally rectify and mosaic the aerial images into a seamless dataset. The mosaic images shall be cut into tiles that match the LiDAR and ground-based survey. The Surveyor shall convert the aerial photography to TIFF and ECW formats and reduce the file size of the individual tiles to no more than 10 megabytes each.

Deliverables: Aerial photography in TIFF and Enhanced Compressed Wavelet (ECW) format cut into tiles that match the LiDAR point cloud data for the overall limits of Hickory Creek Road. One copy of all deliverables in electronic format on external digital media is required.

5. GROUND TRUTHING

The Surveyor shall provide twenty-five (25) ground truthing points throughout the project. Sixty percent of all ground truthing points shall be collected on hard or roadway surfaces, with the remaining forty percent collected on either natural ground surfaces or hard surfaces.

Deliverables: The Surveyor shall provide a CSV file to the Aerial Mapper for inclusion in QA/QC process of the Aerial Mapping/LiDAR product.

6. DRAINAGE AND CREEK CROSS SECTIONS

The Surveyor shall tie all drainage outfalls throughout the limits of the apparent ROW, using ground-based GPS data collection and conventional surveying methods, collecting flowlines, headwalls, wing walls, within the limits of the apparent ROW. This shall include all culvert types, including bridge class culverts, culvert crossings of Hickory Creek Road, and all driveway culverts within the apparent ROW along Hickory Creek Road. The Surveyor shall note the type, size and length of the structures at each outfall location and provide georeferenced photos of each structure and cross section with field sketches.

The Surveyor shall also collect accurate data on 5 creek crossings of Hickory Creek Road with approximately 7 cross sections per creek. Each cross section at the 5 creeks will include: toe and top of bank shots, grade break shots, at least 2 flowline shots, and 100 feet past the top of bank (overbank) or to the closest privacy/property fence. Each existing culvert/bridge structures details will include: opening dimension, top of rail, low chord at both ends of each side, inverts, columns locations and widths, etc. Surveyor will locate the Finished Floor elevation of 2 residential structures, if possible and with landowner permission.

All ground-based GPS and conventional surveying shall be cut into tiles that match the LiDAR and Aerial Photography dataset. The Surveyor shall also collect the same data for any culverts along intersecting public roads up to 300 feet, left and right of the centerline of Hickory Creek Road. The Surveyor shall locate and tie approximately 50 drainage structures within the limits of the project.

Deliverables: The Surveyor shall provide a 3D MicroStation V8i file, ASCII files of surface coordinates, and photos of each drainage structure in digital format. One copy of all deliverables in electronic format on external digital media is required.

7. AERIAL TOPOGRAPHIC MAPPING

The surveyor shall capture LiDAR point cloud data and aerial photography using aircraft mounted sensors at an altitude equivalent to the width (1400 feet) of the project. LiDAR data shall be processed using TxDOT style feature code library to identify all ground-based features. Ground feature collection, DTM, Triangulated Irregular Network (TIN), DATA (DAT) files, and 1-foot contours shall be extracted from the LiDAR point cloud data, supplemented with ground-based GPS and Ortho -rectified photography. Aerial processing and feature collection shall include but not be limited to, all visible surface utilities including, overhead power lines and associated service poles, drainage structures, text and inscriptions on roadway regulatory signs (excluding text and inscription for advertising signs), mailboxes, driveways, parking areas, building footprints, edge of pavements, creek channels, grade breaks, flow lines, fence lines, ruins, cemeteries, man holes, fire hydrants, and any other feature visible and appropriate for 1” = 50’ scale mapping. The processed LiDAR data shall be cut into tiles that match the aerial photography and ground-based survey and reduce the file size of the individual tiles to no more than 10mb each. The Surveyor shall incorporate all previous tasks into Task 4 and deliver the final product on duplicate digital media acceptable to the City.

Deliverables: A DTM with 1-foot contours including ground-based Flow Line and outfall structures in MicroStation 2D and 3D file format. LiDAR point cloud data in LAS file format cut into tiles that match the aerial photography. A TIN file cut into tiles that match the aerial photography and LiDAR point cloud data. A separate DAT and ASCII file cut to match each associated aerial photography and LiDAR point cloud tile. In addition, orthorectified mapping at the appropriate scale with all requested planimetry will be provided. One copy of all deliverables in electronic format on external digital media is required.

8. ELEVATED STRUCTURE TOPOGRAPHIC SURVEYING

The Surveyor shall classify the aerial LiDAR data in conjunction with any additional data collected by GPS, conventional or traditional methods, to determine the bridge surfaces, elevations of Direct Connectors (DC's) and span lengths, without any need for high-level detail underneath the bridges. The Surveyor shall collect break line data of the bridge centerline and bridge surfaces edges. Break line data shall be merged with the LiDAR surface data and used

to construct a DTM of the bridge surface. From the data, the Surveyor shall determine contours of the bridge surface at 1-foot intervals.

Deliverables: A DTM with 1-foot contours of the elevated structure decking in a 3D MicroStation file format. One copy of all deliverables in electronic format on external digital media is required.

9. SUPPLEMENTAL TOPOGRAPHIC SURVEYING

In areas where the ground and improvements are not visible due to tree canopy, dense vegetation or ground cover, these area(s) shall be outlined and described as, “Obscured”, in the final deliverables. Areas where ROE has not been granted shall be outlined and described as “Inaccessible”. Once these areas have been identified, the Surveyor shall collect ground-based data in all areas necessary where ROE has been approved and obscured to the aerial data collection, to be collected by either GPS, conventional, or terrestrial scanning methods. These areas shall be determined once the aerial data has been extracted and a preliminary plan file has been created to identify the areas which lack dense vertical returns from the aerial flight data. These areas shall be merged into the final Plan and DTM model deliverables. Supplemental topography located within obscured areas shall be limited. Obscured areas shall be prioritized by the City/Consultant ENGINEER PM and field effort will be expended to its limit of authorized and estimated effort, based upon that prioritization.

Deliverables: The Surveyor shall provide a 3D MicroStation V8i file and ASCII files of surface coordinates in digital format. One copy of all deliverables in electronic format on external digital media is required.

10. ROW BASE MAP

The Surveyor shall identify the location of the existing or apparent ROW lines of Hickory Creek Road within +/- 1.0 foot by incorporating and analyzing existing and proposed ROW plans obtained from various sources, to be combined with an on-the-ground field survey of existing monuments. The information collected shall be used to produce an existing ROW MicroStation base file consisting of points found and calculated, and the associated line work with the included geometry and at all break points.

Deliverables: The Surveyor shall provide a 2D and a 3D MicroStation V8i file of the existing ROW in digital format. One copy of all deliverables in electronic format on external digital media is required.

G. SUBSURFACE UTILITY ENGINEERING

The ENGINEER shall complete a Quality Level B subsurface utility engineering (SUE) investigation (inclusive of Quality Levels C and D) of the full project limits within the existing and proposed right-of-way of Hickory Creek Road, estimated at up to 8,500 LF of Quality Level B at 13 intersections 200’ in each direction and up to 50,000 LF of Quality Level C and D. The ENGINEER shall complete thirty (30) Quality Level A test holes as needed at potential utility conflict locations.

Utility Engineering Investigation (Subsurface Utility Engineering) includes utility investigations subsurface and above ground prepared in accordance with AASHTO standards [ASCE C-1 38-02 (http://www.fhwa.dot.gov/programadmin/asce.cfm)] and Utility Quality Levels.

A. UTILITY QUALITY LEVELS

Utility Quality Levels are defined in cumulative order (least to greatest) as follows:

1. Quality Level D - Existing Records: Utilities are plotted from review of available existing records- (assume full project limits within the existing and proposed ROW).

2. Quality Level C - Surface Visible Feature Survey: Quality level "D" information from existing records is correlated with surveyed surface-visible features. Includes Quality Level D information. If there are variances in the designated work area of Level D, a new schematic or plan layout will be necessary to identify

the limits of the proposed project and the limits of the work area required for the work authorization; including highway stations, limits within existing or proposed right of way, additional areas outside the proposed right of way, and distances or areas to be included along existing intersecting roadways (assume full project limits within the existing and proposed ROW).

3. Quality Level B - Designate: Two-dimensional horizontal mapping. This information is obtained through the application and interpretation of appropriate non-destructive surface geophysical methods. Utility indications are referenced to established survey control. Incorporates quality levels C and D information to produce Quality Level B. If there are variances in the designated work area of Level D, a new schematic or plan layout will be necessary to identify the limits of the proposed project and the limits of the work area required

for the work authorization; including highway stations, limits within existing or proposed right of way, additional areas outside the proposed right of way, and distances or areas to be included along existing intersecting roadways (assume up to 750,000 LF).

4. Quality Level A - Locate (Test Hole): Three-dimensional mapping and other characterization data. This information is obtained through exposing utility facilities through test holes and measuring and recording (to appropriate survey control) utility/environment data. Incorporates quality levels B, C and D information to produce Quality Level A (assume up to 30 test holes).

B. DESIGNATE (QUALITY LEVEL B)

Designate means to indicate the horizontal location of underground utilities by the application and interpretation of appropriate non-destructive surface geophysical techniques and reference to established survey control. Designate (Quality Level B) Services are inclusive of Quality levels C and D.

The ENGINEER shall:

1. As requested by the City compile "As Built" information from plans, plats and other location data as provided by the utility owners.

2. Coordinate with utility owner when utility owner's policy is to designate their own facilities at no cost for preliminary survey purposes. The ENGINEER shall examine utility owner's work to assess accuracy and completeness.

3. Designate, record, and mark the horizontal location of the existing utility facilities and their service laterals to existing buildings using non-destructive surface geophysical techniques. No storm sewer facilities are to be designated unless authorized by the City. A non-water base paint, utilizing the APWA color code scheme, must be used on all surface markings of underground utilities.

4. Correlate utility owner records with designating data and resolve discrepancies using professional judgment. A color-coded composite utility facility plan with utility owner names, quality levels, line sizes and subsurface utility locate (test hole) locations, shall be prepared and delivered to the City. It is understood by both the ENGINEER and the City that the line sizes of

designated utility facilities detailed on the deliverable are from the best available records and that an actual line size is normally determined from a test hole vacuum excavation. A note must be placed on the designate deliverable only that City and/or States "lines sizes are from best available records". All above ground appurtenance locations must be included in the deliverable to the City. This information shall be provided in the latest version of Micro Station or Geopak used by the City. The electronic file will be delivered on CD or DVD, as required by the City. A hard copy is required and must be signed, sealed, and dated by the ENGINEER. When requested by the City, the designated utility information must be over laid on the City's design plans.

5. Determine and inform the City of the approximate utility depths at critical locations as determined by the City. This depth indication is understood by both the ENGINEER and the City to be approximate only and is not intended to be used preparing the right of way and construction plans.

6. Provide a monthly summary of work completed and in process with adequate detail to verify compliance with agreed work schedule.

7. Close-out permits as required.

8. Clearly identify all utilities that were discovered from Quality Level C and D investigation, but cannot be depicted in Quality Level B standards. These utilities must have a unique line style and symbology in the designate (Quality Level B) deliverable.

9. Comply with all applicable City policy and procedural manuals.

C. SUBSURFACE UTILITY LOCATE (TEST HOLE) SERVICE (QUALITY LEVEL A)

Locate means to obtain precise horizontal and vertical position, material type, condition, size and other data that may be obtainable about the utility facility and its surrounding environment through exposure by non-destructive excavation techniques that protects the integrity of the utility facility. Subsurface Utility Locate (Test Hole) Services (Quality Level A) are inclusive of Quality Levels B, C, and D.

The ENGINEER shall:

1. Review requested test hole locations and advise the City in the development of an appropriate locate (test hole) work plan relative to the existing utility infrastructure and proposed highway design elements.
2. Coordinate with utility owner inspectors as may be required by law or utility owner policy.
3. Neatly cut and remove existing pavement material, such that the cut not to exceed 0.10 square meters (1.076 square feet) unless unusual circumstances exist.
4. Measure and record the following data on an appropriately formatted test hole data sheet that has been sealed and dated by the ENGINEER:
    a. Elevation of top and/or bottom of utility tied to the datum of the furnished plan.
    b. Identify a minimum of two benchmarks utilized. Elevations shall be within an accuracy of 15mm (.591 inches) of utilized benchmarks.
    c. Elevation of existing grade over utility at test hole location.
    d. Horizontal location referenced to project coordinate datum.
    e. Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems.
    f. Utility facility material(s).
    g. Utility facility condition.
    h. Pavement thickness and type.
    i. Coating/Wrapping information and condition.
    j. Unusual circumstances or field conditions.
5. Excavate test holes in such a manner as to prevent any damage to wrappings, coatings, cathodic protection or other protective coverings and features. Water excavation can only be utilized with written approval from the appropriate City Office.
6. Be responsible for any damage to the utility during the locating process. In the event of damage, the ENGINEER shall stop work, notify the appropriate utility facility owner, the City and appropriate regulatory agencies. The regulatory agencies include, but are not limited to the Railroad Commission of Texas and the Texas Commission on Environmental Quality. The ENGINEER shall not resume work until the utility facility owner has determined the corrective action to be taken. The ENGINEER shall be liable for all costs involved in the repair or replacement of the utility facility.
7. Back fill all excavations with appropriate material, compact backfill by mechanical means, and restore pavement and surface material. The ENGINEER shall be responsible for the integrity of the backfill and surface restoration for a period of three years. Install a marker ribbon throughout the backfill.

8. Furnish and install a permanent above ground marker (as specified by the City, directly above center line of the utility facility.
9. Provide complete restoration of work site and landscape to equal or better condition than before excavation. If a work site and landscape is not appropriately restored, the ENGINEER shall return to correct the condition at no extra charge to the City.
10. Plot utility location position information to scale and provide a comprehensive utility plan sign and sealed by the responsible ENGINEER. This information shall be provided in the latest version of Micro Station or Geopak format used by the City. The electronic file will be delivered on C.D or DVD. When requested by the City, the Locate information must be over laid on the City's design plans.
11. Return plans, profiles, and test hole data sheets to the City. If requested, conduct a review of the findings with the City.
12. Close-out permits as required.

Deliverables:

The ENGINEER shall provide to the following deliverables for the appropriate assigned task:

- Field and CADD base mapping, in Microstation 2D format, for all SUE level investigations with facilities noted including applicable level of SUE performed, date services performed, type and size of facility, and ownership data of the facility.
- PDF of SUE Level A Test Hole Data sheets.
- Utility Layout Sheets are not included in this scope

H. RIGHT OF WAY MAPPING

The Surveyor shall perform surveying services generally described as Right of Way Mapping for the creation of Property Descriptions for Hickory Creek Road from approximately Riverpass Road to InterCity and/or State 35W. This includes up to 21 Property Descriptions.

The Surveyor shall create an Abstract Map. The Surveyor shall create Right of Way Map Sheets which will include a Title Sheet, Control Sheet, and Right of Way Plan Sheet. The Surveyor shall define and establish the boundary lines adjoining the highway facility of all parent tracts where a property interest will be acquired from the parent tract or is located within the project limits for this Right of Way Mapping Project. The Surveyor shall define all existing right of way boundaries along with all existing property rights of record, discovered during the ordinary course of the Surveyor's research (fee, easement, and access rights) of the roadways

located within the limits of this Right of Way Mapping Project. All adjoining property owners shall be identified and permission to survey on their property shall be requested, if required. The Surveyor shall research and locate all recorded and visible utility transmission easements located with the Project limits. Monuments consisting of 5/8" iron rods with plastic caps or other suitable and equivalent markers shall be set at all break points on the new Right of Way Lines and the existing Right of Way Lines, which are not being replaced by the new right of way lines, within the project limits. The surveyor is not required to set any TxDOT Type II style Right of Way monuments. The Surveyor shall create Property Descriptions (exhibit A Documents) for all parcels to be acquired for this Right of Way Mapping Project.

1. ABSTRACTING AND OWNERSHIP LIST

The Surveyor shall research public records to obtain names, physical addresses, mailing addresses, and telephone numbers, if available, of all property owners that adjoin and are within the ROW Mapping project limits. The surveyor shall fill out an Excel Spread sheet with the found information. The Surveyor shall obtain copies of all parent tract recorded deeds and current subdivision plats within the project limits and obtain copies of all existing right of way deeds within the project limits.

Deliverables: The excel spread sheet that includes information of all property owners within the described limits.

2. RIGHT OF ENTRY LETTERS

The Surveyor shall re-notify landowners by letter, email or phone contact before accessing properties for Right of Way Mapping. This will include sending Right of Entry letters to those landowners that were non-responsive in the first notification during the topographic survey and new landowners. This is limited to two mailing attempts. Surveyor shall coordinate the data to verify that private property will not be entered onto where no right of entry has been obtained.

Deliverables:

Updated PDF copy of ROE log spreadsheet along with copies of new mailed right-of-entry letters and received return receipts.

3. VERIFY EXISTING CONTROL

The Surveyor shall verify existing project control as set in the topographic surveying Task.

Deliverables:

Provide a spread sheet showing control residuals.

4. INTERIM ROW MAP SHEET AND PROPERTY DESCRIPTIONS

The Surveyor shall provide one ROW map sheet and two Property Descriptions (stamped Preliminary and unsigned) that are shown on the ROW map sheet, to the City/Subconsultant ENGINEER for review for formatting purposes and content.

Deliverables:

A scanned PDF of on one map sheet (22" x 34") and two Property Descriptions (unsigned) that are shown on the ROW map sheet. Products for this task shall be reviewed only once.

5. ABSTRACT MAP

The Surveyor shall create an Abstract Map for the ROW Mapping Project. The final Micro-Station files that define the locations of the new right of way lines, easement lines, denial of access lines and project baselines shall be overlaid onto the Abstract Map. Parcel numbers shall be assigned and shown on the Abstract Map. The Surveyor shall locate and recover survey monuments located on the existing ROW lines, adjoining property corners and rear property corners where right of entry has been granted.

Deliverables:

An electronic file of the Abstract Map containing all electronic files to reprint the map, shall be provided.

6. PROPERTY DESCRIPTIONS

The Surveyor shall create up to 21 Property Descriptions for the Parcels generally along Hickory Creek Road from approximately Riverpass Road to InterCity and/or State 35W. The Surveyor shall include all fee, easements, and affidavit parcels. The Surveyor shall provide scanned PDF's of all preliminary Property Descriptions and any preliminary ROW map sheets for review before the submittal of Signed and Sealed Property Descriptions.

Deliverables:

One set of Property Descriptions each with original signatures and seals, and one set of Parcel Calculation sheets. A CD with PDF's of each description, calculation sheets.

7. RAILROAD PROPERTY TOPO AND DESCRIPTIONS

The Surveyor shall create Property Descriptions for one (1) Parcel each along the Union Pacific Railroad and the Burlington Northern Railroad ROW's that cross Hickory Creek Road. The Surveyor will gather railroad topographic information from railroad ROW to railroad ROW for 2000 feet on both sides of the centerline of Hickory Creek Road. This Task includes obtaining Right of Entry from both railroads (or using alternative technologies to obtain topographic railroad information), using railroad approved flaggers for train traffic control and safety procedures and other associated tasks for railroad coordination.

Deliverables:

One set of Property Descriptions each with original signatures and seals, and one set of Parcel Calculation sheets. A CD with PDF's of each description, calculation sheets.

8. GIS DATABASE

The Surveyor shall create a GIS Map set (Geodatabase) that is similar to the current TxDOT GIS standard deliverables.

Deliverables:

A CD or DVD shall be created for the GIS Map set (Geodatabase).

9. ROW MAP SHEETS

The Surveyor shall create a set of ROW map sheets printed on paper copy print at full size (22" x 34"). The ROW map shall show all found utility easements along with associated recording data for each easement. All recorded conveyance documents for the existing ROW, drainage easements shall be shown. If a recorded instrument cannot be found, then the City and/or Statement "No Deed of Record Found" shall be shown for that portion of the existing ROW. All proposed ROW lines and current known proposed Easements shall be identified. All Parcels shall be numbered and parent tract owner's name and recording instrument shall be shown. Parcels that are shown on multiple sheets shall only be described on the sheet in which the fee block is shown (Unless the parcel is too big to fit on a single sheet). The City and/or Statement "See Sheet "X" for Parcel "X"" shall be placed near said parcel. Station-Offsets and Surface Coordinates shall be identified at each break in the existing and proposed ROW (Station-Offsets and Surface Coordinates do not need to be shown on the existing ROW if it's included in a take). Station-Offsets shall correlate with the EXHIBIT "A" documents (Extremes on the

proposed ROW). Tick marks with Grid coordinates shall be placed in the 4 (Four) corners of the map sheets with the Grid coordinate shown.

Deliverables:

The surveyor shall send one complete set of 22” x 34” paper copy print, three complete sets of 11” x 17” paper copy print, and a PDF of the map sheets made from the Micro-Station files.

10. FINAL DELIVERABLES

The Surveyor shall create a data transfer disk (CD or DVD), external hard drive, or thumb drive which contains a PDF of all Property Descriptions, ROE letters with responses, and contain PDF files of all individual Map Sheets for the ROW Mapping Project. The PDF files are to be created directly from the Micro-Station Map Sheets. The data transfer device shall also contain all electronic files to reprint all “Exhibit A’s” and Right of Way Map Sheets.

Deliverables:

One dated data transfer disk (CD or DVD), external hard drive, or thumb drive containing all right of way deeds, parent tract deeds, adjoining tract deeds, subdivision plats, and ROE letters with responses shall be submitted as scanned PDF copies stored on a disk. A completed copy of the Owner Excel sheet, a PDF of the map sheets made from the Micro-Station files, GIS file, and a set of all electronic files required to reprint the EXHIBIT “A” Documents, the map sheet files, and the Mapping Project map set shall be submitted.

I. RIGHT OF WAY ACQUISITION

A. Communication

1. Upon request attend monthly status meeting with the City to request approval of appraisals, counter offers, relocation packages and other items that require the input or approval of the City.
2. Provide to the City a weekly status report indicating tasks completed and tasks remaining in order to bring each parcel into possession. The comment section will denote the latest activity on the parcel.

B. File Management

1. Parcel acquisition files will be kept up to date at ENGINEER’s office with all permanent records transferred to the City at the completion of the project.

2. The acquisition file shall contain the following but is not limited to:
    a. Major and Council approval
    b. All mailings to property owners
    c. Contact log in chronological order from latest to earliest communications
    d. Appraisal and appraisal review
    e. Fully executed memorandum of agreement
    f. Original recorded deed
    g. Partial releases, subordination agreements and other curative documents
    h. Original title policy
    i. Fully executed Settlement City and/or Statement

C. Right of Entry (ROE)

1. Request permission for ROE from a list of properties provided by the City
    a. Prepare property owner contact list based on CAD information
    b. Make telephone contact with property owners prior to sending the request if possible
    c. Mail a letter of explanation with a ROE form requesting permission for ROE.
    d. Make up to five attempts to contact and obtain ROE for each parcel
    e. Make up to one site visit if necessary
    f. Email copy of executed ROE to the City as soon as it is received
    g. If contact is not successful, notify the City immediately
    h. If ROE is not granted after contact is made, notify the City immediately

D. Title and Closing Services

1. When surveys are received, secure a title commitment.
2. Obtain title commitment updates periodically as well as prior to closing or when submitting an ED package to City Attorney.
3. Secure title insurance for all parcels acquired, insuring acceptable title to the City. All of Schedule C will be cleared prior to closing. Certain exceptions on Schedule B may have to be cleared prior to closing. A determination of that will be made by the City.
    a. If title curative efforts are outside of what is normal required, i.e. researching unknown heirs, obtaining more than a few releases, working with bankruptcy courts or working through complex lender requirements, this work will be

considered Additional Services and is not included in this scope of work. The fee for curative services for this parcel will be negotiated and a supplement to the acquisition provider's contract will be required.

b. Fees imposed by lenders for partial releases will be paid by the City. A request for a check summarizing the need for the check along with backup documentation will be emailed to the City.

4. All title company premium fees including incidental fees will be paid as a pass through cost by the City.
5. A W9 for the property owner along with the closing City and/or Statement and wiring instructions will be emailed to the City requesting funds for closing.
6. Closings will be coordinated by the title company.

E. Appraisal and Appraisal Reviews

1. ENGINEER will provide a copy of the permission for ROE to the appraiser. If no ROE has been previously obtained for appraisal, the appraiser will obtain ROE before entering onto the subject property.
2. Appraisers shall conduct a pre-appraisal contact with the property owner.
3. Appraisers shall afford the property owner or their representative the opportunity to accompany the appraiser during their inspection of the property.
4. The reports shall conform to the Uniform Standards of Professional Appraisal Practices.
5. The appraiser shall notify the PM of any environmental concerns associated with the right of way (ROW) being acquired which could require re-mediation.
6. All appraisals will be administratively reviewed. After receiving the draft appraisal report, it will be delivered to the Review Appraiser. The Review Appraiser will verify that the report has:
    a. consistency of values
    b. supporting documentation available to support the conclusion reached
    c. compliant with the Uniform Standards of Professional Appraisal Practices
7. The Review Appraiser will coordinate as necessary with the Appraiser regarding any revisions or comments which may be required.
8. The Appraiser and Review Appraiser will be available for updating the report for eminent domain proceedings. The fees for the appraisal updates and expert witness preparation and testimony are not included in this scope of work. The fee for

appraisal updates and expert witness preparation and testimony will be negotiated and a supplement to ENGINEER's contract will be required.

9. When the Appraisal is finalized, the Appraisal along with the Review will be submitted to the City for final approval prior to making an offer.

F. Negotiation Services

1. All acquisitions will comply with CFR Part 24 and the Uniform Relocation Assistance and Real Property Act of 1970 (Uniform Act).
2. Prepare and send an Introduction letter along with the Landowners' Bill of Rights by Certified Mail-Return Receipt Requested (CMRRR) according to the address shown on DCAD.
3. A written offer, appraisal report and required brochures will be sent to each property owner through CMRRR.
4. Up to five follow-up contacts will be made with each property owner with a goal to reach an agreement conducive to all parties.
5. If the property owner choses to make a counter offer, ENGINEER will advise them to provide a written and signed letter along with the appropriate backup documentation in support of the counter offer.
6. ENGINEER will provide to the City a written summary memo along with the counter offer.
7. Once an agreement has been reached, the necessary instruments (Memorandum of Agreement (MOA), Deed and W9) will be secured and provided to the title company in request of a settlement City and/or Statement.
8. Upon receipt of the funds to close, the title company will coordinate a closing date with the owner as well as an ENGINEER representative.
9. The acquisition will close and all original executed and recorded documents will be delivered to ENGINEER or the City (whichever is the preference of the City).
10. If after 30 days of negotiations an impasse has been determined or the property owner is non-responsive, and following such notification to the City Real Estate Division and confirmation that acquisition by eminent domain has been granted by the City Council, a Final Offer Letter (FOL) will be delivered by CMRRR along with the draft conveyance document and MOA.

11. If after an additional 14 days (FOL period) an agreement still has not been reached, an Eminent Domain package will be assembled and delivered to the City Real Estate Division.

G. Eminent Domain (ED)

1. For parcels where negotiations were unsuccessful or because of incurable title issues, an ED Package will be assembled and delivered to City Real Estate Division containing copies of the following documents:
    a. Intro Letter
    b. Appraisal
    c. Review Appraisal
    d. Offer Letter with CMRRR
    e. Final Offer Letter with CMRRR
    f. Acknowledgment of LBOR
    g. Acknowledgment of Appraisal
    h. Draft conveyance documents
    i. Survey
    j. Updated title commitment
    k. Title backup documents
    l. Counter Offer
    m. Administrative Settlement package presented to City
    n. Agent notes
    o. All correspondence with landowner including emails
2. ENGINEER will be available to answer questions from the City's attorney during the Condemnation process as necessary
3. Order an updated Appraisal and Review Appraisal when requested by the City's attorney
4. Obtain a copy of the petition and send it to title company to verify they are satisfied that all necessary parties have been named
5. ENGINEER will send a representative to attend the Special Commissioners Hearing if the attorney so requests
6. Obtain signed Award and submit payment request to City for funds to be deposited into the registry of the Court
7. When deposit has been made, take "day of take" photos of the ROW

8. Notify the Attorney that the funds have been deposited and request that they send the Notice of Deposit to all parties within 48 hours
9. Obtain from Commissioners a signed W9 with social security number
10. Obtain from the Attorney the Commissioners Cost Sheet filled in by the Judge
11. Submit payment requests to City for Payment of Special Commissioners
12. If no objections were filed, obtain a certified copy of the signed Judgment from County Clerk's office and request a title policy

Should a parcel's ownership change after negotiations have begun, an amendment to the contract for additional ROW services and fees would be necessary. In addition, should a parcel split into two or more parcels after negotiations have begun, an amendment to the contract for additional ROW services and fees would be necessary.

J. PLANS SPECIFICATION AND ESTIMATE (PS&E)

This scope of services is submitted to prepare final design plans for improvements of Hickory Creek Road from Riverpass Drive to west of the Country Club (FM1830) Intersection located in Denton, Texas. The improvements requested by the City are:

Option 1: Improvements to include a grade separation over the KCS RR. Additional improvements include the following:

- Removal of existing roadway, non-franchise utilities, signing and driveways. Assumes all fencing to be relocated as part of the ROW acquisition process.
- Removal of existing RR equipment.
- Proposed low speed roadway (40 mph design) will include 2 lanes in each direction with accommodations for a future interior widening to a total of 6 lanes. Driveways and turn bays at intersections and side streets will match the proposed schematic. Roadway will include curbs, concrete pavement and sidewalks.
- Intersection improvements at Country Club will match the proposed schematic.
- Retaining walls are assumed along the approach roadway adjacent to the RR crossing.
- Closed storm drains and cross culverts will be designed accommodate the applicable design event. Supplemental grading will be included to address floodplain mitigation.
- Proposed signals will be included at the intersection of Hickory Creek and FM 1830.
- Proposed RR Bridge will utilize TxDOT beams, rails and standards and will accommodate 6 lanes and sidewalks and clear the existing RR tracks and possible second track with the required 23' vertical clearance.

- Proposed Hickory Creek Bridge will utilize TxDOT beams, rails and standards and will accommodate 6 lanes and sidewalks and allow for 2' of freeboard above the required design event, and any required scour protection.
- No Landscaping or Hardscape elements are assumed. Also assumes no environmental mitigation work will be required.
- Continuous lighting using City of Denton provided details are assumed.

Option 2: Improvements to include an at-grade intersection with the KCS RR. Additional improvements include the following:

- Removal of existing roadway, non-franchise utilities, signing and driveways. Assumes all fencing to be relocated as part of the ROW acquisition process.
- Removal of existing and replacement/upgrade RR equipment.
- Proposed low speed roadway (40 mph design) will include 2 lanes in each direction with accommodations for a future interior widening to a total of 6 lanes. Driveways and turn bays at intersections and side streets will match the proposed schematic. Roadway will include curbs, concrete pavement and sidewalks.
- Intersection improvements at Country Club will match the proposed schematic.
- Closed storm drains will designed accommodate the applicable design event. Supplemental grading will be included to address floodplain mitigation.
- Proposed signals will be included at the intersection of Hickory Creek and FM 1830.
- RR signal improvements for the proposed roadway and accommodations for pedestrian movements.
- Proposed RR Bridge will utilize TxDOT beams, rails and standards and will accommodate 6 lanes and sidewalks and clear the existing RR tracks and possible second track with the required 23' vertical clearance.
- Proposed Hickory Creek Bridge will utilize TxDOT beams, rails and standards and will accommodate 6 lanes and sidewalks and allow for 2' of freeboard above the required design event, and any required scour protection.
- No Landscaping or Hardscape elements are assumed. Also assumes no environmental mitigation work will be required.
- Continuous lighting using City of Denton provided details are assumed.

Submittals.

1. Railroad Agreements and Layouts. The ENGINEER shall assist in the preparation of the railroad agreement and prepare Exhibit A documents and layout sheet in accordance with the requirements of the railroad. The ENGINEER shall submit each exhibit to the City for review and processing.
2. Prepare Interim set of plans (60% Submittal), quantity estimates, and cost estimates for the proposed improvements. Plans will include:
    - Typical sections
    - Removal plans
    - Paving plans
    - Intersection plans

- Bridge plans without details
- Retaining Wall plans without details
- Update Preliminary Hydraulic Report
- Geotech Boring locations
- Drainage systems plans without details
- Traffic Control plans
- Signal Plans without details
- Illumination plans without details
- Pavement Markings and Signs plans without details
- Utility Plans (Water & Sanitary Sewer) without details
- Cross sections
- Applicable standard details

The plans will be prepared according to City of Denton standards. Submit five hard copy and one electronic set of plans to the City for review. . Meet with the City to discuss draft submittal comments. One (1) meeting is assumed for budget purposes.

3. Prepare Pre-Final set of plans (90% Submittal), quantity estimates, and cost estimates for the proposed improvements. Plans will include:
    - General notes
    - Typical sections
    - Removal plans
    - Paving plans
    - Bridge plans & details
    - Retaining Wall plans & details
    - Revised Hydraulic Report
    - Geotech Boring locations & geotechnical recommendations
    - Drainage systems plans & details
    - Traffic Control & Erosion Control plans
    - Signal Plans & details
    - Illumination plans & details
    - Pavement Markings and Signs & details
    - Utility Plans (Water & Sanitary Sewer) with details
    - Cross sections
    - Applicable standard details

    The plans will be prepared according to City of Denton standards. Submit five hard copy and one electronic set of plans to the City for review. Meet with the City to discuss draft submittal comments. One (1) meeting is assumed for budget purposes.
4. Prepare final set of plans (100% Signed/Sealed Submittal) that addresses comments from the City. The final submittal will include one hard (paper) copy and one electronic copy.
5. Coordinate project information with Utility companies, based on a SUE Level B designations.

The City will provide existing utilities (water, sewer, signal electrical/ITS) per the City's GIS and as-built record information. Any changes to the assumed Scope of Services may result in increased project costs. Assumes all ROW tasks will be completed under the Schematic development process.

Roadway Design. The ENGINEER shall prepare roadway plans, profiles and typical sections for the proposed improvements.

- The plans must be consistent with the schematic design and will include a plan and profile of the Hickory Creek, Hilltop and Country Club, intersection layouts and include drainage structures, sidewalks, geometrics, driveways, median, signalization, and transitions to existing roadway.
- The ENGINEER shall prepare typical sections for all proposed and existing roadways and structures. Typical sections must include width of travel lanes, shoulders, outer separations, border widths, curb offsets, walls, and ROW.
- The ENGINEER shall prepare removal plans.
- The ENGINEER shall perform the pavement design to meet the City's design requirements.
- The ENGINEER shall develop an earthwork analysis to determine cut and fill quantities and provide final design cross sections at 50 feet intervals. Cross sections and quantities must include existing pavement removals.

Bridge Design. The ENGINEER shall prepare structural plans and details for the proposed improvements.

At Hickory Creek: Assume one bridge of six lanes with 3 spans of 110 ft. each for a total length of 330 ft. No twin bridge. No calculation book. No aesthetic treatments. Use TxDOT specs. Use TxDOT standard bridge railing.

Plans and details to be provided:

- Gather Data & General Notes – Gather all existing information for the area that is available. Obtain geotechnical recommendations and boring logs. Develop general notes for the project as necessary to clarify TxDOT specs.
- Bridge Type Selection – Coordinate with Roadway and H&H on developing the bridge crossing. Determine the optimum beam system for the crossing.
- Bridge Layouts – prepare bridge layouts showing Plan, Elevation, and Typical Sections views following TxDOT's Bridge Detailing Manual.
- Boring Log Sheet – prepare a boring log sheet as a standalone sheet to avoid cluttering the Bridge Layout
- 3D BIM Model – Prepare a 3D BIM Model of the bridge for project coordination to minimize conflicts
- Bridge Summary Table – Prepare a summary table of Estimated Bridge Quantities.
- Perform calculations for elevations and beam designs. Design per AASHTO LRFD Bridge with TxDOT exceptions in the Bridge Design Manual.

- Prepare foundation details and calculations – Coordinate with Geotechnical ENGINEER on foundation loads and resulting soil capacities. Compute required foundation lengths and quantities. Provide details with the TxDOT Standards.
- Riprap Layout Sheet – Develop a Riprap Layout Sheet at the bridge in order to clarify the intent of the riprap shape.
- Prepare Abutment Details and Design
- Prepare Bent Details and Design
- Prepare Framing Plan and BGS run
- Prepare Deck Plan
- Assemble TxDOT Bridge Standards
- Shop Drawing Review/RFIs – Review shop drawings for precast concrete elements, for bearing pads, and for metal expansion joints or any metal railing component.

Drainage Design. The ENGINEER shall prepare drainage plans and details for the proposed improvements.

Storm Drains. The ENGINEER shall provide the following services:

- Design and analyze storm drains using software as approved by the City.
- Size inlets, laterals, trunk line and outfall. Develop designs that minimize the interference with the passage of traffic or incur damage to the highway and local property in accordance with the Project's Design Criteria.
- Determine hydraulic grade line starting at the outfall channel for each storm drain design. Use the design water surface elevation of the outfall as the starting basis (tailwater) for the design of the proposed storm sewer system.
- Calculate manhole headlosses. Compute manhole head losses as per FHWA's HEC-22.
- Limit discharge into existing storm drains and existing outfalls to the capacity of the existing system, which will be determined by the ENGINEER. Evaluate alternate flow routes or detention, if necessary, to relieve system overload. Determine the amount of the total detention storage to control storm drain runoff for the design frequency based on hydrograph routing for the full range of frequencies (50%, 20% 10%, 4%, 2%, 1%, and 0.2% AEP), as well as a rough estimate of the available on-site volume. When oversized storm drains are used for detention, the ENGINEER shall evaluate the hydraulic gradeline throughout the whole system, within project limits, for the design frequency or frequencies. The ENGINEER shall coordinate with the City any proposed changes to the detention systems. The City will assess the effects of such changes on the comprehensive drainage studies.
- Identify areas requiring trench protection, excavation, shoring, and de-watering.

Cross-Drainage Structures. The ENGINEER shall provide the following services:

- Determine drainage areas and flows for cross culvert drainage systems.
- Determine the sizing of the drainage crossings. The scope may include extending, adjusting or replacing non bridge-class culvert crossing or crossings. Develop designs that minimize the interference with the passage of traffic or cause damage to the

roadway and local property in accordance with the City's Design Criteria. Cross drainage design shall be performed using HY-8 or HEC-RAS.

Scour Analysis. The ENGINEER shall provide the following services:

- Perform a scour analysis for the proposed bridge structure.
- The ENGINEER shall select the methodology based on the site conditions such as the presence of cohesive or cohesionless soil, rock or depth of rock, proposed foundation type, and existing site performance. The ENGINEER shall follow the methodology outlined in the TxDOT's Geotechnical Manual.
- Provide the potential scour depths, envelope and any recommended countermeasures including bridge design modifications and/or revetment.

PS&E Development for Drainage. The ENGINEER shall provide the following services:

- Include the following sheets and documents, as appropriate**:**
    - Hydrologic Data Sheets
    - Hydraulic Data Sheets - following TxDOT's presentation format
    - Scour Data Sheets
    - Drainage Area Maps
    - Culvert Layout Sheets
    - Storm Drain Plan/Profile Sheets
    - Drainage Calculation Sheets
    - Detention Pond Layouts & Details
    - Scour Protection Plans (if needed)
    - Summary of Quantities
- Identify areas requiring trench protection, excavation, shoring and de-watering.
- If applicable, prepare plan and profile sheets for storm drain systems and outfall ditches.
- Select any necessary standard details for items such as inlets, manholes, junction boxes and end treatments.
- Prepare details for non-standard inlets, manholes and junction boxes.
- Prepare drainage details for outlet protection, outlet structures and utility accommodation structures
- Identify pipe strength requirements
- Identify potential utility conflicts and, if feasible, design to mitigate or avoid those identified conflicts.
- Consider pedestrian facilities, utility impacts, driveway grades, retaining wall and concrete traffic barrier drainage impacts.
- Identify existing ground elevation profiles at the ROW lines on storm sewer plan and profile sheets.
- Prepare Hydraulic Data Sheets for any bridge or cross drainage structures at the outfall channel and indicate site location (e.g., station and name of creek or bayou), if applicable.

Bridge deck drainage systems, including internal drainage piping within the bents where required on structures.

- Detention ponds, associated outlet structures, and details, if applicable.

Traffic Control. The ENGINEER shall prepare Traffic Control Plans (TCP) including TCP typical sections, for the project. A detailed TCP must be developed in accordance with the latest edition of the TMUTCD. The ENGINEER shall:

- Provide a written narrative of the construction sequencing and work activities per phase and determine the existing and proposed traffic control devices (regulatory signs, warning signs, guide signs, route markers, construction pavement markings, barricades, flag personnel, temporary traffic signals, etc.) to be used to handle traffic during each construction sequence.
- The ENGINEER shall show proposed traffic control devices at grade intersections during each construction phase (stop signs, flag person, signals, etc.). The ENGINEER shall show temporary roadways, ramps, structures and detours required to maintain lane continuity throughout the construction phasing. If temporary shoring is required, prepare layouts and show the limits on the applicable TCP.
- Develop each TCP to provide continuous, safe access to each adjacent property during all phases of construction and to preserve existing access. The ENGINEER shall notify the City in the event existing access must be eliminated, and must receive approval from the City prior to any elimination of existing access.
- Design temporary drainage to replace existing drainage disturbed by construction activities or to drain detour pavement. The ENGINEER shall show horizontal and vertical location of culverts and required cross sectional area of culverts.
- The TCP must include interim signing for every phase of construction. Interim signing must include regulatory, warning, construction, route, and guide signs.
- Maintain continuous access to abutting properties during all phases of the TCP. The ENGINEER shall develop a list of each abutting property along its alignment.
- The ENGINEER shall identify and coordinate with all utility companies for relocations required.
- Identify and delineate any outstanding ROW parcels
- Plans will show limits of wetlands, if applicable

Railroad Coordination. The ENGINEER will assist in the coordination of the proposed grade separation at the KCS RR. The ENGINEER shall coordinate with the railroad and the City to determine submittal requirements, processing schedules, and exhibit formats. The ENGINEER will support City to develop Force Account documents to allow KCS to review the proposed project. The ENGINEER will acquire the required RR Insurance and Right of Entry needed to enter the KCS ROW following receiving authorization by KCS.

Signing Design. The ENGINEER shall prepare drawings, specifications, and details for all signs. The ENGINEER shall:

- Prepare summary of small signs to be removed, relocated, or replaced.
- Illustrate and number the proposed signs on plan sheets.
- Sign details for non-standard small signs
- Select each sign foundation.

Pavement Marking. The ENGINEER shall detail both permanent and temporary pavement markings and channelization devices on plan sheets. The ENGINEER shall select Pavement markings from the latest City details and standards.

Signal Design. Signal design will involve the following tasks to prepare signal plans for the Country Club/Hickory Creek Road intersection.

- The City will provide traffic counts and turning movement counts to be collected for 24 hours for the approaches at the intersections of Hickory Creek Road and Country Club (FM1830)
- Traffic warrant studies will be performed to determine if a traffic signal is required at the intersection
- Signal plans will include signal pole and head location/details, and pedestrian pole locations and details. The plans will be prepared according to City of Denton standards, then TxDOT standards.
- No Temporary signals are assumed

Illumination Design. The ENGINEER shall include continuous lighting plans for the project. . The ENGINEER shall provide a preliminary layout as part of the 60% submittal. The ENGINEER shall prepare circuit wiring diagrams showing the number of luminaries on each circuit, electrical conductors, length of runs, service pole assemblies. Underpass lighting must be used on the RR structure.

Storm Water Pollution Prevention Plans (SW3P). The ENGINEER shall develop SW3P, on separate sheets from (but in conformance with) the TCP, to minimize potential impact to receiving waterways. The SW3P must include text describing the plan, quantities, type, phase and locations of erosion control devices and any required permanent erosion control.

Geotechnical Investigation. Geotechnical investigation will be performed to determine paving section, foundations and backfill requirements. The field investigation includes 2 borings each at 15 feet depth and 2 borings each at 100 feet depth for the creek bridge. D50 sampling will also be required to assess scour potential. An engineering report will be prepared including: soil and groundwater conditions encountered at the boring locations; earthwork recommendations, including material and compaction requirements; foundation designs; wall requirements (if needed as part of the option work); construction considerations related to soil and groundwater conditions at the borings; underground utility backfill recommendations; and street pavement recommendations.

Project Management and Coordination. The ENGINEER shall coordinate all subconsultant's activity to include quality of and consistency of plans and administration of the invoices and monthly progress reports. The ENGINEER shall submit a monthly written progress report to the City's Project Manager regardless of whether the ENGINEER is invoicing for that month. The ENGINEER's written progress report shall describe activities during the reporting period; activities planned for the following period; problems encountered and actions taken to remedy them; list of meetings attended; and overall status, including a per cent complete by task.

The ENGINEER shall prepare a design time schedule and an estimated construction contract time schedule, the schedules shall indicate tasks, subtasks, critical dates, milestones, deliverables and review requirements in a format that depicts the interdependence of the various items. The ENGINEER shall schedule milestone submittals at 60%, 90% and final project completion phases.

The ENGINEER, in association with the City's Project Manager shall be responsible for directing and coordinating all activities associated with the project to comply with City policies and procedures, and to deliver that work on time.

The ENGINEER shall:

- Prepare monthly written progress reports for each project.
- Develop and maintain a detailed project schedule to track project progress.
- Meet on a scheduled basis with the City to review project progress.
- Prepare, distribute, and file both written and electronic correspondence.
- Prepare and distribute meeting minutes.
- Document phone calls and conference calls as required during the project to coordinate the work for various team members.

OPTION WORK. The City will direct the ENGINEER prior to NTP for the PS&E which of the below Options the ENGINEER is to proceed with final design.

OPTION1 – Grade Separation @ KCS

At RR: Assume one bridge (Six lanes. 570 ft. long with 5 spans including a main span of 130 ft. with all other spans at 110 ft. No twin bridge. No calculation book. No aesthetic treatments. Use TxDOT Specs. Use TxDOT standard bridge railing with fence over RR ROW.) Sheets not included in the above work include:

- Under bridge lighting support details at RR bridge
- Prepare fence details over RR ROW

Wall Design. The ENGINEER shall prepare plans and details for the proposed improvements for anticipated MSE walls adjacent to the RR crossing

The ENGINEER shall develop each retaining wall design and determine the location of each soil boring needed for the foundation design of each retaining wall. The approximate limits of each retaining wall shall be based on Station or length. The ENGINEER shall prepare the retaining wall layouts showing plan and profile. The ENGINEER is responsible for design of geometry and wall stability. The ENGINEER shall incorporate a slope of 4:1 or flatter from the existing and finished ground line elevation to the face of the retaining wall.

The ENGINEER shall perform design calculations to check the external stability of the walls including slope stability, bearing, sliding and overturning and detail drawings...

Geotechnical Investigation. Geotechnical investigation will be performed to determine bridge foundation design and MSE wall requirements. The field investigation includes 3 borings each at 100 feet depth and 8 borings of 25 feet depth for the MSE walls.

Removals. The ENGINEER shall prepare a removal plans detailing the removal of KCS equipment and work to be performed by the City's Contractor or by KCS forces.

OPTION2 – At-Grade Intersection @ KCS

Railroad Signal Layout and Performance Specification. The ENGINEER shall prepare a signal layout and supporting plans detailing the removal and/or installation of KCS equipment and work to be performed by the City's Contractor or by KCS forces. The ENGINEER shall also prepare a performance specification meeting KCS requirements that detail additional requirements for the signal/intersection operation.

Bid Services and/or Shop Drawing Review. The ENGINEER shall support the City's Project Bidding and structural shop drawing review.

Additional Services beyond the Scope of Services. Additional work may include additional Design Survey, SUE, more extensive Geotechnical borings, and Construction Phase Services. ENGINEER will document additional work requests from the OWNER and obtain prior approval before completing any additional tasks beyond the approved Scope of Services.

K. TRAVEL DEMAND MODELING

1. IDENTIFY FUTURE LAND USE AND REVIEW CURRENT ROADWAY NETWORK FOR NEEDS AND IMPROVEMENTS

a. Land use information will be updated to reflect the most current and future scenarios. Data will be reviewed and analyzed using Geographical Information System (GIS) to establish a final 2040 land use scenario. This will include, but is not limited to, the review of data collected from the city, the North Central Texas Council of Governments (NCTCOG), and latest aerial imagery. Information will be converted into GIS layers as a deliverable.

b. Typical section recommendations will be provided with focus on the recommended roadway configurations and designs for individual arterials.

2. REVIEW EXISTING CITY OF DENTON'S TRAVEL DEMAND MODEL

- The Travel Demand Model provided by City of Denton will be reviewed to develop base & future scenarios. Roadway network with Travel Demand Model of the study area will be reviewed for any coding inconsistencies, developments and centroid connections.
- Figure 1 shows the Study Area network and TAZ structure in the current TDM. **It should be noted that ENGINEER will be working on a No-Build future year condition and two alternative scenarios.**

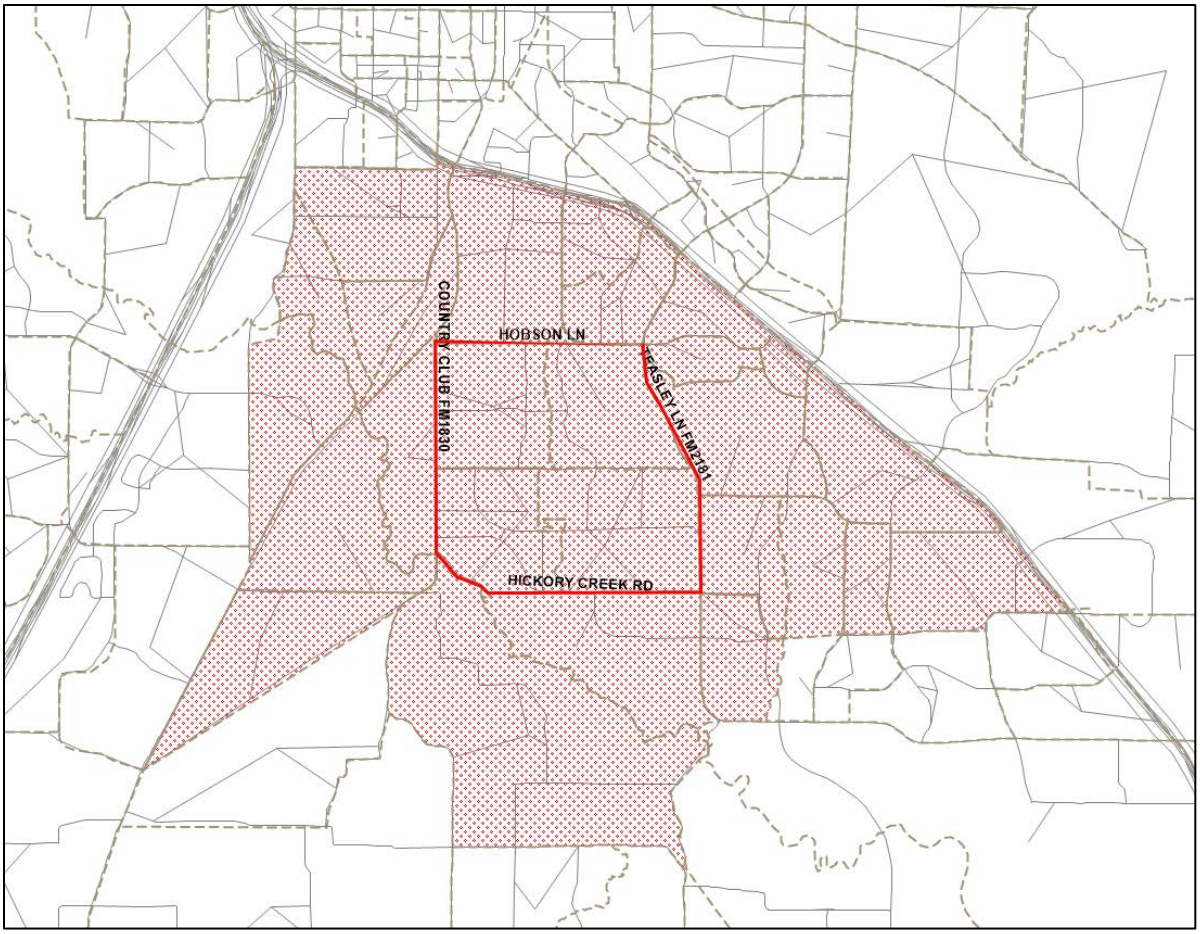


Figure 1: Location Map - City of Denton's current TDM

3. **CODE/MODIFY ROADWAY NETWORK AND LAND USE IN TDM TO REFLECT THE IMPACT OF CONNECTOR ALTERNATIVES (UP TO 2 ALTERNATIVES)**
   - The geometric and land-use changes pertaining to study area **(up to 25 TAZs)** will be provided by City to be reflected in TDM. The ENGINEER will modify the roadway network and land use in TDM and send them to City for review. **It should be noted that City of Denton should provide all the land-use information.**
   - ENGINEER will incorporate and address comments for geometric and land-use coding. If necessary, ENGINEER will have a final review from the City to have a consensus before running the model.

4. TRAFFIC FORECASTS AND TRAFFIC ANALYSIS (FULL MODEL RUN)

- ENGINEER will update the TDM with Land-Use Data and alternative north-south/east-west connector options pertaining to the study area **(up to 25 TAZs)** to run the trip generation model. This will follow by trip distribution, modal split, and traffic assignment.
- Utilize TDM and select-links to come up with link volumes to reflect the traffic demand of the future year.
- Incorporate any suggested improvements by the City.
- Prepare a Geographic Information System based online dashboard to display dynamic information on existing land use patterns, traffic projections and recommended cross-sections for the selected TAZs.

5. HICKORY/CRAWFORD TRAFFIC ANALYSIS

This scope of services is submitted to perform traffic demand modeling for Hickory Creek/Crawford Road.

This Scope of Services is submitted to evaluate traffic impacts of the study area within the limits of Hickory Creek Rd, Country Club Rd., Teasley Ln and Hobson Ln. The study will involve review and modification of socio-economic data based on the land-use plans to current TDM provided by City of Denton, by utilizing demographic files, Traffic Analysis Zones (TAZs), link network coding and edits for **up to 25 TAZs.** Due to the anticipated growth in traffic demand, an east-west connector along with a possible north-south collector road will be proposed to provide connectivity between IH-35 E and IH-35 W. **TransCAD 7.0** will be used for this task. The analysis will include performing all four (4) steps in City of Denton's TDM and select-link analysis for a No-Build scenario and two alternative Build scenarios. Our scope of services is presented below in 4 stages. Any changes to the assumed scope of services will result in increased costs. The following information must be provided by the Owner prior to initiation of work.

1. City of Denton's ArcGIS file including the following items:
    a. Proposed connector alternatives, if any
    b. Existing and proposed zoning on tract
    c. Proposed driveway location/plan
2. Scheduled build-out plans of proposed land uses

3. CIP improvements/plans

This scope of services assumed Network and TAZ changes for up-to 25 TAZ's only. Any TDM effort beyond will require additional fee.

6. TECH MEMO

- Prepare a draft memo summarizing:
  - Traffic impacts and results obtained from TDM
  - Geometric and Environmental considerations.
- QA/QC – Memo, Analysis and Results
- Address comments (if any)

EXHIBIT B

HOURLY BILLABLE RATES BY POSITION

PRIME - HDR, INC.

Position	***Hourly Rate***
Principal/Vice President	$300.00
Project Manager	$250.00
Senior Bridge Engineer	$270.00
Senior Hydraulic Engineer	$230.00
Senior Traffic Engineer	$200.00
Transportation Planner	$200.00
Bridge Engineer	$170.00
Project Engineer	$150.00
Public Involvement Specialist	$150.00
Senior Environmental Scientist	$150.00
Environmental Scientist	$100.00
ROW Acquisition Agent	$135.00
EIT	$100.00
CAD/ENGR Tech	$100.00
Clerical / Administrative	$85.00

SUBCONSULTANT - SURVEY

Position	*Hourly Rate*
Project Manager	$200.00
RPLS Project Manager	$180.50
Task Lead Engineer	$180.00
SUE Manager	$165.00
RPLS Task Lead	$164.00
Senior Survey Tech	$120.00
LiDAR Tech	$105.00
Survey Tech	$103.19
EIT	$110.00
GIS Tech	$95.82
1 Man Crew	$100.00
2 Man Crew	$160.00
3 Man Crew	$195.00
4 Man Crew	$220.00
Admin	$75.00

EXHIBIT B

Summary of Tasks - Hickory Creek Improvements

1/29/2019

Task	Design Fee
Advanced Planning , Schematic and Environmental	
A. Feasibility Study	$ 56,717.00
B. Drainage Design (H&H)	$ 146,132.00
C. Schematic Design	$ 495,268.00
D. Environmental Documentation	$ 459,518.00
E. Public Involvement	$ 166,638.00
	$ 1,324,273.00
Survey and SUE	
F. Topographic Mapping & Design Surveys	$ 288,006.00
G. Subsurface Utility Engineering	$ 126,385.00
	$ 414,391.00
Right-of-Way	
H Right-of-Way Mapping	$ 264,310.00
I. Right-of-Way Acuisition	$ 373,635.00
	$ 637,945.00
PS&E	
J1. PS&E (Option 1) Grade Separation @ KCS	$ 890,492.00
J2. PS&E (Option 2) At Grade Intersection @ KCS	$ 689,742.00
TDM	
K. Hickory Creek TDM including Crawford Traffic Analysis	$ 75,408.00
Total Project Summary with Option 1	$ 3,342,509.00
Total Project Summary with Option 2	$ 3,141,759.00

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
A. Feasibility Study
EXHIBIT B

TASK		DESCRIPTION	Project Principal	Project Manager	Transportation Planner	Engineer	EIT	CAD/ENGR TECH	ADMIN	TOTAL	TOTAL(Per Task)
			$300.00	$250.00	$200.00	$150.00	$100.00	$100.00	$85.00		
1		**Data Collection**								114	$13,900
	a	Review of available Roadway As-builts, Right-of-Way and reports				6	16			22	$2,500
	b	Review of available Traffic data and reports				4	8			12	$1,400
	c	Conduct Site Visits				16	16			32	$4,000
	d	Review of Planned Developments				4	8			12	$1,400
	e	Review Environmental Data				4	8			12	$1,400
	f	Development of ArcGIS Online Maps			8		16			24	$3,200
2		**Analyze Existing Conditions**								66	$9,500
	a	Compilation of Existing Conditions		4	4	8	16			32	$4,600
	b	Development of Existing Conditions Report		2	8	8	16			34	$4,900
3		**Preliminary Design Summary Report and Typical Sections**								36	$5,200
	a	Development of DSR		2		8	8			18	$2,500
	b	Development of Typical Sections		2	4	4	8			18	$2,700
4		**Environmental Constraints**								44	$6,400
	a	Compilation of Environmental Constraints			8		16			24	$3,200
	b	Development of Constraints Map			4			8		12	$1,600
	c	Development of ArcGIS Online Map			8					8	$1,600
5		**Alternative Alignments and Screening**								148	$19,360
	a	Development of Alternative Alignments		2	4	8	16			30	$4,100
	b	Screening of Alternative Alignments		2	8	8	16			34	$4,900
	c	Development of Feasibility Report		4	8	16	40		16	84	$10,360
		TOTAL	**0**	**18**	**64**	**94**	**208**	**8**	**16**	**408**	**$54,360**
			$300.00	$250.00	$200.00	$150.00	$100.00	$100.00	$85.00		
TOTAL COSTS			$0	$4,500	$12,800	$14,100	$20,800	$800	$1,360	$54,360	

DIRECT EXPENSES	Direct Cost	Contract Rate	Unit	Quantity	Amount
	Standard Postage	0.49	Each	-	$0.00
	Mileage	$0.535	per mile	200	$107.00
	Toll Charges	$4.00	Each	-	$0.00
	Mylar Plots (11"x17")	$2.00	Sheet	-	$0.00
	Large format printing	$2.00	SF	1000	$2,000.00
	8 1/2"x11" B/W Paper Copies	$0.10	Sheet	-	$0.00
	8 1/2'x11' Color Paper Copies	$0.50	Sheet	500	$250.00
	Photocopies B/W (11"x17")	$0.20	Sheet	-	$0.00
	Photocopies Color (11"x17")	$1.00	Each	-	$0.00
	SUB-TOTAL DIRECT COST				**$2,357.00**
	SUB-TOTAL LABOR				**$54,360.00**
	TOTAL COST				**$56,717.00**

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
B. Drainage Design (HH)

EXHIBIT B

TASK		DESCRIPTION	Project Principal	Task Manager	Sr. Hydraulic Engineer	Project Engineer	EIT	CAD/ENGR TECH	ADMIN	TOTAL	TOTAL(Per Task)
			$300.00	$250.00	$230.00	$150.00	$100.00	$100.00	$85.00		
1		**Task One, Data Collection**								33	$5,750
	a	Survey coordination		4			4			8	$1,400
	b	Data collections and review of data		2		3	4			9	$1,350
	c	Field visit and meetings		8		4	4			16	$3,000
2		**Task Two: Hydrology**								270	$36,980
	a	Drainage area delineation		8		30	36			74	$10,100
	b	Tc and Curve Number calcs		4		30	36			70	$9,100
	c	HEC-HMS modeling		4		15				19	$3,250
	d	Rational Method calcs for minor crossings				4	18			22	$2,400
	e	Validation of discharges		3		6				9	$1,650
	f	Excess runoff analysis				2	16			18	$1,900
	g	QC review and hydrology task writing & GIS Figures		4	6	8	4	12		34	$5,180
	h	Address comments		4		8	8	4		24	$3,400
3		**Task Three: Hydraulics**								196	$27,500
	a	Prepare hydraulic workmap and develop existing terrain from survey and LiDAR files				8		8		16	$2,000
	b	HEC-RAS modeling of existing conditions (5 models)		10		50				60	$10,000
	c	HY8 modeling of minor crossings		2		4	48			54	$5,900
	d	Coordination w roadway		3		3				6	$1,200
	e	Proposed modeling of improvements / flood mitigation analysis		6		30	24			60	$8,400
4		**Task Four: Detention Analysis**								104	$13,720
	a	Determine areas with impacts where detention is necessary		4		12	20			36	$4,800
	b	Detention analysis (using HydraFlow by Autodesk).		4	4	8	20			36	$5,120
	c	Prepare Exhibits with proposed detention pond dimensions (conceptual)		4			12	16		32	$3,800
5		**Task Five and six: Drainage easement ID and Channel Mitigation sheets**								58	$8,420
	a	Channel impact analysis		4	4	8				16	$3,120
	b	Channel mitigation sheets (if required)		2		8		12		22	$2,900
	c	Drainage easement ID		2		2	16			20	$2,400
6		**Hydraulic Report and QA/QC**								202	$27,680
	a	Hydraulic Report preparation		12		28	40	20	4	104	$13,540
	b	QC of report, exhibits and calculations			8	14	16	8		46	$6,340
	c	Address TxDOT comments		12		16	16	8		52	$7,800
8		**CLOMR**								154	$25,340
	1	Effective model update		4		8				12	$2,200
	2	Proposed Project Conditions floodplain and floodway models		8		12				20	$3,800
	3	Map delineation and CLOMR approval report		20	8	28	12	8		76	$13,040
	4	City review and acceptance		2		8	4	4		18	$2,500
	5	FEMA Review		4		8	12	4		28	$3,800
		TOTAL	**0**	**144**	**30**	**365**	**370**	**104**	**4**	**1017**	**$145,390**
			$300.00	$250.00	$230.00	$150.00	$100.00	$100.00	$85.00		
TOTAL COSTS			$0	$36,000	$6,900	$54,750	$37,000	$10,400	$340	$145,390	

DIRECT EXPENSES	Direct Cost	Contract Rate	Unit	Quantity	Amount
	Standard Postage	0.49	Each	100	$49.00
	Mileage	$0.535	per mile	500	$267.50
	Toll Charges	$4.00	Each	-	$0.00
	Mylar Plots (11"x17")	$2.00	Sheet	-	$0.00
	Large format printing	$2.00	SF	100	$200.00
	8 1/2"x11" B/W Paper Copies	$0.10	Sheet	200	$20.00
	8 1/2'x11' Color Paper Copies	$0.50	Sheet	150	$75.00
	Photocopies B/W (11"x17")	$0.20	Sheet	150	$30.00
	Photocopies Color (11"x17")	$1.00	Each	100	$100.00
	SUB-TOTAL DIRECT COST				**$741.50**
	SUB-TOTAL LABOR				**$145,390.00**
	TOTAL COST				**$146,132.00**

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
C. Schematic Design
EXHIBIT B

TASK		DESCRIPTION	Project Principal	Project Manager	Transportation Planner	Project Engineer	EIT	CAD/ENGR TECH	ADMIN	TOTAL	TOTAL(Per Task)
			$300.00	$250.00	$200.00	$150.00	$100.00	$100.00	$85.00		
1		**Schematic Alternatives and Screening**								944	$134,600
	a	Conceptual Schematic Alternatives		40	160	200	300	24		724	$104,400
	b	Comparative Quantitative Evaluation Matrix		8	24	32	40	40		144	$19,600
	c	Develop Conceptual Layouts		4	16	16	40			76	$10,600
2		**Geometric Design Schematic**								1680	$219,400
	a	Plan Roadway Elements		40	80	160	240	80		600	$82,000
	b	Profile Roadway Elements		20	40	120	200	40		420	$55,000
	c	Development of Schematic Layout			4	24	60	24		112	$12,800
	d	Cross Sections		16		80	120	40		256	$32,000
	e	Construction Sequence		16	8	40	100	20		184	$23,600
	f	Cost Estimates		8		40	40	20		108	$14,000
4		**Railroad Coordination**								312	$50,000
	a	Develop Meeting Materials		24	24	40	80			168	$24,800
	b	Conduct Meetings		36	36	36	36			144	$25,200
5		**State Coordination**								312	$50,000
	a	Develop Meeting Materials		24	24	40	80			168	$24,800
	b	Conduct Meetings		36	36	36	36			144	$25,200
		TOTAL	**0**	**272**	**452**	**864**	**1372**	**288**	**0**	**3248**	**$454,000**
			$300.00	$250.00	$200.00	$150.00	$100.00	$100.00	$85.00		
TOTAL COSTS			$0	$68,000	$90,400	$129,600	$137,200	$28,800	$0	$454,000	

DIRECT EXPENSES	Direct Cost	Contract Rate	Unit	Quantity	Amount
	Standard Postage	0.49	Each	-	$0.00
	Mileage	$0.535	per mile	500	$267.50
	Toll Charges	$4.00	Each	-	$0.00
	Mylar Plots (11"x17")	$2.00	Sheet	-	$0.00
	Large format printing	$2.00	SF	15000	$30,000.00
	8 1/2"x11" B/W Paper Copies	$0.10	Sheet	0	$0.00
	8 1/2'x11' Color Paper Copies	$0.50	Sheet	10000	$5,000.00
	Photocopies B/W (11"x17")	$0.20	Sheet	30000	$6,000.00
	Photocopies Color (11"x17")	$1.00	Each	0	$0.00
	SUB-TOTAL DIRECT COST				**$41,267.50**
	SUB-TOTAL LABOR				**$454,000.00**
	TOTAL COST				**$495,268.00**

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
D. Environmental Documentation

EXHIBIT B

TASK		DESCRIPTION	Project Principal	Project Manager	Transportation Planner	Project Engineer	EIT	CAD/ENGR TECH	Sr. Environmental Scientist	Environmental Scientist	ADMIN	TOTAL	TOTAL(Per Task)
			$300.00	$250.00	$200.00	$150.00	$100.00	$100.00	$150.00	$100.00	$85.00		
1		**Task One, Project Management/Coordination and Meetings**										72	$13,960
	a	Project Management		24							16	40	$7,360
	b	Kickoff and Coordination Meetings (upto 5)		12	12	8						32	$6,600
2		**Task Two: Data Collection- Land Use/Environmental Constraints Review**										140	$29,400
	a	Identification of Future Land Use		4	16							20	$4,200
	b	Update Land Use in GIS		4	8							12	$2,600
	c	Review Current Roadway network needs		4	24							28	$5,800
	d	Identification of Environmental constraints		4	16							20	$4,200
	e	Prepare environmental constraints map		4	8							12	$2,600
	f	High level geometric review updates in ArcGIS		4	24							28	$5,800
	g	Preliminary cost estimates with typical sections		4	16							20	$4,200
3		**Task Three: Social, Economic and Environmental Studies and Public Involvement for TxDOT Coordination**										2612	$344,460
		Project Management											
		Kick-off meeting with District Staff (Two staff travel to District)			12				12	1		25	$4,290
		Bi-weekly Project Management Meetings (Conf Call with District Staff as requested)			26				26	26		78	$11,440
		Environmental data collection											
		Develop project constraints map and summary report			16			44		32		92	$10,040
		Environmental studies											
		Conduct land use and socioeconomics studies			8			16	24	24		72	$8,800
		Traffic noise											
		Determine sensitive receptors within Project			1			12	16			29	$3,680
		Develop Noise Impact Model			40			20	24			84	$13,400
		Prepare Noise Analysis Technical Report			40			24	24			88	$13,760
		Air quality/MSAT - (qualitative analysis only)			24			24	16			64	$9,360
		Waters of the US determination			2				24	32		58	$6,880
		Conduct vegetation and wildlife review			2				24	32		58	$6,880
		Waters of the US and Wetland Jurisdictional Analysis											
		Prepare draft Water Resources Technical Report			2			12	32	24		70	$8,440
		Determine and document floodplains and potential impacts						4		8		12	$1,080
		Threatened or endangered species											
		Conduct surveys for protected species or habitat of protected species			2				24	24		50	$6,160
		Prepare Biological Resources Technical Report			2			16	24	32		74	$8,320
		Cultural Resources											
		Historic Resources											
		Perform background historic-age resource assessment			2			6	12			20	$2,740
		Prepare Project Coordination Request for TxDOT ENV Review)			16			8	32			56	$8,720
		Archeology						16				16	$1,440
		Conduct archeological background study						16	4	12		32	$3,120
		Prepare Project Coordination Request (for TxDOT ENV Review)							16	32		48	$5,280
		Prepare Archeological Permit Application							4	8		12	$1,320
		Archeological Field Testing (shovel tests only)							60	60		120	$14,400

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
D. Environmental Documentation

EXHIBIT B

TASK		DESCRIPTION	Project Principal	Project Manager	Transportation Planner	Project Engineer	EIT	CAD/ENGR TECH	Sr. Environmental Scientist	Environmental Scientist	ADMIN	TOTAL	TOTAL(Per Task)
		Archeological Survey Summary Report							24	40		64	$7,200
		Hazardous materials impacts			24			16				40	$6,240
		Perform hazardous material Initial Site Assessment (ISA) for potential hazardous materials impacts			32			16				48	$7,840
		Prepare Hazardous Materials Technical Report			12							12	$2,400
		Section 4(f) property determinations										0	$0
		Environmental clearance						8	6			14	$1,620
		Update Environmental constraints map										0	$0
		Environmental document										0	$0
		Environmental Assessment (EA)			25			24	60	24		133	$18,320
		Prepare preliminary draft EA			16			12	32	16		76	$10,520
		Review with City, District, and ENV staff & revise per comments			16			16	32	16		80	$10,880
		Prepare final EA & revise per Public Hearing comments			16			12	40	16		84	$11,720
		Review with City, District, and ENV staff & revise per comments			16			12	32	16		76	$10,520
		Prepare FONSI			24			16	40	24		104	$14,400
		Final EA and FONSI revisions			8			8	32			48	$7,120
		Complete Environmental Permits Issues and Commitments (EPIC) sheets			4				12	24		40	$4,760
												0	$0
		Public involvement										0	$0
		Develop and maintain stakeholder list							20	16		36	$4,440
		Develop and maintain ROE Database and GIS Map							48			48	$7,200
		Develop and send ROE letters							4	36		40	$3,840
		Participate in MAPO meetings (estimate 4 mtgs)							40	26		66	$8,340
		Develop flyer/mailer (estimate 1 flyer/mailer to be updated for each meeting location, if needed)							4	10		14	$1,500
		Plan and participate in Public Meeting/Open House (estimate 1 mtg)			16				2	5		23	$3,950
		Develop postcard invitation (estimate 1)							40	26		66	$8,340
		Develop advertisement (estimate 1)							8	2		10	$1,380
		Plan and participate in Public Hearing (estimate 1 mtg)							16	16		32	$3,840
		Develop public notices (estimate 1)							2	4		6	$660
		Develop newsletter (estimate 2 newsletters)										0	$0
		Develop newspaper ad (estimate 1)							24	26		50	$5,940
		Develop materials for Public Meeting/Open House							24	20		44	$5,400
		Exhibits (estimate up to 5 display boards)			8							8	$1,600
		Presentations (estimate 1, includes two rounds of revisions with the Client)			4				12	40		56	$6,200
		Develop materials for Public Hearing							24	4		28	$3,960
		Exhibits (estimate up to 10 display boards)			8				1	4		13	$2,110
		Public hearing script development			8				16	24		48	$6,160
		Comment cards (estimate 1, includes two rounds of revisions with the Client)			4				4	1		9	$1,490
		Presentations (estimate 1, includes two rounds of revisions with the Client)			8				4	1		13	$2,290
		Develop Public Hearing Summary Report							4	1		5	$690
		Develop Public Hearing Comment/Response Document										0	$0
		Prepare and submit MAPO Summary of Four (4) MAPO Meetings							4	16		20	$2,040
4		**Task Four: Travel Demand Modeling**										274	$33,100
	a	Review of TDM at the study corridor		2		8	12					22	$2,900
	b	Develop 2040 socio-economic data for TDM (30 TAZs)		8		40	120					168	$20,000

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
D. Environmental Documentation

EXHIBIT B

TASK		DESCRIPTION	Project Principal	Project Manager	Transportation Planner	Project Engineer	EIT	CAD/ENGR TECH	Sr. Environmental Scientist	Environmental Scientist	ADMIN	TOTAL	TOTAL(Per Task)
	c	Update TDM TAZs with developed socio-economic data		2		16	32					50	$6,100
	d	Update network for proposed connectors		2		8	24					34	$4,100
5		**Task Five: Future Model Runs (NoBuild/Build)**										152	$15,640
	a	Model Runs- 2040 No Build					8					8	$800
	b	Model Runs- 2040 Build					8					8	$800
	c	Prepare Line Diagrams (Traffic Projections)		4			24	16				44	$4,840
	d	Identification of improvements along the corridor/Incorporate CIPs					12					12	$1,200
	e	Document results in Technical Memorandum/Report					80					80	$8,000
6		**Task Six: QA/QC**	24	60								84	$22,200
		TOTAL	**24**	**142**	**568**	**80**	**320**	**374**	**1009**	**801**	**16**	**3334**	**$458,760**
			$300.00	**$250.00**	**$200.00**	**$150.00**	**$100.00**	**$90.00**	**$150.00**	**$90.00**	**$85.00**		
TOTAL COSTS			**$7,200**	**$35,500**	**$113,600**	**$12,000**	**$32,000**	**$33,660**	**$151,350**	**$72,090**	**$1,360**	**$458,760**	

DIRECT EXPENSES

Direct Cost	Contract Rate	Unit	Quantity	Amount
Standard Postage	0.49	Each	-	$0.00
Mileage	$0.535	per mile	800	$428.00
Toll Charges	$4.00	Each	-	$0.00
Mylar Plots (11"x17")	$2.00	Sheet	-	$0.00
Large format printing	$2.00	SF	100	$200.00
8 1/2"x11" B/W Paper Copies	$0.10	Sheet	100	$10.00
8 1/2'x11' Color Paper Copies	$0.50	Sheet	100	$50.00
Photocopies B/W (11"x17")	$0.20	Sheet	100	$20.00
Photocopies Color (11"x17")	$1.00	Each	50	$50.00
Roadway Tube (per counter/24 Hours)	$130.00	each/day		$0.00
TMCs	$425.00	er Intersection		$0.00
SUB-TOTAL DIRECT COST				**$758.00**
SUB-TOTAL LABOR				**$458,760.00**
TOTAL COST				**$459,518.00**

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
E. Public Involvement

EXHIBIT B

TASK		DESCRIPTION	Project Principal	Project Manager	Transportation Planner	Public Involvement Specialist	EIT	CAD/ENGR TECH	ADMIN	TOTAL	TOTAL(Per Task)
			$300.00	$250.00	$200.00	$150.00	$100.00	$100.00	$85.00		
1		**Public Involvement Plan**								72	$13,960
	a	Development of Public Involvement Plan		24					16	40	$7,360
	b	Mailing List		12	12	8				32	$6,600
2		**Outreach**								80	$16,800
	a	Stakeholder Outreach		4	16					20	$4,200
	b	Preparation of meeting materials		4	8					12	$2,600
	c	Dry-Run Meetings with CITY		4	24					28	$5,800
	d	Meeting Summaries		4	16					20	$4,200
3		**Open House Public Meetings**								262	$56,440
	a	Legal notices			8	24			16	48	$6,560
	b	Advertisement		2	8	16			8	34	$5,180
	c	Dry-Run Meetings with State		8	8	16	4		4	40	$6,740
	d	Conduct Meetings		8	32	16	16		16	88	$13,760
	e	Preparation of Meeting Materials		4	8	24			16	52	$7,560
	f	Typical Section Renders				24		16		40	$5,200
	g	Response to Public's Comment		2	8					10	$2,100
	h	Public Meeting Summaries		2	16	24			24	66	$9,340
4		**Open House Hearing**								182	$36,450
	a	Legal notices			4	16			8	28	$3,880
	b	Advertisement			4	8			4	16	$2,340
	c	Dry-Run Meetings with State		4	4	8	2		2	20	$3,370
	d	Conduct Meeting		4	16	8	8		8	44	$6,880
	e	Preparation of Meeting Materials		2	8	40			24	74	$10,140
	g	Response to Public's Comment		2	8	12			12	34	$4,920
	h	Public Meeting Summary		2	8	12			12	34	$4,920
		TOTAL	**0**	**92**	**216**	**256**	**30**	**16**	**170**	**780**	**$123,650**
			$300.00	$250.00	$200.00	$150.00	$100.00	$100.00	$85.00		
TOTAL COSTS			$0	$23,000	$43,200	$38,400	$3,000	$1,600	$14,450	$123,650	

DIRECT EXPENSES	Direct Cost	Contract Rate	Unit	Quantity	Amount
	Standard Postage	0.49	Each	-	$0.00
	Mileage	$0.535	per mile	800	$428.00
	Newspaper Advertisement	$8,000.00	per publication	3	$24,000.00
	Court Reporter	$10.00	page	3	$30.00
	Court Reporter (Public Meetings, Hearings & Transcription)	$500.00	day	3	$1,500.00
	Translator (English to Spanish, other language as appropriate, or Sign Language) for Public Involvement	$500.00	event	3	$1,500.00
	Translator (English to Spanish, other language as appropriate, or Sign Language)	$100.00	hour	12	$1,200.00
	Custodian for Public Involvement	$35.00	hour/custodian	6	$210.00
	Sound Technician for Public Involvement	$300.00	event	3	$900.00
	Public Involvement Facility Rental (estimate)	$750.00	4 hours	4	$3,000.00
	Public Involvement Facility Rental	$1,200.00	event	3	$3,600.00
	Audio - Equipment Rental	$250.00	each	3	$750.00
	Audio - Visual Equipment Rental	$400.00	event	3	$1,200.00
	Public Notices - Mass Mailing (500 pieces)	$400.00	per mailing	3	$1,200.00
	Presentation Boards Color Mounted	$120.00	each	20	$2,400.00
	8 1/2'x11' Color Paper Copies	$0.50	Sheet	2000	$1,000.00
	Photocopies B/W (11"x17")	$0.20	Sheet	100	$20.00
	Photocopies Color (11"x17")	$1.00	Each	50	$50.00
	SUB-TOTAL DIRECT COST				**$42,988.00**
	SUB-TOTAL LABOR				**$123,650.00**
	TOTAL COST				**$166,638.00**

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
F. Topographic Mapping Design Surveys
EXHIBIT B

TASK		DESCRIPTION	RPLS PROJECT MANAGER	RPLS TASK LEADER	SENIOR SURVEY TECH	SURVEY TECH	LiDAR TECH	1 MAN CREW	2 MAN CREW	3 MAN CREW	4 MAN CREW	ADMIN	TOTAL	TOTAL(Per Task)
			$180.50	$164.00	$120.00	$103.19	$105.00	$110.00	$160.00	$195.00	$220.00	$75.00		
1		**Taks One: Primary Control**											182	$24,852
		Primary Control	4	12	48	32		10	60	10		6	182	$24,852
														$0
2		**Task Two: Secondary Control**											72	$10,019
		Secondary Control	1	2	8	8		10	40			3	72	$10,019
														$0
3		**Task Three: Right of Entry**											154	$16,320
		Right of Entry	2	12	40	60						40	154	$16,320
														$0
4		**Task Four: Aerial Mapping**											70	$8,853
		Aerial Mapping	4	16	24	24						2	70	$8,853
														$0
5		**Task Five: Ground Truthing**											80	$11,469
		Ground Truthing	1	2	8	8		10	50			1	80	$11,469
														$0
6		**Task Six: Drainage and Creek Cross Sections**											314	$44,801
		Drainage and Creek Cross Sections	4	16	40	80		10	120	40		4	314	$44,801
														$0
7		**Task Seven: Aerial Topographic Mapping**											102	$12,424
		Aerial Topographic Mapping	4	16	40	40						2	102	$12,424
														$0
8		**Task Eight: Elevated Structure Topographic Mapping**											115	$15,793
		Elevated Structure Topographic Mapping	1	4	24	24		10	40	10		2	115	$15,793
														$0
9		**Task Nine: Supplemental Topographic Surveying**											388	$53,025
		Supplemental Topographic Surveying	24	40	60	120		10	120	10		4	388	$53,025
														$0
10		**Task Ten: Row Base Map**											154	$19,642
		Row Base Map	4	40	60	50							154	$19,642
														$0
		QA/QC	12	24	40	32							108	$14,204
														$0
														0
		TOTAL	**61**	**184**	**392**	**478**	**0**	**60**	**430**	**70**	**0**	**64**	**1739**	**$231,401**
TOTAL COSTS			$11,011	$30,176	$47,040	$49,325	$0	$6,600	$68,800	$13,650	$0	$4,800	$231,401	

DIRECT EXPENSES	Direct Cost	Contract Rate	Unit	Quantity	Amount
	Standard Postage	0.55	Each	50	$27.50
	Certified Letter Return Receipt	$6.70	Each	150	$1,005.00
	Mileage	$0.58	per mile	1500	$870.00
	Plots (11"x17" & 22"x34")	$5.00	Sheet	10	$50.00
	Railroad Permit	$1,500.00	Each	0	$0.00
	Railroad Permit Expedited	$1,725.00	Each	0	$0.00
	Railroad Safety Training	$305.00	per person	0	$0.00
	Plat Copies	$4.50	Sheet	0	$0.00
	Aerial Photogrammetry & LiDAR (sub-consultant Lump Sum)	$50,000.00	Each	1	$50,000.00
	Type II Monument Materials	$250.00	each/day	6	$1,500.00
	Terrestrial Scanner	$108.00	per day	4	$432.00
	Boat with Motor	$340.000	per day	8	$2,720.000
	SUB-TOTAL DIRECT COST				**$56,604.50**
	SUB-TOTAL LABOR				**$231,401.32**
	TOTAL COST				**$288,006.00**

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
G. Subsurface Utility Engineering
EXHIBIT B

TASK		DESCRIPTION	Project Manager	Task Lead Engineer	SUE Manager	EIT	ADMIN	TOTAL	TOTAL(Per Task)
			$200.00	$180.00	$165.00	$100.00	$75.00		
1		**Task One, Project Management/Coordination and Meetings**						84	$18,240
	a	Project Management & Coordination	8	16	24	16	10	74	$10,790
	b	Pipeline Coordination			10			10	$1,650
	c	Test Hole Data Sheets		10		40			$5,800
		TOTAL	**8**	**26**	**34**	**56**	**10**	**134**	
									$18,240
TOTAL COSTS			$1,600	$4,680	$5,610	$5,600	$750	$18,240	
			$0.00	$0.00	$0.00	$0.00	$0.00	$ 18,240.00	

2 **SUBSURFACE UTILITY ENGINEERING**

Utility Quality Levels

	UNIT	COST/UNIT	QUANTITY	TOTAL
SUE (Quality Level C and D) Includes labor and equipment for records research, CADD, and mapping.	LF	$0.65	50,000	$32,500.00
SUE (Quality Level B - Utility Designation) - Includes labor and equipment for records research, designating, engineering, CADD, mapping and limited traffic control	LF	$1.55	8,500	$13,175.00
SUE (Quality Level A - Utility Locate, Test Holes) - Includes labor and equipment for vacuum excavation, engineering, surveying, CADD and limited traffic control. These prices reflect that Quality Level B service as been provided.				
0 feet to 5.00 feet	EA	$1,100.00	12	$13,200.00
over 5.00 feet to 8.00 feet	EA	$1,375.00	8	$11,000.00
over 8.00 feet to 13.00 feet	EA	$1,750.00	6	$10,500.00
over 13.00 feet to 20.00 feet	EA	$2,350.00	4	$9,400.00
Over 20.00 feet	EA	$155.00		$0.00
Mobilization/Demobilization	Mile	$5.00	1000	$5,000.00
			30	
			TOTAL	**$94,775.00**

DIRECT EXPENSES

Direct Cost	Contract Rate	Unit	Quantity	Amount
Mileage	$0.580	per mile	1500	$870.00
Traffic Control	$2,500.000	day	5	$12,500.00
				$13,370.00
SUB-TOTAL DIRECT COST				**$13,370.00**
SUB-TOTAL UNIT COST				**$94,775.00**
SUB-TOTAL LABOR				**$18,240.00**
TOTAL COST				**$126,385.00**

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
H. Right-of-Way Mapping
EXHIBIT B

TASK		DESCRIPTION	RPLS PROJECT MANAGER	RPLS TASK LEADER	SENIOR SURVEY TECH	SURVEY TECH	SENIOR GIS OPERATOR	GIS TECH	1 MAN CREW	2 MAN CREW	3 MAN CREW	ADMIN	TOTAL	TOTAL(Per Task)
			$180.50	$164.00	$120.00	$103.19	$128.99	$95.82	$110.00	$160.00	$195.00	$75.00		
1		**Abstracting and Ownership List**											135	$15,417
		Abstracting and Ownership List	4	11	47	63						10	135	$15,417
														$0
2		**ROE Letters**											84	$8,558
		ROE Letters	2	7	26	9						40	84	$8,558
														$0
3		**Verify Existing Project Control**											33	$4,127
		Verify Existing Project Control	1	2	4	12				10		4	33	$4,127
														$0
4		**Interim ROW Map Sheet and Property Descriptions**											36	$4,151
		Interim ROW Map Sheet and Property Description	2	4	9	17						4	36	$4,151
														$0
5		**Abstract Map**											72	$9,149
		Abstract Map	4	11	17	26				10		4	72	$9,149
														$0
6		**Property Descriptions**											690	$92,757
		Property Descriptions	42	130	148	182			3	150	3	32	690	$92,757
														$0
7		**RR Property topo and Descriptions**											252	$35,336
		RR Property topo and Descriptions	8	60	60	32			10	60	10	12	252	$35,336
														$0
8		**GIS Database**											75	$8,126
		GIS Database	2	2	6	9	14	40				2	75	$8,126
														$0
9		**ROW Map Sheets**											124	$16,127
		ROW Map Sheets	13	19	73	17						2	124	$16,127
														$0
10		**Final Deliverables**											116	$12,987
		Final Deliverables	4	8	40	48						16	116	$12,987
														$0
		QA/QC	32	120	120	80							352	$48,111
														$0
														0
		TOTAL	**114**	**374**	**550**	**495**	**14**	**40**	**13**	**230**	**13**	**126**	**1969**	**$254,846**
TOTAL COSTS			**$20,577**	**$61,336**	**$66,000**	**$51,079**	**$1,806**	**$3,833**	**$1,430**	**$36,800**	**$2,535**	**$9,450**	**$254,846**	
													$ 264,310.00	

DIRECT EXPENSES	Direct Cost	Contract Rate	Unit	Quantity	Amount
	Standard Postage	0.55	Each	50	$27.50
	Certified Letter Return Receipt	$6.70	Each	50	$335.00
	Mileage	$0.58	per mile	2460	$1,426.80
	Plots (11"x17" & 22"x34")	$5.00	Sheet	15	$75.00
	Railroad Permit	$1,500.00	Each	2	$3,000.00
	Railroad Permit Expedited	$1,725.00	Each	0	$0.00
	Railroad Safety Training	$305.00	per person	4	$1,220.00
	Plat Copies	$4.50	Sheet	40	$180.00
	Deed Copies	$2.00	Each	600	$1,200.00
	External Hard Drive	$50.00	each/day	0	$0.00
	Terrestrial Scanner	$108.00	per day	0	$0.00
	RR Flagger	$250.000	per day	8	$2,000.000
	SUB-TOTAL DIRECT COST				**$9,464.30**
	SUB-TOTAL LABOR				**$254,845.71**
	TOTAL COST				**$264,310.00**

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
I. Right-of-Way Acquisition

EXHIBIT B

TASK		DESCRIPTION	Project Principal	Project Manager	ROW Acquisition Agent	CAD/ENGR TECH	ADMIN	TOTAL	TOTAL(Per Task)
			$300.00	$250.00	$135.00	$100.00	$85.00		
1		**Administrative**						681	$134,235
	a	Monthly face to face meeting with City		48	16	48		112	$18,960
	b	Weekly Meetings		60	17	60	48	185	$27,375
	c	Meeting Minutes/Reporting				12		12	$1,200
	d	Doc Control	12	300	60			372	$86,700
	e	Project Management							
		TOTAL	**12**	**408**	**93**	**120**	**48**	**681**	**$134,235**
			$300.00	$250.00	$135.00	$100.00	$85.00		
TOTAL COSTS			$3,600	$102,000	$12,555	$12,000	$4,080	$134,235	

UNIT COSTS

Unit Costs	Contract Rate	Unit	Quantity	Amount
Initial Appraisal	$3,500.00	per parcel	21	$73,500.00
Initial Appraisal Review	$1,400.00	per parcel	21	$29,400.00
Negotiation Services	$5,500.00	per parcel	21	$115,500.00
Condemnation Fee (assumed 35% condemnation rate)	$3,000.00	per vacant parcel	7	$21,000.00
SUB-TOTAL DIRECT COST				**$239,400.00**
SUB-TOTAL LABOR				**$134,235.00**
TOTAL COST				**$373,635.00**

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
J1. PS (Option 1) Grade Separation @ KCS
EXHIBIT B

TASK		DESCRIPTION	Project Principal	Project Manager	Senior Bridge Engineer	Bridge Project Engineer	Project Engineer	EIT	ADMIN	TOTAL	TOTAL(Per Task)
			$300.00	$250.00	$270.00	$170.00	$150.00	$100.00	$85.00		
I		**Roadway Design**									
	a	Project Management	8	24	24		24		20	100	$20,180
	b	Data Collection & GIS Processing		6			24	24		54	$7,500
	c	Conduct Field Visit (3 visits; 4 hrs/visit)		12	12		12			36	$8,040
	d	Specifications		32			20		8	60	$11,680
	e	General Notes & Typical Sections		12			24	36		72	$10,200
	f	Removal Plans		13			39	104		156	$19,500
	g	Paving Plans & Details		54			270	324		648	$86,400
	g	Drainage Plans & Details		40			284	324		648	$85,000
	h	Retaining Wall Plans & Details		54			270	324		648	$86,400
	i	Traffic Control Plans		19			95	114		228	$30,400
	j	SW3P Plans		13			65	65		143	$19,500
	k	Pavement Markings & Signs (excluding signs mounted on signal poles)		16			56	56		128	$18,000
	l	Waterline and Sanitary Sewer Plans		28			140	168		336	$44,800
	m	Cross Sections		21			41	82		144	$19,600
	n	Standard details		4			4	24		32	$4,000
	o	Summary of Quantities		4			32	32		68	$9,000
	p	QA/QC reviews 60%, 90%, & Final Submittals		24			60			84	$15,000
	q	Cost Estimate		16			24			40	$7,600
	r	Utility Coordination		32			48			80	$15,200
	s	Illumination Plans		12			80	80		172	$23,000
	t	Railroad Coordination	12	12			40	40		104	$16,600
		SUBTOTAL									$557,600
II		**Signal Design**									
		Assume signals at Country Club Road intersection only									
	a	Meetings and Coordination (1 meetings assumed; PM 4 hr/mtg)		4			12	8		24	$3,600
	b	Conduct Field Visit (1 visit; 4 hrs/visit)					4	4		8	$1,000
	c	Traffic Warrant Analysis								0	$0
		a. Hickory Creek Road and Country Club Road		2			8	10		20	$2,700
	d	Coordination with Electrical Service Provider		2			21	4		27	$4,050
	e	Specifications		1			12	2		15	$2,250
	f	General Notes		2			6	12		20	$2,600
	g	Proposed Signal Layout		4			20	28		52	$6,800
	h	Conduit and Conductor Schedule		2			12	14		28	$3,700
	i	Signing and Phase Sequence Diagram		2			10	4		16	$2,400
	j	Traffic Signal Foundation Detail Sheets		2			12	16		30	$3,900
	k	Summary of Quantities		1			2	4		7	$950
	l	QA/QC review		2			12	0		14	$2,300
	m	Cost Estimate		2			18	0		20	$3,200
		SUBTOTAL									$39,450

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
J1. PS (Option 1) Grade Separation @ KCS
EXHIBIT B

VII		**Hickory Creek Road Bridge Design at Hickory Creek**									
		Assume one bridge (Six lanes. 330 ft long with 3 spans of 110 ft each. No twin bridge. No sidewalks. No calculation book. No aesthetic treatments. Use TxDOT Specs. Use TxDOT standard bridge railing.)									
	a	Gather Data & General Notes			2	20		16		**38**	**$5,540**
	b	Bridge Type Selection			2	16		8		**26**	**$4,060**
	c	Bridge Layouts (2 sheets)			12	16		20		**48**	**$7,960**
	d	Boring Log Sheet (1 sheet)				2		6		**8**	**$940**
	e	3D BIM Model			1	12		28		**41**	**$5,110**
	f	Bridge Summary Table (1 sheet)			1	10		2		**13**	**$2,170**
	g	Perform calculations for control/bearing seat elevations and beam designs			2	21		4		**27**	**$4,510**
	h	Prepare necessary foundation details and calculations (geotech coordination)			1	12		2		**15**	**$2,510**
	i	Riprap Layout Sheet (1 sheet)			10	6		12		**28**	**$4,920**
	j	Prepare Abutment Details & Design (4 sheets)			8	40		56		**104**	**$14,560**
	k	Prepare Bent Details & Design (2 sheets)			6	26		28		**60**	**$8,840**
	l	Prepare Framing Plan & BGS run (1 sheet)			3	21		8		**32**	**$5,180**
	m	Prepare Deck Plan (2 sheets)			4	26		32		**62**	**$8,700**
	n	Assemble Bridge Standards			1	4		6		**11**	**$1,550**
	o	**QA/QC Reviews 60%, 90%, & Final Submittals**			4	26				**30**	**$5,500**
	p	**Shop Drawing Review/RFIs**			4	38				**42**	**$7,540**
		SUBTOTAL									**$89,590**
VII		**Hickory Creek Road Bridge Design at Railroad Crossing**									
		Assume one bridge (Six lanes. 570 ft long with 5 spans including a main span of 130 ft with all other spans at 110 ft. No twin bridge. No sidewalks. No calculation book. No aesthetic treatments. Use TxDOT Specs. Use TxDOT standard bridge railing.)									
	a	Gather Data & General Notes			2	20		16		**38**	**$5,540**
	b	Bridge Type Selection			2	16		8		**26**	**$4,060**
	c	Bridge Layouts (3 sheets)			8	32		40		**80**	**$11,600**
	d	Boring Log Sheet (2 sheets)				3		9		**12**	**$1,410**
	e	3D BIM Model			1	16		36		**53**	**$6,590**
	f	Bridge Summary Table (1 sheet)			1	10		2		**13**	**$2,170**
	g	Perform calculations for control/bearing seat elevations and beam designs			2	32		6		**40**	**$6,580**
	h	Prepare necessary foundation details and calculations (geotech coordination)			1	16		3		**20**	**$3,290**
	i	Riprap Layout Sheet (NONE - Assume wrap around retaining walls)								**0**	**$0**
	j	Prepare Abutment Details & Design (4 sheets)			8	40		56		**104**	**$14,560**
	k	Prepare Bent Details & Design (4 sheets)			8	52		56		**116**	**$16,600**
	l	Prepare Framing Plan & BGS run (2 sheets)			6	40		16		**62**	**$10,020**
	m	Prepare Deck Plan (4 sheets)			8	52		64		**124**	**$17,400**
	n	Assemble Bridge Standards			1	4		6		**11**	**$1,550**
	o	**QA/QC Reviews 60%, 90%, & Final Submittals**			4	32				**36**	**$6,520**
	p	**Shop Drawing Review/RFIs**			6	54				**60**	**$10,800**
	q	RR Exhibit A			8	32		40		**80**	**$11,600**
	r	Fence Details for the RR Bridge (1 sheet)			4	16		20		**40**	**$5,800**
	s	Lighting Details for the RR Bridge (1 sheet structural)			1	16		20		**37**	**$4,990**
		SUBTOTAL									**$141,080**

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
J1. PS (Option 1) Grade Separation @ KCS
EXHIBIT B

										NOT INCLUDING SUBS	
		TOTAL	20	474	168	779	1801	2529	28	5799	$827,720
		TOTAL COSTS (excluding Direct Expense)	$ 6,000.00	$ 118,500.00	$ 45,360.00	$ 132,430.00	$ 270,150.00	$ 252,900.00	$ 2,380.00	$ 827,720.00	

	Direct Cost	Contract Rate	Unit			Quantity	Amount
DIRECT EXPENSES	Standard Postage	0.49	Each			-	$0.00
	Meals	$20	Each			4	$80.00
	Toll Charges	$4.00	Each			8	$32.00
	Mylar Plots (11"x17")	$2.00	Sheet			-	$0.00
	Large format printing	$2.00	SF				$0.00
	8 1/2"x11" B/W Paper Copies	$0.10	Sheet			1000	$100.00
	8 1/2'x11' Color Paper Copies	$0.50	Sheet				$0.00
	Photocopies B/W (11"x17")	$0.20	Sheet			10000	$2,000.00
	Photocopies Color (11"x17")	$1.00	Each				$0.00
	Roadway Tube (per counter/24 Hours)	$130.00	each/day				$0.00
	Mileage - Meetings,Field Visits & Travel Time Runs etc.	$0.560	Per Mile			1000	$560.000
	SUB-TOTAL DIRECT COST						**$2,772.00**
	SUB-TOTAL DIRECT COST (SUB-CONSULTANTS) (GEOTECH)						**$60,000.00**
	SUB-TOTAL LABOR						**$827,720.00**
	TOTAL COST						**$890,492.00**

CITY OF Denton - Hickory Creek
Manhour Estimate - HDR
EXHIBIT B
J2. PS (Option 2) At Grade Intersection @ KCS

TASK		DESCRIPTION	Project Principal	Project Manager	Senior Bridge Engineer	Bridge Project Engineer	Project Engineer	EIT	ADMIN	TOTAL	TOTAL(Per Task)
			$300.00	$250.00	$270.00	$170.00	$150.00	$100.00	$85.00		
I		**Roadway Design**									
	a	Project Management	8	24	24		24		20	100	$20,180
	b	Data Collection & GIS Processing		6			24	24		54	$7,500
	c	Conduct Field Visit (3 visits; 4 hrs/visit)		12	12		12			36	$8,040
	d	Specifications		32			20		8	60	$11,680
	e	General Notes & Typical Sections		12			24	36		72	$10,200
	f	Removal Plans		13			39	104		156	$19,500
	g	Paving Plans & Details		54			270	324		648	$86,400
	g	Drainage Plans & Details		40			305	348		693	$90,550
	h	Retaining Wall Plans & Details - NONE		0			0	0		0	$0
	i	Traffic Control Plans		19			95	114		228	$30,400
	j	SW3P Plans		13			65	65		143	$19,500
	k	Pavement Markings & Signs (excluding signs mounted on signal poles)		16			56	56		128	$18,000
	l	Waterline and Sanitary Sewer Plans		28			140	168		336	$44,800
	m	Cross Sections		21			41	82		144	$19,600
	n	Standard details		4			4	24		32	$4,000
	o	Summary of Quantities		4			32	32		68	$9,000
	p	QA/QC reviews 60%, 90%, & Final Submittals		24			60			84	$15,000
	q	Cost Estimate		16			24			40	$7,600
	r	Utility Coordination		32			48			80	$15,200
	s	Illumination Plans		12			80	80		172	$23,000
	t	Railroad Coordination	12	12			40	40		104	$16,600
		SUBTOTAL									$476,750
II		**Signal Design**									
		Assume signals at Country Club Road intersection and KCS RR at-grade crossing									
	a	Meetings and Coordination (2 meetings assumed; PM 4 hr/mtg)		8			16	12		36	$5,600
	b	Conduct Field Visit (2 visits; 4 hrs/visit)					8	8		16	$2,000
	c	Traffic Warrant Analysis								0	$0
		a. Hickory Creek Road and Country Club Road		2			8	10		20	$2,700
		b. Hickory Creek Road and KCS RR		2			8	10		20	$2,700
	d	Coordination with Electrical Service Provider		2			21	4		27	$4,050
	e	Specifications		1			12	2		15	$2,250
	f	General Notes		2			6	12		20	$2,600
	g	Proposed Signal Layout		4			20	28		52	$6,800
	h	Conduit and Conductor Schedule		2			12	14		28	$3,700
	i	Signing and Phase Sequence Diagram		2			10	4		16	$2,400
	j	Traffic Signal Foundation Detail Sheets		2			12	16		30	$3,900
	k	KCS RR Crossing Signals		20			60	60		140	$20,000
	l	Summary of Quantities		1			2	4		7	$950
	m	QA/QC review		2			12	0		14	$2,300
	m	Cost Estimate		2			18	0		20	$3,200
		SUBTOTAL									$65,150

EXHIBIT B

VII		**Hickory Creek Road Bridge Design at Hickory Creek**									
		Assume one bridge (Six lanes. 330 ft long with 3 spans of 110 ft each. No twin bridge. No sidewalks. No calculation book. No aesthetic treatments. Use TxDOT Specs. Use TxDOT standard bridge railing.)									
	a	Gather Data & General Notes			2	20		16		**38**	**$5,540**
	b	Bridge Type Selection			2	16		8		**26**	**$4,060**
	c	Bridge Layouts (2 sheets)			4	16		20		**40**	**$5,800**
	d	Boring Log Sheet (1 sheet)				2		6		**8**	**$940**
	e	3D BIM Model			1	12		28		**41**	**$5,110**
	f	Bridge Summary Table (1 sheet)			1	10		2		**13**	**$2,170**
	g	Perform calculations for control/bearing seat elevations and beam designs			2	21		4		**27**	**$4,510**
	h	Prepare necessary foundation details and calculations (geotech coordination)			1	12		2		**15**	**$2,510**
	i	Riprap Layout Sheet (1 sheet)			2	6		12		**20**	**$2,760**
	j	Prepare Abutment Details & Design (4 sheets)			8	40		56		**104**	**$14,560**
	k	Prepare Bent Details & Design (2 sheets)			6	26		28		**60**	**$8,840**
	l	Prepare Framing Plan & BGS run (1 sheet)			3	21		8		**32**	**$5,180**
	m	Prepare Deck Plan (2 sheets)			4	26		32		**62**	**$8,700**
	n	Assemble Bridge Standards			1	4		6		**11**	**$1,550**
	o	**QA/QC Reviews 60%, 95%, & Final Submittals**			4	26				**30**	**$5,500**
	p	**Shop Drawing Review/RFIs**			4	38				**42**	**$7,540**
		SUBTOTAL									**$85,270**
III		**Design Survey (totaled under Direct Expense)**									
IV		**ROW Parcel Documents (totaled under Direct Expense)**									
V		**Geotechnical Investigation (totaled under Direct Expense)**									
VI		**SUE (totaled under Direct Expense)**									
											NOT INCLUDING SUBS
		TOTAL	**20**	**446**	**81**	**296**	**1628**	**1909**	**28**	**4408**	**$627,170**
		TOTAL COSTS (excluding Direct Expense)	**$ 6,000.00**	**$ 111,500.00**	**$ 21,870.00**	**$ 50,320.00**	**$ 244,200.00**	**$ 190,900.00**	**$ 2,380.00**	**$ 627,170.00**	

	Direct Cost	Contract Rate	Unit			Quantity	Amount
DIRECT EXPENSES	Standard Postage	0.49	Each				$0.00
	Meals	$20	Each			4	$80.00
	Toll Charges	$4.00	Each			8	$32.00
	Mylar Plots (11"x17")	$2.00	Sheet				$0.00
	Large format printing	$2.00	SF				$0.00
	8 1/2"x11" B/W Paper Copies	$0.10	Sheet			1000	$100.00
	8 1/2'x11' Color Paper Copies	$0.50	Sheet				$0.00
	Photocopies B/W (11"x17")	$0.20	Sheet			9000	$1,800.00
	Photocopies Color (11"x17")	$1.00	Each				$0.00
	Roadway Tube (per counter/24 Hours)	$130.00	each/day				$0.00
	Mileage - Meetings,Field Visits & Travel Time Runs etc.	$0.560	Per Mile			1000	$560.000
	SUB-TOTAL DIRECT COST						**$2,572.00**
	SUB-TOTAL DIRECT COST (SUB-CONSULTANTS)(Geotech)						**$60,000.00**
	SUB-TOTAL LABOR						**$627,170.00**
	TOTAL COST						**$689,742.00**

CITY OF Denton - Hickory Creek
Manhour / Fee Estimate - HDR
TDM including Crawford Analysis
EXHIBIT B

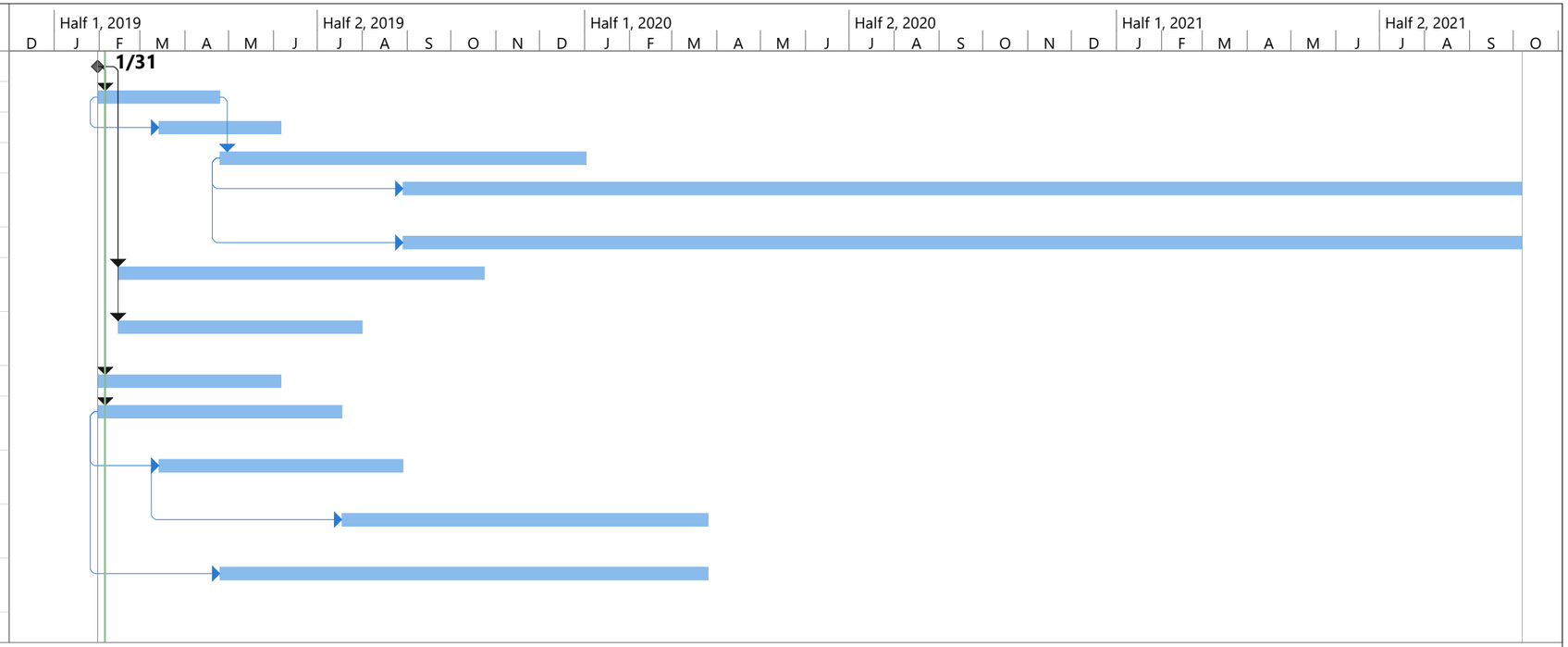
TASK		DESCRIPTION	Project Principal	Project Manager	Transportation Planner	Traffic Engineer	EIT	CAD/ENGR TECH	ADMIN	TOTAL	TOTAL(Per Task)
			$300.00	$250.00	$200.00	$150.00	$100.00	$100.00	$85.00		
1		**Task One, Project Management/Coordination and Meetings**								48	$8,780
	a	Project Management		8					8	16	$2,680
	b	Kickoff and Coordination Meetings (upto 5)		10	10	8	4			32	$6,100
2		**Task Two: Data Collection- Land Use/Environmental Constraints Review**								36	$7,800
	a	Identification of Future Land Use		4	8					12	$2,600
	b	Update Land Use in GIS		4	8					12	$2,600
	c	Review Current Roadway network needs		4	8					12	$2,600
3		**Task Three: Travel Demand Modeling**								314	$37,500
	a	Review of TDM at the study corridor		2		4	8			14	$1,900
	b	Develop 2040 socio-economic data for TDM (25 TAZs)		2		38	120			160	$18,200
	c	Update TDM TAZs with developed socio-economic data		2		4	4			10	$1,500
	d	Update network for proposed connectors		2		8	24			34	$4,100
	e	Crawfold Analysis (Assumes done in conjunction with Hickory TDM Update)		4		32	60			96	$11,800
4		**Task Four: Future Model Runs (NoBuild/Build) & Documentation**								144	$15,320
	a	Model Runs- 2040 No Build					8			8	$800
	b	Model Runs- 2040 Build					8			8	$800
	c	Prepare Line Diagrams (Traffic Projections)		4			16	8		28	$3,320
	d	Identification of improvements along the corridor/Incorporate CIPs					12			12	$1,200
	e	Document results in Technical Memorandum/Report					80			80	$8,000
	f	Prepare GIS Dashboard				8				8	$1,200
5		QA/QC	4	16						20	$5,200
		TOTAL	**4**	**62**	**34**	**102**	**344**	**8**	**8**	**562**	**$74,600**
			$300.00	$250.00	$200.00	$150.00	$100.00	$90.00	$85.00		
TOTAL COSTS			$1,200	$15,500	$6,800	$15,300	$34,400	$720	$680	$74,600	

DIRECT EXPENSES

Direct Cost	Contract Rate	Unit	Quantity	Amount
Standard Postage	0.49	Each	-	$0.00
Mileage	$0.535	per mile	800	$428.00
Toll Charges	$4.00	Each	-	$0.00
Mylar Plots (11"x17")	$2.00	Sheet	-	$0.00
Large format printing	$2.00	SF	100	$200.00
8 1/2"x11" B/W Paper Copies	$0.10	Sheet	100	$10.00
8 1/2'x11' Color Paper Copies	$0.50	Sheet	100	$50.00
Photocopies B/W (11"x17")	$0.20	Sheet	100	$20.00
Photocopies Color (11"x17")	$1.00	Each	100	$100.00
Roadway Tube (per counter/24 Hours)	$130.00	each/day		$0.00
TMCs	$425.00	Per Intersection		$0.00
SUB-TOTAL DIRECT COST				**$808.00**
SUB-TOTAL LABOR				**$74,600.00**
TOTAL COST				**$75,408.00**

EXHIBIT C

ID	Task Name	Duration	Start	Finish
1	**Notice to Proceed**	0 days	Thu 1/31/19	Thu 1/31/19
2	**Feasibility Study**	60 days	Thu 1/31/19	Wed 4/24/19
3	**Drainage Design**	60 days	Thu 3/14/19	Wed 6/5/19
4	**Schematic Design**	180 days	Thu 4/25/19	Wed 1/1/20
5	**Environmental Documentation**	550 days	Thu 8/29/19	Wed 10/6/21
6	**Public Involvement**	550 days	Thu 8/29/19	Wed 10/6/21
7	**Topographic Mapping/Design Surveys**	180 days	Thu 2/14/19	Wed 10/23/19
8	**Subsurface Utility Engineering**	120 days	Thu 2/14/19	Wed 7/31/19
9	**Hickory Creek/Crawford TDM**	90 days	Thu 1/31/19	Wed 6/5/19
10	***Schematic & Public Involvement Breakout***	120 days	Thu 1/31/19	Wed 7/17/19
11	***Right of Way Mapping Breakout***	120 days	Thu 3/14/19	Wed 8/28/19
12	***Right of Way Acquisition Breakout***	180 days	Thu 7/18/19	Wed 3/25/20
13	***Plans, Specifications & Estimates Breakout***	240 days	Thu 4/25/19	Wed 3/25/20
14				



Disclaimers:

- Breakout project limits are from Riverpass Drive to Country Club Road (FM 1830).
- Schedule assumes City Council approval of recommended alignment for the breakout project.
- Coordination with the railroad, utility companies, and FEMA may impact schedule durations.
- Schedule does not include condemnation of properties.

Task		Project Summary		Manual Task		Start-only		Deadline	
Split		Inactive Task		Duration-only		Finish-only		Progress	
Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
Summary		Inactive Summary		Manual Summary		External Milestone			

EXHIBIT D

AMENDMENTS

Not Applicable

Exhibit CIQ

CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local government entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.** HDR Engineering, Inc.

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

Not Applicable

Name of Officer

This section, (item 3 including subparts A, B, C & D), must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☒ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☒ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of one percent or more?

☐ Yes ☒ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

none

4 ☒ **I have no Conflict of Interest to disclose.**

5 DocuSigned by:

Signature of vendor doing business with the governmental entity — Date: 2/8/2019

Sign 5A2EF87DE687453

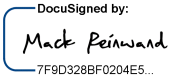
Certificate Of Completion

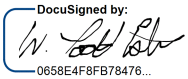
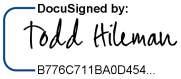
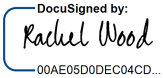
Envelope Id: 6300378246AE4E9E914EDCAEBA5D74F6
Status: Completed
Subject: Please DocuSign: City Council Contract 6590-049 Hickory Creek Design PSA - HDR Engineering, Inc.
Source Envelope:
Document Pages: 111
Signatures: 6
Certificate Pages: 6
Initials: 1
AutoNav: Enabled
EnvelopeId Stamping: Enabled
Time Zone: (UTC-06:00) Central Time (US & Canada)

Envelope Originator:
Jamie Cogdell
901B Texas Street
Denton, TX 76209
Jamie.Cogdell@cityofdenton.com
IP Address: 129.120.6.150

Record Tracking

Status: Original
2/7/2019 3:28:14 PM
Holder: Jamie Cogdell
Jamie.Cogdell@cityofdenton.com
Location: DocuSign

Signer Events	Signature	Timestamp
Jamie Cogdell jamie.cogdell@cityofdenton.com Senior Buyer City Of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 129.120.6.150	Sent: 2/7/2019 3:28:45 PM Viewed: 2/7/2019 3:28:53 PM Signed: 2/7/2019 3:29:41 PM
Lori Hewell lori.hewell@cityofdenton.com Purchasing Manager City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DS  Signature Adoption: Pre-selected Style Using IP Address: 129.120.6.150	Sent: 2/7/2019 3:29:44 PM Viewed: 2/7/2019 3:30:28 PM Signed: 2/7/2019 3:30:40 PM
Mack Reinwand mack.reinwand@cityofdenton.com City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	DocuSigned by:  7F9D328BF0204E5... Signature Adoption: Pre-selected Style Using IP Address: 129.120.6.150	Sent: 2/7/2019 3:30:43 PM Viewed: 2/7/2019 3:32:35 PM Signed: 2/7/2019 3:32:50 PM
Ramon Miguez ramon.miguez@hdrinc.com Ramon F. Miguez HDR Engineering, Inc Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 2/7/2019 3:46:36 PM ID: 97bf8206-629a-4997-9118-30cdc998f818	DocuSigned by:  5A2EF87DE5874E3... Signature Adoption: Drawn on Device Using IP Address: 199.168.243.194	Sent: 2/7/2019 3:32:55 PM Resent: 2/8/2019 9:09:20 AM Viewed: 2/7/2019 3:46:36 PM Signed: 2/8/2019 9:26:13 AM

Signer Events	Signature	Timestamp
Todd Estes todd.estes@cityofdenton.com City Engineer Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 2/8/2019 10:04:56 AM ID: 38bd45ec-fb1f-4959-9b48-137f979558a6	DocuSigned by:  0658E4F8FB78476... Signature Adoption: Drawn on Device Using IP Address: 174.206.1.66 Signed using mobile	Sent: 2/8/2019 9:26:17 AM Viewed: 2/8/2019 10:04:56 AM Signed: 2/8/2019 10:05:20 AM
Tabitha Millsop tabitha.millsop@cityofdenton.com City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 129.120.6.150	Sent: 2/8/2019 10:05:24 AM Viewed: 2/15/2019 8:12:42 AM Signed: 2/15/2019 8:13:08 AM
Todd Hileman Todd.Hileman@cityofdenton.com City Manager City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 7/25/2017 11:02:14 AM ID: 57619fbf-2aec-4b1f-805d-6bd7d9966f21	DocuSigned by:  B776C711BA0D454... Signature Adoption: Pre-selected Style Using IP Address: 129.120.6.150	Sent: 2/15/2019 8:13:14 AM Viewed: 2/15/2019 11:17:34 AM Signed: 2/15/2019 11:17:39 AM
Rachel Wood rachel.wood@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 2/16/2019 1:13:20 PM ID: 7e358997-e465-4890-9c22-ebfcf510012c	DocuSigned by:  00AE05D0DEC04CD... Signature Adoption: Pre-selected Style Using IP Address: 129.120.6.150	Sent: 2/15/2019 11:17:43 AM Viewed: 2/16/2019 1:13:20 PM Signed: 2/18/2019 8:46:12 AM

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp
Sherri Thurman sherri.thurman@cityofdenton.com City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 2/7/2019 3:29:44 PM

Carbon Copy Events	Status	Timestamp
Jane Richardson jane.richardson@cityofdenton.com Assistant City Secretary City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 2/15/2019 8:13:11 AM Viewed: 2/15/2019 12:27:13 PM
Annie Bunger annie.bunger@cityofdenton.com Administrative Assistant IV City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 2/15/2019 8:13:13 AM Viewed: 2/15/2019 8:18:23 AM
Jennifer Bridges jennifer.bridges@cityofdenton.com Procurement Assistant City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 2/18/2019 8:46:16 AM Viewed: 2/18/2019 11:03:34 AM
Jane Richardson jane.richardson@cityofdenton.com Assistant City Secretary City of Denton Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 2/18/2019 8:46:17 AM Viewed: 2/18/2019 8:47:25 AM
Pritam Deshmukh pritam.deshmukh@cityofdenton.com Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 2/18/2019 8:46:18 AM

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
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Signing Complete	Security Checked	2/18/2019 8:46:18 AM
Completed	Security Checked	2/18/2019 8:46:18 AM

Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, City of Denton (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through your DocuSign, Inc. (DocuSign) Express user account. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to these terms and conditions, please confirm your agreement by clicking the 'I agree' button at the bottom of this document.

Getting paper copies

At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. For such copies, as long as you are an authorized user of the DocuSign system you will have the ability to download and print any documents we send to you through your DocuSign user account for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a $0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

Withdrawing your consent

If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. To indicate to us that you are changing your mind, you must withdraw your consent using the DocuSign 'Withdraw Consent' form on the signing page of your DocuSign account. This will indicate to us that you have withdrawn your consent to receive required notices and disclosures electronically from us and you will no longer be able to use your DocuSign Express user account to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through your DocuSign user account all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact City of Denton:
You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:
To contact us by email send messages to: purchasing@cityofdenton.com

To advise City of Denton of your new e-mail address
To let us know of a change in your e-mail address where we should send notices and disclosures electronically to you, you must send an email message to us at melissa.kraft@cityofdenton.com and in the body of such request you must state: your previous e-mail address, your new e-mail address. We do not require any other information from you to change your email address..
In addition, you must notify DocuSign, Inc to arrange for your new email address to be reflected in your DocuSign account by following the process for changing e-mail in DocuSign.

To request paper copies from City of Denton
To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail address, full name, US Postal address, and telephone number. We will bill you for any fees at that time, if any.

To withdraw your consent with City of Denton
To inform us that you no longer want to receive future notices and disclosures in electronic format you may:

i. decline to sign a document from within your DocuSign account, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;
ii. send us an e-mail to purchasing@cityofdenton.com and in the body of such request you must state your e-mail, full name, IS Postal Address, telephone number, and account number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

Operating Systems:	Windows2000? or WindowsXP?
Browsers (for SENDERS):	Internet Explorer 6.0? or above
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0, NetScape 7.2 (or above)
Email:	Access to a valid email account
Screen Resolution:	800 x 600 minimum
Enabled Security Settings:	•Allow per session cookies •Users accessing the internet behind a Proxy Server must enable HTTP 1.1 settings via proxy connection

** These minimum requirements are subject to change. If these requirements change, we will provide you with an email message at the email address we have on file for you at that time providing you with the revised hardware and software requirements, at which time you will have the right to withdraw your consent.

Acknowledging your access and consent to receive materials electronically
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