

**CITY OF FRANKLIN, TENNESSEE
PROFESSIONAL SERVICES AGREEMENT
COF Contract No 2015-0077**


THIS PROFESSIONAL SERVICES AGREEMENT ("Agreement") is by and between the City of Franklin, Tennessee, hereinafter referenced as City, and **GRESHAM SMITH AND PARTNERS (GS&P)** hereinafter referenced as Consultant, who mutually agree as follows:

DECLARATIONS. City desires to retain Consultant to provide engineering, related technical, and other services in connection with City's project hereinafter referenced as Project. The Project is described as follows:

**Old Carter's Creek Pike
Water System Improvements**

1. **SCOPE OF SERVICES.** Consultant shall provide engineering and related technical services for the Project in accordance with the Scope of Services as found in **Attachment A**, which shall be considered as an integral part hereof.
2. Consultant shall be paid monthly based on percentage of work performed for the various tasks as contained in Attachment A in the Amount Not To Exceed **SEVENTY-NINE THOUSAND FOUR HUNDRED NINETY-EIGHT AND NO/100 DOLLARS (\$79,498.00)**.
3. In event of a conflict between this Agreement and the attached document(s), this Agreement shall supersede conflicting terms and conditions.

**The Board of Mayor and Aldermen Approved this Agreement on the
_____ Day of _____ 2015.**

BY: 
Consultant's Signature
TITLE: PRINCIPAL
Date: 8 APR 2015

BY: _____
Dr. Ken Moore
Mayor
Date: _____

Approved as to Form:

Shauna R. Billingsley, City Attorney

TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES

ARTICLE 1. SERVICES. Consultant will:

- 1.1 Act for City in a professional manner, using that degree of care and skill ordinarily exercised by and consistent with standards of competent consultants using the standards in the industry:
- 1.2 Consider all reports to be confidential and distribute copies of the same only to those persons specifically designated by the City.
- 1.3 Perform all services under the general direction of a senior professional employee, licensed and/or registered in the State of Tennessee, when appropriate.
- 1.4 Retain pertinent records relating to the services performed for a period of seven (7) years following the completion of the work; during this period the records shall be available for review by City at all reasonable times.

ARTICLE 2. CITY'S RESPONSIBILITIES. City, or its authorized representative, will:

- 2.1 Provide Consultant with all information regarding the Project, which is available to, or reasonably obtainable by, the City.
- 2.2 Furnish right-of-entry onto the Project site for Consultant's necessary field studies and surveys. Consultant will endeavor to restore the site to its original condition and shall remain solely liable for all damages, costs and expenses, including reasonable attorneys' fees, for failure to make such restoration.
- 2.3 Designate, in writing, the sole Project representative to coordinate with and direct the Consultant, including all contact information.
- 2.4 Guarantee to Consultant that it has the legal capacity to enter into this contract and that sufficient monies are available to fund Consultant's compensation.

ARTICLE 3. GENERAL CONDITIONS.

- 3.1 Consultant, by the performance of services covered hereunder, does not in any way assume, abridge or abrogate any of those duties, responsibilities or authorities customarily vested in other professionals or agencies participating in the Project.
- 3.2 Consultant shall be responsible for the acts or omissions of any party involved in concurrent or subsequent phases of the PROJECT acting upon written instruction issued by the Consultant.
- 3.3 Neither City nor Consultant may assign or transfer its duties or interest in this Agreement without written consent of the other party. However, nothing in this Article shall prevent Consultant from

engaging independent consultants, associates, and subcontractors to assist in the performance of the Services at Consultant's cost.

3.4 **ALLOCATION OF RISK AND LIABILITY; GENERAL.** Considering the potential liabilities that may exist during the performance of the services of this Agreement, the relative benefits and risks of the Project, and the Consultant's fee for the services rendered, and in consideration of the promises contained in this Agreement, the City and the Consultant agree to allocate and limit such liabilities in accordance with this Article.

3.5 **INDEMNIFICATION.** Consultant agrees to indemnify and hold City harmless from and against legal liability for all judgments, losses, damages, and expenses to the extent such judgments, losses, damages, or expenses are caused by Consultant's negligent act, error or omission in the performance of the services of this Agreement. In the event judgments, losses, damages, or expenses are caused by the joint or concurrent negligence of Consultant and City, they shall be borne by each party in proportion to its own negligence.

3.5.1 **SURVIVAL.** The terms and conditions of this paragraph shall survive completion of this services agreement.

3.6 **LIMITATIONS OF RESPONSIBILITY.** Consultant shall not be responsible for (a) construction means, methods, techniques, sequences, procedures, or safety precautions and programs in connection with the Project unless specifically undertaken in Attachment A, **SCOPE OF SERVICES**; (b) the failure of any contractor, subcontractor, Consultant, or other Project participant, not under contract to Consultant, to fulfill contractual responsibilities to City or to comply with federal, state, or local laws, regulations, and codes; or (c) procuring permits, certificates, and licenses required for any construction unless such procurement responsibilities are specifically assigned to Consultant in Attachment A, **SCOPE OF SERVICES**.

ARTICLE 4. TERMINATION BY THE CITY. The City may terminate this Agreement in accordance with the following terms and conditions:

4.1 **Termination for Convenience.** The City may, when in the interests of the City, terminate performance under this Agreement with the Consultant, in whole or in part, for the convenience of the City. The City shall give written notice of such termination to the Consultant specifying when termination becomes effective. The Consultant shall incur no further obligations in connection with the work so terminated, other than warranties and guarantees for completed work and installed equipment, and the Consultant shall stop work when such termination becomes effective. The Consultant shall also terminate

outstanding orders and subcontracts for the affected work. The Consultant shall settle the liabilities and claims arising out of the termination of subcontracts and orders. The City may direct the Consultant to assign the Consultant's right, title and interest under termination orders or subcontracts to the City or its designee. The Consultant shall transfer title and deliver to the City such completed or partially completed work and materials, equipment, parts, fixtures, information and Contract rights as the Consultant has in its possession or control. When terminated for convenience, the Consultant shall be compensated as follows:

- (1) The Consultant shall submit a termination claim to the City specifying the amounts due because of the termination for convenience together with costs, pricing or other data required by the City. If the Consultant fails to file a termination claim within one (1) year from the effective date of termination, the City shall pay the Consultant the amount the City deems the Consultant is due.
- (2) The City and the Consultant may agree to the compensation, if any, due to the Consultant hereunder.
- (3) Absent agreement to the amount due to the Consultant, the City shall pay the Consultant the following amounts:
 - (a) Contract costs for labor, materials, equipment and other services accepted under this Agreement;
 - (b) Reasonable costs incurred in preparing to perform and in performing the terminated portion of the work, and in terminating the Consultant's performance, plus a fair and reasonable allowance for direct job site overhead and earned profit thereon (such profit shall not include anticipated profit or consequential damages); provided however, that if it reasonably appears that the Consultant would have not profited or would have sustained a loss if the entire Agreement would have been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated rate of loss, if any;

The total sum to be paid the Consultant under this Section shall not exceed the total Agreement Price, as properly adjusted, reduced by the amount of payments otherwise made, and shall in no event include duplication of payment.

- 4.2 Termination for Cause. If the Consultant does not perform the work, or any part thereof, in a timely manner, supply adequate labor, supervisory personnel or proper equipment or materials, or if it fails to timely discharge its obligations for labor, equipment and materials, or proceeds to disobey applicable law, or otherwise commits a violation of a material provision of this Agreement, then the City, in addition to any other rights it may have against the Consultant or others, may terminate the performance of the Consultant, in whole or in part at the City's sole option, and assume possession of the Project Plans and materials and may complete the work.

In such case, the Consultant shall not be paid further until the work is complete. After Completion has been achieved, if any portion of the Contract Price, as it may be modified hereunder, remains after the cost to the City of completing the work, including all costs and expenses of every nature incurred, has been deducted by the City, such remainder shall belong to the Consultant. Otherwise, the Consultant shall pay and make whole the City for such cost. This obligation for payment shall survive the termination of the Agreement.

In the event the employment of the Consultant is terminated by the City for cause pursuant to this Section and it is subsequently determined by a Court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a Termination for Convenience under this Section and the provisions of Section 4.1 shall apply.

- 4.3 Termination for Non-Appropriation. The City may also terminate this Agreement, in whole or in part, for non-appropriation of sufficient funds to complete or partially complete the Project, regardless of the source of such funds, and such termination shall be on the terms of Section 4.1.
- 4.4 The City's rights under this Section shall be in addition to those contained elsewhere herein or provided by law.

ARTICLE 5. SCOPE OF SERVICES. Consultant shall provide the Services as described in Attachment A, SCOPE OF SERVICES.

5.1 By mutual agreement, this contract and scope can be amended by the parties. The scope and fee for any additional tasks or services under such amendment shall be mutually negotiated and agreed to in writing prior to beginning such additional tasks or services.

5.2 **ENVIRONMENTAL RESPONSIBILITY.**

Where drilling/sampling services are involved, the samples obtained from the Project site are the property of the City. Should any of these samples be recognized by the Consultant to be contaminated, the City shall remove them from the Consultant's custody and transport them to a disposal site, all in accordance with applicable government statutes, ordinances, and regulations. For all other samples, the Consultant shall retain them for a sixty (60)-day period following the submission of the drilling/sampling report unless the City directs otherwise; thereafter, the Consultant shall discard the samples in accordance with all federal, state and local laws.

ARTICLE 6. SCHEDULE.

6.1 **TIME OF THE ESSENCE.** The parties agree that TIME IS OF THE ESSENCE with respect to the parties' performance of all provisions of the Agreement.

6.2 **FORCE MAJEURE.** Neither party will be liable to the other for any delay or failure to perform any of the services or obligations set forth in this Agreement due to causes beyond its reasonable control, and performance times will be considered extended for a period of time equivalent to the time lost because of such delay plus a reasonable period of time to allow the parties to recommence performance of their respective obligations hereunder. Should a circumstance of force majeure last more than ninety (90) days, either party may by written notice to the other terminate this Agreement. The term "force majeure" as used herein shall mean the following: acts of God; strikes, lockouts or other industrial disturbances; acts of public enemies; orders or restraints of any kind of the government of the United States or of the State or any of their departments, agencies or officials, or any civil or military authority; insurrections, riots, landslides, earthquakes, fires, storms, tornadoes, droughts, floods, explosions, breakage or accident to machinery, transmission pipes or canals; or any other cause or event not reasonably within the control of either party.

6.3 Should City request changes in the scope, extent, or character of the Project, the time of performance of Consultant's services as indicated in Attachment A shall be adjusted equitably.

ARTICLE 7. USE OF DOCUMENTS, DATA.

7.1 All Documents, including, but not limited to, reports, drawings, specifications, and computer software prepared by Consultant pursuant to this Agreement are instruments of service in respect to the Project. Consultant shall retain an ownership and property interest therein (including the right of reuse at the discretion of the Consultant) whether or not the Project is completed.

7.1.1 **USE OF DATA SYSTEMS:** Ownership, property interests and proprietary rights in data systems used by Consultant do not extend to the data created by or supplied to Consultant by the City; all rights to that data (including derivative or hidden data such as metadata) shall vest solely in City at the moment of creation.

7.1.2 **DISCLOSURE OF DOCUMENTS/DATA.** City may be required to disclose documents or data under state or federal law. City shall notify Consultant if a request for data or documents has been made and shall give Consultant a reasonable opportunity under the circumstances to respond to the request by redacting proprietary or other confidential information. Consultant waives any right to confidentiality of any document, e-mail or file it fails to clearly mark on each page as confidential or proprietary. In exchange, Consultant agrees to indemnify, defend, and hold harmless City for any claims by third parties relating thereto or arising out of (i) the City's failure to disclose such documents or information required to be disclosed by law, or (ii) the City's release of documents as a result of City's reliance upon Consultant representation that materials supplied by Consultant (in full or redacted form) do not contain trade secrets or proprietary information, provided that the City impleads Consultant and Consultant assumes control over that claim.

7.2 City-furnished data that may be relied upon by Consultant is limited to the printed copies that are delivered to the Consultant pursuant to Article 2 of this Agreement. Any copyrighted electronic files furnished by City shall be used by Consultant only for the Project as described herein. City's posting or publication of such documents created by Consultant for City shall constitute fair use and shall not constitute an infringement of Consultant's copyright, if any.

7.3 Documents that may be relied upon by City are limited to the printed copies (also known as hard copies) that are signed or sealed by the Consultant. Files in electronic media format of text, data, graphics, or

- of other types that are furnished by Consultant to City are only for convenience of City, unless the delivery of the Project in electronic media format has been dictated in Attachment A, SCOPE OF SERVICES. Any conclusion or information obtained or derived from electronic files provided for convenience will be at the user's sole risk.
- 7.4 Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the party delivering the electronic files. Unless stated otherwise herein, Consultant shall not be responsible to maintain documents stored in electronic media format after acceptance by City.
- 7.5 When transferring documents in electronic media format, Consultant makes no representations as to long term compatibility, usability, or readability, of documents resulting from the use of software application packages, operating systems, or computer hardware differing from that as required of, and used by, Consultant at the beginning of this Project.
- 7.6 City may make and retain copies of Documents for information and reference in connection with use on the Project by the City, or his authorized representative. Such Documents are not intended or represented to be suitable for reuse by City or others on extensions of the Project or on any other project. Any such reuse or modifications without written verification or adaptation by Consultant, as appropriate for the specific purpose intended, will be at City's sole risk and without liability or legal exposure to the Consultant or to Consultant's Consultants.
- 7.7 If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- 7.8 Any verification or adaptation of the Documents for extensions of the Project or for any other project will entitle Consultant to further compensation at rates to be agreed upon by City and Consultant.

ARTICLE 8. INSURANCE.

- 8.1 During the performance of the Services under this Agreement, Consultant shall maintain the following minimum insurance:
- a) General Liability Insurance with a combined single limit of \$1,000,000 per occurrence and \$2,000,000 annual aggregate.
 - b) Automobile Liability Insurance with a combined single limit of \$1,000,000 for each person and \$1,000,000 for each accident.

- c) Workers' Compensation Insurance Coverage A in accordance with statutory requirements and Coverage B, Employer's Liability Insurance, with a limit of \$500,000 for each occurrence.
 - d) Professional Liability Insurance with a limit of \$1,000,000 annual aggregate.
- 8.2 Consultant shall add the City an additional insured on all policies unless otherwise prohibited.
- 8.3 Consultant shall, upon execution of this Agreement, furnish City certificates of insurance, which shall include a provision that such insurance shall not be canceled without at least thirty days' written notice to City.
- 8.4 No insurance, of whatever kind or type is to be considered as in any way limiting other parties' responsibility for damages resulting from their activities in the execution of the Project. City agrees to include, or cause to be included, in the Project's construction contract, such requirements for insurance coverage and performance bonds by the Project's construction contractor as City deems adequate to indemnify City, Consultant, and other concerned parties against claims for damages and to insure compliance of work performance and materials with Project requirements.

ARTICLE 9. PAYMENT.

- 9.1 City will pay Consultant for services and expenses in accordance with the Fee Schedule proposal submitted for the Project as part of the Scope Of Services. Consultant's invoices will be presented at the completion of the work or monthly and will be payable upon receipt. Payment is due upon presentation of invoice and is past due thirty (30) days from invoice date. City shall give prompt written notice of any disputed amount and shall pay the remaining amount.
- 9.2 Consultant shall be paid in full for all services under this Agreement, including City-authorized overruns of the Project budget or unforeseen need for Consultant's services exceeding the original Scope Of Services.
- 9.3 **TRAVEL; EXPENSES**
The City shall reimburse reasonable expenses, including travel and meals, when specified in the Scope Of Services, but only in accordance with the City's Travel and Expense Policy and Procedures Manual. The maximum amount will be applied as of the date of travel and as listed in the per diem reimbursement rates on the "CONUS" website developed by the United States General Services Administration, located at www.gsa.gov [click on 'per diem rates' under the 'etools' category].

ARTICLE 10. MISCELLANEOUS PROVISIONS

10.1 **EQUAL EMPLOYMENT OPPORTUNITY.** In connection with this Agreement and the Project, the City and the Consultant shall not discriminate against any employee or applicant for employment because of race, color, sex, national origin, disability or marital status. The City and Consultant will take affirmative action to ensure that contractor used for the Project does not discriminate against any employee and employees are treated during employment without regard to their race, age, religion, color, gender, national origin, disability or marital status. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination, rates of pay or other forms of compensation; and selection for training, including apprenticeship.

10.1.1 The Consultant shall insert the foregoing provision in all contracts relating to this Project.

10.2 **TITLE VI – CIVIL RIGHTS ACT OF 1964.** The City and the Consultant shall comply with all the requirements imposed by Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d), 49 C.F.R., Part 21, and related statutes and regulations.

10.2.1 The Consultant shall insert the foregoing provision in all contracts relating to this Project.

10.3 **NO THIRD PARTY RIGHTS CREATED.** City and Consultant each binds itself and its successors, executors, administrators, permitted assigns, legal representatives and, in the case of a partnership, its partners, to the other party to this Agreement and to their successors, executors, administrators, permitted assigns, legal representatives and partners of such other party in respect to all provisions of this Agreement. The Services provided for in this Agreement are for the sole use and benefit of City and Consultant. Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than the City and the Consultant.

10.4 **WARRANTIES/LIMITATION OF LIABILITY/WAIVER.** The City reserves all rights afforded to local governments under law for all general and implied warranties. The City does not waive any rights it may have to all remedies provided by law and therefore any attempt by Consultant to limit its liability shall be void and unenforceable.

ARTICLE 11. EXTENT OF AGREEMENT:

11.1 **APPLICABLE LAW/CHOICE OF FORUM AND VENUE.** This Agreement is made under and will be construed in accordance with the laws of the State of Tennessee without giving effect to that state's

choice of law rules. The parties' choice of forum and venue shall be exclusively in the courts of Williamson County, Tennessee. Any provision of this Agreement held to violate a law or regulation shall be deemed void, and all remaining provisions shall continue in force.

- 11.2 **ENTIRE AGREEMENT.** This Agreement, including these terms and conditions, represent the entire Agreement between City and Consultant for this Project and supersedes all prior negotiations, representations or agreements, written or oral. This Agreement may be amended only by written instrument signed by City and Consultant.

ARTICLE 12. DISPUTE RESOLUTION, BREACH.

- 12.1 If a dispute should arise relating to the performance of or payment for the services under this Agreement, the aggrieved party shall notify the other party of the dispute within a reasonable time after such dispute arises. During the pendency of any dispute, the parties shall continue diligently to fulfill their respective obligations hereunder. No arbitration or mediation shall be required as a condition precedent to filing any legal claim arising out of or relating to the Contract. No arbitration or mediation shall be binding.
- 12.2 **BREACH.** Upon deliberate breach of the Contract by either party, the non-breaching party shall be entitled to terminate the Contract with notice, with all of the remedies it would have in the event of termination, and may also have such other remedies as it may be entitled to in law or in equity.

ARTICLE 13. SURVIVAL.

The provisions contained in this Professional Services Agreement shall survive the completion of or any termination of the Contract, agreement or other document to which it may accompany or incorporate by reference or which subsequently may be modified, unless expressly excepted from this Article upon consent of both parties.



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March 9, 2015

Patricia Proctor, P.E.
Utilities Engineer II
City of Franklin
Engineering Department
109 Third Avenue South
Franklin, TN 37065

**Subject: Proposal for Professional Services
 Water System Improvements
 Old Carters Creek Pike Water Main Replacement**

Dear Ms. Proctor:

On behalf of Gresham, Smith and Partners we are pleased to have the opportunity to submit this proposal to provide professional services for the above referenced project.

We have enclosed an engineering services letter-type agreement and general provisions (Exhibit A) to perform this work. If you find this agreement acceptable, please sign and return a copy to our office. We look forward to working with you on this important project.

Sincerely,
Gresham, Smith and Partners

Christopher J. Hammer, P.E.
Senior Project Manager
Water Resources

Attachments as stated.

Copy: John Reidy, P.E., GS&P
 Ken Baker, GS&P
 Carl Munkel, GS&P
 File 19135.00



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EXHIBIT A - Proposal for Engineering Services

INTRODUCTION

Gresham, Smith and Partners (hereinafter referred to as “GS&P”) propose to provide professional consulting services for the City of Franklin, Tennessee (hereinafter referred to as “Owner”) related to engineering services for the Old Carters Creek Pike Water Main Replacement (hereinafter referred to as “Project”). Our understanding of the Project as well as our scope of services, compensation, and schedule for completing the Project is presented hereafter.

SECTION 1. PROJECT UNDERSTANDING

Based upon our field reconnaissance, review of available data/mapping and meeting with the Owner, the Engineering Department and Water Management Department (WMD) for the City of Franklin, on February 11, 2015, Gresham Smith & Partners (GS&P) understands the scope of work for the Old Carters Creek Pike Water Main Replacement is to replace an existing 50 to 60 year old 8-inch cast iron main that has reached the end of its useful life. The existing $\pm 3,700$ L.F. main serves approximately a dozen residential and commercial customers along Old Carters Creek Pike both inside and outside of the Franklin City Limits.

From the meeting, GS&P understands that tuberculation (development of corrosion products on the inside of the cast iron pipe), water quality concerns and customer complaints are the primary drivers for the project. Distribution system pressures along the route have not been an issue in the past. However, the 8-inch main must be systematically flushed on a regular basis to prevent water quality degradation.

Water flows from the Carter’s Creek Reservoir through a 14” drain/fill lane which crosses Carters Creek Pike (SR 246) before connecting to the 8” water main on Old Carters Creek Pike. The water surface elevation in the reservoir is approximately EL 854 ft. while the ground surface along Old Carter’s Creek Pike varies from EL 740 ft. to 760 ft. From available mapping, the ground surface at the reservoir appears to be EL ± 830 ft. Based upon this information, the end of line static water pressure should be approximately 47 psi.

The project begins near the intersection of Old Carters Creek Pike and Carters Creek Pike (SR 246) near the Franklin City Limits as shown on the GIS map provided by WMD in **Appendix A**. The new water main will connect between an existing 8-inch and 10-inch water main close to this intersection. In general, rock is known to be shallow along this route and the project area is near a rock quarry. The “as-built” condition of the trenching, bedding and backfill for the existing 8-inch pipe is unknown.



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During the February 2015 meeting, the participants discussed options for removing and replacing the main in the same trench, selecting a new alignment or potentially lining the existing main. It was determined that lining the existing pipe was not a viable alternative due to the structural condition of the pipe and unknown bedding and backfill conditions.

GS&P understands that the WMD is considering constructing this project using in-house construction crews regardless of the alignment option and pipe material selected. Since WMD intends to construct the project using in-house crews, GS&P has provided no services during bidding and construction phases of the project. If desired, additional services may be authorized by the City with an amendment to this agreement. GS&P has included a minimal amount of time in our fee proposal to assist the City's project manager in conducting a public information meeting, if desired.

The 8-inch water main dead-ends at an automatic flushing device manufactured by Hydro-Guard®. The manufacturer's website, <http://www.hydro-guard.com/index.html>, indicates that "the system uses modern technologies, including SCADA compatibility, to monitor water quality in distribution piping and automatically initiate flushing as necessary to maintain disinfectant residuals as required by the U.S. Environmental Protection Agency. This system conserves water, reduces chlorine consumption, and improves customer satisfaction by helping avoid taste and odor, while requiring minimal supervision by utility personnel." It appears that the City is using a system similar to the HG-6 Hydrant Automatic Flushing System.

Just beyond the flushing device and further to the west along Old Carters Creek Pike, the area is served by another utility, the Hillsboro, Burwood, & Thompson Station Utility District (HB&TS). We assume that HB&TS has a similar dead-end water main located near Franklin's flushing device.

Along the alignment we noted narrow shoulders along the two-lane road with several existing utilities including natural gas (Atmos Energy), buried and overhead electric, buried and overhead telecommunication lines (South Central Bell markers), pad mounted transformers, etc. We also noted several areas where the existing water main and meters were marked in the field, particularly near the intersection close to the abandoned storage tank. However, we did not see any existing fire hydrants along Old Carters Creek Pike which may indicate that fire protection is not currently provided.

The group discussed the possibility of reducing the water main size down from 8-inches. We note that TDEC's *Community Public Water Systems Design Criteria* states that the minimum size of pipe for principal water mains and for water mains where fire hydrants are to be attached shall be 6-inch diameter. The criteria also states that the size of water mains shall be justified by hydraulic analysis and that fire hydrants shall not be connected to water mains that are not capable of providing a flow of 500 gpm at 20 psi. Furthermore, the system shall be designed to maintain a minimum pressure of 20 psi at



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ground level at all points in the distribution system under all conditions of flow. As stated in WMD's *General Requirements and Technical Specifications*, the water main size(s) will be justified by hydraulic analysis based on flow demands and pressure requirements (Section 33 1100, Paragraph 1.4). Paragraph 1.4 also specifies that dead ends shall be minimized in order to provide better water service by looping the system and the minimum size water line to serve a fire hydrant is 6-inches.

The *General Requirements and Technical Specifications* approved on May 6, 2013 for the Water Management Department (WMD) for the City of Franklin, Tennessee indicate the minimum size water main shall be 8-inch diameter and be ductile iron pipe unless otherwise approved or required by WMD (Water Utility Distribution Piping – Section 33 1100, Paragraph 1.4). Further, the *Specifications* indicate that the number and spacing of hydrants shall be in accordance with the International Fire Code as adopted (Hydrants-Section 33 1219).

We reviewed Article 19.25.055 of the International Fire Code which indicates that public (those that are owned by the City) hydrant spacing shall be measured along vehicle access routes and shall be no more than 600 feet apart in areas zoned for single-family residential use. In areas other than single-family residential use, public fire hydrants shall be spaced an average of 300 feet apart. This item will require further investigation during preliminary design.

Also, the concept of a dead-end main will need some careful attention during preliminary design. The American Water Works Association (AWWA) recommends avoiding dead-end mains if at all possible. From a hydraulic standpoint, a fire or large demand can only be served through a single line and flow is restricted. Therefore, a high demand is best served off of a grid or "looped" system. Also, if repair work is performed on a dead-end main, customers beyond the repair lose service until the main is repaired, disinfected and placed back in service.

AWWA also recommends looped mains because they generally flow continually in one direction or another, so they do not experience water that degrades or becomes stagnant. In the case of the Old Carter Creek Pike project, sizing the mains to provide adequate fire flow without looping the system may result in water quality degradation due to the low domestic use and water demand. Water quality often degrades to the point of prompting customer complaints about taste, odor, or rusty water. Many water systems have had to set up regular schedules of flushing dead-end mains to avoid customer complaints. AWWA's *Water Distribution Operator Training Handbook* states "Because water mains are designed for fire flow, domestic use may be so low that the water may be weeks old before it reaches the end of the main."

US EPA also advises that water age is a major factor in water quality deterioration within a distribution system. The deterioration results from either the interactions



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between the water and pipe wall or reactions within the bulk water itself. As water in the pipe ages, disinfectant residuals decline and the disinfectant by-products (DBPs) increase. USEPA's Stage 2 Disinfectants/Disinfection Byproducts Rule (D/DBPR) residual level is 0.80 mg/L or less for trihalomethanes (THMs) and 0.06 mg/L or less for haloacetic acids (HAAs).

SECTION 2 – SCOPE OF SERVICES

Task 1 – Surveying, Engineering Design and Permitting

GS&P will conduct a Project Kick-off Workshop to review the project scope and schedule. The workshop session will be a valuable tool for the team to identify the project's objectives, issues and concerns. Prior to initiation of the design, it is recommended to conduct a site visit and discuss the operation of the existing main with Franklin's distribution staff. If possible, this will occur on the same day as the workshop.

Preliminary design (10%) will include water main routing plan/alternatives overlaid on existing mapping (i.e., Williamson County GIS) and preliminary cost estimates¹ of the proposed routes. This phase of the design will precede topographic surveying of the route and existing utilities.

¹Note: In preparation for this proposal, GS&P requested budget costs from a local ductile iron pipe representative. For Class 350 ductile iron, the budgetary numbers for material cost of 6-inch and 8-inch ductile iron are \$12.25/LF and \$16.30/LF, respectively.

GS&P will provide detailed design drawings and specifications for design review at 10%, 50% and 90% milestone completion dates. Our team has based the proposed scope and fee upon the conceptual alignment/corridor included in **Appendix A**. GS&P plans to present the design deliverables in a face-to-face meeting with the City's Engineering and Water Management Department staff.

GS&P's team will prepare detailed plans and specifications showing the extent and character for the project in accordance with accepted engineering practices and the *Community Public Water Systems Design Criteria* manual published by the Division of Water Resources. The Drawings will include base survey drawings, location maps, water main alignment sheets (plan sheets assumed with no profile due to anticipated main diameter). Drawings will also include details for erosion and sediment control and typical details WMD would like included in the set. The Final Design drawings used for permit applications will be signed and sealed by the GS&P project manager, Chris Hammer, P.E. (TN#109412).



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Based upon our current understanding of the project scope, GS&P estimates the drawing set to include approximately **17** sheets as follows:

<u>Title</u>	<u>No. Sheets</u>
Cover Sheet/Vicinity Map	1
Index/Situation Sheet	1
General Notes & Standard Abbreviations	1
Plan Sheets – Water Main Alignment (1"=50')	7
Water Main Connection Details	1
Erosion Prevention & Sedimentation Control Drawings	2
Erosion Prevention & Sedimentation Control – Details	2
Water Standard Details	2
Total	17

Tennessee Department of Environment and Conservation (TDEC) requires plans review and approval for modifications to a public water system. Four (4) copies of the final plans and specifications will be submitted to TDEC. In addition, GS&P will prepare the hydraulic calculations, summary of the basis of design, and the *Plans Review Fee Worksheet* (CN-1188) together with the proper fee to the Division of Water Resources.

Based upon our understanding that the WMD will be constructing the project, GS&P assumes that a detailed bid quantity breakdown and bid schedule will not be required. We propose to submit a table of contents of the technical specifications to be used for the project at the 50% design milestone using the *General Requirements and Technical Specifications* of the WMD. At the 90% design milestone, a complete set of technical specifications will be prepared for review in preparation for submittal of the project to TDEC for construction approval.

Concurrent with the development of the 10% conceptual routing alternatives and construction cost estimates, GS&P will prepare a brief Preliminary Design Report (PDR) to provide the basis for design. The PDR will include the results of research on City/County fire flow requirements, water age calculation, permitting requirements and distribution system water modeling.

GS&P will calculate water age in the dead-end water main by using a water quality calculator. When compared to customer billing and flow estimates for customers along the route, this task will provide the amount of uncirculated water left in the pipe and the days for replenishment with fresh water. If desired by WMD, GS&P will review residual levels at the end of the main (from samples collected by the City) and include this information in our discussion of water age. GS&P will also include either an estimate of (or actual data of) water routinely flushed from the existing main to achieve an



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acceptable level of water quality along Old Carters Creek Pike. These subtasks will provide quantitative data to provide recommendations for the replacement main and support the financial decision on whether the new main should be looped.

We understand that Franklin's existing water model is from Bentley Systems, Inc., WaterGems V8i. We propose either to use model input data provided by the City from WaterGems or to prepare a concise, stand-alone model of the immediate project vicinity - Carters Creek Reservoir, Old Carters Creek Pike and a portion of Carters Creek Pike (for consideration of a looped main).

The water model will be used to determine options on reducing the size of the new water main and potential options for serving the ± 7 customers near the dead-end of the main at the least possible cost while being in compliance with current codes. For example, the new main should provide flushing velocities of 2 feet per second or greater as required by TDEC. Also, the model can provide a "snapshot" of future conditions if additional customers are added along Old Carters Creek Pike.

The GS&P team plans to provide surveying services to accurately depict existing conditions for the project. A good base map for the project is a cornerstone for developing detailed drawings and communicating with regulatory agencies and the public. Prior to surveying, our subconsultant, Civil Infrastructure Associates, will call in tickets to the Tennessee One Call System to locate existing underground utilities along the proposed alignment. We have found it very beneficial to have the existing utilities marked prior to surveying and design and are hopeful that the various agencies involved will assist with this pre-design effort. For the purpose of preparing this proposal, we have assumed a $\pm 1,000$ LF main extension from Old Carters Creek Pike to Carters Creek Pike to provide looped mains. This concept will be evaluated during the modeling task.

In addition to the submittal of plans and specifications to TDEC, GS&P assumes that the project will require the preparation of a Stormwater Pollution Prevention Plan (SWPPP). The design will include the best management practices consistent with the City of Franklin Stormwater regulations while construction is underway. We have assumed that an Aquatic Resources Alteration Permit (ARAP) will be required for a potential blue line stream crossing near the dead-end portion of the project. Based upon our current understanding of the routing for the new water main, we assume that a TDOT Encroachment Permit will not be required. We assume that Old Carters Creek Pike is a county road and WMD will address any permits required for open cut excavation for the new main and service replacements. Civil Infrastructure Associates (CIA) will provide the necessary easement descriptions and exhibits. It is assumed that the City will acquire private property owner easements, if necessary.



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SECTION 3 – SUBCONSULTANTS

GS&P will perform all required design services on this project in-house from our Nashville, Tennessee office. The project design will be managed by Chris Hammer, P.E. who resides in Franklin. Civil Infrastructure & Associates (CIA) will provide surveying services for the project at the cost included in the fee pricing proposal included as **Appendix B**. CIA has a working relationship with the City of Franklin's Engineering and Water Management Departments and recently completed a significant surveying project at the City's Wastewater Treatment Plant.

For the Old Carters Creek Pike Water Main Replacement project, CIA will generally perform the following tasks:

- Research to obtain utility mapping, record drawings, deeds, plats, etc.;
- Prepare and mail letters to property owners;
- Submit 811 Utility Locate Tickets (and request locate from City);
- Establish survey control points along corridor with NAD83 SPC Horizontal and NAVD88 Vertical values tied to TGRN including levels;
- Horizontal and vertical location of features within the survey limits including flags and markers, poles, wires, cables, meters, valves, hydrants, manholes, etc. Survey will also include meters outside of survey limit;
- Locate grade breaks, ditches, swales, and ground shots at approximate 50' station intervals to create a DTM and produce 2' topographic contours;
- Recon, recover and locate right-of-way monumentation and property corners;
- Process field data, resolve right-of-way/property and prepare deliverable.

Also, our fee has been prepared based upon preparation of ten (10) easement descriptions and exhibits using the City's desired format at an estimated cost of \$150/ea.

Please note that a geotechnical investigation for the project is not included as part of this proposal. If desired, GS&P can provide the services of a qualified geotechnical engineer in support of the project.

SECTION 4 – SERVICES NOT INCLUDED

Professional and engineering services not yet included within this proposal consist of the following:



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- Phase I or Phase II Environmental Site Assessment work to determine subsurface conditions or the degree of contamination from any identified environmental conditions;
- Geotechnical field exploration for determination of subsurface site conditions at the pump station and railroad crossing locations;
- Payment of application, permit or inspection fees. However, we have included the fee to submit plans, specifications and engineering calculations to TDEC.
- Environmental permitting requirements with the exception of preparation of a site specific SWPPP, ARAP and TDEC submittal requirements.
- Determination of local flood elevation (i.e., 100-yr. historic flood elevation).
- Other assumptions and exclusions as presented in this proposal for services.

SECTION 5 – OWNER RESPONSIBILITIES

The City of Franklin will provide GS&P with access to the site, as-built records, and notice to proceed based on the proposed services. The City will participate in design reviews for the project and render decisions for completion of the project in a timely manner. The City will provide data requested by the engineer for hydraulic analysis of the system and record drawings for existing infrastructure at the project site.

SECTION 6 – DELIVERABLES

GS&P will submit all data and documents electronically and in hard copy format at the deliverable milestones. Hard copies will be as follows:

- Preliminary Design Report – 6 copies
- Plans – 6 copies each, full size and ½ size
- Specifications – 2 copies
- TDEC Construction Approval Permit
- Opinion of Probable Construction Cost

Electronic transmittals will be in PDF format for the Preliminary Design Report (PDR), 10%, 50%, 90% and 100% design phase.



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SECTION 7 – FEE

Our Fee Pricing Proposal is provided as **Appendix B** at the end of this proposal document. Professional services during bidding and construction phases has not yet been included in the scope and fee. However, these services may be added to this proposal or at a later date by an additional task order if desired by the City of Franklin. Our fee includes submittal of plans and specification to TDEC along with the anticipated review fee based on the sketch attached as **Appendix A**. No other application or inspection fees have been included in our fee proposal. Our fee estimate includes the professional surveying services of Civil Infrastructure Associates as described above. The estimate fee for the project is as follows:

Task 1 – Surveying, Engineering Design & Permitting	\$79,498
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The Engineer proposes to complete the Scope of Services defined herein at hourly fixed rates per the attached schedule according to the budgets and maximum hours presented. Hourly rates are presented in Exhibit B: Standard Hourly Rates Schedule & Reimbursable Expenses Schedule.

In the event Owner provides written requests that Engineer provide additional services beyond those stated herein, Engineer will provide the extra services and invoice Owner according to Exhibit B: Standard Hourly Rates Schedule & Reimbursable Expenses Schedule. All accounts unpaid after 30 days from the date of original invoice will be subject to a service charge of 1-1/2% per month.

SECTION 8 – PRELIMINARY SCHEDULE

Engineer proposes to provide the Basic Services necessary to complete the project in a timely manner according to the schedule presented. The proposed schedule is based on the orderly and continuous progression of the project through completion. In the event that issues arise beyond the Engineer's control, the proposed schedule shall be adjusted accordingly. The time of completion from Notice to Proceed to final design of the Old Carters Creek Pike Water Main Replacement project is generally estimated to be as follows:

Notice to Proceed	April 15, 2015
Project Kick-off Workshop	April 21, 2015
Complete PDR & 10% Conceptual	June 2, 2015
Being Topographic Surveying	June 8, 2015



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Final Design & Specifications Complete	August 17, 2015
TDEC Submittal	August 19, 2015
Begin Construction	September 21, 2015

GS&P will review WMD's schedule and goals for the project and will expedite the surveying and design activities listed above if necessary.



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EXHIBIT B - Standard Hourly Rates & Reimbursable Expenses Schedule

The following classifications and associated unit rates are general and will be used as guidelines for the services of professional disciplines offered: They are subject to be updated up to twice annually.

Professional Services

Classification	Rate/Hour
Principal-in-Charge	\$195 - \$260
Project Manager	\$175 - \$215
Senior Project Engineer	\$175 - \$205
Project Engineer	\$120 - \$175
Intern Engineer	\$75 - \$105
Survey Manager	\$115 - \$125
Project Surveyor	\$90 - \$110

Technical Services

Classification	Rate/Hour
Project Coordinator	\$70 - \$90
CADD Technician II	\$70 - \$100
CADD Technician III	\$100 - \$125
Surveying Party Chief	\$60 - \$80
Senior Geologist	\$110 - \$135
Technician	\$70 - \$90
Administrative Assistant	\$60 - \$80
Clerical	\$65 - \$75
Construction Administrative Assistant	\$65 - \$80
Resident Project Representative	\$70 - \$110

Expenses

	Rate
Automobile Travel	Current IRS Rate
Other travel and subsistence expenses (lodging, meals, air travel, etc.)	At Cost
Printing, overnight mail, courier, long distance, postage, copies, etc.	At Cost
Sub-Consultant Services	At Cost
Agency Review Fees	At Cost



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APPENDIX A

**ATTACHMENT 1 – SURVEY LIMITS/CONCEPTUAL ROUTING MAP
&
COF GIS MAP – WM CONNECTION VICINITY**





February 3, 2015

- Water Meters
- Water Valves
- Water Tank Point
- Booster Station
- Fire Hydrants
- Blow Off Valves
- Air-Release Valve
- Water Lateral Pipe
- Waterline

1:2,257

0 0.0175 0.035 0.07 mi

0 0.03 0.06 0.12 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and



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APPENDIX B
FEE PRICING PROPOSAL

