CITY OF MARSHALL

COMMISSION AGENDA INFORMATION SHEET:

MEETING DATE: July 14, 2016

PROJECT: Consider and act on a request to authorize City Staff to negotiate an Engineering Services Agreement for engineering and services related to Water System Master Plan Evaluation and Hydraulic Modeling with Hayes Engineering. (Public Services Director)

DESCRIPTION: On June 14, 2016, we opened Request for Qualifications (RFQs) from firms to assist the City of Marshall in the evaluation, engineering, and studies required in updating our water collection system. Part of the project includes hydraulic modeling to address areas where we may have low flow or pressure issues in our piping system. We received four (4) qualified responses to our RFQ advertisement:

- Burgess & Niple/KSA Engineering of Austin, Texas
- Garver USA of Frisco, Texas
- Hayes Engineering of Longview, Texas
- Schaumburg & Polk, Inc./HDR Engineers of Tyler, Texas

A RFQ review Committee made up of the following, met on July 05, 2016, to evaluate the RFQs:

Lisa Agnor - City Manager
J.C. Hughes - Public Services Director
Jack Redmond - Support Services Director
Chris Miles – Distribution & Collection Superintendent
Nancy Pasel – Treatment Superintendent.

Basic scope of services in the RFQ includes:

- Data collection and evaluation of the existing water distribution system.
- Review existing water distribution system and treatment design criteria.
- Identify and recommend hydraulic modeling software for future city use.
- Design a new distribution hydraulic model with 5, 10, and 20 year performance needs.
- Develop detailed plan for pressure evaluation of water in the distribution system.

- Develop a detailed 5, 10, and 20 year Capital Improvements Plan (CIP).
- Evaluate water pipe sizing and capacity and system flow calculations.
- Recommend solutions to the top chronic water main system line break trouble areas.
- Evaluate condition of SCADA (system reporting software and equipment) system.
- Develop short and long range funding strategies, sources, and costs.
- Evaluate compliance with state and federal standards.
- Prepare a written report documenting the findings of the study to City Staff and Commission.
- Assist with education of City staff and the public of methods to reduce water waste.

All four firms provided detailed response packets, but one engineering company was ranked high because of their previous experience with several local communities; they also stood out because they are already familiar with our system, which will reduce costs and time. The RFQ Review Committee was unanimous in its recommendation to negotiate with Hayes Engineering of Longview, Texas.

We are required by State Purchasing Regulations to utilize a RFQ process when selecting an engineering firm and selection cannot be based on price. The RFQ process requires an evaluation and a negotiated contract and cost with a recommended engineering provider.

If approval to negotiate is granted by the City Commission, we will negotiate services pricing and come back to the City Commission for final contract approval.

COST:
N/A – RFQ process at this point; requires negotiation with a selected firm.

FUNDING:	**Acct. Name & No**	**Original Budget**	**As Bid**

N/A – RFQ process at this point

RECOMMENDED ACTION:
Authorize City Staff to negotiate an Engineering Services Agreement for engineering and services related to Water System Master Plan Evaluation and Hydraulic Modeling with Hayes Engineering of Longview, Texas. (Public Services Director)

CITY CONTACT: J. C. Hughes, Public Services Director 903-503-4503

ATTACHMENTS:
N/A

cc: Lisa Agnor, City Manager
Jack Redmon, Support Services Director
Chris Miles, Distribution and Collection Superintendent
Nancy Pasel, Treatment Superintendent

City of Marshall, Texas

Request for Qualifications

Wastewater System Master Plan
System Evaluation and Hydraulic Modeling
RFQ No. WU-2016-2-WWMP

Issued: April 24, 2016
Receipt Deadline: 2:00 PM, Tuesday, May 10, 2016

J.C. Hughes
Public Services Director
City of Marshall, Texas
605 East End Blvd. South
Marshall, TX 75670
903-935-4489
jchughes@texas.net

REQUEST FOR QUALIFICATIONS

CITY OF MARSHALL
P.O. BOX 698
605 EAST END BLVD SOUTH
MARSHALL, TEXAS 75670

RFQ NO. WU-2016-2-WWMP

Sealed Requests for Qualifications from qualified professional engineering firms are requested by the City of Marshall to provide a Wastewater System Master Plan, including the evaluation and hydraulic modeling of the City Wastewater Utility System

Address RFQ Proposals to the attention of:

Via US Mail:	Via Express Carriers (UPS/FedEx/Others):
J.C. Hughes, Public Services Director City of Marshall, Texas P.O. Box 698 Marshall, Texas 75671	J.C. Hughes, Public Services Director City of Marshall, Texas 605 East End Blvd, South Marshall, Texas 75670

Be advised that the U.S. Postal Service DOES NOT deliver regular mail to physical address on East End Blvd.

Proposals must be in a sealed envelope or package, with the RFQ Number and Title, Opening Date and Time, clearly marked on the lower left-hand corner of the envelope or package.

Directly faxed or emailed proposals will not be accepted by the City of Marshall and proposals received after the receipt deadline will be rejected and returned unopened. The City of Marshall reserves the right to reject any or all proposals, waive any or all formalities, and to award a contract to the proposer who, in the sole opinion of the City of Marshall, provides the required goods and/or services at the best value for the City in accordance with applicable sections of the Texas Local Government Code.

Proposals will be publicly opened and the name of the proposer will be read aloud at 2:00 PM (receipt deadline), Tueday, May 10, 2016 in the Conference Room, 2nd Floor, of the City of Marshall Water Treatment Plant, 605 East End Blvd. South, Marshall, Texas 75670.

Copies of the RFQ information may be obtained from the office of the Public Services Director.

All questions regarding this RFQ must be submitted in writing to the Public Services Director on or before close of business (5:00 PM local time) on May 03, 2016 in order to allow the City to prepare and provide responses. Questions received after this deadline will not be answered. Written responses to questions are considered the only official communication method. Any oral responses from any City of Marshall employee, elected or appointed official shall NOT be binding upon the City. Questions may be emailed to the Public Services Director at jchughes@marshalltexas.net

J. C. Hughes
Public Services Director
City of Marshall, Texas
903-503-4503

Advertise: April 24, 2016
May 01, 2016

CITY OF MARSHALL, TEXAS
REQUEST FOR QUALIFICATIONS
RFQ No. WU-2016-2-WWMP

Wastewater System Master Plan
System Evaluation and Hydraulic Modeling

The City of Marshall, Texas (the "City") desires to undertake development of a **Wastewater System Master Plan,** which will include a comprehensive system evaluation and hydraulic modeling exercise. The Master Plan will be prepared qualified professional engineering firm, properly license in the State of Texas. The City is accepting Request for Qualification proposals ("RFQ") for evaluation. The purpose of this request is to enter into an engineering service agreement (the "Agreement") with the selected professional engineering firm to provide the required services to prepare an acceptable Wastewater Master Plan for the City's Wastewater Utility System (the "Utility"). The master planning process is intended to provide a complete inventory of all system assets, a comprehensive structural and hydraulic analysis of the entirety of the existing wastewater system infrastructure system, a determination of the scope of any required improvements, develop a prioritized listing of these recommended improvements, and determine a 5-year, 10-year, and 20-year timeline for implementation of the recommended improvements.

The Master Planning effort is being undertaken as one step to achieve the Utility's goal of providing high-quality wastewater collection services to the citizens of Marshall, Texas.

The Master Plan will also be used to determine the existing capacity of existing line segments and lift stations, support recommendations for system improvements based on anticipated growth, and to develop data and information required to prepare a utility rate study.

Background Information:

The City of Marshall is located in a rural setting in Northeast Texas, at the intersection of Interstate 20 and US Highway 59 approximately 20 miles west of the Texas/Louisiana state line. The city was founded in 1841, covers 29.6 square miles of incorporated city limits, and serves as the county seat of Harrison County. The City has a very rich history and is home to several intuitions of higher learning (East Texas Baptist University, Texas State Technical College, Wiley College). The City is an emerging regional oil and gas industry hub, a cultural and arts center, a top tourist destination in the Ark-La-Tex, and the musical center of East Texas. The 2010 Census reports the city's population as 23,523 and includes 7,988 households.

The City of Marshall owns and operates a municipal wastewater treatment plant. The wastewater treatment plant is responsible for treatment of all wastewater collected from within our community, and discharging the fully treated effluent back into the Parker Creek watershed south of Interstate 20. Wastewater is collected and gravity flows from three (3) major trunk lines (a 24" line from Highway 59, 30" line from east of Five Notch Road, and a 33" line from Highway 31) to the treatment plant for processing. Approximate daily average treatment is 8.0 MGD.

Citywide, the gravity flow system is assisted by 24 lift stations and 3,050 manholes. Wastewater main piping consists of approximately 33,000 linear feet of force mains and 1,300,000 linear feet of gravity sewer mains. The majority of the gravity sewers are 6" and 8" diameter pipe. The majority of the small diameter collection system and original interceptor system was constructed during the 1950's and the remaining portions of the system were constructed during the 1970's.

Wastewater collection and treatment is provided as a function of potable water use. The City of Marshall water billing system consists of approximately 9,307 active water customer accounts, with a 2015 overall metered potable water consumption of approximately 1.6 billion gallons of treated water, of which about 861.3 million gallons (approximately 54%) was used by one large commercial customer, and 327.6 million gallons (approximately 21%) used by other commercial customers and six rural water districts. The remaining potable water is used by residential customers.

Water and wastewater operations are accounted for as an enterprise fund in the City's Water Utility Fund, which consisting of the following:

- Administration
- Water Production
- Distribution and Collection
- Wastewater Treatment
- Water Billing
- Engineering
- Non-Departmental
- Debt Service
- Transfer to General Fund

Expected Minimum Scope of Services

The following provides a minimum expected scope of services outline and other items to be included for completion of the City's 2016 Wastewater Master Plan. Proposers are encouraged to expand on this scope, as they deem necessary, to provide a complete and functional work product.

It should be noted that the City of Marshall currently possesses a considerable amount of recent and accurate data regarding the existing collection system, including line locations, sizes, and construction materials, locations of manholes, and lift station pumping capacities. This information will not be distributed as a function of this RFQ, but will be made available to the selected firm. The City does not desire to expend effort to collect and assess this information. Rather, this information will be used as the basis for the Master Planning effort. The data is currently stored in the City's GIS and in Microsoft Access databases. An example of the types of data that are available include:

- X,Y, Z Coordinates of Existing Manholes
- Rim to Pipe Invert Measurements for Existing Manholes
- Pipe Material Type and Diameter
- Wastewater Flow Monitoring and Rainfall Data

The City of Marshall will provide existing record drawings of system improvements that will be used to supplement the SSES data. It is not the intention of the City to engage in significant field operations and data collection effort as a part of this project.

1.0 Develop, Calibrate, and Analyze a Hydraulic Model of the Collection System for the Entire Wastewater Collection System. This effort shall include, as a minimum, the following tasks:

- Collect and review all previous wastewater system studies, plans, and evaluations pertaining to the City's wastewater system including previous temporary gravity flow monitoring, flow monitoring for lift stations, pump run times, and wastewater treatment plant influent and effluent records.

- Using existing information, update existing GIS mapping to show all existing gravity wastewater collection lines 6 inches and larger, lift station locations, force main routes and diameters and other related information needed for a system analysis.

- Utilize historical wastewater flow and rainfall data information to calibrate the model to observed dry and wet weather storm events and to develop system response curves for a 5-year 6 hour design storm.

- Prepare a computer model of the existing collection system which shall include all gravity collection mains 6 inches and larger, lift stations, siphons, and force mains. Computer modeling of the gravity collection system will assume elevations from existing data or utilize minimum pipe slopes where this existing data is determined to be incorrect or insufficient. This hydraulic model shall be calibrated to observed dry and wet weather events.

- Perform hydraulic analysis of the existing collection system for a projected 5-year, 6-hour design storm event to identify areas of the collection system that suffer from hydraulic inefficiencies using existing population data and projected population data for 5-year, 10-year, and 20-year planning horizons. Utilize the data and information developed as a function of this analysis to determine which pipeline segments need additional capacity and recommend appropriately sized improvements. These improvements may include, but are not limited to, upsizing existing sewer mains, installing parallel sewer mains, and basin-wide inflow/infiltration reduction programs. Improvements must meet Texas Commission on Environmental Quality (TCEQ) Chapter 217/317 design criteria.

- Prepare a technical report of the model analysis to include, as a minimum, the following:

    - Preliminary pipeline routes, sizes, and slopes
    - An analysis of the entire wastewater collection and pumping system design and performance for 5-year, 10-year, and 20-year planning horizons.
    - An analysis of various alternatives for expanding the existing collection system and wastewater treatment plant vs. extending the collection system and adding an additional treatment plant in order to provide wastewater service to an expanded service boundary.
    - An analysis of required system improvements driven by future changes in land use, populations, and service boundaries 5-year, 10-year, and 20-year planning horizons.
    - Identification of areas exhibiting higher than average modeled inflow/infiltration rates
    - Existing design capacity for all modeled gravity pipelines and force mains
    - Existing design capacity utilized and capacity remaining for all modeled gravity pipelines and force mains 5-year, 10-year, and 20-year planning horizons.
    - Recommended lift station improvements and/or elimination
    - Recommended overall system improvements required to resolve existing system capacity issues 5-year, 10-year, and 20-year planning horizons.
    - Recommended any capacity related improvements that must be undertaken immediately to resolve chronic sanitary sewer overflow issues
    - Recommended phased improvements for each planning horizon
    - Estimates of probable cost, including consideration of engineering and legal costs, for each identified system improvement
    - Package system improvements into optimized groups of improvements to be let as future design projects by the City of Marshall

The modeling software must integrate seamlessly with current versions of ESRI's ArcGIS system. All computer files related to the model building, calibration, and analysis shall be transferred to the City of Marshall at the conclusion of the project. All information to be included in the modeling technical report shall be presented in both tabular and graphical (mapping) formats. All model results will be linked to the

City's existing GIS. The final model technical report shall bear the seal of a licensed professional engineer in the State of Texas.

2.0 Review and Assess Existing Wastewater Design Criteria. This effort shall include, as a minimum, the following tasks:

- Review existing City of Marshall Standard Wastewater System Design Criteria and compare the existing data to standards in use at similar and comparable agencies. Prepare recommendations for improvements to the City's standards.

- Review existing City of Marshall Standard Wastewater System Design Criteria and compare the existing data to all applicable state and federal design standards and criteria. Prepare recommendations for improvements to the City's standards that will result in compliance with those state and federal regulations; in particular, TCEQ Chapter 217/317 rules.

- Review the City's existing policies and standards against current Best Management Practices (BMP) for wastewater system operation, maintenance, planning, and finance. Make recommendations for improvements to existing standards and policies. Examples of current BMP's include Federal CMOM Programs and Asset Management Programs.

3.0 Miscellaneous System Assessments. This effort shall include, as a minimum, the following tasks:

- Review existing SCADA system for deficiencies and make recommendations for improvements.

- Review collection system and wastewater plant functions under emergency scenarios and make recommendations to ensure continuity of service for pumping and treatment.

- Recommend ongoing inflow/infiltration control and remediation strategies. This effort shall include a description of all proposed testing and evaluation methods.

- Recommend ongoing sanitary sewer overflow and system backup control and remediation strategies. This effort shall include a description of all proposed testing and evaluation methods and development of an appropriate sanitary sewer overflow response plan.

- Recommend methods to reduce or eliminate fats, roots, oils, and grease (FROG) from entering the collection system. This effort may include the development of public outreach materials. This effort shall include a description of all proposed testing and evaluation methods, code enforcement methods, public outreach and communication initiatives, and development of an appropriate FROG control plan.

- Review and analyze existing staffing levels and equipment for the purpose of developing recommendations to the City of Marshall for increases/decreases/changes in current staffing mixes and levels and new equipment purchases required to operate and maintain the wastewater collection system at peak performance levels for both current and future system configurations.

- Develop a utility fee structure that will be sufficient to appropriately finance the recommended wastewater infrastructure improvements, including all recommended improvements in existing staff and equipment levels. Provide projections for annual revenue resulting from the proposed fee structure. Include recommended rate increases and intervals.

4.0 Project Reporting and Master Plan Document. This effort shall include, as a minimum, the following tasks:

Prepare a draft and final report detailing the tasks accomplished for this project, including all relevant analyses, computations, assumptions, sources of data, limitations of the data and conclusions, and recommendations for improvements. The draft and final reports shall be provided in both hardcopy and digital formats acceptable the City of Marshall. The reports shall include the following data and information, as a minimum:

- Description of all activities, including results and conclusions, conducted for this project, including all field operations, testing and evaluation activities
- Identification of all known or observed structural related, capacity related, and O&M related system deficiencies
- Long range Capital Improvement Plan for the 5-year, 10-year, and 20-year planning horizons. Planning horizons shall include provisions for population growth and service area expansion
- Characterization of collection system performance and prioritized recommendations for improvements
- Cost summaries for recommended improvements
- Individual project descriptions, including projected impact on the collection system, timeline for completion, and expected cost
- Recap of all Technical Reports prepared for individual tasks included in this project
- Recap of all system assessments, investigations, and recommendations developed under Section 3.0.

The foregoing description of tasks and activities shall be considered guidance documentation for the minimum expect scope of work for this project. In responding to this RFQ, the Proposer should describe, in detail, the actual tasks that the Proposer would intend to perform in support of the overall goals and objectives of the project. Additional tasks or features may be proposed for consideration by the City of Marshall.

Information to be provided by the Proposer:

Request for Qualifications from qualified firms must include the following information, as a minimum, in the following order to be considered:

Firm and Project Team Profile. A description of the firm, its history, and the services offered related to this proposed project, a description of all key project team members, including resumes, and a description of any unique characteristics of the firm or project team related to similar types of projects.

Work Plan. Develop and present a summary of a project approach, work plan, and individual task descriptions. Designate information that will be required from City staff.

Project Schedule. Develop and present an estimated project schedule required to complete the minimum tasks outlined in the RFQ. Include review time for City comments. Include any additional tasks that the Proposer may wish to implement in order to accomplish the goals of this program. This project shall have two required presentations to City Commission. The first presentation shall be on or about July 28, 2016 and shall be focused on preliminary project results and progress. The second presentation will be made regarding the final project findings and recommendations.

Representative Projects and References. Provide a description of a minimum of three representative projects and references for which the same type of work was performed by the project team members. Only include references for engagements that the members of the assigned project team have worked on. Include the client reference name, address, contact person, telephone, facsimile numbers, and e-mail addresses. The Proposer must provide information that supports their knowledge of issues facing the City of Marshall, experience with development of Wastewater Master Plans, including hydraulic modeling, system assessment, and flow monitoring, experience with the evaluation of existing municipal wastewater

systems, and knowledge of the financial and operational characteristics of municipally-owned utilities. The project staff resumes should demonstrate experience with GIS and hydraulic modeling software.

Evaluation Criteria:

Request for Qualifications received will be evaluated based on the following criteria, among others:

- Responsiveness to the RFP Proposal, completeness of requested information, clarity, and conciseness.
- Experience in with municipal Wastewater Master Plan development, in the State of Texas
- Qualifications of personnel assigned to the project
- References of the firm; experience from previous cost of service studies with other city wastewater utility or utility companies may also be included in the response. Firms are encouraged to include any written references from other cities or companies where your firm has performed similar type operations.
- Level of understanding of the local socio-economic environment of Marshall, Texas
- Project work plan

There is no page limit for responses to this RFQ. However, a clearly written and concise response is favored. Do not include sales brochures or unrelated information. All responses shall be presented on bound 8.5"x11" single spaced, single sided paper, with a minimum of 10 point font. Submit one (1) original with three (3) copies and CD containing an Adobe PDF file of the entire proposal as one file.

Contact with City staff, with the exception of the City Public Services Director, is restricted until a firm has been selected for this project and a contract has been awarded by the City of Marshall.

To the extent permitted by law, all documents pertaining to this RFQ will be kept confidential until a contract is awarded. No information about any proposal will be released to the public until the selection process is complete and a contract has been awarded by the City of Marshall.

The proposals that are properly submitted in response to this RFQ will be evaluated by a City evaluation committee, consisting of:

- City Manager (or designee)
- City Public Services Director
- City Support Services Director
- City Sewer Distribution Superintendent
- City Sewer Treatment Superintendent

The City will evaluate the qualifications of firms submitting proposals based on, but not limited to, the following criteria and will award points in each category up to the maximum number of points listed.

Criteria	Maximum Points
Experience - Related project experience of the firm and the individuals who would be assigned to this Project. In particular, the Project Management team.	25
Capacity - Firm's capacity to perform the specific work requested. Ability to perform the work in a satisfactory and timely manner. Proposed project schedule.	25
Past Performance - Completed projects of similar size/scale, and complexity of past projects including system evaluation, planning, and hydraulic modeling	25
Project Understanding - Knowledge and overall experience with similar type(s) of projects, project approach and work plan, and articulation of the issues facing the City of Marshall.	25
Total Points	100

Following the receipt of Responses for this Request for Qualifications, the City's evaluation committee will rank the responses of those firms whose proposals are deemed most qualified, in order of preference. The City of Marshall may, at its option, select two or more firms to be interviewed by the RFQ selection committee. The City of Marshall may choose not to conduct interviews and proceed with an award based on the qualifications of a particular firm or project team.

The following is a proposed calendar of events for the RFQ selection process. Dates are subject to change.

- Advertise Request for Qualifications on 04/24/2016 and 05/01/2016.
- RFQ Response due date Tuesday 05/10/2016 2:00 pm.
- Committee selection of firm(s) for interview on or before 05/12/2016.
- Recommendation by staff of a contract with selected firm and consideration by the City Commission on or before 05-26-16.

The City of Marshall reserves the right to evaluate each proposal on a separate and individual basis. The City further reserves the right to reject any and all proposals submitted, or accept a proposal deemed most advantageous to the City.

Equal Opportunity Requirements – The City of Marshall encourages proposers to include Affirmative Action practices in their employment programs, meaning proposers shall not discriminate against any employee or applicant for employment because of race, color, national origin, religion, sex, age, disability, or political belief or affiliation.

Small, Minority and Women Business Program Requirements – The City of Marshall highly encourages proposers, when joint venturing and/or subcontracting is appropriate, to form joint ventures and/or provide subcontract opportunities to small, minority and women owned firms.

The City of Marshall desires to achieve a cost effective project with a major emphasis on results, quality, and timeliness. City of Marshall reserves the right to proceed or suspend activity under this RFQ based on preliminary response evaluations.

Additional Information:

There is no expressed or implied obligation for the City to reimburse responding firms or individuals for any expenses incurred in preparing proposals to respond to this request.

During the evaluation process, the City reserves the right, where it may serve the City's best interest, to request additional information or clarifications from proposers, or to allow corrections of errors or omissions.

The City reserves the right to retain all RFQs submitted and to use any ideas in a proposal regardless of whether that proposal is selected. Submission of a proposal indicates acceptance by the proposer of the conditions contained in this RFQ, unless clearly and specifically noted in the proposal submitted and confirmed in the contract between the City and the Service Provider selected.

Subcontracting. If subcontracting with another firm or individual is proposed that fact, along with the name of the proposed subcontracting firm, must be clearly identified in the proposal. Following the award of the contract, no additional subcontracting will be permitted without the express prior written consent of the City.

Proposals shall state it is valid for a period of not less than ninety (90) days from the date of receipt of the RFQ proposal by the City.

Upon determination of an appropriate detailed scope of work and schedule, compensation will be negotiated with the selected Engineering Firm. If a mutually acceptable Agreement for services cannot be developed with the selected firm, the negotiations with this firm shall end and the second most qualified Engineering Firm will be contacted and negotiations with this firm shall begin. This process will continue until a mutually agreeable Agreement is developed with a qualified engineering firm.

All proposals submitted will be deemed confidential during the evaluation process. RFQ proposals will not be available for review by anyone other than City personnel and/or authorized agents or representatives of the City. Following award of a contract, all proposals shall become public documents, available for public view upon written request.

Submission of Reponses to this Request for Qualifications:

Qualified Engineering Firms are invited to submit a formal sealed Request for Qualification (RFQ) in reply to the above noted project. Requests for Proposals will be accepted until a deadline of:

2:00 PM Central Time TUESDAY, MAY 10, 2016

After which time, the City of Marshall shall stop accepting responses for the above noted project. Responses received after this time shall be returned unopened. The City assumes no responsibility for delivery of responses.

Address RFQ Proposals to the attention of:

Via US Mail:	Via Express Carriers (UPS/FedEx/Others):
J.C. Hughes, Public Services Director City of Marshall, Texas P.O. Box 698 Marshall, Texas 75671	J.C. Hughes, Public Services Director City of Marshall, Texas 605 East End Blvd, South Marshall, Texas 75670

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Proposals must be in a sealed envelope or package, with the RFQ Number and Title, Opening Date and Time, clearly marked on the lower left-hand corner of the envelope or package.

Proposals will be publicly opened and the name of the proposer will be read aloud at 2:00 PM (receipt deadline), Tuesday, May 10, 2016 in the Conference Room, 2nd Floor, of the City of Marshall Water Treatment Plant, 605 East End Blvd. South, Marshall, Texas 75670.

Copies of the RFQ information may be obtained from the office of the Public Services Director.

Directly faxed or emailed proposals will not be accepted by the City of Marshall.

The format of responses shall be as follows:

- Firm and Project Team Profile
- Work Plan
- Project Schedule
- Representative Projects and References
- Additional or Supplemental Information

CITY OF MARSHALL WASTEWATER MASTER PLAN
SCOPE OF WORK

PROJECT WORK PLAN
Revision 1.0

Overview: The purpose of this project is to develop a Wastewater System Master Plan for the City of Marshall, Texas based largely on existing or publicly available information. The Master Plan will include a comprehensive system evaluation and hydraulic modeling exercise. The project is intended to provide a complete inventory of all system assets, a comprehensive structural and hydraulic analysis of the entire existing wastewater system infrastructure system, the development of a scope of work for any required improvements, development of a prioritized listing of those recommended improvements, and determination of a 5-year, 10-year, and 20-year timeline for implementation of the recommended improvements. The Master Plan will also be used to determine the existing modeled capacity of all existing line segments and lift stations, support recommendations for system improvements based on anticipated growth, and to develop data and information required to prepare a utility rate study.

The scope of services to be provided by the Burgess & Niple Team includes the development of a Wastewater Master Planning Document to guide the future expansion and improvement of the existing Wastewater Collection System serving the City of Marshall that are necessary to provide for reliable operation and maintenance of the existing and future facilities in accordance with the existing permitted limits. The scope of services is outlined below, with detailed task descriptions following.

- **Project Management**
- **Project Meetings**
- **Calibrate Hydraulic Model**
- **Field Verify Calibrated Model Results**
- **Analyze Model Planning Simulations**
- **Sanitary Sewer Design Criteria Evaluation**
- **WWTP Emergency Functions Evaluation and Recommendations**
- **Fats, Roots, Oil, and Grease Program Development**
- **Utility Rate Structure Evaluation and Recommendations**
- **Project Workshop**
- **Develop Hydraulic Model**
- **Model Analysis**
- **Develop Model Planning Horizons**
- **Prepare Hydraulic Modeling Technical Memorandum**
- **SCADA System Evaluation and Recommendations**
- **Inflow/Infiltration Reduction and Control Strategies**
- **Staffing and Equipment Evaluation and Recommendations**
- **Final Project Report**

Project Deliverables: Final Project Report summarizing the contents, methods, and recommendations developed during the project for each of the individual major activities listed above. Project deliverables will also include all data and information gathered, developed, and analyzed during the project.

Task 1 – Project Management

This task consists of general project administration, supervision and management. It also includes the quality assurance/control of all engineering and fieldwork, data management and security, data collection activities, engineering analysis, and report preparation. B&N will prepare and submit for approval, monthly invoices and will be responsible for providing management, supervision, and coordination of all engineering, team members, and field tasks as well as all project task deliverables as part of this effort. The City shall provide input and review regarding the overall progress of the

project and information regarding any potential changes in scope of the project. B&N will provide all project schedules, updates, status reports, and invoicing.

Task 2 – Project Workshop

This task consists of an initial project workshop to exchange information with the City Staff and develop formal communication channels. Preliminary data will be submitted to the City for review and comment. B&N will host a project workshop meeting at the City of Marshall facilities to discuss the following items:

- **Finalize project strategy and expectations**
- **Establish modeling planning horizons and scenarios**
- **Establish modeling criteria**
- **Identify data and information required from the City of Marshall**
- **Finalize project schedule, milestones, and progress meetings**
- **Define project reporting and digital deliverable formats**
- **Define data collection/management structure/methods**
- **Identify project obstacles & critical components**

B&N will provide all meeting agendas, handouts, presentation materials and meeting minutes. City staff shall attend the workshop and provide input and review regarding the overall project scope of work, as well as review and provide input regarding the materials presented in the meeting.

Task 3 – Project Meetings

This task provides for project meetings to exchange information with the City Project Team and provide status updates. Preliminary information, technical memoranda, and reports will be submitted to the City for review and comment. Project status meetings will be held as required and will provide a forum for discussion of the project status. B&N will provide all meeting agendas, handouts, presentation materials and minutes. The City's project representatives shall attend each meeting and provide input and review regarding the overall progress of the project, and review and input for the materials presented in the meeting. Project status meetings may also include presentations regarding the project to city staff, other city departments and the city commission at the discretion of the City's Project Manager. A maximum number of project meetings is designated in the project fee table.

Task 4 – Develop Hydraulic Model

The model building process consists of several major tasks, including build the pipe network, development of subcatchments, and allocation of existing populations and wastewater generators. The model of the wastewater system will be built using the existing City of Marshall GIS maps of the collection system, which was developed by Burgess & Niple (GSWW) as a function of the system assessment work completed in 2003. This information will be updated with any system improvements or modifications that have been completed by the City of Marshall since that time. Existing lift stations will be incorporated into the model and will be based on existing records and/or SCADA information. A field investigation of lift stations may be required in order to gather missing or incomplete pump and wet well data.

Subcatchments will be developed based on individual areas that are served by each sewer line segment in the system and will generally follow existing parcel or census tract boundaries. Wastewater flow metering data from the 2003 studies will be used as major boundaries for subcatchements. The aggregate of subcatchments is equal to the individual wastewater flow meter basins. Subcatchements are necessary in order to properly assign wastewater loads to individual pipe segments.

Allocation of existing and future populations will be based on existing census and/or planning data. The State of Texas provides macros level population growth projects that are suitable for hydraulic modeling. However, regional or locally adjusted populations and population projections are preferred.
At the conclusion of this task, a working but un-calibrated hydraulic model of the entire updated (based on available record data) will be available for review by City staff. Limited field work may be required to confirm pipeline connectivity.

Task 5 – Calibrate Hydraulic Model

The hydraulic model developed in Task 4 will be calibrated using existing wastewater flow data. Two sets of flow data were developed by Burgess & Niple (GSWW) during the system assessments. The first was an initial Inflow/Infiltration study that was used to prioritize the Sanitary Sewer Evaluation Survey work and the second set of flow data was developed after a number of system rehabilitation projects were completed. This data was used to gauge the effectiveness of the rehabilitation efforts. Population generates wastewater and since the existing wastewater flow data was collected more than 10 years ago, it will need to be updated or projected forward to account for increases in population and/or wastewater generation in the City of Marshall since the data was collected. This projection of the existing flow data will be checked against current water use records, current SCADA information from the existing lift stations, and wastewater influent/effluent data from the wastewater treatments plant. Once the existing wastewater flow data has been updated, it will be used to calibrate the hydraulic model to current conditions for dry and wet weather flow simulations. Calibration of the model requires adjustment of wastewater generation rates, generation timing (diurnal curve adjustments), adjustment of inflow/infiltration rates and other parameters such that the model results for system performance closely match those same system characteristics measured by the flow monitors.

At the conclusion of this task, a fully functional and calibrated hydraulic model of the City of Marshall wastewater collection system will be available for review by City staff.

Task 5A – Field Verify Hydraulic Model

Limited field work will be conducted during various weather conditions in order to confirm that the actual performance of the collection system is being reasonably represented by the model results. This is an important step in the development and calibration of any hydraulic model. The verification process will consist of measurement of wastewater depth and velocity at key manholes in the collection system during dry and wet weather periods.

Task 6 – Model Analysis

This portion of the model analysis will be focused on identification and development of remediation of current hydraulic restrictions in the collection system. The model simulations undertaken during this task will focus on stressing the existing collection system using current population values during dry and wet weather simulations. Common simulations include 1Q/4Q Dry Weather simulations, 5 Year/6 Hour Design Storm Wet Weather simulations, various lift station failure/restriction simulations, various inflow/infiltration reduction scenarios, and WWTP failure/restriction simulations. The development of required improvements to the existing collection system will be determined during this task. Improvements may include new interceptors, parallel or relief interceptors, improvements to existing lift stations, inter-basin flow transfers, flow holding basins at the WWTP, among others. Each of the required improvements will be presented in the Final Hydraulic Model Technical Memorandum as both individual (pipe level) improvements and as aggregated (project level) improvements to facilitate the implementation of the design and construction of these improvements. All improvements will be presented with anticipated construction costs and requirements for timing of the implementation of the improvements.

Task 7 – Develop Model Planning Horizons

The goal of this task is to develop and document the various future planning simulations that will be examined as a function of planning for future growth and expansion of the City of Marshall and the associated simulation parameters. A workshop will be held with City Staff to receive input regarding the anticipated expanded service area for the City of

Marshall, the types of development that will be located in the expanded service areas, and to confirm projected population increases over the next 20 years. These simulations will be divided into three time periods (5-year, 10-year, and 20-year) planning horizons. Other criteria for analysis of these model planning simulations will be presented and documented. These include TCEQ Chapter 217 Rule Compliance, expected Inflow/Infiltration Rates, Updated Sewer System Design Criteria, etc. At a minimum, simulations developed under this task will address the anticipated populations of the City in 2021, 2026, and 2036, the sewer infrastructure required to serve these new populations, and the required improvements to existing infrastructure needed to transport the additional wastewater.

Task 8 – Analyze Model Planning Simulations

This portion of the model analysis will be focused on development of new infrastructure required to serve projected future populations and service areas for the City of Marshall and identification of any improvements to existing infrastructure required to serve the future populations. The model simulations undertaken during this task will focus on stressing the collection system at each of the identified planning horizons (5-year, 10-year, and 20-year) during dry and wet weather simulations. Common simulations include 1Q/4Q Dry Weather simulations, 5 Year/6 Hour Design Storm Wet Weather simulations, various lift station failure/restriction simulations, various inflow/infiltration application/reduction scenarios, and WWTP failure/restriction simulations. The development of required future infrastructure and improvements to the existing collection system will be determined during this task. Improvements may include new interceptors, parallel or relief interceptors, improvements to existing lift stations, inter-basin flow transfers, flow holding basins at the WWTP, among others. Each of the required improvements will be presented in the Final Hydraulic Model Technical Memorandum as both individual (pipe level) improvements and as aggregated (project level) improvements to facilitate the implementation of the design and construction of these improvements. All improvements will be presented with anticipated construction costs and requirements for timing of the implementation of the improvements.

Task 9 – Prepare Hydraulic Modeling Technical Memorandum

This portion of the overall project will be the preparation of a Technical Memorandum outlining the activities required to prepare, build, calibrate, and analyze the hydraulic model and the associated modeling results. The memorandum will be sealed by a licensed professional engineer in the State of Texas. Each of the improvements identified in Task 6 will be presented in tabular and graphical forms. The improvements will be presented as individual pipeline and/or lift station improvements and as aggregated design projects. Each individual improvement will be prioritized based on criticality and need and will include an estimated construction cost. Aggregated design projects will be prioritized on the same basis and will include an aggregated construction cost estimate and estimated life cycle costs. Each of the design projects will be further prioritized based on available budgets. The result will represent the system improvements required to serve the existing population of the City of Marshall over the next 20 years.

Each of the improvements identified in Task 8 will be presented in tabular and graphical forms. The improvements will be presented as individual pipeline and/or lift station improvements and as aggregated design projects. Each individual improvement will be prioritized based on anticipated growth patterns and anticipated expansion of the City's service area and will include an estimated construction cost. Aggregated design projects will be prioritized on the same basis and will include an aggregated construction cost estimate. Each of the design projects will be further prioritized based on projected capital improvement budgets, impact to the overall performance of the collection system, and estimated life cycle costs. The result will represent the system improvements required to serve the existing and future population of the City of Marshall over the next 20 years.

Task 10 - Sanitary Sewer Design Criteria Evaluation

The purpose of the evaluation of the City of Marshall's existing Sanitary Sewer Design Criteria is to determine where updates and improvements may be made in order to benefit the long term performance of the City's wastewater collection system. The existing criteria will be reviewed and compared with regional and state best management and construction practices, compliance with applicable existing and proposed TCEQ guidelines and regulations, and current construction

materials specifications. A Technical Memorandum detailing the findings of this task with suggested updates to the City Standards with example specifications and drawings. Actual updates to the City's Wastewater Design Standards will require action by the City Commission and should be packaged with updates to the City's Water Design and Drainage Design Standards.

Task 11 - SCADA System Evaluation and Recommendations

The purpose of this task is the evaluation of the City of Marshall's existing Supervisory Control and Data Acquisition (SCADA) systems and development of recommendations for improvements and enhancements. The focus of this evaluation will be the existing SCADA hardware/software combinations and the current management and record keeping practices in place at the City. The existing systems will be will be reviewed and compared with regional and state best management practices, compliance with applicable existing and proposed TCEQ guidelines and regulations, and current hardware/software versions. A focus of this effort will be the ability to reconfigure the existing system to record data and information, rather than just logging information. A Technical Memorandum detailing the findings of this task with suggested upgrades to existing equipment and updates to existing management practices.

Task 12 - WWTP Emergency Functions Evaluation and Recommendations

The purpose of this task is the evaluation of the City of Marshall's existing Wastewater Treatment Plant (WWTP) under various emergency conditions and scenarios. The B&N Team will conduct a workshop to identify and document the various emergency conditions that are most likely to occur at the City's treatment works and recommend mitigation strategies to be put in place to prevent plant upset, high flow situations, discharge permit issues, and non-optimal treatment processes. This task is not intended to encompass a complete evaluation of the existing treatment plant. However, a full evaluation of the existing treatment processes may be warranted in order to fully evaluate the feasibility of wet weather or peak flow holding basins or offline wastewater storage. A Technical Memorandum detailing the findings of this task with suggested upgrades to existing equipment and updates to existing management practices for the 5-year, 10-year, and 20-year planning horizons.

Task 13 - Inflow/Infiltration Reduction and Control Strategies

The purpose of this task is to develop a workable strategy for the City of Marshall to implement with its own forces to mitigate excessive inflow and infiltration (I/I) into the collection system. Control of I/I begins with sound construction methods and materials, therefore the work contemplated under Task 10 regarding updates to the City's sanitary sewer design standards will play an important role in this task. Other mitigation strategies can include consistent inspection of the collection system, best management practices for I/I detection, best management practices for conducting repairs on the collection system, recordkeeping, and elimination of private property I/I sources. A Technical Memorandum detailing the various I/I Reduction and Control Strategies, along with best management practices and programs developed for the City will be presented.

Task 14 - Fats, Roots, Oil, and Grease Program Development

The purpose of this task is to develop a workable strategy for the City of Marshall to implement with its own forces to mitigate the effects of Fats, Roots, Oil, and Grease (FROG) in the collection system. The focus of this task will be the development of a root control program and development of a City Code Enforcement based program to inspect the ever increasing number of commercial greasetraps in the City. Commercial greasetraps are common contributors to Fats, Oils, and Grease in the collection system. In addition to the commercial contributors, private households can contribute significantly to the problem. As a function of this task, the B&N Team, in concert with the City, develop a series of educational water bill inserts that will help to explain the issues associated with improper food waste disposal and the detrimental effects on the collection system. All of these efforts will be developed to comply with state and local best management practices for code enforcement and public education. The root control program will become a part of the I/I Reduction and Control strategies. A Technical Memorandum detailing the various FROG Control Strategies, along with all public education materials developed for the City will be presented.

Task 15 - Staffing and Equipment Evaluation and Recommendations

The purpose of this task is to evaluate existing City of Marshall Public Services staff, equipment, and skill sets in light of new programs and procedures developed as a function of this and other planning efforts. As an example, implementation and operation of the FROG mitigation program contemplated under Task 14 may require additional equipment and staff to be added to supplement existing staff. The Inflow/Infiltration Control program may require the purchase of new sewer inspection equipment and software in order to properly manage the data being collected and analyzed under that program. The B&N Team will review and evaluate existing skill sets and equipment in place at the City of Marshall and make recommendations for increases/decreases/enhancements to existing staff and equipment pools. A focus will be placed on training or re-training existing staff. A Technical Memorandum detailing the various evaluations and recommendations developed for the City will be presented.

Task 16 - Utility Rate Structure Evaluation and Recommendations

The purpose of this task is to evaluate the existing City of Marshall utilities rate structures and determine where updates and improvements, in the form of rate increases, may be made in order to benefit the long term performance of the City's wastewater collection system and to create funding sources for improvements and expansion of the existing and future collection system. The evaluation will include a review of utility rate structures currently in place in the region. The B&N Team will also provide data and information regarding alternative funding options available to the City of Marshall through the various state and federal loan and grant programs. A Technical Memorandum detailing the findings of this task with suggested rate structure updates and schedules for implementation. Actual updates to the City's Utility Rate Structure will require action by the City Commission and should be packaged with any rate structure changes recommended by the water and drainage master planning efforts.

Task 17 – Final Project Report

The purpose of this task is to provide a Final Report that summarizes the results of all previous tasks, make recommendations for additional work or system improvements, and expand upon any topic requiring clarification from the Technical Memoranda prepared for the various individual tasks in the project. The Final Project Report will present the Finalized Wastewater Master Plan in a clear and concise format and will oriented toward non-technical readers. The Appendices of the Final Project Report will contain final versions of all digital deliverables prepared for the entire project in Adobe pdf format.

Task Description	Estimated Fee	Estimated Hours				
		Principal	Project Manager	Project Engineer	GIS	Admin
		$165.00	$150.00	$120.00	$100.00	$75.00
Task 1 - Project Management	$6,240.00	4	32	4	0	4
Task 2 - Project Workshop	$5,600.00	8	16	4	8	8
Task 3 - Project Meetings	$8,840.00	32	8	8	8	8
Task 4 - Develop Hydraulic Model	$13,530.00	2	8	80	24	0
Task 5 - Calibrate Hydraulic Model	$7,130.00	2	8	40	8	0
Task 5A - Field Verify Hydraulic Model	$3,220.00	0	6	16	4	0
Task 6 - Model Analysis	$6,970.00	2	16	32	4	0
Task 7 - Develop Model Planning Horizons	$1,890.00	2	4	8	0	0
Task 8 - Analyze Model Planning Simulations	$7,670.00	2	16	32	8	4
Task 9 - Prepare Hydraulic Modeling Technical Memorandum	$7,010.00	2	16	24	8	8
Task 10 - Sanitary Sewer Design Criteria Evaluation	$4,800.00	2	16	16	0	2
Task 11 - SCADA System Evaluation and Recommendations	$6,440.00	2	32	8	2	2
Task 12 - WWTP Emergency Functionis Evaluation and Recommendations	$5,910.00	4	32	8	0	2
Task 13 - Inflow/Infiltration Reduction and Control Strategies	$7,370.00	4	32	8	8	2
Task 14 - Fats, Roots, Oil and Grease Program Development	$7,120.00	4	32	8	4	4
Task 15 - Staffing and Equipment Evaluation and Recommendations	$5,910.00	2	32	4	0	4
Task 16 - Utility Rate Structure Evaluation and Recommendations	$5,910.00	2	32	4	0	4
Task 17 - Final Project Report	$13,300.00	4	40	32	16	16
Totals	**$124,860.00**	**80**	**378**	**336**	**102**	**68**