

Introduced by _____

First Reading _____

Second Reading _____

Ordinance No. _____

Council Bill No. B 56-13

AN ORDINANCE

authorizing an agreement for professional engineering services with Jacobs Engineering Group Inc. for the 2013 Long Range Water System Study; appropriating funds; and fixing the time when this ordinance shall become effective.

BE IT ORDAINED BY THE COUNCIL OF THE CITY OF COLUMBIA, MISSOURI, AS FOLLOWS:

SECTION 1. The City Manager is hereby authorized to execute an agreement for professional engineering services with Jacobs Engineering Group Inc. for the 2013 Long Range Water System Study. The form and content of the agreement shall be substantially as set forth in "Exhibit A" attached hereto and made a part hereof as fully as if set forth herein verbatim.

SECTION 2. The sum of \$99,400.00 is hereby appropriated from the Retained Earnings Account No. 550-0000-351.01-00 to the Consulting Fees Account No. 550-7010-600.40-23.

SECTION 3. This ordinance shall be in full force and effect from and after its passage.

PASSED this _____ day of _____, 2013.

ATTEST:

City Clerk

Mayor and Presiding Officer

APPROVED AS TO FORM:

City Counselor

CERTIFICATION: I certify there are sufficient funds available in the Retained Earnings Account No. 550-0000-351.01-00 to cover the above appropriation.

Director of Finance

AGREEMENT
For
PROFESSIONAL ENGINEERING SERVICES
Between
THE CITY OF COLUMBIA, MISSOURI
And
Jacobs Engineering Group Inc.
501 North Broadway, St. Louis, MO 63102

THIS AGREEMENT made as of _____ day of _____, 2013, by and between the City of Columbia, Missouri, hereinafter called the CITY, and Jacobs Engineering Group, Inc., with an office in St. Louis, Missouri, a corporation organized in the State of Delaware with authority to transact business in the State of Missouri, hereinafter called the ENGINEER.

WITNESSETH, that whereas the CITY intends to make improvements as described below, hereinafter called the PROJECT, consisting of the following:

Analysis of Historical Water Demands and Use Trends,
Development of Estimated Future Water Demands, Analysis
of Capital Costs, and Report Preparation for the 2013 Long
Range Water System Study.

NOW THEREFORE, in consideration of the mutual covenants set out herein the parties agree as follows:

ENGINEER shall serve as CITY's professional engineering contractor in those assignments to which this Agreement applies, and shall give consultation and advice to CITY during the performance of the services. All services shall be performed under the direction of a professional engineer registered in the State of Missouri and qualified in the particular field.

SECTION 1 - AUTHORIZATION OF SERVICES

1.1 ENGINEER shall not undertake to begin any of the services contemplated by this agreement until directed in writing to do so by CITY. CITY may elect to authorize the PROJECT as a whole or in parts.

1.2 Authorized work may include services described hereafter as Basic Services or as Additional Services of ENGINEER.

SECTION 2 - BASIC SERVICES OF ENGINEER

2.1 General

2.1.1 Perform professional engineering services as set forth in Attachment A - "Scope of Basic Services", dated December 17, 2012.

2.1.2 The ENGINEER will designate the following listed individuals as its project team with responsibilities as assigned. The ENGINEER shall dedicate whatever additional resources are necessary to accomplish the PROJECT within the specified time frame but will not remove these individuals from the assigned tasks for any reason within the control of the ENGINEER without the written approval of the CITY.

<u>Name and Title</u>	<u>Assignment</u>
JoAnn Null	Administrative
Sharon Varel	Project Controls
Chris Retzer	Junior CAD/GIS Technician
Scott Simmons	Environmental Engineer III
Todd Embrey	Environmental Engineer VI
Mike McCarty	Environmental Engineer VII
Jason Dennis	Environmental Engineer IV
Kevin Elbert	Project Principal

All of the services required hereunder will be performed by the ENGINEER or under its supervision and all personnel engaged in the work shall be fully qualified and authorized or permitted under state and local law to perform such services.

None of the work or services covered by this Agreement shall be subcontracted without the prior written approval of the CITY and any work or services so subcontracted shall be subject to the provisions of this Agreement.

2.2 The ENGINEER shall furnish such periodic reports as the CITY may request pertaining to the work or services undertaken pursuant to this Agreement, the costs and obligations incurred or to be incurred, and any other matters covered by this Agreement.

2.3 The ENGINEER shall maintain accounts and records, including personnel, property and financial records, adequate to identify and account for all costs pertaining to the Agreement and any other records as deemed necessary by the CITY to assure proper accounting for all project funds. These records must be available to the CITY or its authorized representatives, for audit purposes, and must be retained for three (3) years after expiration or completion of this Agreement.

SECTION 3 - ADDITIONAL SERVICES OF ENGINEER

3.1 General

If authorized in writing by CITY, and agreed to in writing by ENGINEER, ENGINEER shall furnish or obtain from others Additional Services of the following types which are not considered normal or customary Basic Services. The scope of Additional Services may include:

3.1.1 Financial Consultation

Consult with CITY's fiscal agents and bond attorneys and provide such engineering data as required for any bond prospectus or other financing requirements.

3.1.2 Property Procurement Assistance

Provide consultation and assistance on property procurement as related to professional engineering services being performed.

3.1.3 Obtaining Services of Others

Provide through subcontract the services or data set forth in Attachment A.

3.1.4 Preliminary or final engineering design of capital facilities except as specifically identified herein.

3.1.5 Preparation of reports, data, application, etc., in connection with modifications to FEMA floodplain definition and/or mapping.

3.1.6 Extra Services

Services not specifically defined heretofore that may be authorized in writing by CITY.

SECTION 4 - RESPONSIBILITIES OF CITY

4.1 Provide full information as to CITY's requirements for the PROJECT.

4.2 Assist ENGINEER by placing at ENGINEER's disposal available information pertinent to the assignment including previous reports and other data relative thereto, including the items outlined in Attachment A - "Scope of Basic Services", dated December 17, 2012.

4.3 Guarantee access to and make all provisions for ENGINEER to enter upon public and private property as required for ENGINEER to perform his services under this Agreement.

4.4 Examine all studies, reports, sketches, estimates, Bid Documents, Drawings, proposals and other documents presented by ENGINEER and render in writing decisions pertaining thereto.

4.5 Provide such professional legal, accounting, financial and insurance counseling services as may be required for the PROJECT.

4.6 Designate Tomas Zajicek, as CITY's representative with respect to the services to be performed under this Agreement. Such person shall have complete authority to transmit instructions, receive information, interpret and define CITY's policies and decisions with respect to materials, equipment, elements and systems to be used in the PROJECT, and other matters pertinent to the services covered by this Agreement.

4.7 Give prompt written notice to ENGINEER whenever CITY observes or otherwise becomes aware of any defect in the PROJECT.

4.8 Furnish approvals and permits from all governmental authorities having jurisdiction over the PROJECT and such approvals and consents from others as may be necessary for completion of the PROJECT.

4.9 Furnish ENGINEER data such as probings and subsurface explorations, with appropriate professional interpretations; property, boundary, easement, right-of-way, topographic and utility surveys; zoning and deed restriction; and other special data or consultations, all of which ENGINEER may rely upon in performing his services under this Agreement.

SECTION 5 - PERIOD OF SERVICE

5.1 This Agreement will become effective upon the first written notice by CITY authorizing services hereunder.

5.2 This Agreement shall be applicable to all work assignments authorized by CITY subsequent to the date of its execution and shall be effective as to all assignments authorized.

5.3 Services shall be started within 10 calendar days of Notice to Proceed and completed within two hundred eighty (280) calendar days from the issuance of the Notice to Proceed. CITY shall have the right to establish performance times for

individual phases or elements of the PROJECT by delivering a written schedule setting out the performance times to the ENGINEER.

SECTION 6 - PAYMENTS TO ENGINEER

6.1 Amount of Payment

6.1.1 For services performed, CITY shall pay ENGINEER the sum of amounts determined as follows:

6.1.1.1 For time spent by personnel, payment at the hourly rates indicated in the "Schedule of Hourly Labor Billing Rates", included as Attachment B, dated December 17, 2012. Such rates include overhead and profit. The schedule is effective to September 30, 2013, and may be revised thereafter.

6.1.1.2 For outside expenses incurred by ENGINEER, such as authorized travel and subsistence, commercial services, and incidental expenses, the cost to ENGINEER.

6.1.1.3 For reproduction, printing, long-distance telephone calls, company vehicle usage, testing apparatus, computer services and computer-assisted drafting (CAD), amounts will be charged according to the ENGINEER's standard rates in effect at the time service is provided.

6.1.1.4 For professional services rendered by others as subcontractor(s) to ENGINEER such as surveying, real property descriptions, soil borings, subsurface investigations, laboratory testing, field quality control tests, progress photos, or other activities required or requested by CITY, will be billed at the cost to ENGINEER.

6.1.1.5 For time spent by outside individual professional consultants employed by ENGINEER in providing services to CITY, the cost to ENGINEER. Expenses incurred by such outside consultants in service to CITY shall be reimbursable in accordance with 6.1.1.2 above.

6.1.2 Total payment for Scope of Services and all other expenses and costs to the City under this agreement and described herein **shall not exceed ninety-nine thousand four hundred dollars (\$99,400.00).**

6.2 Payments

6.2.1 The ENGINEER shall submit an invoice for services rendered to the CITY not more than once every month. Upon receipt of the invoice and progress report, the CITY will, as soon as practical, pay the ENGINEER for the services rendered, provided the CITY does not contest the invoice, to the extent of ninety-five percent (95%) of the uncontested amount earned. Upon completion and acceptance of the final plans by the CITY, the five percent (5%) of these services retained by the CITY will be paid to the ENGINEER.

SECTION 7 - GENERAL CONSIDERATIONS

7.1 Insurance

7.1.1 ENGINEER'S INSURANCE: ENGINEER agrees to maintain, on a primary basis and at its sole expense, at all times during the life of this contract the following insurance coverages, limits, including endorsements described herein. The requirements contained herein, as well as CITY's review or acceptance of insurance maintained by ENGINEER is not intended to and shall not in any manner limit or qualify the liabilities or obligations assumed by ENGINEER under this contract.

Commercial General Liability ENGINEER agrees to maintain Commercial General Liability at a limit of liability not less than **\$2,000,000** combined single limit for any one occurrence covering both bodily injury and property damage, including accidental death. Coverage shall not contain any endorsement(s) excluding nor limiting Contractual Liability or Cross Liability. If the contract involves any underground/digging operations, the general liability certificate shall include X, C and U (Explosion, Collapse and Underground) coverage.

Professional Liability ENGINEER agrees to maintain Professional (Errors & Omissions) Liability at a limit of liability not less than **\$2,000,000** per claim and **\$2,000,000** aggregate. For policies written on a "Claims-Made" basis, ENGINEER agrees to maintain a Retroactive Date prior to or equal to the effective date of this contract. In the event the policy is canceled, non-renewed, switched to an Occurrence Form, retroactive date advanced; or any other event triggering the right to purchase a Supplemental Extended Reporting Period (SERP) during the life of this contract, ENGINEER agrees to purchase a SERP with a minimum reporting period not less than two (2) years. The requirement to purchase a SERP shall not relieve ENGINEER of the obligation to provide replacement coverage.

Business Automobile Liability ENGINEER agrees to maintain Business Automobile Liability at a limit of liability not less than **\$2,000,000** combined single limit for any one occurrence and not less than \$150,000 per individual, covering both bodily injury,

including accidental death, and property damage, to protect themselves from any and all claims arising from the use of the ENGINEER's own automobiles, and trucks; hired automobiles, and trucks; and automobiles both on and off the site of work. Coverage shall include liability for Owned, Non-Owned & Hired automobiles. In the event ENGINEER does not own automobiles, ENGINEER agrees to maintain coverage for Hired & Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

Workers' Compensation Insurance & Employers' Liability ENGINEER agrees to take out and maintain during the life of this contract, Employers' Liability and Workers' Compensation Insurance for all of their employees employed at the site of the work, and in case any work is sublet, the ENGINEER shall require the subcontractor similarly to provide Workers' Compensation Insurance for all the latter's employees unless such employees are covered by the protection afforded by the ENGINEER. Workers' Compensation coverages shall meet Missouri statutory limits. Employers' Liability minimum limits shall be \$500,000 each employee, \$500,000 each accident and \$500,000 policy limit. In case any class of employees engaged in hazardous work under this contract is not protected under the Workers' Compensation Statute, the ENGINEER shall provide and shall cause each subcontractor to provide Employers' Liability Insurance for the protection of their employees not otherwise protected.

Excess/Umbrella Liability The above liability limits may be satisfied by any combination of primary and excess/umbrella liability policies.

Additional Insured ENGINEER agrees to endorse CITY as an Additional Insured with a CG 2026 Additional Insured – Designated Person or Organization endorsement, or similar endorsement, to the Commercial General Liability. The Additional Insured shall read "City of Columbia." ENGINEER shall not be required to insure the City for the City's own fault.

Waiver of Subrogation ENGINEER agrees by entering into this contract to a Waiver of Subrogation for each required policy herein except professional liability. When required by the insurer, or should a policy condition not permit ENGINEER to enter into an pre-loss agreement to waive subrogation without an endorsement, then ENGINEER agrees to notify the insurer and request the policy be endorsed with a Waiver of Transfer of Rights of Recovery Against Others, or its equivalent. This Waiver of Subrogation requirement shall not apply to any policy, which includes a condition specifically prohibiting such an endorsement, or voids coverage should ENGINEER enter into such an agreement on a pre-loss basis.

Certificate(s) of Insurance ENGINEER agrees to provide CITY with Certificate(s) of Insurance evidencing that all coverages, limits and endorsements required herein are maintained and in full force and effect. ENGINEER shall provide policy endorsements that shall include a minimum thirty (30) day endeavor to notify due to cancellation or

non-renewal of coverage. The Certificate(s) of Insurance shall name the City as additional insured in an amount as required in this contract and contain a description of the project or work to be performed.

Right to Revise or Reject CITY reserves the right, but not the obligation, to review and revise any insurance requirement, not limited to limits, coverages and endorsements based on insurance market conditions affecting the availability or affordability of coverage; or changes in the scope of work / specifications affecting the applicability of coverage. Additionally, the CITY reserves the right, but not the obligation, to review and reject any insurance policies failing to meet the criteria stated herein or any insurer providing coverage due of its poor financial condition or failure to operating legally.

7.1.2 **HOLD HARMLESS AGREEMENT:** To the fullest extent not prohibited by law, ENGINEER shall indemnify and hold harmless the City of Columbia, its directors, officers, agents and employees from and against all claims, damages, losses and expenses (including but not limited to attorney's fees) arising by reason of any negligent act or failure to act, or willful misconduct, of ENGINEER, of any subcontractor (meaning anyone, including but not limited to consultants having a contract with ENGINEER or a subcontractor for part of the services), of anyone directly or indirectly employed by ENGINEER or by any subcontractor, or of anyone for whose acts the ENGINEER or its subcontractor may be liable, in connection with providing these services except as provided in this Agreement. This provision does not, however, require ENGINEER to indemnify, hold harmless or defend the City of Columbia from its own negligence, except as set out herein.

7.1.3 **Professional Oversight Indemnification**

The ENGINEER understands and agrees that CITY has contracted with ENGINEER based upon ENGINEER's representations that ENGINEER is a skilled professional and fully able to provide the services set out in this Agreement. In addition to any other indemnification set out in this Agreement, ENGINEER agrees to defend, indemnify and hold and save harmless the CITY from any and all claims, settlements and judgments whatsoever arising out of the CITY's alleged negligence in hiring or failing to properly supervise the ENGINEER.

The insurance required by this Agreement shall include coverage which shall meet ENGINEER's obligations to indemnify the CITY as set out above and the CITY shall be listed as an additional insured for such insurance.

7.2 **Professional Responsibility**

7.2.1 ENGINEER will exercise reasonable skill, care, and diligence in the

performance of its services and will carry out its responsibilities in accordance with customarily accepted good professional engineering practices. If the ENGINEER fails to meet the foregoing standard, ENGINEER will perform at its own cost, and without reimbursement from CITY, the professional engineering services necessary to correct errors and omissions which are caused by ENGINEER's failure to comply with above standard, and which are reported to ENGINEER within one year from the completion of ENGINEER's services for the PROJECT.

7.2.2 In addition, ENGINEER will be responsible to CITY for damages caused by its negligent conduct during its activities at the PROJECT site or in the field.

7.3 Estimates and Projections

Estimates and projections prepared by ENGINEER relating to construction costs and schedules, operation and maintenance costs, equipment characteristics and performance, and operating results are based on ENGINEER's experience, qualifications and judgment as a design professional. Since ENGINEER has no control over weather, cost and availability of labor, material and equipment, labor productivity, construction contractor's procedures and methods, unavoidable delays, construction contractor's methods of determining prices, economic conditions, competitive bidding or market conditions and other factors affecting such estimates or projections, ENGINEER does not guarantee that actual rates, costs, performance, schedules, etc., will not vary from estimates and projections prepared by ENGINEER.

7.4 On-Site Services

PROJECT site visits by ENGINEER during construction shall not make ENGINEER responsible for construction means, methods, techniques, sequences or procedures; for construction safety precautions or programs; or for any construction contractor(s)' failure to perform its work in accordance with the plans and specifications.

7.5 Changes

CITY shall have the right to make changes within the general scope of ENGINEER's services, with an appropriate change in compensation, upon execution of a mutually acceptable amendment or change order signed by an authorized representative of the CITY and the President or any Vice President of the ENGINEER.

7.6 Suspension of Services

Should CITY fail to fulfill its responsibilities as provided under Section 4 to the extent that ENGINEER is unduly hindered in his services or if CITY fails to make any payment to ENGINEER on account of its services and expenses within ninety (90) days after receipt of ENGINEER's bill therefor, ENGINEER may, after giving seven (7) days' written notice to CITY, suspend services under this Agreement until CITY has

satisfied his obligations under this Agreement.

7.7 Termination

Services may be terminated by the CITY at any time and for any reason, and by the ENGINEER in the event of substantial failure to perform in accordance with the terms hereof by the CITY through no fault of the ENGINEER, by ten (10) days' notice. If so terminated, CITY shall pay ENGINEER all uncontested amounts due ENGINEER for all services properly rendered and expenses incurred to the date of receipt of notice of termination.

7.7.1 In the event of CITY's termination of the Agreement pursuant to the above section, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs and reports prepared under this Agreement, shall at the option of the CITY become its property.

Further, the ENGINEER shall not be relieved of any liability to the CITY for any damages sustained by the CITY by virtue of any breach of this Agreement by ENGINEER and the CITY may withhold any payments due the ENGINEER for the purpose of set-off until such time as the exact amount of damages to the CITY, if any, is determined.

7.8 Publications

Recognizing the importance of professional development on the part of ENGINEER's employees and the importance of ENGINEER's public relations, ENGINEER may prepare publications, such as technical papers, articles for periodicals, and press releases, pertaining to ENGINEER's services for the PROJECT. Such publications will be provided to CITY in draft form for CITY's advance review. CITY will review such drafts promptly and will provide comments to ENGINEER. CITY may require deletion of proprietary data or confidential information from such publications but otherwise will not unreasonably withhold its approval. The cost of ENGINEER's activities pertaining to any such publication shall be paid entirely by ENGINEER.

7.9 Nondiscrimination

During the performance of this Agreement, ENGINEER agrees to the following:

7.9.1. ENGINEER shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, handicap, or national origin. ENGINEER shall take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color,

religion, sex, age, handicap, or national origin. 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. ENGINEER agrees to post notices in conspicuous places, available to employees and applicants for employment.

7.9.2 ENGINEER shall, in all solicitation or advertisements for employees placed by or on behalf of ENGINEER, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, handicap, or national origin.

7.9.3 ENGINEER shall comply with all provisions of State and Federal Laws governing the regulation of Equal Employment Opportunity including Title VI of the Civil Rights Act of 1964.

7.10 Successor and Assigns

CITY and ENGINEER each binds himself and his successors, executors, administrators and assigns to the other party of this Agreement and to the successors, executors, administrators and assigns of such other party, in respect to all covenants of this Agreement; except as above, neither CITY nor ENGINEER shall assign, sublet or transfer his interest in the Agreement without the written consent of the other.

7.11 Rights and Benefits

ENGINEER's services will be performed solely for the benefit of the CITY and not for the benefit of any other persons or entities.

7.12 Compliance with Local Laws

ENGINEER shall comply with all applicable laws, ordinances and codes of the state and city.

7.13 Law; Submission to Jurisdiction Governing.

This Contract shall be governed by, interpreted and enforced in accordance with the laws of the State of Missouri and/or the laws of the United States, as applicable. The venue for all litigation arising out of, or relating to this Contract Document, shall be Boone County, Missouri or the United States Western District of Missouri. The parties hereto irrevocably agree to submit to the exclusive jurisdiction of such courts in the State of Missouri and waive any defense of forum non conveniens

7.14 Employment of Unauthorized Aliens Prohibited

7.14.1 ENGINEER agrees to comply with Missouri State Statute section 285.530 in that they shall not knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri.

7.14.2 As a condition for the award of this contract ENGINEER shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. ENGINEER shall also sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services.

7.14.3 ENGINEER shall require each subcontractor to affirmatively state in its contract with ENGINEER that the subcontractor shall not knowingly employ, hire for employment or continue to employ an unauthorized alien to perform work within the state of Missouri. ENGINEER shall also require each subcontractor to provide ENGINEER with a sworn affidavit under the penalty of perjury attesting to the fact that the subcontractor's employees are lawfully present in the United States.

7.15 Entire Agreement

This Agreement represents the entire and integrated Agreement between ENGINEER and CITY relative to the Scope of Services herein. All previous or contemporaneous agreements, representations, promises and conditions relating to ENGINEER's services described herein are superseded.

[SIGNATURES ON FOLLOWING PAGE]

CITY OF COLUMBIA, MISSOURI

By: _____

Mike Matthes, City Manager

ATTESTED BY:

Sheela Amin, City Clerk

APPROVED AS TO FORM:

Fred Boeckmann, City Counselor

CERTIFICATION:

I hereby certify that the above expenditure is within the purpose of the appropriation to which it is charged, Account No. 550-7220-~~881-49-90~~^{620.40-23^{7/2}}, and that there is an unencumbered balance to the credit of such appropriation sufficient to pay therefor.

Director of Finance

JACOBS ENGINEERING GROUP INC.

By: _____

Thomas M. Smith / Vice President
(Name/Title)

By: _____

(Name/Title)

NOTICE TO VENDORS

Section 285.525 – 285.550 RSMo Effective January 1, 2009

Effective January 1, 2009 and pursuant to RSMo 285.530 (1), No business entity or employer shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri.

As a condition for the award of any contract or grant in excess of five thousand dollars by the state or by any political subdivision of the state to a business entity, or for any business entity receiving a state administered or subsidized tax credit, tax abatement, or loan from the state, the business entity shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Every such business entity shall sign an affidavit affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the contracted services. [RSMO 285.530 (2)]

An employer may enroll and participate in a federal work authorization program and shall verify the employment eligibility of every employee in the employer's hire whose employment commences after the employer enrolls in a federal work authorization program. The employer shall retain a copy of the dated verification report received from the federal government. Any business entity that participates in such program shall have an affirmative defense that such business entity has not violated subsection 1 of this section. [RSMO 285.530 (4)]

For vendors that are not already enrolled and participating in a federal work authorization program, E-Verify is an example of this type of program. Information regarding E-Verify is available at:
http://www.dhs.gov/xprevprot/programs/gc_1185221678150.shtm.

Effective 1/1/2009

Notary Public

ATTACHMENT A – SCOPE OF BASIC SERVICES
December 17, 2012

2013 Long Range Water System Study
City of Columbia Water and Light Department (CW&L)

Following is a summary of the scope of services for Updating the Long Range Water System Study that was developed in July 2008.

BACKGROUND

Columbia Water & Light (CW&L) provides water service to domestic, commercial, institutional, and industrial customers within the City of Columbia (City) limits as well as small areas adjacent to the City. Additional water suppliers in the area consist of the University of Missouri (who has its own deep well based water supply) and rural water districts for the surrounding rural areas. We are familiar with your system and provided the currently utilized Long Range Water System Study for you in 2008.

PROJECT UNDERSTANDING

Jacobs understands that CW&L wishes to update the Long Range Water System Study to update water demand projections and identify possible capital improvements to meet future demands. This study will take a long-range (20-year) look at the improvement projects which are projected to be needed to meet current and future water demands and to provide CW&L with a continued road map for implementation of future projects.

We have developed the following tasks to update the Long Range Water System Study to better assist CW&L in meeting its future water demands.

TASK ONE – KICKOFF MEETING

Jacobs will conduct a face-to-face kickoff meeting with CW&L personnel to review the expectations for the project as well as to obtain any additional information or relevant data that would be pertinent to the project. We will review Jacobs original Long Range Water System Study and provide the City with a list of requested information prior to the meeting.

TASK TWO – HISTORICAL WATER DEMANDS AND USE TRENDS

For the study, Jacobs will review and analyze the historical data from your reports as well as the historical residential, commercial, and industrial data as the basis for updating the forecasting of future water demands that was developed for the July 2008 Study. Information to be reviewed and analyzed includes the following:

- Total water production
- Billed-for water amounts by sector
- Peaking factors
- Population and population served
- Non-revenue and unaccounted-for water

- Data concerning unit use of water such as per employee or use per square foot of commercial space, where available

The above data will be provided by the City to Jacobs in electronic format. Jacobs will analyze this data from 2002 through 2012 (currently available) and evaluate trends in water demand. Factors that may contribute to water use trends include climatic, demographic, socioeconomic, and technical. Up to three sectors (residential, commercial, and industrial) will be analyzed. We will evaluate the trends prior to 2008 and compare separately to the information gathered after 2008, as this should represent a significant change in demand and overall usage. After completion of these tasks, Jacobs will provide tabular and graphical presentations of the historical water use data, along with a brief narrative description of water use trends from 2002 - 2012.

TASK THREE – DEVELOPMENT OF ESTIMATED FUTURE WATER DEMANDS

Future water use will be estimated for the planning period of 2013 through 2033 based on the historical water use and identified trends developed in Task 2. Wherever possible, forecasts will be based on per capita information. These figures will be combined with estimates of future commercial and industrial development and unit water demands.

Three forecasts will be developed reflecting a range of population and commercial growth scenarios. These scenarios will be developed in conjunction with City staff and are intended to bracket the range of growth in population, population served, and non-residential sector growth. It is also understood that two additional ASR wells may be constructed and used as a method to shave off peak demands.

Water use scenarios will be developed for the years 2013, 2018, 2023, 2028, and 2033 as follows:

- Utilizing the range of projections of population served (provided by CW&L) and trends in per capita water use, we will develop a forecast of residential water demand through 2033.
- Utilizing the range of projections of commercial and industrial development and unit water uses (provided by CW&L), we will forecast the commercial and industrial water demand through 2033.

We will combine the residential, commercial, and industrial forecasts and develop water demand projections based on current water use practices.

We will develop a brief narrative description of water demands forecasted for 2013–2033. This narrative will be combined with the narrative described in Task 2 and summarized into a memorandum for review by CW&L staff. Prior to continuing with subsequent tasks, this memorandum will be reviewed with the City and comments will be incorporated into a final memorandum.

TASK FOUR – ANALYSIS OF CAPITAL IMPROVEMENT PROEJCTS

We will obtain from the City the most current Kentucky Pipe (KYPIPE) hydraulic model of the water system that CW&L uses for planning purposes. We will work with CW&L to update the model before conducting hydraulic analysis for analyzing future improvements. We anticipate that a representative from CW&L and Jacobs would spend two days going through the existing model and updating the current information, as required to have the hydraulic model available to analyze the future improvements. We will also verify the existing system operations with CW&L personnel and use this information with the updated hydraulic model.

Our previous hydraulic analysis performed for CW&L was completed using KYPIPE modeling software. We understand that CW&L has purchased new software for hydraulic modeling (Info Water), however the model is not yet built. We propose to conduct the hydraulic analysis using the KYPIPE software. At the end of the project, we will convert model information from KYPIPE to Info Water.

We will take the existing and estimated future water demands from Tasks 2 and 3 and insert those into the hydraulic model. Any existing flow test information (flows and pressures) available within the system will be requested from CW&L. We will use this data, along with data from the WTP and pumping stations, to compare actual data versus modeled predicted data.

We will then evaluate the major aspects of the 5-year Capital Improvement Program (CIP) for its adequacy to meet the future water demands. This will include reviewing the scheduled improvements for their recommended in-service dates.

Once the 5-year CIP has been reviewed, we will evaluate improvements for meeting future water demands through the year 2033 to assist CW&L in prioritizing improvements that best meet future needs. The recommended improvements may include raw water supply wells, water treatment plant additions, high service pumping capacity, booster pumping within the system, water main capacity, and finished water storage.

We will work directly with CW&L personnel to identify alternatives to use their knowledge of the existing system. A number of important issues will be considered, including:

- While the planning period goes to 2033, sizing of systems such as pump stations will take into consideration provisions for flows beyond that period as growth in the area proceeds toward ultimate buildout.
- Considerations of phasing improvements (perhaps in 2- to 3-year increments) to more efficiently match the facilities needed in higher growth areas.
- Facilities will be located to minimize the difficulty of obtaining easements, ease of operation and maintenance activities, as well as avoiding potential future costs associated with relocation of water mains.

We will develop design criteria of proposed improvements including the routing of water mains and locations of facilities. Should detailed distribution modeling be required to determine pump sizing or storage tank elevations, we will identify the areas required for

modeling in the Report described in Task 5. Examples of the types of information to be developed include:

- **Water Mains.** A preliminary route for the pipeline to determine length, road crossings, and stream crossings will be established. We will also look at whether the water mains should be used for transmission from facilities only or combination of transmission and distribution. The additional main to the Stephens Station Tower will be included in this development. We will also evaluate the impact from the MoDNR's potential design guide change for minimum main pressure (may be increased from 20 psi to 35 psi).
- **Booster Pump Stations.** The required capacity will be estimated. This will include the size and location of the pump station and the number of pumps.
- **Storage Tanks.** The tank size will be determined to meet requirements. We will also evaluate elevated versus ground storage and discuss the advantages and disadvantages of both. Also, we will include the two proposed ASR wells as another source of storage. Along with that, we will review the current regulations for chloramines in ASR wells.
- **Location plans for recommended facilities will be developed.** It is anticipated that these maps will be developed by utilizing the City of Columbia and Boone County GIS data. The location plans will be similar to the figures in the 2008 report and will include:
 - Maps showing conceptual routing for water mains.
 - Maps showing conceptual location for pump stations and storage tanks.

We will review the budget capital cost estimates for the 5-year CIP and prepare capital cost estimates for the additional improvements. These estimates will include construction costs, engineering costs, and an estimate of easement costs to give the City an overall project cost.

TASK FIVE – UPDATED STUDY REPORT

We will summarize the findings and documentation from the above tasks into a Draft of an Updated Study Report and provide this report to CW&L for review, including the development of capital cost estimates.

We will schedule a review meeting via conference call with CW&L to discuss the Updated Draft Study Report. After the review meeting, we will update the report and provide five (5) copies of the Final Report to the City.

ASSUMPTIONS/CLARIFICATIONS

The following assumptions/clarifications apply to the above referenced Scope of Services:

- City will provide historic water information from 2002 to present to Jacobs in electronic format.
- City will provide Jacobs with GIS information in electronic format to use in the development of maps.

- The study and report will be performed by Jacobs in accordance with generally recognized professional standards; however it is recognized that Jacobs does not control costs related to construction materials and labor and therefore cannot and does not guarantee that such costs will not vary from any estimates or projections made in its reports.
- The Draft Report will be reviewed with CW&L via conference call.
- CW&L will provide Info Water software and the latest model to Jacobs for analysis and modeling.

OPTIONAL / FUTURE TASKS

TASK 1 - MODELING SUPPORT

Jacobs can provide a person to assist / train CW&L personnel with the Info Water model at the end of the water study effort at your offices. Jacobs would provide an estimated number of hours with the associated hourly rate to the training.

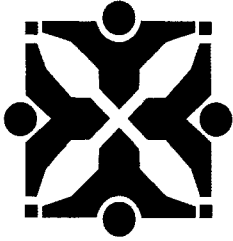
TASK 2 - REPORT PRESENTATIONS

Jacobs understands that CW&L staff may want assistance in presenting the results of the Water Study to the Water & Light Advisory Board and / or the City Council. Jacobs can provide this assistance and support, if requested. Jacobs would provide an estimated number of hours with the associated hourly rate(s) to support in these presentations.

ATTACHMENT B – SCHEDULE OF HOURLY BILLING RATES
December 17, 2012

2013 Long Range Water System Study
City of Columbia Water and Light Department (CW&L)

<u>Classification</u>	<u>Hourly Labor Billing Rate</u>
Project Principal	\$163.00
Environmental Engineer VIII	\$190.00
Environmental Engineer VII	\$160.00
Environmental Engineer VI	\$134.00
Environmental Engineer V	\$110.00
Environmental Engineer IV	\$94.00
Environmental Engineer III	\$78.00
Environmental Engineer II	\$64.00
Geotechnical Engineer V	\$120.00
Senior CAD Technician	\$118.00
Junior CAD/GIS Technician	\$83.00
Cost Estimator VIII	\$184.00
Project Controls	\$130.00
Administrative	\$61.00



Source: Water & Light

Agenda Item No:

To: **City Council**
From: **City Manager and Staff**

Council Meeting Date: Feb 18, 2013

Re: Engineering Services Agreement for a Long Range Water System Study

EXECUTIVE SUMMARY:

Staff has prepared for Council consideration an Ordinance appropriating the funds and authorizing the City Manager to execute an agreement with Jacobs Engineering Group of St. Louis, Missouri in the amount of \$99,400.00 for professional engineering services required for the update of the 2008 Long Range Water Study.

DISCUSSION:

As part of Columbia Water and Light's planning for long range capital improvement projects, the water system uses a Long Range Water Study. The most recent study was performed by Jacobs Engineering and completed in 2008. To help plan for future expansion, replacement of existing infrastructure and to plan for future revenue bond packages Water and Light is requesting to update this study. As suggested in the 2008 study, these plans are recommended to be updated every five years to reflect changing characteristics in population, industry, growth, and general water usage trends.

The proposed scope of services, as defined within attachment "A" of the agreement with Jacobs Engineering Group will include the analysis of historical water demands and use trends, the development of estimated future water demands, hydraulic analysis of the existing water distribution system, determination of capital costs of planned improvements, and the preparation of a 2013 Long Range Water Study. This study will be instrumental in the planning for future capital improvement projects to both the water distribution system and the water production facilities, including the future expansion of the McBaine Water Treatment Plant and Well Field.

Jacobs Engineering prepared the previous 2008 Long Range Water Study and is pre-qualified to perform engineering services with the City of Columbia. Jacobs Engineering has historically displayed their expertise in producing quality products and services for Columbia Water and Light.

FISCAL IMPACT:

The proposed contract with Jacobs Engineering is not to exceed \$99,400.00 for the preparation of the 2013 Long Range Water Study with an estimated time of completion of 280 calendar days. Funding for this study will be appropriated from the Water & Light retained earnings fund.

VISION IMPACT:

<http://www.gocolumbiamo.com/Council/Meetings/visionimpact.php>

In order to maintain a well-planned and reliable water utility, studies must occasionally be performed to analyze historical usage and current system conditions. These studies can be used to predict future patterns and identify projects to maintain the current infrastructure and provide reliable water service and fire protection in the future.

SUGGESTED COUNCIL ACTIONS:

Staff requests council approve this ordinance allowing the City Manager to execute an agreement with Jacobs Engineering Group for the preparation of the 2013 Long Range Water Study.

FISCAL and VISION NOTES:					
City Fiscal Impact Enter all that apply		Program Impact		Mandates	
City's current net FY cost	\$99,400.00	New Program/ Agency?	No	Federal or State mandated?	No
Amount of funds already appropriated	\$0.00	Duplicates/Expands an existing program?	No	Vision Implementation impact	
Amount of budget amendment needed	\$0.00	Fiscal Impact on any local political subdivision?	No	Enter all that apply: Refer to Web site	
Estimated 2 year net costs:		Resources Required		Vision Impact?	Yes
One Time	\$0.00	Requires add'l FTE Personnel?	No	Primary Vision, Strategy and/or Goal Item #	5.1
Operating/ Ongoing	\$0.00	Requires add'l facilities?	No	Secondary Vision, Strategy and/or Goal Item #	
		Requires add'l capital equipment?	No	Fiscal year implementation Task #	