HISTORIC
FRANKLIN
TENNESSEE

ITEM #16
WRKS 10/26/2010

MEMORANDUM

October 20, 2010

TO: Board of Mayor and Aldermen

FROM: David Parker, City Engineer/CIP Executive
Mark Hilty, Water Management Department Director
Eric Stuckey, City Administrator

SUBJECT: **Integrated Water Resources Plan (IWRP) – Phase II**
Professional Services Agreement with CDM
COF Contract No 2010-0171

Purpose

The purpose of this memo is to provide the Franklin Board of Mayor and Aldermen (BOMA) with the information necessary to make an informed decision concerning the approval of the Professional Services Agreement with CDM for the Integrated Water Resources Plan - Phase II work.

Background

The BOMA approved a Professional Services Agreement (COF Contract No 2009-0070) with CDM for the Franklin Integrated Water Resources Plan (IWRP) – Phase I on October 13, 2009 for a not to exceed amount of $505,030.00. This Phase was scheduled to be a nine (9) to twelve (12) month process to identify overall objectives for the City and its environmental resources using the stakeholder workshop and public forums. The objectives have been used to guide the formulation of alternatives for capital improvements (i.e. plant improvements/construction, distribution and collection system improvements, reclaimed water system improvements, stormwater/drainage improvements, etc.) and resource management opportunities (i.e. water conservation, water recycling, etc.).

Phase I of the IWRP is being completed; lacking only the final Phase I Report – Summary of Preferred Alternatives; and is expected to be completed with a cost savings to the contract. As of October 2, 2010, the total invoiced amount from CDM is $403,454.02 which leaves a balance of $101,575.98 for the Phase I contract with what should be only one more invoice due with an anticipated cost between $35,000.00 and $50,000.00. Therefore, it is expected that the City will realize a cost savings in the neighborhood of $50,000.00 to $60,000.00 for the Phase I work.

It is now time to contract for the Phase II services as generally outlined in the original Scope of Work for the Integrated Water Resources Plan project. Staff has received and reviewed the proposed Scope of Work, Schedule and Cost Proposal for the IWRP - Phase II (see Attachment A) and are proposing that the IWRP – Phase II portion of the project be a new Professional Services Agreement; COF Contract No 2010-0171. Phase II is expected to take twelve (12) to fifteen (15) months to complete and will be a working document which will define the comprehensive, implementable and fundable water programs (water, wastewater, reclaimed water & stormwater) to be undertaken over the next thirty (30) years. The Scope continues the process developed during Phase I including the further technical analysis,

evaluation and comparison of the four (4) alternatives recommended by the Stakeholders and approved by BOMA. The outcome of Phase II is to identify a single preferred alternative as the Final Integrated Water Resources Plan. The Final IWRP will further recommend the timing, effects, and estimated costs of the identified alternatives included in the plan.

Financial Impact

The not to exceed cost of the IRWP – Phase II as proposed is $1,459,640.00. Staff proposes to split and pay the costs for Phase II using the various revenue funds and incurring costs for each fund in proportion to the efforts to be expended for each fund (water, wastewater, reclaimed water & stormwater funds). The costs will further be carried across two (2) budget years; FY 20121 & FY 2012. See attached City of Franklin IWRP Budget Fund Payment Worksheet that proposes payments from the various funds as follows.

Water Fund	$ 240,723.00
Wastewater Fund	$ 919,172.00
Reclaimed Water Fund	$ 95,070.00
Stormwater Fund	$ 204,675.00

Options

Staff has identified one (1) analysis that has been forwarded by the Stakeholders that may not be cost effective to undertake at this time. This analysis is the Cumberland River Pipeline at a cost of $35,260.00. The cost for this alternative for providing a reliable source of water for treatment at the City's Water Treatment Plant has been evaluated in the past and is expected to be cost prohibitive; estimated cost of $100 Million or more when including the right-of-way/easement cost associated in extending such a line. An estimated cost can be used during evaluation of this alternative to see if it makes sense to pursue such a line and if these evaluations do not quickly indicate that the cost of this alternative are not economical (cost effective) then the evaluation can be reconsidered. If this evaluation cost is eliminated from the Phase II work at this time the not to exceed cost of Phase II will be $1,424,380.00.

Recommendation

Staff recommends approval of the Professional Services Agreement with CDM for the Integrated Water Resources Plan – Phase II at a not to exceed cost of $1,424,380.00. This would mean that the analysis of a raw water line to the Cumberland River (Cumberland River Pipeline) would be held in abeyance for future consideration.

City of Franklin IWRP Budget Fund Payment Worksheet

	Subtask Estimated Cost	Payments from Water Fund	Payments from Wastewater Fund	Payments from Reclaimed Water Fund	Payments from Stormwater Fund
Task 1: Refined Technical Analysis					
Stormwater	$ 28,900				$ 28,900
Water Treatment Plant	$ 65,720	$ 65,720			
Cumberland River Pipeline	$ 35,260	$ 35,260			
Water Distribution System	$ 21,850	$ 21,850			
Water Conservation Options	$ 16,100	$ 16,100			
Existing WWTP Evaluation	$ 169,500		$ 169,500		
New WWTP Evaluation	$ 223,200		$ 223,200		
Wastewater Collection System	$ 154,250		$ 154,250		
Ecological Restoration	$ 26,850				$ 26,850
Reclaimed Water	$ 78,580			$ 78,580	
Biosolids	$ 200,760		$ 200,760		
Harpeth River Analysis/ Water Quality Modelling	$ 203,320	$ 50,830	$ 50,830		$ 101,660
Task Dollars	$ 1,224,290	$ 189,760	$ 798,540	$ 78,580	$ 157,410
Task 2: Continued Integrated Modeling and Stakeholder Involvement/ Workshops & Public Forums					
Modeling Tool Refinement/Scorecard Tool Analysis	$ 30,700	$ 10,233	$ 10,233		$ 10,234
Stakeholder Workshop 5	$ 13,750	$ 4,583	$ 4,583		$ 4,584
Stakeholder Workshop 6	$ 13,750	$ 4,583	$ 4,583		$ 4,584
Public Forums (2)	$ 7,000	$ 2,334	$ 2,333		$ 2,333
Task Dollars	$ 65,200	$ 21,733	$ 21,732	$ -	$ 21,735
Task 3: Conceptual Design and Cost Estimates					
Final Cost Analysis	$ 49,150	$ 7,620	$ 32,060	$ 3,150	$ 6,320
Task Dollars	$ 49,150	$ 7,620	$ 32,060	$ 3,150	$ 6,320
Task 4: Final Plan Development					
Scheduling	$ 11,480	$ 1,780	$ 7,480	$ 740	$ 1,480
Permiting Plan	$ 13,420	$ 2,080	$ 8,750	$ 860	$ 1,730
Funding Plan	$ 46,110	$ 7,150	$ 30,070	$ 2,960	$ 5,930
Phase II Report	$ 19,990	$ 3,100	$ 13,040	$ 1,280	$ 2,570
Task Dollars	$ 91,000	$ 14,110	$ 59,340	$ 5,840	$ 11,710
Other Direct Costs	$ 30,000	$ 7,500	$ 7,500	$ 7,500	$ 7,500

Payments from Water Fund	**$**	**240,723**
Payments from Wastewater Fund	**$**	**919,172**
Payments from Reclaimed Water Fund	**$**	**95,070**
Payments from Stormwater Fund	**$**	**204,675**
Total	**$**	**1,459,640**

It is anticipated that if the work for Phase II of the IWRP (approval of COF Contract No 2010-0171 with CDM) is started in November 2010, then seventy-five percent (75%) of the work will be completed in this fiscal year (FY 2011 expenditure of $1,094,730.00). This will leave approximately $364,910.00 for the FY 2012 Budgets.

CITY OF FRANKLIN, TENNESSEE
PROFESSIONAL SERVICES AGREEMENT
COF Contract No. 2010-0171

THIS PROFESSIONAL SERVICES AGREEMENT ("Agreement") is by and between the City of Franklin, Tennessee, hereinafter referenced as City, and CDM hereinafter referenced as Consultant, who mutually agrees as follows:

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

Franklin Integrated Water Resources Plan (IWRP) – Phase II

1. SCOPE OF SERVICES. Consultant shall provide engineering and related technical services for the Project in accordance with the SCOPE OF SERVICES. The SCOPE OF SERVICES as found in Attachment A shall be considered as an integral part hereof.

2. Consultant shall be paid a fee based on the Fee Schedules as Found in Tables 1 and 2 of the Budget Worksheet for the SCOPE OF SERVICES (Attachment A) with **each Task and non-labor approved business Project expenses having** a Not-to-Exceed Fee for a total Not-to-Exceed Fee of $ $1,459,640, as follows:

Task 1	**Not-to-Exceed $**	**1,224,290**
Task 2	**Not-to-Exceed $**	**65,200**
Task 3	**Not-to-Exceed $**	**49,150**
Task 4	**Not-to-Exceed $**	**91,000**
Non-labor Project Expenses	**Not-to-Exceed $**	**30,000**

3. In event of a conflict between this Agreement and the attached document(s), this Agreement shall supersede conflicting terms and conditions.

The Board of Mayor and Aldermen Approved this Agreement on the —— Day of _____ 2010.

BY: _____
Consultant's Signature
TITLE: _____
Date: _____

BY: _____
John C. Schroer
Mayor
Date: _____

TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES

ARTICLE 1. SERVICES. Consultant will:

1.1 Act for City in a professional manner, using that degree of care and skill ordinarily exercised by and consistent with standards of competent consultants using the standards in the industry:

1.2 Consider all reports to be confidential and distribute copies of the same only to those persons specifically designated by the City.

1.3 Perform all services under the general direction of a senior professional employee, licensed and/or registered in the State of Tennessee, when appropriate.

1.4 Retain pertinent records relating to the services performed for a period of seven (7) years following the completion of the work; during this period the records shall be available for review by City at all reasonable times.

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

2.1 Provide Consultant with all information regarding the Project, which is available to, or reasonably obtainable by, the City.

2.2 Furnish right-of-entry onto the Project site for Consultant's necessary field studies and surveys. Consultant will endeavor to restore the site to its original condition and shall remain solely liable for all damages, costs and expenses, including reasonable attorneys' fees, for failure to make such restoration.

2.3 Designate, in writing, the sole Project representative to coordinate with and direct the Consultant, including all contact information.

2.4 Guarantee to Consultant that it has the legal capacity to enter into this contract and that sufficient monies are available to fund Consultant's compensation.

ARTICLE 3. GENERAL CONDITIONS.

3.1 Consultant, by the performance of services covered hereunder, does not in any way assume, abridge or abrogate any of those duties, responsibilities or authorities customarily vested in other professionals or agencies participating in the Project.

3.2 Consultant shall be responsible for the acts or omissions of any party involved in concurrent or subsequent phases of the PROJECT acting upon written instruction issued by the Consultant.

3.3 Neither City nor Consultant may assign or transfer its duties or interest in this Agreement without written consent of the other party. However, nothing in this Article shall prevent Consultant from engaging independent

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

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

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

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

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

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

4.1 Termination for Convenience. The City may, when in the interests of the City, terminate performance under this Agreement with the Consultant, in whole or in part, for the convenience of the City. The City shall give written notice of such termination to the Consultant specifying when termination becomes effective. The Consultant shall incur no further obligations in connection with the work so terminated, other than warranties and guarantees for completed work and installed equipment, and the Consultant shall stop work when such termination becomes effective. The Consultant shall also terminate outstanding orders and subcontracts for the affected work. The Consultant shall settle the liabilities and claims arising out of the termination of subcontracts and orders. The City may direct the Consultant to assign the Consultant's right, title and interest under termination orders or subcontracts to the City or its designee. The Consultant shall transfer title

and deliver to the City such completed or partially completed work and materials, equipment, parts, fixtures, information and Contract rights as the Consultant has in its possession or control. When terminated for convenience, the Consultant shall be compensated as follows:

(1) The Consultant shall submit a termination claim to the City specifying the amounts due because of the termination for convenience together with costs, pricing or other data required by the City. If the Consultant fails to file a termination claim within one (1) year from the effective date of termination, the City shall pay the Consultant the amount the City deems the Consultant is due.

(2) The City and the Consultant may agree to the compensation, if any, due to the Consultant hereunder.

(3) Absent agreement to the amount due to the Consultant, the City shall pay the Consultant the following amounts:

(a) Contract costs for labor, materials, equipment and other services accepted under this Agreement;

(b) Reasonable costs incurred in preparing to perform and in performing the terminated portion of the work, and in terminating the Consultant's performance, plus a fair and reasonable allowance for direct job site overhead and earned profit thereon (such profit shall not include anticipated profit or consequential damages); provided however, that if it reasonably appears that the Consultant would have not profited or would have sustained a loss if the entire Agreement would have been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated rate of loss, if any;

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

4.2 Termination for Cause. If the Consultant does not perform the work, or any part thereof, in a timely manner, supply adequate labor, supervisory personnel or proper equipment or materials, or if it fails to timely discharge its obligations for labor, equipment and materials, or proceeds to disobey applicable law, or otherwise commits a violation of a material provision of

this Agreement, then the City, in addition to any other rights it may have against the Consultant or others, may terminate the performance of the Consultant, in whole or in part at the City's sole option, and assume possession of the Project Plans and materials and may complete the work.

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

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

4.3 Termination for Non-Appropriation. The City may also terminate this Agreement, in whole or in part, for non-appropriation of sufficient funds to complete or partially complete the Project, regardless of the source of such funds, and such termination shall be on the terms of Section 4.1.

4.4 The City's rights under this Section shall be in addition to those contained elsewhere herein or provided by law.

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

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

5.2 ENVIRONMENTAL RESPONSIBILITY.
Where drilling/sampling services are involved, the samples obtained from the Project site are the property of the City. Should any of these samples be recognized by the Consultant to be contaminated, the City shall remove them from the Consultant's custody and transport them to a disposal site, all in accordance with applicable government statutes, ordinances, and regulations. For all other samples, the Consultant shall retain them for a sixty (60)-day

period following the submission of the drilling/sampling report unless the City directs otherwise; thereafter, the Consultant shall discard the samples in accordance with all federal, state and local laws.

ARTICLE 6. SCHEDULE.

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

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

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

ARTICLE 7. USE OF DOCUMENTS, DATA.

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

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

7.1.2 DISCLOSURE OF DOCUMENTS/DATA. City may be required to disclose documents or data under state or federal law. City

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

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

7.3 Documents that may be relied upon by City are limited to the printed copies (also known as hard copies) that are signed or sealed by the Consultant. Files in electronic media format of text, data, graphics, or of other types that are furnished by Consultant to City are only for convenience of City, unless the delivery of the Project in electronic media format has been dictated in Attachment A, SCOPE OF SERVICES. Any conclusion or information obtained or derived from electronic files provided for convenience will be at the user's sole risk.

7.4 Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the party delivering the electronic files. Unless stated otherwise herein, Consultant shall not be responsible to maintain documents stored in electronic media format after acceptance by City.

7.5 When transferring documents in electronic media format, Consultant makes no representations as to long term compatibility, usability, or

readability, of documents resulting from the use of software application packages, operating systems, or computer hardware differing from that as required of, and used by, Consultant at the beginning of this Project.

7.6 City may make and retain copies of Documents for information and reference in connection with use on the Project by the City, or his authorized representative. Such Documents are not intended or represented to be suitable for reuse by City or others on extensions of the Project or on any other project. Any such reuse or modifications without written verification or adaptation by Consultant, as appropriate for the specific purpose intended, will be at City's sole risk and without liability or legal exposure to the Consultant or to Consultant's Consultants.

7.7 If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

7.8 Any verification or adaptation of the Documents for extensions of the Project or for any other project will entitle Consultant to further compensation at rates to be agreed upon by City and Consultant.

ARTICLE 8. INSURANCE.

8.1 During the performance of the Services under this Agreement, Consultant shall maintain the following minimum insurance:

a) General Liability Insurance with a combined single limit of $1,000,000 per occurrence and $2,000,000 annual aggregate.

b) Automobile Liability Insurance with a combined single limit of $1,000,000 for each person and $1,000,000 for each accident.

c) Workers' Compensation Insurance in accordance with statutory requirements and Employer's Liability Insurance with a limit of $500,000 for each occurrence.

d) Professional Liability Insurance with a limit of $1,000,000 annual aggregate.

8.2 Consultant shall upon written request furnish City certificates of insurance, which shall include a provision that such insurance shall not be canceled without at least thirty days' written notice to City.

8.3 No insurance, of whatever kind or type is to be considered as in any way limiting other parties' responsibility for damages resulting from their activities in the execution of the Project. City agrees to include, or cause to be included, in the Project's construction contract, such requirements for insurance coverage and performance bonds by the Project's construction contractor as City deems adequate to indemnify City, Consultant, and other concerned parties against claims for damages and to insure compliance of work performance and materials with Project requirements.

ARTICLE 9. PAYMENT.

9.1 City will pay Consultant for services and expenses in accordance with the Fee Schedule proposal submitted for the Project as part of the Scope Of Services. Consultant's invoices will be presented at the completion of the work or monthly and will be payable upon receipt. Payment is due upon presentation of invoice and is past due thirty (30) days from invoice date. City shall give prompt written notice of any disputed amount and shall pay the remaining amount.

9.2 Consultant shall be paid in full for all services under this Agreement, including City-authorized overruns of the Project budget or unforeseen need for Consultant's services exceeding the original Scope Of Services.

9.3 TRAVEL; EXPENSES

The City shall reimburse reasonable expenses, including travel and meals, when specified in the Scope Of Services, but only in accordance with the City's Travel and Expense Policy and Procedures Manual. The maximum amount will be applied as of the date of travel and as listed in the per diem reimbursement rates on the "CONUS" website developed by the United States General Services Administration, located at www.gsa.gov [click on 'per diem rates' under the 'etools' category.

ARTICLE 10. MISCELLANEOUS PROVISIONS

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

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

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

10.2.1 The Consultant shall insert the foregoing provision in all contracts

relating to this Project.

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

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

ARTICLE 11. EXTENT OF AGREEMENT:

11.1 APPLICABLE LAW/CHOICE OF FORUM AND VENUE. This Agreement is made under and will be construed in accordance with the laws of the State of Tennessee without giving effect to that state's choice of law rules. The parties' choice of forum and venue shall be exclusively in the courts of Williamson County, Tennessee. Any provision of this Agreement held to violate a law or regulation shall be deemed void, and all remaining provisions shall continue in force.

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

ARTICLE 12. DISPUTE RESOLUTION, BREACH.

12.1 If a dispute should arise relating to the performance of or payment for the services under this Agreement, the aggrieved party shall notify the other party of the dispute within a reasonable time after such dispute arises. During the pendency of any dispute, the parties shall continue diligently to fulfill their respective obligations hereunder. No arbitration or mediation shall be required as a condition precedent to filing any legal claim arising out of or relating to the Contract. No arbitration or mediation shall be binding.

12.2 BREACH. Upon deliberate breach of the Contract by either party, the non-breaching party shall be entitled to terminate the Contract with notice, with all of the remedies it would have in the event of

termination, and may also have such other remedies as it may be entitled to in law or in equity.

ARTICLE 13. SURVIVAL.

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

Approved as to form by Law Department October 2010.

Attachment A

SCOPE OF WORK, SCHEDULE, AND COST PROPOSAL
City of Franklin Integrated Water Resources Plan – Phase II Scope of Work
Prepared by CDM, October 2010

The following scope of work outlines the second of the two major phases of the development of the City of Franklin Integrated Water Resources Plan (IWRP). The final plan will be a working document which will define the comprehensive, implementable and fundable water system improvements and programs to be undertaken over the next 30 years. The scope will continue the process developed during Phase I including the further technical analysis, evaluation and comparison of the four (4) alternatives recommended by the Stakeholders and approved by the Board of Mayor and Aldermen (BOMA).

Phase II of the IWRP development shall include the following major tasks and analyses. Each task is described in more detail herein:

- Detailed technical analysis of each of the options (projects) associated with each of the preferred alternatives
- Continued modeling and screening of the four (4) plans and ranking of them based on technical merit and stakeholder input obtained during Phase I and continued input in Phase II
- Identification of a single preferred plan (the IWRP) from among the alternatives. This may evolve from additional hybridization of the alternatives, or blending, to define a selected final alternative plan
- Conceptual design of identified projects (location, sizing, layout, performance criteria, etc.)
- Permitting plan and evaluation for identified projects associated with the final IWRP
- Detailed cost analysis of the identified projects associated with the IWRP
- Cost analysis and financing plan for the implementation of the IWRP

Scope of Work

The primary focus and objective of Phase II of this project is to identify a single preferred alternative as the Final Integrated Water Resources Plan for review by the Stakeholders and Steering Committee and ultimate recommendation to the BOMA for adoption. The final phase will include a detailed technical analysis of the preferred alternatives and a ranking tool to prioritize the alternatives for the stakeholders according to project specific objectives. In addition to the technical analysis, Phase II is scoped to include two stakeholder workshops and two public participation forums for review of the overall process and ability to take feedback on the alternatives ranking and recommendations. Additional meetings may be added as required for further detailed analysis and discussion per the individual meeting fees provided within this proposal.

The final IWRP will include conceptual engineering/design, cost estimates for each option associated with the selected alternative, permitting and planning, a comprehensive funding plan, and identification of the critical path items and overall schedule for the chosen IWRP. CDM will incorporate the results into a comprehensive report which will summarize the Phase II analysis, document the stakeholder involvement, and present a detailed roadmap including scope, schedule and funding plan for the City of Franklin. The IWRP will present a long-term program to meet the water resources needs for the City for the next 30 years by the identification of projects, their recommended implementation and estimated costs. The highest level of detail will be provided for near-term projects (next 5 to 10 years), with the understanding that the IWRP should be periodically updated based on growth, water/wastewater/reclaimed water usage and regional trends.

TASK 1 Refined Technical Analysis

CDM will refine the technical analysis and final implementation plan for each project option associated with each of the four (4) alternatives to better refine the overall alternative scoring and comparison; and ultimately, select the IWRP.

During Phase II, the specific technical analyses that will be completed based on the Phase I recommended four (4) alternatives for further analysis and scoring include the following. Each are based on the nine (9) categories of project options developed during Phase I, along with the overriding analysis of the Harpeth River which serves as the defining factor for the overall water resources for the region.

Task 1.1 Stormwater Options Technical Analysis

The primary tasks associated with the stormwater system analysis include:

1. Feasibility study for commercial and recreational stormwater reuse and/or "water harvesting" sites. Specific locations and project alternatives for implementation shall be evaluated.

2. Update and re-evaluation of the major drainage basin master plans including specific water quantity and quality projects, which may include constructed wetlands and/or wet-weather conveyance projects. These projects will be key to the City's long-term reduction of regional specific flooding and compliance with the NPDES MS4 Phase II permit.

CDM will work with the City's engineering and stormwater staff to review and update the previously completed basin master plans to evaluate additional projects including potential constructed wetlands (similar to Dry Branch), BMPs and other conveyance projects that could be implemented as regional water quantity and quality solutions (no additional modeling is anticipated).

In addition to looking at specific quantity and quality projects within the City, the stormwater analysis will evaluate potential sites for the use of stormwater as a reuse source for commercial, industrial, and recreational sites. The City has an excellent start to reuse through its WWTP reclaimed water system; however, we will take a new broad look at potential regional options for collection and reuse of stormwater as an additional potential water resources.

Task 1.2 Water Treatment Plant Technical Analysis

The primary tasks associated with the water treatment plant (WTP) analysis include:

1. Conducting of a technical review of the WTP upgrade report/preliminary design and provide a memo on recommendations

2. Update technical analysis and cost estimate for the Raw Water Line to the Cumberland River including a corridor study to identify the most feasible route, easement costs, develop conceptual level maps, and any potential issues

At the current point within the IWRP development, four (4) specific alternatives exist and must be analyzed and compared for the future of the City of Franklin Water Treatment Plant (WTP) and the supply of drinking water to the City of Franklin customers:

1. Shutting down the existing WTP and purchasing all water from Harpeth Valley Utility District (HVUD),

2. Construct upgrades to the WTP to remain in operation at the current capacity and supplement water supply from HVUD,

3. Construct upgrades to existing WTP to increase the capacity to 4.0 million gallons per day (mgd) and supplement water supply from HVUD, and

4. Construct a new raw water line to the Cumberland River which would allow for an relatively "unlimited", based on permitting, expansion to the WTP over the future growth of the City and its service area. This construction would eliminate the need for supplemental flow from HVUD.

The City of Franklin has previously completed an evaluation, planning and preliminary design effort on the upgrades to the existing WTP to expand the capacity to 4.0 mgd. Our team will conduct a review and value engineering study on the previously competed study and design to ensure that the recommendations are the best fit for the City and the long-term supply of treated water to the City. CDM will review the studies and reports and other engineering analysis that have been completed to ensure the analysis is current and update the cost estimates for both construction and long-term operation and maintenance. In addition to the review of the potential capacity upgrades to the WTP, our team will also perform an evaluation of the existing WTP to determine the required upgrades for the potential utilization of the WTP at the current capacity. The existing WTP has aging process equipment and needs process upgrades to meet the long-term water quality regulations and must be upgraded even if no additional withdrawal is determined to be the preferred option within the IWRP.

In addition to the evaluation of the previous work at the WTP, our team will evaluate the potential routes, cost and feasibility of a raw water supply line from the Cumberland River to the Franklin WTP. This line would allow for a reliable water source to the WTP that will provide an unlimited treatment resource based on system needs.

Task 1.3 Water Distribution System Technical Analysis

The primary tasks associated with the water distribution system analysis include:

1. Review of the distribution system model and long-term master plan to ensure the system plan meets the long-term needs of the City's service area

We will review the existing distribution system model and master plan and make recommendations for any additional upgrades or changes necessary to meet the long-term needs of the City's service area. We will assist the City with a comprehensive look at the population projections and associated long-term demands to address specific hydraulic constraints within the distribution system. In addition, we will use the existing model to perform a water age evaluation and run model simulations to determine if potential water quality issues exist within the system. With the increasing distribution system quality based requirements, such as disinfection by-products (DBPs), the increasing challenge of recognizing and addressing areas of water quality concern is crucial and will be addressed based on these extended period model runs to further evaluate areas of potential concern.

Task 1.4 Water Conservation Technical Analysis

The primary tasks associated with the water conservation analysis include:

1. Development of additional and/or revised rate block structure analysis and recommendations to promote water conservation

2. Development of potential water conservation regulations and policies for the City of Franklin

The City has been developing goals for water reduction and conservation since the extensive droughts of the summer of 2007-08 combined with the City's goal of becoming a more sustainable, "green" community. In fact, there are specific goals within the City's sustainability plan to reduce water consumption City wide. To accomplish this goal, the City must define some specific policies and practices both within City government and with citizens to meet this water reduction and conservation goal. Our team will work with the City staff to help establish potential policies and ordinances to meet these water conservation goals based on our experiences and "lessons learned" in other communities.

In addition to policies and ordinances, the City has established rate structures to promote conservation with an inclining block rate to charge a higher rate for larger uses of water. The rate structure to promote conservation and conservation practices will be reviewed by our subconsultant, Jackson Thornton. The rate block structure shall incorporate the entire selected plan into the overall rate structure and include a structure for the promotion of water conservation.

Task 1.5 Wastewater Treatment Plant Technical Analysis

The primary tasks associated with the wastewater treatment plant (WWTP) analysis include:

1. Conducting a facility capacity analysis of the existing WWTP including a review of entire treatment process and an extensive mechanical, structural, and electrical walk-through

2. Development of a conceptual level design (10%) for a new Membrane Bioreactor (MBR) WWTP at Goose Creek including polishing wetlands and optional advanced oxidation process for disinfection to address emerging contaminants due to its location upstream of the WTP intake

During Phase I, stakeholders identified continued use, and possible expansion of the existing WWTP to handle all service area flows. In order to understand the feasibility and the cost for this option, an engineering analysis of the existing WWTP facilities is required. Under this task, CDM engineers will evaluate the current wastewater treatment facility to determine the ultimate hydraulic and organic treatment capacity of the current configuration/operational modes, and options that could provide additional capacity. In addition, CDM will complete an engineering evaluation of the other unused facilities (discontinued when the plant was last expanded) and determine if they are suitable for future use for possible flow equalization, or other treatment options. CDM will estimate the costs for providing additional capacity at the current facility through either process changes or enhancements or re-use of existing facilities, or a combination of both.

In addition during Phase I, some of the alternatives selected by the stakeholders identified a new wastewater treatment plant in the southern portion of town to be a potential long-term option. Under this task, CDM will complete the conceptual engineering necessary to evaluate the costs and feasibility of constructing a new WWTP facility in the southern part of the service area. It is assumed that this

facility would be constructed on the land the City has acquired (referred to as the Goose Creek site). CDM will evaluate the process options and size the facilities for the flows anticipated for the planning area and period. It is assumed that advanced treatment processes will be required to meet the stringent permit limits anticipated, as well as to garner the public acceptance necessary for its permitting and acceptance. The proposed plant will include processes such as a Membrane Bioreactor (MBR) and tertiary polishing wetlands. Preliminary site plans will be developed and conceptual designs will be advanced to approximately a 10% level so that accurate costs estimates for equipment and construction can be completed.

Ultimately, the key to any long-term evaluation of the wastewater needs of the City of Franklin is to truly define the total system demands and capacity based on the ultimately growth of the City of Franklin and its wastewater system. CDM will work with Franklin staff to determine the wastewater loading already approved through development approvals and the existing and future loadings associated with these approvals. Additionally, the project team will define the ultimate service area and define how this affects the ultimate capacity needs of the City's wastewater system, particularly in regards to the additional expansion to a more regional service area.

Task 1.6 Wastewater Collection System Technical Analysis

The primary tasks associated with the wastewater collection system analysis include:

1. Conducting an infiltration and inflow (I/I) basin study to define collection system areas of concern. We have assumed the City will arrange for flow monitoring (because of the potential need for long-term or permanent monitors to be used for the City), and CDM will complete an analysis of the flow monitoring data using the Unit Hydrograph methodology to establish relative I/I in each of the major basins. For budgeting purposes we have assumed that data from up to twenty (25) flow monitors would be analyzed. This analysis would be directly applicable to future development of a wet weather model for Franklin's system if desired.

2. Development of a plan for conveyance improvements to the existing plants at Cartwright and Lynnwood WWTPs

3. Development of a City-wide plan and costs for connecting septic users to the City's sewer collection system within the urban growth boundary (UGB)

4. Development of an evaluation and preliminary plan for collection system improvements and projects if existing WWTP is upgraded and the Goose Creek WWTP is not constructed

CDM will perform an evaluation of the City of Franklin collection system to determine the long-term needs of the system and existing areas of concern. Using existing basin studies and master planning documents, we will help to identify the areas of future concern for serving the Franklin wastewater service area. We will conduct interviews with staff to identify problem areas with overflows or capacity issues that should be addressed with any future wastewater system improvements. As part of the evaluation of the master plan and collection system analysis, CDM will identify areas for infiltration and inflow (I/I) flow monitoring and sewer system evaluation study (SSES) work to better understand the basins with chronic I/I issues that should be evaluated. The analysis will provide baseline rehabilitation and cost estimate for any improvements that are recommended. We will also evaluate the system based

on potential changes that would be required within the collection system if the existing plant were to be upgraded and plan for all potential wastewater to be treated at the existing facility.

In addition, we will assist in helping the City plan for the future by examining the service areas and system infrastructures of Cartwright Creek Utility Company and Lynwood Utility Company. By working with both utility companies and the State of Tennessee Department of Environment and Conservation, we will assist the City in devising a plan of service that makes sense for both customers of the City of Franklin, as well as the customers of the private utility companies. If an alliance between the entities appears appropriate and is chosen as a project goal, we will work to provide mapping of those systems where that mapping exists and work to coordinate the best methods for servicing these areas.

In addition to Cartwright Creek and Lynnwood, we will assist the City with developing a long-term plan to identify and eliminate the septic systems within the City limits and ultimately the UGB. The plan will define the required collection system upgrades and their anticipated costs and general schedule needs.

Task 1.7 Ecological Restoration Technical Analysis

The primary tasks associated with the evaluation of ecological restoration options includes:

1. Conducting a record review of the old dump site to develop project costs for digging/hauling/landscaping; all work will be coordinated with the Parks Department

2. Development of locations/areas and unit costs for bank stabilization projects

3. Determine volume of Robinson Lake and cost of installing new outlet structure with pump/gate to provide dry-season flow to the Harpeth River

Preservation and protection of the Harpeth River within the City of Franklin is a key priority for the community. Efforts to develop projects to protect the river's natural resources within areas of existing urban development are important options that the Stakeholders have identified as part of the short-listed Alternatives to be evaluated during Phase II of the IWRP. Because there are significant areas of the Harpeth River that are relatively degraded by runoff from both urban and agricultural areas, there are opportunities to conduct stream restoration and bank stabilization projects along the river; this task will develop costs for these projects, as well as identify specific benefits from these options. The ability to quantify the ultimate benefits to the River and watershed for each projects are key to the final analysis of the options. Perhaps one of the most important concerns about the river is the seasonal low flows and the impacts on the biota in the system. In order to evaluate options to enhance low flows in the river, projects such as use of existing storage could be evaluated for the potential to improve summer low flows. Costs and benefits of these options will be evaluated for input to the Phase II IWRP model. These subtasks under the Ecological Restoration Evaluation task will use hydrologic/hydraulic evaluations performed during this phase to prepare design concepts for the most challenging reaches of the Harpeth River requiring restoration.

Task 1.8 Reclaimed Water Technical Analysis

The primary tasks associated with the reclaimed water system analysis include:

1. Develop documentation and conceptual drawings adequate to develop updated plan and construction cost estimates for reclaimed water projects

We will revisit the City of Franklin Reclaimed Water Master Plan, which was most recently updated in February of 2009. The long-term demand projections will be reevaluated and confirmed for long-term planning. We anticipate an updated inventory of system piping, pumps and treatment facilities using existing reclaimed water modeling, as well as actual as-built drawings of recently completed projects that service the Franklin reclaimed water service area. CDM will identify both existing and potential future customers of the Franklin Reclaimed Water System for both short-term and long-term planning. We will supplement this planning with a user study/survey to better identify the potential usages by large customers and other non-residential entities. We will then review the existing future plans for the reclaimed water system and help decide whether these plans are still appropriate for the logical expansion of the reclaimed water service area. Where applicable, we will provide a comparative routing analysis for future pipelines to provide options for routing of pipe to service various areas at the lowest cost. We will provide modeling results, opinions of probable cost, and recommendations for future system improvements that maximize the benefits of the Franklin Reclaimed Water System for its customers.

Task 1.9 Biosolids Technical Analysis

The primary tasks associated with the biosolids technical analysis include:

1. Develop long-term biosolids management plan

2. Develop conceptual costs for facility upgrades

In the 1990s, the City of Franklin implemented a Class A biosolids process called ATAD (autothermal thermophilic aerobic digestion); unfortunately, the process was extremely odorous and the facility was abandoned soon after. At the time, ATAD was still in its infancy and the process was not refined until later years. Thus, the current biosolids practices at the Franklin WWTP includes waste activated sludge (WAS) thickening by dissolved air flotation (DAF), followed by belt press dewatering. Solids are processed sixteen (16) hours per day, five (5) days a week and dewatered sludge is transported approximately ninety-five (95) miles each way to a private landfill in Camden, TN for disposal using two (2) City owned trucks and two (2) full-time drivers.

The City of Franklin's WWTP currently produces approximately 900 to 1,000 wet tons of dewatered sludge per month, at an average 16% solids; this is equivalent to 4.8-5.3 dry tons per day. Recent fuel costs for the operations have been approximately $7,000 per month. The solids processing system at the existing plant lacks redundancy and relies solely on dewatering and landfilling for disposal, which is a significant vulnerability. While the existing sludge storage capacity could be expanded by retrofitting several abandoned tanks onsite, the long-term biosolids management strategy for the existing facility is poorly defined.

There are likely some economies of scale with biosolids options that address the solids from the existing facility, as well as from a potential new Goose Creek facility. Consequently, the approach to developing the costs associated with biosolids handling will incorporate engineering evaluations of biosolids handling at both the combined and separate plant options to help the City make the best selection for a sustainable, long-term solution. If the City would like to use a process that produces stabilized biosolids, there are a number of engineering issues that must be considered. The benefits of stabilized biosolids include their use on agricultural land to take advantage of their nutrient values and organic contents;

and more recently, the fuel value of biosolids is being recognized, and various technologies have been developed to take advantage of these characteristics. The current regulations require that biosolids meet one of two standards of pathogen reduction (Class A or Class B) in order to be reused and must meet certain quality criteria including limits for heavy metals and organics.

Thus, in order to define the biosolids handling costs for the City of Franklin, CDM will evaluate technologies for improved thickening, stabilization, and dewatering of biosolids under current and future operations. Sustainability concepts will be incorporated into facility planning and design, including low impact design concepts, process energy efficiency, and beneficial reuse of both effluent and biosolids–including the potential to generate green energy through biosolids processing. As a result the scope of work for the biosolids planning of the IWRP will include four (4) Tasks as described below:

Assess Current Conditions

CDM will review plant records regarding waste activated sludge production and performance of the existing solids treatment systems. This review will include evaluation of the existing equipment and solids treatment systems with the operating staff to discuss current operating procedures, performance, maintenance requirements, and estimated remaining useful service life. Additionally, a review of existing records will be conducted to determine the present cost of treating and disposing of waste solids.

Develop Preliminary Solids Treatment Alternatives

CDM will develop a list of potential solids process and treatment alternatives for evaluation; process alternatives shall include a review of preliminary thickening processes, stabilization processes and dewatering processes. The City and CDM will use a series of two (2) Steering Committee Workshops, the Pre-Screening Process Workshop and the Preliminary Alternatives Workshop, to narrow the process alternatives to a short-list of viable alternatives for more detailed evaluations. The Pre-Screening Process Workshop will be conducted to review current and emerging thickening, stabilization, and dewatering technologies that may be considered for application. CDM will facilitate the Pre-Screening Process Workshop discussing the relative benefits and requirements of the thickening, stabilization, and dewatering technologies as they apply to the anticipated design and future solids loadings and characteristics.

Discussions will focus on the conceptual benefits and differences between available technologies with the goal of quickly eliminating those technologies that do not appear to be applicable to the current or future conditions. The Pre-Screening Process Workshop will produce a list of technologies that warrant an intermediate level of evaluation prior to process short-listing and selection. Following the Pre-Screening Process Workshop, the remaining technologies will be evaluated to identify rough sizing of equipment/tanks/processes, planning level capital costs, and planning level operations and maintenance costs including electrical requirements.

A Preliminary Alternatives Workshop will be conducted to discuss the benefits and requirements of the thickening, stabilization, and dewatering technologies as they apply to the anticipated design and future solids loadings and characteristics and how these technologies may work together. The workshop will also discuss the potential for further processing (i.e. thermal drying, solar drying, advanced anaerobic digestion, etc.), and energy use/recovery for each applicable process. Based on the collective experience of CDM and the City, a discussion of the advantages and disadvantages of each process, conceptual applicability of the process to the current and future solids loadings and nature of the WWTP, and the relative operations and maintenance requirements, it is anticipated that by the end of the Preliminary

Alternatives Workshop the City will select up to three process alternatives (i.e. combination of thickening, stabilization, and dewatering) for further, more detailed evaluation.

Evaluate Short-listed Solids Handling Systems

For the selected viable process combinations identified in the Preliminary Alternatives Workshop, CDM will conduct more detailed evaluations including:

- Process flow diagram and preliminary mass balance
- Equipment sizing (number of duty and standby units/capacity)
- General arrangement and layout
- Ancillary equipment
- Anticipated performance
- Maintenance requirements
- Safety
- Impact to recommended staffing level
- Preliminary energy balance
- Utility requirements
- Impacts on liquid train processes, sidestream management, and future nutrient limits
- Odor potential
- Impacts to disposal options
- Planning level capital costs
- Annual operating and maintenance costs
- Regulatory acceptability (including air permitting requirements)
- Other non-cost criteria determined at the kick-off meeting, as critical for process selection

Site inspections of wastewater treatment facilities utilizing the short-listed processes may be arranged to facilitate discussion with plant operations staff regarding the performance and operations and maintenance requirements of the systems.

After CDM has completed the appropriate level of engineering to evaluate the selected thickening, stabilization, and dewatering technologies to achieve the desired biosolids processing/disposal/reuse performance, the conceptual design of the project including equipment sizing and selection, site layout, hydraulic profile calculations, and other pertinent engineering considerations will be developed. The conceptual design will result in a Conceptual Design Report and will provide information that will be used as input for the model to make final decisions for final IWRP.

Task 1.10 Harpeth River Technical Analysis

From the outset of the IWRP process, the City of Franklin and participating stakeholders have recognized the Harpeth River as the principal unifying feature that relates water supply, wastewater, water reuse, and stormwater. Its health is one of the principal standards by which any water management plan within its watershed will be measured. This is evidenced in the selection of performance measures in which Phase I alternatives were compared, which included measures of river flow, pollutant levels, ecological status, and public perception of its health.

In Phase I, a planning level computer simulation model was developed to compute the effects of various water and wastewater management options on river flows and pollutant loads. This allowed the alternatives to be ranked from most favorable to least favorable, and enabled the City to identify the

most broadly favorable alternatives for more detailed evaluation in Phase II. The analysis to date has provided reasonably definitive calculations of the effects of various alternatives to the flow levels in the Harpeth River and defensible estimates of the likely changes in pollutants loads into the river. Concentrations of pollutants and dissolved oxygen, in the river, that would likely result from implementation of various components of the IWRP have not been quantified. Predicting the impacts of various project options on the river requires detailed scientific modeling of the river dynamics. One purpose of the Phase I analysis was to focus initial analysis such that the detailed modeling required in Phase II could be focused on just the most promising alternatives, to avoid costly evaluations of plans with little merit or support.

Now that the preferred alternatives have been identified, the effects of each on the water quality in the Harpeth River will need to be calculated. This analysis will be required in order to provide scientific justification for water and wastewater permits, and funding authorization for new infrastructure. It will help separate "*good plans*" from "*plans that will actually achieve water quality standards and support the ecological needs in the Harpeth River.*"

In previous studies, hydrologic, hydraulic, and water quality models of the Harpeth River have been developed. These include modeling tools that supported the Harpeth River Total Maximum Daily Load (TMDL) analysis (LSPC for watershed loading, QUAL2E for steady state dissolved oxygen calculations, CE-QUAL-RIV1 for river hydraulics, and WASP for water quality analysis). Additionally, a spreadsheet model of the river hydrology (Water Harvesting Alternatives model, or WHA) was employed recently to evaluate water withdrawal options. We will examine each of these existing tools to determine if they might be applicable to the Phase II IWRP analysis. Specifically, we will evaluate whether the tools can:

- Show clear water quality and/or flow response to the types of management measures included in the alternatives, including dissolved oxygen response to nutrients, BOD, and sediment fluxes,
- Account for the channel hydraulics of the river, particularly if plans to remove the low-head dam downstream of the water treatment plant are implemented. CDM's recent experience in rivers where low-head dam removal has been considered suggests that water quality understanding can be seriously flawed if the hydraulics of the river (flow velocities, water depths, residence times, etc.) is not accurately represented.
- Demonstrate water quality response dynamically, over the full range of expected hydrologic conditions and through daily diurnal cycles,
- Adequately account for contributing pollutant factors, such as point sources, non-point sources, and sediments.
- Provide the spatial extent and resolution necessary to evaluate the regional impacts of Franklin's IWRP on the Harpeth River

CDM approaches modeling not with the intent to prove a theory, but with the sole purpose of helping decision makers understand and visualize the relevant dynamics: pollutant loads, flows, hydraulics, fate processes, assimilative capacities, residence times, and variations of all of these in time and space. CDM will provide Franklin with an unbiased assessment of the existing modeling tools. If one or more appear to be well suited to Phase II analysis, CDM will advocate its use. If not, CDM will recommend either the adaptation of one or more existing models to the needs of the Franklin IWRP study, or the development of a dynamic water quality/hydraulic model that meets the requirements outlined above.

Without an analytical tool to predict the impact of the selected plan on water quality, it will be very difficult, if not impossible, to move forward with broad continued support from regulatory authorities,

watershed advocates, scientific agencies, and citizens within the watershed. CDM will adapt or develop a tool that will translate the IWRP into its specific water quality impacts by superimposing the proposed projects over historical hydrologic periods. The model will be useful both in validating the effectiveness of the ultimate plan, and in adjusting its constituent pieces to help find a balance of options that meets Franklin's goals and is acceptable to regulatory authorities.

These are the major items to be analyzed and further evaluated during Phase II; however, it is expected that other minor items will be analyzed as well to thoroughly evaluate each of the forty-nine (49) applicable options that are currently included within the four (4) recommended alternatives. Each must be further analyzed to give a "true" representation of it cost-benefit within the decision modeling tool.

TASK 2 – Integrated Modeling and Stakeholder Involvement

CDM will build upon the integrated modeling and scorecard tools developed in Phase I as the platform for the four (4) selected alternatives to be further analyzed per the specific in-depth analysis described above. The scorecard tool will be continually updated with refined scores, and will be used at the 5th and 6th stakeholder workshops to help select the final preferred plan.

The 5th workshop will involve a final screening of the options based on the additional and more in-depth technical analysis. The meeting will be scheduled during the completion of the Task 1 analysis at the point at which we can present the preliminary technical findings, specifically in regards to which projects are technically and financially feasible, and which become the recommended projects based on the benefit-cost analysis. In addition, the stakeholder meeting will allow the group to revisit the performance measures defined in Phase I for final comparison of the options and alternatives, and determine if each of the measures truly gauges and promotes the goal it is seeking to address.

The 6th, and final scheduled Stakeholder Workshop, will allow for the group to utilize the technical analysis and revised scorecard analysis to discuss, modify, and develop the final recommendation to BOMA for the IWRP.

In addition to the two stakeholder workshops, during Phase II of the IWRP development, CDM will assist the City of Franklin staff with the preparation and conducting of two Public Forums to continually update and solicit feedback from the citizens of Franklin. CDM will also provide two other working sessions to apprise BOMA of the progress of the IWRP technical analysis and updated scorecard results. We want BOMA to be comfortable with the process and the ultimate recommendation of the selected plan, overall financial analysis and implementation schedule.

CDM will continue the monthly Steering Committee meetings to update the steering committee members on the work completed and the plans for the upcoming tasks. The Steering Committee's involvement and feedback to our team help define the work of Phase II and ensure that all analysis necessary to make the final IWRP decision are completed and presented effectively for both the Stakeholders, citizens of Franklin and BOMA.

TASK 3 - Conceptual Design and Cost Estimates to Develop a Selected Alternative

In order to advance the analysis to develop a final plan, planning-level estimates of the costs of each option included within the alternatives will be developed. The purpose of the task is to take the more

accurate understanding of each project details to analyze the selected plan, and specifically for estimating the total project costs, scheduling, implementation and phasing and permitting requirements of each project option. The level of detail for preliminary design will be dependent upon the alternatives selected, but at a minimum will include land/easement requirements and acquisition, site planning and layout, identification and preliminary sizing of the major mechanical and electrical systems, preliminary engineering of major structures, and a general geotechnical evaluation of sites and routes as needed.

TASK 4 – Final Plan Development

The ultimate goal of this project is to develop a plan that will be adopted and implemented by the City of Franklin. In order to accomplish this goal, CDM will conduct the level of analyses necessary to provide BOMA the necessary information and address all questions to make a final decision to implement the IWRP. CDM will support the Stakeholder and Steering Committees throughout the development of the IWRP including throughout the BOMA review and approval process. The development of the final plan will incorporate the specific, critical aspects of scheduling, permitting and funding of each of the alternative options, in addition to the design criteria for each option included in the final, selected alternative. The final plan will include the details of the project conceptual design including scheduling, permitting plan, and funding plan as further described below.

Task 4.1 Schedule

One of the key aspects of the plan process is the scheduling of the major program components. Under this task, CDM will develop an integrated projects schedule listing the major components of each of the alternatives. The schedule will identify which projects within each alternative must be initiated and completed in order to have the infrastructure improvements in place in time to meet future demands. CDM will develop the schedule with sufficient flexibility to adjust to changes in future conditions.

Task 4.2 Permitting Plan

CDM will also develop a permitting plan that details the key steps and potential road blocks with obtaining the permits for each of the applicable selected projects in the selected alternative. This discussion will include initial coordination with all appropriate regulatory agencies and present the estimated cost for obtaining the required permits.

Task 4.3 Funding Plan

Once the final preferred IWRP has been selected, CDM will collaborate with Jackson Thornton to identify potential funding sources for the chosen alternative which may include appropriations such as the Water Resources Development Act, Special Appropriations or loans based on the rate impacts analysis and other State financing programs. The results of the financial analysis will be summarized and a schedule for long-term funding will be developed. The funding planning process will use information developed through the prior cost estimating and schedule development tasks to determine the required expenditures. A cash flow needs assessment will be developed for the entire program and will include the total dollars needed for each project and the timing for all major projects. Our team will meet with the various funding agencies and determine the process, timing and key elements of the various grant and loan programs. Similar to the other processes, an overall pan for program funding will be developed and ready for implementation upon adoption of the IWRP.

Task 4.4 Phase II Report

Once the various options that comprise the final preferred IWRP have been selected, CDM will integrate the individual reports for each of the major subtasks under Task 1 into a final report. This final Phase II Report will contain the documentation of the technical aspects of the selected options as well as documentation of the Stakeholder process that was used throughout the project to identify the preferred IWRP. The final Phase II Report will also serve as the single document that combines the technical information with the schedule, permitting plan and funding plan that will be used to implement each option throughout the life of the IWRP. Before the final Phase II IWRP is delivered to the City, CDM will provide a final review of the overall plan; this review will focus on the integration of each project within the plan and how it is implemented with regard to all other project options that have been incorporated into the selected plan. The final report will provide BOMA all of the necessary information to approve and implement the IWRP that has been identified, selected and approved through the Stakeholder process used throughout this project.

Project Fee

Based on the preliminary project team assembled for Phase II and the above described scope of work, the billing rates provided **Table 1** will be used for the project.

Table 1 - Billing Rate Table

Labor Category	Billing Rate ($/hour)
Officer	$200
Project Manager	$185
Senior Technical Specialist	$185
Task Manager	$170
Senior Engineer	$150
Engineer	$125
Junior Engineer/Technician	$100
Contract Administrator	$75
Administrative/Clerical	$75

The total labor cost for Phase II is $1,429,640 with other direct costs including printing, supplies, mailing/postage, travel, and other non-labor approved business project expenses of $30,000 resulting in a total Phase II not-to-exceed cost of $1,459,640. The project will be billed on an hourly basis based on the billing rate table and the actual costs of all other direct costs; the project labor costs for Phase II have been included in a task-by-task breakdown with each task having a not-to exceed cost as shown in **Table 2**.

Table 2 – Franklin IWRP Phase II Budget Worksheet

Staff	Officer	Project Manager	Senior Technical Specialist	Task Manger	Senior Engineer	Engineer	Junior Engineer	Admin/ Clerical	Subtotal
Billing Rate	$200	$185	$185	$170	$150	$125	$100	$75	
Task 1: Refined Technical Analysis									
Stormwater	8	8	24	24	40	24	80	4	$28,900
Water Treatment Plant	8	12	120	80	60	120	12	12	$65,720
Cumberland River Pipeline	4	8	80	24	24	60	24	8	$35,260
Water Distribution System	8	8	8	12	12	40	80	6	$21,850
Water Conservation Options	4	4	16	0	12	60	20	4	$16,100
Existing WWTP Evaluation	20	60	300	360	200	40	24	4	$169,500
New WWTP Evaluation	24	40	360	120	200	500	300	20	$223,200
Wastewater Collection System	16	40	120	100	260	200	400	6	$154,250
Ecological Restoration	8	8	24	24	32	32	60	6	$26,850
Reclaimed Water	8	8	40	40	200	120	160	4	$78,580
Biosolids	36	16	180	80	400	500	200	16	$200,760
Harpeth River Analysis/ Water Quality Modelling	12	12	200	100	240	460	500	16	$203,320
Task Hours	156	224	1472	964	1680	2156	1860	106	8,618
Task Dollars Not-to-Exceed	$31,200	$41,440	$272,320	$163,880	$252,000	$269,500	$186,000	$7,950	$1,224,290
Task 2: Stakeholder Workshops & Public Forums									
Modeling/Scorecard Tool Analysis	4	12	40	24	40	60	24	4	$30,700
Stakeholder Workshop 5	4	4	16	20	12	16	16	6	$13,750
Stakeholder Workshop 6	4	4	16	20	12	16	16	6	$13,750
Public Forums (2)	4	4	12	12	8	0	0	0	$7,000
Task Hours	16	24	84	76	72	92	56	16	436
Task Dollars Not-to-Exceed	$3,200	$4,440	$15,540	$12,920	$10,800	$11,500	$5,600	$1,200	$65,200
Task 3: Conceptual Design and Cost Estimates									
Final Cost Analysis	6	20	20	40	160	40	40	10	$49,150
Task Hours	6	20	20	40	160	40	40	10	336
Task Dollars Not-to-Exceed	$1,200	$3,700	$3,700	$6,800	$24,000	$5,000	$4,000	$750	$49,150
Task 4: Final Plan Development									
Scheduling	2	4	8	8	20	20	20	0	$11,480
Permiting Plan	2	4	12	8	20	20	32	0	$13,420
Funding Plan	2	4	24	24	60	120	120	6	$46,110
Phase II Report	4	8	12	12	32	40	32	6	$19,990
Task Hours	10	20	56	52	132	200	204	12	686
Task Dollars Not-to-Exceed	$2,000	$3,700	$10,360	$8,840	$19,800	$25,000	$20,400	$900	$91,000
								Total Labor	$1,429,640
								Other Direct Costs	$30,000
								Total Phase II Not-to-Exceed	$1,459,640

Additional meetings may be necessary to fully engage stakeholders, the public, and/or BOMA throughout the process to fully describe the formulation and use of technical analysis tools, and satisfy communication needs. These meetings could include Stakeholder workshops or public forums/meetings. The costs of these additional meetings, meeting preparation and other direct costs are provided in **Table 3**, with a description of the CDM staff attending, and goals and type of meeting.

Table 3 - Cost and Scope of Additional Meetings for Phase II of the Franklin Integrated Water Resources Plan

Meeting Type	Key Staff	Goals	Cost
Stakeholder Workshop	Project Manager (Provost), Facilitator (Rodrigo), Task Manager (Westphal), Project Coordinator (Daniel), Senior Engineer (Bell), Senior Technical Specialist (TBD based on agenda)	Engage stakeholders for additional feedback/buy-in	$15,000
Public Forum/ Meeting	Task Manager (Westphal), Project Coordinator (Daniel), Senior Engineer (Bell)	Provide specific technical details with regard to model assumptions/ analysis/results	$8,000