Chandler · Arizona Where values shine / The difference	PURCHASING ITEM FOR COUNCIL AGENDA Memo No. CP14-055	1. Agenda Item Number: 25
		2. Council Meeting Date: October 24, 2013

TO: MAYOR & COUNCIL	3. Date Prepared: October 9, 2013
THROUGH: CITY MANAGER	4. Requesting Department: Municipal Utilities

5. SUBJECT: Design Contract to Carollo Engineers, Inc., for the Chandler Water Reclamation Facility.

6. RECOMMENDATION: Staff recommends City Council award a design contract to Carollo Engineers, Inc., for the Chandler Water Reclamation Facility (CWRF), Programming Phase, Contract No. WW1301-102, in an amount not to exceed $997,334.

7. BACKGROUND/DISCUSSION: This contract is for professional engineering services for initial permitting and pre-design related to the construction of the future wastewater treatment facility on the southeast corner of Old Price and Queen Creek Roads. This contract focuses on the design definition and development of the Basis of Design Report (BDR). This contract also includes project management, permitting assistance, and public involvement services. The initial phase of the design project will be for a minimum of five million gallon per day (MGD) capacity. The facility will be master planned for forty MGD at build out to accommodate residential and industrial flows and reclaimed water demand in the West Chandler area.

Future contracts to be awarded as part of this project include: design, pre-construction services, Construction Manager at Risk, and construction management services.

8. EVALUATION: On July 16, 2013, consultant selection was conducted in accordance with established City policies and procedures. Staff received Statements of Qualification from two firms for design consultant services for the CWRF. Staff reviewed the scope of work, billing rates, and total fee for this project, compared them to historical costs, and determined they are reasonable. The contract completion time is 180 calendar days following Notice to Proceed. Staff recommends award to Carollo Engineers, Inc.

9. FINANCIAL IMPLICATIONS:

Cost:	$997,334
Savings:	N/A
Long Term Costs:	N/A
Fund Source:	

Acct. No.:	Fund Name:	Program Name:	CIP Funded:	Amount:
614.3910.5219.6WW022	Wastewater SDF	Water Reclamation Facility Expansion	Yes	$997,334

10. PROPOSED MOTION: Move City Council award a design contract to Carollo Engineers, Inc., for the Chandler Water Reclamation Facility (CWRF), Programming Phase, Contract No. WW1301-102, in an amount not to exceed $997,334.

ATTACHMENTS: Contract, Location Map

APPROVALS

11. Requesting Department	**13. Department Head**
John Knudson, Utilities Engineering Manager	Dave Siegel, Municipal Utilities Director
12. Transportation & Development	**14. City Manager**
Bob Fortier, Capital Projects Manager	Rich Dlugas

Chandler + Arizona

CHANDLER WATER RECLAMATION FACILITY PROJECT NO. WW1301-102

MEMO NO. CP14-055

PROJECT SITE

NTS

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PROFESSIONAL SERVICES CONTRACT

Project Name: Chandler Water Reclamation Facility (CWRF) Programming
Project No. WW1301-102

THIS CONTRACT is made and entered into this ____ day of _____, 2013, by and between the City of Chandler, a Municipal Corporation of the State of Arizona, hereinafter referred to as "CITY", and Carollo Engineers, Inc. a Delaware corporation, licensed to do business in the State of Arizona, hereinafter referred to as "CONSULTANT".

WHEREAS, the Mayor and City Council of the City of Chandler is authorized and empowered by provisions of the City Charter to execute contracts for professional services; and

WHEREAS, CONSULTANT represents that CONSULTANT has the expertise and is qualified to perform the services described in the Contract.

NOW THEREFORE, in consideration of the mutual promises and obligations set forth herein, the parties hereto agree as follows:

1. CONTRACT ADMINISTRATOR:

1.1 To provide the professional services required by this Contract CONSULTANT shall act under the authority and approval of City Engineer or designee, (the Contract Administrator), who shall oversee the execution of this Contract, assist the CONSULTANT with any necessary information, audit billings, and approve payments. The CONSULTANT shall channel reports and special requests through the Contract Administrator.

1.2 CITY reserves the right to review and approve any/all changes to CONSULTANT'S key staff assigned to the CITY project by the firm during the term of this Contract.

2. SCOPE OF WORK:

CONSULTANT shall provide those services described in Exhibit A attached hereto and made a part hereof by reference.

3. ACCEPTANCE AND DOCUMENTATION:

Each task shall be reviewed and approved by CITY to determine acceptable completion. All documents, including but not limited to, data compilations, studies, and reports which are prepared in the performance of this Contract, shall be and remain the property of CITY and shall be delivered to CITY before final payment is made to CONSULTANT.

4. FEE SCHEDULE:

For the services described in paragraph 2 of this Contract, CITY shall pay CONSULTANT a fee not to exceed the sum of Nine Hundred Ninety Seven Thousand Three Hundred Thirty Four Dollars ($997,334) in accordance with the fee schedule attached hereto as Exhibit B and incorporated herein by reference.

5. TERM:

Following execution of this Contract by CITY, CONSULTANT shall immediately commence work and shall complete all services described herein within One Hundred Eighty (180) calendar days from the date hereof.

6. TERMINATION FOR CAUSE:

This Contract may be terminated by CITY for cause should the CONSULTANT fail to perform any provision of this Contract, including without limitation, for any of the following reasons:

(a) CONSULTANT abandons Work;
(b) CONSULTANT assigns or attempts to assign its rights or obligations under this Contract or any part thereof to any third-party (without the prior written consent of CITY;
(c) CONSULTANT is adjudged bankrupt of insolvent, makes a general assignments for the benefit of creditors, has a trustee or receiver appointed for its property, or files a petition to take advantage of any debtor's act;
(d) CONSULTANT fails or refuses to perform any obligation under the Contract, or fails to remedy such nonperformance within seven (7) days after its occurrence;
(e) CONSULTANT fails to comply with any applicable Laws and fails to remedy such nonperformance within seven (7) days after its occurrence;
(f) CONSULTANT fails to achieve the required dates for performance required pursuant to the Contract.

7. TERMINATION FOR CONVENIENCE:

CITY may at any time and for any or no reason, at its convenience, terminate this contract or any part of the services to be rendered pursuant thereto by written notice to CONSULTANT specifying the termination date. Immediately after receiving such notice, CONSULTANT shall discontinue advancing the work under this Contract and shall deliver to the CITY all drawings, notes, calculations, sketches and other materials entirely or partially completed, together with all unused materials supplied by the CITY.

CONSULTANT shall receive as compensation in full for services performed to date of such termination, a fee for the percentage of work actually completed. This fee shall be a percentage of CONSULTANT (S) fee described in this Contract under paragraph 3 and shall be in the amount to be agreed mutually by CONSULTANT and the CITY. The CITY shall make this final payment within sixty (60) days after CONSULTANT has delivered the last of the partially completed items.

8. OWNERSHIP OF INSTRUMENTS OF SERVICE UPON TERMINATION FOR CAUSE AND/OR FOR CONVENIENCE:

Upon Termination for Cause or for Convenience, the CITY shall have ownership of the Instruments of Service.

9. INDEMNIFICATION:

To the fullest extent permitted by law, but only to the extent caused by the negligence, recklessness or intentional wrong conduct, CONSULTANT, its successors, assigns and guarantors, shall defend, indemnify and hold harmless City and any of its elected or appointed officials, officers, directors, commissioners, board members, agents or employees from and against any and all allegations, demands, claims, proceedings, suits, actions, damages, including, without limitation, property damage, environmental damages, personal injury and wrongful death claims, losses, expenses (including claim adjusting and handling expenses), penalties and fines (including, but not limited to, attorney fees, court costs, and the cost of appellate proceedings), judgments or obligations, which may be imposed upon or incurred by or asserted against the City by reason of this Contract or the services performed or permissions granted under it, or related to, arising from or out of, or resulting from any negligent or intentional actions, acts, errors, mistakes or omissions caused in whole or part by CONSULTANT, or any of its subcontractors, or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, relating to the discharge of any duties or the exercise of any rights or privileges arising from or incidental to this Contract, including but not limited to, any injury or damages claimed by any of CONSULTANT's and subcontractor's employees.

10. INSURANCE REQUIREMENTS:

1. General.

A. At the same time as execution of this Contract, CONSULTANT shall furnish the City of Chandler a certificate of insurance on a standard insurance industry ACORD form. The ACORD form must be issued by an insurance company authorized to transact business in the State of Arizona possessing a current A.M. Best, Inc. rating of A-7, or better and legally authorized to do business in the State of Arizona with policies and forms satisfactory to CITY. Provided, however, the A.M. Best rating requirement shall not be deemed to apply to required Worker's Compensation coverage.

B. CONSULTANT and any of its subcontractors, subconsultants or sublicensees shall procure and maintain, until all of their obligations have been discharged, including any warranty periods under this Contract are satisfied, the insurances set forth below.

C. The insurance requirements set forth below are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract.

D. The City in no way warrants that the minimum insurance limits contained in this Contract are sufficient to protect CONSULTANT from liabilities that might arise out of the performance of the Contract services under this Contract by CONSULTANT, its agents, representatives, employees, subcontractors, sublicensees or subconsultants and CONSULTANT is free to purchase any additional insurance as may be determined necessary.

E. Failure to demand evidence of full compliance with the insurance requirements in this Contract or failure to identify any insurance deficiency will not relieve the CONSULTANT from, nor will it be considered a waiver of its obligation to maintain the required insurance at all times during the performance of this Contract.

F. Use of SubContractors: If any work is subcontracted in any way, CONSULTANT shall execute a written Contract with Subcontractor containing the same Indemnification Clause and Insurance Requirements as the City requires of CONSULTANT in this Contract. CONSULTANT is responsible for executing the Contract with the Subcontractor and obtaining Certificates of Insurance and verifying the insurance requirements.

2. Minimum Scope and Limits of Insurance. CONSULTANT shall provide coverage with limits of liability not less than those stated below.

A. Commercial General Liability-Occurrence Form. CONSULTANT must maintain "occurrence" form Commercial General Liability insurance with a limit of not less than $2,000,000 for each occurrence, $4,000,000 aggregate. Said insurance must also include coverage for products and completed operations, independent contractors, personal injury and advertising injury. If any Excess insurance is utilized to fulfill the requirements of this paragraph, the Excess insurance must be "follow form" equal or broader in coverage scope than underlying insurance.

B. Automobile Liability-Any Auto or Owned, Hired and Non-Owned Vehicles Vehicle Liability: CONSULTANT must maintain Business/Automobile Liability insurance with a limit of $1,000,000 each accident on CONSULTANT owned, hired, and non-owned vehicles assigned to or used in the performance of CONSULTANT's work or services under this Contract. If any Excess or Umbrella insurance is utilized to fulfill the requirements of this paragraph, the Excess or Umbrella insurance must be "follow form" equal or broader in coverage scope than underlying insurance.

C. Workers Compensation and Employers Liability Insurance: CONSULTANT must maintain Workers Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of CONSULTANT employees engaged in the performance of work or services under this Contract and must also maintain Employers' Liability insurance of not less than $1,000,000 for each accident and $1,000,000 disease for each employee.

D. Professional Liability. If the Contract is the subject of any professional services or work performed by CONSULTANT, or if CONSULTANT engages in any professional services or work adjunct or residual to performing the work under this Contract, CONSULTANT must maintain Professional Liability insurance covering errors and omissions arising out of the work or services performed by the CONSULTANT, or anyone employed by CONSULTANT, or anyone whose acts, mistakes, errors and omissions the CONSULTANT is legally liable, with a liability limit of $1,000,000 each claim and $2,000,000 all claims. In the event the Professional Liability insurance policy is written on a "claims made" basis, coverage must extend for 3 years past completion and acceptance of the work or services, and CONSULTANT, or its selected Design Professional will submit Certificates of Insurance as evidence the required coverage is in effect. The Design Professional must annually submit Certificates of Insurance citing that the applicable coverage is in force and contains the required provisions for a 3 year period.

3. Additional Policy Provisions Required.

A. Self-Insured Retentions Or Deductibles. Any self-insured retentions and deductibles must be declared and approved by the City. If not approved, the City may require that the insurer reduce or eliminate any deductible or self-insured retentions with respect to the City, its officers, officials, agents, employees, and volunteers.

B. City as Additional Insured. The policies are to contain, or be endorsed to contain, the following provisions:

1. The Commercial General Liability and Automobile Liability policies are to contain, or be endorsed to contain, the following provisions: The City, its officers, officials, agents, and employees are additional insureds with respect to liability arising out of activities performed by, or on behalf of, CONSULTANT including the City's general supervision of the CONSULTANT; Products and Completed operations of CONSULTANT; and automobiles owned, leased, hired, or borrowed by CONSULTANT.

2. CONSULTANT's insurance must contain broad form contractual liability coverage and must not exclude liability arising out of explosion, collapse, or underground property damage hazards ("XCU") coverage.

3. The City, its officers, officials, agents, and employees must be additional insureds to the full limits of liability purchased by CONSULTANT even if those limits of liability are in excess of those required by this Contract.

4. CONSULTANT's insurance coverage must be primary insurance with respect to the City, its officers, officials, agents, and employees. Any insurance or self-insurance maintained by the City, its officers, officials, agents, and employees shall be in excess of the coverage provided by CONSULTANT and must not contribute to it.

5. CONSULTANT's insurance must apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

6. Coverage provided by CONSULTANT must not be limited to the liability assumed under the indemnification provisions of this Contract.

7. The policies must contain a severability of interest clause and waiver of subrogation against the City, its officers, officials, agents, and employees, for losses arising from Work performed by CONSULTANT for the City.

8. CONSULTANT, its successors and or assigns, are required to maintain Commercial General Liability insurance as specified in this Contract for a minimum period of 3 years following completion and acceptance of the Work. CONSULTANT must submit a Certificate of Insurance evidencing Commercial General Liability insurance during this 3 year period containing all the Contract insurance requirements, including naming the City of Chandler, its agents, representatives, officers, directors, officials and employees as Additional Insured as required.

9. If a Certificate of Insurance is submitted as verification of coverage, the City will reasonably rely upon the Certificate of Insurance as evidence of coverage but this acceptance and reliance will not waive or alter in any way the insurance requirements or obligations of this Contract. If any of the required policies expire during the life of this Contract, the CONSULTANT must forward renewal or replacement Certificates to the City within 10 days after the renewal date containing all the necessary insurance provisions.

11. ENTIRE CONTRACT:

This Contract constitutes the entire understanding of the parties and supersedes all previous representations, written or oral, with respect to the services specified herein. This Contract may not be modified or amended except by a written document, signed by authorized representatives or each party.

12. CONFLICT OF INTEREST:

CONSULTANT stipulates that its officers and employees do not now have a conflict of interest and it further agrees for itself, its officers and its employees that it will not contract for or accept employment for the performance of any work or services with any individual business, corporation or government unit that would create a conflict of interest in the performance of its obligations pursuant to this Contract.

Pursuant to A.R.S. Section 38-511, CITY may cancel this Contract within three (3) years after its execution, without penalty or further obligation by CITY if any person significantly involved in initiating, negotiating, securing, drafting or creating this Contract on behalf of CITY is, at any time while this Contract is in effect, an employee of any other party to this Contract in any capacity, or a consultant to any other party of this Contract with respect to the subject matter of this Contract

13. ARIZONA LAW, JURISDICTION AND VENUE, AND FEES AND COSTS:

13.1 Arizona Law. This Contract shall be governed and interpreted according to the laws of the State of Arizona.

13.2 Jurisdiction and Venue. The parties agree that this Contract is made in and shall be performed in Maricopa County. Any lawsuits between the Parties arising out of this Contract shall be brought and concluded in the courts of Maricopa County in the State of Arizona, which shall have exclusive jurisdiction over such lawsuits.

13.3 Fees and Costs. Except as otherwise agreed by the parties, the prevailing party in any adjudicated dispute relating to this Contract is entitled to an award of reasonable attorney's fees, expert witness fees and costs including, as applicable, arbitrator fees; provided, however, that no award of attorney's fees shall exceed ten percent (10%) of the damages awarded the prevailing party unless the non-prevailing party has been determined to have acted in bad faith or in a frivolous manner during the adjudication.

14. ARIZONA LAW:

This Contract shall be governed and interpreted according to the laws of the State of Arizona.

15. REQUIRED COMPLIANCE WITH ARIZONA PROCUREMENT LAW:

Compliance with A.R.S. § 41-4401. Pursuant to the provisions of A.R.S. § 41-4401, the Consultant hereby warrants to the City that the Consultant and each of its subcontractors ("Subcontractors") will comply with all Federal Immigration laws and regulations that relate to the immigration status of their employees and the requirement to use E-Verify set forth in A.R.S. §23-214(A) (hereinafter "Consultant Immigration Warranty").

A breach of the Consultant Immigration Warranty (Exhibit C) shall constitute a material breach of this Contract that is subject to penalties up to and including termination of the contract.

The City retains the legal right to inspect the papers of any Consultant or Subcontractor employee who works on this Contract to ensure that the Consultant or Subcontractor is complying with the Consultant Immigration Warranty. The Consultant agrees to assist the City in the conduct of any such inspections.

The City may, at its sole discretion, conduct random verifications of the employment records of the Consultant and any Subcontractors to ensure compliance with Consultants Immigration Warranty. The Consultant agrees to assist the City in performing any such random verifications.

The provisions of this Article must be included in any contract the Consultant enters into with any and all of its subcontractors who provide services under this Contract or any subcontract. "Services" are defined as furnishing labor, time or effort in the State of Arizona by a Consultant or subcontractor. Services include construction or maintenance of any structure, building or transportation facility or improvement to real property.

In accordance with A.R.S. §35-393.06, the Consultant hereby certifies that the offeror does not have scrutinized business operations in Iran.

In accordance with A.R.S. §35-391.06, the Consultant hereby certifies that the offeror does not have scrutinized business operations in Sudan.

16. NOTICES:

All notices or demands required to be given pursuant to the terms of this Contract shall be given to the other party in writing, delivered by hand or registered or certified mail, at the addresses set forth below, or to such other address as the parties may substitute by written notice given in the manner prescribed in this paragraph.

IN WITNESS WHEREOF, the parties have hereunto subscribed their names to this ____ day of _____, 2013.

CITY OF CHANDLER

_____
Department Head/Designee Date

ADDRESS FOR NOTICE
City of Chandler
P.O. Box 4008, Mail Stop 407
Chandler, AZ 85244-4008
Phone: 480-782-3307
FAX: 480-782-3355

APPROVE AS TO FORM

_____
City Attorney by: _____

ATTEST:

_____
City Clerk SEAL

CONSULTANT

By: _____
Title: Executive Vice President SR. VICE PRESIDENT

ADDRESS FOR NOTICE
Carollo Engineers, Inc.
4600 E. Washington St., Ste. 500
Phoenix, AZ 85034
Phone: 602-263-9500
FAX: 602-265-1422

ATTEST: If Corporation

_____
Secretary

EXHIBIT A
SCOPE OF WORK

General Description

This project ("Project") is for the new Chandler Water Reclamation Facility (CWRF), to be procured and constructed using the Construction Management at Risk (CMAR) alternative project delivery method.

The City of Chandler (CITY) desires to plan, design, construct, and commission the new 5 million gallons per day (mgd) CWRF to accommodate residential flows, industrial flows, and reclaimed water demand in the West Chandler area. This Project involves multiple steps associated with the overall pre-construction (design) phase, including a programming phase to define the basis of design, followed by preliminary design and detailed design (to be included under separate contract). Construction phase-related services will also be included in a separate contract.

This Scope of Services is limited to the Programming Phase of the Project, focusing on the design definition and development of a Basis of Design Report (BDR). DESIGN CONSULTANT services during this Programming Phase will also include the necessary project and quality management, permitting assistance, and public involvement services to support development of the design definition and BDR.

Project Assumptions

1. The CWRF will most likely be rated for an initial 5 mgd annual average day flow (AADF) design capacity, but will be master-planned for 40 mgd AADF ultimate (build out) capacity.
2. Project will be procured using the CMAR alternative project delivery method.
3. Pre-construction (design) services will be targeted for completion by mid-2015.
4. Construction will be targeted for completion by mid-2017.
5. *Contract Amendments*. Subsequent preliminary and detailed design development services, including CMAR coordination, will be included in a separate (WW1301-201) Contract. Subsequent construction phase services will be included in a separate (WW1301-451) Contract.
6. *Project Team Personnel*. As directed by the CITY, DESIGN CONSULTANT will maintain specific individuals for key roles and responsibilities throughout the Project duration as identified in **Exhibit A-1 PROJECT TEAM PERSONNEL**.
7. *City Responsibilities*. CITY shall perform / complete the responsibilities as identified in **Exhibit A-2 CITY RESPONSIBLITIES**. These items shall be provided in a timely manner as required to meet and maintain Project schedule.
8. *Project Deliverables*. DESIGN CONSULTANT will produce multiple project documents in hardcopy format for submittal to the CITY throughout the Programming Phase, as identified herein. A total of ten (10) draft and ten (10) final hardcopies of each deliverable will be submitted to CITY for distribution. Electronic copies of the various deliverables will also be provided in PDF and posted on a collaborative project website (with the exception of site security-related documents, monthly invoices and other documents as determined by the CITY). CITY shall agree to review draft project deliverables and provide comments to DESIGN CONSULTANT in a timely fashion (typically within two weeks of submittal).

9. *Standard of Care:* DESIGN CONSULTANT will be responsible to the level of competency and standard of care presently maintained by other practicing Professional Engineers performing the same or similar type work at the time Notice to Proceed is issued. DESIGN CONSULTANT and CITY mutually agree that standard of care, as applied to design professional, shall be defined as the ordinary and reasonable care required and established by expert testimony of what a reasonable and prudent professional would have done under the same or similar circumstances.

Scope of Services

DESIGN CONSULTANT will complete the following scope for this Programming Phase. Subsequent preliminary and detailed design and construction-related services for the Project will be provided under separate contracts.

TASK 100 – PROGRAMMING PHASE DEVELOPMENT

DESIGN CONSULTANT will evaluate and develop the necessary proposed facilities, utilities, and on-site infrastructure to accommodate the near-term (Phase 1) and long-term (ultimate build out) provisions for future design and construction phases of the CWRF site. Evaluation of future provisions are necessary to ensure adequate physical space and orientation is planned and included for the CWRF site while allowing the DESIGN CONSULTANT to focus on the necessary Phase 1 elements during subsequent detailed design. Provisions will include preliminary sizing, layouts, connections, corridors and other general requirements, and will be incorporated into design criteria, technical memoranda, preliminary layouts, and other preliminary design elements as appropriate and as defined herein. The overall focus of this Programming Phase is to further develop the applicable design criteria and site development requirements for subsequent preliminary design, detailed design and construction phase services.

The following tasks describe the specifics efforts associated with the Programming Phase development. *NOTE: All draft technical memoranda (TMs) developed as part of TASK 100 Series, as identified herein, will be finalized as part of the Basis of Design Report (BDR) per Task 113.*

101 – Wastewater Flow and Loading Characterization

DESIGN CONSULTANT will review and characterize the influent wastewater design flows and loadings to establish the design capacities and loadings for Phase 1 and subsequent phases.

101.1 – Compile Flow Projections. Coordinate with CITY to compile, tabulate, and review flow projections tributary to the CWRF and OWRF to establish the average day design flow (AADF) design capacities for the CWRF. Develop preliminary project phasing based on flow projections and 5-mgd capacity increments for the CWRF.

101.2 – Establish Design Flows and Peaking Factors. Based on the flow projection data for the CWRF and historical percentiles for the OWRF compiled in Task 101.1,, establish the Phase 1 average day design flow (AADF) capacity. Based on existing historical OWRF flow data provided by CITY, develop applicable peaking factors for maximum month average day flow (MMADF), peak day flow (PDF), peak hour flow (PHF) and instantaneous peak flow for use in subsequent process and hydraulic modeling efforts.

101.3 – Review Existing Water Quality Analytical Data. Coordinate with CITY to compile, tabulate, and review existing historical OWRF and related industrial flow water quality

analytical data. Influent water quality data to be reviewed (if available) will include, but not necessarily be limited to, Biochemical Oxygen Demand (BOD_5); Chemical Oxygen Demand (COD); Total Suspended Solids (TSS); Total Dissolved Solids (TDS); Total Kjeldahl Nitrogen (TKN); Total Phosphorus (TP), Alkalinity (as $CaCO_3$); Ammonia-Nitrogen (NH_3-N); Nitrate-Nitrogen (NO_3-N), Fats, Oil and Grease (FOG), Chlorides, and Sulfates. Any available data on microconstituents, particularly from industrial flow streams, will also be evaluated relative to potential impacts on future advanced oxidation processes (AOP).

101.4 – Establish Design Water Quality Concentrations and Loadings. Based on the compiled existing water quality data per the previous task, establish the design influent wastewater concentrations based on a domestic-equivalent characterization. Using this information and design flows and peaking factors, establish the applicable design loadings for Phase 1 of the CWRF.

101.5 – Develop System Optimization Model. Develop a Citywide system optimization model consisting of the new CWRF and existing facilities (OWRF, AWRF, Airport IPS, reclaimed water delivery, etc.) to evaluate strategies for overall influent wastewater conveyance, treatment and reclaimed water delivery options. Develop and evaluate operational strategies, including base-loading new and future facilities and other peak flow management strategies. Evaluation will also include sensitivity analyses for potential reduction of industrial [Intel] flow and loading impacts on existing and new WRFs.

101.6 – Develop Draft Technical Memorandum No. 1 (TM-1). Develop draft TM-1 summarizing the design influent wastewater flow and loading characteristics. Submit draft TM for CITY review and comment.

***Deliverables*: Draft TM-1**

102 – Reclaimed Water Management

DESIGN CONSULTANT will coordinate with CITY to review near-term and long-term reclaimed water management strategies, including the most recent Reclaimed Water Master Plan (currently being updated by others), and develop applicable design criteria for Phase 1. Development of reclaimed water management strategies for the CWRF will be completed in conjunction with existing AWRF and OWRF facility capabilities and needs.

102.1 – Confirm Reclaimed Water and Reuse Projections and Demands. Following review of the most recent Reclaimed Water Master Plan Update made available by the CITY, confirm and document applicable reclaimed water quantity projections and demands for recharge and reuse, including identification of needs and timing of proposed ASR wells, reclaimed water management end-user sites and associated pipeline requirements. Evaluation will include documentation of existing on-site percolation rate information for potential site recharge.

102.2 – Evaluate Storage Projections and Criteria. In coordination with Task 102.1, review and document the on-site and/or off-site reclaimed water quantity storage requirements, including potential reservoir sizing and pumping requirements. Develop preliminary design criteria relative to reclaimed water storage, pumping and piping requirements.

102.3 – Confirm Reclaimed Water Quality Limitations or Constraints. In coordination with Task 102.1, review and document the reclaimed water quality requirements for the proposed reclaimed water uses based on the on-site and off-site storage, recharge and reuse projections and demands. Identify limitations or constraints associated with reliably

providing Class A+ reclaimed water quality to the various proposed sources, including potential future emerging contaminants removal requirements. In addition to anticipated reclaimed water quality limits, identify the specific treatment targets and performance requirements for subsequent process modeling efforts.

102.4 – Develop Draft Technical Memorandum No. 2 (TM-2). Develop draft TM-2 summarizing the reclaimed water management strategies, including the anticipated reclaimed water quality limits, treatment targets, and performance requirements. Submit draft TM for CITY review and comment.

***Deliverables*: Draft TM-2**

103 – Solids Management

DESIGN CONSULTANT will coordinate with CITY to review near-term and long-term solids management strategies and develop applicable design criteria for Phase 1. Development of solids management strategies for the CWRF will be completed in conjunction with existing AWRF and OWRF facility capabilities and needs.

103.1 – Confirm Solids Handling and Disposal Strategies. Evaluate and document overall near-term and long-term strategies for solids handling at the CWRF site, including requirements of landfill site disposal and alternate land application or beneficial reuse (through Class B, Class A or Class EQ biosolids). Evaluation will include provisions for sludge storage, sludge thickening, anaerobic digestion, dewatering, storage, and off-site hauling. Effort will include coordination with CITY on existing solids management strategies for OWRF and AWRF. Evaluation will also include the potential flexibility and compatibility for future co-mixing of biosolids with alternate feedstocks (i.e. green waste, food waste, FOG, etc.) to supplement and enhance biogas and cogeneration capacity.

103.2 – Evaluate Dewatering Schedule Issues and Constraints. Evaluate on-site and off-site traffic and routing issues associated with single-shift, double-shift or continuous sludge and/or biosolids dewatering, on-site storage, and off-site hauling activities, as applicable based on proposed near-term strategies chosen.

103.3 – Evaluate Solids Recycle Stream Impacts. Evaluate solids loadings from the liquids stream to estimate associated TSS and ammonia loads expected from potential thickening and/or dewatering centrate/filtrate recycle streams, as applicable based on proposed near-term strategies chosen.

103.4 – Treatment Goals and Strategies Review Workshop. Conduct a workshop with CITY to review and reach consensus on the influent flow and loading design criteria (per Task 101), reclaimed water management strategies (per Task 102) and solids management strategies (per Task 103) prior to the process modeling and treatment process alternative evaluation efforts.

103.5 – Develop Draft Technical Memorandum No. 3 (TM-3). Develop draft TM-3 summarizing the solids management strategies. Submit draft TM for CITY review and comment.

***Deliverables*: Draft TM-3**

104 – Process Modeling and Mass Balances

DESIGN CONSULTANT will perform process modeling to simulate anticipated performance to meet the design flows and loadings, reclaimed water limits and performance targets, and summarize anticipated mass balances.

104.1 – Perform Process Modeling. Develop a comprehensive plant-wide dynamic process model utilizing BioTran™ and BioWin™ software to develop and validate proposed treatment trains, including preliminary and primary treatment, aeration basins, secondary clarifiers and tertiary filters, membrane bioreactors, recycle streams facilities, and solids treatment facilities. Utilize desk-top model to determine basin sizing and dimensions, establish the internal recycle rates (such as RAS, WAS, MLR, filter backwash, centrate/filtrate returns, etc.), and other process design criteria, including requirements for process air, mixing energy, chemicals and other process design related information. Refine the treatment system alternatives through mass balance and dynamic process simulations, Process model simulations will include anticipated start-up, Phase 1, and ultimate build out conditions, based on the design wastewater flows and loadings.

104.2 – Develop Mass Balances. Develop mass balances for BOD, NH_3-N, TN, TP, TSS and VSS throughout the proposed liquids and solids processes for the CWRF, in conjunction with the process modeling efforts.

104.3 – Process Modeling Review Workshop. Facilitate a workshop with CITY to review the process modeling simulations and mass balances prior to developing treatment train alternative layouts and conceptual costs.

104.4 – Develop Draft Technical Memorandum No. 4 (TM-4). Develop draft TM-4 summarizing the process and hydraulic modeling scenarios and outputs. Submit draft TM for CITY review and comment.

***Deliverables*: Draft TM-4**

105 – Liquid Stream Treatment Processes

DESIGN CONSULTANT will review multiple liquid stream process train alternatives and layouts for Phase 1 and ultimate build out, and develop applicable design criteria for Phase 1.

105.1 – Evaluate Treatment Process Train Alternatives. Review existing Siting Study (by others) and develop applicable process trains for near-term and long-term applicability. Two main biological nutrient removal (BNR) treatment trains are anticipated – conventional activated sludge with secondary clarifiers and tertiary filters vs. membrane bioreactors (MBR) – along with associated sub-alternatives for preliminary, primary and tertiary treatment. Develop applicable BNR basin configuration strategies, including zone flexibility and configuration, basin layout requirements, recycle flows, and proposed flow-splitting strategies.

Evaluate each process alternative for economic (capital and operational) and non-economic factors, including compatibility and interaction with future phasing, and summarize the pros and cons associated with each alternative. Perform an assessment of each anticipated unit operation, including process modeling as appropriate, to meet current and anticipated permit, flow, loading and/or site requirements to reliably produce Class A+ reclaimed water quality. Develop preliminary process flow schematics for the liquids stream alternatives being evaluated. Liquids stream processes for near-term and potential future application to be evaluated will include:

- Preliminary Treatment
  - Influent Pumping
  - Influent Screening (Coarse and Fine)
  - Grit Removal
  - Screenings and Grit Handling

- Primary Treatment
  - Flow Splitting
  - Primary Clarification
  - Enhanced Primary Clarification
- Secondary Treatment
  - Flow Splitting
  - Biological Nutrient Removal (Conventional MLE, 4- or 5-stage Bardenpho, and MBR processes)
  - Mixed Liquor Return Pumping
  - Process Aeration
  - Centrate/Filtrate Treatment
  - Secondary Clarification
  - RAS Pumping
  - Supplemental Carbon Addition
- Tertiary Treatment
  - Flow Splitting
  - Filter Influent Pumping
  - Tertiary Filtration (Conventional Filtration and MBR Membranes)
  - Coagulation/Flocculation/Sedimentation
  - Denitrification Filtration
  - Disinfection
  - Future Advanced Oxidation Process (AOPs)
  - Reclaimed Water Storage and Pumping

The anticipated selection criteria for the various alternative evaluations will be generated from the following list, as determined by the DESIGN CONSULTANT and CITY:

- Performance and Reliability
- Operational Flexibility
- Space Utilization
- Redundancy
- Automation
- Process Monitoring
- Capital Cost
- Electrical (Power) Cost
- Chemical Cost
- Operator Attention
- Maintenance Attention
- Odor Potential
- Site Aesthetics
- Constructability
- Public Acceptance

The basis for recommendation of a selected alternative for a given process and/or facility component will be a 3-step weighting/ranking approach as described in the following:

- *Step 1* – Each criteria item will be given a "Weight" factor between 1 and 3 relative to the specific process and/or facility component being evaluated, where "1" is considered least important and "3" is considered most important.
- *Step 2* – Each criteria item will then be given a "Rank" factor between 1 and 5 relative to the specific process and/or facility component being evaluated, where "5" is considered best (i.e., least expensive, easiest to operate, etc.) and "1" is considered worst.
- *Step 3* – An overall process evaluation matrix will be developed, where the individual criteria "Weight" and "Rank" will be multiplied together, and total points determined for each process and/or facility component being evaluated. Alternative recommendation will be based upon the highest total points accordingly. Final alternative selection will be reviewed and approved with CITY.

105.2 – Develop Alternative Site Layout Requirements. Review and develop a proposed site layout of treatment processes, based on the evaluated alternatives for both Phase 1 and ultimate build out capacity. Site layout for liquid stream components will identify the existing facilities at the site; potential unit processes for Phase 1 and build out; anticipated increments for plant expansions; setback requirements at build out on all sides of property; and general flow stream layout and unit process locations. Site layouts will be developed using 3D model(s) and will identify future planning corridors for utilities, yard piping and associated construction requirements. NOTE: Detailed arrangement of equipment to be located within various buildings and facilities will be completed under subsequent preliminary design phase.

105.3 – Perform Preliminary Hydraulic Modeling. Based on proposed site layout of selected treatment processes, develop a plant-wide hydraulic model and perform model runs to develop a preliminary hydraulic profile that will show key elevations of proposed hydraulic structures, as well as the average daily and peak hour design flow hydraulic gradients for Phase 1 (and build out where appropriate) for selected treatment train. Consult with CITY on basin sizing and layout, yard piping sizing and layout, and other hydraulic impacts.

105.4 – Conduct Process Alternative Workshop. Facilitate a full-day process alternative workshop at DESIGN CONSULTANT's office to review liquids treatment alternatives, preliminary process flow schematics, mass balances, hydraulic profile, and associated site layouts for comment and refinement.

105.5 – Develop Design Criteria for Selected Alternatives. Review and develop applicable design criteria for the treatment process alternative(s) and layout(s) selected.

105.6 – Perform Process Peer Review. Perform an internal technical peer review of the liquids treatment process evaluation alternatives.

105.7 – Develop Draft Technical Memorandum No. 5 (TM-5). Develop draft TM-5 summarizing the liquids stream treatment process evaluation and selected process alternatives design criteria. Submit draft TM for CITY review and comment.

***Deliverables*: Draft TM-5**

106 – Solid Stream Treatment Processes

DESIGN CONSULTANT will review multiple solid stream process train alternatives and layouts for Phase 1 and ultimate build out, and develop applicable design criteria for Phase 1.

106.1 – Evaluate Treatment Process Train Alternatives. Review existing Siting Study (by others) and develop applicable process trains for near-term and long-term applicability. Evaluate each process alternative for economic (capital and operational) and non-economic factors, including compatibility and interaction with future phasing, and summarize the pros and cons associated with each alternative. Perform an assessment of each anticipated unit operation, including process modeling as appropriate, to address near-term and long-term solids handling strategies and/or site requirements. Develop preliminary process flow schematics for the solids stream alternatives being evaluated. Solids stream processes for near-term and potential future application to be evaluated will include:

- Pumping and Thickening
  - Primary Sludge Pumping
  - Primary Sludge Thickening
  - Fermentation
  - Fermented Sludge Thickening
  - WAS Pumping
  - WAS Thickening
  - Co-thickening (PS and WAS)
  - FOG / Scum Concentration
  - External Feedstock (i.e. FOG, food waste)
- Digestion
  - Pre-Digestion Storage
  - Anaerobic Digestion
  - Post-Digestion Storage
- Dewatering
  - Sludge/Biosolids Dewatering
  - Dewatered Cake Storage and Loading
- Biosolids Use/Disposal
- Cogeneration
  - Digester Gas Handling
  - Digester Gas Treatment
  - Gas Storage
  - Cogeneration

The anticipated selection criteria for the various alternative evaluations will be generated from the following list, as determined by the DESIGN CONSULTANT and CITY:

- Performance and Reliability
- Operational Flexibility
- Space Utilization
- Redundancy
- Automation
- Process Monitoring
- Capital Cost
- Electrical (Power) Cost
- Chemical Cost

- Operator Attention
- Maintenance Attention
- Odor Potential
- Site Aesthetics
- Constructability
- Public Acceptance

The basis for recommendation of a selected alternative for a given process and/or facility component will be a 3-step weighting/ranking approach as described in the following:

- *Step 1* – Each criteria item will be given a "Weight" factor between 1 and 3 relative to the specific process and/or facility component being evaluated, where "1" is considered least important and "3" is considered most important.
- *Step 2* – Each criteria item will then be given a "Rank" factor between 1 and 5 relative to the specific process and/or facility component being evaluated, where "5" is considered best (i.e., least expensive, easiest to operate, etc.) and "1" is considered worst.
- *Step 3* – An overall process evaluation matrix will be developed, where the individual criteria "Weight" and "Rank" will be multiplied together, and total points determined for each process and/or facility component being evaluated. Alternative recommendation will be based upon the highest total points accordingly. Final alternative selection will be reviewed and approved with CITY.

106.2 – Develop Alternative Site Layout Requirements. Review and develop a proposed site layout of treatment process, based on the evaluated alternatives for both Phase 1 and ultimate capacity. Site layout for solid stream components will identify the existing facilities at the site; potential unit processes for Phase 1 and build out; anticipated increments for plant expansions; setback requirements at build out on all sides of property; and general flow stream layout and unit process locations. Site layouts will be developed using 3D model(s) and will identify future planning corridors for utilities, yard piping and associated construction requirements. NOTE: Detailed arrangement of equipment to be location within various buildings and facilities will be completed under subsequent preliminary design phase.

106.3 – Conduct Process Alternative Workshop. Facilitate a full-day process alternative workshop at DESIGN CONSULTANT's office to review solids treatment alternatives, preliminary process flow schematics, mass balances, and associated site layouts for comment and refinement.

106.4 – Develop Design Criteria for Selected Alternatives. Review and develop applicable design criteria for the treatment process alternative(s) and layout(s) selected.

106.5 – Perform Process Peer Review. Perform an internal technical peer review of the solids treatment process evaluation alternatives.

106.6 – Develop Draft Technical Memorandum No. 6 (TM-6). Develop draft TM-6 summarizing the solids stream treatment process evaluation and selected process alternatives design criteria. Submit draft TM for CITY review and comment.

***Deliverables*: Draft TM-6**

107 – Support Facilities and Utilities

DESIGN CONSULTANT will identify the required support facilities and utilities, including general requirements and layouts for Phase 1 and ultimate build out, and develop applicable design criteria for Phase 1.

107.1 – Administrative Facilities. Evaluate and summarize administrative facility requirements, including general architectural requirements, space needs assessments and occupancy classifications, and develop applicable preliminary layout(s) and design criteria.

107.2 – Maintenance / Storage. Evaluate and summarize maintenance and storage facility requirements, including general architectural requirements, space needs assessments and occupancy classifications, and develop applicable preliminary layout(s) and design criteria.

107.3 – Laboratory Facilities. Evaluate and summarize process laboratory facility requirements, including general architectural requirements, space needs assessments and occupancy classifications (including potential co-location of compliance laboratory for other CITY facilities), and develop applicable preliminary layout(s) and design criteria.

107.4 – Chemical Storage and Feed Facilities. Evaluate and summarize chemical storage and feed facilities requirements and develop applicable preliminary layout(s) and design criteria, including type and locations of systems; sizing and general design criteria of systems; strategies for loading, storage, containment and feeding of chemicals; chemical compatibilities with materials of construction; and safety and security considerations.

107.5 – Plant Drain System. Evaluate and summarize plant drainage system requirements and develop applicable preliminary layout(s) and design criteria.

107.6 – Storm Water Management and Retention. Evaluate and summarize storm water management and on-site retention requirements and develop applicable preliminary layout(s) and design criteria.

107.7 – Potable Water. Evaluate and summarize plant potable water system requirements and develop applicable preliminary layout(s) and design criteria.

107.8 – Non-Potable Water. Evaluate and summarize plant non-potable water system requirements and develop applicable preliminary layout(s) and design criteria.

107.9 – Compressed and Instrument Air. Evaluate and summarize plant compressed and instrument air system requirements and develop applicable preliminary layout(s) and design criteria, if applicable.

107.10 – Natural Gas. Evaluate and summarize plant natural gas system requirements and develop applicable preliminary layout(s) and design criteria, if applicable.

107.11 – Support Facilities and Utilities Review Workshop. Facilitate a workshop with CITY to review the preliminary strategies and preferences for support facilities and utilities.

107.12 – Develop Draft Technical Memorandum No. 7 (TM-7). Develop draft TM-7 summarizing the support facilities and utilities requirements and general design criteria. Submit draft TM for CITY review and comment.

***Deliverables*: Draft TM-7**

108 – Electrical / Instrumentation and Controls System Strategies

DESIGN CONSULTANT will assessment and summarize preliminary site electrical / instrumentation and controls (EI&C) system strategies and general requirements for Phase 1 and ultimate build out, and develop applicable design criteria for Phase 1.

108.1 – Power Needs Assessment. Perform a preliminary power needs assessment for the CWRF, including incoming dual power feed requirements; standby power generation requirements (including design outage criteria and plant loads during design outage); and potential future co-generation opportunities. Assessment will include a preliminary estimation of power loads [preliminary load list] for Phase 1 and ultimate build out required throughout the various site facilities; design of strategies for the distribution of power and duct banks from utility source to major process elements and buildings; development of localized power centers including feeders and transformers; dual power feeds and standby generation; level of redundancy required at power centers and individual feeds; plant power monitoring; and power logic. Identify potential application of SRP rebates for premium efficiency motors and other electrical equipment.

108.2 – Coordination with SRP. Coordinate with the local power utility [SRP] regarding available power to the CWRF site, including requirements for Phase 1 and ultimate build out of the plant, as well as planned high-voltage distribution lines and easements along Old Price Road corridor. Coordination will include feeders, switching and sectionalizing gear requirements; anticipated downtime frequencies and durations; and standby and/or co-generation back-feed protection. Estimated construction costs for additional feeders and corresponding equipment, as well as anticipated power rate impacts, will also be discussed with SRP. Efforts will include development and submittal of a letter to SRP outlining estimated power requirements at the CWRF (for both Phase 1 and ultimate build out), and a list of information needs from SRP. DESIGN CONSULTANT will attend up to three (3) coordination meetings with SRP representatives to review estimated power needs and supplemental information needs. Results from meetings and written correspondence from SRP will be summarized in letter form and provided to CITY. DESIGN CONSULTANT will also request a preliminary service design from SRP in a timely manner for use in developing the plant detailed electrical design.

108.3 – Plant Control System Architecture. Coordinate with CITY to develop preliminary platform(s) and plant control system architecture diagram(s) in accordance with CITY standards and specifications. Architecture will identify basic requirements for integration with CITY-wide supervisory control and data acquisition (SCADA) telemetry system and fiber optic system.

108.4 – Control and Monitoring Strategies. Coordinate with CITY to develop preliminary control and monitoring strategies for defining local manual/automatic and remote manual/automatic monitoring and process control requirements, in accordance with CITY standards. Strategies will include safety features, interlocks, control panel locations, and integration with control system architecture and SCADA telemetry system requirements.

108.5 – Site Communications. Coordinate with CITY to identify and develop general site communication system requirements, including telephones, paging and intercom, fire alarm and security, closed-circuit television (CCTV), and local area networking.

108.6 – EI&C Review Workshop. Facilitate a workshop with CITY to review the preliminary EI&C strategies for the CWRF site.

108.7 – Develop Draft Technical Memorandum No. 8 (TM-8). Develop draft TM-8 summarizing the EI&C requirements and design criteria. Submit draft TM for CITY review and comment.

***Deliverables*: Draft TM-8**

109 – Site Aesthetic Concepts

DESIGN CONSULTANT will identify and evaluate preliminary site aesthetic concepts and general requirements for Phase 1 and ultimate build out, and develop applicable design criteria for Phase 1.

109.1 – Odor Control. Develop and summarize plant-wide odor mitigation strategies in a preliminary odor control plan for the CWRF site. Plan will include the identification of anticipated odor sources; use and type of basin covers and enclosures; strategies for flow free fall over weirs and walls; type, number and location of odor control systems; sizing and design criteria of odor control systems; type and location of odor control ductwork; and fence line odor and wind gauge monitoring capabilities. Odor threshold and visibility impacts will be incorporated into the odor control plan. Develop a plant-wide odor model and perform site odor modeling based on preliminary processes and layouts, to be further refined and modeled during subsequent design efforts. Applicable preliminary design criteria for proposed odor control system(s) will be developed.

109.2 – Noise Abatement. Develop and summarize plant-wide noise mitigation strategies in a preliminary noise abatement plan for the CWRF site. Plan will include the identification of anticipated noise sources; and use, type, number, and location of noise abatement systems. Noise threshold and visibility impacts will be incorporated into the noise abatement plan. Applicable preliminary design criteria for proposed noise abatement system(s) will be developed.

109.3 – Building Architecture. Develop and summarize preliminary architectural design concepts, spatial requirements, function and size for proposed buildings at the CWRF site, considering existing neighboring facilities and CITY requirements. DESIGN CONSULTANT will present to up to five (5) general building architectural themes/concepts for review and comment by the CITY. Up to two (2) themes/concepts will be selected and further developed to assist in determining the proposed architectural theme for the CWRF. Conduct up to three (3) coordination meetings with CITY representatives to discuss and review needs, concepts and revisions. Specific elements for discussion will include space parameters, space segregation grouping and access; planned activities, including O&M; life safety and industrial health and hygiene; maintainability, operational flexibility and lighting; acoustical and vibration requirements; and durability and materials of construction. Evaluate inclusion of applicable LEED-type sustainable elements where they make economic sense.

109.4 – Site Screening and Berming. Develop and summarize site screening alternatives, including the use of setbacks, berming, landscaping, decorative wall, fencing, and buildings to develop an overall site screening plan for the CWRF site. If fencing, block wall or some combination is utilized, identify acceptable fence/wall materials and designs. If vegetative, identify acceptable plant materials and plant density. Determine requirements around entire site perimeter. Perimeter security requirements including fencing, access control, monitoring, and Crime Prevention through Environmental Design (CPTED) strategies will be incorporated. Opportunities and requirements associated with potential early site work package(s) will also be identified.

109.5 – Landscape Architecture. Develop and summarize landscaping alternatives, both on-site and off-site (as required by site screening alternatives), to develop an overall preliminary landscaping plan for the CWRF site. Plan will be consistent with established CITY standards for exterior landscaping and be based on minimizing maintenance associated with plant interior landscaping. Enhancement of wildlife habitat requirements

will be incorporated, if applicable. Opportunities and requirements associated with potential early site work package(s) will also be identified.

109.6 – Traffic Routing. Develop and summarize traffic routing alternatives for the CWRF site, including potential facility entrance(s) for staff personnel, chemical delivery, solids handling, and emergency response vehicles, to develop an overall traffic routing plan. Coordinate with Fire Department and ongoing intersection improvements at Queen Creek and Old Price Roads, as well as planned improvements for the Old Price Road corridor.

109.7 – Site Lighting. Develop and summarize preliminary site lighting strategies that provide adequate lighting for night-time operation and operator safety, while minimizing impacts on neighbors and complying with applicable regulations. Coordinate with security planning to make sure adequate lighting is provided for CCTV.

109.8 – Site Security. Develop and summarize preliminary security strategies for the CWRF site which will include physical security (perimeter and individual structures); electronic surveillance (cameras, alarms, motion detection, CCTV and networked digital video recording systems); as well as communications; monitoring and response procedures; security staffing; parking; lighting; security markings; electrical and auxiliary power; locking hardware; master keying and key control; glazing; access control systems; recommendations for emergency response; and recommendations for operations staff training. Determine system performance expectations, information on the anticipated site assets (i.e. materials, processes, information and equipment to be protected); potential threats to the assets from all sources (internal and external); needs for incident reporting and investigative mechanisms; as well as security system monitoring and response options. Collate and analyze the information and provide recommendations for the proposed facilities, including applicable threat mitigation strategies to address any perceived gaps between threat environment and proposed security profile. Coordinate with site screening and fencing strategies. Development of the plan will be coordinated with the CITY's existing emergency response plans and security procedures.

109.9 – Site Aesthetics Review Workshops. Facilitate two (2) separate workshops with CITY to review preliminary site aesthetic-related strategies for the CWRF site, in addition to separate building architecture coordination meetings per Task 109.3.

109.10 – Develop Draft Technical Memorandum No. 9 (TM-9). Develop draft TM-9 summarizing the preliminary site aesthetic concepts and strategies (excluding site security). Submit draft TM for CITY review and comment.

109.11 – Develop Draft Technical Memorandum No. 9A (TM-9A). Develop draft TM-9A summarizing the site security strategies and design criteria. Submit draft TM for CITY review and comment. Incorporate CITY comments and finalize TM-9A accordingly. NOTE: TM-9A will <u>not</u> be included in the Basis of Design Report (BDR), due to the confidential and sensitive nature of the information.

***Deliverables*: Draft TM-9 and TM-9A**

110 – Codes and Standards Review

DESIGN CONSULTANT will conduct a preliminary codes and site development standards review with applicable CITY Department representatives, and summarize key applicable codes and standards. Develop a plant-wide classification summary depicting the building, mechanical, plumbing, fire, ventilation, electrical and other applicable codes for subsequent design efforts. These codes and standards can affect setbacks, vehicle

and pedestrian circulation, landscaping, fencing, signage, electrical and space classifications, exterior lighting, and overall structure and building architectural design.

110.1 – Pre-Review Meetings with City's Transportation & Development Department and Fire Department. Conduct one (1) pre-review meeting each (for a total of two meetings) with representatives from the City of Chandler Transportation and Development (T&D) Department (including Building and Civil plan reviewers) and Fire Department to discuss codes and standards requirements and applicable review timing and fees.

110.2 – Summarize Applicable Codes and Standards. Review and summarize key codes and standards as they apply to the subsequent site development detailed design efforts. Consideration will be made relative to future code changes during the duration of the Project (e.g., codes will be evaluated in 2013/2014 but the construction may not commence until 2015). The CITY shall provide direction on appropriate edition of codes for use on the Project, if conflicts arise.

110.3 – Conduct Code Analysis Review Meeting. Conduct one (1) code analysis review meeting with representatives from the applicable CITY Departments to review and reach consensus on the applicable codes, standards, design calculation requirements, and design criteria to be followed during detailed design.

110.4 – Develop Draft Technical Memorandum No. 10 (TM-10). Develop draft TM-10 summarizing the applicable codes and standards. Submit draft TM for CITY review and comment.

***Deliverables*: Draft TM-10**

111 – Discipline Design Criteria

DESIGN CONSULTANT will develop and summarize applicable discipline-specific design criteria to establish relevant and applicable codes, standards, preferences, and general requirements for subsequent design efforts.

111.1 – Sustainability Criteria. Develop and summarize applicable and relevant site-specific sustainability and energy efficiency considerations and general criteria. Building envelopes, mechanical and electrical systems, and other components of the building and site design may follow guidelines established by the U.S. Green Building Council for LEED certification and/or Envision™ sustainable infrastructure rating system by the Institute of Sustainable Infrastructure (ISI), even though the full certification process will most likely not be executed. Sustainability items will only be included where economically viable.

111.2 – Site/Civil Design Criteria. Develop and summarize applicable site/civil design criteria, including site visibility, site grading and drainage, site paving and roadways, parking, plant entrance, traffic routing, yard piping, and other applicable criteria. Incorporate general site utilities and applicable corrosion protection requirements accordingly.

111.3 – Architectural Design Criteria. Develop and summarize applicable architectural design criteria, including applicable codes and standards, and describe the overall architectural program, appearances, and exterior/interior finishes of the various buildings.

111.4 – Landscaping Design Criteria. Develop and summarize applicable landscaping design criteria, including plantings and irrigation system requirements.

111.5 – Structural/Geotechnical Design Criteria. Develop and summarize applicable structural and geotechnical design criteria, including summary of existing geotechnical

investigations, applicable codes and standards, materials of construction, design load parameters, protection of concrete surfaces and other corrosion protection strategies, and other miscellaneous structural design requirements.

111.6 – Process/Mechanical Piping, Valves and Pumping Design Criteria. Develop and summarize applicable process/mechanical piping, valves and pumping design criteria, including applicable codes and standards, and general requirements for chemical compatibility, pipe velocities, pipe supports, connection of pipes to structures, and general valve criteria preferences, including reliability and redundancy requirements.

111.7 – Building Mechanical Design Criteria. Develop and summarize applicable building mechanical design criteria, including applicable codes and standards, and general requirements for heating, ventilation and air conditioning (HVAC), plumbing, fire protection and general building signage preferences, including reliability and redundancy requirements.

111.8 – Electrical Design Criteria. Develop and summarize applicable electrical and energy management design criteria, including applicable codes and standards, and general requirements for power distribution, standby generation, building and site lighting, lightning protection, and other electrical components, including reliability and redundancy requirements.

111.9 – Instrumentation and Controls Design Criteria. Develop and summarize applicable instrumentation and controls design criteria, including general requirements for basic system architecture, networking protocol, PLC and OIS equipment and location, monitoring and control, control system software, field instrumentation and process control panel preferences, including reliability and redundancy requirements.

111.10 – Develop Draft Technical Memorandum No. 11 (TM-11). Develop draft TM-11 summarizing the discipline design criteria. Submit draft TM for CITY review and comment.

***Deliverables*: Draft TM-11**

112 – Design Document Development Plan

DESIGN CONSULTANT will summarize the various document standards, formats, naming conventions, schemes and strategies into an overall Design Document Development Plan, and submit draft plan to the CITY for review and approval prior to initiation of detailed design efforts

112.1 – CADD Standards and Formats. Develop the CADD standards and formats to be followed for all design drawings and associated 3D models, for review and approval by CITY. CADD standards and formats will include drawing sizes, title block and borders, drawing file naming, layering guidelines, standard appearance, coordination requirements, standard abbreviations, symbols and legends, and record-keeping requirements, and will incorporate CITY formats where appropriate.

112.2 – Drawing Nomenclature. Develop the nomenclature for design drawings to be used for the Project, for review and approval by CITY. Nomenclature will include delineation of drawings by specific building and/or plant process area, as well as by discipline, and will identify a sequential numbering scheme.

112.3 – Tag Numbering. Develop a preliminary tag numbering scheme for equipment, valves, and field instrumentation, for review and approval by CITY. Tag numbering scheme will include equipment, valve, or instrument letter abbreviations and numerical identifiers. Discussions with CITY regarding any necessary coordination of CWRF tag

numbering with other established CITY facility tag numbering or comprehensive system-wide monitoring requirements will also be included.

112.4 – BIM Design, Construction and Post-Construction Strategies. Develop potential building information management (BIM) strategies for application of 3D models and intelligent (database-driven) drawings during design, construction and/or post-construction for consideration by the CITY, including potential coordination with CITY's Lucity CMMS system.

112.5 – Design Document Development Plan (TM-12). Develop draft TM-12 summarizing the design document development strategies and requirements. Submit draft TM for CITY review and comment.

***Deliverables*: Draft TM-12**

113 – Basis of Design Report (BDR)

DESIGN CONSULTANT will summarize and document the preliminary alternatives, schematics, layouts, and criteria developed and evaluated in previous tasks into an overall Basis of Design Report (BDR) for CITY review and approval.

113.1 – Draft BDR Preparation and Production. Develop a draft Basis of Design Report (BDR) that includes the following elements.

- Executive summary that identifies the wastewater flow and loading characteristics, anticipated reclaimed water quality limits and performance targets, and other process design criteria.
- Process flow diagrams and schematics for the recommended liquids and solids treatment processes, including preliminary hydraulic profile and mass balances.
- Two (2) overall site layouts depicting the recommended liquids and solids treatment processes, anticipated supporting facilities, and required setbacks, compiled from the preliminary layouts developed in previous tasks. One (1) site layout will depict the Phase 1 facility requirements only. One (1) site layout shall depict the ultimate facility requirements at build out.
- Up to four (4) 3D facility renderings and two (2) fly-through videos of proposed facilities for public outreach. Specific rendering views and video fly-through perspectives will be coordinated with CITY staff.
- All layouts, schematics, and diagrams will be in 11-inch by 17-inch format suitable for inclusion into a bound report.
- Compilation of the anticipated preliminary design criteria for the recommended unit treatment processes and supporting facilities, compiled from the preliminary criteria developed under previous tasks. Selection criteria will include both Phase 1 and ultimate requirements. Also included will be a summary of design flows and loadings, anticipated reclaimed water permit limits, site/environmental conditions, and anticipated code requirements. Criteria shall be in tabular format suitable for inclusion into a bound report.
- Preparation of a budgetary-level preliminary opinion of probable construction cost, with the intention of developing a recommended format and cost trending system to be utilized throughout the entire planning and design phases to reflect additions/deletions from the Project. An appropriate construction cost contingency of the capital subtotal costs will be applied for unforeseen cost items to establish overall direct costs. Appropriate project-related administrative, general conditions, bonds,

insurance and other indirect costs (including design and construction management related fees) will be included to determine a total project cost estimate (TPCE). Costs will be in tabular format suitable for inclusion into a bound report.

- Preparation of estimated annual operation and maintenance (O&M) costs. O&M costs will be estimated for both initial start-up and Phase 1 design capacity conditions. Estimated annual costs will include power, chemicals, and labor (staffing) associated with the O&M of the proposed systems and facilities. Power costs will be based on the anticipated usage at the design conditions, and labor costs will be based on the average estimated O&M requirements for each system. Costs will be in tabular format suitable for inclusion into a bound report.
- Preparation of a preliminary project schedule for design, permitting, early procurement strategies, construction, start-up and commissioning.
- Incorporation of CITY comments on draft TMs prepared under previous tasks, to finalize accordingly, and include as appendices to BDR document.

113.2 – Final TM-9A Production. Upon receipt of written comments, incorporate CITY comments on the draft TM-9A (Site Security) and finalize TM accordingly (excluded from BDR document).

113.3 – Final BDR Production. Upon receipt of written comments, incorporate CITY comments on the draft BDR and finalize report accordingly.

***Deliverables*: Draft and Final BDR; Final TM-9A**

TASK 200 – PRELIMINARY DESIGN DEVELOPMENT

Not Included in this Contract

TASK 300 – DETAILED DESIGN DEVELOPMENT

Not Included in this Contract

TASK 400 – PROJECT MANAGEMENT

DESIGN CONSULTANT will perform various project management and monitoring activities throughout the Programming Phase, as delineated in the following tasks and sub-tasks.

401 – Develop Project Plan

Develop a Project Plan that will identify and detail the proposed project management activities for the duration of the Project. Specific components of the Project Plan will include project background and scope; identification of project team and associated contact information, project schedule of meetings, workshops, submittal milestones and review dates; project budget and task breakdown; communication and interface control; and document control and management. Project Plan will be coordinated with applicable Quality Management Plan (Task 501) and Permitting Assistance Plan (Task 601) accordingly.

Prepare and submit a draft Project Plan to the CITY for review and approval no later than two (2) weeks following receipt of written NTP from the CITY. Upon receipt of comments, submit a final Project Plan to the CITY for distribution.

***Deliverables*: Draft and Final Project Plan**

402 – Project Control and Reporting

Develop monthly progress reports and invoices throughout the Programming Phase that identify the following:

- Work completed since the previous report.
- Work anticipated in the upcoming month.
- Project status, including scheduled and actual percent completes for the major tasks.
- Budget status, including contracted amount, total spent to date, amount remaining, percent spent and actual percent complete.
- Schedule status, including variances in the project schedule by milestone and/or deliverable, and total project.
- Dates of anticipated milestones and/or deliverables in the upcoming month.
- List of coordination and/or information required, including responsible parties.
- List of problems encountered (if any) and proposed resolution, including technical, budgetary and schedule problems.
- List of potential scope changes, including a brief description and reason for change, along with potential impact on budget and schedule.
- List of issues needing resolution, including party(s) involved and date required so as not to impact project schedule.

In addition to monthly status updates, provide abbreviated weekly email updates to CITY lead(s) reporting on current and upcoming weekly activities and key issues.

Develop and maintain Project logs documenting key decisions and action items throughout the Project duration, accessible on the project collaborative website.

***Deliverables:* Monthly Progress Reports and Invoices; Weekly Status Email Updates, Decision Log; Action Log**

403 – Project Schedule

Develop and maintain a project progress schedule during the Programming Phase. The schedule will be developed in MS Project format. Each activity of the scope of services herein, as well as a general listing of tasks required under subsequent Project phases, will be incorporated into the work breakdown structure (WBS) of the schedule. Project timelines, along with identification of task inter-relationships, will be provided in a Gantt format. Schedule will include both original baseline and actual progress.

A draft baseline project schedule will be submitted to the CITY for review and approval no later than two (2) weeks following receipt of written NTP from the CITY. The project schedule will be updated monthly and delivered (both hardcopy and electronically) to the CITY as part of the monthly progress report and invoice. Updated schedule will include initial baseline, actual progress, status of actual versus initial baseline, and projected completion of tasks.

The project schedule will also be maintained and updated throughout subsequent phases of the Project. Once the CMAR is under contract with the CITY, the design schedule and updates will be provided to the CMAR for incorporation into their overall Project schedule.

***Deliverables*: Draft and Final Baseline Project Schedule and Monthly Updates**

404 – Project Meetings and Workshops

Prepare and distribute agendas and minutes for each meeting. Agendas will be submitted to the CITY at least two (2) days prior to the meeting. Minutes will be submitted to the CITY no more than three (3) days following each meeting. Agendas and minutes will also be posted to the collaborative project website for additional access by interested parties.

404.1 – Project Kickoff Meeting. Conduct a project kickoff meeting approximately two (2) weeks following receipt of written NTP from the CITY, in order to allow completion of several draft submittals identified herein. Meeting objectives will be to review the various draft submittals (including the baseline project schedule, Project Plan, and Quality Management Plan); confirm lines of communication; provide tutorial of collaborative project website; and coordinate the schedule of bi-weekly project meetings anticipated throughout the Programming Phase.

404.2 – Bi-weekly Project Meetings. Conduct bi-weekly project meetings with CITY representatives throughout the Programming Phase to keep the CITY informed of the project progress and obtain input and direction as required. Bi-weekly meeting objectives will include the presentation of alternative evaluations for CITY review and approval; results from data collection, and other outstanding project issues. The anticipated number of planned bi-weekly meetings during this phase shall be 12, exclusive of the project kickoff meeting.

404.3 – Supplemental Project Workshops. Conduct additional coordination meetings and workshops with CITY and other project stakeholders as necessary to obtain timely input and feedback on the progression of the Project, including key interaction with CITY operations and maintenance (O&M) staff regarding process alternative evaluations.

***Deliverables*: Meeting Agenda and Summary Notes**

405 – Sub-consultants Management

Prepare and coordinate necessary sub-consultant agreements required for the Project, and manage the sub-consultants throughout the Programming Phase accordingly.

406 – Collaborative Project Website

Develop a collaborative project website during the Programming Phase that will be hosted on the DESIGN CONSULTANT's SharePoint platform in a password-protected area, maintained throughout the entire Project duration, and will be accessible by internal project stakeholders. The website will have document storage, search and retrieval functions for project information. Specific components to be included are:

- Scope of work
- Project correspondence (letters, memoranda, etc.)
- Draft/Final plans and reports
- Intermediate design submittals (drawings, specifications, details, and cost estimates)
- Project schedule (with updates)
- Monthly progress reports
- Meeting agendas and minutes
- Project progress photos

- Other items as determined and as approved by the CITY.

407 – Site Tours

Facilitate site tours of other local water reclamation facilities with CITY staff, as applicable to the process alternative evaluation, including the Ak-Chin WRF and Greenfield WRP (Gilbert), and up to two (2) additional facilities as identified by DESIGN CONSULTANT and CITY. If determined necessary and/or desired by CITY, additional tours or site visits to facilities located outside of Arizona can be conducted as part of Supplemental Services

408 – Council Meetings / Presentations (*if required*)

If required by CITY, prepare relevant materials (i.e. presentation slides, renderings, etc.) regarding Project development for presentation and discussion with City Council and/or other CITY management representatives.

***Deliverables*: Presentation Materials**

TASK 500 – QUALITY MANAGEMENT

DESIGN CONSULTANT will perform various quality management activities throughout the Programming Phase, as delineated in the following tasks and sub-tasks.

501 – Develop Quality Management Plan

Develop a Quality Management Plan (QMP) that will identify and detail the proposed quality management activities for the duration of the Project. Specific components of the QMP will include identification of project personnel responsible for peer reviews and detailed checks; schedule of milestones and review dates; and project standards and design calculations management. Project-specific check comment forms and checking procedure checklists (by discipline) will also be included.

Prepare and submit a draft Quality Management Plan to the CITY for review and approval no later than two (2) weeks following receipt of written NTP from the CITY. Upon receipt of comments, submit a final Quality Management Plan to the CITY for distribution.

***Deliverables*: Draft and Final Quality Management Plan**

502 – Basis of Design Technical Peer Review

502.1 – Technical Peer Review. Facilitate a technical peer review with the Technical Advisors to review the various process alternatives evaluation efforts, including relevant design criteria, layouts, and inter-relationships with current and anticipated future regulatory requirements.

502.2 – Peer Review Workshop. Conduct a one-day technical peer review workshop with key project team members, including Technical Advisors and CITY representatives, to address any issues and concerns identified as part of the technical peer review.

***Deliverables*: Workshop Agenda and Summary Notes**

503 – BDR Document Review

503.1 – Document Quality Check. Facilitate a detailed quality management review of the draft BDR document with the Quality Managers to review content and format, prior to submittal of draft document to the CITY.

503.2 – BDR Review Workshop. Conduct a half-day review workshop with key project team members, including Quality Manager(s) and CITY representatives, to collect and address comments and any outstanding issues associated with the draft BDR document.

***Deliverables*: Workshop Agenda and Summary Notes**

TASK 600 – PERMITTING ASSISTANCE

DESIGN CONSULTANT will perform various permitting coordination and assistance activities throughout the Programming Phase, as delineated in the following tasks and sub-tasks.

601 – Develop Permitting Assistance Plan

Develop a Permitting Assistance Plan (PAP) that will identify and detail the anticipated environmental/regulatory and administrative permits required for the Project, when and how the various permit applications should be prepared and submitted, who will be responsible, and what supporting information and fees will be required by each permit. Plan will identify the required environmental/regulatory permits from the Arizona Department of Environmental Quality (ADEQ), Maricopa County Environmental Services Department (MCESD), Maricopa County Air Quality Department (MCAQD), and if required, Arizona Department of Water Resources (ADWR). Plan will also identify the required administrative permits from the City of Chandler Transportation & Development (T&D) and Fire Departments, including pertinent civil, building and fire reviews.

Prepare and submit a draft Permitting Assistance Plan to the CITY for review and approval. Upon receipt of comments, submit a final Permitting Assistance Plan to the CITY for distribution.

***Deliverables*: Draft and Final Permitting Assistance Plan**

602 – Coordinate MAG 208 Plan Update

Coordinate with CITY staff and the Maricopa Association of Governments (MAG) to update the existing MAG 208 Plan for the new CWRF, based on the proposed 40-mgd build out capacity for the site. Efforts may include participation in public comment meeting(s) and/or coordination meetings with MAG representatives. It is anticipated that no more than three (3) meetings will be required.

***Deliverables*: TBD**

TASK 700 – PUBLIC INVOLVEMENT ASSISTANCE

The purpose of the Public Involvement Program is to aid the project team in their communication with the community surrounding the Project site throughout the duration of the Project. It is the intention of the public involvement portion of the Project to keep affected stakeholders informed of proposed changes to the site, consider comments from and listen to potentially affected interests, and work with the project team to make sure that alternatives are developed which consider the feedback obtained from the public input, as may be requested by the CITY.

701 – Conduct Key Internal Stakeholder Coordination Meeting

Conduct a coordination meeting with key internal project stakeholders, potentially including but not necessarily limited to, the Assistant City Manager, Transportation and Development Director, Municipal Utilities Director, Economic Development Director, Planning & Zoning Administrator, and other key representatives from the City, as

determined by the CITY. Purpose of the meeting will be to solicit input and direction regarding potential inter-relationships with this Project and other CITY projects, goals, objectives, and visioning. Develop and distribute agenda prior to meeting, and document discussions in a meeting notes summary.

***Deliverables*: Meeting Agenda and Summary Notes**

702 – Identify External Project Stakeholders and Issues

Conduct face-to-face and/or telephone interviews with the appropriate CITY representatives, plus conduct no more than 20 selected community leaders and residents, to identify the issues and concerns regarding the Project. Identify specific stakeholders and review list with CITY prior to conducting interviews.

It is anticipated that a Community Advisory Group (CAG) comprised of no more than ten (10) local residents to the surrounding site will be utilized. The number of CAG meetings to be conducted in this initial Programming Phase will be limited to two (2).

***Deliverables:* List of Potential Interviewees; CAG Meeting Agendas and Summary Notes**

703 – Develop Public Involvement Plan

Develop a draft Public Involvement Plan for the Project. The plan will detail the stakeholders that will be involved in the process, and when and how they will be involved. The plan will be divided into three primary phases – project purpose and alternative identification; alternative selection; and preliminary design. Plan will include requirements related to public communications, including potential public access to project website, quarterly project newsletters, e-mail notifications, public forums, and open house(s).

Prepare and submit a draft Public Involvement Plan to the CITY for review and approval. Upon receipt of comments, submit a final Public Involvement Plan to the CITY for distribution.

***Deliverables*: Draft and Final Public Involvement Plan**

EXHIBIT A-1

PROJECT TEAM PERSONNEL

DESIGN CONSULTANT will not change the designated personnel identified below without prior written approval of the CITY. Modifications to the project team, sub-consultants identified, or their respective scopes of services, either by adding, deleting or changing, will require prior written approval from the City.

TITLE / RESPONSIBILITY	NAME
Carollo Engineers	
Principal-in-Charge / Project Director	Dave Sobeck
Project Manager	Russ Wachter
Project Engineer	Andrew Gilmore
Process Modeling	Carlos Lopez
Permitting / Cost Estimating	Lisa Snyders
Lead – BNR / Secondary Treatment	Jessica Dresang
Lead – Tertiary Treatment	Zhuang Liu
Lead – Solids Handling	Chad Meyer
Lead Architect	Jeff Alband
Lead Site/Civil	Judd Hunemuller
Lead Structural	David Geisler
Lead HVAC/Plumbing	Harry Rice
Quality Manager	John Puzauskas
Quality Manager	George Shirley
Quality Manager	Thom Besett
Technical Advisor	John Fraser
Technical Advisor	Rod Reardon
Technical Advisor	Jean Marc Petit
Wilson Engineers	
Lead – IPS / Headworks	Uday Gandhe
Electrical / I&C	Michael Churchill
Constructability	Ed McCurdy
Makinen Professional Services	
Public Involvement	Teresa Makinen
KC Environmental	
Technical Advisor	Kevin Deeny
Enterprise Protection Associates	
Site Security	John Saunders
Southwest Groundwater Consultants	
ASR / Recharge	Bill Greenslade

EXHIBIT A-2
CITY RESPONSIBILITIES

The following items to be completed by the CITY are intended to ensure that the DESIGN CONSULTANT is provided the opportunity and information to complete scope of work as set forth in **Exhibit A**:

1. As requested, aid the DESIGN CONSULTANT in gaining access to and making provisions for the DESIGN CONSULTANT to enter upon public and private land as required for the DESIGN CONSULTANT to perform its work under this CONTRACT.

2. Review and provide written comments to DESIGN CONSULTANT's questions, draft and interim submittals, and other design review materials in a timely manner within the appropriate review/comment period(s) as identified on the Project Schedule.

3. Furnish, to the extent reasonable, available copies of all calculations, reports and data applicable to the new CWRF, including but not limited to, facility integration with OWRF and/or AWRF facilities (if available).

4. Furnish copies of previous soils reports (if available).

5. Furnish information regarding CITY utilities (existing and/or proposed) near the proposed CWRF site.

6. Furnish available information regarding proposed municipal and industrial wastewater discharges, including estimated average and peak flows, locations of discharge points, and estimated wastewater characteristics.

7. Obtain all easements and rights-of-way (as applicable).

8. Pay directly all CITY T&D and Fire Department review fees (for civil, building and fire plan reviews) not specifically included in the CMAR guaranteed maximum price (GMP).

9. Furnish authorization for DESIGN CONSULTANT to discuss project details with and obtain information from utilities, including power supplier (SRP). Authorization will not include decision-making by DESIGN CONSULTANT.

EXHIBIT B
FEE SCHEDULE

DIRECT LABOR			SUBTOTAL
Task 100 Series - Programming Phase Development			**$727,274**
101	Wastewater Flow and Loading Characterization		***$30,160***
	101.1	Compile Flow Projections	$4,610
	101.2	Establish Design Flows and Peaking Factors	$1,660
	101.3	Review Existing Water Quality Analytical Data	$2,870
	101.4	Establish Design Water Quality Concentrations and Loadings	$1,660
	101.5	Develop System Optimization Model	$12,800
	101.6	Develop Draft TM-1	$6,560
102	Reclaimed Water Management		***$14,470***
	102.1	Confirm Reclaimed Water and Reuse Projections and Demands	$2,690
	102.2	Evaluate Storage Projections and Criteria	$2,690
	102.3	Confirm Reclaimed Water Quality Limitations or Constraints	$2,690
	102.4	Develop Draft TM-2	$6,400
103	Solids Management		***$25,584***
	103.1	Confirm Solids Handling and Disposal Strategies	$6,986
	103.2	Evaluate Dewatering Schedule Issues and Constraints	$2,162
	103.3	Evaluate Solids Recycle Stream Impacts	$2,532
	103.4	Treatment Goals and Strategies Review Workshop	$6,444
	103.5	Develop Draft TM-3	$7,460
104	Process Modeling and Mass Balances		***$38,344***
	104.1	Perform Process Modeling	$15,920
	104.2	Develop Mass Balances	$4,840
	104.3	Process Modeling Review Workshop	$9,544
	104.4	Develop Draft TM-4	$8,040
105	Liquids Stream Treatment Processes		***$132,292***
	105.1	Evaluate Treatment Process Train Alternatives	$57,280
	105.2	Develop Alternative Site Layout Requirements	$18,728
	105.3	Perform Preliminary Hydraulic Modeling	$10,220
	105.4	Conduct Process Alternative Workshop	$13,824
	105.5	Develop Design Criteria for Selected Alternatives	$5,160
	105.6	Perform Process Peer Review	$13,560
	105.7	Develop Draft TM-5	$13,520
106	Solids Stream Treatment Processes		***$122,072***
	106.1	Evaluate Treatment Process Train Alternatives	$57,280
	106.2	Develop Alternative Site Layout Requirements	$18,728
	106.3	Conduct Process Alternative Workshop	$13,824
	106.4	Develop Design Criteria for Selected Alternatives	$5,160
	106.5	Perform Process Peer Review	$13,560

	106.6	Develop Draft TM-6	$13,520
107	Support Facilities and Utilities		***$50,572***
	107.1	Administrative Facilities	$4,752
	107.2	Maintenance / Storage Facilities	$1,584
	107.3	Laboratory Facilities	$1,584
	107.4	Chemical Storage and Feed Facilities	$4,852
	107.5	Plant Drain System	$3,160
	107.6	Storm Water Management and Retention	$2,740
	107.7	Potable Water	$1,450
	107.8	Non-Potable Water	$1,450
	107.9	Compressed and Instrument Air	$740
	107.10	Natural Gas	$740
	107.11	Support Facilities and Utilities Review Workshop	$9,544
	107.12	Develop Draft TM-7	$17,976
108	Electrical / Instrumentation and Controls System Strategies		***$52,800***
	108.1	Power Needs Assessment	$8,240
	108.2	Coordination with SRP	$3,280
	108.3	Plant Control System Architecture	$7,600
	108.4	Control and Monitoring Strategies	$8,240
	108.5	Site Communications	$4,440
	108.6	EI&C Review Workshop	$8,460
	108.7	Develop Draft TM-8	$12,540
109	Site Aesthetic Concepts		***$87,878***
	109.1	Odor Control	$9,592
	109.2	Noise Abatement	$5,324
	109.3	Building Architecture	$15,748
	109.4	Site Screening and Berming	$5,780
	109.5	Landscape Architecture	$1,800
	109.6	Traffic Routing	$6,946
	109.7	Site Lighting	$4,280
	109.8	Site Security	$3,320
	109.9	Site Aesthetics Review Workshops (2 total)	$13,664
	109.10	Develop Draft TM-9	$17,424
	109.11	Develop Draft TM-9A (Site Security)	$4,000
110	Codes and Standards Review (Could be deferred to Preliminary Design)		***$20,362***
	110.1	Pre-Review Meetings with CoC T&D and Fire Depts (2 total)	$4,710
	110.2	Summarize Applicable Codes and Standards	$7,692
	110.3	Conduct Code Analysis Review Meeting	$3,140
	110.4	Develop Draft TM-10	$4,820
111	Discipline Design Criteria (Could be deferred to Preliminary Design)		***$64,344***
	111.1	Sustainability Criteria	$6,660
	111.2	Site/Civil Design Criteria	$8,460

	111.3	Architectural Design Criteria	$6,012
	111.4	Landscaping Design Criteria	$1,260
	111.5	Structural/Geotechnical Design Criteria	$7,180
	111.6	Process/Mechanical Piping, Valves and Pumping Design Criteria	$6,012
	111.7	Building Mechanical Design Criteria	$5,700
	111.8	Electrical Design Criteria	$7,180
	111.9	Instrumentation and Controls Design Criteria	$7,180
	111.10	Develop Draft TM-11	$8,700
112	Design Document Development Plan (Could be deferred to Preliminary Design)		***$27,320***
	112.1	CADD Standards and Formats	$5,340
	112.2	Drawing Nomenclature	$3,640
	112.3	Tag Numbering	$3,640
	112.4	BIM Design, Construction and Post-Construction Strategies	$7,060
	112.5	Design Document Development Plan (TM-12)	$7,640
113	Basis of Design Report (BDR)		***$61,076***
	113.1	Draft BDR Preparation and Production	$46,064
	113.2	Final TM-9A Production	$4,000
	113.3	Final BDR Production	$11,012
	Task 400 Series - Project Management		**$83,140**
401	Develop Project Plan		***$3,540***
402	Project Control and Reporting		***$4,290***
403	Project Schedule		***$2,330***
404	Project Meetings and Workshops		***$45,680***
	404.1	Project Kickoff Meeting	$4,920
	404.2	Bi-Weekly Project Meetings (Assume 12 total)	$34,680
	404.3	Supplemental Project Workshops	$6,080
405	Sub-consultants Management		***$2,940***
406	Collaborative Project Website		***$9,120***
407	Site Tours		***$8,860***
408	Council Meetings / Presentations		***$6,380***
	Task 500 Series - Quality Management		**$83,580**
501	Develop Quality Management Plan		***$6,400***
502	Basis of Design Technical Peer Review		***$42,252***
	502.1	Technical Peer Review	$25,164
	502.2	Peer Review Workshop	$17,088
503	BDR Document Review		***$34,928***
	503.1	Document Quality Check	$22,080
	503.2	BDR Review Workshop	$12,848

	Task 600 Series - Permitting Assistance	**$15,200**
601	Develop Permitting Assistance Plan	***$11,080***
602	Coordinate MAG 208 Plan Update	***$4,120***
	Task 700 Series - Public Involvement Assistance	**$8,140**
701	Conduct Key Internal Stakeholder Coordination Meeting	***$2,860***
702	Identify External Project Stakeholders and Issues	***$980***
703	Develop Public Involvement Plan	***$4,300***
	DIRECT LABOR TOTAL	**$917,334**
	ALLOWANCES	
1	Travel & Subsistence	$7,500
2	Reimbursable mileage	$2,500
3	Reproductions	$5,000
4	J2 Environmental Design (Landscaping)	$3,000
5	MakPro Services (Public Involvement)	$20,000
6	Enterprise Protection Assoc. (Security)	$7,500
7	KC Environmental (Tech Advisor)	$7,500
8	Southwest Groundwater (ASR/Recharge)	$2,000
9	Owner's Allowance	$25,000
	ALLOWANCES TOTAL	**$80,000**
	PROJECT TOTAL	**$997,334**

Direct labor shall be billed at hourly rates consistent with separate annual contract, EN1309-101, hourly rates with the City. All direct cost expenses, such as allowances 1 thru 3, shall be billed at cost with no markup. All sub-consultants fee will be billed with a 5% markup in addition to Task 405 Sub-consultant management.

EXHIBIT C

Consultant Immigration Warranty

To Be Completed by Consultant Prior to Execution of Contract

A.R.S. § 41-4401 requires as a condition of your contract verification of compliance by the Consultant and subcontractors with the Federal Immigration and Nationality Act (FINA), all other Federal immigration laws and regulations, and A.R.S. § 23-214 related to the immigration status of its employees.

By completing and signing this form the Consultant shall attest that it and all subcontractors performing work under the cited contract meet all conditions contained herein.

Project Number/Division: WW1301-102	
Company Name (as listed in the contract): Carollo Engineers, Inc.	
Street Name and Number: 4600 E. Washington St. Suite 500	
City: Phoenix **State:** AZ	**Zip Code:** 85034

I hereby attest that:

1. The Consultant complies with the Federal Immigration and Nationality Act (FINA), all other Federal immigration laws and regulations, and A.R.S. § 23-214 related to the immigration status of those employees performing work under this contract;

2. All subcontractors performing work under this contract comply with the Federal Immigration and Nationality Act (FINA), all other Federal immigration laws and regulations, and A.R.S. § 23-214 related to the immigration status of their employees; and

3. The Consultant has identified all Consultant and subcontractor employees who perform work under the contract and has verified compliance with Federal Immigration and Nationality Act (FINA), all other Federal immigration laws and regulations, and A.R.S. § 23-214.

Signature of Consultant (Employer) or Authorized Designee:

Printed Name: Russell A. Wachter

Title: Executive Vice President

Date (month/day/year): 10/10/2013