

STAFF REPORT



CITY OF OCEANSIDE

DATE: January 30, 2013

TO: Honorable Mayor and City Councilmembers

FROM: Cari Dale, Water Utilities Department

SUBJECT: **APPROVAL OF A PROFESSIONAL SERVICES AGREEMENT WITH CAROLLO ENGINEERS IN AN AMOUNT NOT TO EXCEED \$1,179,279 TO PREPARE THE WATER, SEWER AND RECYCLED WATER MASTER PLANS; APPROVE ADDITIONAL FUNDING OF \$148,655 FOR THE OPTIONAL TASK FOR THE MORRO HILLS SEWER EVALUATION; AND ADOPTION OF A RESOLUTION AUTHORIZING APPLICATION TO THE STATE WATER RESOURCES CONTROL BOARD TO OBTAIN A RECYCLED WATER PLANNING GRANT TO OFFSET COSTS FOR THE RECYCLED WATER MASTER PLAN**

SYNOPSIS

Staff recommends that the City Council approve a professional services agreement with Carollo Engineers of Oceanside in an amount not to exceed \$1,179,279 to update the Water, Sewer and Recycled Water Master Plans (Exhibit A); approve and assign a funding source for the optional task for the Morro Hills sewer evaluation (Exhibit B); authorize the City Manager to execute the agreement; and adopt a resolution authorizing an application to the State Water Resources Control Board to obtain a recycled water planning grant to offset costs for the Recycled Water Master Plan (Exhibit C).

BACKGROUND

The City Council approved the current Integrated Water Utilities Master Plans on July 9, 2008. The 2007 master plans were prepared using a detailed analysis of the City's existing and future land use, projected population, water and wastewater demands, water supply, distribution and storage, recycled water and groundwater recharge, wastewater collection system, treatment plants and lift stations, ocean outfall and groundwater basin.

Since the master plans and long-range financial plan were adopted in 2007, Council goals have shifted to include an increased focus on local water supply development affecting planning efforts of both the Water and the Recycled Water Master Plans. In addition, the plans need to be updated to reflect current census data, changed conditions in the community, and the development which has occurred since the last analysis.

The City Council voted on November 9, 2011, to include an optional task within the Master Plan Request for Proposals to evaluate the sewer requirements necessary for potential development and build out in the Morro Hills area. This optional task needs approval and authorization by Council for inclusion in the scope of work and determination of the funding source for this optional task.

ANALYSIS

Updated Water, Wastewater and Recycled Water Master Plans are essential in identifying the Water Utilities Department's short-term and long-term capital priorities. The new plans will update the 2007 Water, Wastewater and Recycled Water Master Plans, assess asset conditions and infrastructure needing upgrades, and fold recent condition assessments conducted at the City's four treatment plants into a comprehensive asset replacement schedule.

In addition to the upgrades in the Water Master Plan, the following components will also be addressed as part of our local water resources development: ocean desalination and its co-location at the Mission Basin Groundwater Purification Facility, and update of the Reclaimed Water Master Plan to include the planning efforts already undertaken as part of the North San Diego County Regional Recycled Water Project. These components are necessary to plan for the delivery of reclaimed water to various parts of the City. The Wastewater Master Planning effort will also update the current Wastewater Master Plan to reflect the changes in the present and future growth of the City. As directed by Council, staff met with representatives from the Morro Hills area to develop language for an optional task in the Sewer Master Plan proposal which would evaluate the service needs for the Morro Hills area and provide recommendations, including costs, relative to necessary improvements to water and wastewater systems for the area over the next 5-10 years and potential future build-out.

On October 5, 2012, staff solicited engineering proposals from eleven engineering firms to prepare the Water, Wastewater and Recycled Water Master Plans (Exhibit D). The firms were selected from a list compiled by the City of Oceanside's Engineering Department using the City's selection procedures for professional services. All Oceanside firms providing engineering services were invited to participate. Three proposals were received. The three firms submitting proposals were Infrastructure Engineering Corporation, Nolte Vertical Five, and Carollo Engineers. Two of the Oceanside firms elected to submit proposals and one other Oceanside firm elected to participate as a sub-consultant to the proposing firms.

Because of the importance of the project, a review committee of professionals from the City was formed to review the proposals. The Review Committee evaluated the proposals and one firm was invited for an oral interview based on committee scores. Upon completion of the interview, the review committee was unanimous in recommending Carollo Engineers as the firm to provide the engineering services in preparing the Water, Wastewater and Recycled Water Master Plans. Carollo Engineers, combined with RMC Water and Environment as their sub-consultant, provide the best combination of expertise to perform these engineering services.

Staff also met with interested parties from Morro Hills, including South Morro Hills Association, Mellano & Company, Singh Property Management Company, Richard F. Campbell Trust, Nagata Bros LLC, Swift Properties, Inc., Self-Realization Fellowship, Jerry I. Schaefer, and citizens expressing interest including Jack E. Wackerman, Thomas Rodriguez, Larry and Johnny Zamora and the Eubank Family, regarding the optional task and the cost of the work.

Concurrently, staff is requesting that Council approve a grant application in an amount of up to \$75,000 to the State Water Resources Control Board for a Recycled Water Planning Grant to offset costs associated with the update of the Recycled Water Master Plan. The City will be notified by the State within 90 days whether the grant is approved, and all costs incurred after approval are eligible for reimbursement at 50 percent of the expenditure up to the \$75,000 grant limit.

FISCAL IMPACT

For FY 2012-13, account 908122300710 Water Master Plan currently has a Council approved available budget of \$977,358. An additional \$475,000 will be required with \$237,500 transferred from available reserves in Fund 712 (Water F/A Replacement) and \$237,500 transferred from available reserves in Fund 715 (Water Connection Fees) for a total of \$1,452,358.

For FY 2012-13, account 909123200710 Wastewater Master Plan currently has a Council approved available budget of \$365,500 with \$182,750 coming from Fund 722 (Sewer F/A Replacement) and Fund 726 (Sewer Expansion/Improvement). The available combined total for the Water Master Plan (908122300710) and the Wastewater Master Plan (909123200710) is \$1,817,858.

The grant from the State Water Resources Control Board, if approved, is anticipated to offset \$75,000 in expenditures.

Total cost for the project is \$1,179,279 so there are budgeted funds available. If the grant is not approved there are still adequate funds available for the project. The total project cost includes \$148,655 for a Morro Hills Sewer Evaluation Study. This additional cost is solely for the benefit of the Morro Hills Area and will be recovered through increases in future development impact fees assessed to all future development in the Morro Hills Area.

COMMISSION OR COMMITTEE REPORT

The Utilities Commission was provided a Master Plan project update at its regularly scheduled meeting on November 13, 2012.

CITY ATTORNEY'S ANALYSIS

The referenced documents have been reviewed by the City Attorney and approved as to form.

INSURANCE REQUIREMENTS

The City's standard insurance requirements will be met.

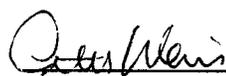
RECOMMENDATION

Staff recommends that the City Council approve a professional services agreement with Carollo Engineers of Oceanside in an amount not to exceed \$1,179,279 to update the Water, Sewer and Recycled Water Master Plans; approve and assign a funding source for the optional task for the Morro Hills sewer evaluation; authorize the City Manager to execute the agreement; and adopt a resolution authorizing an application to the State Water Resources Control Board to obtain a recycled water planning grant to offset costs for the Recycled Water Master Plan.

PREPARED BY:

SUBMITTED BY:

per 
Cari Dale
Water Utilities Director


Peter Weiss
City Manager

REVIEWED BY:

Michelle Skaggs Lawrence, Deputy City Manager



Teri Ferro, Finance Director



- Exhibit A: Professional Services Agreement
- Exhibit B: Morro Hills Sewer Evaluation Scope and Fee
- Exhibit C: Resolution
- Exhibit D: Consultant Rating Form

CITY OF OCEANSIDE

PROFESSIONAL SERVICES AGREEMENT

PROJECT: UPDATE WATER, WASTEWATER, AND RECYCLED WATER MASTER PLANS (908122300710 & 909123200710)

THIS AGREEMENT is made and entered into this _____ day of _____, 2012, by and between the CITY OF OCEANSIDE, a municipal corporation, hereinafter designated as "CITY", and CAROLLO ENGINEERS, hereinafter designated as "CONSULTANT".

RECITALS

- A. CITY desires to obtain professional engineering services from an independent contractor for the above named project.
- B. CONSULTANT has submitted a proposal to provide engineering services for the CITY in accordance with the terms set forth in this Agreement.
- C. CITY desires to contract with CONSULTANT as an independent contractor and CONSULTANT desires to provide services to CITY as an independent contractor.
- D. CONSULTANT has demonstrated its competence and professional qualifications necessary for the satisfactory performance of the services designated herein by virtue of its experience, training, education and expertise.

NOW, THEREFORE, THE PARTIES MUTUALLY AGREE AS FOLLOWS:

- 1.0 **SCOPE OF WORK.** The CONSULTANT desires to provide professional engineering services in the preparation updated Water Utilities Master Plan that will encompass Water, Wastewater, and Reclaimed Water; and preparation of the Morro Hills System Evaluation. The services to be provided are more particularly described in CONSULTANT's proposals dated December 10, 2012, and January 11, 2013, attached hereto and incorporated herein respectively as Exhibit "A" and "B".
- 1.1 **PROFESSIONAL SERVICES PROVIDED BY CONSULTANT.** The professional services to be performed by CONSULTANT shall consist of but not be limited to the following:
 - 1.1.1 Work closely with the City Engineer in performing work in accordance with this Agreement in order to receive clarification as to the result which the CITY expects to be accomplished by CONSULTANT. The City Engineer, under the authority of

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the City Manager, shall be the CITY'S authorized representative in the

interpretation and enforcement of all work performed in connection with this Agreement. The City Engineer may delegate authority in connection with this Agreement to the City Engineer's designees. For the purposes of directing the CONSULTANT'S performance in accordance with this Agreement, the City Engineer delegates authority to Jason Dafforn.

- 1.1.2 In compliance with Government Code section 7550, the CONSULTANT shall include a separate section in the proposal prepared pursuant to this Agreement, which contains a list of all the subcontractors and dollar amounts of all contracts and subcontracts required for the preparation of work described in this Agreement.
- 1.1.3 Visit and carefully examine the location of the project as often as necessary to become acquainted with all conditions which are visible or could reasonably be discovered, and which might have an impact upon the construction of the project.
- 1.1.4 Prepare and submit to the City Engineer, the Integrated Water Utilities Master Plan for the project as described in the Scope of Work, and in the time and manner set forth in this Agreement.
- 1.1.5 Attend meetings with the City Engineer or his designees.
- 1.2 **SERVICES PROVIDED BY CITY.** The CITY shall perform the following services:
 - 1.2.1 Provide access to all public improvement plans and records and furnish one copy of drawings and reports requested.
 - 1.2.2 Obtain all necessary permits from other regulatory agencies and other Departments. CONSULTANT shall participate in the completion of such forms but CITY will submit these and pay for any applicable fees.
 - 1.2.3 Upon request, verify the location of existing CITY owned utilities.
 - 1.2.4 Provide all legal advertising mailings and postings required.
 - 1.2.5 Provide overall project management.
- 2.0 **TIMING REQUIREMENTS.**
 - 2.1 Time is of the essence in the performance of work under this Agreement and the following timing requirements shall be strictly adhered to unless otherwise modified in writing as set forth in Section 2.12. Failure by CONSULTANT to

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strictly adhere to these timing requirements may result in termination of this Agreement by the CITY and the assessment of damages against the CONSULTANT for delays.

- 2.2 Phase I. CONSULTANT shall prepare and deliver a project schedule, outline and table of content to the City Engineer within thirty (30) calendar days of the execution of this Agreement. No work shall be performed by CONSULTANT beyond the Phase I stage until the City Engineer has given written approval of the deliverables and authorization to perform phase II.
 - 2.2.1 Phase II. CONSULTANT shall prepare and deliver a copy of the draft Master Plan to the City Engineer within two hundred and forty (240) calendar days of the execution of this Agreement. No work shall be performed by CONSULTANT beyond the Phase II stage until the City Engineer has given written authorization to perform Phase III.
 - 2.2.2 Phase III. CONSULTANT shall prepare and deliver the final Water, Wastewater and Recycled Water Master Plans to the City Engineer within three hundred and sixty (360) calendar days of the City Engineer's written authorization to perform Phase III.
- 2.3 CONSULTANT shall submit all requests for extensions of time for performance in writing to the City engineer no later than ten (10) calendar days after the start of the condition which purportedly caused the delay, and not later than the date on which performance is due. The City Engineer shall review all such requests and may grant reasonable time extensions for unforeseeable delays which are beyond CONSULTANT'S control.
- 2.4 For all time periods not specifically set forth herein, the CONSULTANT shall respond in the most expedient and appropriate manner under the circumstances, by telephone, fax hand delivery or mail.
- 3.0 **DESIGN CRITERIA AND STANDARDS.** All work shall be performed in accordance with applicable CITY, state and federal codes and criteria. In the performance of its professional services, CONSULTANT shall use the degree of care and skill ordinarily exercised by CONSULTANT under similar conditions.
- 4.0 **INDEPENDENT CONTRACTOR.** CONSULTANT'S relationship to the CITY shall be that of an independent contractor. CONSULTANT shall have no authority, express or implied, to act on behalf of the CITY as an agent, or to bind the CITY to any obligation whatsoever, unless specifically authorized in writing by the City Engineer. The CONSULTANT shall not be authorized to communicate directly with, nor in any way direct the actions of, any bidder or the

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construction contractor for this project without the prior written authorization by the City Engineer. CONSULTANT shall be sole responsible for the performance of any of its employees, agents or subcontractors under this agreement.

CONSULTANT shall report to the CITY any and all employees, agents and consultants performing work in connection with this project, and all shall be subject to the approval of the CITY.

- 5.0 **CITY BUSINESS LICENSE.** Prior to the commencement of any work under this agreement, the CONSULTANT shall obtain and present a copy of an Oceanside City Business License to the City Engineer.
- 6.0 **WORKERS' COMPENSATION.** Pursuant to Labor Code section 1861, the CONSULTANT hereby certifies that the CONSULTANT is aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code, and the CONSULTANT will comply with such provisions and provide certification of such compliance as a part of these Award Documents. The certification shall be in accordance with Subsections 7.3 through 7.8 of this Agreement.
- 7.0 **LIABILITY INSURANCE.**
- 7.1 CONSULTANT shall, throughout the duration of this Agreement, maintain comprehensive general liability and property damage insurance, or commercial general liability insurance, covering all operations of CONSULTANT, its agents and employees, performed in connection with this Agreement including, but not limited to, premises and automobile.
- 7.2 CONSULTANT shall maintain liability insurance in the following minimum limits:

Comprehensive General Liability Insurance
(bodily injury and property damage)

Combined Single Limit Per Occurrence	\$ 1,000,000
General Aggregate	\$ 2,000,000*

Commercial General Liability Insurance
(bodily injury and property damage)

General limit per occurrence	\$ 1,000,000
General limit project specific	\$ 2,000,000

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Automobile Liability Insurance

\$ 1,000,000

*General aggregate per year, or part thereof, with respect to losses or other acts or omissions of CONSULTANT under this Agreement.

- 7.3 If coverage is provided through a Commercial General Liability Insurance policy, a minimum of 50% of each of the aggregate limits shall remain available at all times. If over 50% of any aggregate limit has been paid or reserved, the CITY may require additional coverage to be purchased by the CONSULTANT to restore the required limits. The CONSULTANT shall also notify the CITY'S Project Manager promptly of all losses or claims over \$25,000 resulting from work performed under this contract, or any loss or claim against the CONSULTANT resulting from any of the CONSULTANT'S work.
- 7.4 All insurance companies affording coverage to the CONSULTANT for the purposes of this Section shall add the City of Oceanside as "additional insured" under the designated insurance policy for all work performed under this Agreement. Insurance coverage provided to the CITY as an additional insured shall be primary insurance and other insurance maintained by the CITY, its officers, agents and employees shall be excess only and not contributing with insurance provided pursuant to this Section.
- 7.5 All insurance companies affording coverage to the CONSULTANT pursuant to this Agreement shall be insurance organizations authorized by the Insurance Commissioner of the State of California to transact business of insurance in the state or be rated as A-X or higher by A.M. Best.
- 7.6 All insurance companies affording coverage shall provide thirty (30) days written notice to the CITY should the policy be cancelled before the expiration date. For the purposes of this notice requirement, any material change in the policy prior to the expiration shall be considered a cancellation.
- 7.7 CONSULTANT shall provide evidence of compliance with the insurance requirements listed above by providing a Certificate of Insurance, in a form satisfactory to the City Attorney, concurrently with the submittal of this Agreement.
- 7.8 CONSULTANT shall provide a substitute Certificate of Insurance no later than thirty (30) days prior to the policy expiration date. Failure by the CONSULTANT to provide such a substitution and extend the policy expiration date shall be considered a default by CONSULTANT and may subject the CONSULTANT to a suspension or termination of work under the Agreement.

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7.9 Maintenance of insurance by the CONSULTANT as specified in this Agreement shall in no way be interpreted as relieving the CONSULTANT of any responsibility whatsoever and the CONSULTANT may carry, at its own expense, such additional insurance as it deems necessary.

8.0 **PROFESSIONAL ERRORS AND OMISSIONS INSURANCE.** Throughout the duration of this agreement and four (4) years thereafter, the CONSULTANT shall maintain professional errors and omissions insurance for work performed in connection with this Agreement in the minimum amount of One Million dollars (\$1,000,000).

CONSULTANT shall provide evidence of compliance with these insurance requirements by providing a Certificate of Insurance.

9.0 **CONSULTANT'S INDEMNIFICATION OF CITY.** To the greatest extent allowed by law, CONSULTANT shall indemnify and hold harmless the CITY and its officers, agents and employees against all claims or lawsuits for damages to persons or property arising out of CONSULTANT'S work, including negligent acts, errors, omissions or wrongful acts or conduct of the CONSULTANT or its employees, agents, subcontractors or others in connection with the execution of the work covered by this Agreement, except for those claims arising from the willful misconduct, sole negligence or active negligence of the CITY, its officers, agents or employees. CONSULTANT'S indemnification shall include any and all costs, expenses, expert fees, attorneys' fees and liability assessed against or incurred by the CITY, its officers, agents or employees in defending against such claims or lawsuits, whether the same proceed to judgment or not. Further, CONSULTANT, at its own expense, shall, upon written request by the CITY, defend any such suit or action brought against the CITY, its officers, agents or employees founded upon, resulting or arising from the conduct, tortious acts or omissions of the CONSULTANT.

CONSULTANT'S indemnification of CITY shall not be limited by any prior or subsequent declaration by the CONSULTANT.

10.0 **ERRORS AND OMISSIONS.** In the event that the City Engineer determines that the CONSULTANT'S negligence, misconduct, errors or omissions in the performance of work under this Agreement has resulted in expense to CITY greater than would have resulted if there were no such negligence, errors or omissions in the plans or contract specifications, CONSULTANT shall reimburse CITY for the additional expenses incurred by the CITY, including engineering, construction and/or restoration expense. Nothing herein is intended to limit CITY'S rights under Sections 7, 8 or 9.

**Update Water, Wastewater, and Recycled
Water Master Plans (908122300710 & 909123200710)**

11.0 **NO CONFLICT OF INTEREST.** The CONSULTANT shall not be financially interested in any other CITY contract for this project. For the limited purposes of interpreting this section, the CONSULTANT shall be deemed a “City officer or employee”, and this Section shall be interpreted in accordance with Government Code section 1090. In the event that the CONSULTANT becomes financially interested in any other CITY contract for this project, that other contract shall be void. The CONSULTANT shall indemnify and hold harmless the CITY, under Section 9 above, for any claims for damages resulting from the CONSULTANT’S violation of this Section.

12.0 **OWNERSHIP OF DOCUMENTS.** All plans and specifications, including details, computations and other documents, prepared or provided by the CONSULTANT under this Agreement shall be the property of the CITY. The CITY agrees to hold the CONSULTANT free and harmless from any claim arising from any use, other than the purpose intended, of the plans and specifications and all preliminary sketches, schematics, preliminary plans, architectural perspective renderings, working drawings, including details, computation and other documents, prepared or provided by the CONSULTANT. CONSULTANT may retain a copy of all material produced under this Agreement for the purpose of documenting their participation in this project.

13.0 **COMPENSATION.**

13.1 For work performed by CONSULTANT in accordance with this Agreement, CITY shall pay CONSULTANT in accordance with the schedule of billing rates set forth in Exhibits “A” and “B”, attached hereto and incorporated herein by reference. No rate changes shall be made during the term of this Agreement without prior written approval of the City Engineer. CONSULTANT’S compensation for all work performed in accordance with this Agreement shall not exceed the total contract price of \$1,179,279.

No work shall be performed by CONSULTANT in excess of the total contract price without prior written approval of the City Engineer. CONSULTANT shall obtain approval by the City Engineer prior to performing any work which results in incidental expenses to CITY as set forth in Section 13.2.2.

13.2 CONSULTANT shall maintain accounting records including the following information:

13.2.1 Names and titles of employees or agents, types of work performed and times and dates of all work performed in connection with this Agreement which is billed on an hourly basis.

**Update Water, Wastewater, and Recycled
Water Master Plans (908122300710 & 909123200710)**

13.2.2 All incidental expenses including reproductions, computer printing, postage, mileage and subsistence.

13.3 CONSULTANT'S accounting records shall be made available to the City Engineer for verification of billings, within a reasonable time of the City Engineer's request for inspection.

13.4 CONSULTANT shall submit monthly invoices to CITY. CITY shall make partial payments to CONSULTANT not to exceed the total contract price within thirty (30) days of receipt of invoice, subject to the approval of the City engineer, and based upon the following partial payment schedule:

13.4.1 Prior to submittal of the project schedule, outline and table of content, partial payments shall not exceed \$100,000.

13.4.2 Prior to submittal of the draft master plans, partial payments shall not exceed \$575,000.

13.4.3 Final payment shall be made to CONSULTANT upon Consultant's delivery of the completed Water, Wastewater, and Recycled Water Master Plans to the satisfaction of the City Engineer.

14.0 **TERMINATION OF AGREEMENT.** Either party may terminate this Agreement by providing thirty (30) days written notice to the other party.

If any portion of the work is terminated or abandoned by the CITY, then the CITY shall pay CONSULTANT for any work completed up to and including the date of termination or abandonment of this Agreement, in accordance with Section 13. The CITY shall be required to compensate CONSULTANT only for work performed in accordance with the Agreement up to and including the date of termination.

15.0 **ASSIGNMENT AND DELEGATION.** This Agreement and any portion thereof shall not be assigned or transferred, nor shall any of the CONSULTANT'S duties be delegated, without the express written consent of the CITY. Any attempt to assign or delegate this Agreement without the express written consent of the CITY shall be void and of no force or effect. A consent by the CITY to one assignment shall not be deemed to be a consent to any subsequent assignment.

This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective successors and assigns.

**Update Water, Wastewater, and Recycled
Water Master Plans (908122300710 & 909123200710)**

16.0 **ENTIRE AGREEMENT.** This Agreement comprises the entire integrated understanding between CITY and CONSULTANT concerning the work to be performed for this project and supersedes all prior negotiations, representations or agreements.

17.0 **INTERPRETATION OF THE AGREEMENT.** The interpretation, validity and enforcement of the Agreement shall be governed by and construed under the laws of the State of California. The Agreement does not limit any other rights or remedies available to CITY.

The CONSULTANT shall be responsible for complying with all local, state and federal laws whether or not said laws are expressly stated or referred to herein.

Should any provision herein be found or deemed to be invalid, the Agreement shall be construed as not containing such provision and all other provisions, which are otherwise lawful, shall remain in full force and effect, and to this end the provisions of this Agreement are severable.

18.0 **AGREEMENT MODIFICATION.** This Agreement may not be modified orally or in any manner other than by an Agreement in writing, signed by the parties hereto.

19.0 **DISPUTE RESOLUTION.**

- a. Any controversy or claim arising out of or relating to this Agreement, or concerning the breach or interpretation thereof, shall be first submitted to mediation, the cost of which shall be borne equally by the parties.
- b. No suit shall be brought on this contract unless all statutory claims filing requirements have been met.

20. **NOTICES.** All notices, demands, requests, consents or other communications which this Agreement contemplates or authorizes, or requires or permits either party to give to the other, shall be in writing and shall be personally delivered or mailed to the respective party as follows:

TO CITY:

City of Oceanside
Cari Dale
Water Utilities Director
300 North Coast Highway
Oceanside, CA 92054

TO CONSULTANT:

Carollo Engineers, Inc.
Inge Wiersema, P.E.
Associate Vice President
199 S. Los Robles Ave., Suite 530
Pasadena, CA 91101

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Either party may change its address by notice to the other party as provided herein.

Communications shall be deemed to have been given and received on the first to occur:

- a. Actual receipt at the offices of the party to whom the communication is to be sent, as designated above, or
- b. Three (3) working days following the deposit in the United States mail of registered or certified mail, postage prepaid, return receipt requested, addressed to the offices of the party to whom the communication is to be sent, as designated above.

21.0 **SIGNATURES.** The individuals executing this Agreement represent and warrant that they have the right, power, legal capacity and authority to enter into and to execute this Agreement on behalf of the respective legal entities of the CONSULTANT and the CITY.

IN WITNESS WHEREOF the parties hereto for themselves, their heirs, executors, administrators, successors and assigns do hereby agree to the full performance of the covenants herein contained and have caused this Professional Services Agreement to be executed by setting hereunto their signatures this 11th day of January, ~~2012~~: 2013

**PROJECT: UPDATE WATER, WASTEWATER, AND RECYCLED WATER
MASTER PLANS (908122300710 & 909123200710)**

CAROLLO ENGINEERS, INC.

CITY OF OCEANSIDE

By: [Signature] V.P.
Name/Title PE# C47513

By: _____
Peter Weiss, City Manager

By: [Signature] V.P.
Name/Title PE# C50240

APPROVED AS TO FORM:

[Signature], ASST.
City Attorney

86-0899222
Employer ID No.

NOTARY ACKNOWLEDGMENTS OF CONSULTANT MUST BE ATTACHED.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

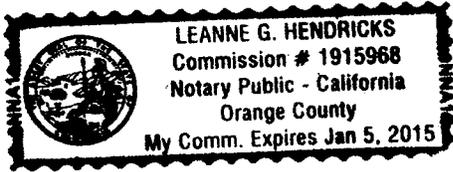
State of California

County of Orange

On 01/11/2013 before me, Leanne G. Hendricks, Notary Public
Date Here Insert Name and Title of the Officer

personally appeared Douglas Jay Lanning
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person ~~(s)~~ whose name ~~(s)~~ is/are subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity ~~(ies)~~, and that by his/~~her/their~~ signature ~~(s)~~ on the instrument the person ~~(s)~~, or the entity upon behalf of which the person ~~(s)~~ acted, executed the instrument.



I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Leanne G. Hendricks
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

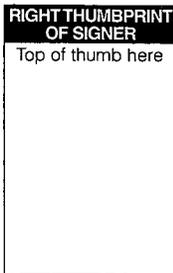
Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: City of Oceanside Professional Services Agreement
Document Date: 01/11/2013 Number of Pages: 10 + Exhibit A
Signer(s) Other Than Named Above: none

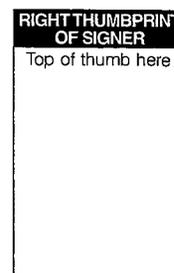
Capacity(ies) Claimed by Signer(s)

Signer's Name: Douglas Jay Lanning
 Individual
 Corporate Officer — Title(s): Vice President
 Partner — Limited General
 Attorney in Fact
 Trustee
 Guardian or Conservator
 Other: _____



Signer Is Representing: Carollo Engineers, Inc.

Signer's Name: _____
 Individual
 Corporate Officer — Title(s): _____
 Partner — Limited General
 Attorney in Fact
 Trustee
 Guardian or Conservator
 Other: _____



Signer Is Representing: _____

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Orange

On January 11, 2013 before me, Leanne G. Hendricks, Notary Public

personally appeared Walid Karam

who proved to me on the basis of satisfactory evidence to be the person whose name is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity , and that by his/her/their signature on the instrument the person , or the entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Leanne G. Hendricks
Signature of Notary Public



Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: City of Oceanside Prof. Services Agreement

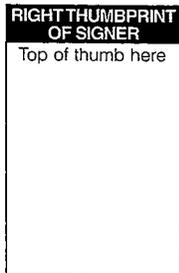
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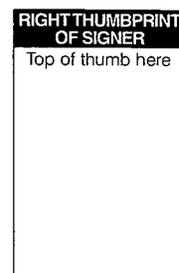
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Signer Is Representing: Carollo Engineers, Inc.

Signer's Name: _____

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EXHIBIT A
SCOPE OF WORK
CITY OF OCEANSIDE
WATER, WASTEWATER AND RECYCLED WATER
MASTER PLANS
DECEMBER 10, 2012

The RFP identified a base scope of work as well as a number of additional tasks the City may want to include as part of the project. These tasks are identified in this scope of work as “Additional Tasks.” In addition, when developing this proposal we identified some scope enhancement tasks that we believe would be of value to the City. These scope enhancements are identified as “Optional Tasks” in this scope of work.

The following outlines the tasks that the CONSULTANT shall complete in preparation of the master plans.

TASK 1.1 – DATA COLLECTION AND REVIEW

Carollo will collect and review the City’s relevant planning documents and data related to all three master plans. We will prepare a prioritized data collection list to track the status of various documents, which will be updated weekly during the first month and monthly thereafter.

Task Deliverables:

- ▶ Prioritized data collection matrix and updates.

TASK 2 – EXISTING AND FUTURE GROWTH PROJECTIONS

Task 2.1 – Land Use and Population Projections

Carollo will use the City’s 2010 Urban Water Management Plan (UWMP), geographic information system (GIS), general plan, and current zoning map, as well as other pertinent planning documents and discussions with City’s Planning Department staff, to describe the current and future land use within the City’s service area. The acreage for each land use classification for the existing and build-out conditions will be summarized for use in the water and recycled water demands and wastewater flow projections.

Population projections from the 2010 UWMP will be presented in the master plans. In addition, the 2010 Census Data will be used to update the existing demands. The 2010 census data can

also be used to recalculate ratio of single family residential (SFR) and multiple family residential (MFR) demands to then update the demand projections of the 2010 UWMP, which are based on the year 2000 Census Data. If significant changes are identified, Carollo will discuss with City staff which projections shall be used for the 2012 Master Plans.

Task 2.2 – Potable Water Demand Projections

Existing Customers Demand

Carollo will use 2012 billing records and GIS data to spatially distribute the existing water demands based on meter location or street address. These demands will then be summarized by pressure zone and land use classification. For future projections, the water demands of the existing customers will be adjusted to account for water conservation consistent with the City's 2010 UWMP.

Growth Projections

Carollo will update the 'water demand factors' from the last master plan using the 2012 geocoded billing records and land use data. Up to three representative sample areas will be identified for each billing classification. Subsequently, these updated water demand factors will be used to project growth-related water demands by land use category as established in Task 2.1. Carollo will meet with City staff to determine which growth areas should be included in the near-term and long-term projections.

Unaccounted-for Water

The combination of the existing and growth-related demands is the projected water consumption. To project the total water need, unaccounted-for water needs to be added. Carollo will review and compare historical consumption and production data to establish the unaccounted-for water factor consistent with the AWWA guidelines. Based on discussions with City staff regarding leak detection activities and planned pipeline rehabilitation program, the unaccounted-for water factor may be adjusted for the future.

Seasonal Peaking Factors

Historical billing data will be used to develop system-wide seasonal peaking factors for minimum day demands (minDD), maximum month demands (MMD), and maximum day demands (MDD).

Incorporation of Reuse Demands

Based on the finding of the recycled water demand assessment, the potable water demand reduction from potential conversions will be considered in the water demand projections used for the Water Master Plan.

Task 2.3 – Existing and Future Sewer Flows

Flow Projections

We will analyze the water billing data prepared in Task 2.2 in combination with the flow monitoring data obtained during Task 5.2 to estimate sewer return ratios and existing flows in the system. Commercial, industrial, and/or institutional users, which may contribute significantly to wastewater flows, will be identified and investigated individually through discussions with City staff. Wastewater flows for major industrial users are already tracked. Wet weather flows will be determined using groundwater infiltration rates and inflow/infiltration parameters observed during the flow-monitoring period.

This task will also consist of reviewing and analyzing wastewater generation factors for various land use categories including residential, commercial, and industrial. This analysis will help develop wastewater flow coefficients for each land use category (gpd/ac), which can be used to evaluate the City's current design criteria for estimating flows.

The flow coefficients will also be used in combination with population projections and the City's land use map to project future sewer flows under a near-term and long-term scenario identified in Task 2.2. These flow scenarios will be used to identify and size CIP projects. The impact of indoor water conservation on sewer generation rates will be considered in the flow estimation. It is assumed that a uniform conservation percentage will be used per land use category for near-term and build-out projections.

Flow Projections for Neighboring Agencies

Carollo will obtain sewer flow projections from Fallbrook Public Utility District (FPUD), Rainbow Municipal Water District (MWD), and Camp Pendleton, as available. For agencies without usable data, planning level estimates will be developed using readily available sewer generation factors (or same factors that will be developed for the City) and already available land use data.

Task 2.4 – Recycled Water Demand Projections

Recycled Water Market Assessment

Our team will identify potential recycled water customers within the City's service area by evaluating the historical billing records, land use map, specific plans, aerial maps, and previous planning documents, such as the North San Diego County Regional Recycling Water Project (NSDCRRWP). Customers will be categorized based on user type such as landscape irrigation, agricultural, commercial, and industrial user types. Industrial customers typically use more water during daytime hours and have lower seasonal demand fluctuations than irrigation customers.

Recycled Water Demand Projections

The historical potable water billing records will be used as a starting point to estimate the recycled water demands of potential customers. Based on customer type, a recycled water percentage will be applied to account for the approximate amount of potable water demand that can be converted to recycled water for each customer class. For future customers, the water demand factors established in Task 2.2 will be used to estimate the customer demand.

Similarly, a recycled water demand ratio will be applied to estimate the recycled water demand of future new customers.

Updated customer tables and maps will be created with the updated customer data. Priority customers will include those with larger reuse demand potential (typically 50 AFY or larger). A one-day site visit will be conducted to assess the potential conversion to recycled water for the priority customers to gain an overall understanding of the complexity of connecting that customer, collection and review of other historical available information, and to evaluate the viability of delivering recycled water to this customer. The backbone distribution systems for each alternative will be based on serving these priority customers.

In addition, we will investigate the feasibility of using recycled water for indirect potable reuse (IPR) and artificial recharge of the Mission Groundwater Basin. This would allow for year-round use of available recycled water supplies rather than being limited by the seasonal nature of irrigation demands.

We will use typical industry peaking factors for MinDD, MMD, and MDD demand conditions by customer class to estimate existing, near-term, and long-term seasonal recycled demands.

Task 2.5 – Task Documentation

The findings of this task will be documented for incorporation into the master plan reports.

Task Deliverables:

- ▶ Land Use and Population Chapter.
- ▶ Water and Recycled Water Demands and Wastewater Flows.
- ▶ Summary tables and figures of recycled water demands.

TASK 3 – SYSTEM EVALUATION CRITERIA UPDATE

Task 3.1 – Potable Water System Evaluation Criteria Update

Carollo will review and compare the City's existing water system sizing and evaluation criteria with industry standards and similar agencies and make recommendations on revisions to these criteria, as necessary. Water use changes related to water conservation will be taken into account when recommending revisions to the evaluation criteria.

Task 3.2 – Sewer System Evaluation Criteria Update

Carollo will review and compare the City's existing sewer system sizing and evaluation criteria with industry standards and similar agencies and make recommendations on revisions to these criteria, as necessary. Sewer use changes related to water conservation will be taken into account when recommending revisions to the evaluation criteria. Based on input from the City, we will select up to three deficiency and/or design storm criteria scenarios and run the calibrated model for these scenarios.

The general extent of impacts to the CIP will be identified for each alternative and we will work with City staff to make a decision on the appropriate criteria based on sanitary sewer overflow (SSO) risk and cost impacts. This method aids the criteria selection process as it illustrating the impacts of a specific decision and reduces potential rework because there is an understanding of the cost ramifications before improvement projects and a detailed CIP are developed.

Task 3.3 – Recycled Water System Evaluation Criteria Update

Carollo will review and compare the City's existing recycled water system sizing and evaluation criteria with industry standards and similar agencies and make recommendations on revisions to these criteria, as necessary. Recycled water use changes related to water conservation will be taken into account when recommending revisions to the evaluation criteria.

Task 3.4 – Task Documentation

The findings of this task will be documented for incorporation into the master plan reports.

Task Deliverables:

- ▶ Planning and Evaluation Criteria Chapters for the three master plans.

TASK 4 – POTABLE WATER MODEL UPDATE (ADDITIONAL TASK)

The City's water model is currently a steady state model, which only simulates system conditions at a snapshot in time. This task describes scope of work activities needed to update the current steady state model. To simulate system diurnal variations and as an additional task, we propose to develop an EPS model in lieu of the steady state model. The additional tasks required to develop an EPS model are described in Task 5.

Task 4.1 – Model Update Pipeline Network Update

Carollo will update City's existing water system hydraulic model using the City's latest GIS and information obtained by meeting with City staff. The updated model will include all pipelines 4 inches in diameter and larger, excluding service laterals. Pipeline diameters, materials, and age will be imported from GIS, as available. To obtain a manageable model database, the pipeline network will be skeletonized to maintain model nodes only where pipelines intersect or changes in diameter, material, or year of installation occur. It is assumed that the pipeline diameter and material information is complete in the GIS. Junction node elevations will be interpolated from ground elevation topography data.

System Facilities Update

The new water system facilities constructed since the last model update will be added into the model based on available information and input from City staff.

Water Demand Allocation

Carollo will geocode the City's water meter billing database. Existing and future water demands will be allocated within the hydraulic model to obtain a spatial distribution of the demands. Demand sets will be created for existing, near-term, and long-term ADD and MDD conditions.

To account for potable water offsets due to the use of recycled water, negative values to represent this offset will be populated separately in the model. An additional separate negative demand will also be included to account for the effects of water conservation.

Task 4.2 – Model Calibration

This calibration task consists of the following steps:

Model Calibration Plan

Carollo will prepare a model calibration plan that outlines the field gathering activities and data requirements to conduct the fire flow and EPS model calibration. The plan will be submitted to the City for review and commenting.

Macro Calibration

Carollo will perform an initial macro calibration to make the model run without errors or warnings and to check for anomalous conditions within the model. Based on general information obtained from the City's operations staff, Carollo will verify that facilities operate properly and static system pressures fall within acceptable levels.

Fire Flow Tests and Calibration

Carollo will work with City staff to select up to 25 fire flow test locations. It is assumed that it will take up to five days to complete these tests. Each test will consist of five simultaneously flowing hydrants and one non-flowing hydrant that will be used to measure static and residual pressure. Carollo's specialty subconsultant Orange County Fire Protection will coordinate the tests, while the City's operations staff will operate the hydrant and provide the necessary equipment to measure flows and pressures. In addition, Carollo will provide four (4) remote pressure loggers to be installed at critical locations within the City's distribution system to gather additional pressure information in 1-minute intervals. Field-testing data will be used to calibrate the hydraulic model and pipeline roughness coefficient (C-factors). We will obtain the necessary permits and comply with discharge regulations.

Task 4.3 – Future Water Model

Carollo will create two future model scenarios to reflect near-term and long-term conditions. Four (4) future water system demand sets will be created that represent the near-term and long-term demands for both ADD and MDD conditions. As necessary, backbone transmission mains, reservoirs, and booster stations will be added to the future scenarios to serve new development areas.

Task 4.4 – Task Documentation

The findings of this task will be documented for incorporation into the master plan reports.

Task Deliverables:

- ▶ Water Model Creation and Calibration Chapter.

- ▶ Fire Flow Calibration Results Appendix.

TASK 5 – EPS WATER MODEL DEVELOPMENT (OPTIONAL TASK)

Task 5.1 – Model Structure Update

Facilities Control Input

We will meet with Operations staff to gain an understanding on system facilities controls and update the model accordingly. As part of this task, pump curves and recent pump tests will be requested from the City and will be input into the model.

Diurnal Curves Development

Using data from City's SCADA system, a diurnal pattern will be developed for City's entire water system to represent the hourly demand fluctuations on the selected calibration day. Hourly flow and water level data from the City's meter readings at the plants, SDCWA turnouts, pump stations, storage tanks, and pressure reducing stations throughout the system will be required for this task. Separate diurnal curves will be developed for individual pressure zones, where there is sufficient data to isolation (combination) of zones.

Task 5.2 – EPS Calibration

Carollo will select a calibration day in coordination with City staff. It is preferred that this day represents above average demand conditions, which typically occur on a hot day. If sufficient historical information is available, we will select the MDD of 2012. We will request the information that needs to be gathered from City's SCADA system during that day to conduct the EPS model calibration. The purpose of calibration is to confirm that reservoir levels, system pressures, and flows mimic the trends recorded in the field (from SCADA). Carollo will make model adjustments as necessary to resolve major discrepancies by adjusting model control settings, pipeline connectivity, diameters, large user demand patterns, ground elevations, pump curves, etc. EPS model calibration graphs will be prepared for all reservoirs and presented to City staff. Operations staff will be consulted as necessary to resolve any major differences between field data and model results. The calibrated model will be used for system analysis in Task 7.

Task 5.3 – Future Water Model

Carollo will create two future model scenarios to reflect near-term and long-term conditions. Four (4) future water system demand sets will be created that represent the near-term and long-term demands for both ADD and MDD conditions. As necessary, backbone transmission mains,

reservoirs, and booster stations will be added to the future scenarios to serve new development areas.

Task 5.4 – Task Documentation

The findings of this task will be documented for incorporation into the master plan reports.

Task Deliverables:

- ▶ EPS Model Creation and Calibration Chapter.
- ▶ EPS Model Calibration Results Appendix.

TASK 6 – SEWER MODEL DEVELOPMENT (ADDITIONAL TASK)

Task 6.1 – Model Creation

We will update the hydraulic model of the City's sewer collection system for both the La Salina and San Luis Rey service areas. It is assumed that the City's existing software program, H₂OMAP Sewer, will be used. If the City chooses to upgrade to InfoSWMM[®], an ArcGIS-based program with more advanced simulation capabilities, the project team will import the existing model data into InfoSWMM[®] as part of this task.

It is assumed that the City's sewer GIS database update will be completed by the start of this project. The GIS database will be used to add all sewers 10 inches or greater in diameter to the model. Up to 30 miles of additional 8-inch sewers will be added to the model, including those in areas identified for potential redevelopment (for example, areas with commercial and industrial land use type) to help the City more easily respond to developer inquiries. Up to 12 lift stations will be included in the model, based on size and greatest significance to the capacity analysis.

Model attributes (invert elevations, ground elevations, wet well dimensions, pump capacities, etc.) will be extracted from as-built drawings and contour maps. It is assumed that the City will provide as-built drawings and other information as needed for this model creation task. All data in the existing models will be reviewed as part of a comprehensive data validation process.

The final step in the model creation process will be to delineate and assign dry and wet weather flow to model subbasins using a parcel-based approach. All of the digitized sewers will be kept in the model; however, flow loadings will only be applied to sewers 10 inches in diameter or greater and 8-inch sewers that are considered to be trunks. We will provide a clear methodology for addressing inquiries from developers in a situation where the sewer main in the model do not extend to the parcel in question.

Task Deliverables:

- ▶ Updated hydraulic model files and supporting GIS layers for La Salina and San Luis Rey models.

Task 6.2 – Sewer Flow Monitoring

We will install flowmeters at 30 strategic locations to collect wastewater flow information that will be used to establish the baseline and quantify the distribution of sewer flows within the collection system. A four-week flow-monitoring period during the wet weather season is assumed for this task. Based on the schedule, the monitoring stations will need to be installed as soon as our contract is approved by the City Council.

V&A has the capacity and availability to make this happen. Dry periods within the monitoring period, as well as historical records of the wastewater treatment plants, will be used to establish dry weather flow factors, while flow data captured during wet weather events will be used to determine inflow/infiltration (I/I) rates and help establish I/I parameters for model development and calibration. We will work with the City to select the flow monitoring sites and provide our subconsultant V&A the necessary site maps to conduct the flow monitoring. Once the flowmeters have been installed and calibrated, V&A will perform weekly QA/QC of the flow data. At the end of the monitoring period, we will collect, review, and organize the data for use during sewer model calibration.

V&A will prepare a flow monitoring and I&I summary report which will include flow monitoring data, rain gauge data, infiltration and inflow analysis, complete descriptions of monitoring locations, tabular outputs of depth, velocity and flow rate and hydrographs and scatter graphs of depth, velocity and flow rates for each flowmeter. One Draft version and one Final version of the report will be prepared.

Task Deliverables:

- ▶ Maps of flow monitoring sites.
- ▶ Flow monitoring data files.
- ▶ Draft and Final Flow Monitoring Report.

Task 6.3 – Model Calibration

We will use the flow monitoring data collected under Task 5.2 to develop land-use specific diurnal loading patterns for the base wastewater inflows tributary to each flow monitoring

location. The wet weather calibration will be developed by creating customized unit hydrographs for each tributary area and comparing the simulation results to flow-monitoring data. We will calibrate the wet-weather model using the events captured throughout the four-week monitoring period, while the dry-weather model will be calibrated using data from the dry days in the flow-monitoring period. If sufficient wet weather data is not obtained during the monitoring period, historical precipitation data and historical wastewater flows from the wastewater treatment plants will be reviewed to evaluate the impact of I/I on the collection system. This data will be used to characterize the main source locations of I/I and to prepare recommendations on how to further study and/or implement remedies to reduce I/I.

Due to the size of the City's service area, we will supplement V&A's rainfall data by purchasing gage-adjusted radar rainfall data. The rainfall is provided in 1-km by 1-km pixels covering the entire service area (approximately 120 pixels in this case) at intervals of 15 minutes. Radar rainfall is much more accurate at estimating infiltration/inflow response for areas between V&A's rain gages.

The accuracy of the calibration results will be summarized in tabular and graphical format for each of the metered sites. The results will be presented for both dry and wet weather, average and peak flows to indicate the accuracy to the model.

Task 6.4 – Future Sewer Model

We will create dry and wet weather model scenarios for near-term and long-term planning periods (total of four scenarios) to be used for CIP development.

Task 6.5 – Task Documentation

The findings of this task will be documented for incorporation into the master plan reports.

Task Deliverables:

- ▶ Model Creation and Calibration Chapter.
- ▶ Dry and Wet Weather Model Calibration Results Appendix.

TAS K 7 – WATER SYSTEM EVALUATION

Task 7.1 – Existing System Description and Update

Carollo will describe the existing water system characteristics. This description will include the service area, water supply sources and emergency interconnections, pressure zone service

elevations and demands, water system pipeline distribution by material and size, water system facilities characteristics, and the top 10 large water users by name and demand.

Task 7.2 – Existing System Capacity Evaluation

Carollo will conduct an existing water system analysis under normal operating conditions using the evaluation criteria established in Task 3.1. The existing potable water system evaluation consists of the following subtasks:

Storage and Pumping Capacity Evaluation

Carollo will perform mass balance capacity analyses (using a spreadsheet model) to evaluate pumping and storage capacities within each pressure zone against City's updated planning criteria. These analyses will identify potential deficiencies and improvement requirements.

Pipeline Capacity Evaluation

The hydraulic model will be used to evaluate system pressures and pipeline velocities under the following conditions:

- ▶ Peak Hour Demands (PHD).
- ▶ MDD with Fire Flow.
- ▶ ADD.
- ▶ MinDD.

The hydraulic model will be used to identify areas that do not meet the minimum pressure, velocity, or fire flow requirement. If any pressure, velocity, or fire deficiencies are identified, the model will be used to identify and size improvements to meet the criteria. Carollo will first discuss the proposed recommendations with City staff and then incorporate them in a separate hydraulic model scenario to reflect the existing system with improvements.

Task 7.3 – Water Age Analysis

Carollo will establish an acceptable water residence with City staff under a specific demand condition. If necessary, the hydraulic model will then be modified to run for at least one week beyond this maximum residence time. Once the model is converged for this period, it will be used to identify areas and/or storage facilities where this residence time is exceeded. A map will be prepared to present the results.

Task 7.4 – Future System Capacity Evaluation

The same system analyses conducted under Task 7.2 will be performed under near- and long-term demand conditions assuming no future developments would occur within the Morro Hills area (as this will be evaluated separately under Task 12). Carollo will run the hydraulic model with the existing system improvements in place prior to future system evaluations to determine the improvements or upsizing of existing system improvements under future demands to meet the evaluation criteria established in Task 3.1.

Task 7.5 – Summary of Deficiencies and Improvement Projects

Carollo will summarize known deficiencies to City staff and identify potential improvement projects. These projects will be included in the CIP. Existing system deficiencies and improvements to address those deficiencies will be summarized in a table and presented on two potable water system maps with matching project IDs.

Future system deficiencies and corresponding improvement projects along with their estimating timing will be summarized in a table and presented on two potable water system maps with matching project IDs. Deficiencies and corresponding improvement projects within the Morro Hills developments will be presented separately and as part of Task 12.

Task 7.6 – Task Documentation

The findings of this task will be documented for incorporation into the master plan reports.

Task Deliverables:

- ▶ Tables and Maps summarizing existing and growth related system deficiencies.
- ▶ Tables and Maps summarizing existing and growth related system improvements.
- ▶ Water System Evaluation Chapter.

TASK 8 – SEWER SYSTEM EVALUATION

Task 8.1 – Existing System Description and Update

Carollo will review, update, and describe existing water system characteristics including service area, wastewater basins, capacity agreements with other agencies, backbone interceptors and force mains, land outfall, ocean outfall, wastewater treatment plants.

Task 8.2 – Existing System Capacity Evaluation

Carollo will evaluate the existing sewer system using the evaluation criteria established in Task 3.2. The existing system analysis will consist of the following scenarios:

- ▶ Peak dry-weather flow conditions.
- ▶ Peak wet-weather flow conditions.

Carollo will use the hydraulic model to identify the gravity mains, force mains, or lift stations lacking sufficient capacity to meet the established criteria. In addition, Carollo will summarize the findings on the I/I sources and develop a plan for further study or remediation. Carollo will also incorporate the already identified rehabilitation needs by the City.

Task 8.3 – Future System Capacity Evaluation

The same system analysis conducted under Task 7.2 will be performed under near- and long-term/build-out flows to identify which facilities (gravity mains, force mains, etc.) do not have sufficient capacity to meet the established criteria under a particular planning year. We will use the model to size improvement projects to address deficiencies under both existing and future flow conditions.

Task 8.4 – Review Capacity Agreements

As part of this task, Carollo will review the City's capacity agreements with FPUD, Rainbow MWD, and Camp Pendleton and make any necessary recommendations.

Task 8.5 – Summary of Deficiencies and Improvement Projects

In addition to deficiencies identified in the model, Carollo will document known sewer system deficiencies to City staff and identify potential improvement projects. These projects will be included in the CIP. Existing sewer system deficiencies and improvements to address those deficiencies will be summarized in a table and presented on two potable water system maps with matching project IDs. Future sewer system deficiencies and corresponding improvement projects along with their estimating timing will be summarized in a table and presented on two potable water system maps with matching project IDs.

Task 8.6 – Task Documentation

The findings of this task will be documented for incorporation into the master plan reports.

Task Deliverables:

- ▶ Tables and Maps summarizing existing and growth related system deficiencies.
- ▶ Tables and Maps summarizing existing and growth related system improvements.
- ▶ Sewer System Evaluation Chapter.

TASK 9 – RECYCLED WATER SYSTEM EVALUATION

Task 9.1 – Existing System Description

Carollo will review and provide an updated description of the existing water system, including current service area and demands, existing infrastructure, existing treatment facilities (SLRWRF), and existing and potential connections and facilities with other entities, including FPUD outfall, Camp Pendleton, Vista Irrigation District, and the City of Carlsbad. As part of this task, we will meet with operations staff to identify any underutilized or abandoned water mains that could potentially be repurposed for recycled water use.

Task 9.2 – Recycled Water Regulatory Requirements

This task will involve a review of regulatory requirements associated with implementation of a recycled water project. The primary agencies to be addressed include the California Department of Public Health (CDPH) and the Regional Water Quality Control Board (RWQCB). CDPH requirements will be identified for various potential applications. Our subconsultant Michael Welsh will take the lead on this task. The Basin Plan and water quality objectives will be summarized to identify the requirements of the RWQCB. We will also identify and summarize the latest draft Groundwater Replenishment Reuse Regulations and the potential to recharge the Mission Groundwater Basin with advanced treated recycled water.

Task 9.3 – Supply Options

Potential supply options will be investigated and include those with the City and those external to the City. There are multiple potential recycled water available to the City of Oceanside, including:

- ▶ SLRWRF
- ▶ LSWWTP
- ▶ FPUD land outfall
- ▶ Camp Pendleton

- ▶ El Corazon WRF (potential plant)
- ▶ City of Carlsbad

The SLRWRF has limited recycled water production capacity of only 0.5 mgd. The 2005 Recycled Water Master Plan identified an expansion of the tertiary facilities at SLRWRF to a capacity of 7.5 mgd to produce recycled water to serve the northern portion of the City as well as other development projects. However, due to the slow rate of development this has not yet occurred.

The LSWWTP currently has a secondary capacity of 5.5 mgd. Due to limited space at the WWTP there is limited ability to add tertiary treatment facilities. The FPUD land outfall pipeline runs through the City and carries tertiary effluent to the Oceanside Ocean Outfall for disposal. A contract between the City and FPUD allows the City to take recycled water from the outfall pipeline at no cost.

The City is also working with Camp Pendleton on a project that would deliver 1 mgd of recycled water from the Base to the back gate area for use by the City, which will assist the Base with disposal of treated effluent.

The City is aiming to implement the El Corazon Specific Plan (2009), which calls for the redevelopment of a mineral mining operation into a public park that features nature trails, commercial opportunities, and community gathering spaces. El Corazon project site could accommodate a WRF to treat secondary effluent from the SLRWRF land outfall and serve recycled water to other nearby water users. Locating a WRF on the El Corazon site, as opposed to the SLRWRF could significantly reduce distribution costs by producing recycled water closer to the potential customers.

The NSDCRRWP was completed in 2012 and identified opportunities for the City to participate in regional facilities. Recycled water from the City of Carlsbad system can be used to serve demands in the City as well as in the Vista Irrigation District service area.

Task 9.4 – Regional Reuse Opportunities

In 2010 the City participated with several other water and wastewater agencies in Northern San Diego County to identify the benefits of regionalization of existing and planned recycled water systems to further maximize the use of recycled water. Regionalization of facilities will allow recycled water to play an even more significant role in meeting the future water needs in the

North San Diego County. The NSDCRRWP was completed in 2012 and identified opportunities for the City to participate in regional facilities with the City of Carlsbad, Vista Irrigation District, and the Camp Pendleton Marine Base. These region reuse opportunities will be further investigated to identify the quantities, potential for linkage to the City's system, implementation steps, and institutional arrangements need. This task will include meeting with external agencies to discuss potential regional linkages and projects.

Task 9.5 – Meetings with Neighboring Agencies (Optional Task)

Our team will meet with City staff and neighboring agencies to identify water reuse opportunities outside the City boundaries. It is assumed that these meetings could be scheduled such that this task would not take more than two days.

Task 9.6 – Alternatives Development and Evaluation

The objective of the recycled water project is to increase water supply reliability and reduce reliance on imported water by using treated wastewater flow for recycling uses within the City currently using potable waters.

Project alternatives will be defined prior with City staff during one of the project meetings identified in Task 18. It is assumed that the following six recycled water alternatives will be considered as part of this task:

- ▶ Expanding the tertiary treatment at the SLRWRF and constructing a recycled water distribution system to serve non-potable demands, such as those discussed in the 2005 Recycled Water Master Plan.
- ▶ Identify the facility requirements for recycled water distribution using the tertiary effluent from Camp Pendleton. Compare with the cost to supply the same general area with recycled water from the SLRWRF.
- ▶ Identify the facility requirements for treatment of secondary effluent from the SLRWRF land outfall and water distribution from a WRF in the El Corazon site. Compare with the cost to supply the same general area with recycled water from the SLRWRF.
- ▶ Identify the facility requirements and cost for distribution of recycled water from the City of Carlsbad. Identify Compare with the cost to supply the same general area with recycled water from the SLRWRF or another source.

- ▶ Identify the facility requirements for treatment and distribution of recycled water from the LSWWTP to serve non-potable demands within the City and potential to serve demands in the northwestern portion of the City of Carlsbad.
- ▶ No project alternative, i.e., continue to serve only the current customers.

For each alternative, the pipeline alignments and other facilities (such as pump stations and reservoirs) necessary to convey recycled water from the existing distribution system to the identified recycled water customers will be identified. Planning level sizing of these pipelines and facilities will be established using desktop calculations.

Preliminary opinions of probable project costs for the various alternatives will be prepared. To address operation and maintenance (O&M) costs associated with various pumping and storage scenarios, a life cycle costing method will be employed. Future costs will be analyzed in accordance with the requirements set forth in the OWR Water Recycling Funding Guidelines to maximize with future funding opportunities.

Evaluate each identified alternative or combination of alternatives identified during previous tasks based on cost and a numerical ranking methodology to account for none monetary factors. A feasibility level cost estimate will be prepared for the recommended alternative. Evaluation factors to include life cycle cost and economic viability, demand offset, environmental constraints, constructability, hydraulic feasibility, reliability and O&M requirements.

9.7 – Task Documentation

The findings of this task will be documented for incorporation into the master plan reports.

Task Deliverables:

- ▶ Tables and Maps summarizing the demand, supply, and regional opportunities.
- ▶ Tables and Maps summarizing the alternatives and alternative evaluations.
- ▶ Recycled Water System Evaluation Chapter.

Task 10 – CONVEYANCE AND LIFT STATIONS CONDITION ASSESSMENT

Task 10.1 – Water Mains Condition Assessment (Additional Task)

CCTV Inspection and Evaluation

Carollo’s subconsultant, WachsWater Services, will conduct internal inspection (CCTV) of water mains on 30 insertions or “launches” of in-service water mains via available fire hydrants or

tapping points. City staff will select the locations for the launches. It is assumed that thirty (30) insertions will require approximately 8 work days and are executed on consecutive work days. It is assumed that all insertion sites will be adjacent, pre-planned and prepped in advance to maximize efficiency and minimize costs.

After reviewing the City's proposed pipeline inspection locations with City staff, a project inspection plan will be prepared that will identify any measures needed prior to the inspections. Our subconsultant's crew will deploy to the area once the preparations were completed and would remain on site until the inspections are finished.

The pipe size (4- to 12-inch) and material (steel, CI, DI, PVC, ACP, AC, and other) of this project are ideal for our pipeline inspection technology system, the INVESTIGATOR™. This system is inserted into the main via fire hydrants or through a 2-inch tapping point/corporation located on top of the main (12 o'clock position) and it travels with or against the direction of flow collecting video and listening for leaks. It can travel in both directions of insertion and up to a maximum of 300 feet in either direction from the insertion point, dependent on pipe conditions and bends.

Our subconsultant will prepare an inspection report that will include a DVD with still photos of the inspection, leak locations and reports of condition (i.e., tuberculation, damaged linings, or leaks). All pipelines will be inspected while the water line is in service.

Carollo will review the CCTV reports and conduct condition assessments and prepare a report documenting the findings. This information will be used to develop prioritization guidelines for the R&R of water pipeline replacements based on age, material, diameter, and location (soil condition). These prioritization guidelines will then be used to make system-wide R&R recommendations that will be incorporated in the CIP.

Task 10.2 – Sewer Mains Condition Assessment (Additional Task)

CCTV Inspection and Evaluation

Carollo's subconsultant, Houston & Harris, will conduct CCTV inspection of sewer mains on 60 individual manhole-to-manhole segments and prepare inspection reports. It is assumed that hydro-washing process will be required on all segments prior to the inspection. The budget for this task is estimated assuming an average manhole-to-manhole distance of 300 feet. It is also assumed that 30 segments would be less than 36 inches in diameter and could be inspected during the day, while the remaining 30 segments would be inspected at night when the flow is

low or the sewer mains are larger than 36 inches (trunk sewers). Daytime and small diameter pipelines (<36-inch) require only a one-man crew for hydro-washing and CCTV (two trucks and two people total), while nighttime inspection requires double the staff (four people total).

We will review the CCTV reports and perform condition assessments to prioritize the segments and recommend upgrades or replacements. As needed, up to 8 hours of additional existing CCTV tapes will be reviewed to develop prioritization guidelines for the R&R of sewer pipeline replacements based on age, material, diameter, and location (soil condition). These prioritization guidelines will then be used to make system-wide R&R recommendations that will be incorporated in the CIP.

Sewer Flow Bypass Pumping

For segments where sewer flows are at near capacity at the time of testing, bypass pumping may be required. Since the level of effort for this task is not known at this time, a budget of \$25,000 is reserved for this task.

Task Deliverables:

- ▶ Digital inspection files including digital video and defect database using PACP codes.
- ▶ Inspection reports.

Task 10.3 – Lift Stations Condition Assessment

Prepare Lift Station Condition Assessment Template

We will work with City staff to develop a template for conducting condition assessments at lift stations. The template will identify the specific items that will be evaluated for each discipline (structural, mechanical, electrical, and instrumentation). The template will also define a standardized methodology to determine condition assessment scores for assets.

Lift Station Condition Assessments

Carollo will conduct condition assessments at the City's 34 lift stations. The City shall provide operations or maintenance staff to accompany our team during the assessments. This will provide an opportunity for us to interview staff regarding the operation of the lift station equipment to identify known deficiencies.

We will conduct the condition assessments at the City's major lift stations with a team of three (3) discipline engineers: mechanical, structural, and electrical. Each engineer will be responsible for assessing equipment, structures, etc. based on the specific discipline. Photographs will also

be taken during the visit, as well as infrared camera imaging to assist in identifying 'hot spots' in electrical equipment. We will provide the following discipline engineers to assess the following aspects of each major lift station:

- ▶ Structural – Major aboveground structures such as buildings and interior wet well condition.
- ▶ Electrical – Instrumentation and SCADA, control panel, electrical distribution gear, power source, stand-by generators (if present), and infrared camera photographs.
- ▶ Process/Mechanical – Pumps, motors, piping, pipe supports, wet well integrity and coatings, valves, odor control, standby power, and general photographs.

It is assumed that the major lift stations can be assessed within three days. It is estimated that approximately 8 to 10 lift stations will be included in this category. For the remaining smaller lift stations, a mechanical engineer will assess the condition of the pumping equipment of each lift station with assistance of City staff. The mechanical engineer will also conduct a cursory review of the structural condition of the station as well as its electrical, SCADA, and instrumentation equipment.

It is anticipated that our mechanical engineer accompanied by City staff can complete an average of eight small lift stations per day. Assuming condition assessments at the remaining 25 small lift stations, the mechanical/process engineer will need approximately three days to visit the remaining lift stations. This estimate assumes that City staff will be available for full days with no interruptions. If staff is only available for half days, it will require more hours to complete the assessments.

Cost Estimates for Lift Station Assets

Carollo will summarize the findings of the field visits and tabulate the identified deficiencies and necessary improvements. We will then prepare cost estimates for the R&Rs of assets. Project costs will be summarized by lift station.

Lift Station R&R Program

Based on the asset condition assessments, we will estimate the remaining useful life of the assets at each lift station. The estimates of remaining useful life and cost estimates will be used to develop an R&R program for lift stations, identifying the approximate year and cost for rehabilitation or replacement for lift stations in need of repair. The R&R program report will

include tables of condition scores, remaining useful lives, and cost estimates summarized by planning period.

Task Documentation

We will collate, organize, and document the information collected in the field and the findings of this task for incorporation into the sewer master plan report and CIP. All inspection sheets, evaluation templates, and field photographs will be included as an appendix.

TASK 11 – CAPITAL IMPROVEMENT PLANS DEVELOPMENT

Task 11.1 – Cost Assumptions Development

Carollo will develop planning-level unit construction costs for potable water, wastewater, and recycled water infrastructure components. These unit costs will reflect the most current market conditions in the region. In addition, a table with typical contingency and mark-up cost factors will be prepared. The cost development and amortization assumptions will be discussed and finalized with City staff prior to the development of the CIPs. Separate cost estimating assumptions tables will be prepared for potable water, recycled water, and wastewater improvement projects.

Task 11.2 – Potable Water System CIP

Carollo will compile various water system improvement and/or expansion projects including the recommendations of the Facilities Needs Assessment studies of the City's water treatment plants and water pipes CCTV results. We will then develop planning-level cost estimates for each project which will be summarized in tabular format by project ID, facility type and by type of customers served. Where needed, Carollo will conduct site planning for new water facilities to estimate space and/or land acquisition requirements.

We will prioritize all projects and develop a schedule to implement the water improvements required for near-term and long-term (or build-out) conditions. The timing of CIP projects will be determined based on the projected water demand in the area that the project is located or serves and/or other project triggers. Two maps depicting the recommended water system projects for near-term and long-term conditions will be prepared. Improvement will be annotated with project IDs that correspond with the project IDs in the report and CIP summary tables.

Task 11.3 – Sewer System CIP

Carollo will compile various sewer system improvement and/or expansion projects including the recommendations of the Facilities Needs Assessment studies of the City's wastewater

treatment plants and sewer pipes CCTV results. We will then develop planning-level cost estimates for each project which will be summarized in tabular format by project ID, facility type and by type of customers served. Where needed, Carollo will conduct site planning for new water facilities to estimate space and/or land acquisition requirements.

We will prioritize all projects and develop a schedule to implement the water improvements required for near-term and long-term (or build-out) conditions. The timing of CIP projects will be determined based on the projected water demand in the area that the project is located or serves and/or other project triggers.

Two maps depicting the recommended water system projects for near-term and long-term conditions will be prepared. Improvement will be annotated with project IDs that correspond with the project IDs in the report and CIP summary tables.

Task 11.4 – Recycled Water System CIP

A similar CIP will be developed which will include implementation schedule, future steps, and cost/budget estimates for various recycled water system improvement projects and future expansions identified in Task 8. Future implementation steps will be identified as well as the phasing of the projects. Projects will be incorporated into two growth scenarios. The first scenario (Phase 1) will serve the more readily available customers and the second scenario (Phase 2) will represent a more aggressive growth seeking to maximize recycled water supplies.

This long-term scenario could also have options based on the alternatives analysis results. The Phase 1 or short-term scenario will be developed to allow for incorporation of different long-term scenarios to provide the City flexibility in its future planning and to help address uncertainty.

Two maps depicting the recommended water system projects for near-term and long-term conditions will be prepared. Improvement will be annotated with project IDs that correspond with the project IDs in the report and CIP summary tables.

Task 11.5 – Integrated Master CIP

Once the draft water, sewer, and recycled water CIPs are developed, they will be integrated into a single master CIP. Based on an overlay of the three CIP, an integrated phasing plan will be developed that align project phasing to avoid the need to construct different types of pipeline in the same street in subsequent planning years or periods. This phasing realignment provides cost savings opportunities for the City and minimizes construction disruptions for residents.

Phasing adjustments may also be required for the near-term CIP to level annual expenditure to avoid large CIP cost fluctuations from year to year.

Carollo will work closely with City staff to present the information in a practical and useful manner, so that the integrated CIP can be used as a road map for the City's current and future planning. This integrated CIP will be included in the Executive Summary document (Task 14).

Once the phasing of the integrated master CIP is finalized, the individual water, sewer, and recycled water system CIPs will be updated to maintain consistency between documents.

Task 11.6 – Funding Options

Various options to fund City's master CIP will be evaluated as part of this task. This will include local, state, and federal funding programs and grant opportunities. In addition, various funding mechanisms, such as pay-as-you-go, the state revolving loan program, general obligation bonds, revenue bonds, certificates of participation, etc. will be discussed.

Task 11.7 – Task Documentation

The findings of this task will be documented for incorporation into the master plan reports.

Task Deliverables:

- ▶ Water, Sewer, and Recycled Water CIP Tables and Maps.
- ▶ Water, Sewer, and Recycled Water CIP Chapters.

TASK 12 – WATER MASTER PLAN REPORT

To help minimizing unforeseen issues that may arise through the course of the project, our technical advisor and/or project manager will review all deliverables prior to submittal to the City.

Task 12.1 – 50-Percent Draft Report

Carollo will compile the work conducted in Tasks 1 through 3, as relevant to the water system, as well as Task 4 into a 50-Percent Draft Report. This report is assumed to include the following chapters: 1) Introduction, 2) Land Use and Population Projections, 3) Water Demands, 4) Existing Water System, and 5) Water Model Development. The report will be an update to the previous water master plan and will include some of the same information, where appropriate. Five hard copies and one electronic copy of the 50-Percent Draft Report will be submitted to City for review and comments.

Task 12.2 – 70-Percent Draft Report

The City's comments on the 50-Percent Draft Potable Water Master Plan Report will be reviewed and incorporated into the 70-Percent Draft Report. This report is assumed to also include the following additional chapters: 6) Evaluation Criteria, 7) Existing System Evaluation and 8) Future System Evaluation. Five hard copies and one electronic copy of the 70-Percent Draft Report will be submitted to the City for review and comments.

Task 12.3 – 90-Percent Draft Report

The City's comments on the 70-Percent Draft Potable Water Master Plan Report will be reviewed and incorporated into the 90-Percent Draft Report. This report is assumed to also include the following additional chapters: 9) Capital Improvement Plan, 0) Executive Summary, and all appendices. Five hard copies and one electronic copy of the 90-Percent Draft Report will be submitted to the City for review and comments.

Task 12.4 – Final Report

The City's comments on the 90-Percent Draft Potable Water Master Plan Report will be reviewed and incorporated into the Final Report. Five hard copies and one electronic copy of the Final Report will be submitted to the City.

Task Deliverables:

- ▶ 50-Percent Draft Report.
- ▶ 70-Percent Draft Report.
- ▶ 90-Percent Draft Report.
- ▶ Final Draft Report.

TASK 13 – SEWER MASTER PLAN REPORT

Task 13.1 – 50-Percent Draft Report

Carollo will compile the work conducted in Tasks 1 through 3, as relevant to the sewer system, as well as Task 5 into a 50-Percent Draft Report. This report is assumed to include the following chapters: 1) Introduction, 2) Land Use and Population Projections, 3) Sewer Flows, 4) Existing Wastewater System, and 5) Sewer Model Development.

The report will be an update to the previous sewer system master plan and will include some of the same information, where appropriate. Five hard copies and one electronic copy of the 50-Percent Draft Report will be submitted to the City for review and comments.

Task 13.2 – 70-Percent Draft Report

The City's comments on the 50-Percent Draft Sewer Master Plan Report will be reviewed and incorporated into the 70-Percent Draft Report. This report is assumed to also include the following additional chapters: 6) Evaluation Criteria, 7) Existing System Evaluation and 8) Future System Evaluation. Five hard copies and one electronic copy of the 70-Percent Draft Report will be submitted to the City for review and comments.

Task 13.3 – 90-Percent Draft Report

The City's comments on the 70-Percent Draft Sewer Master Plan Report will be reviewed and incorporated into the 90-Percent Draft Report. This report is assumed to also include the following additional chapters: 9) Capital Improvement Plan, 0) Executive Summary, and all appendices. Five hard copies and one electronic copy of the 90-Percent Draft Report will be submitted to the City for review and comments.

Task 13.4 – Final Report

The City's comments on the 90-Percent Draft Sewer Master Plan Report will be reviewed and incorporated into the Final Report. Five hard copies and one electronic copy of the Final Report will be submitted to the City.

Task Deliverables:

- ▶ 50-Percent Draft Report.
- ▶ 70-Percent Draft Report.
- ▶ 90-Percent Draft Report.
- ▶ Final Draft Report.

TASK 14 – RECYCLED WATER MASTER PLAN REPORT

Task 14.1 – 50-Percent Draft Report

Carollo will compile the work conducted in Tasks 1 through 3, as relevant to the recycled water system, as well as Tasks 8.1 through 8.3 into a 50-Percent Draft Report. This report is assumed to include the following chapters: 1) Introduction, 2) Existing System Summary, 3) Regulatory

Summary, 4) Recycled Water Demands Assessment, and 5) Supply Options task. The report will be an update to the previous recycled water master plan and will include some of the same information, where appropriate. Five hard copies and one electronic copy of the 50-Percent Draft Report will be submitted to the City for review and comments.

Task 14.2 – 70-Percent Draft Report

The City's comments on the 50-Percent Draft Recycled Water Master Plan Report will be reviewed and incorporated into the 70-Percent Draft Report. This report is assumed to also include a chapter for 6) Regional Reuse Opportunities, 7) Identification and Evaluation of Underutilized Water Lines, and 8) Alternatives Development and Evaluations tasks. Five hard copies and one electronic copy of the 70-Percent Draft Report will be submitted to the City for review and comments.

Task 14.3 – 90-Percent Draft Report

The City's comments on the 70-Percent Draft Recycled Water Master Plan Report will be reviewed and incorporated into the 90-Percent Draft Report. This report is assumed to also include the following additional chapters: 9) Capital Improvement Plan, 10) Executive Summary, and all appendices. Five hard copies and one electronic copy of the 90-Percent Draft Report will be submitted to the City for review and comments.

Task 14.4 – Final Report

The City's comments on the 90-Percent Draft Recycled Water Master Plan Report will be reviewed and incorporated into the Final Report. Five hard copies and one electronic copy of the Final Report will be submitted to the City.

Task Deliverables:

- ▶ 50-Percent Draft Report.
- ▶ 70-Percent Draft Report.
- ▶ 90-Percent Draft Report.
- ▶ Final Draft Report.

TASK 15 – INTEGRATED EXECUTIVE SUMMARY DOCUMENT

Task 15.1 – Draft Executive Summary

Once the three master plan reports are finalized, we will prepare a brief standalone executive summary written in layman's terms for use in boards/public meetings or workshops. The executive summary will include an overview of the three master plans, a summary of the integration process and the integrated CIP. An emphasis will be placed on using graphics and tables to present the data and analysis in layman's terms. Five hard copies and one electronic copy of the draft executive summary will be submitted to City for review and comments.

Task 15.2 – Final Executive Summary

City's comments on the draft executive summary will be reviewed and incorporated into the final document. Carollo will submit five hard copies along with electronic copies of the Final Executive Summary in Microsoft® Word.

Task Deliverables:

- ▶ Draft Executive Summary.
- ▶ Final Executive Summary.

TASK 16 – MODEL TRAINING (OPTIONAL TASK)

Task 16.1 – Water Model Training

The purpose of this task is to make City staff self sufficient in using the H₂OMAP Water® hydraulic model as an analysis tool. Specific goals include the use of the hydraulic model for demand updates, model updates, alternatives analysis, and model maintenance. Under this task, Carollo will prepare a customized model instruction class and conduct one day of training session with City staff on the unique features of their water system hydraulic model, the model documentation, and supporting files and processes used in conjunction with the model. Carollo will provide two workstations to train up to four City staff.

Task 16.2 – Sewer Model Training

A similar one-day customized training session will be conducted to make City staff self sufficient in using the H₂OMAP Sewer hydraulic model as an analysis tool. Another objective will be to inform City staff of updates to the model and demonstrate methods for providing responses to developer and City staff inquiries.

Task 16.3 – InfoSWMM® Model Software Update

If during the course of the project it is decided to convert the City's sewer models to InfoSWMM® hydraulic modeling software, this task would include the upgrade of one software license for up to \$2,000. In addition, one day of additional training for up to two employees at the City's office will be provided.

TASK 17 – PROJECT MANAGEMENT AND MEETINGS

Task 17.1 – Meetings and Workshops

Meeting No. 1 – Project Kick-Off

The project will be launched at a kick-off meeting to confirm project objectives, introduce team members, establish communication lines, and discuss the project schedule and Data Collection List. In addition, the outline for each master plan report will be discussed. The outlines will be prepared and finalized early in the project to promote efficient report production.

Meeting No. 2 – Growth Projections

We will meet with the City to discuss future growth areas and demands development methodology. In addition, we will discuss flow-monitoring progress and obtain information on water, sewer, and recycled water systems.

Meeting No. 3 – Model Development

We will meet with the City to discuss our water model calibration plan including fire flow tests. We will also present flow monitoring data and sewer flow projections.

Meeting No. 4 – Criteria Development

We will meet with the City to discuss our water, sewer, and recycled water system evaluation criteria meeting. We will also present water and sewer models and documentations. System evaluation tasks progress will be discussed during this meeting and 50-percent Recycled Water Master Plan Report will be presented.

Meeting No. 5 – 50-Percent Draft Reports Review

Upon submission and review of the 50-Percent Draft Water and Sewer Master Plan Reports by the City, Carollo will meet with City staff to discuss the reports and obtain the City's comments. Carollo will prepare agendas and minutes for each meeting that will be submitted to the City five days prior and post each meeting, respectively. We will also present 70-Percent Recycled

Water Master Plan Report during this meeting. Conveyance and facility condition assessment task will be discussed during this meeting.

Meeting No. 6 – 70-Percent Draft Reports Review

Upon submission and review of the 70-Percent Draft Water and Sewer Master Plan Reports by the City, Carollo will meet with City staff to discuss the reports and obtain the City's comments. Carollo will prepare agendas and minutes for each meeting that will be submitted to the City five days prior and post each meeting, respectively. Morro Hills evaluation task will be discussed during this meeting.

Meeting No. 7 – 90-Percent Draft Reports Review

Upon submission and review of the 90-Percent Draft Water, Sewer, and Recycled Master Plan Reports by the City, Carollo will meet with City staff to discuss the reports and obtain the City's comments. Carollo will prepare agendas and minutes for each meeting that will be submitted to the City five days prior and post each meeting, respectively.

Task 17.2 – Project Control

This task includes managing the project team and subconsultants to track time and budget, work elements accomplished, work items planned for the next period, manpower, scope changes, time, and budget needed to complete the project. This task also includes creating and maintaining a working project schedule.

Task 17.3 – Project Reporting

This task includes preparation of monthly progress reports showing status of project scope, budget, and schedule and identifying key issues or elements of the project that will need to be addressed in the proceeding weeks. An electronic version of the monthly progress reports and invoices will be sent to the City for review and approval. In addition, Carollo's project manager will conduct additional telephone calls with the City's project manager on an as-needed basis to inform him on the project status and upcoming activities.

Task 17.4 – Presentation to City Council and Other Committees

Carollo's principal-in-charge or project manager will attend up to three meetings with City Council, public or other committees to present findings of this project.

Task Deliverables:

- ▶ Meetings Agendas and Minutes.

- ▶ Monthly Progress Reports.

Task 17.5 – Post Project Financial Planning Assistance

Upon the submission of final master plans, out financial analysis expert, Daniel Baker, will be available to assist the City to coordinate master plan findings with the City and/or its financial plan consultant. For budgeting purposes, forty (40) hours of his time is included in this task.

**CAROLLO ENGINEERS, INC.
FEE SCHEDULE**

**As of March 1, 2012
California**

	<u>Hourly Rate</u>
Engineers/Scientists	
Assistant Professional	\$140.00
Professional	175.00
Project Professional	195.00
Lead Project Professional	225.00
Senior Professional	240.00
Technicians	
Technicians	107.00
Senior Technicians	152.00
Support Staff	
Document Processing / Clerical	95.00
Project Equipment Communication Expense (PECE) Per DL Hour	9.90
Other Direct Expenses	
Travel and Subsistence	at cost
Mileage at IRS Reimbursement Rate Effective January 1, 2012:	\$.555 per mile
Subconsultant	cost + 5%
Other Direct Cost	cost + 10%
Expert Witness	Rate x 2.0

This fee schedule is subject to annual revisions due to labor adjustments.



January 11, 2013

City of Oceanside
Att. Jason Daffon, P.E.
300 North Coast Highway
Oceanside, CA 92054

Attention: Mr. Jason Daffon, P.E.

Subject: Proposal for preparation of the Morro Hills System Evaluation

Dear Mr. Daffon:

Per your request, Carollo Engineers, Inc. (Carollo) has prepared this proposal to prepare a system evaluation for the Morro Hills development. The purpose of this study is to identify infrastructure projects required to provide water and wastewater services to this area once converted from its current predominantly agricultural land use to an urban area with residential and commercial land use types. This proposal describes the scope of services required to conduct this study and prepare a report to present the findings. The estimated labor effort and associated project fee are included at the end of this proposal.

SCOPE OF SERVICES

The preparation of the Morro Hills Master Plan is divided into the following ten (10) tasks.

Task 1 – Potential Growth Scenarios

Due to uncertainties surrounding future growth within the Morro Hills area, a low-density and a high-density scenario will be defined in conjunction with City staff to capture a potential range of future growth for both short-term (5-10 years) and future build-out time-frames. The potential density under the short-term time-frame will be defined in conjunction with City staff based on current and foreseeable projects, consistent with CEQA considerations. Future build-out will consider low- and high-density scenarios to capture a potential range of future growth based on existing zoning and likely dedications (e.g., steep slopes, roads, environmental). The future build-out densities assumed for the analysis will range from 600 to 1,000 new homes.

Task 2 – Water Demand Projections

For both the low- and high-density scenarios, the additional water demands within the Morro Hills area will be projected using water demand factors and the methodology from the master plan. These demands will be summarized from both short-term and build-out time frames.

Task 3 – Sewer Flow Projections

For both the low- and high-density scenarios, sewer flows generated within the Morro Hills area will be projected based on a fraction of additional future water demands within the area. The ratio of sewer flows to water demands will be established using available data for areas within the City with similar land use.

The results of Task 4 will be used to determine the amount of future sewer flows that would need to be conveyed with new sewer system infrastructure that cannot be accommodated by new onsite wastewater treatment systems (OWTS).

The sewer projections for short-term and build-out timeframes and will include a breakdown of flows treated by OWTS and flows conveyed to the City's WWTP. The flow summary will be presented for both low- and high density scenarios.

Task 4 – OWTS Analysis

The objective of this task is to identify to what extent, if any, sewer system expansion into Morro Hills would be needed to treat wastewater from future growth beyond the flows that may be treated by OWTS, (or septic tank) installations. It is understood that this will be a cursory evaluation to determine viable areas for on-site percolation of wastewater. More analysis will be needed for the actual siting and design of new OWTS based on proposed development and grading plans. A cursory review of applicable state regulations will be completed to establish an upper range for the maximum allowed number of OWTS and determine how many new OWTS installations could be installed in this area considering geographic issues, such as soil types, topography, and drainage courses. This task is divided into the following three subtasks:

Task 4.1 – Preliminary Geologic Analysis

Our geotechnical subconsultant, LGC Geotechnical, will gather and review pertinent available geologic and geotechnical data with regard to the site geologic conditions. Reconnaissance level field geologic mapping will be performed to confirm and supplement the reviewed data. The geologic mapping will determine the lateral extent of the soil and rock materials present on the site. Based on the reviewed and gathered data, a geologic map of the site will be prepared. The geologic map will be utilized to determine appropriate locations for field evaluation of the percolation rates of the different geologic units present on the site. Areas where dense formational material is found at or near the surface and areas with high topographic relief would be considered not viable for OWTS. Based on this analysis, a field geologic evaluation will be performed (Task 4.2) to determine representative infiltration rates of the different site materials, including in-situ percolation rates as well as limited laboratory testing of the of representative samples of the site materials. The evaluation will also determine if constraints such as shallow impermeable bedrock material and/or shallow groundwater conditions may be present which could affect the type and/or viability of OWTS.

Task 4.2 – Field Geologic Evaluation

As part of this task, LGC Geotechnical will conduct a field geologic evaluation including excavation, sampling and logging of up to 35 boring that are approximately 5-foot-deep to be converted into temporary percolation test wells. Percolation tests will be performed to determine the range of infiltration rates for the various soil types identified in Task 4.1. Percolation testing will include presoaking of each well and then returning after a 24 hour period to measure the rate at which water percolates within each excavation timed at regular intervals.

In addition, this task includes up to 20 geotechnical borings. The geotechnical borings will be excavated to depth of up to approximately 20 feet in the vicinity of representative areas of percolation testing to aid in characterizing the geologic units, and to determine if shallow bedrock or

groundwater is present at the locations tested. Based on this depth, it is assumed that no permits are required.

The borings and percolation test wells will be backfilled to the ground surface with the excavated materials at the end of our field evaluation. Limited laboratory testing will be performed of representative samples obtained from the borings to estimate percolation rates of the materials encountered as well as to determine in-situ moisture contents. The percolation testing performed data will be provide general data with regard to the percolation rates of the site materials and will be applicable for both seepage pits and leach fields. The results of the geologic mapping and limited geologic evaluation will be presented in a geologic evaluation report for the site. The report will discuss the general geologic conditions encountered, describe the geologic units present, and discuss the expected percolation rates of the site materials. The report will include our boring logs and laboratory test results, analysis of the data gathered, a geologic map of the site that depicts the location of the geotechnical borings and percolation test wells, results of the percolation testing and geotechnical borings, and a conclusion with regard to appropriate areas for OWTS.

This fee estimate of this task includes materials for 35 percolation wells (gravel, well pipe, water, water meter, water storage tank) and laboratory testing for 55 borings (sieve and hydrometer, in-situ moisture content). It is assumed that a topographic map of site in AutoCAD format and pertinent geologic and geotechnical data will be available for our use prior to the initiation of our study. It is also assumed that the City will coordinate permissions with the site property owners for our access for field evaluation and mapping.

Task 4.3 – GIS Analysis

Carollo will conduct a GIS analysis to estimate the number of future residential parcels that could use an OWTS for both the low- and high density scenarios. GIS analysis will consider the topology of the study area, drainage courses, stream beds and other features to determine which portions of the study area are not developable. Subsequently, soil types information will be overlaid in conjunction with the findings of Task 4.2 to determine what percentage of the parcels could likely accommodate a new OWTS within the developable area of the Morro Hills development. The geographical distribution of the remaining areas that would need to be served by sewers would then be determined. Based on input of City staff and/or appropriate entities, a preliminary site layout would then be prepared for a preliminary sewer backbone system that will be input in the sewer system model.

Task 5 – Water Modeling and Analysis

To evaluate the impact of future growth within the Morro Hills area on the City's water infrastructure, additional future demands associated with both density scenarios will be included in the model, system capacity will be evaluated, and deficiencies will be identified. Additional water system improvements resulting from each scenario will be identified and presented on a water system map.

Future Morro Hills demands will be modeled as point demands along the Morro Hills boundaries. Pipelines and facilities required to convey water supplies to future developments within the Morro Hills area will not be modeled.

Task 6 – Sewer Modeling and Analysis

Based on the findings of Task 3, the estimated sewer flows (if any) that cannot be treated with existing and new OWTs will be input in the sewer system model developed for the sewer master plan. Modeling analysis will be conducted to identify to if the City's existing sewer collection system would require upgrades under both the short-term and future build-out time-frames. This analysis will be performed for both low- and high-density scenarios.

Future sewer flows from the Morro Hills development will be modeled as point flows along Morro Hills boundaries. Pipelines and facilities required to collect sewer flows within the future developments will not be modeled due to the uncertainty of land development layout at this point in time. Modeling analysis will be used to identify system deficiencies and size additional sewer system improvements, as needed for each scenario. The results for each scenario will be presented on up to four sewer system maps (high and low density for short-term and build-out time frames)..

Task 7 – Cost Estimates

Carollo will develop planning-level cost estimates for potential water and sewer improvement projects resulting from future developments in the Morro Hills area using the unit cost developed for the master plan. The projects and associated costs estimates will be summarized in tabular format for each density scenario listing projects by project ID and facility type. Separate cost estimates will be prepared for both short-term and build-out time frames.

Task 8 – Draft Report

Carollo will prepare a separate report to document the Morro Hills analysis and our findings. In addition to a description of the tasks list above, the memorandum will include a description of the existing water and sewer systems in the Morro Hills area. The report will also include a section that summarizes the key analysis assumptions and limitations of the analysis.

Five hard copies and one electronic copy of the Draft Report will be submitted for review and comments by City staff and other appropriate individuals and entities. It is assumed that City staff will consolidate all comments in one document.

Task 9 – Final Report

Once comments on the Draft Report from City staff and other appropriate individuals and entities are received; they will be reviewed and incorporated into the final report. Five hard copies and one electronic copy of the Final Report will be submitted to City. This report will be included as an appendix to the water and sewer system master plans.

10. Project Management and Meetings

It is estimated that the project duration would be approximately 4 months. We have included one kickoff meeting and two progress meeting with City staff and other appropriate individuals and entities. During the first progress meeting, we will discuss the evaluation methodology, assumptions, and preliminary results. During the second meeting, comments on the draft report will be discussed. Additional communications are anticipated to take place via conference calls.

Project Deliverables:

- ▶ Draft Morro Hills evaluation report
- ▶ Final Morro Hills evaluation report
- ▶ Soil boring and percolation testing report

PROJECT SCHEDULE

It is estimated that the project duration would be approximately 4 months. As shown in the schedule below, it is anticipated that the modeling analysis could start in September 2013 upon completion of the future water and sewer system evaluations of the Master Plan. Tasks that can be completed prior, such as the field testing, are scheduled earlier to align the completion date of this analysis with preparation of the 90% master plan report.

Task	August	September	October	November
1 – Potential Growth Scenarios	█			
2 – Water Demand Projections	█			
3 – Sewer Flow Projections	█			
4 – OWTS Analysis	█	█		
5 – Water Modeling and Analysis		█	█	
6 – Sewer Modeling and Analysis		█	█	
7 - Cost Estimates			█	
8 – Draft Report			█	█
9 – Final Report			█	█
10 – PM and Meetings	X	X		X

ESTIMATED FEE

As shown in the table below, we estimate that the scope services described above require approximately 762 hours, which corresponds to an estimated fee of \$148,655, including materials and laboratory testing required for Task 4.

Table 1 – Fee Estimate

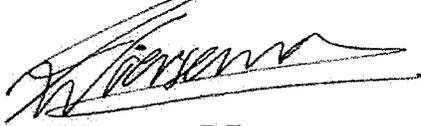
Task Description	Labor Hours	Fee Estimate
1 – Potential Growth Scenarios	8	\$ 1,559
2 – Water Demand Projections	20	\$ 3,698
3 – Sewer Flow Projections	28	\$ 5,229
4 – OWTS Analysis	428	\$ 84,321
5 – Water Modeling and Analysis	34	\$ 5,297
6 – Sewer Modeling and Analysis	34	\$ 7,061
7 - Cost Estimates	20	\$ 3,548
8 – Draft Report	72	\$ 13,311
9 – Final Report	46	\$ 8,400
10 – PM and Meetings	72	\$ 16,232
Totals	762	\$ 148,655

Mr. Jason Dafforn, P.E.
City of Oceanside
January 11, 2013
Page 6

We look welcome any comments and suggestions to modify the scope of service described herein as necessary to match your expectations for this project.

Sincerely,

CAROLLO ENGINEERS, INC.

A handwritten signature in black ink, appearing to read 'Inge Wiersema', written over a horizontal line.

Inge Wiersema, P.E.
Associate Vice President

RESOLUTION NO.

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF OCEANSIDE AUTHORIZING APPLICATION TO THE STATE WATER RESOURCES CONTROL BOARD FOR A WATER RECYCLING FACILITIES PLANNING GRANT

WHEREAS, the City Council of the City of Oceanside authorizes and directs the City Manager or his/her designee to sign and file a grant application for and on behalf of the City of Oceanside, to the State Water Resources Control Board, for a Water Recycling Facilities Planning Grant to prepare a facilities planning study entitled the "City of Oceanside Recycled Water Master Plan Update". The not-to-exceed amount for the application grant is \$75,000;

WHEREAS, the City of Oceanside hereby agrees and further does authorize the aforementioned representative or his/her designee to certify that the Agency has and will comply with all applicable state statutory and regulatory requirements related to any state grant funds received;

WHEREAS, the City Manager or his/her designee of the City of Oceanside is hereby authorized to negotiate and execute a grant contract and any amendments or change orders thereto on behalf of the City of Oceanside;

NOW, THEREFORE, the City Council of the City of Oceanside does resolve as follows:

SECTION 1. That application be made to the State Water Resources Control Board, to obtain Water Recycling Facilities Planning Grant funding and to enter into an agreement to receive a grant for the City of Oceanside Recycled Water Master Plan Update project.

SECTION 2. The City Manager or his designee is authorized and directed to prepare the necessary data, make investigations and submit such application, and to sign and execute an agreement with the State Water Resources Control Board to receive grant funds. The City of Oceanside will work with the State Water Resources Control Board to meet established deadlines for entering into the agreement.

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1 PASSED AND ADOPTED by the City Council of the City of Oceanside, California,
2 this _____ day of _____, 2012, by the following vote

3 AYES:

4 NAYES:

5 ABSENT:

6 ABSTAIN:

7
8 _____
9 MAYOR, CITY OF OCEANSIDE

10
11 ATTEST:

APPROVED AS TO FORM:

12
13 _____
14 CITY CLERK

Bradford Hamilton, ASST.

CITY ATTORNEY

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25 12-5-12 Reso to apply for Water Recycling Facilities Planning Grant
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CONSULTANT PROPOSAL - RATING FORM

NAME OF FIRM: A) Carolla; B) IEC; C) NV5

DATE: _____

PROJECT: Update Water, Wastewater and Recycled Water Master Plans

PROJECT NO.: 9081223007103, 909123200710

ITEM	POINTS	CONSULTANT'S RATING				
		A	B	C	D	E
I. QUALIFICATIONS OF FIRM AND MEMBERS						
A. Specialized expertise of members	15					
B. Adequacy of staff and resources.	15					
II. PERFORMANCE OF WORK SIMILAR IN CHARACTER						
A. Comparable work (local area preferred).	10					
B. Proposal submitted by Oceanside firm.	6					
C. Proposal included an Oceanside firm as part of a consulting team.	4					
D. Additional points based on abilities, qualifications, and commitment of Oceanside firm.	5					
III. ABILITY TO PROVIDE SERVICES:						
A. Ability to complete job on time.	10					
IV. QUALITY OF PROPOSAL						
A. Satisfactorily address all objectives.	10					
B. Provide additional amplifying information.	5					
C. Presentation, clarity, neatness.	5					
V. WORK PERFORMANCE FOR THE CITY						
A. No work in past 12 months.	10					
B. Work in past 12 months - deductions based on Contract amount.						
VI. PRICE						
A. Overall cost.	10					
TOTALS:	105	0	0	0	0	0

RANKING:

1 _____

2 _____

3 _____

4 _____

5 _____

RATED BY:

Name/Title: _____

Name/Title: _____

Name/Title: _____

Name/Title: _____

Date: _____

