THE CITY OF SAN DIEGO

OFFICE OF THE INDEPENDENT BUDGET ANALYST REPORT

Date Issued: October 18, 2019 **IBA Report Number:** 19-25

City Council Docket Date: October 22, 2019

Item Number: 332

Third Amendment to Agreement with Stantec

OVERVIEW

At the October 10, 2019 Environment Committee meeting, the Public Utilities Department requested to extend the existing agreement with Stantec Consulting Services, Inc. (Stantec) for another five years and increase the spending authorization by $37.7 million. The original agreement was for a not-to-exceed amount of $30.0 million and a term of five years. The first amendment increased the not-to-exceed amount to $46.4 million and the second amendment brought the not-to-exceed amount up to $56.4 million. The third amendment, if approved by City Council, would bring the total contract duration to 10 years and a not-to-exceed amount of $94.1 million.

The Public Utilities Department uses the agreement with Stantec for engineering and technical services on the Pure Water Program. This includes program management, cost control, assisting with regulatory requirements, and community outreach for implementation of Phase 1 of Pure Water which is expected to produce 30 million gallons per day (mgd) of purified drinking water, at an estimated cost of $45.0 million/year, once it is in operation. The third amendment would extend Stantec's services as project manager through bringing Phase 1 online. Amendment 3 also includes tasks in preparation for Phase 2 of Pure Water: planning and technical studies and the demonstration facility construction and operation.

At the Environment Committee meeting on October 10, 2019, Councilmember Moreno requested that our office work with Public Utilities Department to analyze whether the City is getting a good deal by extending this contract without competitive bidding. We were specifically asked to evaluate how program management costs provided by Stantec compare to best practice benchmarks and how the City supervises the contract.

FISCAL/POLICY DISCUSSION

We have met with the Public Utilities Department and they have provided the following information to our office to address the Committee's questions.

Amendment 3 - Planned Activities

The Public Utilities Department has provided a list of Planned Tasks for the Amendment 3 to the Stantec Agreement in the backup materials for the City Council meeting of October 22, 2019. This information was not included in the materials at the time of the Environment Committee meeting. The list shows a breakdown of tasks associated with Phase 1 and Phase 2 of the program. Following is a summary of those activities and costs:

Planned Activities for Stantec	Amount	Percentage
Program Management	$23.9M	63.4%
Phase 2 Demonstration Facility	$5.4M	14.3%
Outreach Services	$3.6M	9.5%
Phase 1 Technical Studies & Support	$3.0M	8.0%
Phase 2 Planning & Technical Studies	$1.8M	4.8%
Total Amendment 3	**$37.7M**	**100.0%**

Program management accounts for 63.4% of Amendment 3. When combined with outreach and Phase 1 technical studies and support, approximately 80.9%, or $30.5 million, of the estimated cost of Amendment 3 will support the completion of Phase 1. Phase 2 activities represent 19.1%, or $7.2 million, of Amendment 3.

Program Management Costs Compared to Industry Standards

At the Environment Committee meeting, the Public Utilities Department indicated that program management costs provided by Stantec are within industry standards compared to the full cost of the program. They reference the Construction Management Association of America's (CMAA) *2014 Comparison of Construction Management and Program Management Fees* which cites 5.6% as the industry average.

The Public Utilities Department has provided the following table of cost comparisons. The table includes the cost of the full Stantec Agreement with Amendment 3 ($94.1 million). The Department has also isolated the standard program management activates from the Agreement ($79.5 million of the $94.1 million) by removing:

- Highly technical and narrowly focused studies, which have supported Phase 1 implementation but would not be considered typical CIP program management activities, and
- Activities that will support Phase 2 of the Pure Water Program.

In the following table, these amounts are compared to the total cost estimate of Pure Water Phase 1 ($1.6 billion as of November 2018, inflated to $1.8 billion today). The Department has also provided only Pure Water costs ($1.4 billion in November 2018, inflated to $1.5 billion today), without the related non-Pure Water capital work such as:

- Maintenance and existing facility upgrades,
- SDG&E coordination, and
- The owner-controlled insurance program.

Stantec Agreement	Total Program (inflated to $1.8B)	Pure Water Projects (inflated to $1.5B)
Full Agreement ($94.1M)	**5.2%**	6.3%
Standard PM Tasks ($79.5M)	4.4%	**5.3%**

Reviewing these figures, the cost of the full Stantec Agreement represents 5.2% of the cost of the full Pure Water program, using the inflated amount. Stantec's program management tasks represent 5.3% of the inflated cost of the Pure Water project costs. Both amounts fall below the 5.6% industry standard found in the CMAA's *2014 Comparison of Construction Management and Program Management Fees.*

Continuation of Program Management Knowledge and Expertise

At the Environment Committee meeting, one of the reasons cited by the Public Utilities Department for extending the Stantec Agreement rather than going out to bid is the familiarity that Stantec has with the project. The Department stated that they would incur significant effort and cost to get a new contractor up to speed. The Request for Proposal (RFP) and contract award process could take up to a year before a new program manager could be hired. Once a new program manager is hired, the Public Utilities Department estimates it would take about six months and cost approximately $1.5 million to train the new program manager, which would further delay the project. With an annual projected savings of $45.0 million from not purchasing 30 mgd of water once Phase 1 is complete, a six-month delay to the project could be extrapolated to cost the rate payers approximately $22.5 million. Note that the Department has indicated that they intend to issue an RFP for a program manager for Phase 2 of the program.

Contracted Costs Remain Stable

Stantec is using the same hourly rates negotiated five years ago. Except for costs that are beyond the consultants' control (such as rent increases), the proposed extension of the Stantec Agreement does not allow for modifications to the Compensation and Fee Schedule (Exhibit C-3 to the Third Amendment to Agreement). Increases have only been negotiated once over the initial five-year term of the Agreement for some of the subconsultants due to impacts outside of their control.

According to the Bureau of Labor Statistics, average weekly wages in San Diego County grew by 3.2% between the 4th quarter of 2017 and the 4th quarter of 2018. This is the same rate as the national average, and the California state average was 3.3% growth for the year. The table below shows average wage increase in San Diego for four years. If these average wage increases are reflected in consultant rates, it is possible that a newly bid contract could result in higher costs.

Year (4th quarter to 4th quarter)	Average Wage Change in San Diego County
2014 to 2015	+ 4.3%
2015 to 2016	- 1.5%
2016 to 2017	+ 4.3%
2017 to 2018	+ 3.2%

Source: Bureau of Labor Statistics *County Employment and Wages in California* news releases

Limited Potential for Competition

The Public Utilities Department has stated that the vast majority of the well-recognized program management firms who could perform the work needed for Phase 1 would have conflicts that would preclude their ability to bid on the work. For example, many of these firms are providing other services on Phase 1 which would create a conflict with program management responsibilities. The Public Utilities Department has provided a list of consultants working on Phase 1 of Pure Water, see Attachment 1 to this report. They have annotated, using footnote #1, which firms have large program management capabilities that have conflicts which would not allow them to compete on program management tasks for Phase 1. The Department prefers to wait to re-bid these services when program management services are uniquely required for Phase 2, which will provide a more competitive procurement for the City.

It should also be noted that the firms listed in Attachment 1 and Stantec are the prime contractors. Stantec has a large list of subconsultants included in their contract which can be seen in the Compensation and Fee Schedule (Exhibit C-3 to the Third Amendment to Agreement). The Public Utilities Department has indicated that virtually all of the contracts on the list provided as Attachment 1 also include multiple subcontractors.

Contract Management via Task Order

The agreement with Stantec is for as-needed services. At the Environment Committee meeting, the Public Utilities Department indicated they control costs and have oversight of all work performed by initiating a task order for every activity Stantec or its subcontractors perform under the Agreement. The task order details the work to be performed, deliverables, schedule and budget. A sample task order has been provided as Attachment 2 to this report. By utilizing the task order process outlined below, the Public Utilities Department ensures that all work performed complies with the Stantec Agreement:

1. City initiates new task order, provides Stantec with a specific scope or a broad description of desired scope and deliverables.
2. Stantec drafts a detailed scope of work broken down into tasks and subtasks.
3. City provides detailed comments on any revisions, deletions or additions necessary to accurately reflect the City's objective for the task order.
4. Stantec finalizes detailed scope of work per City comments.
5. Stantec prepares a draft detailed fee schedule, delineating individual staff classifications to be assigned to specific tasks, hours per each staff person, and staff hourly rates. The same information is provided for all subconsultants assigned to the task order.
6. City Task Order Manager reviews scope, fee, and all work classifications assigned to the project to ensure it agrees with the City's needs and objectives.
7. City Contract Manager reviews the task order to ensure compliance with the contract terms and negotiated rates and to ensure that the fee aligns with the scope.
8. City Contract Specialist performs a final review for compliance with contract terms and rates.
9. Stantec finalizes the fee to complete the task order scope and fee package. City Contract Manager routes the package to the Finance and IT Division of the Public Utilities Department.

10. At the Finance and IT Division:
    a. City Budget Analyst reviews the Task Order and signs it.
    b. Scope is returned to Stantec for authorizing signature.
    c. City Principal Contract Specialist provides the final signature.
11. If the Task Order is CIP funded, it is routed, reviewed and approved by the following individuals:
    a. Deputy Director for Pure Water Operations
    b. CIP Supervising Management Analyst
    c. Deputy Director of Finance
    d. Assistant Director for Pure Water
    e. Executive Assistant Director
12. The Task Order is then routed externally to Environment Review, Equal Opportunity Contracting, and the Department of Finance.
13. After the work is authorized, Stantec submits monthly invoices that describe the work completed and the level of effort required. The City reviews and provides comments to Stantec regarding any missing or incorrect information. Stantec must fully address all comments to City's satisfaction before the City approves the invoice for payment.

CONCLUSION

In response to the request from Councilmember Moreno, the Public Utilities Department provided our office with information to consider in determining if the City is getting a good deal by extending and increasing the existing contract verses issuing a new RFP. The Department justifies the extended and increased contract by citing the following: costs of Amendment 3 as a percentage of total program costs, advantages of continuing with knowledgeable staff, largely maintaining costs established five years ago, and limited potential for qualified competition. In addition, the Public Utilities Department has described how they manage this as-needed contract using the task order process.

Angela Colton
Fiscal & Policy Analyst

APPROVED: Andrea Tevlin
Independent Budget Analyst

Pure Water Program Phase 1 Contracts

Contract	Estimated Contract Amount ($)	Consultant	Description
Metropolitan Biosolids Center (MBC) Improvements (H176825)	$5.1M[1,2]	CH2M Hill Engineers	Pure Water Phase 1 Project Detailed Design Contract for MBC Improvements
North City Water Reclamation Plant (NCWRP) Expansion and North City Pure Water Facility (NCPWF) Influent Conveyance (H166722)	$19.7M[1,2]	CH2M Hill Engineers	Pure Water Phase 1 Project Detailed Design Contract for NCWRP Expansion and PWF Influent Conveyance
NCPWF (H176846)	$26.9M[1]	Carollo Engineers	Pure Water Phase 1 Project Detailed Design Contract for NCPWF
Morena Pump Station WW Force Main and Brine Conveyance System (H166635)	$11.9M[1,2]	AECOM	Pure Water Phase 1 Project Detailed Design Contract for Morena pump station and pipeline
Pure Water Pump Station and Pipeline (North City Conveyance System) (H156508)	$11.2M[1]	HDR Engineering	Pure Water Phase 1 Project Detailed Design Contract for Pure Water pump station and pipeline
As-Needed Construction Manager – Treatment Facilities (H176935)	$75.0M[1,3]	Parsons/Black & Veatch	Pure Water Phase 1 Project Construction Management Contract for treatment facilities
As-Needed Construction Manager – Conveyance Facilities (H176955)	$45.0M[1,3]	CH2M Hill Engineers	Pure Water Phase 1 Project Construction Management Contract for conveyance facilities
NCWRP Expansion – Site/Mass Grading and NCPWF – Clearing and Grubbing	$16.4M[1]	AECOM Energy & Construction, Inc.	Construction contract for NCWRP and NCPWF early site work
Pure Water North City Public Art Project (H166774)	$1.0M	Christian Moeller Studio, LLC	Pure Water Phase 1 public art contract
Contract Between the City of San Diego and The National Water Research Institute for Independent Advisory Panel (IAP)	$1M	NWRI	Contract for research institute IAP panel support
As-Needed Real Property Appraisal, Acquisition, and Relocation Assistance (H166608)	$3.0M[3]	Clark Land Resources	Real estate support services contract for Pure Water
As-Needed Engineering Technical Services Consultant for Pure Water (H156303)	$56.4M[1,3]	Stantec Consulting	Pure Water Phase 1 Program Management contract

Contract	Estimated Contract Amount ($)	Consultant	Description
Specialized Technical Support Services for NCPWF and DPWF (H186591)	$4.9M[3]	Trussell Technologies, Inc.	Specialized Technical Support Services for NCPWF and DPWF, including studies for the demonstration facility
As-Needed Engineering Consultant Services 2015-2018 (H146292)	$2.3M[1,2]	Kleinfelder	As-Needed Engineering Consultant Services 2015-2018, including studies for pathogen removal at NCWRP
As-Needed Engineering Consultant Services (H166753)	$3.4M[1,2]	Kleinfelder	As-Needed Engineering Consultant Services to support both Pure Water and non-Pure Water projects, including design of the Miramar Reservoir Pump Station
As-Needed Engineering Consultant Services(H166754)	$1.4M[1,2]	Carollo Engineers	As-Needed Engineering Consultant Services to support both Pure Water and non-Pure Water projects, including demonstration facility ozone / BAC relocation design for the Phase 1 early sitework
As-Needed Environmental Services (H166750)	$57K[2]	Helix	As-Needed Environmental Services to support both Pure Water and non-Pure Water projects, including Pure Water CEQA and NEPA document production
As-Needed Environmental Services (H156463)	$3.7M[2]	Dudek	As-Needed Environmental Services to support both Pure Water and non-Pure Water projects, including CEQA and NEPA analysis and documents for Miramar Reservoir

[1]Firms with large Program Management capability
[2]Contracts support both Pure Water and Non-Pure Water projects. Estimate Contract Amount listed is for Pure Water only.
[3]Estimated Contract Amount shows the total contract Not-to-Exceed (NTE) budget, not authorized Task Orders to date.

Stantec

May 24, 2019

Ms. Amy Dorman, Program Manager
Public Utilities Department
9192 Topaz Way
San Diego, CA 92123

Subject: Proposal to Execute Task Order for the Water Treatment Plant Residuals Management Planning Study under the As Needed Engineering Technical Service Consultant for Pure Water San Diego Program Agreement, RR – 309350/H156303

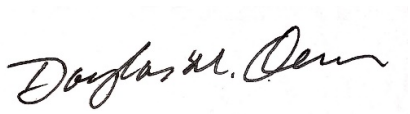
Dear Ms. Dorman,

In accordance with the subject Agreement, Stantec respectfully submits the attached scope of work and fee for a new Task Order, the Water Treatment Plant Residuals Management Planning Study, for your review and approval.

The objective of this Task Order is to help the City better understand and evaluate potential alternative approaches for the discharge of water treatment plant (WTP) residuals into the drinking source water reservoir associated with each of the CITY's three (3) water treatment plants (WTPs); the Miramar Water Treatment Plant (MWTP), Alvarado Water Treatment Plant (AWTP), and Otay Water Treatment Plant (OWTP). The proposed fee associated with this task order is $309,977. The work is to be completed by December 31, 2019.

Attached is the proposed scope of work and budget spreadsheet for the Task Order. Please let us know if you have any questions regarding this proposal. We are happy to meet with you at your convenience to discuss this request.

Respectfully Submitted,



Douglas M. Owen, PE, BCEE, ENV-SP
Consultant Team Manager

9665 Granite Ridge Drive TEL 858-751-1200
Suite 220
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SAN DIEGO PURE WATER

AS-NEEDED TECHNICAL SERVICES

TASK ORDER X: WATER TREATMENT PLANT RESIDUALS MANAGEMENT PLANNING STUDY

Introduction

The CITY of San Diego (CITY) would like to better understand and evaluate potential alternative approaches for the discharge of water treatment plant (WTP) residuals into the drinking source water reservoir associated with each of the CITY's three (3) water treatment plants (WTPs); the Miramar Water Treatment Plant (MWTP), Alvarado Water Treatment Plant (AWTP), and Otay Water Treatment Plant (OWTP).

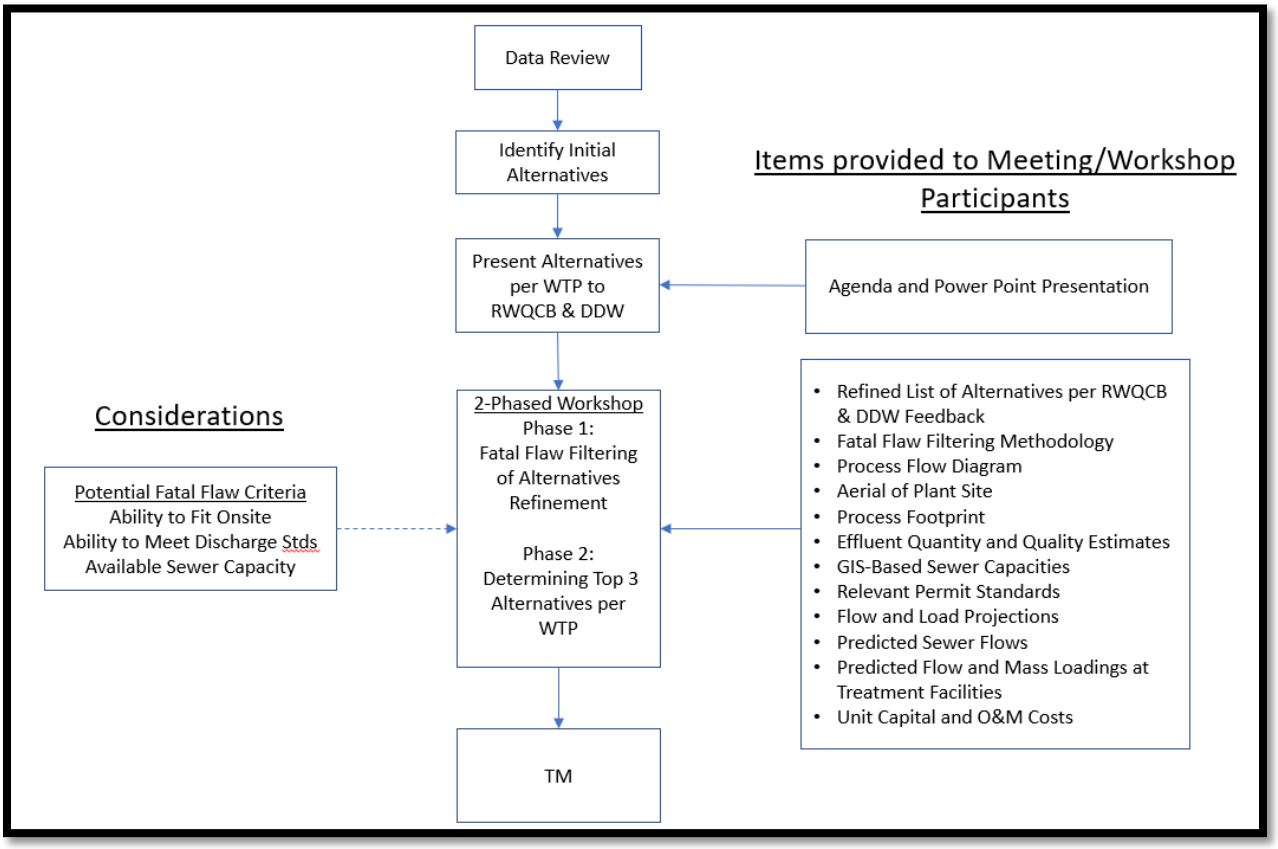
Currently, each of the subject WTPs releases its residual solids in the form of sedimentation sludges and filter backwash to the associated drinking source water reservoir, including Miramar Reservoir for the MWTP, Murray Reservoir for the AWTP, and Lower Otay Reservoir for the OWTP. The CITY would like to have a general understanding of other options to manage residuals from the WTPs as the State Water Resources Control Board (SWRCB) begins a renewal process for their statewide National Pollutant Discharge Elimination System (NPDES) Permit for Drinking Water System Discharges to Waters of the United States. That permit expires on February 25, 2020.

As outlined in *Ref 2*, analysis of general and individual permits adopted by other California Regional Water Quality Control Boards (RWQCBs) and other State Water Resources Control Boards (SWRCBs) show a variety of approaches, including requirements for monitoring of total suspended solids (TSS), settleable solids, chlorine residual, and other constituents. Some permits specifically require that the residuals receive some form of treatment prior to discharge. Therefore, the CITY requested that the CONSULTANT conduct a WTP Residuals Management Planning Study (Planning Study), including an alternatives analysis, feasibility evaluation and planning services for residuals management at the three (3) WTPs.

The Planning Study described in this scope of work (SOW) involves review of existing data, alternatives development, a presentation of the alternatives to the RWQCB, high-level feasibility assessment and reduction of number of alternatives to consider further through a fatal flaw filtration process, and a workshop with stakeholders (content experts and appropriate CITY staff) to arrive at up to three (3) viable alternatives for each WTP. Finally, a technical memorandum will be prepared to document the process. A generalized workflow diagram is presented as Figure 1, which includes the Planning Study tasks as well as information that would be generated by the Project Team to facilitate the process. A detailed description of the work is provided below.

This Planning Study is not intended to represent a facility plan or conceptual design of the alternatives considered and is limited to a "high- level" planning evaluation. A Business Case Evaluation (BCE) and provided as an optional task if desired once the high-level effort is complete.

Figure 1
Generalized WTP Residuals Management Work Flow Diagram



Scope of Work

Task 1 Task Order Management

Overall Task Order management will be performed consistent with the guidelines and direction provided in the Pure Water Program Management Plan (PMP). This task supports general management of the task order and includes activities such as attending kickoff and progress meetings, coordination with the CITY program management team, providing information and task progress updates, and documenting meetings, telephone conversations, and email communications.

Pure Water Task Order Controls will be utilized to track budget, schedule and performance consistent with the Project Delivery System. The CONSULTANT Task Manager will provide input to the CITY Project Manager (PM) to support updates to the budget, schedule and performance of each task.

The work to be performed in this Planning Study will be in accordance with the project schedule presented below, which is based on an NTP of June 3, 2019.

Task	Description	2019						
		June	July	Aug	Sept	Oct	Nov	Dec
1	Task Order Management							
2	Data Collection and Review							
3	Identification of Initial Residual Solids Management Alternatives							
4	Meeting with Regional Water Quality Control Board (RWQCB) and California Department of Drinking Water (DDW)							
5	Conduct 2-Phased Workshop							
6	Water Treatment Residuals Management Evaluation Technical Memorandum (TM)							

Task 2 Data Collection and Review

CONSULTANT will identify data needs for the Planning Study and develop a data request list that will be submitted to the CITY within one (1) week from NTP. CONSULTANT will evaluate existing information and engineering reports required to meet the specific objectives of the Planning Study. This evaluation will include the following:

- Up to one (1) site visit per WTP (MWTP, AWTP, and OWTP), assessment, and interviews of up to three (3) operations and maintenance (O&M) staff per WTP;
- Analysis of current and future residual solids (comprised of solids captured in clarification and filter backwash) production rates from the WTPs including the review of the previous and existing residuals generation, collection, treatment, and conveyance systems (sludge and backwash water) data to be provided by the CITY
- Review of the existing CITY's regulatory reports and regulations related to the water treatment residuals management
- Review of O&M records for the existing residuals generation, collection, and conveyance systems (as available)
- Review of up to 5 years of data relative to the existing residuals solids characterization for the three (3) WTPs
    - It is assumed the CITY will provide the data in MS Excel format, with monitoring locations, units, and date/time clearly indicated.
- Review of previous and ongoing relevant reports supplied by the CITY, including review of the technical analysis of local and industry practices and regulatory studies. This includes the following studies, papers and evaluations previously conducted which will provide background information for this Planning Study:
    - "*Evaluation of Alternatives to Present Methods of Handling Water Treatment Plant Solids",* developed for the CITY by Camp, Dresser and McKee (CDM)/Brown and Caldwell (BC) in January 2000 (*Ref 1*)
    - Ongoing technical and regulatory review of the San Diego area water treatment residuals management outlined in a Draft White Paper "*Technical and Regulatory Issues Regarding Permitting the Discharge of Filter Backwash Water*" developed for the San Diego County Water Authority (CWA) by Water Quality and Treatment Solutions (WQTS) in November 2018 (*Ref 2*)

  - AECOM's ongoing review of jurisdictional Water of the United States determination under the Clean Water Rule, as outlined in *Ref 2*
  - Ongoing study of the "*Fate of Water Treatment Plant Residuals in Miramar Reservoir: a Desktop Study*" currently performed by Trussell Technologies

- Review of sewerage system layouts and hydraulic capacities at and in the vicinity of the three (3) WTPs based on the data provided by CITY. It is assumed that the CITY will provide the latest GIS file(s) associated with the Metro and Muni sewers in the vicinity of the WTPS.
- Review of mass and flow projections and available capacities associated with existing sewers and downstream receiving wastewater treatment plants, the Metro Biosolids Center (MBC), and local landfills that could be used for potential treatment of the WTP residual solids diverted to the Public Utilities Department (PUD) sewers based on the data and future loading projections provided by CITY
- Review of potential recycling, conversion, or other emerging technologies and approaches to organic waste management that may also extract resource value that could be beneficial to the CITY.
- Contacting residuals thickening, dewatering and pumping vendors to evaluate the potential equipment alternatives

Task 2 Deliverable

- Data Request List via email.

Task 3 Identification of Initial Residual Solids Management Alternatives

After the data collection and review, CONSULTANT will identify potential alternate methods of WTP residual solids management, including treatment onsite or offsite and residuals disposal or reuse alternatives to the current residuals management practice. The potential alternatives for each WTP will include combinations of treatment for filter backwash and sedimentation sludges, discharge to the sewer, and beneficial reuse of solids., but not limited to, the following:

1) Discharge combined sedimentation sludges and filter backwash waters to nearby sewers for ultimate treatment at the receiving wastewater treatment plants (North City Water Reclamation Plant, Point Loma Wastewater Treatment Plant or South Bay Water Reclamation Plant)
2) Thicken combined sedimentation sludges and filter backwash waters, convey thickened residual solids via dedicated pipelines to the MBC with:
    a) Conveyance of thickening centrate/filtrate back to the drinking source water reservoirs, including an assessment the feasibility of returning it to the reservoir permitted as a discharge under applicable state and federal regulations.
    b) Conveyance of equalized thickening centrate/filtrate back to the associated WTP headworks
3) Thicken combined sedimentation sludges and filter backwash waters and deliver thickened solids for treatment at MBC by trucks with:
    a) Conveyance of thickening centrate/filtrate back to the drinking source water reservoirs, including an assessment the feasibility of returning it back to the reservoir permitted as a discharge under applicable state and federal regulations

   b) Conveyance of equalized thickening centrate/filtrate back to the associated WTP headworks

4) Thicken and dewater combined sedimentation sludges and filter backwash waters at each WTP and deliver dewatered cake to a land application or landfill (in accordance with current or future regulations and policies) with:
   a) Discharging of thickening and dewatering centrate/filtrate to the sewers
   b) Conveyance of thickening and dewatering centrate/filtrate to the drinking source water reservoirs, including an assessment the feasibility of returning it back to the reservoir permitted as a discharge under the state Porter-Cologne Act
   c) Conveyance of equalized thickening and dewatering centrate/filtrate to the associated WTP headworks
5) Segregate sedimentation sludges and filter backwash waters at each WTP, provide separate treatment (i.e., thickening and dewatering facilities) for each of the streams and deliver dewatered cake to a land application or landfill (in accordance with current or future regulations and policies) with or other reuse of options:
   a) Discharging of thickening and dewatering centrate/filtrate to the sewers
   b) Conveyance of thickening and dewatering centrate/filtrate to the drinking source water reservoirs, including an assessment the feasibility of returning it back to the reservoir permitted as a discharge under the state Porter-Cologne Act
   c) Conveyance of equalized thickening and dewatering centrate/filtrate to the associated WTP headworks
6) For each WTP, evaluate keeping sedimentation sludges and filter backwashes as segregated waste streams;
   a) Evaluate treating filter backwash in separator or other low-cost, low maintenance technology; and sending treated portion to plant headworks (or reservoir) and concentrated mass to combine with sludge
   b) Evaluate sending sludge to sewer
   c) Evaluate other sludge treatments and management options that would allow for the recovery and beneficial reuse of constituents of value such as biogas, biosolids, syngas, biochar, etc.

The alternatives identified will be subjected to a fatal flaw analysis performed under Task 5.

Task 3 Deliverable

- Initial Residual Solids Management Alternatives list placed in the criteria matrix to be developed and weighted as a part of Task 5.

Task 4 Meeting with Regional Water Quality Control Board (RWQCB) and California Department of Drinking Water (DDW)

The purpose of this task is to present the initial list of alternatives identified in Task 3 to the RWQCB and DDW and obtain their feedback. It is assumed that the RWQCB/DDW staff will not provide recommendations; rather, it is anticipated that they will provide opinions on the viability of the alternatives and provide insight into other residual management considerations.

The CONSULTANT will prepare a draft agenda and Power Point presentation related to the initial list of alternatives identified by the CONSTULTANT and reviewed by the CITY. The CITY shall provide the CONSULTANT with a consolidated set of comments, which the CONSULTANT will use to prepare the final agenda and Power Point presentation for the meeting with the RWQCB and DDW. The CONSULTANT PM and one other CONSULTANT staff member will accompany the CITY to this meeting and lead the presentation as needed.

CONSULTANT shall provide draft meeting minutes for CITY's review no later than 5 working days after the meeting. The CITY shall provide the CONSULTANT a consolidated set of comments, which the CONSULTANT will deliver to the CITY no later than 5 working days after receipt of the comments.

Task 4 Deliverables

- Draft and Final agenda and Power Point Presentation
- Draft and Final RWQCB and DDW Meeting Minutes

Task 5 Conduct 2-Phased Workshop

The purpose of this task is to conduct a 2-Phased, 3-day Workshop focused at reducing the revised list of alternatives after meeting with the RWQCB and DDW by applying a fatal flaw filter (Phase 1), and ultimately identifying three alternatives per WTP using weighted criteria established during the workshop (Phase 2).

To facilitate the workshop, the CONSULTANT will prepare a package of information consisting of the following items:

- **Refined list of Alternatives per RWQCB/DDW Feedback**
- **Fatal Flaw Methodology** – list of constraints that will render the alternative infeasible if they are not met (e.g., ability to fit onsite, ability to meet discharge standards, available capacity in nearby sewers, etc.)
- **Process Flow Diagram** – a diagram which identifies the major components of the process train/conveyance facilities
- **Aerial of Each WTP Site –** Google Earth images of sufficient scale to allow for a "paper doll" exercise to be conducted to determine space availability at each site. Each image will be limited to the area bounded by property lines and surrounding streets (to assist with determining traffic patterns for hauled WTP residuals.
- **Major Treatment and Conveyance Facility Footprint** – CONSULTANT will contact equipment vendors and other sources (e.g., agencies, subject matter experts) with relevant experience and information to establish the footprint.
- **Effluent Quantity and Quality Estimates** – determined using flow and load projections issued to the CONSULTANT by the CITY and information from vendors and other sources.
- **GIS-based Sewer Capacities** – determined using GIS files provided by the CITY.
- **Relevant Permit Standards**

- **Flow and Load Projections** – initially provided by the CITY and formatted by the CONSULTANT for ease of use during the workshop.
- **Predicted Sewer Flows** – wastewater flow projections for 2035 and 2050 for nearby, relevant sewers to assist with determining remaining capacity in sewers available for WTP residuals.
- **Predicted Flow and Mass Loadings at Treatment Plan**ts – required for determining the remaining capacity at treatment plants (including landfills) for processing WTP residuals.
- **Unit Capital and O&M Costs** – costs established for each major equipment from past, related projects in units of $/mgd

The information package will be provided to the CITY for review at least 2 weeks in advance of the workshop.

The initial phase of the workshop will apply the fatal flaw filter to the revised list of alternatives and eliminate any which cannot meet identified constraints, which may include the ability for the treatment and conveyance systems being considered to fit within the site, the to meet discharge standards (for alternatives requiring the return of treated effluent to the reservoir), and the ability for nearby sewers to accommodate the quantity of residuals (treated or untreated or a combination of both).

The next phase of the workshop will involve separating the workshop participants into three groups (each representing a different WTP). Each group will be assigned to identify up to three viable alternatives from the menu of alternatives that survived the fatal flaw filter. Materials in the Information Package provided to the participants in advanced will serve as references to allow each group to cull the list of alternatives during a breakout session. Each alternative will be developed by the group to include a process flow diagram, a conceptual layout, and planning level costs. Each group is expected to assign a person to explain the reasons for their selection. The rest of the audience will be welcomed to ask questions and participate in the brainstorming session for each facility. Once accepted by the group, up to three alternatives for each WTP will be recorded and memorialized via meeting minutes. CONSULTANT shall provide draft meeting minutes for CITY's review no later than 10 working days after the meeting. The CITY shall provide the CONSULTANT a consolidated set of comments, which the CONSULTANT will deliver to the CITY no later than 5 working days after receipt of the comments.

Task 5 Deliverables

- Information Package (see Task 5 description for list of materials)
- Draft and Final Workshop Meeting Minutes

Task 6 Water Treatment Residuals Management Evaluation Technical Memorandum (TM)

CONSULTANT will prepare a draft and final draft TM for the Planning Study, including executive summary, Planning Study data analysis overview, alternatives development, alternatives evaluation methodology, summary of workshop activities and outcomes, conclusions and recommendations, and supportive materials. The TM will serve as a reference document for the optional Business Case Evaluation of the shortlisted alternatives described in Task 7. The draft and final draft TM will include siting/general layout exhibit for up to three (3) viable candidate per WTP.

Both the draft and final draft TM will undergo a technical editing and formatting in accordance with Pure Water guidelines.

Task 6.1 Prepare Draft TM

A draft of the TM described above will be prepared. It is anticipated that CITY staff will review and provide comments on the draft TM within a two (2) week period.

Task 6.2 Prepare Final Draft TM

CONSULTANT will address CITY comments and incorporated agree-upon edits in the final draft TM.

Task 6 Deliverables

- Draft TM delivered in PDF format and hard copies.
- Final Draft TM: delivered in electronic native and PDF formats, and hard copies.
- It is assumed that ten (10) hardcopies of the Draft TM and the Final Draft TM submittals will be produced. Electronic copies of each submittal (in PDF format) will also be stored in the Pure Water SharePoint site.

Task 7 Perform Business Case Evaluation (Optional, Task will not begin without prior approval from CITY)

CONSULTANT will perform a Business Case Evaluation (BCE) to further examine the capital and O&M costs and advantages and disadvantages associated with the top alternatives identified under Task 5 and described in Task 6 (a total of nine (9) alternatives will be evaluated, three (3) per WTP). Development of the costs will require a more detailed look at the equipment, infrastructure and site improvements needs for each alternative. It will also better define incorporation of the proposed improvements into the existing facilities, including those receiving the residuals (i.e., collection system, treatment facilities, landfills). The CONSULTANT will maximize the use of information gathered under Task 2 and in executing Task 5; however, it is anticipated that additional information will be required for the refined evaluation. No greenhouse gas assessment will be performed.

The BCE findings will be described in a TM and will highlight the 20-year life-cycle costs of the top alternatives as well as non-economic factors that might differentiate these alternatives. The draft BCE TM will be provided to the CITY for review and comment. CITY will provide one set of consolidated comments on the draft BCE TM within two (2) weeks. Consultant will attend one comment review meeting if needed (assumed to last up to two (2) hours) to discuss comments on the draft TM. Consultant will then incorporate the accepted changes and generate a final draft BCETM.

Task 7 Deliverables

- Draft BCE TM in PDF format and hard copies.
- Final Draft BCE TM: delivered in electronic native and PDF formats, and hard copies.
- It is assumed that ten (10) hardcopies of the Draft BCE TM and the Final Draft BCE TM submittals will be produced. Electronic copies of each submittal (in PDF format) will also be stored in the Pure Water SharePoint site.

Estimated Project Schedule

It is assumed that the subject Planning Study will start on June 3, 2019 and be completed through Task 6 within a seven (7) month period, as shown under Task 1 above. If Optional Task 7 is directed by the City, it could be completed within an additional 3 months.

References

1) Evaluation of Alternatives to Present Methods of Handling Water Treatment Plant Solids, CITY of San Diego, Camp, Dresser & McKee/Brown and Caldwell, January 2000.

2) Draft White Paper "Technical and Regulatory Issues Regarding Permitting the Discharge of Filter Backwash Water", San Diego County Water Authority, Water Quality and Treatment Solutions, November 2018.

3) Drinking Water Treatment Plant Residuals Management Technical Report/Summary of Residuals Generation, Treatment, and Disposal at Large Community Water Systems, EPA, September 2011.

Assumptions

- CITY shall provide information requested by CONSULTANT, including data on residuals generation and disposal, CITY's regulatory reports and applicable regulations, O&M records, residuals characterization data, GIS data on relevant sewers, 2035 and 2050 flow and load projections associated with the sewers and treatment facilities considered under this Planning Study, previous engineering reports, unit costs for chemicals, power, water residuals hauling, all relevant MWTP, AWTP and OWTP record drawings in PDF and native electronic formats (if possible), relevant sewer system layouts and connections/capacities, and receiving wastewater treatment plant capacities, as required to perform and complete the work described herein.

  The data will be provided by the CITY within three (3) weeks from the date of submission of the data request by CONSULTANT.

- CITY shall provide access to MWTP, AWTP and OWTP facilities for site investigations, and will assign the plant staff to develop and release required data to the CONSULTANT.
- No residuals characterization and field or laboratory testing will be provided by the CONSULTANT.
- CITY shall provide comments on draft documents within two (2) weeks.
- Process schematics and general layout/siting drawings will be developed to a planning study level of details, corresponding to the scope of this Planning Study.
- No additional comments or detail revisions after Final Draft submittal will be provided.
- No in-person and routine/re-occurring meetings except as specified in Tasks 1, 5 and 7.
- No confined space entry will be performed.

Task Order: NCWRP Treatment Analysis & Optimization

			Stantec								BC										TOTALS	
		BUDGET	Technical Expert	Deputy Principal	Managing Professional	Associate	Stantec Total Hours	Stantec Total Labor	Stantec ODCs	Stantec Total	Vice President	Chief Engineer	Managing Engineer	Senior Engineer	Senior Designer	Project Analyst III, Word Processing Supervisor	Accountant II	BC Total Hours	BC Total Labor	BC ODCs	BC Total	Stantec Cost Recovery	Task Order Total
Task		**Description**	**$295**	**$275**	**$220**	**$125**					**$278.10**	**$259.56**	**$241.02**	**$184.37**	**$163.77**	**$138.02**	**$118.45**						
1	**Task Order Management**		-	-	-	24	24	$ 3,000	$ -	$ 3,000	-	6	60	-	-	14	8	88	$ 18,898	$ -	$ 18,898	$ 945	$ 22,843
		Task Order Management	-	-	-	24	24	$ 3,000	$ -	$ 3,000	-	6	60		-	14	8	88	$ 18,898		$ 18,898	$ 945	$ 22,843
2	**Data Collection and Review**		-	-	-	-	-	$ -	$ -	$ -	8	20	20	40	-	-	-	88	$ 19,611	$ -	$ 19,611	$ 981	$ 20,592
		Data Collection and Review	-	-	-	-	-	$ -	$ -	$ -	8	20	20	40	-	-	-	88	$ 19,611		$ 19,611	$ 981	$ 20,592
3	**Identification of Initial Residual Solids Management Alternatives**		-	8	-	-	8	$ 2,200	$ -	$ 2,200	10	13	24	60	-	-	-	107	$ 23,002	$ -	$ 23,002	$ 1,150	$ 26,352
		Identification of Initial Residual Solids Management Alternatives	-	8	-	-	8	$ 2,200	$ -	$ 2,200	10	13	24	60	-	-	-	107	$ 23,002		$ 23,002	$ 1,150	$ 26,352
4	**Meeting with RWQCB and DDW**		-	-	-	-	-	$ -	$ -	$ -	4	8	24	32	10	-	-	78	$ 16,511	$ 200	$ 16,711	$ 836	$ 17,547
		Meeting with RWQCB and DDW	-	-	-	-	-	$ -	$ -	$ -	4	8	24	32	10	-	-	78	$ 16,511	$ 200	$ 16,711	$ 836	$ 17,547
5	**Conduct 2-Phased Workshop**		-	40	-	-	40	$ 11,000	$ 720	$ 11,720	60	64	80	160	30	20	-	414	$ 89,752	$ 1,440	$ 91,192	$ 4,596	$ 107,508
		Conduct 2-Phased Workshop	-	40	-	-	40	$ 11,000	$ 720	$ 11,720	60	64	80	160	30	20	-	414	$ 89,752	$ 1,440	$ 91,192	$ 4,596	$ 107,508
6	**Water Treatment Residuals Management Evaluation Technical Memorandum**		-	30	-	-	30	$ 8,250	$ -	$ 8,250	10	44	40	80	30	50	-	254	$ 50,406	$ -	$ 50,406	$ 2,520	$ 61,176
		Water Treatment Residuals Management Evaluation Technical Memorandum	-	30	-	-	30	$ 8,250	$ -	$ 8,250	10	44	40	80	30	50	-	254	$ 50,406		$ 50,406	$ 2,520	$ 61,176
7	**Perform Business Case Evaluation (Optional)***		-	30	-	-	30	$ 8,250	$ -	$ 8,250	10	44	24	80	20	40	-	218	$ 43,532	$ -	$ 43,532	$ 2,177	$ 53,959
		Perform Business Case Evaluation (Optional)*	-	30	-	-	30	$ 8,250	$ -	$ 8,250	10	44	24	80	20	40	-	218	$ 43,532		$ 43,532	$ 2,177	$ 53,959
		Total	-	108	-	24	132	$ 32,700	$ 720	$ 33,420	102	199	272	452	90	124	8	1,247	$ 261,713	$ 1,640	$ 263,353	$ 13,205	$ 309,977

* Task 7 work will not begin without prior approval from the CITY.