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**WASTEWATER ENGINEERING SERVICES DIVISION**
**2714 MEDIA CENTER DRIVE**
**LOS ANGLES, CA 90065**
**FAX: (323) 342-6210**
**WWW.LACITYSAN.ORG**


February 14, 2017

To: 25 Pre-Qualified On-Call Contract Consultants of LA Sanitation

**LA SANITATION ON-CALL CONSULTANT SERVICES CONTRACT**
**ISSUANCE OF TOS SN-77 – DCT STORAGE TANKS AUTOMATION: REAL TIME DECISION SUPPORT SYSTEM (RT-DSS)**

LA Sanitation (LASAN) is soliciting responses from 25 Prime Consultants on Pre-Qualified On-Call List. Attached are details of the Task Order Solicitation (TOS) required services. A pre-proposal meeting for this TOS will be held on:

| | |
|---|---|
| Date and Time: | Wednesday, February 22, 2017, from 9:30 A.M. to 10:30 A.M. |
| Location: | 2714 Media Center Drive, Los Angeles, CA 90065.<br>MTC Conference Room A |

All questions regarding this TOS must be submitted in writing via e-mail to Mr. Hyginus Mmeje, before or at the meeting. For security clearance at the Media Center Building, please e-mail Mr. Hyginus Mmeje the names of your representatives and subcontractors, who will be attending the meeting, and the company's name by Tuesday, February 21, 2017, before 2:00 P.M. (Please note that inviting your subcontractors to the meeting is optional.)

The deadline for proposal submittal is Wednesday, March 15, 2017, before 2:00 P.M. If your firm is interested in this TOS, please submit proposal via e-mail on the indicated due date to the following LASAN staff:

- Hyginus Mmeje, hyginus.mmeje@lacity.org
- Thu-Van Ho, Thu-Van.Ho@lacity.org

Thank you for your interest and we look forward to receiving your response to this TOS.

Sincerely,

Ali Poosti, Division Manager
Wastewater Engineering Services Division
LA Sanitation

AP:mfr

c: Ali Poosti, WESD
Abdul Danishwar, WESD
Scott Hare, WESD
Thu-Van Ho, WESD
Hyginus Mmeje, WESD
Roshanak Aflaki, DCT

**City of Los Angeles**
**Department of Public Works**
**Bureau of Sanitation (LASAN)**

**Task Order Solicitation (TOS) SN-77**
**DCT Storage Tank Automation: Real Time Decision Support System (RT-DSS) for Wet Weather Operation**

**February 2017**

## 1. Introduction

The City of Los Angeles is seeking to optimize the usage of its wet weather storage at the Donald C. Tillman Water Reclamation Plant (DCTWRP). The Real Time Decision Support System (RT-DSS) for this optimization shall:

- Automatically determine when and how the DCTWRP storage should be filled and drained to prevent downstream spills during storm events based on real time depth/flow monitoring upstream and downstream of the plant.

- Maximize the level of service possible for the plant and downstream conveyance.

**Justification:**
Based on the review of *Technical Memorandum 2012-018 DCT Wet Weather Storage SOP,* a brief meeting with DCT on the operation of the 31.67 MG of wet weather storage available at the plant, and other efforts, the following opportunities are identified:

- The decision on when and how to use the wet weather storage is currently made by the storm commander on duty based on conditions immediately upstream and downstream of the plant. The storm commander currently relies on his or her judgment for this decision. It is understood that this process could be improved through real time analytics that provide an optimized, consistent, and verifiable framework for decision making.

- There are three locations downstream of the plant that have historically been prone to spills. Any Standard Operating Procedures (SOP) or control logic must protect these downstream locations.

- The current SOP is conservative to protect the downstream spill-prone locations. This sends flow into the storage earlier than is necessary (thereby reducing the amount of storage available during the peak of large storms) and dewatering later and slower than necessary (thereby reducing the ability of the tanks to capture back-to-back storms)

- The following are the identified process to optimize the use of the wet weather storage and minimize the risk of downstream spills.
  1. Maximize the flow to the DCTRP
  2. Maximize conveyance downstream as much as possible while maintaining a safe HGL.
  3. Utilize wet weather storage to capture only the excess flow that cannot be conveyed safely downstream.
  4. Dewater the storage as quickly and safely as possible in preparation for the next storm event.

## 2. Scope of Services

The Bureau is soliciting a qualified consultant firm to determine the control logic that will help the City to optimize the use of the City's existing storage and infrastructure to achieve its objectives. Help the City implement the control logic in an RT-DSS dashboard, and provide needed support and guidance.

The following provides more details regarding the services from the qualified consultant or firm:

**Scope Tasks:**

**A. Phase 1: Development of Control Logic and Quantification of the Expected Benefit of the RT-DSS Approach**

*Task 1-1. System Assessment.* Perform an assessment of the current collection system and DCTWRP operations that impact the use of the plant's wet weather storage. This task shall start with obtaining the latest version of the collection system model. For this task, it is assumed that the latest version of the MIKE URBAN model exported to SWMM will be used. The consultant may obtain from the City the following material, if available:

- City's collection system model of the impacted area(s).
- GIS layer with flow monitoring sites with available data.
- Flow monitoring data from selected sites (5 to 10) from existing data inventory.
- SCADA data showing the current operation of the wet weather storage.
- The latest SOP for the operation of the storage.

Deliverables:

- The consultant shall perform site visits, to be coordinated with the City Project Manager. During the site visits, the consultant shall:
    - Conduct a kickoff workshop,
    - Visit some key assets (wet weather storage areas, downstream constraints, control room), and
    - Perform interviews with selected operators and storm commanders familiar with the operation of the storage facilities.
- A general assessment of the model fitness for RT-DSS based on data and operation of the facilities shall be performed by the consultant (agreement between the model and the data is expected).
- A technical memorandum on the findings shall be provided to the City by the consultant.
- The consultant shall obtain City feedback to confirm any assumptions made on the operation of the facilities.

*Task 1-2. Optimization Framework Setup.* This task has as objective setting up the framework under which the optimization shall be conducted. It is expected that the model, the data, and the current understanding on the facility's operation shall be utilized.

Deliverables:

- The model shall be changed by the consultant to an operational model that incorporates control rules that better reflect current Standard Operating Procedures and flow meter data as boundary conditions where needed and possible.
- The consultant shall obtain agreement on a specific set of storm events with the City to be used for the optimization process.

*Task 1-3. Optimization Assets.* During this task the assets that can be controlled shall be cataloged along with the following information:

- Operational parameter that can be changed to optimize the system.
- Operational limitations (pump curves, duty cycles, maximum flows, etc.).
- Upstream and downstream hydraulic constraints for each asset.
- Travel times to each constraint.
- Effect of asset operations on each hydraulic constraint.
- Brief narrative of the opportunity presented to achieve the objective through the control of the asset.

Deliverables: At the end of this task a table with the aforementioned data shall be provided to the City by the consultant.

*Task 1-4. Optimized Logic Design.* During this task, a RT-DSS control logic that dynamically controls the previously identified assets will be implemented in the operational model to demonstrate its performance during the selected storm events. Subsequently the RT-DSS shall be optimized based on this data.

Deliverables:

- The consultant shall provide to the City a technical memorandum with the following information:
  - List of control assets to be modified for the objectives.
  - A narrative of the control logic for each asset.
  - A description of the level of prediction required, if any, and the most robust means of developing a prediction of the collection system conditions.
  - The actual control logic implemented in the operational model.
  - The list of sensors needed to implement the control logic (location and type, if any).
  - A summary of the resulting improvements achieved by the new control logic.
  - An estimation of the cost of implementing the RT-DSS and the expected return on investment of the system.
- The consultant shall conduct a workshop to present the results and obtain any feedback on the results.

B. **Phase 2: Implementation**

Deliverables:

- The consultant shall convert the optimization algorithm developed in Phase 1 into an RT-DSS dashboard for the storm commander that shall provide real time recommendations on how the wet weather shortage should be utilized during each storm event. The dashboard shall process all

of the data currently available to storm commander, including real time depths and flows upstream and downstream of the wet weather storage, weather prediction, and conditions at the WRP. The dashboard shall provide clear recommendations on when to store excess water and how much water to store, as well as when to dewater the storage and what rate. The dashboard shall also display all pertinent data required for the storm commander to understand why the recommendations are being made.

- The consultant shall provide one in-person training session to the storm commanders and shall provide remote support for the dashboard for six months.
- The consultant shall also monitor and analyze the performance of the dashboard for three storm events, and tune the logic as necessary, to account for any differences between the model and reality.
- The consultant should consider the following assumptions for the development of the RT-DSS dashboard and indicate approach to be followed to accomplish the project if any of the assumptions do not materialize:

    - All data currently used by the storm commander to determine how the wet weather storage should be utilized (including upstream and downstream monitoring points, conditions at the WRP and storage facilities) shall be available in real time.
    - This data shall be in an open database that can be accessed remotely.
    - LA Sanitation shall be responsible for maintaining the sensors, telemetry units, and servers required to receive timely, quality data.
    - The dashboard shall be remotely accessible after deployment.

**Summary of Deliverables for this Project**
The deliverables for this project are (details as described above):

- A RT-DSS dashboard for the operation of the DCTWRP wet weather storage
- Technical Memorandum on the system assessment
- Technical Memorandum on the control algorithm development
- Three in-person workshops:
    - Kickoff workshop, with site visits and operator interviews
    - Progress workshop on control algorithm development and dashboard design
    - Final workshop and training
- RT-DSS dashboard software operating as a standalone application or as a web service.

## 3. Term of Engagement

The term of engagement is six months from the issuance date of NTP. Phase 1 shall be completed in 3 months. Phase 2 shall be completed 3 months after the completion of Phase 1.
It is estimated that the cost ceiling for this TOS (Phase 1 and Phase 2) is approximately $145,000.

## 4. Solicitation Schedule (Tentative)

- Issue Task Order Solicitation ……..Date of Cover Letter.
- Receive Solicitation Responses.....……...As indicated in Cover Letter.
- Conduct Interviews if necessary…….……5 weeks after issuance of TOS.
- Select and Negotiate……...…….……7 weeks after issuance of TOS.
- Issue Task Work Order…….…….…….9 weeks after issuance of TOS.

## 5. Solicitation Response Requirements

Solicitation Responses shall not exceed twenty (20) pages, exclusive of cover, dividers and resumes. Solicitation Responses shall be submitted to the following Bureau's staff via e-mail, no later than 2:00 pm of proposal due date indicated in cover letter:

- Hyginus Mmeje, Hyginus.Mmeje@Lacity.org
- Thu-Van Ho, thu-van.ho@lacity.org

Solicitation Responses shall include:

- Resume demonstrating that the candidate is capable of meeting the requirements of the Scope of Work. Resume shall include work experience history with dates, and references from past employers, owners, and/or organizations.
- Provide a proposed individual cost breakdown by tasks.
- Provide a breakdown of estimated time for completion of task.
- Proposed Billing Salary Rate Summary for the proposed candidate with all respective direct and indirect costs, markups, expenses, overhead rates and profit. (See Attachment A).
- MBE/WBE/SBE/EBE/DVBE/OBE subcontractors utilized and the percent utilization. (See Attachment A)
  Note: Department of Public Works only recognizes:
  - MBE/WBE certifications certified by City of LA – Bureau of Contract Administration (LABCA), LA County Metropolitan Transportation Authority (MTA), CalTrans, The Southern California Minority Supplier Development Council (SCMSDC), or Women's Business Enterprise National Council (WBENC)-WEST; and any member of California Unified Certification Program (CUCP); and
  - SBE/EBE/DVBE certifications certified by LABCA or State of California – Department of General Services (CA-DGS)
  - A firm can only be a MBE or WBE (not both)
  - A firm with multiple certifications is acceptable (i.e. a MBE/SBE/EBE/DVBE firm will fulfill 4 of 6 required categories)
- Provide a copy of valid MBE/WBE/SBE/EBE/DVBE Certifications of MBE/WBE/SBE/EBE/DVBE subcontractors utilized.
- Statement pertaining to the candidate's availability.

## 6. Selection Criteria

The selection team will evaluate the proposals with the following criteria:

- Capability and experience in providing the Scope of Services as demonstrated by their proposal (10 pts. Max.);
- Expert knowledge and work experience associated with understanding of the issues, options, and approaches related to using RT-DSS approach for wet weather storage facilities optimization that could impact both plant operation and the operation of the conveyance systems upstream and downstream of the plant (15 pts. Max.);
- Knowledge/Familiarity with City's Sewer Facilities, LA Sanitation's need to protect the downstream spill-prone locations, when and how current decisions to use the wet weather

storage facilities by the storm commander on duty based on conditions immediately upstream and downstream of DCT, and the overall current storm commander approach to minimize risk of downstream spills by maximizing flow to DCT (5 pts. Max.); and

- The value offered to the City with respect to cost (10 pts. Max.).

## 7. Suggested MBE/WBE/SBE/EBE/DVBE/OBE Participation Levels

The City had set anticipated participation levels (APLs) for sub-consultants as follows: 18% MBE, 4% WBE, 25% SBE, 8% EBE, and 3% DVBE. The City encourages the Primes to utilize these subconsultants wherever feasible, especially MBE/WBE subconsultants.

Note: Sub-consultants that are not listed on Schedule A in your contract cannot be added and/or utilized without the performance of the outreach and approval of the LASAN.

## 8. Task Order Manager

The City's On-Call Contract Manager is: Ali Poosti, Division Manager, Wastewater Engineering Services Division, (323) 342-6228.

The Task Manager for this designated TOS is: Hyginus Mmeje, Sanitation Wastewater Manager, Wastewater Engineering Services Division, (323) 342-6241.

## 9. Disclaimer

The City may or may not decide to award any or part of this task order based on its sole convenience and shall not be responsible for any solicitation response costs.

**COST REIMBURSEMENT - BILLING SALARY RATE BASIS**

| Firm Name | Status | Last Name | First Name | Position | Raw Rate ($/hr) | Approved Overhead Rate | Profit | Billing Rate ($/hr) | Effective Date | Note |
|---|---|---|---|---|---|---|---|---|---|---|
| Prime Firm | Prime | | | | | | | | | |
| Prime Firm | Prime | | | | | | | | | |
| Prime Firm | Prime | | | | | | | | | |
| Subcontracting Firm Name 1 | MBE/SBE/EBE | | | | | | | | | |
| Subcontracting Firm Name 2 | WBE/SBE/EBE | | | | | | | | | |
| Subcontracting Firm Name 3 | MBE/SBE | | | | | | | | | |
| Subcontracting Firm Name 4 | WBE/SBE | | | | | | | | | |
| Subcontracting Firm Name 4 | SBE/EBE/DVBE | | | | | | | | | |
| Subcontracting Firm Name 5 | SBE/EBE | | | | | | | | | |
| Subcontracting Firm Name 6 | OBE | | | | | | | | | |

**SUMMARY**

| Firm Name | Status | Fee | %Fee |
|---|---|---|---|
| Prime | | | |
| Subcontracting Firm Name 1 | MBE/SBE/EBE | | |
| Subcontracting Firm Name 2 | WBE/SBE/EBE | | |
| Subcontracting Firm Name 3 | MBE/SBE | | |
| Subcontracting Firm Name 4 | WBE/SBE | | |
| Subcontracting Firm Name 4 | SBE/EBE/DVBE | | |
| Subcontracting Firm Name 5 | SBE/EBE | | |
| Subcontracting Firm Name 6 | OBE | | |
| | | | |
| **Total Direct Labor Cost of the Prime** | | | |
| **Total Subcontract Expenses** | | | |
| **5% Administractive Fee (markup)** | | | |
| **Other Direct Costs (with no markup)** | | | |
| **Total Task Order Amount** | | | |

**Total Subconsultant Participation**

| Pledged | MBE | WBE | SBE | EBE | DVBE | OBE |
|---|---|---|---|---|---|---|
| **% of Total Task Order** | % | % | % | % | % | % |
| **$ Amount** | $ | $ | $ | $ | $ | $ |