

Mr. Clece Aurelus, PE
Engineering Manager ECSD
City of Hollywood – Department of Public Utilities
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Subject:
Task Order Proposal
City of Hollywood Water System – Risk and Resilience Assessments for the
2018 America’s Water Infrastructure Act
City Project Number: 19-3071

WATER

Date:
May 30, 2019

Dear Mr. Aurelus:

Contact:
Chris Barlow

We are pleased to present our qualifications and proposed approach to assist the City of Hollywood (City) in complying with the Risk and Resilience Assessment requirements of the 2018 America’s Water Infrastructure Act (AWIA). As part of this effort, Arcadis will work in close collaboration with the City’s staff to assure that requirements and objectives of the project are met.

Phone:
561.236.2858

Email:
chris.barlow@arcadis.com

This Task Order (TO) proposal includes a detailed description of the Scope of Work (SOW) to be performed for the Risk and Resilience Assessment (RRA) and associated deliverables, as well as the proposed lump sum fee to be paid to Arcadis by the City for the services described herein. Arcadis will prepare and submit to the City a separate Task Order proposal for the Emergency Response Plan (ERP) considering the results of the RRA.

Our ref:
00361337.0000

Florida License Numbers

Engineering
7917

Geology
GB564

Surveying
LB7062

The TO shall be executed in accordance with the terms and conditions of the Professional Services Agreement for General Engineering Consultant Services: Water Treatment Plant and Wastewater Treatment Plant Projects No. 17-1324 (Agreement) executed on November 7, 2017 by and between the City and Arcadis. The proposed methodology is included in Attachment A and the breakdown of the lump sum fee is included in Attachment B (developed using the Rate Schedule included as Exhibit B of the Agreement).

BACKGROUND

Since 9/11, the United States Federal Government, the American Water Works Association (AWWA), and water utilities across the United States have worked together to protect the approximately 153,000 public drinking water systems in the United States. In 2002, under the Bioterrorism Preparedness and Response Act, vulnerability assessments were performed and emergency response plans were completed to address physical attacks in water systems serving a population of greater than 3,300 persons. However, since then, the water sector's approach to addressing risks and building resilience has evolved significantly to address other risks and threats including natural hazards, contamination, and cyberattacks.

AWIA mandates that water systems serving over 3,300 people must conduct an assessment of the risks to, and resilience of, its water system. Utilities shall take an all-hazards approach and shall expand the consideration of resilience to include pipes and infrastructure, monitoring, financial infrastructure, use and handling of chemicals, operation and maintenance, and capital and operational needs. Utilities must also update or develop an emergency response plan which addresses the relevant risks and cybersecurity. AWIA also mandates that both the RRAs and the ERPs must also be updated every five years.

AWIA was signed into law on October 23, 2018. The United States Environmental Protection Agency (USEPA) will issue guidance by August 2019. Large utilities with a population served greater than 100,000 are required to complete their risk and resilience assessments no later than March 31, 2020.

OUR EXPERIENCE

Arcadis has been working with water systems around the country to ensure their safety and security. Since the passage of the Bioterrorism Act of 2002, Arcadis has been a leader in delivering resilience-related services to water utilities. Between 2003 and 2018, we completed over 150 water system vulnerability assessments and over a dozen ERPs.

Arcadis has conducted numerous assessments and emergency planning projects for water, wastewater, and electric utilities over the last 18 years and is a leading global authority on risk and resilience. We excel in performing all the required steps to conduct a RRA and an ERP in accordance with AWIA and USEPA, and in alignment with AWWA's J100-10 standard and the standards and guidelines for emergency planning. We have a team of national subject matter experts (SMEs) with proven capability to perform the necessary steps, utilizing a streamlined process, with a high level of detail and quality.

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Select references for these services are as follows:

Clients	Projects	References	Project	Cost
Tarrant Regional Water District	Assessment Management and J-100 All Hazards Assessment	Rachel Ickert 817.720.4475 Rachel.Ickert@trwd.com	2019-Ongoing	\$496,000
City of Columbus, OH, Department of Public Utilities	Divisions of Power, Water, Sewerage and Drainage J100-10 All-Hazards Vulnerability Assessment, Cybersecurity Assessment, Emergency Response Planning, Training, and Exercising	Tina O'Grady 614.645.6771 tmogrady@columbus.gov	2016-2020	\$675,000
Prince William County Service Authority, Woodbridge, VA	J100-10 All-Hazards Risk Assessment and Emergency Response Plan Update	Zvi Gruenspecht 703.393.4498 zgruenspecht@pwcsa.org	2013-2016	\$643,700
City of Minneapolis Department of Public Works	J100-10 All-Hazards Risk Assessment, Cyber Security Assessment, and Emergency Response Plan Gap Analysis	Robert Ervin, PE 612.661.4830 robert.ervin@minneapolismn.gov	2013-2016	\$394,000
Miami-Dade Water and Sewer Department	Enterprise-Wide Asset Management Framework (incorporating J-100 risk methodology)	Amanda R. Kinnick, PE 786.552.8030 amanda.kinnick@miamidade.gov	2017-2018	\$487,000
DC Water	Water/Wastewater Service Disruption Regional Economic Impact Analysis	Dusti Lowndes 202.612.3403 dusti.lowndes@dcwater.com	2018-2019	\$50,000

SCOPE OF WORK

Arcadis will conduct a RRA of the City of Hollywood's Water System physical and cyber assets. To accomplish this, we propose to use the AWWA J100-10 Standard Risk and Resilience Assessment Methodology which has been endorsed by USEPA.

We will carry out the project using a workshop-based approach that collaboratively addresses the elements required by AWIA and promotes effective knowledge transfer of the assessment methodology to City staff. The project will start with a kick-off meeting intended to establish project goals, roles, responsibilities, schedule, and to review all phases, tasks, assumptions, and deliverables. We will work with the City to optimize the approach for the required workshops, including defining efficient agenda, timing and key stakeholders to include. Subsequently, Arcadis will lead four (4) workshops that are designed to conduct the assessment and to make key decisions. Between workshops, Arcadis will perform analysis, template preparation and risk assessment documentation to allow the project to be completed efficiently.

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The detailed scope and methodology proposed for this project are outlined in Attachment A which identifies the tasks, subtasks, deliverables and assumptions that we propose to effectively and collaboratively complete this project.

SCHEDULE

Arcadis estimates that the RRA will be completed by January 2020. Estimates for completion of key milestones are as follows:

Project Workshops & Milestones	Estimated Month of Completion
Kick-off Workshop	Immediately Upon NTP
Asset and Threat Workshop Characterization	July 2019
Consequence and Vulnerability Workshop	August 2019
Cyber/Business Continuity and Financial Resilience Teleconference Calls (2)	September 2019
Risk and Resilience Management Workshop	October 2019
Risk Assessment and Recommendations Review Workshop (Draft Assessment Submittal Review)	December 2019
Submittal of Final Assessment	January 2020

BUDGET AND INVOICING

The proposed lump sum fee for conducting the RRA is \$149,500. This fee covers Arcadis labor and expenses. The task breakdown for the lump sum fee is as follows:

Task	Fee
Kickoff Workshop & Information Gathering	\$25,000
Asset and Threat Characterization Workshop	\$30,000
Consequence and Vulnerability Analysis Workshop	\$49,000
Threat Likelihood Analysis	\$15,000
Cyber/Business Continuity and Financial Resilience Analysis	\$6,500
Risk and Resilience Analysis and Management Workshop	\$12,000
Draft Risk Assessment and Recommendations Report	\$8,000
Final Risk Assessment and Recommendations Report	\$4,000
Total	\$149,500

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Mr. Clece Aurelus, PE
Engineering Manager - ECSD
City of Hollywood - Department of Public Utilities
May 23, 2019



Arcadis will submit a separate Task Order proposal for the City's review and approval for the preparation of the ERP prior to the completion of the RRA tasks described herein.

Thank you for considering Arcadis. Should you have any questions or require additional information from us, please do not hesitate to contact me. We look forward to supporting the City in this very important endeavor.

Sincerely,

Arcadis U.S., Inc.

A handwritten signature in blue ink that reads 'Chris Barlow'.

Chris Barlow, PE
Account Leader

Copies:

Leah Richter, PE (Arcadis)
Patrick Flannelly, PE (Arcadis)
Melissa Pomales, PE (Arcadis)
Francois Domond, PE (City of Hollywood)

Enclosures:

Attachments

- A: Risk and Resilience Assessment Scope and Methodology

This proposal and its contents shall not be duplicated, used or disclosed — in whole or in part — for any purpose other than to evaluate the proposal. This proposal is not intended to be binding or form the terms of a contract. The scope and price of this proposal will be superseded by the contract. If this proposal is accepted and a contract is awarded to Arcadis as a result of — or in connection with — the submission of this proposal, Arcadis and/or the client shall have the right to make appropriate revisions of its terms, including scope and price, for purposes of the contract. Further, client shall have the right to duplicate, use or disclose the data contained in this proposal only to the extent provided in the resulting contract

ATTACHMENT A

Risk and Resilience Assessment Scope and Methodology

Arcadis, in collaboration with City of Hollywood, will conduct a risk and resilience assessment (previously termed as vulnerability assessment) of City of Hollywood water system physical and cyber assets. To accomplish this, Arcadis proposes to use the AWWA J100-10 Standard risk and resilience assessment methodology which has been endorsed by USEPA for this required effort. The scope below outlines the tasks, subtasks, deliverables and assumptions that we propose to effectively and collaboratively complete this project with the City.

Scope

Task 1.0 – Risk and Resilience Assessment Kick-off Workshop

Arcadis will use City of Hollywood water system existing vulnerability or risk and resilience assessments (if available), existing facility drawings, system schematics, emergency plans, and asset management program documentation as the starting point for the J100-10 compliant assessment. Arcadis will request additional materials from City of Hollywood water system when necessary. Upon review, Arcadis will facilitate a kickoff meeting intended to establish project goals, roles, responsibilities, schedule and to review all phases, tasks, assumptions, and deliverables.

Deliverables:

- Meeting Minutes

Task 1.1 – Asset Characterization and Task 1.2 Threat Characterization

Our team will facilitate a 5-hour Asset and Threat Characterization Workshop with internal stakeholders to confirm City of Hollywood water system's mission and to identify critical facilities, assets and threats. The purpose of creating a critical asset list is to identify those assets and facilities to be assessed. The threat list will identify the malevolent, natural, and dependency threats to be considered for the assessment.

Deliverables:

- Workshop materials and facilitation
- Critical Assets and Facilities list
- Threat Characterization Table

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Task 1.3 – Consequence Analysis Task and 1.4 Vulnerability Analysis

Although two separate tasks in the J100-10 methodology, consequence and vulnerability can be combined into one workshop to promote efficiency of project execution. Arcadis will conduct a half-day workshop with City of Hollywood water system to formalize threat asset pairs of concern and to address the corresponding consequences and vulnerabilities. The workshop will explore the worst reasonable consequences that can be caused by the selected threats and hazards on the selected assets. The vulnerability analysis determines the ability of each critical asset and its protective systems to withstand each specified threat. Under this task, and in preparation for the workshop, Arcadis will visit selected facilities with City staff and assess existing protective systems.

Deliverables:

- Threat Asset Pairs of concern
- Table documenting consequences, assumptions and quantitative estimates
- Site visit documentation, photos and results of the vulnerability analysis
- Workshop materials and facilitation

Task 1.5 – Threat Likelihood Analysis

Arcadis will determine the threat likelihood (also known as probability or frequency) that a specific threat will occur.

Deliverables:

- Table documenting the expected threat likelihood for each of the threats associated with each high priority facility

Task 1.6 – Risk and Resilience Analysis

Once the consequences, vulnerabilities, and threat likelihoods have been determined, we will calculate the overall risk and resilience profile (financial and operational) of City of Hollywood water system.

Deliverables:

- Table documenting risk and resilience estimates for each threat-asset pair and associated backup materials

Task 1.7 – Risk and Resilience Management

The Risk and Resilience Management step includes identifying which risks warrant mitigation and collaborating with City of Hollywood to develop risk reduction ideas and preliminary costs and benefits. Arcadis will facilitate a workshop to review and formalize the mitigation ideas. Each idea will be documented on a business case template.

Deliverables:

- Workshop materials and facilitation
- Templates providing risk and resilience management options and cost-benefit analyses

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Task 1.8 – Risk Assessment and Recommendations Report

Arcadis will prepare draft and final Risk Assessment and Recommendations. We will deliver the draft assessment results and recommendations for City of Hollywood's review, and conduct a workshop to discuss any comments with City of Hollywood project stakeholders. Arcadis will then incorporate requested changes into a final report. All documents generated will be provided in paper and/or electronic formats.

Deliverables:

- Draft and Final Risk Assessment and Recommendations Report

Task 1.9 – Cyber Risk/Business Continuity and Finance Resilience Assessment

AWIA specifically requires water utilities to assess their business continuity and financial resilience. This is best addressed by assessing SCADA, critical communications, essential business systems and financial resilience together in a separate workstream from the overall assessment. It usually involves a different and smaller group of stakeholders than the overall assessment. Arcadis assumes that we can execute the cyber/business continuity and finance risk and resilience assessment in close coordination with the overall risk assessment. Arcadis will conduct two meetings with City of Hollywood leadership and staff responsible for SCADA, IT, communications, and Finance. We assume these meetings can be held in conjunction with dates for workshops for the overall assessment or can be accomplished by teleconference calls. Arcadis will incorporate the results of these two meetings into the overall Risk and Resilience Assessment Report for the project. This will document the consequences, vulnerability, threat likelihood and associated risk profile for cyber-malicious adversary threat-asset pairs as well as other natural and dependency threats to the assets that are critical for business continuity.

Deliverables:

- Draft and final Cyber Risk and Resilience Assessment results for incorporation into the J100 Summary Report