



April 18, 2024

Wilhelmina Montero, PE  
Senior Project Manager  
Department of Public Utilities - ECSD  
1621 N 14<sup>th</sup> Avenue  
Hollywood, FL 33022

**Re: City of Hollywood Water Treatment Plant Per and Polyfluoroalkyl Substances (PFAS) Removal Regulatory Compliance Evaluation**

Dear Ms. Montero:

As requested, Hazen and Sawyer (HAZEN) visited the City of Hollywood (CITY) and reviewed the CITY's needs for comparing alternatives to remove per- and polyfluoroalkyl substances (PFAS) at the WTP. While the CITY operates the best available technology for PFAS removal, membrane reverse osmosis and nanofiltration, part of the treatment is comprised of treatment technology that does not remove PFAS, conventional lime softening. As such, the CITY has requested HAZEN develop a scope to assist the CITY in deciding the final treatment configuration to provide optimal removal of PFAS below the regulatory limits.

Based on this discussion, HAZEN presents the following scope of services.

**Scope of Services**

**Background**

The CITY owns and operates a series of potable water supply wells and treats the Biscayne Aquifer well water through lime softening and nanofiltration treatment plus treats the Floridan Aquifer well water through reverse osmosis treatment. The CITY also treats Biscayne Aquifer well water from the Broward County South Regional Wellfield (SRW at Brian Piccolo Park) through the nanofiltration plant. These three treatment process streams blend together to provide high quality drinking water to the residents of Hollywood and adjacent areas outside the City (parts of Town of Davie, City of Dania Beach and the Seminole Tribe of Florida).

However, PFAS has recently been detected in the CITY's wells. The final regulations require those compounds be removed to below the regulatory limits (4 parts per trillion) prior to the deadline (five years from final issuance of the rule – issued April 2024 – for a required completion date of March 2029).

PFAS are a group of manufactured chemicals used to make coatings that resist heat, oils, stains, grease, and water. Throughout production and use, PFAS can migrate into soil and water, eventually entering drinking water sources. PFAS do not break down naturally in the environment, making them a persistent contaminant that can accumulate over time.



## **Task 1 – Kickoff Meeting / Data Collection and Review**

### Subtask 1.1 Kickoff Meeting

HAZEN will conduct and lead a kickoff meeting with City staff within two weeks after receiving the Notice to Proceed. The purpose of this task is to discuss the overall workplan and schedule and identify project protocols, establish coordination between Hazen and CITY staff, and collect any additional available documents from the CITY. Prior to the meeting HAZEN will provide CITY with data anticipated to be required including, but not limited to the information listed in Subtask 1.2. The CITY will provide HAZEN with required data within the first four weeks of receipt of a Project Notice-to Proceed.

HAZEN will prepare an agenda prior to the meeting and electronically distribute meeting minutes following the meeting.

### Subtask 1.2 Review Existing Data

HAZEN will request data from the CITY for review. Data will include, but are not limited to, the following:

- All available PFAS data
- Raw water quality data for last five years (including monthly and annual analyses)
- Monthly WTP operating reports for last 1 to 5 years
- WTP drawings, including process flow diagrams and site layouts
- Chemical usage data and current chemical injection points
- Current corrosion control strategy and related data
- Overall site plan depicting location of raw water wells and WTP
- Purchase price from Broward County South Regional Wellfield
- Current operation and maintenance costs for Lime softening
- Current lime solids disposal data
- Current operation and maintenance costs for Nanofiltration
- Current operation and maintenance costs for Reverse Osmosis
- Current membrane reject disposal data
- South Florida Water Management District (SFWMD) Water Use Permit

HAZEN will review and assimilate this data for use on this project.



## **Task 2 – Review SFWMD Water Use Permit**

HAZEN will review and evaluate CITY’s current SFWMD Water Use Permit No. 06-00038-W for both the Biscayne and Floridan aquifers, documenting existing permit allocations, remaining timeframe, and the feasibility of increasing allocations. The water use permit review will provide HAZEN with information needed for Task 4 and Task 5. The evaluation of treatment alternatives will consider the CITY’s water use permit allocations and associated treatment efficiencies.

HAZEN will submit a draft memorandum to CITY summarizing the results of the Water Use Permit Review and evaluation. HAZEN will meet with CITY to discuss and will incorporate CITY’s comments into a final memorandum.

## **Task 3 – PFAS Data Collection and Mass Balance Modeling**

HAZEN will review and summarize the CITY’s PFAS data, major WTP summary raw and finished water quality parameters, and WTP flow data. HAZEN will create a PowerBI dashboard with the collected data that will serve as a central location for the CITY’s PFAS efforts. The dashboard will be used to create a PFAS mass balance model that will provide a cost-effective tool to represent treatment of PFAS based on current plant operations and potential plant modifications, including finished water stability and corrosion control requirements.

HAZEN will provide a draft and final PowerBI dashboard and model to the CITY. CITY will review the draft dashboard and provide comments to HAZEN within seven days.

## **Task 4 – Develop Alternatives and Conceptual Costs**

HAZEN will develop treatment alternatives for consideration by the CITY. The alternatives will be developed with a conceptual schematic and an opinion of probable construction cost. Each alternative will include recommended improvements to pretreatment and posttreatment facilities in addition to the membrane skid or ion exchange (IX) additions. HAZEN will summarize the potential corrosion issues of treatment modifications with respect to the Lead and Copper Rule. HAZEN will also summarize the disposal considerations for IX resin and membrane concentrate. The impact of each treatment alternative on the CITY’s water use permit allocations and water loss limitations will also be evaluated.

HAZEN will also identify monthly operational costs for the alternatives, based on the CITY’s current costs.

HAZEN will calculate the 20 year net present worth of each alternative based on initial capital construction costs, energy costs, labor and chemical costs.

Initially, these alternatives may likely include the following:

- Construct three nanofiltration skids for treatment of the Biscayne Aquifer/Discontinue Lime Softening
- Construct four reverse osmosis skids for treatment of the Floridan Aquifer/Discontinue Lime Softening

- Construct a combination of nanofiltration and reverse osmosis skids/Discontinue Lime Softening
- Construct Ion Exchange (for PFAS removal) to treat lime softened water
- Purchase Bulk finished water from Broward County/Discontinue Lime Softening

## **Task 5 - Perform Decision Criteria Modeling**

HAZEN will develop qualitative criteria for consideration by the CITY. HAZEN will develop a scoring methodology. HAZEN will present preliminary weightings for each criterion. Initially, criteria for consideration include: protection of public health and environment, ease of permitting, PFAS removal effectiveness, reliability, corrosion control considerations, waste disposal, ease of operations and maintenance, and constructability.

Next, HAZEN will develop a decision criteria matrix, which will summarize the criteria and the associated scoring ranges for each criterion. HAZEN will lead a workshop to assist the CITY in scoring each alternative. During this workshop, CITY will review and revise the criteria, weightings and scoring ranges developed by HAZEN. Once a CITY consensus is reached on the criteria, weightings and scoring ranges, HAZEN will assist the CITY with scoring each alternative.

HAZEN will document the scorings and rankings performed by the CITY at this workshop.

## **Task 6 – Prepare Technical Memorandum**

HAZEN will prepare a brief technical memorandum (TM) to document the development of the alternatives, criteria for evaluation, summary results of the workshop and provide a final recommendation to the CITY. HAZEN will also summarize the capital costs and operating costs of each alternative in a summary table. The summary cost table will also include a summary of the 20-year net present worth of each alternative.

HAZEN will deliver the TM electronically, in draft format, for the CITY's review. After receipt of the City's comments, HAZEN will update the TM and deliver the final TM electronically to the CITY.

It is Hazen's understanding that the CITY will use the information in the TM to decide on a compliance approach for Final PFAS Regulations. HAZEN will then prepare a scope to design the selected alternative.

## **Task 7 - Review Options for Delivery Methods**

HAZEN will prepare a summary of three delivery methods; conventional design-bid-build (DBB), progressive design-build, and construction manager at risk (CMAR) and provide a recommendation to CITY. HAZEN will present the three methods to the CITY, summarizing the benefits and risks of each method in a two hour workshop. HAZEN will facilitate the discussion and summarize the final decision of the CITY in a memorandum following the workshop.



## **Task 8 - Funding Application Support**

The Environmental Protection Agency (EPA) offers various grants to support community-based projects that address environmental and public health issues. EPA's Community Grant appropriations are State and Tribal Assistance Grant (STAG) infrastructure grants to improve water infrastructure and water quality through funding for drinking water, wastewater, and stormwater projects.

### **Pre-Award Phase**

While Congress directs Community Grant funds to specified recipients for defined projects, recipients are required to fulfill statutory and regulatory requirements before EPA can award grant funding. These requirements include but are not limited to providing necessary information for the National Environmental Policy Act (NEPA) environmental review, review of any pre-award costs, and submitting a complete grant application package.

#### **Subtask 8.1 - NEPA Environmental Review**

As required by EPA's NEPA implementing regulations ([40 CFR 6.100-6.406](#)), EPA must complete the NEPA review process before awarding a grant for design and/or construction.

The requirement for an environmental review under NEPA generally does not apply to grants solely for planning activities, such as infrastructure assessments, watershed plans, and wastewater capital improvement plans.

- HAZEN will coordinate meetings with the CITY and with the EPA Regional Contact to determine the applicability of the NEPA requirement.
- HAZEN will prepare all documentation in accordance with [40 CFR 6.100-6.406](#) for CITY review and comment.
- HAZEN will request other appropriate federal and non-federal agencies to be joint lead or cooperating agencies as a means of encouraging early coordination and cooperation with federal agencies, state and local governments, and federally recognized Indian tribes with jurisdiction by law or special expertise.
  - Deliverable:
    - Draft National Environmental Policy Act (NEPA) documentation for CITY review and comment.
    - Final NEPA documentation for CITY review and public advertisement for public comment period.

## **Subtask 8.2 - Pre-Award Costs and Procurement Review**

Costs incurred prior to grant awards may be eligible for reimbursement if the costs are in conformance with applicable federal and EPA regulations. Incurred costs are financial obligations: costs owed by an entity as a result of a transaction. The costs may have been paid or remain unpaid. The regulations at [2 CFR 200.458](#) require that pre-award costs be incurred "...directly pursuant to the negotiation and in anticipation of the Federal award where such costs are necessary for efficient and timely performance of the scope of work. Such costs are allowable only to the extent that they would have been allowable if incurred after the date of the Federal award and only with the written approval of the Federal awarding agency. If charged to the award, these costs must be charged to the initial budget period of the award, unless otherwise specified by the Federal awarding agency or pass-through entity."

For Community Grants projects identified in the FY 2023 Appropriations Act, pre-award costs must be incurred on or after October 1, 2022, to be considered for eligibility. Notwithstanding, and consistent with [2 CFR 1500.9](#), all costs incurred before EPA makes the award are at the recipient's risk. EPA shall review the eligibility of such costs on a case-by-case basis prior to approving the project budget and awarding the grant.

- HAZEN will aid in defining pre-award costs and assist in the procurement as it pertains to the federal rules and regulations stipulated by EPA.

## **Subtask 8.3 - Application Forms, Workplan and Submitting an Application**

Upon completion of an environmental review under NEPA, development of a project workplan, and review of any pre-award costs (including any costs related procurement), applicants should submit a complete grant application package to EPA. The workplan and application must include any pre-award costs. Recipients must ensure that their organizations have registered with the federal government's System for Award Management (SAM). Recipients must have an active registration/record with SAM.gov and complete the Grants.gov registration process to apply for any federal funding. The complete grant application includes several forms. These forms must be downloaded from the Community Grant opportunity package on Grants.gov - generic versions of the standard forms not downloaded from the Grants.gov website will not be accepted. In addition to the required forms, grant applicants must submit a project workplan that describes the proposed project, the milestone schedule, the need for the project, and the anticipated environmental and public health benefits (outputs and outcomes).

- HAZEN will assist the CITY in registration in SAM.gov, if needed.
- HAZEN will download all forms required, complete the portions needed within the forms, and prepare the grant work plan in accordance with EPA's regulations.

HAZEN will compile all documentation for the CITY's electronic submission to EPA.



#### **Subtask 8.4 - Additional Funding Options**

HAZEN will assist the CITY in the identification and guidance of alternative funding sources. HAZEN will provide comprehensive information to include programmatic details and eligibility criteria that meet the specifics of the project.

#### **Task 9 - Public Education and Outreach Materials**

Communicating with customers about the multiple potential sources of PFAS and the possible adverse health effects presents challenges for water utilities. It is possible that the CITY might receive public scrutiny in implementing this project due to the sensitive nature of PFAS and the costs associated with additional treatment.

HAZEN will assist the CITY with public communications support regarding PFAS up to the limits of the work defined in this task including:

##### **Subtask 9.1 - Campaign Planning and Management**

Planning Workshop: HAZEN shall facilitate a Planning Workshop with CITY staff to confirm goals and objectives, identify opportunities and strategies, and align on a campaign strategy and schedule.

Campaign Plan: HAZEN shall develop a communications plan for the PFAS Outreach Campaign that incorporates the goals, objectives, opportunities, strategies, and schedule identified during the planning Workshop.

Campaign Management: HAZEN shall participate in periodic meetings to review campaign, stakeholder feedback, industry development, and any opportunities or threats that arise. Support response to media inquiries and/or inquiries from key stakeholders.

##### **Subtask 9.2 - Materials Development**

HAZEN shall develop the PFAS communications materials as outlined below:

- **PFAS and Hollywood Community Outreach Presentation:** HAZEN shall develop one PowerPoint presentation for use with the City Council and at public meetings that explain the various PFAS exposures and preventative measures to residents of the CITY.

**Public Statements/FAQ:** HAZEN shall develop a series of key messages regarding PFAS exposure to CITY customers for use by any public-facing CITY staff or other key stakeholders and a FAQ document that features answers to the most common questions on PFAS.

**Website Content:** HAZEN shall develop content for CITY developed PFAS webpages, including updates for UCMR 5 and other related updates. It is assumed that the CITY will upload the information to the webpage, as submitted electronically by HAZEN.



- Social Media Posts: HAZEN shall develop drafts of up to six (6) social media posts for use by the CITY, including language and visuals. It is assumed that the CITY will schedule/publish the posts to their various social networks, as submitted electronically by HAZEN.

### **Task 10 - Additional Optional Services**

HAZEN shall provide, if required, additional engineering services for the project if level of effort associated with previous tasks is exceeded as well as services associated with development of short video as follows:

HAZEN shall lead the development of a short (~three minutes) video on overall PFAS exposure for use on the CITY's website, social media, and other digital platforms. Task will include, developing storyboard, identify and manage CITY's videographer vendor (if desired), manage editing process and final production.

### **Assumptions**

1. Additional services, if required, will be provided under a separate work authorization.
2. HAZEN will not perform detailed design work under this phase of work. HAZEN will evaluate the listed conceptual alternatives based on conceptual costs from equipment vendors and similar projects. These conceptual cost estimates will be Class 5 costs estimates as defined by the ACE International Standard 18-R97.
3. All costs will be considered conceptual and will neither reflect future escalation nor reflect the unknowns in the current bidding environment.
4. HAZEN will utilize the demand projections from the Master Plan.
5. Hydrogeological and hydraulic modeling are not included in this effort.
6. Water use permit modifications are not included in this effort.
7. Membrane Concentrate treatment options for disposal are not included in this effort. It is assumed that deep injection well disposal will be acceptable and if treatment of concentrate is required, options will be developed in the future under separate work authorization.
8. The CITY will be responsible for updating the CITY's website and social media sites with the information under Task 9.
9. It is assumed that videographer services required for Task 10 will be provided by the CITY.
10. Engineering assistance related to legal services will not be provided under this scope of services.
11. It is assumed that Post-Award Phase assistance of the EPA grant, if needed, will be included in a subsequent Work Authorization.





12. It is assumed the CITY will provide documents that are required to complete the Final Community Grants Application Package.

**Compensation**

Hazen will complete Tasks 1-10 for the Not-to-Exceed amount of \$385,168.00. Consultant will invoice by task per the following:

<b>Task</b>	<b>Amount</b>
Task 1 - Kickoff Meeting / Data Collection and Review	\$26,119.00
Task 2 - Review Water Use Permit	\$20,091.00
Task 3 - PFAS Data Collection and Mass Balance Modeling	\$25,250.00
Task 4 - Develop Alternatives and Conceptual Costs	\$52,231.00
Task 5 – Perform Decision Criteria Modeling	\$41,062.00
Task 6 – Prepare Technical Memorandum	\$32,824.00
Task 7 - Review Delivery Options	\$20,059.00
Task 8 - Funding Application Support	\$63,567.00
Task 9 - Public Education and Outreach Materials	\$65,093.00
Task 10 - Additional Optional Services	\$38,195.00
<b>Total (NTE)</b>	<b>\$385,168.00</b>

**Schedule**

Hazen will complete the Tasks 1-10 within 180 days of receipt of notice to proceed (NTP).

Very truly yours,

Janeen M. Wietgreffe, PE, PMP  
Vice President

cc: Monique Durand, PE