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Houston, TX 77042
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TBPE Firm F-11278

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March 6, 2025

Mark Gardemal
City of Pasadena
Public Works Department
1149 Ellsworth Drive
Pasadena, TX 77506

Re: Golden Acres WWTP Solids Handling Improvements
City Application for CDBG-MIT Funding

Dear Mr. Gardemal,

Per the City of Pasadena (City) request for information regarding the Golden Acres WWTP Solids Handling Improvements project, please see below summaries of the project site, proposed improvements description, project beneficiaries, consequences of no action, mitigation improvements, and project schedule. If any other information is needed, please reach out to me at ksatra@hrgreen.com or **713.338.8030**.

PROJECT SITE & PROPOSED IMPROVEMENTS DESCRIPTION

The City of Pasadena currently operates two wastewater treatment facilities: the Vince Bayou (VB) Wastewater Treatment Plant (WWTP) and the Golden Acres (GA) WWTP. The GA WWTP is one of the City's two facilities that treat wastewater for all its customers (population served is approximately 156,000). Both plants, when fully functional are designed to comply with the Texas Pollutant Discharge Elimination System (TPDES) standards, ensuring that treated wastewater is safely discharged into designated waterways, thereby protecting public health and the environment by preventing water source contamination.

The GA WWTP is located approximately 100 yards South of Spencer Highway and adjacent to the west edge of Trebor Street, Pasadena, TX, 77505; it was originally constructed in the 1950s with major upgrade in 1990s as well as 2010s. The current Texas Pollutant Discharge Elimination System (TPDES) permit for GA WWTP is for an average annual flow (AAF) of 10.0 million gallons per day (MGD) and 2-hour peak of 30.0 MGD. The GA WWTP site is entirely located within a 100-year floodplain per the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) 48201C0920M (dated 1/6/2017). Per inputs from City and operators, GA WWTP was flooded during Hurricane Harvey (August 2017), declared as a presidential major disaster for the State of Texas. During this flooding, GA WWTP suffered major flooding damage resulting in equipment being out of service and requiring urgent and costly repairs. GA WWTP was out of service for a few days resulting sanitary sewer overflows in the collection system and discharging untreated wastewater in the facility and downstream regions.

In October of 2023, the City conducted a condition assessment of the GA WWTP. This assessment provided the City with a prioritized action plan of capital improvements projects at the plant based on the asset condition and criticality, and consequence of failure, and with the goal to continue to provide unhindered wastewater treatment services. During this study it was identified that the aerobic digester, gravity thickener, and associated pumps and electrical equipment had exceeded their useful life and were not functioning as designed. This project includes improvements and modifications to address this critical and urgent need at the GA WWTP. The proposed improvements include modifying the existing solids treatment system such that the waste activated

sludge (WAS) pumps transfer WAS to a new sludge holding tank which would be subsequently pumped for dewatering at the existing belt filter presses (BFPs). The improvements will consist of the following:

1. Demolition of existing thickener, digester(s), pumps, etc. as required for proposed improvements.
2. Two (2) new sludge holding basins with coarse bubble diffusers and telescoping valves.
3. New sludge transfer pumps to transfer sludge from the new sludge holding tanks to the existing BFPs.
4. New blowers dedicated to the sludge holding tanks.
5. Associated yard piping, air piping, site work, electrical and controls improvements.

All proposed equipment and critical mechanical/electrical components will be either elevated 1-ft above the Hurricane Harvey flood elevation for the site or otherwise protected from flooding damage via flood protection means.

BENEFICIARIES

This project will benefit both direct and indirect beneficiaries, enhancing the City's WWTP operations, public health, flood resiliency, and the environment. Direct beneficiaries include City staff and plant operators who will experience improved safety, reduced maintenance demands, and lower operational costs due to the replacement of aging and failing infrastructure. The project also aims to enhance solids system performance, directly reducing hauling frequency (carbon footprint) and associated costs. Indirect beneficiaries are City residents and taxpayers, who will benefit from reduced operational expenses, allowing taxpayer dollars to potentially be allocated to other City needs. Additionally, the project will benefit the City residents and downstream entities, while ensuring the GA WWTP meets Texas Commission on Environmental Quality (TCEQ) wastewater effluent permit standards, preventing permit violations and ensuring that effluent wastewater and solids are properly treated, thus protecting public health and the environment.

CONSEQUENCES OF NO ACTION

Failure to complete these improvements will result in an increased burden on plant operators and City staff, which is already a current challenge. The aging infrastructure forces the City to conduct urgent maintenance and repairs, as well as procure rental equipment, leading to higher operational and maintenance costs. From a wastewater treatment perspective, the plant is operating with reduced sludge treatment capacity, which increases the strain on the liquid treatment process and leads to more trucked hauled solids. These issues cause inefficiencies and operational downtime in the GA WWTP's solids treatment process, potentially resulting in process upsets, high maintenance and repair costs, and, if left unresolved, disruptions to the liquid stream, such as elevated solids concentrations and high sludge age. This can negatively impact the secondary treatment process, risking effluent permit violations by discharging wastewater that fails to meet the required treatment standards. Additionally, the current equipment is located within the floodplain, posing a risk of flooding that could disrupt the treatment process and result in untreated wastewater discharge and costly emergency repairs to restore the plant to operational condition.

MITIGATION IMPROVEMENTS

The GA WWTP faced severe flooding during Hurricane Harvey and other similar high-rain and high-wastewater flow events due to its location within the 100-year floodplain. While relocating the entire treatment plant outside the floodplain is cost-prohibitive, the proposed project aims to elevate or provide flood protection for associated solids handling mechanical and electrical equipment above the historic flood elevation. This improvement will directly mitigate flood risks and enhance the facility's resilience.

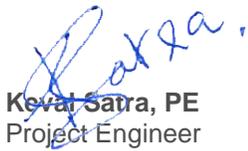


PROJECT SCHEDULE

The City has procured the services of a Grant Administrator and a Consulting Engineering firm to begin executing the project. The conceptual design is expected to be completed by April 2025. The final design phase is anticipated to be finished in the fall 2025 (September 2025). Upon completion of the design and TCEQ permitting, the bidding phase will begin, taking approximately two (2) months to complete. The project is planned to be construction-ready, provided the City has the necessary funds to proceed, as early as fall of 2025. No land acquisition is required for this project, and all local, state, and federal procurement requirements will be followed. Construction is expected to take approximately 18 months to complete.

Sincerely,

HR GREEN, INC.



Keval Satra, PE
Project Engineer



CDBG-DRRP: Budget Justification of Retail Costs (Former Table 2)

Cost Verification Controls must be in place to assure that construction costs are reasonable and consistent with market costs at the time and place of construction.

Applicant/Subrecipient:	City of Pasadena					
Site/Activity Title:	Golden Acres WWTP Solids Treatment Improvements					
Eligible Activity:	Sewer Improvements					
Materials/Facilities/Services	\$/Unit	Unit	Quantity	Construction	Acquisition	Total
Mobilization and Demobilization	\$ 600,000	LS	1	\$ 600,000	\$ -	\$ 600,000
SWPPP	\$ 30,000	LS	1	\$ 30,000	\$ -	\$ 30,000
Temporary Facilities	\$ 120,000	LS	1	\$ 120,000	\$ -	\$ 120,000
Concrete truck wash	\$ 4,000	EA	1	\$ 4,000	\$ -	\$ 4,000
Project Sign	\$ 3,000	EA	1	\$ 3,000	\$ -	\$ 3,000
Demolition and waste disposal of existing equipment	\$ 360,000	LS	1	\$ 360,000	\$ -	\$ 360,000
General site work, grading, drainage improvement, and site restoration	\$ 180,000	LS	1	\$ 180,000	\$ -	\$ 180,000
Construct sludge holding tanks including access stairs, handrails, and associated appurtenances	\$ 1,707,000	LS	1	\$ 1,707,000	\$ -	\$ 1,707,000
Furnish and install coarse bubble diffusers, telescoping valves, mud valves, and associate appurtenances within the new sludge holding tank	\$ 404,000	LS	1	\$ 404,000	\$ -	\$ 404,000
Furnish and install three (3) sludge holding tank blowers and control panels, blower concrete pad, air piping, valving, and fittings	\$ 960,000	LS	1	\$ 960,000	\$ -	\$ 960,000
Furnish and install three (3) new sludge transfer pumps and control panels, concrete pad, pump station piping, valving, and fittings.	\$ 425,000	LS	1	\$ 425,000	\$ -	\$ 425,000
Furnish and install new sludge piping, valving, and fittings to transfer sludge to the new sludge holding tanks and from sludge holding basin to dewatering building. Relocation of existing underground utilities for proposed work.	\$ 282,000	LS	1	\$ 282,000	\$ -	\$ 282,000
Electrical and controls Improvements	\$ 804,000	LS	1	\$ 804,000	\$ -	\$ 804,000
SCADA Integration	\$ 60,000	LS	1	\$ 60,000	\$ -	\$ 60,000
Construction Material Testing	\$ 48,000	LS	1	\$ 48,000	\$ -	\$ 48,000
Construction Permits	\$ 6,000	LS	1	\$ 6,000	\$ -	\$ 6,000
	\$ -			\$ -	\$ -	\$ -
TOTAL	\$ 5,993,000			\$ 5,993,000	\$ -	\$ 5,993,000

1. Identify and explain the annual projected operation and maintenance costs associated with the proposed activities.
 O&M costs for the proposed work will include electricity, chemicals, and regular equipment maintenance costs. It is expected that the project improvements will result in reduction in O&M costs currently spend by City for solids treatment and disposal.

2. Identify and explain any special engineering activities.
 N/A

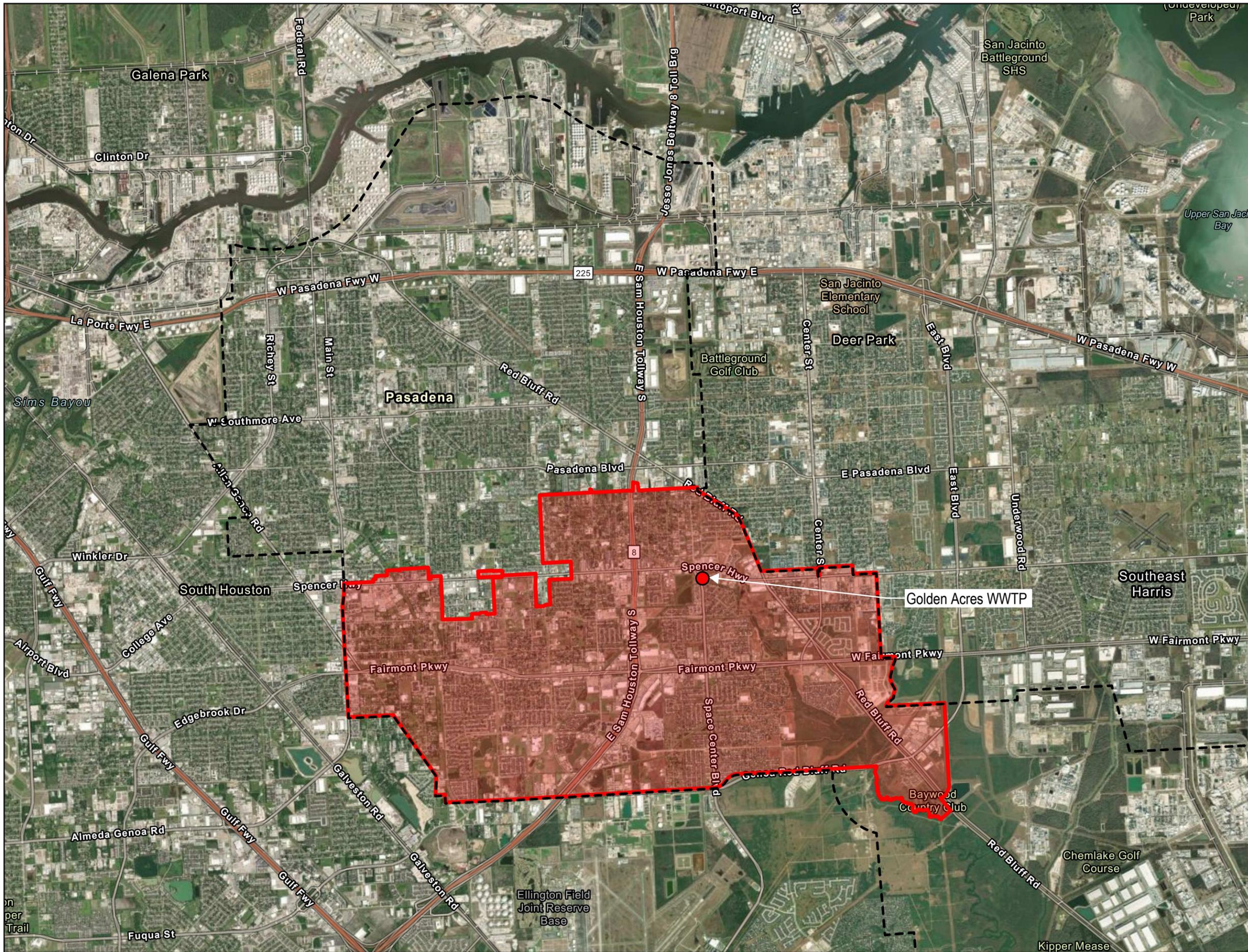


Seal

Date:	3/7/2025
Phone Number:	713-338-8030

Signature of Registered Engineer/Architect Responsible For Budget Justification:

Keval Satra



Legend

- Pasadena City Limits
- Golden Acres WWTP
- Golden Acres WWTP Service and Benefit Area



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CITY OF PASADENA, TEXAS

Golden Acres WWTP
Service and Benefit Area

Job Number: 2402326	Date: 3/5/2025	Drawn By: slanders	Exhibit: 01
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City of Pasadena
GLO CDBG-MIT Golden Acres WWTP Solids Treatment Improvements
Project Information

Location	Type of Activity	Est. Area (acres)	Location	Location Coordinates		
				Start	Mid/Center	End
Golden Acres WWTP	Solids Treatment Improvements	10.4	Golden Acres WWTP	29.6647°, -95.14111389°	29.66419722°, -95.14305278°	29.66366389°, -95.14384167°



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February 26, 2025

Mark Gardemal
City of Pasadena
Public Works Department
1149 Ellsworth Drive
Pasadena, TX 77506

Re: Vince Bayou WWTP Sludge Dewatering Improvements
City Application for CDBG-MIT Funding

Dear Mr. Gardemal,

Per the City of Pasadena (City) request for information regarding the Vince Bayou WWTP Sludge Dewatering Improvements project, please see below summaries of the project site, proposed improvements description, project beneficiaries, and project schedule. If any other information is needed, please reach out to me at ksatra@hrgreen.com or **713.338.8030**.

PROJECT SITE & DESCRIPTION

The City of Pasadena currently operates two wastewater treatment facilities: the Vince Bayou (VB) Wastewater Treatment Plant (WWTP) and the Golden Acres (GA) WWTP. The VB WWTP is one of the City's two facilities that treat wastewater for all its customers (population served is approximately 156,000). Both plants, when fully functional are designed to comply with the Texas Pollutant Discharge Elimination System (TPDES) standards, ensuring that treated wastewater is safely discharged into designated waterways, thereby protecting public health and the environment by preventing water source contamination.

The VB WWTP is located at 209 N Main Street, Pasadena, TX, 77506 and was originally constructed in the early 2000s. The current Texas Pollutant Discharge Elimination System (TPDES) permit for VB WWTP is for an average annual flow (AAF) of 14.0 million gallons per day (MGD) and 2-hour peak of 35.0 MGD. VB WWTP is located mostly within the 500-year floodplain zone, with portions of the plant within the 100-year floodplain zone, according to FEMA FIRM 48201C0905N (dated 5/2/2019). Per inputs from City and operators, VB WWTP was flooded during Hurricane Harvey, declared as a presidential major disaster for the State of Texas. During this flooding, VB WWTP suffered significant equipment and infrastructure damage resulting in requiring urgent and costly repairs.

In October of 2023, the City conducted a condition assessment of the VB WWTP. This assessment provided the City with a prioritized action plan of capital improvements projects at the plant based on the asset condition and criticality, and consequence of failure, and with the goal to continue to provide unhindered wastewater treatment services. During this study it was identified that the sludge dewatering equipment including belt filter press (BFP), polymer feed system, sludge pumps, and belt wash water pumps, and associated electrical and controls equipment had exceeded their useful life and were not functioning as designed. Specifically, one of the BFP, polymer pumps, and one sludge feed pumps are out of service and non-functional. The other two belt filter presses require frequent maintenance and emergency repairs to keep them operational.

The sludge dewatering process reduces the volume of solids being hauled off-site for disposal. The proposed improvements will include replacing the old and non-functional infrastructure with new equipment and restoring

the sludge dewatering treatment capacity at VB WWTP so solids generated in the process can be removed as designed and not impact compliance. Specifically, the proposed improvements will include:

- Demolition and replacement of two (2) filter belt presses.
- Two (2) new sludge pumps replacing existing non-operational pump and providing operational redundancies. Piping and valving modifications will be made to allow two pumps to feed a single belt filter press.
- Replacing the existing piping and valves between the three belt wash pumps and belt filter presses as well as polymer system to injection points.
- Replacing the existing polymer feed system, including a new neat polymer bulk storage tank, mixing assembly, and polymer pump skids. A shelf spare mixer will be included for redundancy.
- Associated electrical and controls improvements

The existing sludge dewatering system lacks redundancy and cannot handle permitted flows due to aging and non-operational equipment. All proposed equipment and critical mechanical/electrical components will be either elevated 1-ft above the Hurricane Harvey flood elevation for the site or otherwise protected from flooding damage via flood protection means.

BENEFICIARIES

This project will benefit both direct and indirect beneficiaries, enhancing the City's WWTP operations, public health, flood resiliency, and the environment. Direct beneficiaries include City staff and plant operators who will experience improved operations, reduced maintenance demands, and lower operational costs due to the replacement of aging and non-functional infrastructure. The project also aims to enhance sludge dewatering system performance, directly reducing hauling frequency (carbon footprint) and associated costs. Indirect beneficiaries are City residents and taxpayers, who will benefit from reduced operational expenses and compliance violations, allowing taxpayer dollars to potentially be allocated to other City needs. Additionally, the project will benefit the City residents and downstream entities, while ensuring the VB WWTP meets Texas Commission on Environmental Quality (TCEQ) wastewater effluent permit standards, ensuring that effluent wastewater and solids are properly treated, thus protecting public health and the environment.

CONSEQUENCES OF NO ACTION

Failure to complete these improvements will result in an increased burden on plant operators and City staff, which is already a current challenge. The aging and non-functional infrastructure forces the City to conduct urgent maintenance and repairs, as well as procure rental equipment, leading to higher operational and maintenance costs. From a wastewater treatment perspective, the plant is operating with reduced sludge dewatering capacity, which increases the strain on the liquid treatment process and leads to more trucked hauled solids. These issues cause inefficiencies and operational downtime in the VB WWTP's solids treatment, potentially resulting in process upsets, high maintenance and repair costs, and, if left unresolved, disruptions to the liquid stream, such as elevated solids concentrations and high sludge age. This can negatively impact the secondary treatment process, risking effluent permit violations by discharging wastewater that fails to meet the required treatment standards.

PROJECT SCHEDULE

The City has procured the services of a Grant Administrator and a Consulting Engineering firm to begin executing the project. The conceptual design is expected to be completed by April 2025. The final design phase is anticipated to be finished in the summer of 2025 (August 2025). Upon completion of the design and TCEQ



permitting, the bidding phase will begin, taking approximately two (2) months to complete. The project is planned to be construction-ready, provided the City has the necessary funds to proceed, as early as fall of 2025. No land acquisition is required for this project, and all local, state, and federal procurement requirements will be followed. Construction is expected to take approximately 15 months to complete.

Sincerely,

HR GREEN, INC.

A handwritten signature in blue ink that reads 'K Satra'.

Keval Satra, PE
Project Engineer



CDBG-DRRP: Budget Justification of Retail Costs (Former Table 2)

Cost Verification Controls must be in place to assure that construction costs are reasonable and consistent with market costs at the time and place of construction.

Applicant/Subrecipient:	City of Pasadena					
Site/Activity Title:	Vince Bayou WWTP Sludge Dewatering Improvements					
Eligible Activity:	Sewer Improvements					
Materials/Facilities/Services	\$/Unit	Unit	Quantity	Construction	Acquisition	Total
Mobilization and Demobilization	\$ 450,000	LS	1	\$ 450,000	\$ -	\$ 450,000
SWPPP	\$ 19,200	LS	1	\$ 19,200	\$ -	\$ 19,200
Temporary Facilities	\$ 60,000	LS	1	\$ 60,000	\$ -	\$ 60,000
Concrete truck wash	\$ 3,600	EA	1	\$ 3,600	\$ -	\$ 3,600
Project Sign	\$ 2,400	EA	1	\$ 2,400	\$ -	\$ 2,400
Demolition and waste disposal of existing equipment	\$ 150,000	LS	1	\$ 150,000	\$ -	\$ 150,000
Furnish and install polymer feed system	\$ 514,800	LS	1	\$ 514,800	\$ -	\$ 514,800
Furnish and install polymer feed piping and washwater piping	\$ 48,000	LS	1	\$ 48,000	\$ -	\$ 48,000
Furnish and install ductile iron sludge feed piping, valving, and flowmeter	\$ 163,200	LS	1	\$ 163,200	\$ -	\$ 163,200
Furnish and install two (2) new sludge feed pump, VFDs, pump control panels, and pumping accessories	\$ 130,200	EA	2	\$ 260,400	\$ -	\$ 260,400
Furnish and install two (2) new belt filter press units and associated equipment power and control panels, instrumentation, and performance testing	\$ 958,800	EA	2	\$ 1,917,600	\$ -	\$ 1,917,600
HVAC Improvements	\$ 60,000	LS	1	\$ 60,000	\$ -	\$ 60,000
Building and site restoration	\$ 18,000	LS	1	\$ 18,000	\$ -	\$ 18,000
Electrical and Controls Improvements	\$ 240,000	LS	1	\$ 240,000	\$ -	\$ 240,000
SCADA Integration	\$ 36,000	LS	1	\$ 36,000	\$ -	\$ 36,000
Construction Material Testing	\$ 6,000	LS	1	\$ 6,000	\$ -	\$ 6,000
Construction Permits	\$ 6,000	LS	1	\$ 6,000	\$ -	\$ 6,000
TOTAL	\$ 2,866,200			\$ 3,955,200	\$ -	\$ 3,955,200

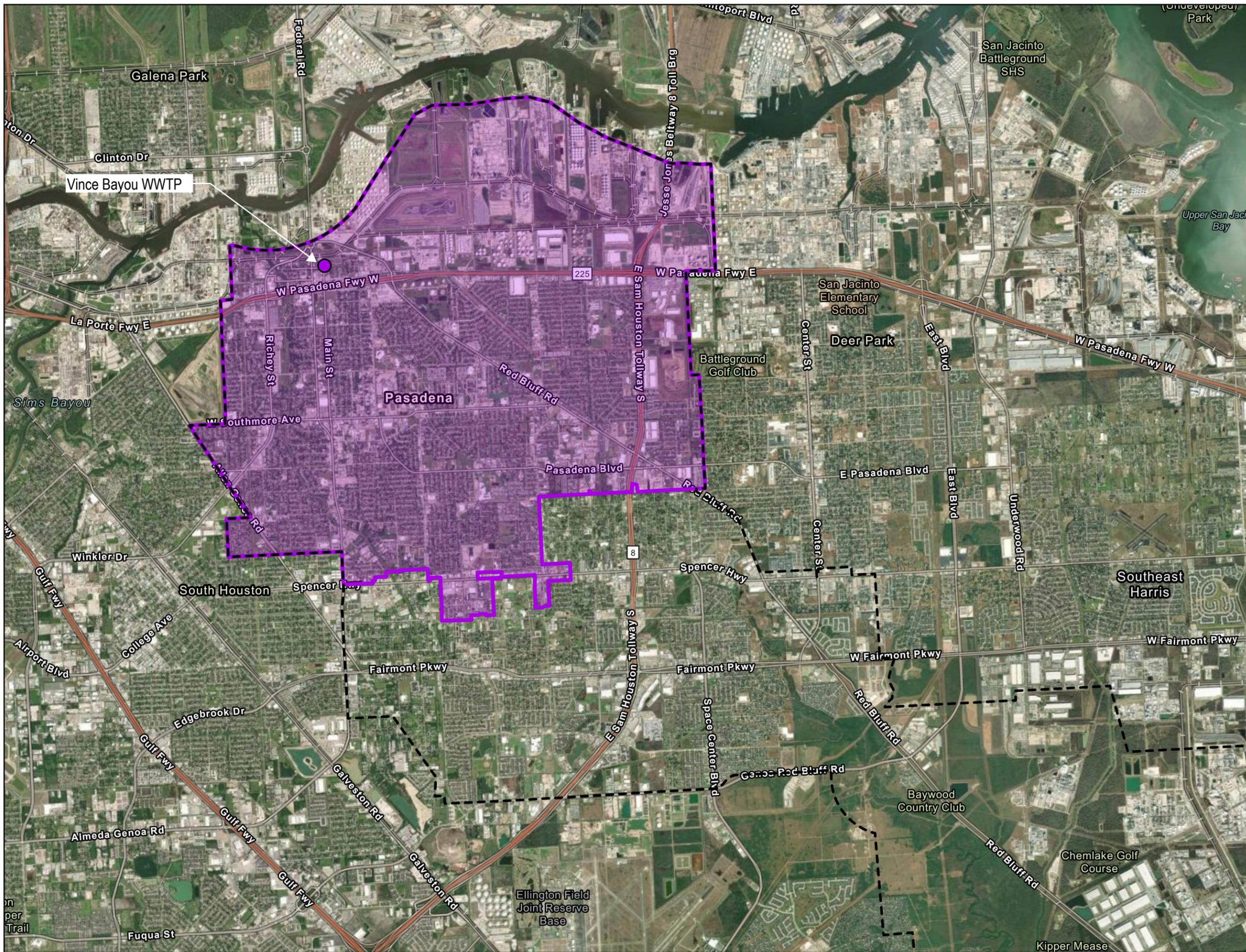
1. Identify and explain the annual projected operation and maintenance costs associated with the proposed activities.
 O&M costs for the proposed work will include electricity, chemicals, and regular equipment maintenance costs. It is expected that the project improvements will result in reduction in O&M costs currently spend by City for sludge dewatering system.

2. Identify and explain any special engineering activities.
 N/A



Date:	3/7/2025
Phone Number:	713-338-8030

Keval Satra
 Signature of Registered Engineer/Architect Responsible For Budget Justification:



Legend

- Pasadena City Limits
- Vince Bayou WWTTP
- Vince Bayou WWTTP Service and Benefit Area



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Phone: 713.965.9996
Firm No. F-11278

CITY OF PASADENA, TEXAS

Vince Bayou WWTTP
Service and Benefit Area

Job Number: 2402331	Date: 3/5/2025	Drawn By: slanders	Exhibit: 01
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City of Pasadena
GLO CDBG-MIT Vince Bayou WWTP Dewatering Improvements
Project Information

Location	Type of Activity	Est. Area (acres)	Location	Location Coordinates		
				Start	Mid/Center	End
Vince Bayou WWTP	Dewatering Improvements	10.25	Vince Bayou WWTP	29.71497778°, -95.20958056°	29.71543333°, -95.20783889°	29.71582778°, -95.20648056°

City of Pasadena - CDBG-DRRP Applications - Budget Summary

CIP #	Project Name	Limits	Estimated Construction Cost	Admin Fee	Total	CDBG-DRRP	Local Match
Red Bluff Terrace Ph I							
	Marshall St Ph II	Bearle to Alastair	\$ 2,085,000.00				
S248	Norman St	Bearle to Alastair	\$ 2,085,000.00				
	Raymond St	Bearle to Alastair	\$ 2,085,000.00				
			<u>\$ 6,255,000.00</u>	\$ 345,000.00	\$ 6,600,000.00	\$ 6,000,000.00	\$ 600,000.00
Red Bluff Terrace Ph II							
	Marshall St Ph I	Burke to Brown	\$ 940,147.00				
S249	Brown St	Thomas to Fleming	\$ 2,840,788.00				
	Delta Ave	Burke to Brown	\$ 1,706,807.00				
			<u>\$ 5,487,742.00</u>	\$ 300,000.00	\$ 5,787,742.00	\$ 5,000,000.00	\$ 787,742.00
Wastewater Improvements							
WW098	Vince Bayou WWTP	Solids System Improvements	\$ 3,955,200.00				
WW093	Golden Acres WWTP	Solids System Improvements	\$ 5,993,000.00				
			<u>\$ 9,948,200.00</u>	\$ 495,000.00	\$ 10,443,200.00	\$ 9,000,000.00	\$ 1,443,200.00

Summary		
CDBG-DRRP	Local Match	Total
\$ 20,000,000.00	\$ 2,830,942.00	\$ 22,830,942.00