

CITY OF NIXON

2020 GLO CDBG-MIT PROJECT

Hazard, Risk Description - Describe how the risk(s) selected (Flooding, Hurricanes/Tropical Storms) are impacting the proposed project area. Reference where adopted local mitigation efforts are planned or underway where appropriate.

Historically, during rainfall events, the City of Nixon's sanitary sewer system has experienced heavy levels of inflow and infiltration. As a result, various components of the City's system experience capacity issues that result in wastewater surcharges and inundation with the potential to negatively affect public welfare and the environment. A review of flow data from the Wastewater Treatment Plant (WWTP) shows that the system is experiencing flows nearly 2.75 times higher than average during rain events.

For the 2020 GLO CDBG-MIT, the City is applying for improvements to their sanitary sewer system that would reduce the potential for inflow and infiltration which cause wastewater surcharges & inundation, increase conveyance capacity, and improve key system structures to better handle the impacts being felt by rain events. Many of the City's sanitary sewer collection system lines are made of aged and failing clay. These lines have exceeded their useful life and are failing in a variety of ways; cracking, collapsing, joint separation, misalignment, etc. Over the years, the City has actively pursued the replacement of areas and parts of the system to reduce these impacts. City utility department staff routinely are tasked with replacing failing sections of line as the City's budget and staffing allow. Larger, longer sections such as the 4th Street Wastewater Improvements project in 2018 were funded by the Texas Community Development Block Grant (TxCDBG) program.

The WWTP lift station and 8th Avenue lift station are the two oldest stations within the City. Both have experienced inundation and caused overflows as a result of stormwater inflow into the wastewater system. Additionally, the WWTP lift station has suction pumps located in an uncovered dry well. Both the wet and dry wells of this lift station are located within the 100-year floodplain and at risk of inundation. Suction pumps are not designed to be inundated. If the dry well were to be inundated, the lift station and subsequently the WWTP could be rendered inoperable. Over the last 12 years, the City has taken steps to replace and rehabilitate the other six (6) lift stations within the City.

The last project elements involve a new generator & SCADA System Improvements at the City's WWTP and new generator at Water Well 6/Water Plant 3 on Rancho Road. Neither the WWTP nor the Water Plant currently have an emergency electrical generator. As part of the TCEQ Rules and Regulations for Public Water Systems and Wastewater Systems, provisions for emergency power for critical need equipment are required. Critical need equipment is that which is essential to maintain public health protection (e.g., pumps). If a storm, fire, or other event caused the power to go out, serious harm to the community could result. The new generators at the WWTP & WW6/WP3 will provide a minimum of 24-hours of uninterrupted service to ensure proper wastewater treatment at the WWTP and continuous water supply and pressure throughout the City. During some significant rainfall events, the creek between SH 80 and the WWTP prevents City access to the WWTP. The WWTP SCADA Improvements will provide City staff remote monitoring and controlling of the equipment during these events without the need of risking safety to cross the creek.

Attached is an exhibit depicting the projects that the City would like to construct using 2020 GLO CDBG-MIT funds. As the exhibit illustrates, the proposed improvements would focus on the major components of the City's system.

Hazard Mitigation Actions - Describe how the proposed project will mitigate against the identified lists. Reference where adopted local mitigation efforts are being enhanced where appropriate.

The proposed project includes several facets that will help mitigate against the identified list. First, the project includes replacing the two main trunk lines within the City. These two lines convey all of the City's wastewater and any inflow and infiltration. Replacing these lines with PVC of equal or larger size will increase their capacity and thereby mitigate the potential of sanitary sewer backups and unauthorized discharges during flood events due to line surcharges. Second, the two main trunk lines scheduled for replacement are both clay pipes believed to be major contributors to the inflow and infiltration being experienced. Replacement of these dilapidated lines with PVC will reduce the quantity of inflow and infiltration. Third, the project includes renovating the lift station at the wastewater treatment plant (WWTP) and building a new 8th Avenue lift station. These improvements will increase both storage capacity and pumping capabilities leaving them better suited to handle increased flows due to inflow and infiltration. Fourth, the project includes adding generators at the WWTP and Water Plant No. 3 which will provide a minimum of 24-hours of uninterrupted service to ensure proper wastewater treatment at the WWTP and continuous water supply and pressure throughout the City. Finally, the project includes improvements to the WWTP SCADA communication and controls system which will allow city staff to remotely monitor and control critical WWTP equipment without the risk of travel during inclement weather or needing to cross a potentially flooded creek crossing to access the WWTP site.

This project will build upon the City's ongoing efforts to replace and/or improve the aged existing sanitary sewer system, be better prepared for the next disaster, and avoiding repetitive damages.

Provide a Project Summary - Summary must identify each Activity and Site required for successful mitigation, and identify the risk being mitigated.

The overall project can be divided into six (6) parts as shown on the attached exhibit. The following is a summary of each part and the risk being mitigated:

Part 1: The scope of work includes replacing the existing sanitary sewer trunk main from the wastewater treatment plant lift station east across State Highway 80, around the Nixon-Smiley ISD property and south to East 10th Street. Replacing the old clay main will reduce inflow and infiltration, increase wastewater conveyance, and reduce the potential of unauthorized discharges during flood events due to line surcharges.

Part 2: The scope of work includes replacing the existing sanitary sewer trunk main from just upstream of the wastewater treatment plant lift station south, roughly paralleling State Highway 80 (to the east), to and along West 3rd Street, then to and along West Holmes Street to North Rancho Road. Replacing the old clay main will reduce inflow and infiltration, increase wastewater conveyance, and reduce the potential of unauthorized discharges during flood events due to line surcharges.

Part 3: The existing lift station is setup with a wet and dry well. Suction pumps are located within the uncovered dry well. The proposed renovation would switch the larger dry well into a wet well thereby increasing the stations storage capacity. Submersible pumps would replace the suction pumps to

increase firm pumping capacity and eliminate the need to enter a dry well for maintenance. Further, eliminating the dry well and increasing the station's wall height, as needed, would reduce the potential of inundation during a 100-year storm event which could possibly render the existing pumps inoperable. These improvements will increase the capacity and storage of the lift station and decrease the risk of catastrophic failure during a 100-year flood.

Part 4: Improving the SCADA system and adding a generator to the WWTP. The SCADA system would allow City staff to better monitor and control the plant's operation remotely 24-hours a day. This could enable staff to make necessary adjustments to the plant's operation without placing themselves or others at risk by needing to visit the plant in-person during a flood event.

The wastewater treatment plant (WWTP) power is provided by Guadalupe Valley Electric Cooperative (GVEC) while nearly the entire city's power is provided by American Electric Power (AEP). Interruption in GVEC service likely would not coincide with AEP loss of service. Therefore, the various sanitary sewer lift stations around town which pump sewer to the WWTP would remain in service. This would threaten to inundate and potentially overflow the lift station at the WWTP. Additionally, at the same time residential homes in the vicinity of the WWTP may experience sewage backups. In the event of a GVEC power outage caused by high winds, wildfire, flooding, severe thunderstorms, or intervention by wildlife the generator would insure uninterrupted operation of the WWTP and its lift station. Furthermore, TCEQ Rules and Regulations for Public Water Systems and Wastewater Systems requires provisions for emergency power for critical need equipment. Adding a generator to the WWTP would also bring the plant into compliance with TCEQ.

Part 5: The existing 8th Avenue lift station would be replaced while adding remote monitoring/alarm capabilities. The new station will have increased storage and pumping capacity to mitigate the effects of inflow and infiltration into the wastewater. The increase reliability would mitigate the risk of unauthorized discharges during flood events due to line surcharges.

Part 6: Adding a generator to Water Plant No. 3. Pressure and supply to Water Plant No. 3's service area is supplied by booster pumps and is isolated from the elevated storage tanks which serve the rest of the City. The addition of a generator would provide a minimum of 24-hours of continuous water supply and pressure to Water Plant No. 3's service area. Furthermore, by opening valves between No 3's service area and the rest of the City, this plant could provide emergency supply throughout the City and the elevated storage tanks in the event of an extended outage.



1 inch = 1,000 feet

Wastewater Treatment Plant and Lift Station Improvements PARTS 3 & 4

Lat: 29.28271°
Long: 97.76758°

PART 1

PART 2

Lat: 29.27713°
Long: 97.76163°

Legend

-  City Limits
-  Proposed Wastewater
-  Ex. Sewer Lines
-  Ex. Lift Stations

Lat: 29.26686°
Long: 97.76928°

Water Plant No. 3 Improvements
Lat: 29.25993°
Long: 97.77465°
PART 6

8th Ave Lift Station Improvements
Lat: 29.26090°
Long: 97.76273°
PART 5

**CITY OF NIXON
GLO CDBG-MIT
BEFCO JOB NO. 20-7776**

**City of Nixon
CDBG-MIT Improvements**

Preliminary Estimate - Detailed Breakdown

<i>Item</i>	<i>Description</i>	<i>Quantity</i>	<i>Units</i>	<i>Unit Price</i>	<i>Total</i>
PART 1 - 12" SEWER TRUNKMAIN: WWTP Lift Station, East of SH 80 to East 10th Street					
1	15" Sewer Line	215	LF	\$ 95.00	\$ 20,425.00
2	12" Sewer Line	3,840	LF	\$ 85.00	\$ 326,400.00
3	Bore & 20" Casing, Including 12" Carrier	170	LF	\$ 500.00	\$ 85,000.00
4	4' Dia. Manhole	15	EA	\$ 5,750.00	\$ 86,250.00
5	Tie-in to Existing Sewer including 10' Stub	2	EA	\$ 2,875.00	\$ 5,750.00
6	Easement/ROW Preparation	3,840	LF	\$ 4.50	\$ 17,280.00
7	Reconnecting Existing Services	4	EA	\$ 1,500.00	\$ 6,000.00
8	Connection to WWTP Lift Station	1	LS	\$ 5,000.00	\$ 5,000.00
9	Trench Protection	4,055	LF	\$ 3.00	\$ 12,165.00
10	Bypass Pumping	2	MO	\$ 40,000.00	\$ 80,000.00
Subtotal (Items 1-10)					\$ 644,270.00
PART 2 - 12" SEWER TRUNKMAIN: WWTP Entrance Road Main to North Rancho Road					
11	12" Sewer Line	2,970	LF	\$ 85.00	\$ 252,450.00
12	10" Sewer Line	4,790	LF	\$ 75.00	\$ 359,250.00
13	Bore & 18" Casing, Including 10" Carrier	60	LF	\$ 450.00	\$ 27,000.00
14	Uncased Bore for 10" Sewer Line	80	LF	\$ 300.00	\$ 24,000.00
15	Pavement Repair for Sewer Main Installation	1,210	LF	\$ 45.00	\$ 54,450.00
16	4' Dia. Manhole	26	EA	\$ 5,750.00	\$ 149,500.00
17	Tie-in to Existing Sewer including 10' Stub	9	EA	\$ 2,875.00	\$ 25,875.00
18	Tie-in to Existing Sanitary Sewer MH	4	EA	\$ 1,750.00	\$ 7,000.00
19	Easement/ROW Preparation	7,760	LF	\$ 4.50	\$ 34,920.00
20	Reconnecting Existing Services	35	EA	\$ 1,500.00	\$ 52,500.00
21	Pavement Repair for Service Reconnections	200	LF	\$ 35.00	\$ 7,000.00
22	Trench Protection	7,760	LF	\$ 3.00	\$ 23,280.00
23	Bypass Pumping of existing sewer flows	4	MO	\$ 40,000.00	\$ 160,000.00
Subtotal (Items 11-23)					\$ 1,177,225.00
PART 3 - WWTP Lift Station Renovation					
24	Renovation of existing wet well & dry well, replace station piping, pumps, and electrical equipment	1	LS	\$ 250,000.00	\$ 250,000.00
Subtotal (Items 24)					\$ 250,000.00
PART 4 - WWTP Improvements					
25	SCADA Improvements	1	LS	\$ 150,000.00	\$ 150,000.00
26	Generator	1	LS	\$ 200,000.00	\$ 200,000.00
Subtotal (Items 25-26)					\$ 350,000.00
PART 5 - 8th Avenue Lift Station Replacement					
27	Replace Existing Lift Station including wet well, pumps, station piping, and electrical equipment	1	LS	\$ 300,000.00	\$ 300,000.00
Subtotal (Item 27)					\$ 300,000.00
PART 6 - Water Plant Generator					
28	Generator at Water Plant No. 3	1	LS	\$ 200,000.00	\$ 200,000.00
Subtotal (Item 28)					\$ 200,000.00
Total Construction					\$ 2,921,495.00
Engineering (15%)					\$ 438,224.25
Grant Administration (8%)					\$ 268,777.54
Grand Total					\$ 3,628,496.79

Notes:

1. BEFCO Engineering, Inc. does not guarantee or warrant that bids or actual costs will not vary from the professional opinion of probable cost shown herein. Costs reflected herein are based on professional opinions based on experience and available data. BEFCO Engineering, Inc. has no control over the cost of construction such as labor, materials, equipment, etc.

BUDGET TABLE:

Project Title:	Total Benes	LMI Benes	LMI %	CDBG-DR Construction	CDBG-DR Engineering	CDBG-DR Acquisition	CDBG-DR Environmental	CDBG-DR Admin	Total CDBG-DR Request	Other Funds	Activity Total	+
# 1 Nixon Project	2,530	1,325	52.37%	\$2,921,495.0	\$438,224.25	\$0.00	\$30,000.00	\$238,777.54	\$3,628,496.7	\$36,285.00	\$3,664,781.7	X
SUMMARY TOTALS:	2,530	1,325	52.37%	\$2,921,495.0	\$438,224.25	\$0.00	\$30,000.00	\$238,777.54	\$3,628,496.7	\$36,285.00	\$3,664,781.7	

Beneficiary Identification Method(s) Per Project:

Project Title: Nixon Project

HUD National Objective: Benefiting low- and moderate- (L/M) income persons

Select One Benefit Type: City-wide Benefit County-wide Benefit Area Benefit Direct Benefit

Select Beneficiary Identification Method:

SURVEY: An approved TxCDBG survey was used to identify the beneficiaries for this activity.

HUD LMISD information was used to identify the beneficiaries for this activity.

The required Census or Texas State Data Center map has been provided.

Provide the number of beneficiaries identified through each of the following methods for this activity:

TxCDBG Survey: HUD LMISD: Area Benefit: Housing Activity: Limited Clientele:

Race	# Non-Hispanic Beneficiaries	# Hispanic Beneficiaries	Total Activity Beneficiaries	+
White	366	1,017	1,383	X
Black African American	63	0	63	X
American Indian/Alaskan native	0	0	0	X
Asian	0	0	0	X
Native Hawaiian / Other Pacific Islander	3	0	3	X
Black African American/White	0	0	0	X
American Indian/Alaskan Native/White	0	0	0	X

Asian/White	0	0	0	X
Other Multi-Racial	0	1,081	1,081	X
	432	2,098	2,530	
Gender	Total Males	Total Females	Total Benes	
	1261	1269	2530	

REQUIRED - Census Geographic Area Data										+	
Identify the census tract and block group(s) in which the project will take place										County Code	
										177	
Census Tract (6-digit)	01	02	03	04	05	06	07	08	09	10	X
0005.00		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								

[Click here to ADD ANOTHER Table 1](#)

[Click here to REMOVE the last Table 1](#)