



CERTIFICATION PROPOSAL

WASTEWATER COLLECTION AND TREATMENT PROJECT IN GUSTAVO DÍAZ ORDAZ, TAMAULIPAS

Published: April 23, 2019



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EXECUTIVE SUMMARY

WASTEWATER COLLECTION AND TREATMENT PROJECT IN GUSTAVO DÍAZ ORDAZ, TAMAULIPAS

- Project:** The proposed project consists of the expansion and rehabilitation of the wastewater collection and treatment system in the city of Gustavo Díaz Ordaz, Tamaulipas (the “Project”). The main components of the Project include rehabilitation of the existing wastewater collection system and replacement of a lift station; expansion of the wastewater collection system to currently unserved areas, including the installation of yard-line connections from each home to the sewer system and the decommissioning of existing on-site wastewater disposal systems; the construction of a force main and new wastewater treatment plant (WWTP) with a capacity of 26 liters per second (lps) or 0.59 million gallons per day (mgd); and the decommissioning of the existing treatment system.
- Project Objective:** The purpose of the project is to provide first-time access and connect households in unserved areas to the wastewater system, eliminate untreated or inadequately treated wastewater discharges and improve the quality of effluent discharged to receiving water bodies, thereby helping to reduce of water pollution and the risk of waterborne diseases.
- Expected Outcomes:** The Project is expected to generate environmental and human health benefits related to the following outcomes:
- Provide first-time access to wastewater collection and treatment services for 2,644 existing homes in currently unserved areas, including the installation of all residential connections;¹
 - Prevent the risk of groundwater contamination by decommissioning 2,644 on-site wastewater disposal systems;
 - Improve wastewater collection services for 720 existing homes;
 - Improve wastewater treatment services for 100% of the community or 3,364 homes;²

¹ A household connection is the yard-line pipe extending from the sewer collection infrastructure to the home.

² Estimated number of connections in the city based on data provided by the local utility in December 2018.

- Provide 26 lps or 0.59 mgd of wastewater treatment capacity with a system for methane capture and conversion; and
- Eliminate approximately 25 lps or 0.57 mgd of untreated or inadequately treated wastewater discharges.

Population to Benefit: 12,354 residents of Gustavo Díaz Ordaz, Tamaulipas.³

Project Sponsor: The local water utility, *Comisión Municipal de Agua Potable y Alcantarillado de Gustavo Díaz Ordaz (COMAPA)*.

Estimated Construction Cost: US\$8,550,000.

NADB Funding: US\$4,510,000 grant from the Border Environment Infrastructure Fund (BEIF) funded by the U.S. Environmental Protection Agency (EPA).

Uses and Sources of Funds:
(US\$)

Uses	Amount	%
Construction*	\$ 8,550,000	100.0
TOTAL	\$ 8,550,000	100.0
Sources	Amount	%
Mexican federal funds	\$ 2,020,000	23.6
Mexican state and local funds	2,020,000	23.6
NADB-BEIF (EPA grant)	4,510,000	52.8
TOTAL	\$ 8,550,000	100.0

* Estimated costs include 16% value-added tax (VAT), supervision and contingencies.

Project Status:

Key Milestones	Status
Environmental clearance – U.S.	Completed
Environmental clearance – Mexico	Completed
Final design	Completed
Construction with Mexican funds	Completed
Procurement for BEIF grant components	Anticipated in 3 rd quarter of 2019
Construction period with BEIF grant	Estimated period of 36 months
Discharge permit	Completed

³ Source: Updated Final Design for the Wastewater Collection and Treatment Project in Ciudad Gustavo Díaz Ordaz, Tamps., May 2018.

CERTIFICATION PROPOSAL

WASTEWATER COLLECTION AND TREATMENT PROJECT IN GUSTAVO DÍAZ ORDAZ, TAMAULIPAS

1. PROJECT OBJECTIVE AND EXPECTED OUTCOMES

The proposed project consists of the expansion and rehabilitation of the wastewater collection and treatment system in the city of Gustavo Díaz Ordaz, Tamaulipas (the “Project”). The purpose of the Project is to provide first-time access to wastewater services to 2,644 homes in unserved areas of the city, as well as improved service to 720 homes already connected to the wastewater collection system. The new infrastructure will also provide the capacity to treat 26 liters per second (lps) or 0.59 million gallons a day (mgd) of wastewater and improve the quality of the effluent discharged to receiving water bodies, thereby helping to reduce water pollution and the risk of waterborne diseases.

2. ELIGIBILITY

2.1. Project Type and Description

The Project falls within the eligible category of wastewater collection and treatment.

2.2. Project Location

The Project will be implemented in the city of Gustavo Díaz Ordaz, the seat of the municipality with the same name, in the state of Tamaulipas.⁴ The city is adjacent to the U.S.-Mexico border, directly across the Rio Grande from Los Ebanos, Texas, and approximately 22 miles northwest of Reynosa, Tamaulipas. Its geographical coordinates are Latitude 26° 13' 56" N and Longitude 98° 35' 49" W, at 131 feet above mean sea level. Figure 1 shows the approximate location of the Project.

⁴ In Mexico, a “*municipio*” or municipality has a jurisdiction similar to a county in the United States.

Figure 1
PROJECT LOCATION MAP



2.3. Project Sponsor and Legal Authority

The Project sponsor is the local water utility, *Comisión de Agua Potable y Alcantarillado de Gustavo Díaz Ordaz* (COMAPA or the “Utility”). The legal authority of COMAPA is established in Decree No. 164 of the 58th Constitutional Legislature of the Free and Sovereign State of Tamaulipas, published on December 26, 2002, which provides for the establishment of a municipal public utility with legal authority and capital assets, for the purpose of providing water and wastewater services to the Municipality of Gustavo Díaz Ordaz, Tamaulipas.

3. CERTIFICATION CRITERIA

3.1. Technical Criteria

3.1.1. General Community Profile

Due to its geographic location, Gustavo Díaz Ordaz has a border crossing to the community of Los Ebanos in Hidalgo County, Texas. The economy of Gustavo Díaz Ordaz is based primarily on agricultural, livestock, and commercial activities.

According to data from the 2010 Population and Housing Census published by the Mexican National Institute of Statistics and Geography (INEGI), the municipality of Gustavo Díaz Ordaz had 15,775 residents, 37.8% of which formed part of the labor force. The population in the Project

area was estimated at 12,354 residents.⁵ In 2010, 44.3% of the residents in the municipality of Gustavo Díaz Ordaz were living below the poverty level.⁶

The following table summarizes the status of public services and infrastructure in Gustavo Díaz Ordaz.

Table 1
BASIC PUBLIC SERVICES AND INFRASTRUCTURE IN GUSTAVO DÍAZ ORDAZ¹

Water ²	Project Area
Coverage:	96 %
Water supply source:	Rio Grande River
Number of hookups:	3,364
Wastewater Collection ²	
Coverage:	21 %
Number of connections:	720 residential
Wastewater Treatment	
Coverage: ³	0 % (Once the Project is operational, coverage will be 100%).
Treatment facilities:	None ⁴
Solid Waste ⁵	
Solid waste collection:	90 %
Final disposal:	Landfill
Street Paving ⁵	
Coverage:	50% (estimated)

¹ This table includes only the area related to the planned wastewater collection and treatment improvements to be implemented under the proposed Project.

² Source: COMAPA, December 2018.

³ Treatment coverage equals the percentage of wastewater collected through the centralized collection system and treated by a wastewater treatment facility.

⁴ The city has a lagoon-based system that does not operate properly; therefore, it is not included in the table.

⁵ Source: Department of Public Works of Gustavo Díaz Ordaz.

Local Water and Wastewater System

COMAPA currently serves 3,364 water connections with coverage reaching approximately 96% of households in Gustavo Díaz Ordaz. During 2017, improvements were made to the drinking water system, which currently provides adequate disinfection, in compliance with water quality standards established under Official Mexican Standard NOM-127-SSA-1994.

⁵ Source: Updated Final Design for the Wastewater Collection and Treatment Project in Ciudad Gustavo Díaz Ordaz, May 2018.

⁶ Source: National Council for Evaluation of Social Development Policy [*Consejo Nacional de Evaluación de la Política de Desarrollo Social (CONEVAL)*], Annual Status Report on Poverty and Social Gaps: Gustavo Díaz Ordaz, Tamaulipas [*Informe Anual sobre la Situación de Pobreza y Rezago Social: Gustavo Díaz Ordaz, Tamaulipas*], accessed on October 11, 2018, (https://www.gob.mx/cms/uploads/attachment/file/46836/Tamaulipas_015.pdf).

Wastewater collection services are currently only available to about 21% of households in Gustavo Díaz Ordaz. A good part of the sewer system has exceeded its useful life and is showing signs of deterioration throughout its entire length, resulting in leaks and overflows from various manholes. Recurring problems with the lift station and force main that convey wastewater to the existing lagoon system have also resulted in raw wastewater discharges that eventually flow into the Rio Grande River. Residents in the rest of the city dispose of their wastewater in substandard septic tanks, latrines and cesspools, which pose a serious risk for contamination of surface and groundwater resources.

Built in the 1970's and located within the Rio Grande floodplain, the unlined wastewater lagoon system in Gustavo Díaz Ordaz does not provide wastewater treatment and simply operates as a cluster of infiltration/evaporation ponds with the inherent risk of groundwater contamination. Consequently, all the wastewater generated by the community, approximately 25 lps (0.57 mgd), is seeping into the ground and water table in the vicinity of the Rio Grande. This situation, coupled with the risk to residents of direct contact with raw sewage resulting from sewer system failures, was the reason why the U.S. Environmental Protection Agency (EPA) selected the Project to receive funding from the Border Environmental Infrastructure Fund (BEIF).

The proposed Project will extend service to unserved areas within the city and will replace the lift station and force main, so that wastewater can be safely conveyed to the new wastewater treatment facility, reducing the risk of leaks and spills. The proposed site of the new wastewater treatment system is outside the Rio Grande floodplain, and the plant will produce effluent in compliance with Official Mexican Standard NOM-001-SEMARNAT-1996, thus preventing contamination of the Rio Grande River. In 2017-2018, as part of this Project, COMAPA began implementing wastewater collection projects, installing 875 meters (2,871 ft) of 30 cm (12") PVC sewer pipe and 151 residential connections.

3.1.2. Project Scope

The Project consists of improvements to the wastewater collection and treatment infrastructure in Gustavo Díaz Ordaz and will result in 100% wastewater treatment coverage for the Project area.

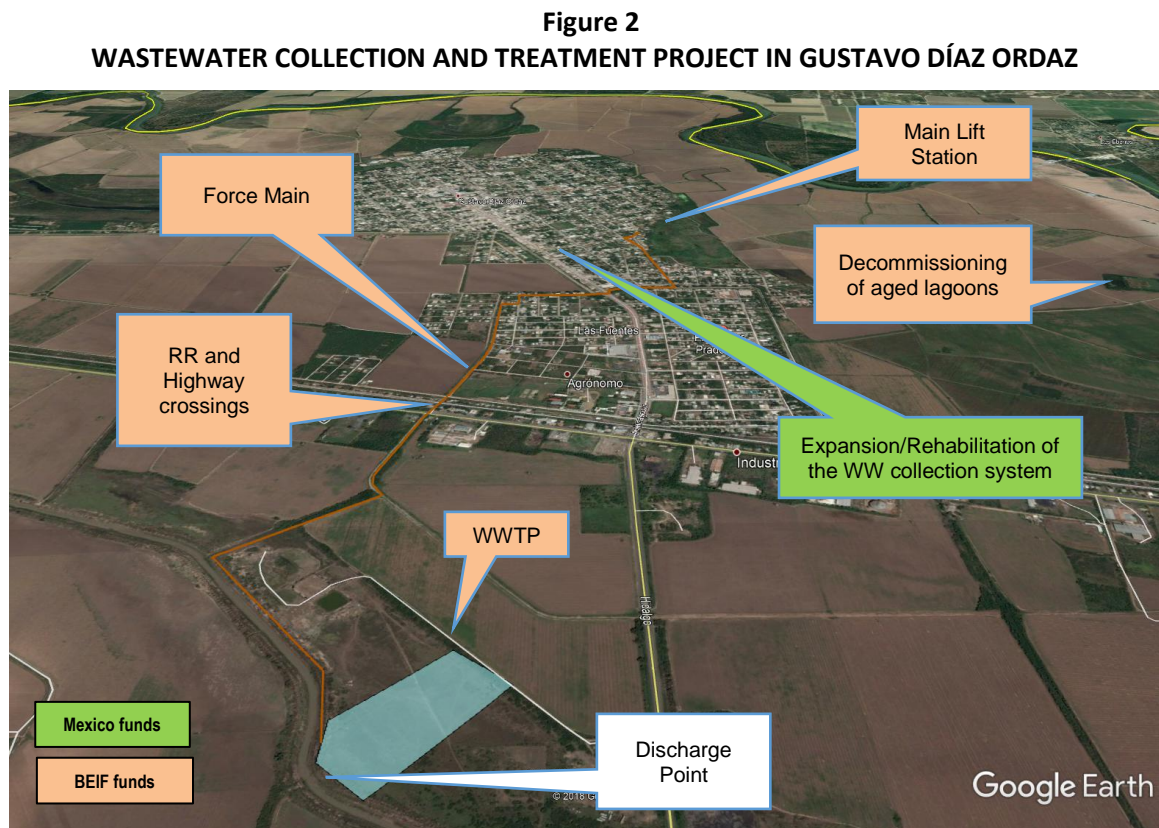
The Project includes the following components:

- *Rehabilitation of the existing wastewater collection infrastructure in the city*, including the installation of approximately 13,440 meters (44,094 ft) of 20- to 63-cm (8- to 24-inch) PVC pipe and 65 manholes.
- *Expansion of the wastewater collection infrastructure in the city*, including the installation of approximately 47,650 meters (156,332 ft) of 20- to 38- cm (8- to 15-inch) PVC pipe, 566 manholes and 2,644 residential connections, as well as the decommissioning of existing on-site wastewater disposal systems.⁷
- *Replacement of the main lift station*, with an average flow rate of 27 lps (0.62 mgd), including a mechanical screening system and four 11-HP pumps.

⁷ Some of these components have already been completed with Mexican funds.

- Construction of a wastewater treatment plant (WWTP), consisting of an anaerobic lagoon, two facultative lagoons and two maturation lagoons with the capacity to treat 26 lps (0.59 mgd). The facility will include a system to capture methane emissions and convey them to a burner for conversion to carbon dioxide.
- Construction of a force main from the main lift station to the WWTP, with the capacity to handle a peak flow rate of 107 lps (2.44 mgd) and consisting of 3,680 meters (12,073 ft) of high-density polyethylene (HDPE) pipe.
- Decommissioning of the existing lagoon treatment system, upon completion of the WWTP, the aged lagoon system will be decommissioned to prevent any further environmental risks.

Figure 2 shows the general location of the Project components.



WWTP = Wastewater Treatment Plant

Funding provided by Mexico was used to complete the following Project components:

- 875 meters (2871 ft) of wastewater collection lines using 30-cm (12-inch) PVC pipes in the Prado Sur subdivision; and
- Installation of 151 residential connections in the same subdivision.

The Project Sponsor proposes using BEIF funds for construction of the WWTP, the main lift station, the force main from the main lift station to the WWTP, the decommissioning of the existing lagoon system and installation of approximately 2,644 residential connections in the Project area, along with the decommissioning of existing septic tanks.

The final design for construction of the WWTP has been completed. The plant will consist of the following components:

- A grit removal and screening pretreatment system;
- Two 46 m x 16.5 m x 4.5 m (151 ft x 54 ft x 15 ft) anaerobic lagoons, lined and covered with high density polyethylene (HDPE) geomembranes, with the cover serving to contain methane emissions, which will be conveyed to a burner for conversion to carbon dioxide;
- Two 170 m x 60 m x 2 m (558 ft x 197 ft x 7 ft) facultative lagoons, lined with an HDPE geomembrane;
- Two 155 m x 65 m x 1.5 m (508 ft x 213 ft x 5 ft) maturation lagoons, lined with an HDPE geomembrane; and
- An outfall to the Esteritos Drain.

The bottom of the treatment units will be lined with a high-density polyethylene membrane to prevent seepage to groundwater. Additionally, a system to convert methane to carbon dioxide is included because carbon dioxide is 21 times less harmful than methane with respect to its impact as a greenhouse gas. Once the WWTP is fully operational, Gustavo Díaz Ordaz will have 26 lps (0.59 mgd) of wastewater treatment capacity, which will be sufficient to treat 100% of the wastewater flows collected by the local sewer system, which are estimated to be 25 lps (0.57 mgd).⁸ Since the Mexican National Population Council (CONAPO) projects only marginal growth for Gustavo Díaz Ordaz over the next 20 years, the capacity of the WWTP will be sufficient to handle future flows.

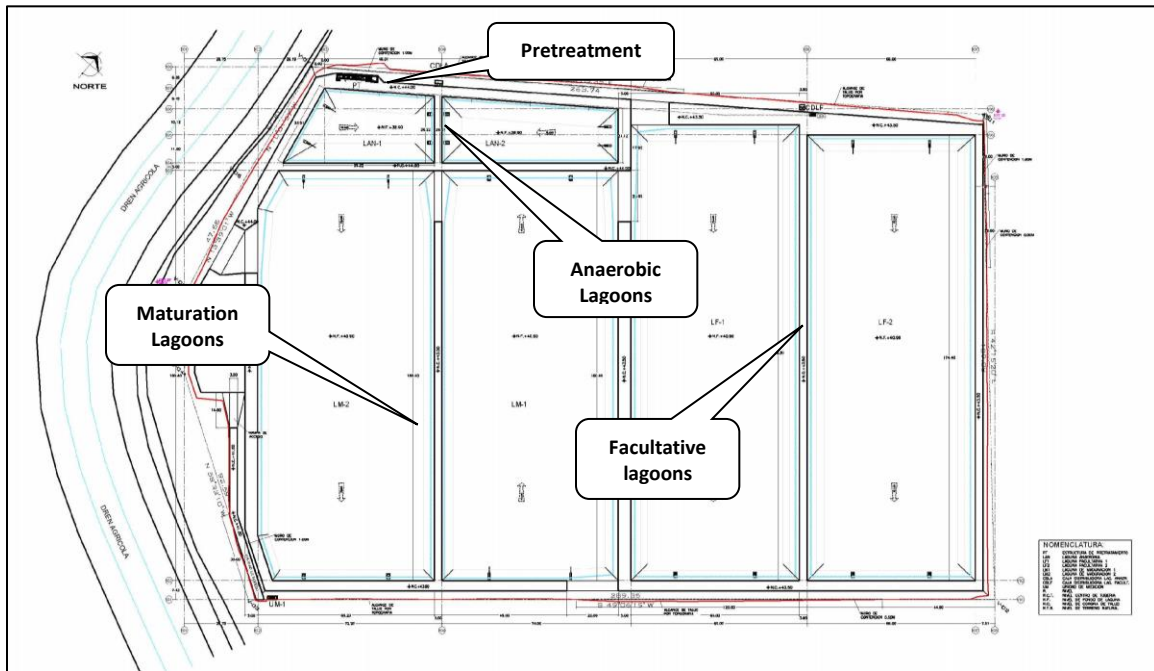
The treated effluent will be conveyed to the Esteritos Drain, which flows into the El Morillo Drain control unit that diverts discharges to the Laguna Madre through the El Morillo Drain or the Rio Grande when the effluent has the appropriate salinity. In October 2017, COMAPA submitted a request to the Mexican National Water Commission (CONAGUA) to modify the WWTP discharge parameters for biochemical oxygen demand (BOD₅) to 75 milligrams per liter (mg/l) and total suspended solids (TSS) to 75 mg/l. On March 21, 2018, CONAGUA issued its approval through Official Letter No. B00.811.02.02-0179 (18).

The sludge generated by the WWTP will be stored and stabilized within the lagoons. Under normal circumstances, the lagoon system is designed to manage sludge storage for the life of the facility or approximately 20 years. The sludge typically remains at the bottom of the lagoons, where it will break down over time and eventually mineralize. However, should the lagoon capacity be affected by silt or other non-decomposable elements, the life of the facility will be shortened, and

⁸ Source: Updated Final Design of the Wastewater Collection and Treatment Project for Ciudad Gustavo Díaz Ordaz, Tamaulipas [*Actualización del Proyecto Ejecutivo de Alcantarillado y Saneamiento de Ciudad Gustavo Díaz Ordaz, Tamaulipas*], August 2018.

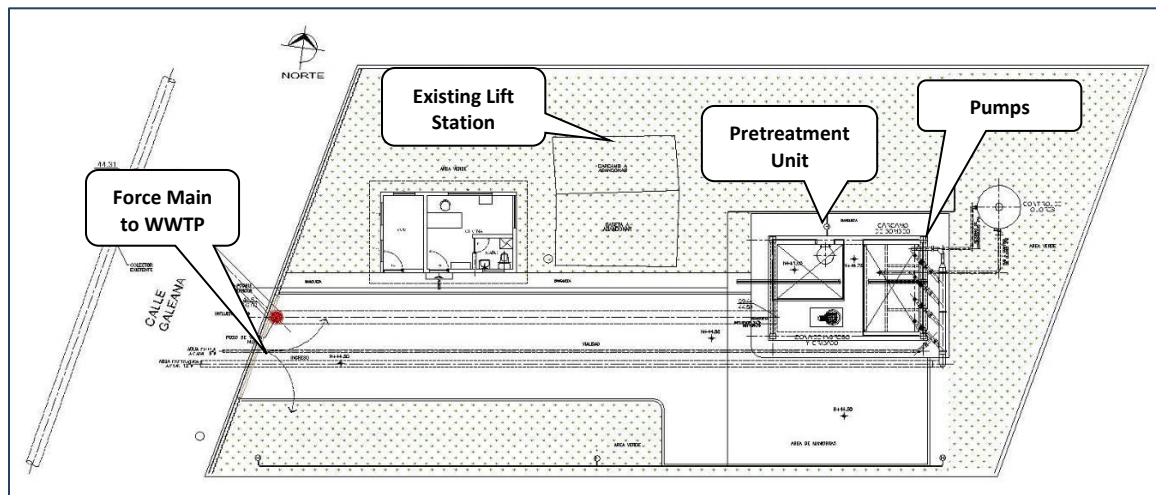
sludge removal methods could be considered. If the removal of sludge is required, final disposal would be at the municipal landfill. However, if the applicable analyses do not show hazardous content, the sludge could be used as an agricultural soil enhancer. Figure No. 3 shows the general layout of the WWTP.

Figure 3
GENERAL LAYOUT OF THE WWTP



The main lift station was designed with an average flow rate of 27 lps (0.62 mgd) and a peak rate of 107 lps (2.44 mgd). It will also have a mechanical screening system and four 11-HP pumps. Figure 4 shows the general layout of the main lift station.

Figure 4
GENERAL LAYOUT OF THE MAIN LIFT STATION



WWTP = Wastewater Treatment Plant

3.1.3. Technical Feasibility

As part of the development of the Project, facility plans were completed during the planning phase, which included an analysis of alternatives in order to select the appropriate technology, process and materials for the Project components. The analysis considered the no action alternative, two wastewater treatment alternatives and two other alternatives based on the selection of materials for the wastewater collection system and force main path. Additionally, the Project Sponsor considered building the WWTP on the same site as the old lagoon system, but this option was ruled out because it is located within the Rio Grande floodplain.

The no-action alternative was not considered viable, since without Project implementation, COMAPA would continue to operate in violation of existing regulations regarding wastewater discharges into receiving water bodies and the discharge of untreated or inadequately treated wastewater would continue to have a negative effect on water quality and public health.

Once the no action alternative was eliminated, wastewater treatment and collection system alternatives were evaluated taking into consideration the following factors:

- Constructability;
- Capital cost;
- Operation and maintenance (O&M) cost;
- Material and equipment reliability;
- Environmental impact;
- Social/community acceptance;
- Topography;
- System reliability;

- Rights of way and easement requirements;
- Pavement removal and replacement; and
- Technology and sustainable practices.

To reduce costs and energy consumption, the shortest possible routes were reviewed for installing the force main and lift station. Sewer pipe diameters were calculated using slopes and velocities aimed at preventing silting, septic conditions and over-excavation, as well as to minimize the use of lift stations that might increase Project costs. The maximum flow rate, full build-out in the Project area and treatment capacity were also taken into consideration to determine pipe diameter requirements. Pipe material options reviewed included HDPE, PVC, and reinforced concrete. PVC was selected as the most suitable material for the wastewater collection lines and HDPE for the force mains.

With respect to the WWTP, based on the effluent quality requirements established by CONAGUA, the land availability, capital costs and operation and maintenance needs, the alternative using a mechanical system was eliminated, and the alternatives using lagoon-based natural systems were reviewed in more detail:

- Alternative 1 – Anaerobic lagoon followed by two facultative lagoons and finally two maturation lagoons; and
- Alternative 2 – Anaerobic lagoon followed by a wetland.

Alternative 1 was selected as the preferred option due to the reliability of its operation, ease of maintenance and lower operating cost compared to Alternative 2. Moreover, COMAPA has suitable land available for this type of facility. Its effluent quality and flows were evaluated in a discharge model for the Rio Grande. The results corroborated that the effluent will not have a significant impact on the water quality of this shared water body.

Final designs for the wastewater collection system, lift station and WWTP were completed in accordance with the technical specifications established in the Water and Wastewater Manuals developed by CONAGUA and include green building practices as part of the construction specifications. An intensive effort was made to achieve optimal energy efficiency and operational performance. The final designs were reviewed by CONAGUA, NADB, and the Tamaulipas State Water Commission (CEAT). The location of the WWTP was reviewed by the Mexican Section of the International Boundary and Water Commission (IBWC), which issued its “no objection” to construction at the proposed site. CONAGUA issued technical validation of the various Project components as follows:

- Validation of the design criteria for the Gustavo Díaz Ordaz wastewater collection and treatment infrastructure through Official Letter BOO.7.04-188, dated October 29, 2015;
- Validation of the final design for the Gustavo Díaz Ordaz wastewater collection infrastructure through Official Letter BOO.811.06.02-0177, dated March 8, 2018; and
- Validation of the final design for the wastewater treatment system through Official Letter BOO.7.04.-231, dated November 29, 2018.

3.1.4. Land Acquisition and Right-of-Way Requirements

COMAPA acquired the proposed site for the WWTP and the lift station by purchasing it from private landowners. The corresponding property titles have been duly authenticated, and all properties have been legally recorded in the Public Registry of Property.

All sewer mains and conveyance systems will be installed within existing municipal easements and rights-of-way. The final section of the force main will be located in the rights-of-way of agricultural drains. A no-objection letter for the use of these rights-of-way was issued by Irrigation District 026, on behalf of the Rio Grande Watershed Regional Office, through Official Letter B00.00.R07.06.026.-033, dated February 14, 2019.

No additional land or rights of way acquisition will be required.

3.1.5. Project Milestones

The development of the Project took just over four years. This extended period was influenced by several factors, including the need to change the proposed site for construction of the WWTP, since it was originally located in the Rio Grande flood plain and the new site had to be approved by both the Mexican and U.S. Sections of IBWC. Other factors included issues with security for field activities, such as water sampling and surveying; the need to register acquired land titles properly; and the payment of debts by COMAPA to CONAGUA to make the utility eligible to receive federal funding for this Project.

Once the notice to proceed is issued for construction, the work is expected to take approximately 36 months to complete. Potential factors affecting the Project completion timeline, such as issues with the weather or the delivery of materials, as well as the availability of Mexican funding, were considered in estimating construction duration. Upon completion of the WWTP, there are plans to remediate the site where the old lagoon system is located.

Table 2 provides a summary of the Project milestones and their respective status.

**Table 2
 PROJECT MILESTONES**

Key Milestones	Status
Environmental clearance – U.S.	Completed
Environmental clearance – Mexico	Completed
final design	Completed
Construction with Mexican funds	Initiated in 2017-2018 and the remaining tasks are anticipated in 2019 to 2022.
Procurement for BEIF grant components	Anticipated in 3 rd quarter of 2019
Construction period with BEIF grant	Estimated period of 36 months
Discharge permit	Completed

3.1.6. Management and Operation

COMAPA currently serves a total of 3,364 water hookups and 720 wastewater connections within the city. The utility is organized in various departments, including Operation, Maintenance and Management. The impact of the proposed Project on the Operation and Maintenance (O&M) budget and procedures was reviewed. Based on the results of the review, the budget appears to be financially viable. O&M and equipment repair/replacement reserves will also be established for the infrastructure that will be built as part of the Project.

The management and operation of the proposed Project will be the responsibility of COMAPA, which has an O&M Manual that includes routine tasks, as well as procedures to address unexpected conditions and ensure the proper operation of the system. The manual will be updated to include the new system components and delivered to the utility upon completion of the Project. COMAPA staff will also receive training related to the processes of the new WWTP to ensure its correct operation and maintenance.

Additionally, COMAPA will ensure that wastewater discharges to the collection system comply with Official Mexican Standard NOM-002-SEMARNAT-1996, which regulates the quality of the wastewater that enters the collection system and is conveyed to the treatment facility.

3.2. Environmental Criteria

3.2.1. Environmental and Health Effects/Impacts

A. Existing Conditions

At present, Gustavo Díaz Ordaz does not have adequate infrastructure to treat the wastewater flows generated by its residents. Wastewater flows collected from areas currently connected to the sewer system are diverted to an old lagoon-based treatment facility that has exceeded its useful life and allows the raw wastewater to seep into the ground and water table near the Rio Grande river. As a result, the existing WWTP in Gustavo Díaz Ordaz is not in compliance with Official Mexican Standard NOM-001-SEMARNAT-1996, which establishes the maximum permissible levels of contaminants for wastewater discharges into national waters and territories.

Additionally, wastewater collection coverage in the municipality of Gustavo Díaz Ordaz is approximately 21%. A good part of the sewer system has exceeded its useful life, is showing signs of deterioration throughout its entire length, resulting in leaks and overflows at several manholes. Residents in the rest of the city dispose of their wastewater in substandard septic tanks, latrines and cesspools.

The poor condition of the existing wastewater collection infrastructure and the lack of wastewater treatment could result in significant health and safety hazards for the public. Waterborne diseases are caused by pathogenic microorganisms that are transmitted because of inadequate wastewater disposal practices and unsafe water supplies. An individual may become ill after drinking water that has been contaminated with these organisms; eating uncooked foods that have been in contact with contaminated water; or through poor hygiene habits that contribute to

the dissemination of diseases by direct or indirect human contact. Table 3 shows waterborne disease statistics for Gustavo Díaz Ordaz, Tamaulipas.

Table 3
WATERBORNE DISEASE STATISTICS FOR GUSTAVO DÍAZ ORDAZ, TAMAULIPAS

Disease	Number of cases/year			
	2014	2015	2016	2017
Intestinal infections by other organisms	389	329	457	373
Other helminthiasis	3	20	10	10
Intestinal amoebiasis	1	10	7	8
Other salmonellosis	0	6	7	4
Typhoid fever	21	11	37	28

Source: Automated Epidemiological Monitoring System, 2018.

B. Project Impacts

The Project will prevent environmental deterioration by providing wastewater collection and treatment services in compliance with current wastewater regulations regarding discharges into receiving bodies of water. Wastewater will be collected and conveyed to the WWTP, where its quality will be improved to reduce the risk of aquifer contamination and the health hazards resulting from the discharge of raw wastewater into local bodies of water. Using a high-density polyethylene membrane to line the lagoons will prevent seepage into the ground and aquifer. Additionally, the treated effluent from the WWTP may be reused for agricultural purposes, reducing the demand for fresh water in this sector.

The Project is expected to generate environmental and human health benefits related to the following outcomes:

- Provide first-time access to wastewater collection and treatment services for 2,644 existing homes in currently unserved areas, including the installation of all residential connections;
- Prevent the risk of groundwater contamination by decommissioning 2,644 on-site wastewater disposal systems;
- Improve wastewater collection services for 720 existing homes;
- Improve wastewater treatment services for 100% of the community or 3,364 homes;
- Provide 26 lps (0.59 mgd) of wastewater treatment capacity with a system that includes methane capture and conversion; and
- Eliminate approximately 25 lps or 0.57 mgd of untreated or inadequately treated wastewater discharges.

To enhance the benefits of the Project, the final designs include the implementation of green building practices as part of the technical construction specifications, with an extensive effort made to achieve optimal energy efficiency and operational performance. For example, to reduce

harmful emissions from the operation of the WWTP, methane gas generated by the anaerobic process will be captured and burned, converting it to carbon dioxide, which has a less potent greenhouse effect.

C. Transboundary Impacts

Implementation of the proposed Project will reduce the potential for contamination of shared water bodies, including the Rio Grande. Additionally, due to the proximity of Gustavo Díaz Ordaz to Los Ebanos, Texas, there are frequent border crossings between these two communities. The construction of wastewater collection and treatment infrastructure will have a positive impact on the health of residents in this neighboring city and surrounding communities in Hidalgo County, Texas, since these actions will help reduce the risk for waterborne diseases deriving from exposure to untreated wastewater.

3.2.2. Compliance with Applicable Environmental Laws and Regulations

The Project will comply with the following official Mexican standards and regulations:

- Official Mexican Standard NOM-002-SEMARNAT-1996, which establishes the maximum permissible levels of contaminants for wastewater discharges into urban or municipal wastewater collection systems;
- Official Mexican Standard NOM-001-CNA-1995, which establishes specifications for hermeticity in wastewater collection systems;
- Official Mexican Standard NOM-001-SEMARNAT-1996, which establishes the maximum permissible levels of contaminants for wastewater discharges into national waters and territories; and
- Official Mexican Standard NOM-004-SEMARNAT-2002, which establishes the maximum permissible levels of contaminants for the reuse and final disposal of biosolids.

A. Environmental Clearance

Pursuant to the provisions of Mexico's General Law of Ecological Balance and Environmental Protection, the Mexican Ministry of Environment and Natural Resources (SEMARNAT) issued Memorandum No. SGPA/DGIRA/DG/00726 on January 30, 2018, stating that an Environmental Impact Statement was not required for the Project. Additionally, the Federal Delegation of the National Institute of Anthropology and History in Tamaulipas (INAH) issued Official Letter No. 046/2017 on January 31, 2017, stating that the Project can begin construction.

However, due to potential grant funding from the Border Environment Infrastructure Fund (BEIF), which is funded by EPA, the Project's transboundary impact must be assessed pursuant to the U.S. National Environmental Policy Act (NEPA). To satisfy this requirement, a Transboundary Environmental Information Document (EID) was developed and submitted to EPA for consideration. The document presents an assessment of the Project alternatives in connection with the following environmental considerations:

- Air quality, odors, and greenhouse gas emissions;
- Noise impacts;

- Water quality, hydrology, and floodplain impacts;
- Impacts to biological resources and wetlands;
- Impacts to cultural and historical resources;
- Impacts to the geology and soils;
- Impacts to municipal and public services;
- Public health, hazards, and waste management;
- Socioeconomic conditions;
- Land use and planning;
- Transportation and circulation;
- Utilities and service systems; and
- Environmental justice.

The document also included a discharge model to determine the potential impact of the WWTP effluent on the water quality of the Rio Grande. Based on the findings and conclusions of the EID, EPA Region 6 prepared an Environmental Assessment (EA) and a Finding of No Significant Impact (FONSI). A 30-day public comment period for the environmental study began on October 13, 2017. On November 27, 2017, EPA issued a FONSI resolution, which establishes that the Project will not result in any significant impacts to the environment that may negatively affect the U.S.-Mexico border area. The proposed site for the construction of the WWTP was assessed and accepted by IBWC/CILA.

B. Mitigation Measures

Although Project implementation will have no significant adverse impact on the environment, mitigation measures have been established to address temporary and minor adverse impacts during the construction and operation of the Project. As described in the Environmental Assessment, potential impacts include:

- The local air basin may be temporarily impacted by carbon monoxide, nitrogen oxide and sulfur dioxide emissions released by vehicles and equipment used during construction.
- Noise levels may be elevated during construction activities; however, this impact is short term and will be concentrated in the work area. Potential impacts also include temporary roadway blockages, as well as the presence of workers in the area.
- A temporary increase in soil erosion and dust emissions may be experienced due to construction.
- Surface water resources could be temporarily impacted by storm water runoff during the construction phase.
- Hazardous waste—such as used oil—may be generated during the construction and operation phases.
- Potential loss of vegetation that may be bird habitats during migration or nesting seasons.

Typical mitigation measures to be implemented include:

- Application of water to reduce the emission of dust particles and soil erosion;
- Construction to be scheduled between 8 a.m. and 5 p.m. to prevent extended disturbances from noise;
- Vehicle tune-ups to reduce emissions and noise effects;
- Placement of warning signs to prevent potentially hazardous situations;
- Installation of sediment control barriers along rights of way to prevent erosion and contamination of surface water resources;
- Construction that disturbs vegetation will be avoided during the general nesting period from March through August. A qualified biologist will conduct a preconstruction survey within the Project area to identify any sensitive species in the area; and
- All construction personnel will attend a briefing to familiarize workers with potential construction impacts and mitigation measures.

By following the best management practices described in the Environmental Assessment, the temporary impacts due to construction will be minimized. Therefore, the results deriving from implementation of the proposed Project will be positive overall. In addition, the Utility will be responsible for maintaining continuous coordination with SEMARNAT and must comply with any water quality requirements, authorization procedures or recommendations that the Ministry may issue throughout the life of the Project.

C. Pending Environmental Tasks and Authorizations

There are no environmental authorizations pending.

3.3. Financial Criteria

The total estimated cost of the Project is US\$8,550,000, which includes funding for construction, supervision, value added tax and contingencies. The Sponsor requested a BEIF grant to support the implementation of the Project. Based on a thorough analysis of both the Project and the Sponsor, NADB has determined that the Project meets all BEIF program criteria and is recommending that the EPA approve a BEIF grant for up to US\$4,510,000 for its construction. Table 4 shows a breakdown of the sources of funding.

Table 4
USES AND SOURCES OF FUNDS
 (US \$)

Uses	Amount	%
Construction*	\$ 8,550,000	100.0
TOTAL	\$ 8,550,000	100.0
Sources	Amount	%
Mexican federal funds	\$ 2,020,000	23.6
Mexican state and local funds	2,020,000	23.6
NADB-BEIF (EPA grant)	4,510,000	52.8
TOTAL	\$ 8,550,000	100.0

* Estimated costs include 16% value-added tax (VAT), supervision and contingencies.

EPA requires that every BEIF grant dollar awarded to projects in Mexico be matched with funding from Mexican federal sources. As indicated in the above table, total funding from Mexican federal sources for this Project is estimated at US\$2,020,000 or 23.6% of the Project costs; however, water infrastructure investments made with federal sources within the State of Tamaulipas, in partnership with the BEIF program, represent an overall match greater than 1:1. The state-wide investment surplus is considered an appropriate justification for the project-specific imbalance.

4. PUBLIC ACCESS TO INFORMATION

4.1. Public Consultation

NADB published the draft certification proposal for a 30-day public comment period beginning April 23, 2019. The following Project documentation is available upon request:

- Updated Final Design for the Wastewater Collection and Treatment Project in Gustavo Díaz Ordaz, Tamaulipas, August 2018;
- Transboundary Environmental Impact Statement for the Wastewater Collection and Treatment Systems Improvement Project in Gustavo Díaz Ordaz, March 2017;
- Environmental Assessment and FONSI for the Wastewater Collection and Treatment Systems Improvement Project in Gustavo Díaz Ordaz, Tamaulipas, Mexico, November 27, 2017;
- Wastewater Discharge Model for Gustavo Díaz Ordaz, Tamaulipas, Mexico in the upper part of subsegment 2302 of the Rio Grande, January 2015;
- Official Letter No. SGPA/DGIRA/DG/00726 issued by SEMARNAT on January 30, 2018; and
- Public Participation Report, including public meeting minutes, pictures, articles and related materials.

4.2. Outreach Activities

COMAPA conducted extensive outreach efforts to communicate the characteristics of the Project, including cost and fees, and to obtain the support of residents in the Project area. In accordance with the requirements of the BEIF program, outreach activities included the establishment of a local steering committee, public meetings and access to relevant project information, as described in the Public Participation Plan.

The Local Steering Committee was established in April 2015 and included members of the community, civic organizations, and utility staff. The steering committee developed the Public Participation Plan and periodically met with the Project team to help the Sponsor disseminate information regarding the Project. Technical and financial information about the Project was made available to the public for review. The Local Steering Committee, with assistance of COMAPA staff, prepared a Project fact sheet and presentation.

The notice for the first public meeting was published on July 31, 2015, in the local newspaper, *El Mañana de Reynosa*. The meeting was held on August 31, 2015, at the Manuel Guajardo González conference room in Gustavo Diaz Ordaz City Hall. Based on the sign-in sheet, more than 30 people attended the meeting and showed interest in the implementation of the proposed Project. This meeting was used to inform local residents of the Project characteristics and potential funding sources. Support for the Project was documented through a survey conducted during the event, in which 95% of the attendees showed their support for the Project. The other 5% didn't respond the survey.

A second public meeting will be held on April 24, 2018. During the meeting, the community will be informed of the proposed funding structure and potential environmental impacts of the Project.

In addition, as part of the U.S. environmental clearance process, the environmental assessment and FONSI for the Project were published for a 30-day comment period beginning on October 13, 2017. No public comments were received concerning the Project or its environmental impacts during this process.

NADB also conducted a media search to identify potential public opinion about the Project. The articles found in the media explained the need for wastewater services in the area but did not contain any input from residents. No negative comments were posted by readers. No opposition to the Project was identified in the media search.

References to the Project were found on the websites listed below:

- *LA TARDE* (September 10, 2015), “Presentan proyecto de obra sanitaria, se llevó a cabo la primera reunión para la presentación y consulta ciudadana de este Proyecto” [Wastewater treatment project presented: First Public Meeting held to present the project and gather public input]. The article describes the proposed project, expected benefits, and the public participation process.

<http://www.latarde.com.mx/presentanproyectedeobrasanitaria-87210.html>

- *NRG NOTICIAS RIO GRANDE* (September 1, 2015), “*Primera Reunión Pública en Cd. Díaz Ordaz, Tamaulipas*” [First Public Meeting in Ciudad Díaz Ordaz, Tamaulipas]. The article describes the proposed project, objectives, the public participation process and testimonies from meeting attendees.
<http://www.noticiasriogrande.com/riberena/90406>
- *BECC NEWS* (October 15, 2015), “*First Public Meeting held for the Comprehensive Wastewater Collection and Treatment Project for Díaz Ordaz, Tamaulipas.*” The article reports on the proposed project, expected benefits, the public participation process and testimonies from attendees.
<http://www.cocef.org/noticias/noticias-de-la-cocef/se-realiza-la-primera-reunion-publica-del-proyecto-de-alcantarillado-y-saneamiento-de-diaz-ordaz-tamaulipas#.W8ZojHtKiM8>

The activities carried out by COMAPA and the articles identified above demonstrate that the public has received periodic updates regarding the Project, including its technical characteristics, environmental impacts, funding structure and financial impact on residents. The Project Sponsor informed NADB that no comments expressing concern about the Project have been received during the public outreach process.