CERTIFICATION AND FINANCING PROPOSAL

COMPREHENSIVE WASTEWATER COLLECTION AND TREATMENT PROJECT IN NUEVO LAREDO, TAMAULIPAS

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EXECUTIVE SUMMARY

COMPREHENSIVE WASTEWATER COLLECTION AND TREATMENT PROJECT IN NUEVO LAREDO, TAMAULIPAS

Project Summary

Project:	Comprehensive Wastewater Collection and Treatment Project in Nuevo Laredo, Tamaulipas.
Sector (Project Type):	Wastewater.
Objective:	Reduce human health risks associated with waterborne diseases caused by exposure to untreated wastewater and eliminate the potential for contamination of groundwater and surface water by rehabilitating and expanding the municipal wastewater collection and treatment infrastructure and eliminating on-site disposal systems.
Expected Outcomes:	The Project is expected to generate environmental and human health benefits related to the following Project outcomes: ▪ Improve wastewater collection services for 120,479 existing residential wastewater connections in the city by rehabilitating the collection and conveyance system.[1] ▪ Extend first-time wastewater collection service to 150 homes in the area served by the Northwest Wastewater Treatment Plant (WWTP). ▪ Improve the wastewater treatment system by increasing its operational capacity from 800 to 1,600 liters per second (lps) or from 18.3 million to 36.5 million gallons per day (mgd) by: o rehabilitating the International WWTP to restore the plant to its full design capacity of 1,360 lps (31.0 mgd); and o upgrading the treatment process and increasing treatment capacity at the Northwest WWTP from 200 to 240 lps (4.6 mgd to 5.5 mgd). ▪ Reduce the risk of system failures and thus prevent: o the discharge of approximately 550 lps (12.6 mgd) of untreated or inadequately treated wastewater to water bodies;[2] and

[1] Source: COMAPA, Nuevo Laredo. *Estudio Sectorial en Materia de Tarifas de Agua Potable, Alcantarillado Sanitario y Saneamiento en Los Organismos Operadores de Agua del Estado de Tamaulipas* [Water and Wastewater Rate Study for the Tamaulipas Water Utilities], May 2021.
[2] Source: NADBank, Evaluation of the Sanitary Sewer Infrastructure in Nuevo Laredo, Tamps. SI+I, S.C., November 2020.

	○ transboundary wastewater flows to the Rio Grande River. ▪ Achieve regulatory compliance with official Mexican standard NOM-001-SEMARNAT-2021, which went into effect in April 2023 and tightened restrictions on contaminants in treated wastewater discharges**.**
Population to Benefit:	416,055 residents.
Sponsors:	Municipality of Nuevo Laredo, Tamaulipas and the local water utility Comision de Agua Potable y Alcantarillado de Nuevo Laredo (COMAPA).
Project Cost:	MXN$1,398.4 million.

Financing Summary

NADBank Grant:	MXN$374 million (US$22.0 million) through the Border Environment Infrastructure Fund (BEIF), funded by the U.S. Environmental Protection Agency (EPA).[3]
Potential NADBank Loan:	Up to MXN $120 million (US$6.0 million).[4]
Percentage Financed by NADBank:	BEIF grant 26.7% NADBank loan 8.6% Total NADBank participation 35.3%
Other Funding Sources:	MXN$904.4 million from Mexican federal, state, and local sources, representing 64.7% of the total project cost.
Grant Recipient:	COMAPA-Nuevo Laredo.
Borrower:	Municipality of Nuevo Laredo, Tamaulipas.

[3] The peso amount is estimated based on an exchange rate of $17.00 pesos per dollar, in accordance with the Commitment Agreement signed by all funding parties on August 4, 2023. The BEIF grant will be awarded in U.S. currency for up to US$22 million, and its equivalent value in pesos is subject to exchange rate fluctuations. Any expenses beyond the BEIF grant amount will the responsibility of the Project sponsors.
[4] The dollar amount is estimated based on an exchange rate of 20.00 pesos to the dollar.

CERTIFICATION AND FINANCING PROPOSAL

COMPREHENSIVE WASTEWATER COLLECTION AND TREATMENT PROJECT IN NUEVO LAREDO, TAMAULIPAS

1. PROJECT OVERVIEW AND EXPECTED OUTCOMES

The proposed project consists of rehabilitating and expanding the wastewater collection and treatment system in the city of Nuevo Laredo, Tamaulipas (the "Project"), which is co-sponsored by the Municipality of Nuevo Laredo and the local water utility, Comisión Municipal de Agua Potable y Alcantarillado de Nuevo Laredo (COMAPA). The Project has been developed to eliminate untreated wastewater discharges and prevent the potential contamination of groundwater and surface water, including the Rio Grande River. In addition to rehabilitating existing wastewater lines and pump stations throughout the city, infrastructure improvements include extending the sewer system into three neighborhoods to provide first-time service to approximately 150 homes. Likewise, two wastewater treatment plants (WWTP) will be rehabilitated, one of which will also be expanded to serve additional areas. The improvements to the WWTPs will double their overall operational capacity from 800 to 1,600 liters per second (lps) or from 18.3 million to 36.5 million gallons per day (mgd). All 416,055 residents of Nuevo Laredo are expected to benefit from this Project.[5]

2. ELIGIBILITY

2.1. Project Type

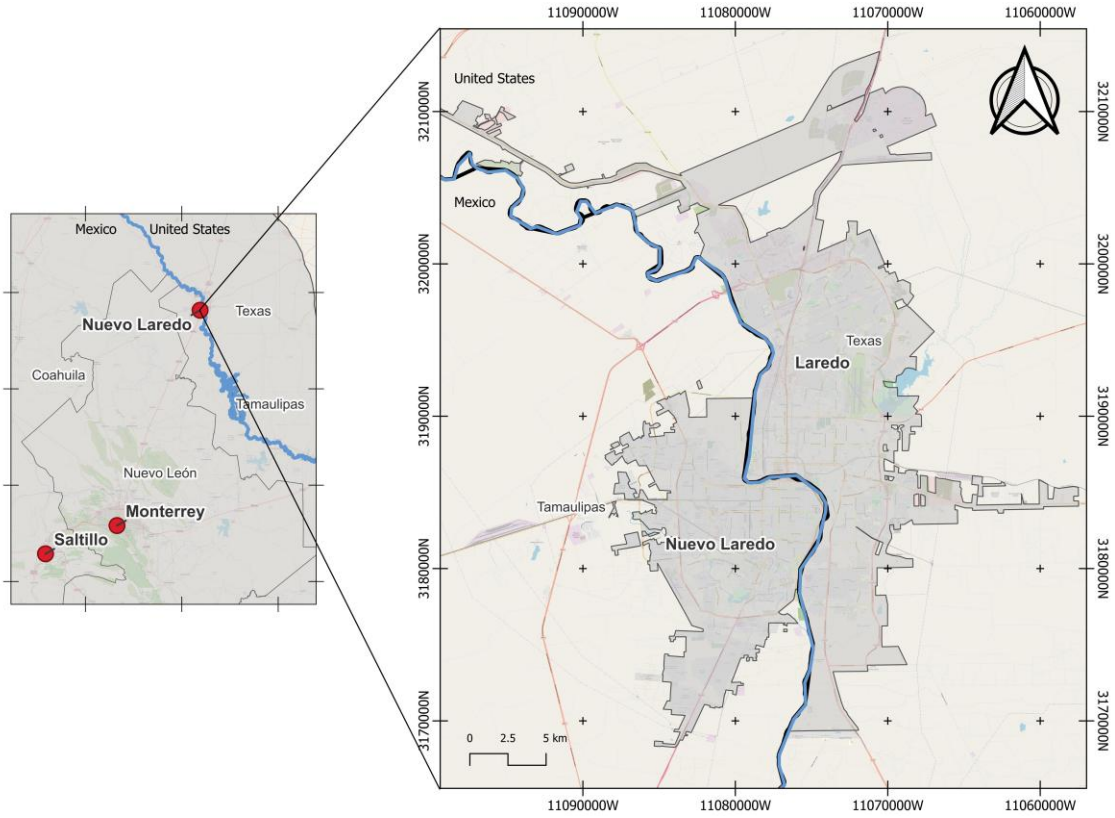
The Project falls within the eligible category of wastewater.

2.2. Project Location

The city of Nuevo Laredo is located in the northern region of the state of Tamaulipas, adjacent to the Rio Grande and directly across from the city of Laredo, Texas. The Project will be carried out in several sectors of the city, which is centered at the following geographical coordinates: latitude 27°28'34.6'' N and longitude 99°30'59'' W, at an average altitude of approximately 492 ft above sea level. Figure 1 shows the approximate location of the community and the Project.

[5] The population to benefit was calculated based on data from the 2020 Census published by the Mexican national institute of statistics, INEGI.

Figure 1
PROJECT LOCATION MAP



2.3. Project Sponsors and Legal Authority

The Project is co-sponsored by the local water utility, Comisión Municipal de Agua Potable y Alcantarillado de Nuevo Laredo (COMAPA) and the Municipality of Nuevo Laredo (each one a "Co-sponsor" and together the "Sponsors").

COMAPA is a decentralized entity of the municipal government that provides public drinking water and wastewater services in the municipality of Nuevo Laredo, Tamaulipas. It was created under Decree No. 167 of the LVIII Constitutional Legislature of the State of Tamaulipas, which was published in the official gazette of the state of Tamaulipas on December 26, 2002 (Volume CXXVII, No. 156).

The Municipality of Nuevo Laredo (the "Municipality") is a public entity legally incorporated in accordance with the Mexican Constitution, the Tamaulipas state constitution and the Municipal Code of the State of Tamaulipas and will support the implementation of the Project through debt and with its own resources. The Municipality is in the process of obtaining the approval of its city council and State Congress to issue debt in accordance with the provisions of the Mexican Financial Discipline Law for States and Municipalities. A Congressional Decree

authorizing the Municipality to contract the debt is expected to be issued during the last quarter of 2023.

3. CERTIFICATION CRITERIA

3.1. Technical Criteria

3.1.1. General Community Profile

The comprehensive improvements to the municipal wastewater system are expected to benefit the entire population of the city of Nuevo Laredo, Tamaulipas. According to the Mexican National Institute of Statistics and Geography (INEGI), in 2020, the city had a total population of 416,055 residents, which represents about 12% of the state population of 3,527,735, making it the third largest community in Tamaulipas. According to INEGI data, the municipality of Nuevo Laredo grew at an average annual rate of 0.66% from 2010 to 2020, and 48% of its population was economically active in 2020.

According to data from the Annual Report on the Status of Poverty and Unmet Social Needs issued by the National Council for the Evaluation of Social Development Policy (CONEVAL), 35.8% of the population in the municipality of Nuevo Laredo was living below the poverty level, in comparison to the state average of 34.9%.[6]

The following table summarizes the status of basic public services and infrastructure in Nuevo Laredo.

[6] Source: Consejo Nacional de Evaluación de la Política de Desarrollo Social [National Council for the Evaluation of Social Development Policy] (CONEVAL), *Informe anual sobre la situación de pobreza y rezago social* [Annual Report on the Status of Poverty and Unmet Social Needs], 2021, Tamaulipas. The population living in poverty is the sum of extreme poverty plus moderate poverty.
https://www.gob.mx/cms/uploads/attachment/file/612920/Informe_anual_2021_mun_28027.pdf

Table 1
BASIC PUBLIC SERVICES AND INFRASTRUCTURE[1]

Water System			
Coverage	99%		
Supply source	Rio Grande River		
Number of connections	121,708		
Wastewater Collection			
Coverage	98%		
Number of connections	120,479		
Wastewater Treatment			
Coverage[2]	60% of wastewater generated		
Treatment facilities	**Plant**	**Type**	**Design Capacity**
	International WWTP	Activated sludge	1,360 lps (31.0 mgd)
	Northwest WWTP	Activated sludge	200 lps (4.57 mgd)
	Oradel WWTP[3]	Activated sludge	20 lps (0.46 mgd)

[1] Source: COMAPA, August 2023.
[2] The total volume of wastewater generated by the City in the areas served by the International and Northwest WWTPs is estimated to be 1,335 lps (30.5 mgd); however, operational capacity for treatment is limited to only 600 lps (13.7 mgd) at the International WWTP and 200 lps (4.57 mgd) at the Northwest WWTP, resulting in a total available treatment capacity of 800 lps (18.3 mgd).
[3] Although not part of this project, the Municipality is also investing funds to improve operations at the Oradel WWTP.

Wastewater Collection System

According to COMAPA, approximately 98% of homes in its service area are connected to the wastewater collection system, which is divided into three main areas, known as El Coyote, Ribereño and Alazanas. The system consists of approximately 407 km (253 miles) of wastewater lines that mainly operate by gravity; however, the city also has 12 lift stations and 9.5 km (5.9 miles) of force mains to convey wastewater to the WWTPs.

Several sewer mains and lift stations have reached or exceeded their expected useful life and are in immediate need of repair or replacement. Most of the pipelines are 30 years or older and their deteriorated conditions result in leaks and spills of untreated wastewater discharges in various areas of the city and into streams and arroyos that eventually empty into the Rio Grande River. A detailed analysis of the sanitary sewer infrastructure completed in November 2020, identified 27 points of wastewater leaks or spills, and recommended 39 actions to eliminate continuous discharges of an estimated 550 lps (12.6 mgd) of raw wastewater, as highlighted in Figure 2.

Figure 2
DISCHARGE POINTS AND PROPOSED ACTIONS TO IMPROVE THE WASTEWATER COLLECTION SYSTEM

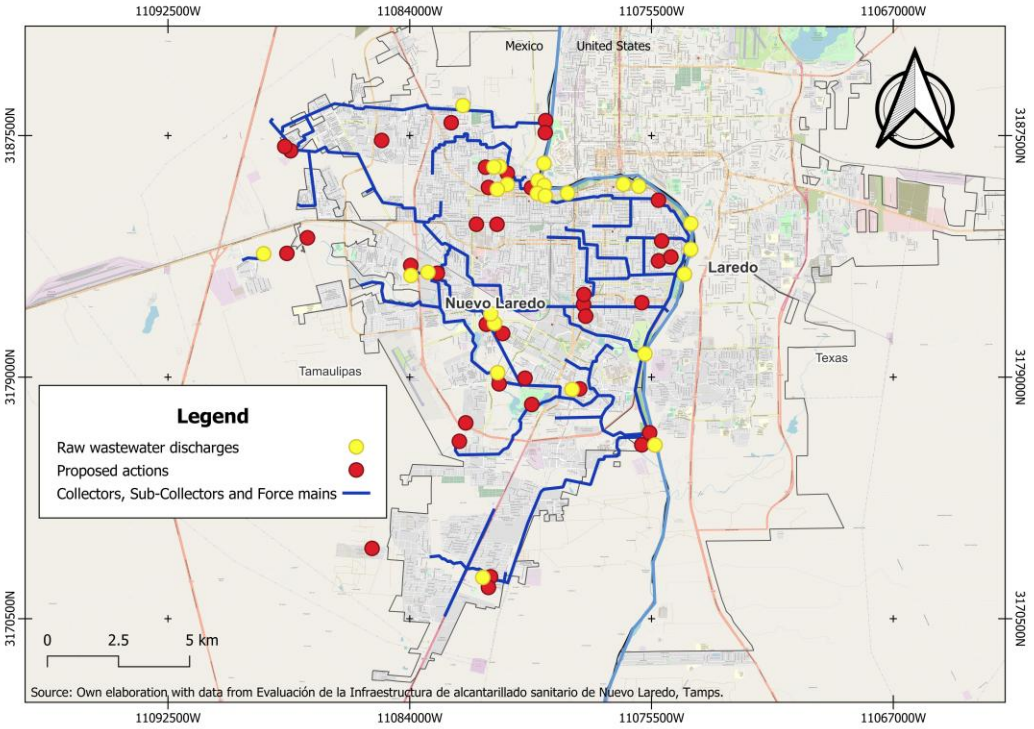


Figure 3 shows examples of wastewater spills into El Coyote Creek, a tributary of the Rio Grande River, which were identified in the November 2020 study.

Figure 3
WASTEWATER SPILLS TO EL COYOTE CREEK

Additionally, about 150 homes in the western areas of the Independencia Nacional, San Roberto and Ampliación Vamos Tamaulipas neighborhoods do not have access to the sewer system. Residents dispose of their wastewater through failing or inadequate on-site sanitary systems, such as latrines, cesspools and septic tanks, increasing the risk for exposure to untreated wastewater, unwanted conditions for dangerous vectors, and contamination of water resources.

Wastewater Treatment System

Nuevo Laredo has three WWTPs with a combined design capacity of 1,580 lps (36.1 mgd); however, due to the poor conditions of the facilities, actual treatment capacity is currently limited to about 800 lps (18.3 mgd). In particular, the International WWTP is only able to treat about 600 lps (13.7 mgd), less than half of its design capacity. The Northwest WWTP receives an average flow of about 185 lps (4.2 mgd), which is close to its full treatment capacity of 200 lps (4.6 mgd). The third treatment facility, the Oradel WWTP, which is designed to treat 20 lps (0.5 mgd), is under repair by the city. The city currently generates an average wastewater flow of 1,335 lps (30.5 mgd); therefore, an estimated 550 lps (12.6 mgd) of wastewater discharges are released without treatment to streams that eventually flow into the Rio Grande River.

With support from NADBank, a comprehensive operational and physical assessment along with preliminary designs for the rehabilitation, expansion and upgrade of the International WWTP and the Northwest WWTP were completed in March 2023. The study outlined the actions needed to rehabilitate the International plant and rehabilitate and expand the Northwest plant with an operational planning horizon of 20 years. Once the International WWTP is rehabilitated, it will once again operate at its design capacity of 1,360 lps (31.0 mgd). The Northwest plant will be modified to include an anoxic zone in its treatment system and will be expanded to increase its capacity from 200 to 240 lps (4.6 to 5.5 mgd).[7] The effluent from the plants will comply with the NOM-001-SEMARNAT-2021 quality standards for discharges to water bodies, and will be discharged to El Coyote Creek, which is a tributary of the Rio Bravo.[8]

Figures 4 and 5 show the layout of the International and Northwest treatment plants.

[7] An anoxic zone is treatment process in which the oxygen content is reduced to promote the elimination of nitrogen in the wastewater effluent.

[8] On March 3, 2022, a modification of NOM-001-SEMARNAT-1996 was published in Mexico, establishing new maximum permissible levels of contaminants. The new standard went into effect on April 3, 2023. In accordance with the guidelines established by the Mexican National Water Commission (COANGUA), COMAPA will provide a plan to achieve compliance with the new NOM-001-SEMARNAT-2021 and maintain compliance with the new standard for the Northwest WWTP. The International WWTP, with rehabilitation, is capable of meeting the new regulation.

Figure 4
INTERNATIONAL WASTEWATER TREATMENT PLANT

Figure 5
NORTHWEST WASTEWATER TREATMENT PLANT

All construction works included in the proposed Project are necessary to protect public health and the environment, since they will provide the capacity to treat 100% of the wastewater collected and minimize the risk of line breaks and leaks in the sewer system that can cause sewage spills onto streets and into local water bodies, including the Rio Grande River, as well as seepage and overflows from on-site disposal systems. For these reasons, the Project was prioritized for funding through the U.S.-Mexico Border Water Infrastructure Program of the U.S. Environmental Protection Agency (EPA).

3.1.2. Project Scope

The proposed project consists of the rehabilitation and expansion of the wastewater collection system and two WWTPs in the city of Nuevo Laredo, Tamaulipas. The 39 actions identified to address untreated discharges include rehabilitation of sewer lines, lift stations and WWTPs along with extension of wastewater collection services and increased treatment capacity. The main components include:

Wastewater Collection System:

- *Sewer lines*: Pipe replacement to implement 31 of the actions identified to address wastewater discharges in the collection system, including approximately:
    - 2,190 m. (7,185 ft) of 42-inch and 48-inch reinforced concrete pipe
    - 833 m. (2,733 ft) of 36-inch corrugated polyvinyl chloride (PVC) pipe.
    - 24,276 m. (79,646 ft) of Serie 20 PVC pipe, with diameters ranging from 8 to 32 inches.
- *Lift stations*: Rehabilitation of five lift stations and expansion of one lift station.
- *Residential connections*: Installation of approximately 150 new connections, including closure of any on-site disposal systems.

Wastewater Treatment Systems

- Rehabilitation of the International WWTP (two phases).
- Rehabilitation, expansion and treatment process upgrade of the Northwest WWTP.

Work to rehabilitate the wastewater collection system began in 2019 with investments from the municipal government and federal funding through CONAGUA, which have already addressed 20 of the 31 actions identified to eliminate untreated discharges. To ensure sufficient capacity to treat increasing flows to the International WWTP, urgent repairs at the plant will need to be implemented as soon as possible. Construction of those Phase 1 works will begin prior to the end of 2023, and the remaining Phase 2 improvements will be procured in 2024.

The rehabilitation of the treatment plants will be financed with a mix of funding, including contributions from the U.S. Section of the International Boundary and Water Commission (IBWC) and debt financing, as well as federal, state and municipal funding.

A grant from the Border Environment Infrastructure Fund (BEIF) is expected to be used to complete the rehabilitation of the wastewater collection system (11 identified actions) and five lift stations. BEIF may also be available to fund works at the Northwest WWTP for the specific purpose of expanding capacity for new service.

A more detailed description of the construction works is provided in Annex A.

3.1.3. Technical Feasibility

Wastewater Collection System

Because the Project was selected for BEIF funding, support from the Project Development Assistance Program (PDAP) was made available for various project development activities, including the November 2020 study to determine the location of discharges and required improvements to eliminate those conditions. An additional analysis was carried out to examine the feasibility of the wastewater system improvements and determine the most appropriate plan for implementing the 39 actions identified in the study to rehabilitate the wastewater collection and treatment systems.

In developing the designs for the sewer system improvements, efforts were made to maintain the current layout using existing rights of way and to ensure the system continues to operate mainly by gravity. Topographic and geotechnical studies, as well as a hydraulic model were developed to ensure optimal system operation. Pipe diameters were selected using appropriate slopes and velocities to prevent silting, clogging and septic conditions in the pipes, as well as over-excavation or the need for additional pumping facilities. Existing flows and estimated growth in the area were also considered. Various pipe material options were also analyzed, including PVC, reinforced concrete, and high-density polyethylene (HDPE). PVC and reinforced concrete were selected as the most suitable materials to replace the wastewater lines, depending on size, location, and the material used for the existing line.

Final designs of sewer system components already completed or currently under construction by the Municipality were developed by COMAPA, along with the final design of seven other sewer rehabilitation components to be financed with BEIF in 2024. This initial group of designs were reviewed and validated by CONAGUA in accordance with the technical specifications established in the Water and Wastewater Manual developed by CONAGUA.

Final designs for the remaining collection and conveyance system improvements are under development and upon completion will need to be validated by CONAGUA. These components are anticipated for construction in 2025 and beyond. CONAGUA validation will be required prior to procurement of those works under NADBank's funding agreement for the Project.

Wastewater Treatment System

The comprehensive operational and physical assessment, along with preliminary designs for the International and Northwest WWTPs, were completed in March 2023 with a NADBank Technical Assistance Program (TAP) grant. As described previously, the study outlined the actions needed to rehabilitate both plants and expand the Northwest plant. The actions were identified to ensure optimal operation of the plants over a 20-year horizon. The analysis considered energy efficiency, compliance with the new effluent quality standard (NOM-

SEMARNAT-001-2021) that went into effect in April 2023, and the present-value costs of the capital investment and operation and maintenance costs for the proposed improvements, among other factors.

In the case of the International WWTP, the assessment concluded that the existing oxidation ditch technology, with new, higher efficiency equipment, would be capable of providing the necessary treatment to meet the discharge parameters at a lower present-value cost than the other alternatives. With respect to the Northwest plant, it was determined that with the incorporation of an anoxic reactor to remove nitrogen, the plant would be able to comply with the new discharge parameters, in addition to increasing its treatment capacity by 20%.

Since the Municipality has already completed several repair and replacement works in the sewer system, the need to improve the International WWTP was becoming more urgent to ensure it had sufficient capacity to treat the increasing flows adequately. At the same time, it was critical to make sure that those preliminary investments would be consistent with the comprehensive improvements required at the WWTP and that they would maintain their value as the full Project was completed.

To address this issue, technical experts from COMAPA, NADBank and IBWC/CILA met to review and select the most appropriate and essential tasks to implement in the near term as Phase 1 of the WWTP improvements. COMAPA hired an external consultant to complete the design and keep these initial works aligned with the overall plan. The design is currently under review by CONAGUA and the State of Tamaulipas. The Municipality and the State initiated the procurement process for the Phase 1 works during the third quarter of 2023 and plan to start construction prior to year-end.

The final designs for the remaining works to rehabilitate the International WWTP (Phase 2) are under development and will be coordinated with the applicable funding agencies. Construction for the remaining works is scheduled to begin in the second half of 2024.

Final designs for the improvement and expansion of the Northwest WWTP is scheduled to begin in late 2024, with construction anticipated for 2025.

All designs must be approved by CONAGUA prior to procurement under NADBank's funding agreement for the Project. Likewise, any pending environmental authorizations or permits will have to be obtained for the approval to disburse funds.

3.1.4 Land Acquisition and Right-of-Way Requirements

The rehabilitation of the wastewater collection system will be conducted using the same pipe alignment, and the wastewater treatment plant improvements will be implemented within the current plant sites. Expansion of the wastewater collection system to the areas currently without service will be installed within existing municipal easements and rights of way. No additional land or rights of way will be required for the Project.

3.1.5. Project Milestones

In addition to the works completed to date in the wastewater collection system, the remaining Project activities have been planned for implementation over the next three to five years. Table 2 provides a summary of key Project milestones and their respective status.

Table 2
PROJECT MILESTONES

Milestone	Status
Environmental Clearance	
U.S. NEPA – Transboundary Environmental Information Document (EID)*	Obtained June 1, 2022
State of Tamaulipas (SEDUMA) – Comprehensive project **	Obtained March 10, 2022,
Mexico (SEMARNAT) - 3 collections system works potentially under federal jurisdiction	Consultation submitted November 2023
Mexico (SEMARNAT) – International and Northwest WWTPs	Consultation submitted November 2023
Wastewater Collection System	
Final designs	Completed in 2019-2022 for construction components through 2024; remaining designs to be completed by June 2024
Procurement/construction by Municipality	2019 through 2023
Procurement – BEIF grant components	Anticipated for first quarter of 2024
International WWTP	
Final design	1st phase completed September 2023 2nd phase anticipated May 2024.
Procurement – 1st phase	Initiated third quarter of 2023.
Procurement – 2nd phase	Anticipated for second quarter of 2024.
Northwest WWTP	
Final design	Anticipated for December 2024.
Procurement	Anticipated for second quarter of 2025
Construction period	Estimated period of up to 60 months

* U.S. National Environmental Policy Act (NEPA), required to access BEIF funding provided by EPA.
** Tamaulipas State Ministry of Urban Development and Environment (SEDUMA).

3.1.6. Management and Operation

The administration and operation of the proposed Project will be the responsibility of COMAPA, which currently serves a total of 121,708 water hookups and 120,479 wastewater connections within the city. In addition, COMAPA is responsible for the operation of three wastewater treatment facilities.

The utility is governed by a board of directors made up of key officials from the Municipality, including the municipal president (mayor), members of the City Council and the director of public works, as well as the State Ministry of Water Resources and Social Development and

the State Health Department. The Board also includes representation from the Mexican Construction Chamber and the Nuevo Laredo College of Architects.

The utility has a total of 600 employees, with more than half assigned to technical infrastructure and facility operations. This group of technical personnel is highly educated and skilled with staff that have master's degrees in engineering, environmental technology, and construction and bachelor's degrees in civil and electrical engineering, chemistry, architecture, and business management. They also have qualified personnel to manage construction and carry out procurements. COMAPA works closely with the municipal public works staff to implement infrastructure improvements throughout the system.

The utility has an Operation and Maintenance Manual that includes routine tasks to ensure proper operation of the system, as well as procedures to address unexpected conditions. Utility personnel receive training on an annual basis, and COMAPA owns maintenance equipment, such as backhoes and Vactor trucks.

Approximately 70% of the water accounts are metered, so its user fees are assessed based on actual consumption for the majority of the system. User fees for wastewater services are based on metered water consumption, where available, and at a fixed rate based on similar service for those areas without meters. Services are provided on a continuous basis; however, if deficiencies in the water and wastewater infrastructure were eliminated, the utility could reduce costs and increase system revenue. According to a May 2021 rate study, the utility operates at nearly 87% commercial efficiency, which is higher than the indicative national average of 70%.[9]

Moreover, COMAPA has a pretreatment program and has successfully maintained the quality of non-residential wastewater discharges to the sewer system in compliance with the parameters established in Official Mexican Standard NOM-002-SEMARNAT-1996. The pretreatment program also complies with BEIF program requirements.

3.2. Environmental Criteria

3.2.1. Environmental and Health Effects/Impacts

A. Existing Conditions

Several sections of the wastewater collection system in the urban area of Nuevo Laredo have deteriorated, resulting in sewage leaks and spills, mainly because the infrastructure has exceeded its useful life. Moreover, this infrastructure is in no condition to convey all the wastewater collected to the treatment plants, which are also in poor condition due to their age and lack of maintenance, greatly reducing their treatment capacity. Consequently, an average of 550 lps (12.6 mgd) of raw wastewater is being discharged into basins and streams that eventually flow into to the Rio Grande River.

[9] Source: Instituto Mexicano de Tecnología del Agua (IMTA) [Mexican Water Technology Institute], "*Indicadores de Gestion Prioritarios en Organismos Operadores*" [Priority Utility Management Indicators], December 2016. The term "indicative" is used to recognize that this average does not reflect 100% of water utilities in Mexico but includes a universe of at least 140.

In addition, there are areas of the city that do not have access to the wastewater collection system. Residents in those areas use on-site disposal systems, such as latrines, cesspools, and septic tanks, which pose a risk of soil and groundwater contamination that can ultimately impact the quality of water in the Rio Grande and the health of residents.

According to the 2018 Basin Summary Report for the Rio Grande Basin in Texas, the section of the river between the city of Laredo, Texas and the municipality of Nuevo Laredo, Tamaulipas, is impaired for bacteria and chlorides (from upstream) and shows concerns for toxicity. [10] In fact, although classified for contact recreation, this use is not allowed in this portion of the river due to high bacteria levels. Figure 6 shows the entire segment 2304, as shown in the aforesaid report, with the area highlighted for the general location of Nuevo Laredo.

Figure 6
RIO GRANDE WATER QUALITY IN SEGMENT 2304

[10] Source: IBWC, U.S. Section, *2018 Basin Summary Report for the Rio Grande Basin in Texas*.

These conditions increase the risk of water contamination, exposure to raw sewage and the vulnerability of the residents to waterborne diseases. Improvements to the infrastructure are needed to eliminate negative environmental impacts along Segment 2304 caused by raw wastewater discharges generated in Nuevo Laredo.[11]

B. Project Impacts

The Project will help prevent contamination of ground and surface water, as well as human exposure to untreated wastewater by eliminating the sources of potential contamination from untreated wastewater discharges, including deteriorated infrastructure and on-site disposal systems, as well as by ensuring the adequate treatment of current and future wastewater flows in compliance with NOM-001-SEMARNAT-2021. According to the Waste Load Evaluation of the Subsegments of Rio Grande Segment 2304, the Project is expected to improve water quality, eliminate the impairment for bacteria and reduce the risk for impairment due to low dissolved oxygen downstream.

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

- Improve wastewater collection services for 120,479 existing residential wastewater connections in the city by rehabilitating the collection and conveyance system.
- Extend first-time wastewater collection service to 150 homes in the area served by the Northwest WWTP.
- Improve the wastewater treatment system by increasing its operational capacity from 800 to 1,600 lps (18.3 to 36.5 mgd) by:
    - rehabilitating the International WWTP to restore the plant to its full design capacity of 1,360 lps (31.0 mgd);
    - upgrading the treatment process and increasing treatment capacity at the Northwest WWTP from 200 to 240 lps (4.6 to 5.5 mgd).
- Reduce the risk of system failures and thus prevent:
    - the discharge of approximately 550 lps (12.6 mgd) of untreated or inadequately treated wastewater to water bodies;[12] and
    - transboundary wastewater flows to the Rio Grande River.
- Achieve regulatory compliance with official Mexican standard NOM-001-SEMARNAT-2021.

To enhance the benefits of the Project, all reasonable applications of green building practices, as defined by the EPA U.S.-Mexico Border Water Infrastructure Program, were considered during the planning and final design phases.

[11] Source: Huitt-Zollars, Inc, Waste Load Evaluation of Subsegments of Rio Grande Segment 2304, prepared for the U.S. Environmental Protection Agency, January 12, 2022.
[12] Source: NADBank, Evaluation of the Sanitary Sewer Infrastructure in Nuevo Laredo, Tamps, SI+I, S.C., November 2020.

C. Transboundary Impacts

Implementation of the proposed Project will reduce the potential for contamination of the Rio Grande, a shared water body and water source for communities in both the U.S. and Mexico. A water quality model performed as part of the U.S. environmental clearance process for the Project indicated that the water quality in the river would not be negatively impacted by the Project.

Moreover, due to the proximity of Laredo, Texas, there are frequent border crossings between the two communities. The rehabilitation of wastewater collection and treatment infrastructure will positively impact the health of residents in this neighboring city and other communities down river 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 National Water Law is the primary law regulating water usage and public utilities. Official Mexican standards regulate wastewater systems. 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 in wastewater discharges to urban or municipal wastewater collection systems.
- *Official Mexican Standard NOM-001-CONAGUA-2011*, which establishes the specifications for hermeticity in water distribution systems, residential water connections and wastewater collection systems, as well as testing methods.
- *Official Mexican Standard* NOM-001-SEMARNAT-2021, which establishes the maximum permissible levels of contaminants in wastewater discharges to national waters and resources.
- *Official Mexican Standard NOM-004-SEMARNAT-2002*, which establishes the maximum permissible levels of contaminants in sludges and biosolids for their uses and final disposal.

NOM-001-SEMARNAT-2021 entered into effect on April 3, 2023, tightening restrictions on contaminants in treated wastewater discharges. Under the compliance program and guidelines established by CONAGUA, utilities will have until March 2027 to bring their treatment facilities into compliance with the new standard. This Project supports the utility's plans to bring all of its treatment plants into compliance.

A. Environmental Clearance

In accordance with the provisions of the General Law of Ecological Balance and Environmental Protection of the State of Tamaulipas, COMAPA consulted the Tamaulipas State Ministry of Urban Development and Environment (SEDUMA) regarding the environmental authorization for its proposed wastewater collection and treatment project, through official letter No. GT-026-2022 dated March 10, 2022. SEDUMA responded through official letter No. SEDUMA/SP/2022/002267 dated August 19, 2022, establishing that

according to the State's review, the Project is not subject to an environmental impact evaluation, based on Article 7, paragraphs 1 and 2, of the Environmental Impact Evaluation Regulations of the State of Tamaulipas. The letter also contained provisions regarding the utility's responsibility to obtain any applicable authorizations, licenses and permits; to comply with all waste management requirements and policies of the State; to use only aggregate quarries authorized and issued a concession by SEDUMA; and to notify SEDUMA as improvement works are initiated and/or if any changes are necessary for the Project.

Based on previous experience, improvements planned at the two WWTPs and three components of the wastewater collection system were identified as potentially being subject to federal jurisdiction; therefore, COMAPA has initiated a consultation with SEMARNAT to determine if any studies are required to obtain proper environmental authorization for those activities. Any works subject to additional environmental evaluation and review by SEMARNAT will not be implemented until the applicable authorizations have been obtained, as established in NADBank's funding agreement for the Project.

To be eligible for a BEIF grant funded by the EPA U.S.-Mexico Border Water Infrastructure Program, the transboundary impacts of the Project must be examined in compliance with the U.S. National Environmental Policy Act (NEPA). To meet this requirement, a Transboundary Environmental Information Document (EID) was developed and submitted to EPA for its review and ruling. The EID addresses the potential environmental impacts resulting from the implementation of the Project, including:

- Air quality;
- Biological resources;
- Socioeconomics, environmental justice and health and safety risks;
- Hazardous materials, solid waste, and pollution prevention;
- Historical, architectural, archeological, and cultural resources;
- Land use;
- Noise and noise-compatible land use;
- Rio Grande water quality information; and
- Cumulative impacts.

The EID also included water quality modeling, which showed that the Rio Grande would not be adversely impacted considering environmental quality parameters of the State of Texas and the United States.

Based on the findings and conclusions of the EID, EPA Region 6 prepared a (FONSI), which was published on June 1, 2022, for a 30-day public comment period. Upon conclusion of the public comment period, EPA made the FONSI official, establishing that the proposed Project will not result in any significant negative impacts to the environment of the U.S.-Mexico border region.

B. Mitigation Measures

The agencies that evaluated the Project determined that its implementation would not result in any significant negative impacts to the environment; nevertheless, the FONSI establishes

mitigation measures to address the minor environmental impacts that may arise during the construction and operation of the Project, including:

- The local air basin may be temporarily impacted by carbon monoxide, nitrogen oxide and sulfur dioxide emissions due to vehicles and equipment used during construction.
- A temporary increase in dust emissions may be caused due to construction.
- Hazardous waste—such as used oil—may be generated during the construction phase.
- Surface water resources could be temporarily impacted by stormwater runoff during the construction phase.
- 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 and the presence of workers in the area.

The required mitigation measures include:

- Application of water to reduce the emission of dust particles and soil erosion;
- Vehicle tune-ups to reduce emissions;
- Hay bales or silt fences to be placed along rights of way to prevent contamination of surface water resources;
- Construction to be scheduled between 8 a.m. and 5 p.m. to prevent extended disturbances from noise;
- Placement of warning signs to avoid potentially hazardous situations; and
- All construction personnel will be trained to familiarize workers with potential construction impacts and mitigation measures.

In addition, to prevent untreated wastewater discharges from flowing into the Rio Grande River or other water bodies during construction, wastewater flows will be bypassed to an existing manhole downstream when necessary.

A construction manager will be contracted using BEIF funds to follow up on the implementation of these measures during the construction of all the remaining Project components. Moreover, COMAPA will be responsible for maintaining continuous coordination with the applicable environmental protection agencies and must comply with any water quality requirements, authorization processes or recommendations that these agencies may issue throughout the life of the Project.

By following these best management practices, the temporary impacts due to construction will be minimized. Consequently, the long-term results from implementing the proposed Project will be positive overall.

C. Pending Environmental Tasks and Authorizations

COMAPA is in the process of consulting SEMARNAT to determine if additional studies or environmental authorizations are required for the improvements to the WWTPs and three components of the collection system that may fall under federal jurisdiction. SEMARNAT is expected to respond by December 2023. Currently, there are no identified environmental authorizations pending.

3.3. Financial Criteria

The total estimated cost of the Project is MXN$1,398.4 million, including construction costs, supervision and contingencies. COMAPA requested a BEIF grant to support implementation of the Project and improve the affordability of the investment. Based on a thorough analysis of both the Project and the utility, NADBank is recommending that EPA approve a BEIF grant for up to MXN$374 million (US$22.0 million) for its construction.[13] Table 3 presents a breakdown of total Project costs and the proposed funding sources.

Table 3
PROJECT INVESTMENT & FINANCING PLAN

Uses		Amount (MXN Million)	%	Amount (USD Million)*
Wastewater collection and conveyance system		816.0	58.4	48.0
International WWTP		426.0	30.5	24.0
Northwest WWTP		93.5	6.7	5.5
Supervision and contingency		62.9	4.5	3.7
TOTAL		**$ 1,398.4**	**100.0**	**81.2**
Sources	**Instrument**	**Amount (MXN Million)**	**%**	**Amount (USD Million)**
NADBank-BEIF	EPA grant	374.0	26.7	22.0
NADBank	Loan	120.0	8.6	6.0
Municipality and COMAPA	Equity	544.0	38.9	32.0
State of Tamaulipas	Grant	161.5	11.5	9.5
Mexican federal funds	Grant	161.5	11.5	9.5
IBWC/CILA	Grant	37.4	2.7	2.2
TOTAL		**$ 1,398.4**	**100.0**	**81.2**

* All peso amounts were converted at an exchange rate of $17.00 pesos per dollar, except the proposed loan, which was converted at an exchange rate of $20.00 pesos per dollar.

When determining BEIF assistance for projects, BEIF program guidelines require a loan component, when feasible, to finance part of the Project. The loan component amount is

[13] The peso amount is estimated based on an exchange rate of $17.00 pesos per dollar, in accordance with the Commitment Agreement signed by all funding parties on August 4, 2023. The BEIF grant will be awarded in U.S. currency for up to US$22 million, and its equivalent value in pesos is subject to exchange rate fluctuations. Any expenses beyond the BEIF grant amount will be the responsibility of the Project sponsors.

subject to the sponsor's ability to support the Project through user fees, other specific project revenue, and/or funds available from state or local sources. In addition, the analysis considers the overall capital investment plan for the utility and the demand it will place on the financial capacity of the project sponsor. In this case, NADBank is recommending a loan in the amount of MX$120 million to meet the BEIF program requirement. The Municipality of Nuevo Laredo is seeking Congressional authorization to issue debt for the Project and, if authorized, will bid out any such debt in compliance with the provisions of the Mexican Financial Discipline Law for States and Municipalities.

In addition, for projects located in Mexico, EPA requires that every grant dollar be matched with grant funding from other sources. As indicated in Table 3, total funding from Mexican sources for this Project is estimated at more than MXN$904.4 million, which will cover 64.7% of the project costs.

4. PUBLIC ACCESS TO INFORMATION

4.1. Public Consultation

NADBank published the draft certification and financing proposal for a 30-day public comment period beginning November 17, 2023. The following Project documentation is available upon request:

- Validation of the final designs by CONAGUA through various official documents.
- Transboundary Environmental Information Document (EID) for the Wastewater Collection System Rehabilitation Project in Nuevo Laredo, Tamps, developed by Huitt-Zollars, Inc., February 10, 2022;
- Environmental Assessment and FONSI for the Wastewater Collection System Rehabilitation Project in Nuevo Laredo, Tamps, issued on June 1, 2022;
- Wastewater discharge modeling for Nuevo Laredo, Tamaulipas, Mexico in subsegment 2304 of the Rio Grande, developed by Huitt-Zollars Inc., November 19, 2021.
- Assessment of Sanitary Sewer Infrastructure, in Nuevo Laredo, Tamps., SI+I, S.C., November 2020.
- Physical-operational needs assessment, sustainability program and preliminary designs for the rehabilitation, expansion, and upgrade of the International and Northwest WWTPs in Nuevo Laredo, Tamaulipas, developed by AyMA, March 2023; and
- Official Letter No. SEDUMA/SP/2022/002267., dated August 19, 2023, issued by the Ministry of Urban Development and Environment of the State of Tamaulipas.

4.2. Outreach Activities

COMAPA conducted outreach activities to gain the support of residents by providing information regarding the scope, construction costs and expected benefits of the Project. Information about the Project was made available as described in the Public Outreach Plan and in accordance with the public outreach requirements of the BEIF program.

Due to pandemic restrictions during the planning phases of the Project, no public meetings were held. Instead, a flyer about the Project was included with resident water bills. In addition, COMAPA published information about the Project on its website, including the service areas impacted, estimated construction costs and funding sources, potential issues, and service connection information. Information about the Project was also published in the COMAPA office.

On August 4, 2023, the Municipality of Nuevo Laredo and the State of Tamaulipas, along with CONAGUA, CILA/IBWC and NADBank, confirmed their shared commitment to provide funding and other support to the Project. In a live event via Facebook, the Commitment Agreement was signed by the attending parties.[14]

Additionally, NADBank conducted a media search to gauge public awareness of the Project, as well as to detect any possible opposition from the community concerning the proposed investment. More than 60 articles have been published over the past year regarding the Nuevo Laredo project. A summary of some of the most recent articles and news reports found is presented below:

- *El Mañana* (September 13, 2023) "*Transformación de Nuevo Laredo se consolida"*. [Transformation of Nuevo Laredo is solidified] Mayor Carmen Lilia Canturosas noted that this transformation is recapturing the greatness of this border. For the mayor, strategic works and historic investments have been key to consolidating this transformation and rescuing the city, after five years of neglect. https://elmanana.com.mx/nuevo-laredo/2023/9/13/transformacion-de-nuevo-laredo-se-consolida-107869.html

- *El Mañana* (August 7, 2023) "*Mejorarán calidad de las aguas del río" [Quality of river water to be improved]*. Governor Américo Villarreal Anaya, Mayor Carmen Lilia Canturosas and NADBank representatives signed an agreement to invest in the International Wastewater Treatment Plant. https://elmanana.com.mx/nuevo-laredo/2023/8/7/mejoraran-calidad-de-las-aguas-del-rio-105154.html

- *Hoy Tamaulipas* (August 6, 2023) "*En Nuevo Laredo firman acuerdo integral para mejorar la calidad de agua del rio Bravo*" [Comprehensive agreement signed in Nuevo Laredo to improve water quality in the Rio Grande]. The Governor of the State of Tamaulipas highlighted the commitment and determination of Mayor Carmen Lilia Canturosas for having initiated this project for the well-being of residents.

[14] https://www.facebook.com/watch/live/?extid=NS-UNK-UNK-UNK-IOS_GK0T-GK1C&mibextid=ifW6Jt&ref=watch_permalink&v=1028024825020050

https://www.hoytamaulipas.net/notas/536968/En-Nuevo-Laredo-Firman-acuerdo-integral-para-mejorar-la-calidad-de-agua-del-rio-Bravo.html

- *Hoy Tamaulipas* (August 4, 2023) "*Firman histórico acuerdo para sanear el río Bravo*" [Historic agreement signed to clean up the Rio Grande]. Tamaulipas Governor Américo Villarreal signed the commitment with NADBank officers to initiate the wastewater treatment project. https://www.hoytamaulipas.net/notas/536870/Firman-historico-acuerdo-para-sanear-el-rio-Bravo.html

- *El Mañana* (August 1, 2023) "*Eliminarán descargas al río Bravo; rehabilitarán tratadora de aguas*" [Discharges to Rio Grande to be eliminated; treatments plants to be rehabilitated]. The Municipality of Nuevo Laredo, the State of Tamaulipas, CILA/IBWC, CONAGUA and NADBANK join forces to stop river pollution. https://elmanana.com.mx/nuevo-laredo/2023/8/1/eliminaran-descargas-al-rio-bravo-rehabilitaran-tratadora-de-aguas-104732.html

- *Hoy Tamaulipas* (August 1, 2023) "*Respalda CILA en Nuevo Laredo inversión de 81 mdd en planta de aguas residuales*" [CILA supports US$81-million investment in wastewater plant in Nuevo Laredo]. In addition to the plant, investments will also be made in sewer mains and disconnecting storm drainage from the sewer system, to prevent wastewater discharges into the Rio Grande. https://www.hoytamaulipas.net/notas/536590/Respalda-CILA-en-Nuevo-Laredo-inversion-de-81-mdd-en-planta-de-aguas-residuales.html

- *Hoy Tamaulipas* (July 31, 2023) "*Unen México y EU esfuerzos para proyecto integral del saneamiento y protección del rio Bravo"* [Mexico and the U.S. join forces in a comprehensive wastewater project to protect the Rio Grande River] The investment plan will provide access to a US$22 million grant, which is supported by the Governor of Tamaulipas, the federal government through CONAGUA and by the U.S. Ambassador. https://www.hoytamaulipas.net/notas/536511/Unen-Mexico-y-EU-esfuerzos-para-proyecto-integral-del-saneamiento-y-proteccion-del-rio-Bravo.html

The activities conducted by COMAPA, and the media coverage described above demonstrate that the public has received regular updates regarding the Project, including technical and financial information, expected environmental benefits especially for the Rio Grande River, and the binational and inter-agency collaboration in developing the Project. COMAPA informed NADBank that no comments expressing concern about the Project had been received during the public outreach process. To date, no opposition to the Project has been identified.

ANNEX A:
SUPPLEMENTARY TECHNICAL INFORMATION

A detailed analysis of the sanitary sewer infrastructure in Nuevo Laredo, Tamaulipas, was completed in November 2020. In addition to identifying 27 points of wastewater spills or leaks, the study recommended 39 actions to resolve those problems. Some of those actions were consolidated into a single concept, while others may have been removed from the priority list once the study results and proposed Project were thoroughly evaluated.

Below is a summary of the Project components. The components that may be subject to further environmental evaluation by SEMARNAT have been clearly identified.

Rehabilitation of sewer lines

- Collector Ribereño in downtown Nuevo Laredo.
- Secondary sewer mains:
  - Coyote Bajo.
  - Upper section of Anahuac (phase 3), from Boulevard Anáhuac and Circuito; and Jesús González Bastién to Eva Sámano Avenue and Chicago Street.
  - Toboganes, from manhole #1 to manhole #20.
  - La Joya, second phase, from Éufrates River to Loira River.
  - Perú, between Constanza García and Justo Sierra.
  - 15 de Septiembre in the Burócratas subdivision.
  - Anáhuac between Ocampo and Río Tamesí (manhole #34 to manhole #50).
  - Donato Guerra in Donato Guerra Street between Guanajuato and Anáhuac.
  - Degollado between 15 de Septiembre and 13 de septiembre, in the Campestre subdivision.
  - Sur poniente, from manhole #41 to manhole #78.
  - Maclovio Herrera, lower section.
  - Oradel.
- Rehabilitation of the force main from Villas de San Miguel to the intersection with Airport Highway.
- Rehabilitation of sewer lines to prevent wastewater flowing to the La Sandía storm drain.
- Rehabilitation of sewer lines to eliminate the connection of primary and secondary sewer mains to the El Remolino storm drain.
- Rehabilitation of sewer lines to eliminate spills in the Solidaridad 2 subdivision.
- Rehabilitation of sewer lines to eliminate spills in the FOVISSSTE Alazanas and Jardín Juvencia subdivisions.

- Elimination of wastewater discharges to the February 5 storm sewer and relocation of the section along Venustiano Carranza Street between Porfirio Díaz and Blvd. Ruíz Cortínez in the Mier y Terán subdivision. ***(SEMARNAT consultation)***

Expansion of the sewer system

- In the western areas of the following subdivisions:
  - Independencia Nacional
  - San Roberto
  - Ampliación Vamos Tamaulipas
- Construction of a sewer line on Airport Highway

Rehabilitation of crossings and siphons

- Siphon of the Coyote Alto secondary sewer main, crossing Arroyo El Coyote at Anzures Street in the Los Ciruelos subdivision
- Siphon of the Surponiente secondary sewer main, crossing Arroyo El Coyote at Miguel Trillo Street in the Francisco Villa subdivision
- Two points of the Ribereño Collector crossing the Arroyo Las Alazanas in the section between the San Andrés and CNOP subdivisions ***(SEMARNAT consultation)***

Rehabilitation and upgrade of wastewater treatment plants (SEMARNAT consultation)

- International Wastewater Treatment Plant
- Northwest Wastewater Treatment Plant

Rehabilitation and upgrade of lift stations

- Rehabilitation of Las Alazanas Lift Station
- Rehabilitation of Colinas del Sur Lift Station
- Rehabilitation and second module of Las Ánimas Lift Station
- Rehabilitation of International WWTP lift station
- Rehabilitation of Northwest WWTP lift station

Rehabilitation of interconnections between secondary sewer mains

- Discharge connection from the Surponiente Collector to the Coyote Bajo Collector
- Connection from the Coyote Alto Collector to the Surponiente Collector

The Project is expected to be implemented over a period of three to five years. Below is an anticipated implementation schedule for procurement and construction of the proposed works.

Figure A-1
PROJECT IMPLEMENTATION SCHEDULE

DESCRIPTION	START	FINISH
Implementation Period	1/1/2019	3/31/2027
Construction Management (BEIF)		
BEIF Procurement CM	3/1/2024	6/1/2024
Construction Management Contract WWCS	6/1/2024	12/31/2026
Construction Management Contract WWTPs	6/1/2024	3/31/2027
Wastewater Collection System (31 actions + 5 lift stations)		
Municipio/CONAGUA (20 completed actions)	1/1/2019	12/31/2023
BEIF Procurement (Phase 1 - WWCS + WWTP LS)	3/1/2024	6/1/2024
BEIF Construction (Phase 1 - WWCS + WWTP LS)	7/1/2024	6/30/2025
BEIF Procurement (Phase 2 - WWCS/LS)	3/1/2025	6/1/2025
BEIF Construction (Phase 2 - WWCS/LS)	7/1/2025	6/30/2026
BEIF Procurement (Phase 3 - WWCS/LS)	10/1/2025	12/31/2025
BEIF Construction (Phase 3 - WWCS/LS)	1/1/2026	12/31/2026
International Wastewater Treatment Plant		
Municipio/State/CILA-IBWC (Phase 1 - Urgent Works)	9/1/2023	3/31/2024
Municipio/State/CONAGUA (Phase 2) Procurement	3/1/2024	6/30/2024
Municipio/State/CONAGUA (Phase 2) Construction	7/1/2024	6/30/2026
Northwest Wastewater Treatment Plant		
CONAGUA/State Procurement	4/1/2025	6/30/2025
CONAGUA/State Construction	7/1/2025	6/30/2026