CERTIFICATION PROPOSAL

WASTEWATER COLLECTION SYSTEM (PHASE I) AND LIFT STATION IMPROVEMENTS IN MEXICALI, BAJA CALIFORNIA

Revised: May 19, 2020

CONTENTS

EXECUTIVE SUMMARY

WASTEWATER COLLECTION SYSTEM (PHASE I) AND LIFT STATION IMPROVEMENTS IN MEXICALI, BAJA CALIFORNIA

Project: The proposed project will replace 11,760 meters (38,583 ft) of deteriorated pipelines and rehabilitate three lift stations in the wastewater collection system serving the residents of Mexicali, Baja California (the "Project").

Objective: The purpose of the Project is to eliminate exposure to untreated or inadequately treated wastewater discharges by replacing deteriorated wastewater infrastructure prone to leaks and failure, thus helping reduce 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:

- Improve wastewater collection infrastructure and services for up to 159,170 existing residential connections benefitting approximately 557,000 residents.[1]
- Reduce the risk of lift station and pipeline failure resulting in untreated or inadequately treated wastewater discharges to the New River, which would prevent:
  - Approximately 1,450 liters per second (lps) or 33.1 million gallons per day (mgd) of uncontrolled wastewater discharges.[2]
  - Transboundary wastewater flows to the U.S.

Population to Benefit: 557,000 residents in Mexicali, Baja California.[3]

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[1] Source: Local water utility (CESPM), *Subdirección General de Agua y Saneamiento* [Assistant Office of Water and Wastewater], *Habitantes Beneficiados por el Proyecto de Mejoras al Sistema de Alcantarillado Sanitario (Fase I) y Estaciones de Bombeo* [Residents Benefitted by the Wastewater Collection System (Phase I) and Lift Station Improvements Project], April 2020.

[2] Source: The flow volume was calculated based on the 159,170 wastewater connections served by the segments of the collection system and lift stations to be rehabilitated, with 225 liters (59.44 gallons) of wastewater generated per person a day as indicated by the Government of Baja California in the 2019 Technical Standards for Water and Sanitary Sewer System Projects [*Normas técnicas para proyecto de sistemas de agua potable y alcantarillado sanitario, actualización 2019*] and 3.5 persons per household as reported by the Mexican national institute of statistics (INEGI).

[3] Estimated population benefitted is calculated based on 3.5 persons per household, as reported by the Mexican national institute of statistics (INEGI) and rounded to the nearest 1,000 persons.

Sponsor: Local water utility, *Comisión Estatal de Servicios Públicos de Mexicali* (CESPM).

Estimated Construction Cost: US$6,776,540.

NADB Funding: US$3,387,667 grant from the Border Environment Infrastructure Fund (BEIF) funded by the U.S. Environmental Protection Agency (EPA).

Uses and Sources of Funds:

Uses	Amount (US$)	%
Construction*	$ 6,030,023	89.0
Supervision and contingencies	746,517	11.0
TOTAL	**$ 6,776,540**	**100.0**

Sources	Amount (US$)	%
Mexican federal funds	$ 1,016,662	15.0
Mexican state & local funds	2,372,211	35.0
NADB-BEIF (EPA grant)	3,387,667	50.0
TOTAL	**$ 6,776,540**	**100.0**

Project Status:

Key Milestones	Status
Environmental clearance – U.S.	Complete
Environmental clearance – Mexico	Complete
Final designs	Complete
Procurement for BEIF grant components	Anticipated in 3rd quarter of 2020
Construction period with BEIF grant	Estimated period of 18 months

CERTIFICATION PROPOSAL

WASTEWATER COLLECTION SYSTEM (PHASE I) AND LIFT STATION IMPROVEMENTS IN MEXICALI, BAJA CALIFORNIA

1. PROJECT OBJECTIVE AND EXPECTED OUTCOMES

The proposed project will replace 11,760 meters (38,583 ft) of deteriorated pipe and rehabilitate three lift stations in the wastewater collection system serving the residents of Mexicali, Baja California (the "Project"). The purpose of the Project is to improve wastewater collection and infrastructure and services for up to 159,170 existing residential wastewater connections, which will reduce the risk of pipeline failures and prevent approximately 1,450 liters per second (lps) or 33.1 million gallons per day (mgd) of untreated or inadequately treated wastewater discharges, thereby helping reduce water pollution and the risk of waterborne diseases, as well as transboundary wastewater flows into the United States.

2. ELIGIBILITY

2.1. Project Type

The Project falls within the eligible sector of wastewater.

2.2. Project Location

The Project will be implemented in the city of Mexicali, Baja California, which is adjacent to the U.S.-Mexico border. Mexicali is in the northeast region of the state of Baja California, directly across the border from Calexico, California and approximately 15 miles south of the city of El Centro, California. The Project is located approximately one mile south of the border and is roughly centered at the following coordinates: Latitude 32°39'56.00" North and Longitude 115°29'57.01" West. Figure 1 shows the location of Mexicali.

Figure 1
PROJECT LOCATION MAP

2.3. Project Sponsor and Legal Authority

The Project sponsor is the local water utility in Mexicali, *Comisión Estatal de Servicios Públicos de Mexicali* (CESPM). As established in the Baja California Law for State Water Utilities, CESPM has the legal authority to operate and maintain water treatment, storage and distribution systems, as well as wastewater collection and treatment systems for the municipality of Mexicali, Baja California.[4]

3. CERTIFICATION CRITERIA

3.1. Technical Criteria

3.1.1. General Community Profile

The Project is expected to benefit residents in the community of Mexicali, Baja California. As reported by the Mexican national institute of statistics, INEGI, the population of Mexicali was 988,417 in 2015, which represented approximately 29.8% of the state population. According to the projections of the Mexican national population council, CONAPO, Mexicali grew at an average annual rate of 1.1% from 2010 to 2015 and is expected to grow at the same rate from 2016 to through 2030, which is close to the national growth rate of 1.8%.[5]

[4] In Mexico, a "*municipio*" or municipality has a jurisdiction similar to that of a county in the United States.
[5] Source: Mexican national population council, *Consejo Nacional de Población* (CONAPO).

The wastewater collection system and lift stations that will be rehabilitated under this Project receive wastewater flows from 17 areas and three other lift stations in the Mexicali watershed, which in the event of failure would discharge to the New River. The number of residential accounts in these areas total 159,170, representing a population of nearly 557,000 people.[6]

The following table summarizes the status of public services and infrastructure in Mexicali.

Table 1
BASIC PUBLIC SERVICES AND INFRASTRUCTURE IN MEXICALI

Water System			
Coverage	99.96%		
Supply source	Colorado River		
Number of connections	312,791		
Wastewater Collection			
Coverage	95.46%		
Number of connections	294,421		
Wastewater Treatment			
Coverage	100% of collected wastewater		
Treatment facilities	**Plant**	**Type**	**Capacity**
	Zaragoza	Oxidation ponds	1,300 lps (29.7 mgd)
	Las Arenitas	Oxidation ponds	840 lps (19.2 mgd)
	UABC	Activated sludge	10 lps (0.22 mgd)
	CETYS	Activated sludge	7 lps (0.16 mgd)
	Tecnológico	Activated sludge	7 lps (0.16 mgd)

Source: CESPM, December 2019.
lps = liters per second; mgd = millions of gallons a day

Local Wastewater System Profile

CESPM operates the water and wastewater systems for Mexicali, Mexicali Valley and San Felipe, Baja California. The water supply for the city of Mexicali comes from the Colorado River and is mainly conveyed through two open channels: Benassini and Reforma. The water is delivered to three treatment plants and then pumped to the water distribution system.

The Mexicali wastewater system is divided into four service areas. Mexicali I and II cover the old urban areas of the city, while Mexicali III and IV serve most of the maquiladora industry and new urban developments. The wastewater collection system has approximately 1,500 miles of sanitary sewer lines and 14 lift stations, serving more than 294,421 connections in the city of Mexicali with coverage reaching approximately 95.46% of households.

CESPM operates two major wastewater treatment plants (WWTP)—Zaragoza WWTP and Las Arenitas WWTP—both of which provide secondary treatment in compliance with applicable regulations as established in Official Mexican Standard NOM-001-SEMARNAT-1996. The Zaragoza

[6] The estimated population benefited is calculated based on 3.5 persons per household as reported by INEGI and rounded to the nearest 1,000 persons.

WWTP discharges 406 lps (9 mgd) of effluent into a drain that is a tributary of the New River, while the Las Arenitas WWTP discharges 944 lps (21.5 mgd) to the Hardy River, a tributary of the Colorado River. Along with three other small treatment facilities, the utility has a maximum treatment capacity of 2,164 lps or nearly 50 mgd to serve the city of Mexicali.

CESPM regularly conducts video inspections of its wastewater collection infrastructure and has identified aging and deteriorated wastewater collection lines requiring rehabilitation to prevent failures that could result in raw wastewater spills to the New River. All the wastewater collection lines identified for rehabilitation show evidence of damage, usually in the form of breaks and collapses.

Key sanitary sewer pipelines and Lift Stations No. 2, 4 and 5 have reached or exceeded their expected useful life and are in immediate need of repair or replacement. Most of these pipelines are 50 years or older. When a sanitary sewer pipeline collapses or a lift station fails, untreated wastewater is typically discharged into the New River. Approximately 817,394 m^3 (216 million gallons) of untreated wastewater have been discharged into the New River in the last five years, which has had a severe impact on the water quality of the river.

To address this issue, CESPM developed a Strategic Wastewater Plan aimed at eliminating or reducing untreated wastewater discharges to the New River, prioritizing infrastructure rehabilitation and establishing a financial strategy.

Immediate actions proposed under the plan include the rehabilitation of critical sanitary sewer pipelines and lift stations. CESPM has already completed rehabilitation of Lift Stations No. 1 and No. 3, as well as the first phase of rehabilitating Lift Stations No. 2 and No. 5. Temporary lift stations were installed during the rehabilitation work to avoid discharges to the New River. The plan also proposes replacement of approximately 88,223 meters (54.8 miles) of deteriorated concrete pipes.

The proposed Project will replace 11,760 meters (about 38,583 ft) of deteriorated pipeline in the wastewater collection system and rehabilitate Lift Stations No. 2, 4 and 5, which currently convey an average of about 1,450 lps (33.1 mgd) within the Project area. The Project is needed to protect public health and the environment by minimizing the risk of line breaks that can cause sewage overflows onto local streets and into the New River, which flows northward into the United States. 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 Project consists of the rehabilitation of 11,760 linear meters (38,583 ft) of sanitary sewer pipelines and three lift stations, as follows:

- *San Marcos subdivision*:
    - 2,102 linear meters (6,896 ft.) of 8-inch polyvinyl chloride (PVC) pipe
    - 81 linear meters (266 ft.) of 15-inch PVC pipe
    - Rehabilitation of 28 manholes

- *Centro Civico subdivision*:
  - 153 linear meters (502 ft.) of 12-inch PVC pipe
  - 471 linear meters (1,545 ft.) of 15-inch PVC pipe
  - 121 linear meters (397 ft.) of 18-inch PVC pipe
  - 521 linear meters (1,709 ft.) of 24-inch PVC pipe
  - Rehabilitation of 9 manholes

- *Industrial subdivision*:
  - 356 linear meters (1,168 ft.) of 8-inch PVC pipe
  - 109 linear meters (358 ft.) of 10-inch PVC pipe
  - 213 linear meters (699 ft.) of 12-inch PVC pipe
  - 579 linear meters (1,900 ft.) of 15-inch PVC pipe
  - Rehabilitation of 30 manholes

- *Nueva subdivision*:
  - 432 linear meters (1,418 ft.) of 8-inch PVC pipe
  - Rehabilitation of 8 manholes

- *Primera Seccion subdivision*:
  - 298 linear meters (978 ft.) of 8-inch PVC pipe
  - Rehabilitation of 8 manholes

- *Los Pinos subdivision*:
  - 288 linear meters (945 ft.) of 8-inch PVC pipe
  - Rehabilitation of 4 manholes

- *Residencias subdivision*:
  - 556 linear meters (1,824 ft.) of 8-inch PVC pipe
  - 60 linear meters (197 ft.) of 10-inch PVC pipe
  - 238 linear meters (781 ft.) of 12-inch PVC pipe
  - Rehabilitation of 7 manholes

- *Los Alamitos subdivision*:
  - 68 linear meters (223 ft.) of 8-inch PVC pipe
  - 85 linear meters (279 ft.) of 10-inch PVC pipe
  - 80 linear meters (262 ft.) of 12-inch PVC pipe
  - Rehabilitation of 5 manholes

- *Justo Sierra subdivision*:
  - 681 linear meters (2,234 ft.) of 8-inch PVC pipe
  - Rehabilitation of 11 manholes

- *Las Fuentes subdivision*:
  - 241 linear meters (791 ft.) of 8-inch PVC pipe
  - 53 linear meters (174 ft.) of 12-inch PVC pipe
  - Rehabilitation of 8 manholes

- *Santa Clara subdivision*:
  - 613 linear meters (2,011 ft.) of 8-inch PVC pipe
  - 2 linear meters (7 ft.) of 18-inch PVC pipe
  - Rehabilitation of 14 manholes

- *Baja California subdivision*:
  - 484 linear meters (1,587 ft.) of 8-inch PVC pipe
  - 12 linear meters (39 ft.) of 10-inch PVC pipe
  - 6 linear meters (20 ft.) of 15-inch PVC pipe
  - Rehabilitation of 14 manholes

- *Pueblo Nuevo subdivision*:
  - 916 linear meters (3,005 ft.) of 8-inch PVC pipe
  - 120 linear meters (394 ft.) of 15-inch PVC pipe
  - Rehabilitation of 6 manholes

- *B. Wisteria subdivision*:
  - 370 linear meters (1,214 ft.) of 8-inch PVC pipe

- *Las Flores subdivision*:
  - 363 linear meters (1,191 ft.) of 8-inch PVC pipe
  - Rehabilitation of 6 manholes

- *Libertad subdivision*:
  - 683 linear meters (2,241 ft.) of 8-inch PVC pipe
  - 120 linear meters (394 ft.) of 10-inch PVC pipe
  - 161 linear meters (528 ft.) of 15-inch PVC pipe
  - 55 linear meters (180 ft.) of 18-inch PVC pipe
  - 54 linear meters (177 ft.) of 24-inch PVC pip
  - Rehabilitation of 16 manholes

- *Quintana Roo Bridge 2 in the Río Nuevo subdivisión*:
  - 15 linear meters (49 ft.) of concrete dome, 2.2 m X 1.2 m

- *Lift Station No. 2*:
  - One (1) 125-horsepower (HP) centrifugal pump
  - One (1) fine screen for solid removal
  - SCADA system
  - Building improvements

- *Lift Station No. 4*:
  - Two (2) 700-HP centrifugal pump
  - One (1) fine screen for solid removal
  - SCADA system
  - One (1) electrical control panel and improvements
  - Building improvements

- *Lift Station No. 5*:
  - One (1) 60-HP centrifugal pump
  - SCADA system
  - One (1) electrical control panel and improvements
  - Building improvements

Figure 2 shows the areas of the wastewater collection system that will be rehabilitated in the city of Mexicali, Baja California.

Figure 2
LOCATION OF WASTEWATER COLLECTION COMPONENTS OF THE PROJECT

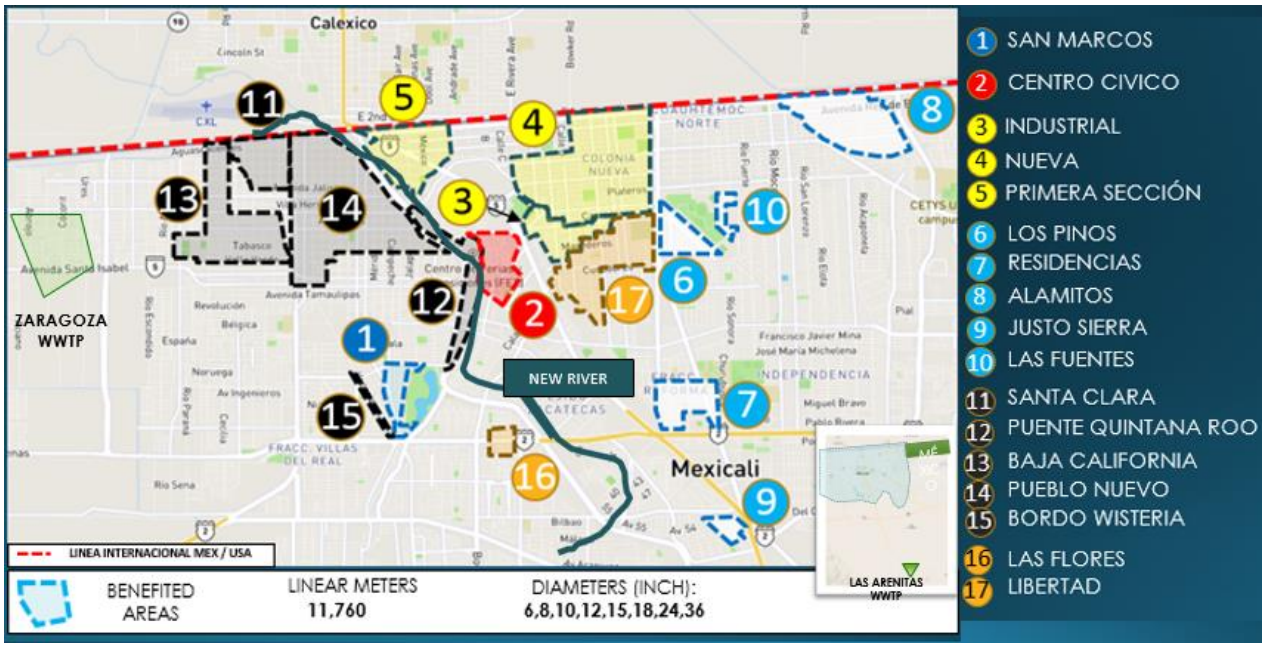
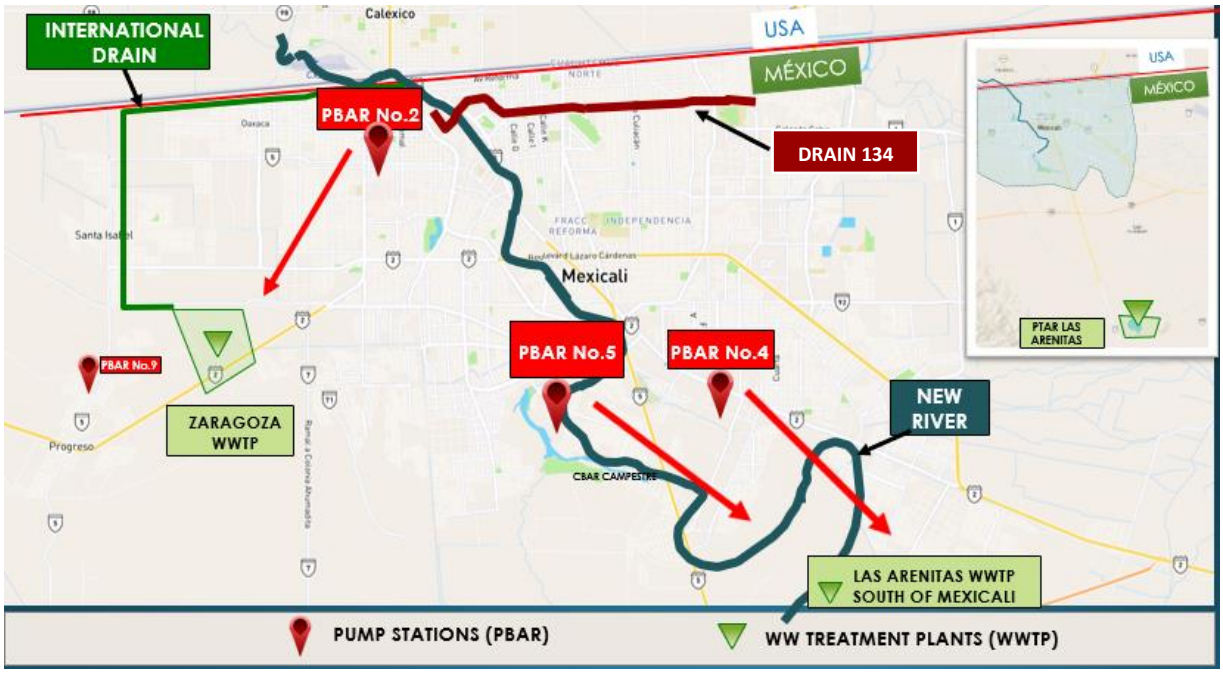


Figure 3 shows the location of the three lift stations that will be rehabilitated in the city of Mexicali, Baja California.

Figure 3
LOCATION LIFT STATIONS INCLUDED IN THE PROJECT



Mexican funding will be available for some Project components prior to NADB certification, including replacement of the concrete dome over the pipeline on the Quintana Roo Bridge, rehabilitation of the sanitary sewer system on De Las Nubes Avenue in the San Marcos area, acquisition and installation of a 125-HP pump for Lift Station No. 2 and acquisition and installation of one of the 700-HP pump needed for Lift Station No. 4. A grant from the Border Environment Infrastructure Fund (BEIF) is expected to support rehabilitation of infrastructure in the Los Pinos, Residencias, Alamitos, Justo Sierra and Las Fuentes subdivisions, including Lift Station No. 4.

3.1.3. Technical Feasibility

The final designs of the proposed infrastructure works were completed in accordance with the recommendations provided in the Water and Wastewater Manuals developed by the Mexican National Water Commission (CONAGUA) and include green building practices as part of the construction specifications. The final design documents were reviewed by CONAGUA and NADB. The CONAGUA regional office in the State of Baja California validated the technical specifications of the various Project components as follows:

- Technical validation of the wastewater collection infrastructure through official correspondence dated September 6, 2019 (BOO.807.06/206) and September 25, 2019 (BOO.807.06/228); and
- Technical validation of the lift stations through official correspondence dated September 23, 2019 (BOO.807.06/219), February 10, 2020 (BOO.807.06/079), February 17, 2020 (BOO.807.06/085) and February 27, 2020 (BOO.807.06/091).

During the hydraulic modeling and final design process, technical options for pipe diameter, materials and alignment, as well as pumps, motors and accessories, were evaluated. To identify the most appropriate technology, the evaluation considered the following technical factors:

- Proposed layout of the sanitary sewer collection system;
- Constructability;
- Capital cost;
- Operation and maintenance costs;
- Material and equipment reliability;
- Environmental impact;
- Social/community acceptance;
- Topography;
- System reliability;
- Right-of-way and easement requirements;
- Pavement removal and replacement; and
- Technology and sustainable practices.

The current condition of the pipelines was assessed through closed-circuit television (CCTV) inspections and incident reports of problems with the lines, such as breaks, leaks or odors. The decision as to whether to rehabilitate or replace a particular segment using an open trench or pipe bursting method was based on the feasibility of each option. Specific factors considered included the condition of the existing line; the location of the line in relation to traffic, buildings and trees; and the presence or absence of scale and/or deflection that could affect the suitability for pipe bursting. Other constructability criteria that were used to screen alternatives or locations included extended closure of major roadways in the city or prohibitive costs.

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 pumping facilities that could increase both capital and operation and maintenance (O&M) costs. Peak and maximum instantaneous flow rates were taken into consideration to determine pipe capacity and diameter. The analysis also considered various pipe materials in compliance with applicable standards and regulations. High-density polyethylene, PVC and asbestos-cement pipes were evaluated, taking into consideration their characteristics and suitability for the soil type in the Project area. While asbestos-cement pipes may have a longer life cycle, PVC is typically more cost-effective and offers more flexibility for septic conditions and seismic activity common to the area. For the proposed Project, an open-trench process and PVC pipes were selected, which have proven to be reliable and are frequently used in the Mexicali wastewater collection system.

In the case of the lift stations, the selected pump equipment complies with the same technical specifications as the existing pumps. The pumps, motors and control panels will be replaced with products that meet National Electrical Manufacturers Association (NEMA) premium efficiency standards.

3.1.4. Land Acquisition and Right-of-Way Requirements

All sanitary sewer mains and conveyance systems will be installed within existing municipal easements and rights of way. No additional land or rights of way need to be acquired for the Project.

3.1.5. Project Milestones

Once the notice to proceed is issued for rehabilitation of the wastewater collection lines and lift stations, the work is expected to take approximately 18 months to complete. Potential factors that could affect the Project completion timeline, such as issues with traffic control, weather or the delivery of materials, pumps, motors and accessories, were considered in estimating the construction period.

Construction permits will be the responsibility of the contractor and are considered a construction task. To prevent untreated wastewater discharges from flowing into the New River during construction, wastewater flows will be bypassed to an existing manhole downstream when necessary. During rehabilitation of the lift stations, a temporary pump station must be installed to prevent wastewater discharges to the river.

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

Table 2
PROJECT MILESTONES

Key Milestones	Status
Environmental clearance – U.S.	Completed December 12, 2019
Environmental clearance – Mexico	Completed September 27, 2019
Final designs	Completed February 27, 2020
Procurement for BEIF grant component	Anticipated in the third quarter of 2020
Construction period with BEIF grant	Estimated period of 18 months

3.1.6. Management and Operation

Management and operation of the proposed Project will be the responsibility of CESPM, which currently serves 312,791 water hookups and 294,421 wastewater connections in Mexicali. In 2019, the utility treated 2,126 lps (48.5 mgd) of wastewater from the urban area.

CESPM is organized in various departments, including: Water Treatment, Wastewater Treatment, Operation and Maintenance, Construction, and Management. Capital investments to extend service or replace deteriorated infrastructure is a priority for CESPM, which has successfully implemented previous projects certified and funded by NADB. The current Project is necessary because the wastewater collection infrastructure built more than 50 years ago and the pump equipment have exceeded their useful life. In particular, the pumps have been operating without

modern enhancements, such as soil and grit removal equipment or a remote management system.

The utility has an operation and maintenance (O&M) manual that includes routine tasks to ensure proper operation of the system, as well as procedures to address unexpected conditions, including mobile back-up pumps that are used to prevent temporary discharges related to aged pipes or pumps. The impact of the proposed Project on CESPM's O&M budget and procedures has been reviewed and is considered sustainable.

An important sustainable management practice that CESPM has implemented, in coordination with the Baja California Ministry of Environmental Protection (SPA), is a pretreatment program to control the quality of wastewater discharges into its wastewater collection system from industrial and small business customers. Wastewater quality must comply with Official Mexican Standard NOM-002-SEMARNAT-1996, which regulates the quality of wastewater discharged into municipal wastewater collection systems. The pretreatment program also complies with BEIF program requirements and the covenants established in BEIF grant agreements for projects previously funded in Mexicali.

3.2. Environmental Criteria

3.2.1. Environmental and Health Effects/Impacts

A. Existing Conditions

Deteriorated wastewater lines and pump stations increase the potential for breaks and leaks resulting in raw sewage spills, which in turn increases the risks of water contamination, exposure to raw sewage and the vulnerability of residents to waterborne diseases.

Waterborne diseases may be caused by protozoan, viruses, bacteria and intestinal parasites. 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 proliferation of diseases by direct or indirect human contact. Table 3 shows waterborne disease statistics for the city of Mexicali, B.C. during the period 2014-2019.

Table 3
WATERBORNE DISEASE STATISTICS FOR MEXICALI, B.C.

Disease	No. of Cases					
	2014	2015	2016	2017	2018	2019
Intestinal diseases other organisms	46,278	48,070	39,222	47,917	43,640	37,768
Typhoid fever	920	1242	644	961	636	318
Other salmonellosis	621	783	641	569	322	285
Intestinal amoebiasis	1,317	959	547	554	501	215
Scabies	174	211	195	347	280	293

Source: Ministry of Health, Epidemiological Monitoring Coordination Unit, General Morbidity, New Cases in Mexicali (ISSESALUD de BC).

Due to its proximity to the New River, wastewater spills on local streets in the Project area are likely to flow into the river. Between 2014 and 2018, a total of 817,394 m³ (215.8 million gallons) were discharged to the New River due to failures in the wastewater collection system and lift stations, which have caused sanitary problems and polluted the already impaired water body.

Since the New River flows from Mexico into the U.S. and discharges into the Salton Sea, the poor quality of the river flows reaching the Salton Sea may lead to health alerts in Imperial County, California.

B. Project Impacts

The Project will provide adequate infrastructure to collect the wastewater flows and safely convey them to the existing Zaragoza and Las Arenitas WWTPs, which are in compliance with NOM-001-SEMARNAT-1996 and CONAGUA's discharge permit requirements.[7] The rehabilitated infrastructure will improve system reliability by preventing leaks and spills and thus significantly reduce the risk of exposure to untreated wastewater and the potential contamination of surface and groundwater. Specifically, the Project is expected to generate environmental and human health benefits related to the following Project outcomes:

- Improve wastewater collection and conveyance infrastructure for up to 159,170 existing residential wastewater connections, benefitting approximately 557,000 residents.[8]
- Reduce the risk of pipeline failure resulting in untreated or inadequately treated wastewater discharges to the New River, which would prevent:
    - Approximately 1,450 lps or 33.1 mgd of uncontrolled wastewater discharges.[9]

[7] Source: CESPM, *Parámetros de calidad de las PTAR de Mexicali* [Mexicali WWTP Quality Parameters], 2019.
[8] Source: CESPM, Subdirección General de Agua y Saneamiento [Assistant Office of Water and Wastewater], *Habitantes beneficiados por el Proyecto de Mejoras al Sistema de Alcantarillado Sanitario (Fase I) y Estaciones de Bombeo* [Residents Benefitted by the Wastewater Collection System (Phase I) and Lift Station Improvements Project], April 2020.
[9] Source: The flow volume was calculated based on the 159,170 wastewater connections served by the segments of the collection system and lift stations to be rehabilitated, with 225 liters (59.44 gallons) of wastewater generated per person a day as indicated by the Government of Baja California in the 2019 Technical Standards for Water and

- Transboundary wastewater flows to the U.S.

To enhance the benefits of the Project, the final designs include the implementation of green building practices as part of the construction specifications, with a specific focus on energy efficiency and optimal operational performance.

C. Transboundary Impacts

The proposed Project is expected to have an overall positive impact on the New River, a transboundary water body flowing from Mexico into the United States. Implementation of the Project is intended to prevent future system failures resulting in wastewater spills that could contaminate the river water, thus helping to protect water resources in California.

Moreover, according to the transboundary environmental assessment, no significant negative impacts are expected as a result of Project implementation.

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-001-CONAGUA-2011*, which establishes the specifications for hermeticity in water distribution systems, residential water connections and wastewater collection systems, as well as methods for testing hermeticity.
- *Official Mexican Standard NOM-001-SEMARNAT-1996*, which establishes the maximum permissible levels of contaminants in wastewater discharges to national waters and resources.
- *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.

A. Environmental Clearance

Pursuant to state regulations, the Baja California Ministry of Environmental Protection (SPA) determined that an environmental impact assessment (MIA) for the Project was not required and subsequently authorized its implementation, through official letter No. SPA-TIJ-4196/19 issued on September 27, 2019.

However, to be eligible for a BEIF grant supported by federal appropriations to EPA's 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 consideration.

Sanitary sewer System Projects [*Normas técnicas para proyecto de sistemas de agua potable y alcantarillado sanitario – Actulización 2019*] and 3.5 persons per household as reported by INEGI.

The EID presented an assessment of the Project alternatives with respect to the following environmental factors:

- 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.

Based on the findings and conclusions of the EID, EPA Region 9 found that the proposed Project conforms to the category of action eligible for exclusion from a detailed environmental review and will not involve any extraordinary circumstances. On December 12, 2019, EPA issued a Categorical Exclusion, which establishes that the proposed Project will not result in any significant impacts to the environment that may negatively impact the U.S.-Mexico border area, because all construction, including the rehabilitation and/or replacement of existing wastewater lines, will be restricted to previously disturbed urban areas.

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 construction and operation of the Project. As described in the EID, potential impacts include:

- The local air basin may be temporarily impacted by carbon monoxide, nitrogen oxides and sulfur dioxide emissions due to 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 particulate matter 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 construction debris, used oil, etc.—may be generated during the construction and operation phases.

- Potential loss of vegetation, which may be a habitat during bird migration or nesting.

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;
- Placement of warning signs to prevent potentially hazardous situations;
- Hay bales or silt fences to be placed along rights of way to prevent erosion and contamination of surface water resources;
- Construction that disturbs vegetation will be avoided during the nesting periods 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 EID, 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 SPA and must comply with any water quality requirements, authorization procedures or recommendations that the state agency 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$6,776,540, which includes construction, supervision, contingencies and taxes. The Sponsor requested a BEIF grant to support 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 EPA approve a BEIF grant of up to US$3,387,667 for its construction. Table 4 presents a breakdown of the sources of funding for the Project.

Table 4
USES AND SOURCES OF FUNDS
(US$)

Uses	Amount	%
Construction	$ 6,030,023	89.0
Supervision and contingencies	746,517	11.0
TOTAL	**$ 6,776,540**	**100.0**
Source	**Amount**	**%**
Mexican federal funds	$ 1,016,662	15.0
Mexican state & local funds	2,372,211	35.0
NADB-BEIF (EPA grant)	3,387,667	50.0
TOTAL	**$ 6,776,540**	**100.0**

The BEIF grant is expected to support the rehabilitation of infrastructure in the Los Pinos, Residencias, Alamitos, Justo Sierra and Las Fuentes subdivisions, including Lift Station No. 4. To be eligible for BEIF funding, EPA requires that every grant dollar be matched with funding from other sources. As indicated in the above table, total funding from Mexican sources for this Project is estimated at nearly US$3.4 million and will cover 50% of the project costs.

4. PUBLIC ACCESS TO INFORMATION

4.1. Public Consultation

NADB published the draft certification proposal for a 30-day public comment period beginning April 17, 2020. The following Project documentation is available upon request:

- Final designs for rehabilitation of 17 areas of the wastewater collection system and three lift stations in Mexicali, September-December 2019.
- Environmental Exclusion Letter No. SPA-TIJ-4196/19 issued by the Baja California Ministry of Environmental Protection on September 27, 2019.
- Categorical Exclusion issued by EPA on December 12, 2019.
- Technical validations of the wastewater collection system issued by CONAGUA through official letters BOO.807.06/206 dated September 6, 2019 and BOO.807.06/228 dated September 25, 2019.
- Technical validations of the lift stations issued by CONAGUA through official letters BOO.807.06/219 dated September 23, 2019, BOO.807.06/079 dated February 10, 2020, BOO.807.06/085 dated February 17, 2020 and BOO.807.06/091 dated February 27, 2020.
- Mexicali Strategic Wastewater Plan developed by CESPM in April 2017.
- Public Participation Report, including public meeting minutes, pictures, articles, and related materials.

The 30-day public comment period ended on May 17, 2020. One public comment was received expressing concerns about the availability of funding from Mexico and suggesting that the investment be procured in small lots to alleviate risks of a lack of funding. As part of the development activities, NADB has secured a funding commitment from CONAGUA, has already considered carrying out six bid packages and will contract construction management services to support high quality construction and Project results.

4.2. Outreach Activities

CESPM conducted extensive outreach efforts to publicize the Project, including its costs and fees, and gain 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 appropriate project information, as described in the Public Participation Plan.

The Local Steering Committee was established on August 13, 2019, 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 CESPM disseminate information regarding the Project. The Steering Committee, with assistance from the Project Sponsor, prepared a fact sheet and a PowerPoint presentation about the Project. The technical information about the Project was made available to the community at the public meeting held on September 25, 2019, in the meeting room of the National Chamber of the Manufacturing Industry (CANACINTRA) in Mexicali.[10] Approximately 70 residents attended the meeting. A survey conducted during the event indicated that 100% of the attendees fully supported the Project.

A second public meeting to present the proposed Project and its financial structure was not possible due to public health concerns and requirements to avoid large gatherings of people. To provide an update to the affected population regarding the Project and its financial impact, CESPM will distribute a fact sheet with the final Project scope, proposed financial structure and implementation timeline to Mexicali residents.

A media search was conducted to gauge public awareness of the Project, as well as to detect any possible opposition from the community concerning the proposed investment. Media attention over the past two years has documented recurring conditions related to untreated discharges. A summary of some of the articles and news reports found is presented below.

- *La Crónica* (December 27, 2017) – *"Registran 20 colapsos de tubería de CESPM"* [20 CESPM pipelines reported as collapsed]. The article reports 20 collapsed water, wastewater and storm water lines located in areas with the oldest asbestos and cement pipes, https://www.elimparcial.com/mexicali/mexicali/Registran-20-colapsos-de-tuberia-deCespm-20171227-0029.html.

[10] *Cámara Nacional de la Industria de Transformación (*CANACINTRA).

- *Notivisa al amanecer* (January 4, 2017) – News story on the lack of sanitary sewer service in Abasolo subdivision https://www.youtube.com/watch?v=ZAM5wov-Xxc

- *Notivisa al amanecer* (May 5, 2017) – News story on sanitary sewer spills in the streets of the El Condor subdivision and their effect on residents. https://www.youtube.com/watch?v=V4DXGZAAcZQ

- *Contacto Matutino (Canal 66)* and *Notivisa al amanecer* (May 19, 2017) – News reports on sanitary sewer blockages causing wastewater to back up in homes in various subdivisions, and CESPM's efforts to desilt and clean the lines https://www.youtube.com/watch?v=4oVLXfjWa2M

- *Notivisa al amanecer* (June 12, 2017) – News story on sanitary sewer blockage in the Oscar Garzón subdivision that has gone unattended for over a month https://www.youtube.com/watch?v=kiz7Ym-l0Lk

- *La Voz de las Frontera* (September 25, 2019) – "*Se forma socavón en Jardines del Lago*" [Sinkhole in Jardines del Lago]. A sinkhole approximately five meters deep has formed at the intersection of Lago Rudolf and Lago de Ginebra Avenues, in the Jardines del Lago neighborhood. https://www.lavozdelafrontera.com.mx/local/se-forma-socavon-en-jardines-del-lago-4231868.html

- *La Voz de las Frontera* (October 2, 2019) – "*Aguas negras se desbordan en El Vidrio*" [Wastewater spill in the El Vidrio subdivision]. As is common during the rainy season, the sanitary sewer system overflowed, which caused large pools of sewage in the streets https://www.lavozdelafrontera.com.mx/local/aguas-negras-se-desbordan-en-el-vidrio-2041760.html

- *La Voz de las Frontera* (December 8, 2018) – "*Están tuberías por colapsar en Centro Cívico*" [Pipes in danger of collapsing in the Centro Civico area]. The main roadways in the Centro Cívico area of Mexicali could collapse at any moment due to the erosion of the wastewater system, which has practically disintegrated. CESPM has identified eight areas at imminent risk of failure due to the deterioration of the 50-year-old infrastructure built with concrete pipe. https://www.lavozdelafrontera.com.mx/local/estan-tuberias-por-colapsar-en-centro-civico-2816406.html

- *La Voz de las Frontera* (June 19, 2019) – *Desborda drenaje en "Zona Dorada"* [Sewage overflows in the "Golden Zone"] The lack of storm water infrastructure in the "Golden Zone " has caused sanitary sewer overflows affecting residents in 24 subdivisions for more than a year. https://www.lavozdelafrontera.com.mx/local/desborda-drenaje-en-zona-dorada-3788050.html

The activities carried out by the Project Sponsor and the articles identified above demonstrate that the public has received updates related to the infrastructure problems and need for wastewater collection system improvements. The Project Sponsor informed NADB that no comments expressing concern about the Project were received during the public outreach process, and no opposition to the Project was detected in the media search.

The proposed Project is one of many investment efforts currently under development to resolve uncontrolled discharges to the New River and will help address the main concerns identified by residents in Mexicali.

5. RECOMMENDATION

Certification Criteria Compliance

The Project falls within the eligible sector of wastewater and is located in the border region, as required under NADB Charter. The 30-day public comment period ended on May 17, 2020. One comment was received expressing concerns about the availability of funding from Mexico and suggesting that the investment be procured in small lots to alleviate risks of a lack of funding, As part of the development activities, NADB has secured a funding commitment from CONAGUA, has already considered carrying out six bid packages and will contract construction management services to support high quality construction and Project results. The project review performed by the NADB Chief Environmental Officer confirms that the Project complies with all the certification requirements, and there are no pending activities required for compliance.

Funding Criteria Compliance

The Project Sponsor applied for funding through the U.S.-Mexico Border Program prioritization process and was selected for technical assistance through the Project Development Assistance Program (PDAP) and construction assistance through the Border Environment Infrastructure Fund (BEIF). The Project meets all BEIF program criteria, and the U.S. Environmental Protection Agency (EPA) has approved a BEIF grant for up to US$3,387,667 for its construction.

Accordingly, based on the foregoing conclusions as supported and presented in detail in this certification proposal, NADB hereby recommends the certification of the Project.