CERTIFICATION AND FINANCING PROPOSAL

REHABILITATION OF THE WASTEWATER SYSTEM IN THE DOWNTOWN AREA OF SABINAS, COAHUILA

Submitted: September 18, 2015

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EXECUTIVE SUMMARY

REHABILITATION OF THE WASTEWATER SYSTEM IN THE DOWNTOWN AREA OF SABINAS, COAHUILA

Project: The proposed project consists of the rehabilitation of part of the wastewater collection infrastructure in the downtown area of the city of Sabinas, Coahuila ("the Project").

Project Objective: The purpose of the Project is to eliminate untreated wastewater discharges by rehabilitating deteriorated wastewater infrastructure in the downtown area, and thus help reduce water pollution and the risk of waterborne diseases.

Expected Project Outcomes: The Project is expected to generate environmental and human health benefits by reducing the risk of exposure to untreated wastewater discharges, as well as eliminating septic conditions caused by aged and deteriorated infrastructure. Improved services will directly impact 462 wastewater system connections.

Population Benefitted: An estimated 3,027 residents of Sabinas, Coahuila will direct benefit from the Project.[1]

Project Sponsor: Municipality of Sabinas, Coahuila, through the local water utility, *AN A A AA A A A*SIMAS).

Project Cost: US$728,138.[2]

NADB Grant: Up to US$500,000 grant from NADB's Community Assistance Program (CAP) to cover up to 68.7% of the project cost in pesos.

Uses and Sources of Funds:
(US$)

Uses	Amount	%
Construction*	$728,138	100
TOTAL	**$728,138**	**100**
Sources	**Amount**	**%**
Municipality of Sabinas / SIMAS	$228,138	31.3
NADB CAP Grant	500,000	68.7
TOTAL	**$728,138**	**100**

*Includes costs related to construction and valued-added taxes (VAT).

[1] Source: Final design.
[2] Unless otherwise noted, all U.S. dollar figures are quoted at an exchange rate of $14.50 pesos to the dollar.

CERTIFICATION AND FINANCING PROPOSAL

REHABILITATION OF THE WASTEWATER SYSTEM IN THE DOWNTOWN AREA OF SABINAS, COAHUILA

1. ELIGIBILITY

Project Type

The project falls within the eligible sector of wastewater.

Project Location

The Project is located in Sabinas, a community located in the northeastern area of the state of Coahuila, about 75 miles south of the border with the United States.

Project Sponsor and Local Authority

The Project sponsor is the Municipality of Sabinas, Coahuila, through the local water and wastewater utility, AN A A AA A A ASIMAS the "Sponsor"). SIMAS is a decentralized public entity of the Municipal Government of Sabinas, with legal authority and assets, created by decree dated July 23, 2010. SIMAS has the legal authority to build, rehabilitate, expand, manage, operate, preserve and maintain water and wastewater systems in Sabinas, Coahuila.

2. CERTIFICATION CRITERIA

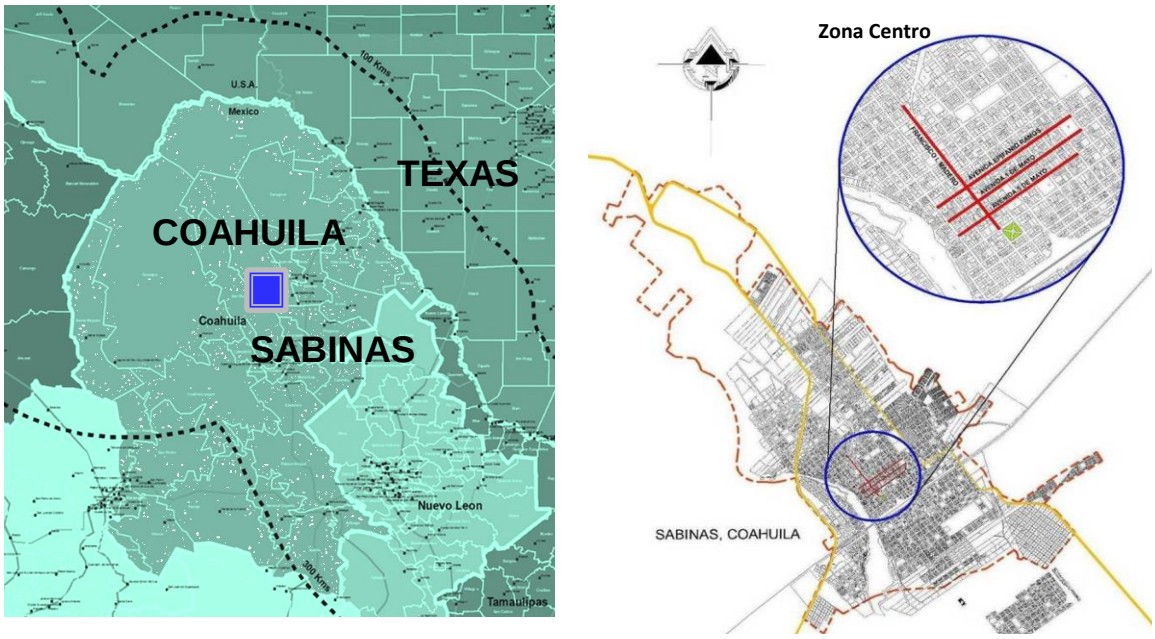
2.1. TECHNICAL CRITERIA

2.1.1 Project Description

Geographic Location

The community of Sabinas is located in the northeastern area of the state of Coahuila, within the region known as . It is approximately 75 miles southwest of the city of Eagle Pass, Texas, and approximately 70 miles north of Monclova, Coahuila. Figure 1 shows the approximate location of the Project.

Figure 1
PROJECT LOCATION MAP



General Community Profile

As reported in the last census taken by the Mexican National Institute of Statistics and Geography (INEGI), the city of Sabinas had a population of 54,905 residents in 2010. Based on population projections prepared by the Mexican National Population Council (CONAPO), as of 2015, the local population is estimated to be 60,467.

According to the Mexican National Institute for Federalism and Municipal Development (INAFED), in 2010 the economically active population in the city of Sabinas was approximately 23,342 residents, while the annual per capita gross domestic product (GDP) in 2005 was equal to $9,770 dollars PPP.[3] According to INEGI's 2014 economic census, the main economic activities in Sabinas are manufacturing, mining, agriculture, cattle and service industries.

The status of public services in Sabinas is described in the following table.

[3] Source: United Nations Development Program (UNDP) for Mexico. The per capita GDP is expressed in dollars adjusted for purchasing power parity (PPP) taking into account price differences between countries. The income level is reflected in the per capita GDP used by UNDP in its calculation of the estimated Human Development Index (HDI). http://inafed.gob.mx/work/models/inafed/Resource/65/1/images/siha_2_2_4.xls

Table 1
BASIC PUBLIC SERVICES AND INFRASTRUCTURE*

Water	
Coverage	97 %
Supply source	Groundwater from 3 deep wells, with a chlorination system
Number of hookups	21,295
Wastewater Collection	
Coverage	75%
Number of connections	15,971
Wastewater Treatment	
Coverage	0 %
Wastewater treatment plant	Status: Under construction; to provide 100% treatment coverage; estimated completion by December 31, 2015 Process: Extended aeration activated sludge Capacity: 1.8 mgd (Phase 1)
Solid Waste	
Collection coverage	100 %
Final disposal	Open dumpsite, using an adapted open-pit coal mine
Street Paving	
Coverage	70 %

*Source: SIMAS, 2015.
** Estimated based on the number of residential water hookups and wastewater connections.

Local Wastewater System

The local wastewater collection system in Sabinas covers approximately 75% of the community, serving an estimated 15,971 residential connections.[4] It consists of a network of sewer lines, subcollectors, drains and outfalls. Currently, the wastewater collected in Sabinas is discharged into the Blanco or Aguililla Creeks under a concession authorized for a fixed term, which will end in 2017.[5]

To address the lack of wastewater treatment for the community, the State of Coahuila, through the Coahuila State Water and Wastewater Commission (CEAS), is currently constructing a wastewater treatment plant (WWTP), with a mechanized system based on an extended aeration activated sludge treatment process. The first phase of the plant will have an installed capacity of 80 liters per second (lps) or 1.8 million gallons per day (mgd). In a planned second phase, the capacity will be increased to 120 lps (2.74 mgd). The treated effluent will comply with Mexican standard NOM-001-SEMARNAT-1996, which establishes the maximum permissible levels of

[4] Source: SIMAS, 2015.
[5] Concession No. 3.6.2-1/72 dated February 2, 1972, issued by Mexican Ministry of Water Resources (SRH).

pollutants for wastewater discharges into national waters and territories. Since the treated effluent is expected to eventually flow into the Sabinas River, a discharge permit application has been submitted to the Mexican National Water Commission (CONAGUA) and is currently being processed.[6] The first phase of the WWTP is approximately 70% complete, and is expected to be 100% complete by the end of December 2015.[7] The treatment facility will have sufficient capacity to treat all wastewater flows collected by the sewer system.

In addition to the need for adequate wastewater treatment facilities, the wastewater collection system in the downtown area of the community was built in 1954, and has exceed its useful life. Sewer system improvements and recommendations were identified in two planning studies conducted by the Sponsor: "*N A A A A A A A A A A A A A A A A A* and *A A A A A A A A A AN A A A A A A A A*." The findings from these studies indicate that several sections of sewer pipeline have completely deteriorated or are badly worn. Consequently, collapsing lines and sewage spills are a frequent occurrence, posing an immediate environmental and health threat for local residents. The utility's operation and maintenance costs have also increased to cover the corresponding repairs.

Infrastructure improvements began with sewer mains, such as the Dr. Ramos Arizpe Collector, which was rehabilitated in 2008 and is currently operating properly.[8] SIMAS plans to continue rehabilitating the wastewater collection system in the areas that feed into these collector mains, through a multiannual investment program that will be coordinated with CEAS.

The sewer lines selected for rehabilitation under this Project are connected to the Dr. Ramos Arizpe Collector. Sections of these lines experience frequent collapses and major blockages that negatively impact hydraulic capacity and reduce flow rates, increasing the potential for silting and septic conditions in the system.

To address the environmental and human health issues created by the malfunctioning wastewater collection system, which poses a risk of potential exposure to untreated wastewater, as well as surface and groundwater contamination, the City Council of Sabinas met on August 6, 2014, and approved the Project for Rehabilitation of the Wastewater System in the Downtown Area of Sabinas, Coahuila.[9]

Project Scope and Design

The Project includes the following components:

a) Replacement of 9,409 ft. of 8-inch PVC pipeline;

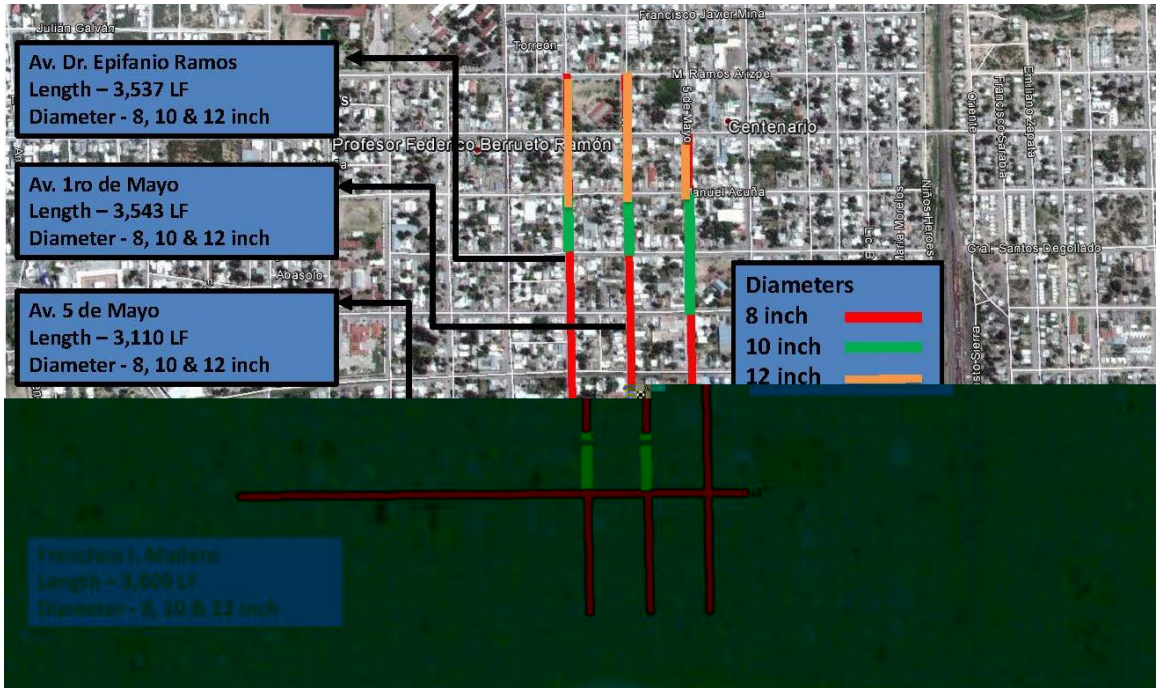
b) Replacement of 4,390 ft. of 10-inch and 12 inch PVC pipeline; and

c) Replacement of 462 sewer connections.

[6] Application No. COA-L-0071-20-02-15 submitted to the local CONAGUA's office on February 20, 2015. Saltillo
[7] Technical Fact Sheet dated August 3, 2015 prepared by CEAS.
[8] Official Document No. OF/PM/0125/2015, dated February 12, 2015 and issued by the City of Sabinas.
[9] Minutes of City Council Meeting No. 20, August 6, 2014, City Hall, Sabinas, Coahuila.

Figure 2 shows the general layout of the Project components.

Figure 2
PROJECT LAYOUT



The construction permits have been processed by SIMAS. Table 2 shows the proposed implementation schedule of the Project and the pending milestones.

Table 2
PROJECT MILESTONES

Key Milestones	Status
Initiation of procurement	Anticipated for the 4th quarter of 2015
Construction period	Six months

2.1.2. Technical Feasibility

Design Criteria

The final designs for the Project were developed in accordance with the technical specifications of the Water and Wastewater Manual developed by CONAGUA. BECC and NADB performed a technical assessment of the designs and verified that they complied with all applicable technical guidelines and regulations.

Selected Technology

During hydraulic modeling and the final design process, technical options were evaluated to identify the most appropriate technology and determine pipe diameter, material and alignment. The technical options were evaluated based on the layout of the existing sewer lines, as well as the following factors:

- Hydraulic deficiencies in the existing lines;
- Reliability of the materials and equipment;
- Hydraulic capacity of the sewer main to which the rehabilitated lines will be connected;
- Continuity of the hydraulic process;
- Investment costs and operation and maintenance (O&M) costs; and
- Opportunities for sustainable practices.

The pipe diameter was selected using appropriate slopes and velocities to prevent pipe silting and clogging, septic conditions, over-excavation or the need for pumping facilities that could increase Project costs. Peak flow rates and maximum instantaneous flow rates were taken into consideration in order to avoid overflows. The analysis also considered using various pipe materials in compliance with applicable standards and regulations. Polyethylene, PVC, and asbestos-cement pipes were evaluated, and their characteristics and suitability for the soil type were reviewed. For the proposed Project, PVC was the selected material for wastewater collection, which has been proven to be reliable and is compatible with the existing infrastructure.

2.1.3. Land Acquisition and Right-of-Way Requirements

All construction tasks will take place within existing municipal right-of-ways. No additional land or easements are required to implement the Project.[10]

SIMAS has obtained a construction permit for the rehabilitation of the wastewater collection system from the Municipal Department of Planning and Public Works.

2.1.4. Management and Operations

The management and operation of the Project will be the responsibility of SIMAS, which has sufficient resources and staff available for these purposes, including the procurement and construction supervision during Project implementation.

[10] Official letter No. OF/PM/0127/2015 dated 2/12/2015 from the Municipal Government.

SIMAS serves approximately 21,295 water hookups and 15,971 sewer connections. The utility has an Operation and Maintenance Manual that covers the primary tasks necessary to ensure proper operation of the wastewater collection system, including the rehabilitated infrastructure.

Current and projected operation and maintenance costs for the entire wastewater collection system are shown in Table 3. Projected operation and maintenance costs for the Project components are presented in Table 4.

Table 3
CURRENT AND PROJECTED OPERATION AND MAINTENANCE COSTS FOR SABINAS WASTEWATER COLLECTION SYSTEM
(Mexican Pesos)

Item	2014	2015	2016	2017	2018	2019
Labor	667,588	700,967	736,015	772,816	811,457	852,030
Fuel	132,886	139,530	146,507	153,832	161,524	169,600
Hydraulic material	259,834	272,826	286,467	300,790	315,830	331,621
Maintenance	355,496	373,271	391,935	411,531	432,108	453,713
Total	**1,415,804**	**1,486,594**	**1,560,924**	**1,638,969**	**1,720,919**	**1,806,964**

Source: SIMAS.

Table 4
PROJECTED OPERATION AND MAINTENANCE COSTS FOR THE PROJECT COMPONENTS
(Mexican Pesos)

Item	2016	2017	2018	2019	2020	2021
Labor	7,010	7,360	7,728	8,115	8,520	8,946
Fuel	1,395	1,465	1,538	1,615	1,696	1,781
Hydraulic material	2,728	2,865	3,008	3,158	3,316	3,482
Maintenance	3,733	3,919	4,115	4,321	4,537	4,764
Total	**14,866**	**15,609**	**16,389**	**17,209**	**18,069**	**18,973**

Source: SIMAS.

According to the Sponsor, the budget projections will cover expenditures for the operation and maintenance of the improved wastewater collection infrastructure and are projected to increase by approximately 5% annually. An adjustment in user rates is not anticipated as a result of the Project.

SIMAS has consistently managed an annual operating budget sufficient to cover normal operation and maintenance activities of its wastewater collection infrastructure, including the complementary funding required to complete the financing for the proposed the Project. The

Sponsor has indicated that it has sufficient funds and the proper accounting structure to meet the conditions for receiving the CAP grant.[11]

With respect to the wastewater treatment plant that is currently under construction, once the startup and stabilization period has been completed, CEAS is committed to ensuring that it has sufficient funding and operational capacity. CEAS expects to pursue federal grants for wastewater treatment, and the Municipal Government will seek open market opportunities to sell the reclaimed water available from the WWTP.[12]

2.2. ENVIRONMENTAL CRITERIA

2.2.1. Compliance with Applicable Environmental Laws and Regulations

Applicable Laws and Regulations

In accordance with the regulations of the Office of the Deputy Secretary of Environmental Management of the Coahuila State Ministry of Environment (SEMA), on March 24, 2015, the agency issued Official Document No. SGA 540/2015, indicating that the Project does not require an environmental impact assessment or authorization.

Since the Project will be constructed within the existing infrastructure layout, in areas impacted by the construction of the sanitary sewer system in 1954, no consultation with Mexico's National Institute of Anthropology and History (INAH) is required. No cultural or historical resources are expected to be disturbed.

Additionally, during operation, the Project must comply with Mexican Standard NOM-002-SEMARNAT-1996, which establishes the maximum permissible levels of pollutants for wastewater discharges into urban or municipal wastewater collection systems.

Environmental Studies and Compliance Actions

As indicated in the official document issued by SGA/SEMA, no environmental studies are required for this Project.

Pending Environmental Tasks and Clearances

There are no pending environmental tasks or authorizations.

Compliance Documents

As indicated in Official Document No. SEMA 509/2014, issued by SEMA on April 1, 2014, no formal environmental authorization is required for the Project.

[11] Official Letter No. OF PM-0265-2015 dated March 20, 2015.
[12] Official Letter No. CEAS-DG/0256/15 dated April 29, 2015.

2.2.2. Environmental Effects/Impacts

Existing Conditions and Project Impact – Environmental

Since the wastewater collection system in downtown Sabinas has exceeded its useful life, the hydraulic performance of the sewers and collectors has been adversely impacted. The system has experienced collapsed lines and blockages that disrupt the hydraulic flow and cause raw wastewater to overflow from manholes in some areas.

The purpose of the Project is to provide adequate wastewater collection infrastructure to prevent raw wastewater overflows and support the efficient and safe operation of the wastewater collection system in the city's downtown area. The availability of appropriate wastewater collection infrastructure protects the health of residents and prevents the pollution of natural resources, both locally and downstream. In particular, the proposed improvements to the wastewater system will ensure reliable service for 462 residential wastewater connections.

N A A

Only minor environmental impacts are anticipated from the implementation of the Project, provided that the tasks are carried out in accordance with best management practices. Potential impacts that may be present during the construction phase include:

- Airborne dust emissions;
- Gas emissions from construction machinery; and
- Temporary roadway blockages and the presence of workers in the area.

The mitigation measures that will be implemented are:

- Application of treated wastewater to reduce airborne dust emissions;
- Vehicle tune-ups to reduce emissions; and
- Placement of warning signs to prevent potentially hazardous situations.

A A

The Project contributes to the conservation of natural resources by reducing the risks of water pollution and soil contamination. The infrastructure will operate by gravity; therefore, there will be no increase in energy use.

A A A

The no-action alternative was not considered viable, since failing to rehabilitate the wastewater collection system would result in excessive settling of solids in manholes and lines, unpleasant odors and ongoing sewage overflows, which pose a significant hazard for the environment and the health of local residents, as well as for communities and residents of regions adjacent to the Project area.

Existing Conditions and Project Impact – Human Health

Waterborne diseases are caused by pathogenic microorganisms that are directly transmitted as a result of inadequate wastewater disposal practices and unsafe water supplies. An individual may become ill after drinking water that has been contaminated with these organisms, eating uncooked foods that have been in contact with contaminated water, or through poor hygiene habits that contribute to the dissemination of diseases by direct or indirect human contact.

Human health statistics for the Sabinas area are limited; however, information is available in the 1984-2010 annual morbidity statistics published by the Office of Epidemiology of the Mexican Ministry of Health, which reports morbidity indicators for the state of Coahuila. Table 5 provides information on the leading causes of communicable diseases in Coahuila during the period from 2009-2013, which are typically related to water-borne diseases.

Table 5
LEADING CAUSES OF COMMUNICABLE DISEASES IN THE STATE OF COAHUILA

	2009		2010		2011		2012		2013	
	Cases	Ranking	Cases	Ranking	Cases	Ranking	Cases	Ranking	Cases	Ranking
Ir… …d by other o… …iagnosis	133,393	2	157,196	2	157,796	2	175,476	2	162,647	2
Intestinal amebiasis	6,757	13	6,510	13	5,707	13	5,642	14	4,478	14
Other Helminthiasis	2,504	18	2,648	18						
Typhoid fever	2,683	17	2,563	19	2,794	20	3,095	19	2,651	18
Parathyphoid fever & other Salmonellosis	13,607	8	11,610	8	9,528	10	10,745	9		

Source: Mexican Ministry of Health, Office of Epidemiology, Annual Morbidity Reports
http://www.epidemiologia.salud.gob.mx/dgae/infoepid/inicio_anuarios.html

There is a risk of exposure to untreated wastewater from sewage overflows, which increases the vulnerability of area residents to waterborne diseases. The infrastructure improvements to be implemented under this Project will reduce this risk and prevent potential health threats. According to the World Health Organization (WHO), access to safe water and sanitation facilities, as well as better hygiene practices, can reduce ascariasis-related morbidity by 29% and diarrhea-related morbidity by 32%.[13]

Transboundary Impacts

Given the distance of Sabinas from the U.S.-Mexico border, no transboundary impacts are anticipated.

2.3. FINANCIAL CRITERIA

2.3.1. Uses and Sources of Funds

[13] Source: WHO, Water, Sanitation, and Hygiene Links to Health: Facts and Figures – updated November 2004 (http://www.who.int/water_sanitation_health/publications/facts2004/es/index.html).

The total estimated cost of the Project is US$728,138, which includes construction and value-added taxes (VAT). The Project Sponsor requested a US$500,000 grant from NADB through its Community Assistance Program (CAP) to complete the financing of the Project. Table 4 presents a breakdown of the sources of funds for the Project.

Table 6
PROJECT COSTS AND SOURCES OF FUNDS
(US$)

Uses	Amount	%
Construction*	$ 728,138	100.0
TOTAL	**$ 728,138**	**100.0**
Source	**Amount**	**%**
Municipality of Sabinas / SIMAS	$ 228,138	31.3
NADB CAP Grant	500,000	68.7
TOTAL	**$ 728,138**	**100.0**

* Includes costs related to the construction and value-added taxes (VAT).

2.3.2 Compliance with CAP Program Criteria

The Project complies with all CAP criteria. It is located within the U.S.-Mexico border region served by BECC and NADB, is being sponsored by a public-sector entity and is in an environmental sector eligible for NADB financing. Additionally, as a wastewater project, it is considered a priority under the provisions of the CAP Program. As shown in the above table, the Project Sponsor has agreed to cover more than the 10% minimum required under the program.

All necessary permits and authorizations have been obtained and the Project Sponsor is ready to initiate bidding for construction, once funding is approved. Upon completion of the Project, an estimated 3,027 residents will directly benefit from the improved wastewater collection services.

2.3.3. Conclusion

Based on the above reasons, NADB proposes providing a CAP grant for up to US$500,000 for the construction of the Project.

3. PUBLIC ACCESS TO PROJECT INFORMATION

3.1. PUBLIC CONSULTATION

BECC released the draft certification and financing proposal for a 14-day public comment period beginning August 24, 2015. The following Project documents were made available for public review:

- Final Design of the Wastewater System Rehabilitation Project in Downtown Sabinas, Coahuila, developed by E G J Construcción y Urbanización in 2015.
- Official Document No. 540/2015, issued on March 24, 2015 by the Office of Environmental Management of the Coahuila State Ministry of Environment.
- Minutes of City Council Meeting No. 20, August 6, 2014.
- Official Document No. OF/PM/0125/2015 issued by the Municipality of Sabinas on February 12, 2015.
- Concession No. 3.6.2-1/72 issued by the Mexican Ministry of Water Resources (SRH) on February 2, 1972.
- Electronic copy of the receipt for Discharge Permit Application No. L-COA-0071-20-02-15 issued on February 20, 2015, by the Local Office of CONAGUA.
- WWTP Fact Sheet prepared by CEAS on August 3, 2015.
- Official Letter No. CEAS-DG/0256/15 issued by CEAS on April 29, 2015.
- Official Letter No. OF-0265-2015, issued on March 20, 2015 by the Municipal Government.

The 14-day public comment period ended on September 7, 2015, with no comments received.

3.2. OUTREACH ACTIVITIES

As a regular business practice, SIMAS reports to its Board of Directors and requests approval for projects financed by federal programs, the state government, the municipal government and other sources of funding. The Board consists of representatives from various sectors of the Sabinas community, including civic organizations, the municipal government the private sector and general public. The Board has been informed of the scope of the proposed Project.

BECC conducted a media search to determine access to Project information and identify any public opinions about the Project. The articles found during the search reported on the need to carry out the construction work, emphasizing the negative environmental impacts caused by the faulty operation of the existing wastewater collection system in downtown Sabinas, as well as the steps taken by the municipal and state governments to obtain funding for the Project.

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

- _____ (April 1, 2015) _____ (Sewer system collapses downtown). The article focuses on complaints made by downtown residents regarding the foul odors caused by the faulty operation of the wastewater collection system.

http://www.zocalo.com.mx/seccion/articulo/se-colapsa-drenaje-en-la-zona-centro-1420359815

- *A* (February 23, 2015) *A A A A A A A A A A A A A A* (Committee of municipal officials analyze and fine-tune Project to rehabilitate the city's downtown sewer system). The article focused on the agreements reached at the meeting regarding the Project's procurement process.
  http://espacionoticias.blogspot.com/2015/02/comision-de-funcionarios-municipales.html

- *A A A*(February 21, 2015). " *A A A A A A A A A A A A A*(Approval of 10 million peso investment to renovate Sabina's sewer system) The newspaper article focused on the videoconference held by municipal government officials with NADB staff to discuss the details of what would become the rehabilitation of the wastewater collection system in the downtown area of the city. *A*
  http://www.vanguardia.com.mx/apruebaninversionde10mdppararenovarreddedrenajeensabinas-2273582.html

- *A*(August 13, 2014) *A A A A A A A A A*(Sabinas would qualify for NADBank wastewater program) *A*The article focused on the visit made by Sabinas city officials to the NADB for the development of the wastewater system rehabilitation project in Sabinas, Coahuila.*A*
  http://espacionoticias.blogspot.mx/2014/08/entraria-sabinas-programa-del-natbank.html

- Infonor Coahuila, Diario Digital (May 17, 2014) "Recurren a fondos internacionales para rehabilitar drenaje" (International funding requested to rehabilitate the wastewater collection system). The article focused on the efforts made by the Sabinas Mayor to obtain a NADB grant for the rehabilitation of the city's wastewater collection system.
  http://www.infonor.com.mx/index.php/carbonifera/9/60433-recurren-a-fondos-internacionales-para-rehabilitar-drenaje

No opposition to the Project was identified in the media search, and the articles demonstrated that the public was updated regarding development of the Project and efforts to secure funding to address sewer system rehabilitation needs.